



## Full wwPDB EM Validation Report ⓘ

Nov 19, 2022 – 03:18 pm GMT

PDB ID : 5N61  
EMDB ID : EMD-3593  
Title : RNA polymerase I initially transcribing complex  
Authors : Engel, C.; Gubbey, T.; Neyer, S.; Sainsbury, S.; Oberthuer, C.; Baejen, C.;  
Bernecky, C.; Cramer, P.  
Deposited on : 2017-02-14  
Resolution : 3.40 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

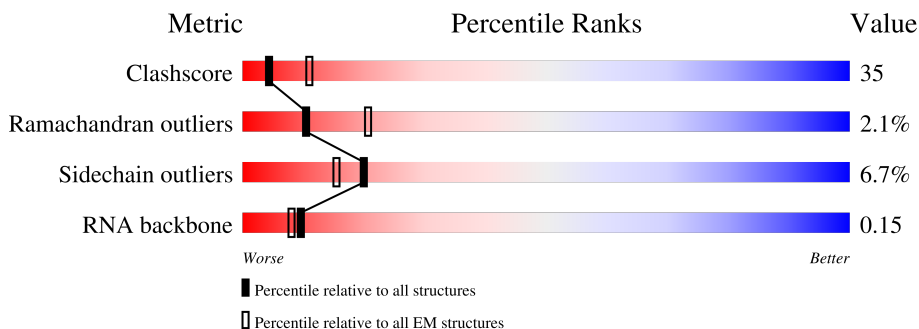
EMDB validation analysis : 0.0.1.dev43  
Mogul : 1.8.4, CSD as541be (2020)  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.40 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.






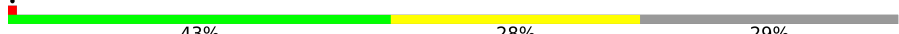
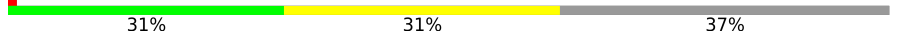


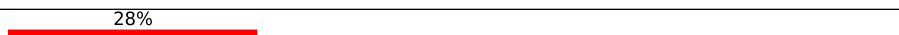
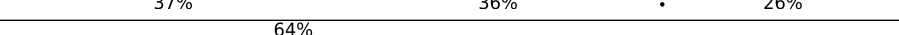





| Metric                | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|--------------------------|--------------------------|
| Clashscore            | 158937                   | 4297                     |
| Ramachandran outliers | 154571                   | 4023                     |
| Sidechain outliers    | 154315                   | 3826                     |
| RNA backbone          | 4643                     | 859                      |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 1664   |                  |
| 2   | B     | 1203   |                  |
| 3   | C     | 335    |                  |
| 4   | D     | 137    |                  |
| 5   | E     | 215    |                  |
| 6   | F     | 155    |                  |
| 7   | G     | 326    |                  |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 8   | H     | 146    |    |
| 9   | I     | 125    |    |
| 10  | J     | 70     |    |
| 11  | K     | 142    |    |
| 12  | L     | 70     |    |
| 13  | M     | 415    |    |
| 14  | N     | 233    |    |
| 15  | O     | 627    |    |
| 16  | P     | 894    |    |
| 17  | Q     | 514    |    |
| 18  | R     | 507    |    |
| 19  | S     | 5      |    |
| 20  | T     | 47     |    |
| 21  | U     | 47     |  |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res  | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 24  | SO4  | B     | 1301 | -         | -        | X       | -                |

## 2 Entry composition [i](#)

There are 24 unique types of molecules in this entry. The entry contains 48547 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called DNA-directed RNA polymerase I subunit RPA190.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
|     |       |          | Total | C    | N    | O    | S  |         |       |
| 1   | A     | 1459     | 11526 | 7281 | 2004 | 2180 | 61 | 0       | 0     |

- Molecule 2 is a protein called DNA-directed RNA polymerase I subunit RPA135.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
|     |       |          | Total | C    | N    | O    | S  |         |       |
| 2   | B     | 1177     | 9350  | 5913 | 1639 | 1747 | 51 | 0       | 0     |

- Molecule 3 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
|     |       |          | Total | C    | N   | O   | S |         |       |
| 3   | C     | 305      | 2423  | 1539 | 416 | 460 | 8 | 0       | 0     |

- Molecule 4 is a protein called DNA-directed RNA polymerase I subunit RPA14.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
|     |       |          | Total | C   | N  | O  |         |       |
| 4   | D     | 54       | 431   | 270 | 73 | 88 | 0       | 0     |

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |       |
| 5   | E     | 212      | 1735  | 1102 | 306 | 316 | 11 | 0       | 0     |

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 6   | F     | 100      | 823   | 522 | 144 | 154 | 3 | 0       | 0     |

- Molecule 7 is a protein called DNA-directed RNA polymerase I subunit RPA43.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 7   | G     | 193      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1526  | 985 | 262 | 274 | 5 |         |       |

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 8   | H     | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1052  | 664 | 176 | 208 | 4 |         |       |

- Molecule 9 is a protein called DNA-directed RNA polymerase I subunit RPA12.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
|     |       |          | Total | C   | N  | O  | S |         |       |
| 9   | I     | 63       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 466   | 292 | 77 | 93 | 4 |         |       |

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 10  | J     | 69       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 569   | 362 | 101 | 100 | 6 |         |       |

- Molecule 11 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 11  | K     | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 793   | 496 | 130 | 162 | 5 |         |       |

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
|     |       |          | Total | C   | N  | O  | S |         |       |
| 12  | L     | 44       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 352   | 217 | 70 | 61 | 4 |         |       |

- Molecule 13 is a protein called DNA-directed RNA polymerase I subunit RPA49.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
|     |       |          | Total | C   | N   | O   |         |       |
| 13  | M     | 108      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 856   | 543 | 142 | 171 |         |       |

- Molecule 14 is a protein called DNA-directed RNA polymerase I subunit RPA34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | N     | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1029  | 665 | 170 | 191 | 3 |         |       |

- Molecule 15 is a protein called RNA polymerase I-specific transcription initiation factor RRN3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 15  | O     | 463      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3811  | 2473 | 623 | 694 | 21 |         |       |

- Molecule 16 is a protein called RNA polymerase I-specific transcription initiation factor RRN6.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 16  | P     | 587      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 4764  | 3030 | 811 | 912 | 11 |         |       |

- Molecule 17 is a protein called RNA polymerase I-specific transcription initiation factor RRN7.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 17  | Q     | 389      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3254  | 2110 | 552 | 572 | 20 |         |       |

- Molecule 18 is a protein called RNA polymerase I-specific transcription initiation factor RRN11.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 18  | R     | 303      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2535  | 1634 | 456 | 434 | 11 |         |       |

- Molecule 19 is a RNA chain called product RNA.

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
| 19  | S     | 5        | Total | C  | N  | O  | P | 0       | 0     |
|     |       |          | 108   | 48 | 21 | 34 | 5 |         |       |

- Molecule 20 is a DNA chain called template DNA.

| Mol | Chain | Residues | Atoms |     |    |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|-----|----|---------|-------|
| 20  | T     | 41       | Total | C   | N  | O   | P  | 0       | 0     |
|     |       |          | 641   | 304 | 66 | 231 | 40 |         |       |

- Molecule 21 is a DNA chain called non-template DNA.

| Mol | Chain | Residues | Atoms |     |    |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|-----|----|---------|-------|
|     |       |          | Total | C   | N  | O   | P  |         |       |
| 21  | U     | 33       | 490   | 228 | 55 | 174 | 33 | 0       | 0     |

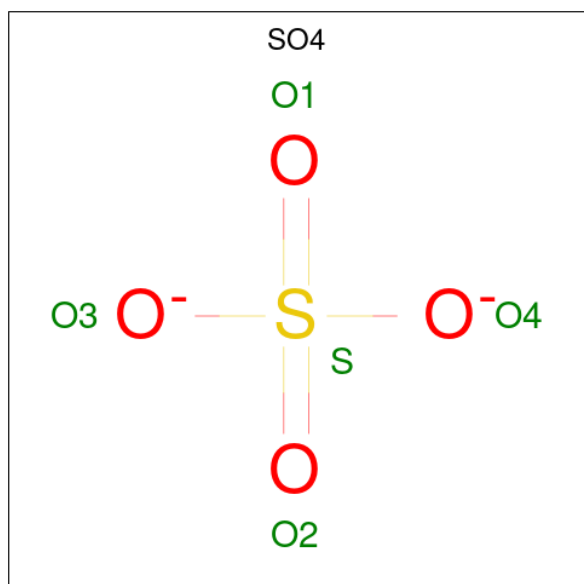
- Molecule 22 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 22  | A     | 2        | Total | Zn | 0       |
|     |       |          | 2     | 2  |         |
| 22  | B     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 22  | I     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 22  | J     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 22  | L     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 22  | Q     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

- Molecule 23 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 23  | A     | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |

- Molecule 24 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



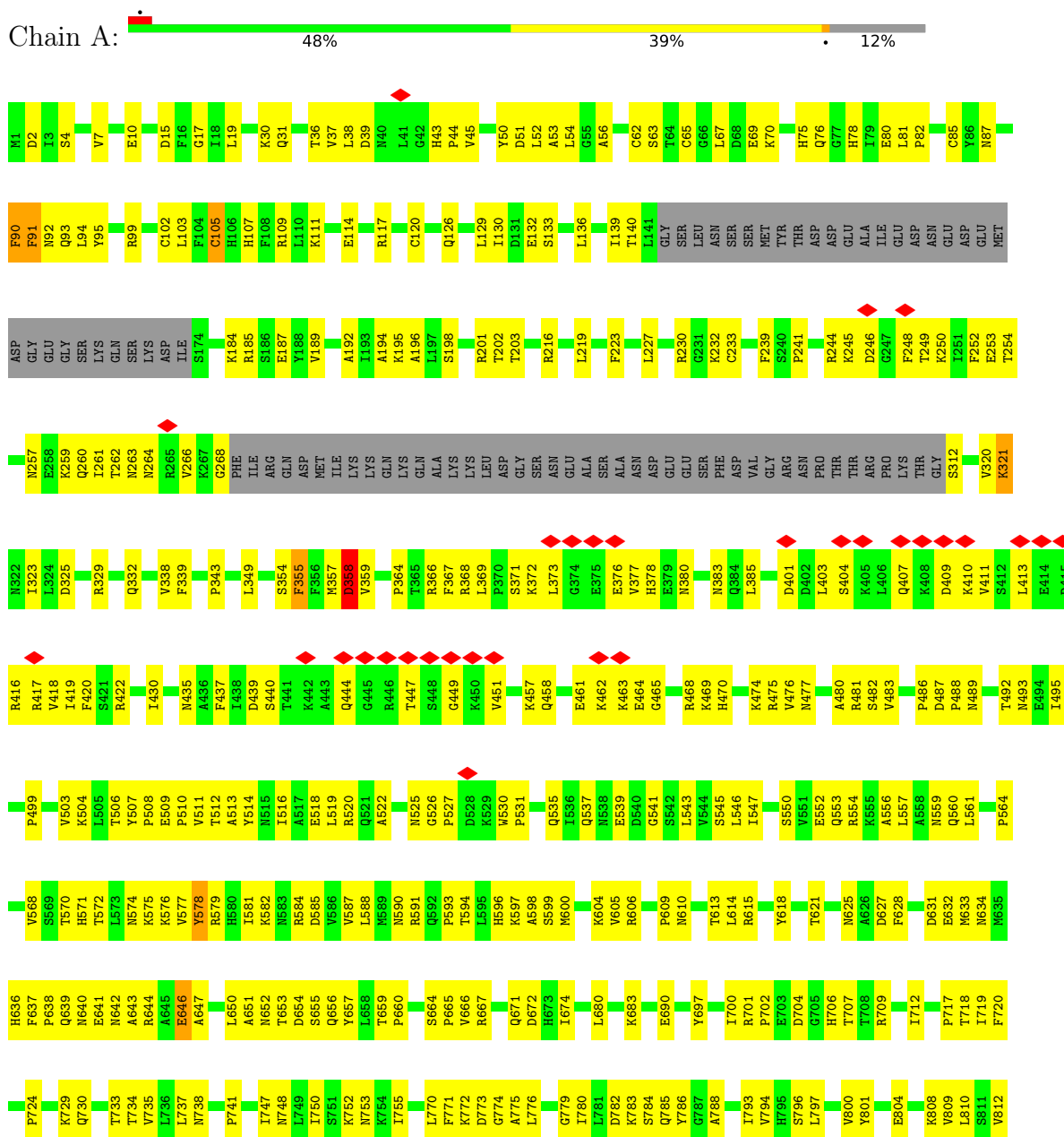
| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
|     |       |          | Total | O | S |         |
| 24  | B     | 1        | 5     | 4 | 1 | 0       |

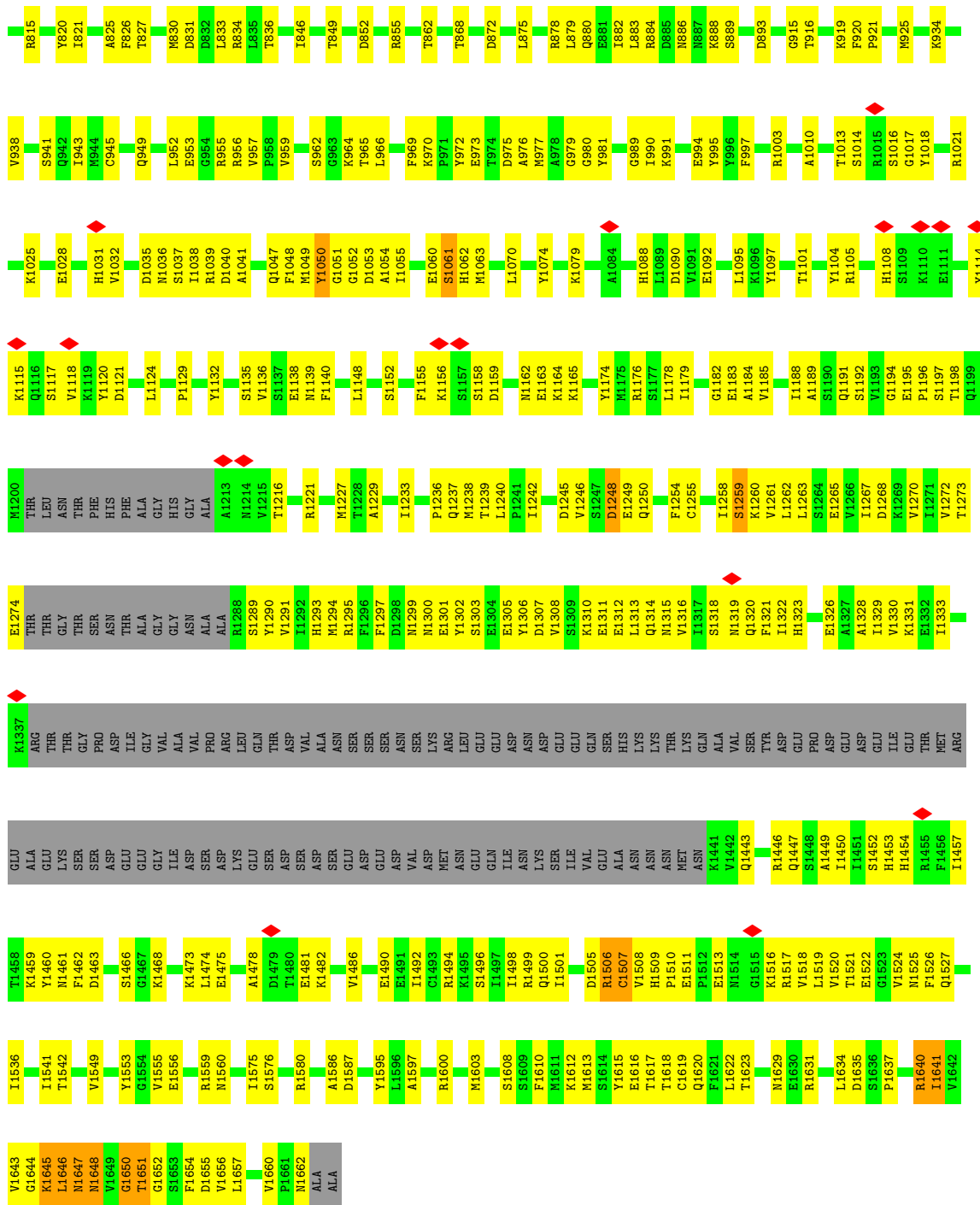


### 3 Residue-property plots [i](#)

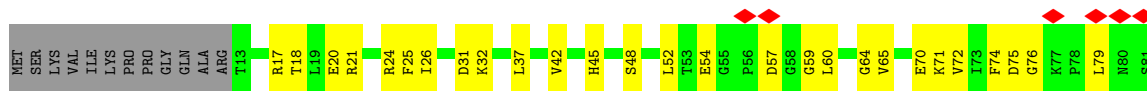
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

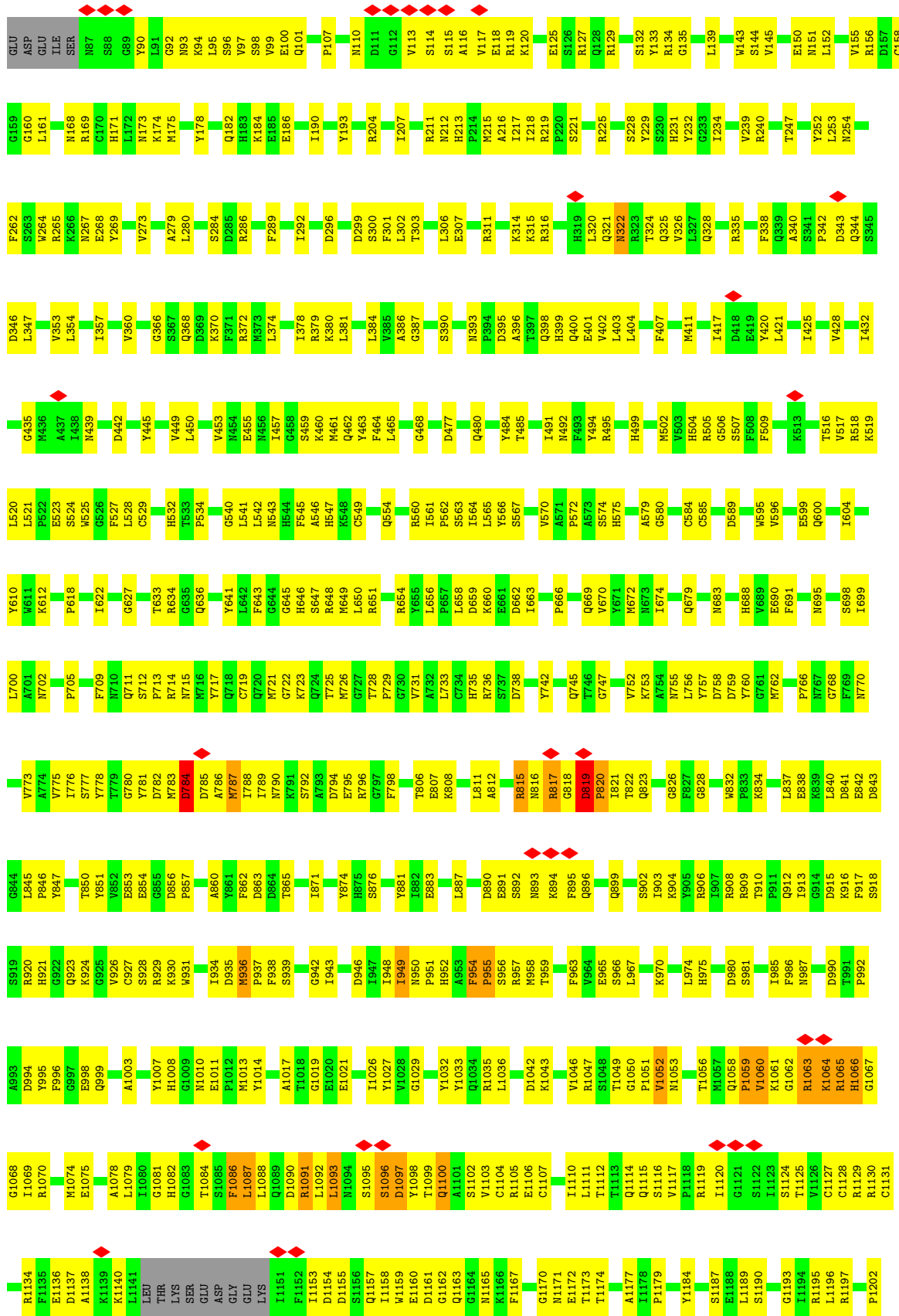
#### • Molecule 1: DNA-directed RNA polymerase I subunit RPA190





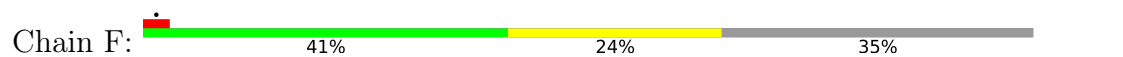
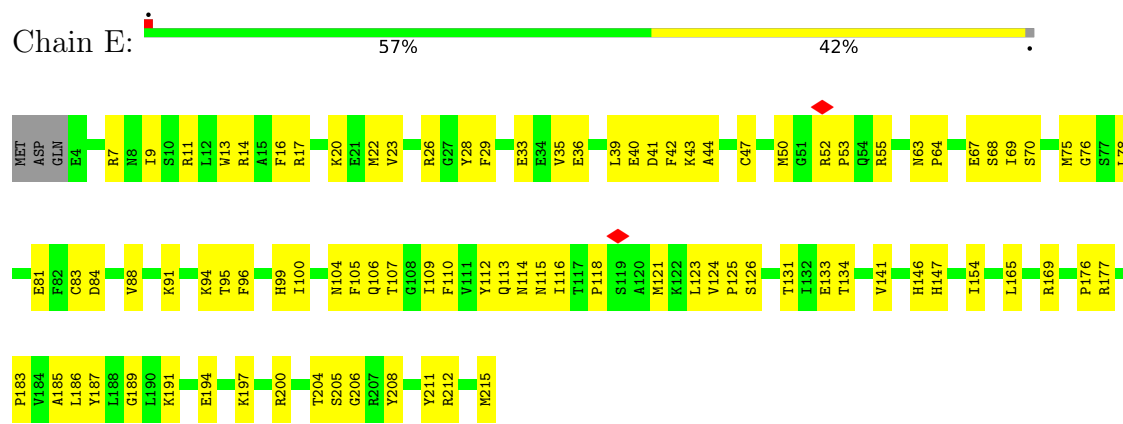
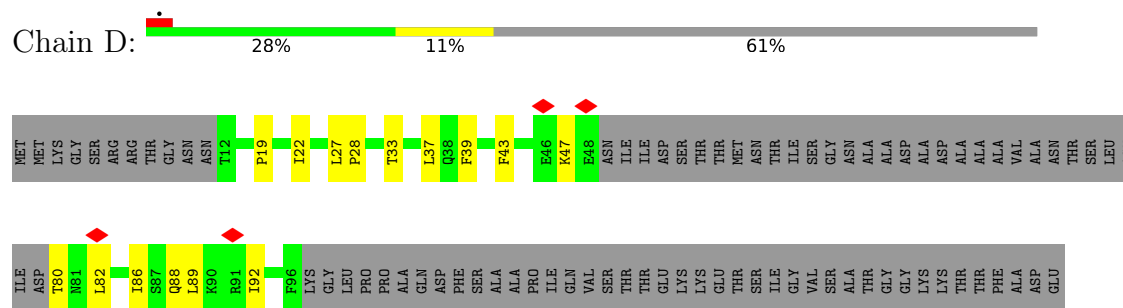
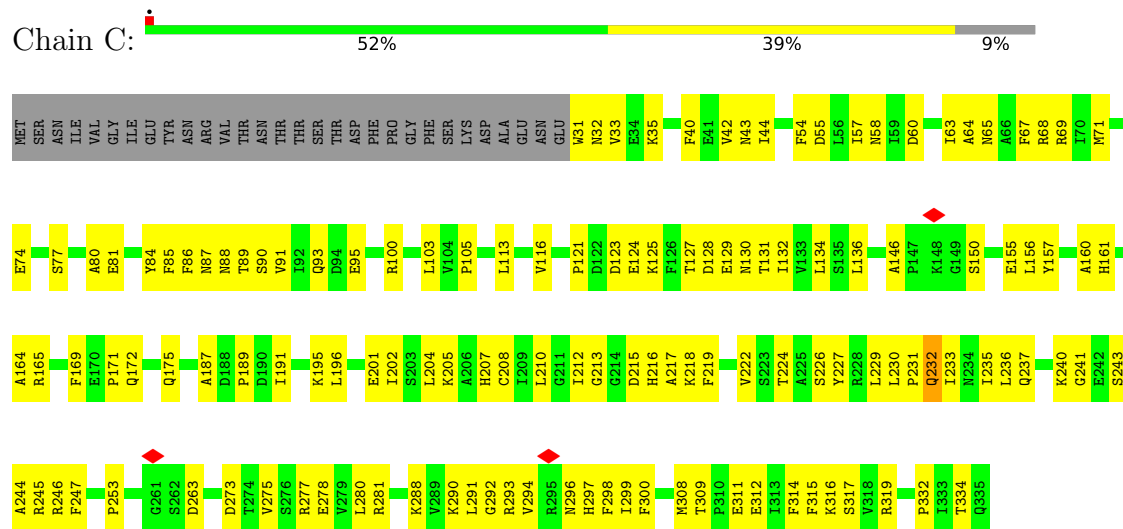
● Molecule 2: DNA-directed RNA polymerase I subunit RPA135





**K1203**

• Molecule 3: DNA-directed RNA polymerases I and III subunit RPAC1







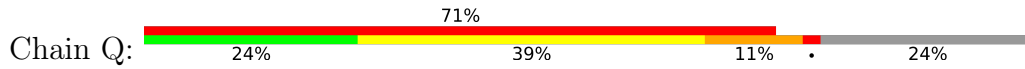






|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| L662 | L663 | E664 | N665 | S666 | S667 | S668 | F669 | A670 | A671 | I672 | P673 | E674 | F675 | S676 | S677 | L678 | L679 | D680 | Q681 | F682 | F683 | Q684 | Y685 | Y686 | Q687 | D688 | Q689 | D690 | V691 | T692 | F693 | I694 | G695 | F696 | E697 | K698 | L699 | L700 | H701 | L702 | F703 | L704 | H705 | E706 | D707 | V708 | P709 | G710 | L711 | D712 | I713 | F714 | Y715 | N716 | K717 | L718 | L719 | Q720 | C721 |     |     |     |     |
| W722 | V723 | L724 | V725 | S726 | P727 | Q728 | A729 | E730 | L731 | L732 | T733 | K734 | E735 | I736 | V737 | K738 | D739 | I740 | I741 | W742 | S743 | L744 | A745 | R746 | E747 | E748 | K749 | P750 | L752 | F753 | E754 | G755 | I756 | Q757 | N758 | E759 | I760 | S761 | R762 | S763 | L764 | S765 | G766 | P767 | Y768 | Q769 | D770 | I771 | I772 | S773 | S774 | W775 | D776 | M777 | D778 | L779 | I780 | ASX  |      |     |     |     |     |
| GLU  | GLU  | ASP  | GLU  | SER  | ASN  | GLU  | PHE  | ASN  | VAL  | LEU  | PHE  | ASP  | PRO  | GLN  | SER  | PHE  | ALA  | PRO  | ALA  | PRO  | PHE  | THR  | THR  | GLY  | ARG  | MET  | LEU  | GLN  | PRO  | PRO  | PRO  | PHE  | ASN  | SER  | LEU  | ASN  | LEU  | ASN  | ASN  | ILE  | SER  | GLN  | GLN  | GLN  | GLY  | ALA  | ALA  | GLY  | LEU  | LEU  | ARG  | THR  | THR  | GLN  | SER  | GLN  | GLN  | LYS  | LYS  | VAL | THR | PRO | LEU |
| SER  | GLN  | SER  | THR  | GLN  | ASN  | GLU  | SER  | VAL  | LEU  | PRO  | PRO  | ASP  | PHE  | THR  | THR  | MET  | THR  | THR  | PRO  | ALA  | ALA  | PRO  | PHE  | THR  | THR  | MET  | LEU  | GLN  | PRO  | PRO  | PRO  | PHE  | ASN  | SER  | LEU  | ASN  | LEU  | ASN  | ILE  | SER  | GLN  | GLN  | GLN  | GLY  | ALA  | ALA  | GLY  | LEU  | LEU  | ARG  | THR  | THR  | GLN  | SER  | GLN  | GLN  | LYS  | LYS  | VAL  | THR | PRO | LEU |     |
| SER  | GLN  | SER  | THR  | GLN  | ASN  | GLU  | SER  | VAL  | LEU  | PRO  | PRO  | ASP  | PHE  | THR  | THR  | MET  | THR  | THR  | PRO  | ALA  | ALA  | PRO  | PHE  | THR  | THR  | MET  | LEU  | GLN  | PRO  | PRO  | PRO  | PHE  | ASN  | SER  | LEU  | ASN  | LEU  | ASN  | ILE  | SER  | GLN  | GLN  | GLN  | GLY  | ALA  | ALA  | GLY  | LEU  | LEU  | ARG  | THR  | THR  | GLN  | SER  | GLN  | GLN  | LYS  | LYS  | VAL  | THR | PRO | LEU |     |

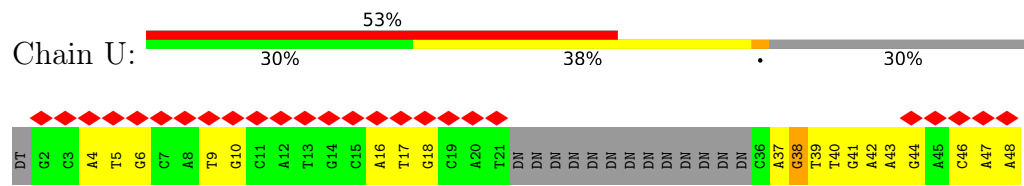
● Molecule 17: RNA polymerase I-specific transcription initiation factor RRN7



|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MET  | SER  | T3   | F4   | I5   | R6   | G7   | P8   | I9   | C10  | G11  | T12  | D13  | N14  | C15  | P16  | S17  | R18  | L19  | W20  | R21  | I22  | I23  | D24  | G25  | R26  | R27  | T28  | C29  | Q30  | Y31  | G32  | H33  | V34  | P35  | GLU  | ASP  | GLY  | VAL  | GLU  | PHE  | ASN  | ASP  | ASP  | GLU  | ASP  | ASP  | ASP  | LEU  | ASN  | ASN  | GLY  | GLY  | LEU  | LEU  | ALA  | ALA  | VAL  | THR  | ARG  | ARG  | LEU  |      |
| ASX  | LEU  | THR  | THR  | ASN  | ALA  | THR  | GLY  | SER  | PHE  | GLN  | SER  | GLN  | GLN  | THR  | THR  | ASN  | SER  | GLN  | LEU  | GLN  | GLN  | GLN  | ARG  | GLN  | HIS  | LYS  | LYS  | PHE  | LYS  | K94  | L95  | I96  | G97  | H98  | E99  | A100 | K101 | L102 | L103 | F104 | L105 | K106 | S107 | F108 | Q109 | F110 | L111 | L112 | K113 | R114 | Q115 | I116 | R117 | W118 | L119 | I120 |      |      |      |      |      |      |
| THR  | THR  | ASN  | ALA  | THR  | GLY  | SER  | PHE  | GLN  | SER  | GLN  | GLN  | THR  | THR  | ASN  | SER  | GLN  | LEU  | GLN  | GLN  | GLN  | ARG  | GLN  | HIS  | LYS  | LYS  | PHE  | LYS  | K94  | L95  | I96  | G97  | H98  | E99  | A100 | K101 | L102 | L103 | F104 | L105 | K106 | S107 | F108 | Q109 | F110 | L111 | L112 | K113 | R114 | Q115 | I116 | R117 | W118 | L119 | I120 |      |      |      |      |      |      |      |      |
| THR  | THR  | ASN  | ALA  | THR  | GLY  | SER  | PHE  | GLN  | SER  | GLN  | GLN  | THR  | THR  | ASN  | SER  | GLN  | LEU  | GLN  | GLN  | GLN  | ARG  | GLN  | HIS  | LYS  | LYS  | PHE  | LYS  | K94  | L95  | I96  | G97  | H98  | E99  | A100 | K101 | L102 | L103 | F104 | L105 | K106 | S107 | F108 | Q109 | F110 | L111 | L112 | K113 | R114 | Q115 | I116 | R117 | W118 | L119 | I120 |      |      |      |      |      |      |      |      |
| T121 | E122 | M123 | R124 | F125 | P126 | K127 | E128 | F129 | G130 | H131 | V132 | A133 | K134 | I135 | I136 | W137 | L138 | K139 | I140 | L141 | L142 | T143 | I144 | G145 | D146 | Q147 | P148 | I149 | E150 | E151 | L152 | K153 | L154 | Q155 | L156 | H157 | M158 | T159 | S160 | T161 | I162 | S163 | I164 | L165 | Y166 | L167 | A168 | S169 | T170 | H171 | L172 | S173 | F239 | K240 |      |      |      |      |      |      |      |      |
| Y181 | I182 | K183 | W184 | I185 | C186 | T187 | A188 | K189 | M190 | P191 | Y192 | F193 | Q194 | A195 | S196 | E197 | L198 | L199 | PRO  | LYS  | SER  | TRP  | ARG  | ILE  | GLN  | LEU  | PRO  | TYR  | TYR  | VAL  | SER  | ILE  | LEU  | GLU  | GLY  | SER  | ILE  | SER  | PRO  | PHE  | ASN  | GLY  | Q225 | L226 | Y227 | M228 | K229 | L230 | A231 | L232 | T233 | C234 | G235 | M236 | T237 | H238 | F239 | K240 |      |      |      |      |
| E241 | F242 | F243 | N244 | S245 | E246 | I247 | S248 | C249 | Q250 | G251 | L252 | L253 | L254 | K255 | L256 | V257 | M258 | Q259 | C260 | A261 | P262 | P263 | P264 | E265 | E266 | Y267 | F268 | Y269 | T270 | K271 | Q272 | V273 | I274 | E275 | F276 | E277 | E278 | T279 | D280 | I281 | R282 | N283 | L284 | T285 | W286 | W287 | E288 | R289 | T290 | D291 | E292 | A293 | H294 | T295 | G296 | R297 | S298 | S299 | N300 |      |      |      |
| H301 | A302 | E303 | L304 | R305 | V306 | L307 | S308 | Y309 | F310 | M311 | L312 | Q313 | I314 | M315 | W316 | M317 | L318 | S319 | F320 | D321 | R322 | D323 | R324 | Q325 | F326 | P327 | L328 | K329 | W330 | I331 | L332 | S333 | L334 | T335 | E336 | S337 | L338 | T339 | Q340 | R341 | T342 | T343 | T344 | I408 | A409 | R410 | S411 | K412 | L413 | Y414 | K415 | I416 | P417 | R418 | L419 | D420 |      |      |      |      |      |      |
| P361 | T362 | S363 | S364 | D365 | Y366 | F367 | Q368 | W369 | S370 | E371 | E372 | Q373 | T374 | L375 | E376 | F377 | L378 | K379 | W380 | M381 | E382 | K383 | Q384 | F385 | L386 | P387 | Q388 | T389 | L390 | LYS  | SER  | LEU  | HIS  | ASN  | ASN  | ILE  | ARG  | ASP  | GLY  | SER  | MET  | GLU  | MET  | THR  | ILE  | D405 | Q406 | K407 | I408 | A409 | R410 | S411 | K412 | L413 | Y414 | K415 | I416 | P417 | R418 | L419 | D420 |      |
| ARG  | GLU  | ALA  | ASN  | HIS  | ASP  | GLY  | PHE  | ASN  | ASN  | ASP  | S432 | T433 | H434 | Q435 | L436 | T437 | F438 | I439 | E440 | D441 | L442 | Q443 | E444 | R445 | Y446 | A447 | K448 | Q449 | T450 | P451 | F452 | F453 | GLU  | SER  | LYS  | ASN  | ILE  | ARG  | ASP  | GLY  | SER  | MET  | GLU  | MET  | THR  | ILE  | D405 | Q406 | K407 | I408 | A409 | R410 | S411 | K412 | L413 | Y414 | K415 | I416 | P417 | R418 | L419 | D420 |
| T481 | H482 | I483 | A484 | S485 | Q486 | L487 | L488 | D489 | V490 | F491 | A492 | I493 | S494 | K495 | E496 | Q497 | L498 | K499 | D500 | C501 | I502 | S503 | R504 | I505 | K506 | L507 | A508 | C509 | L510 | H511 | R512 | M513 | M514 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

● Molecule 18: RNA polymerase I-specific transcription initiation factor RRN11





## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|---|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 345000                                  | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TITAN KRIOS                         | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 60                                      | Depositor |
| Minimum defocus (nm)                 | Not provided                            |           |
| Maximum defocus (nm)                 | Not provided                            |           |
| Magnification                        | Not provided                            |           |
| Image detector                       | FEI FALCON II (4k x 4k)                 | Depositor |
| Maximum map value                    | 0.407                                   | Depositor |
| Minimum map value                    | -0.199                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.012                                   | Depositor |
| Recommended contour level            | 0.065                                   | Depositor |
| Map size ( $\text{\AA}$ )            | 372.9, 372.9, 372.9                     | wwPDB     |
| Map dimensions                       | 330, 330, 330                           | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 1.13, 1.13, 1.13                        | Depositor |

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, SO4, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |                | Bond angles |                 |
|-----|-------|--------------|----------------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5        | RMSZ        | # Z  >5         |
| 1   | A     | 0.48         | 0/11738        | 0.53        | 0/15851         |
| 2   | B     | 0.52         | 0/9557         | 0.59        | 1/12918 (0.0%)  |
| 3   | C     | 0.53         | 0/2475         | 0.54        | 0/3354          |
| 4   | D     | 0.36         | 0/436          | 0.45        | 0/591           |
| 5   | E     | 0.45         | 0/1771         | 0.49        | 0/2383          |
| 6   | F     | 0.49         | 0/838          | 0.54        | 0/1129          |
| 7   | G     | 0.42         | 0/1564         | 0.51        | 1/2127 (0.0%)   |
| 8   | H     | 0.54         | 0/1070         | 0.55        | 0/1449          |
| 9   | I     | 0.38         | 0/472          | 0.56        | 0/639           |
| 10  | J     | 0.56         | 0/578          | 0.57        | 0/775           |
| 11  | K     | 0.53         | 0/804          | 0.55        | 0/1083          |
| 12  | L     | 0.52         | 0/354          | 0.57        | 0/468           |
| 13  | M     | 0.41         | 0/872          | 0.51        | 0/1170          |
| 14  | N     | 0.35         | 0/1049         | 0.50        | 0/1411          |
| 15  | O     | 0.34         | 0/3897         | 0.44        | 0/5268          |
| 16  | P     | 0.61         | 1/4857 (0.0%)  | 0.88        | 12/6572 (0.2%)  |
| 17  | Q     | 0.65         | 2/3330 (0.1%)  | 0.91        | 9/4492 (0.2%)   |
| 18  | R     | 0.52         | 0/2591         | 0.75        | 2/3483 (0.1%)   |
| 19  | S     | 0.28         | 0/120          | 0.61        | 0/185           |
| 20  | T     | 0.53         | 0/707          | 0.83        | 0/1076          |
| 21  | U     | 0.67         | 1/543 (0.2%)   | 0.95        | 0/823           |
| All | All   | 0.51         | 4/49623 (0.0%) | 0.63        | 25/67247 (0.0%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 16  | P     | 0                   | 18                  |
| 17  | Q     | 0                   | 11                  |

*Continued on next page...*

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 18  | R     | 0                   | 10                  |
| All | All   | 0                   | 39                  |

All (4) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 17  | Q     | 323 | ASP  | C-N    | 19.90 | 1.79        | 1.34     |
| 17  | Q     | 356 | VAL  | C-N    | -7.09 | 1.17        | 1.34     |
| 21  | U     | 38  | DG   | C1'-N9 | -6.35 | 1.38        | 1.47     |
| 16  | P     | 247 | ILE  | C-N    | 5.97  | 1.45        | 1.34     |

All (25) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 2   | B     | 819 | ASP  | C-N-CD    | -28.25 | 58.44       | 120.60   |
| 17  | Q     | 323 | ASP  | O-C-N     | 21.78  | 157.54      | 122.70   |
| 17  | Q     | 323 | ASP  | CA-C-N    | -17.00 | 79.80       | 117.20   |
| 17  | Q     | 7   | GLY  | C-N-CD    | -15.29 | 86.97       | 120.60   |
| 17  | Q     | 323 | ASP  | C-N-CA    | -14.08 | 86.50       | 121.70   |
| 16  | P     | 431 | ASP  | C-N-CD    | -8.77  | 101.30      | 120.60   |
| 16  | P     | 747 | LEU  | CA-CB-CG  | 8.59   | 135.06      | 115.30   |
| 17  | Q     | 119 | LEU  | CA-CB-CG  | 7.56   | 132.69      | 115.30   |
| 16  | P     | 443 | ASP  | CB-CG-OD1 | 6.52   | 124.17      | 118.30   |
| 17  | Q     | 226 | LEU  | CA-CB-CG  | -6.43  | 100.51      | 115.30   |
| 17  | Q     | 419 | LEU  | CA-CB-CG  | 6.25   | 129.67      | 115.30   |
| 17  | Q     | 338 | LEU  | CA-CB-CG  | 5.67   | 128.33      | 115.30   |
| 16  | P     | 347 | LEU  | CA-CB-CG  | 5.64   | 128.28      | 115.30   |
| 18  | R     | 198 | LEU  | CA-CB-CG  | 5.57   | 128.11      | 115.30   |
| 16  | P     | 214 | LEU  | CA-CB-CG  | 5.47   | 127.88      | 115.30   |
| 18  | R     | 178 | LEU  | CA-CB-CG  | 5.45   | 127.83      | 115.30   |
| 16  | P     | 415 | LEU  | CA-CB-CG  | 5.35   | 127.60      | 115.30   |
| 16  | P     | 431 | ASP  | C-N-CA    | 5.24   | 144.01      | 122.00   |
| 16  | P     | 64  | LEU  | CA-CB-CG  | 5.23   | 127.33      | 115.30   |
| 16  | P     | 498 | LEU  | CA-CB-CG  | 5.21   | 127.28      | 115.30   |
| 7   | G     | 222 | GLY  | C-N-CA    | -5.13  | 108.86      | 121.70   |
| 16  | P     | 498 | LEU  | CB-CG-CD2 | 5.12   | 119.70      | 111.00   |
| 17  | Q     | 286 | LEU  | CA-CB-CG  | 5.10   | 127.04      | 115.30   |
| 16  | P     | 347 | LEU  | CB-CG-CD1 | 5.04   | 119.56      | 111.00   |
| 16  | P     | 731 | LEU  | CA-CB-CG  | 5.03   | 126.87      | 115.30   |

There are no chirality outliers.

All (39) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 16  | P     | 218 | VAL  | Peptide |
| 16  | P     | 234 | THR  | Peptide |
| 16  | P     | 247 | ILE  | Peptide |
| 16  | P     | 256 | ARG  | Peptide |
| 16  | P     | 258 | SER  | Peptide |
| 16  | P     | 331 | LYS  | Peptide |
| 16  | P     | 333 | PHE  | Peptide |
| 16  | P     | 386 | MET  | Peptide |
| 16  | P     | 396 | ALA  | Peptide |
| 16  | P     | 432 | PRO  | Peptide |
| 16  | P     | 442 | LEU  | Peptide |
| 16  | P     | 498 | LEU  | Peptide |
| 16  | P     | 661 | ASN  | Peptide |
| 16  | P     | 666 | SER  | Peptide |
| 16  | P     | 667 | ASP  | Peptide |
| 16  | P     | 688 | ASP  | Peptide |
| 16  | P     | 727 | PRO  | Peptide |
| 16  | P     | 767 | PRO  | Peptide |
| 17  | Q     | 15  | CYS  | Peptide |
| 17  | Q     | 17  | SER  | Peptide |
| 17  | Q     | 194 | GLN  | Peptide |
| 17  | Q     | 25  | GLY  | Peptide |
| 17  | Q     | 285 | THR  | Peptide |
| 17  | Q     | 287 | TRP  | Peptide |
| 17  | Q     | 29  | CYS  | Peptide |
| 17  | Q     | 298 | VAL  | Peptide |
| 17  | Q     | 385 | PHE  | Peptide |
| 17  | Q     | 4   | PHE  | Peptide |
| 17  | Q     | 417 | PHE  | Peptide |
| 18  | R     | 10  | ASN  | Peptide |
| 18  | R     | 149 | LYS  | Peptide |
| 18  | R     | 294 | VAL  | Peptide |
| 18  | R     | 295 | PRO  | Peptide |
| 18  | R     | 303 | THR  | Peptide |
| 18  | R     | 304 | HIS  | Peptide |
| 18  | R     | 352 | TRP  | Peptide |
| 18  | R     | 357 | PRO  | Peptide |
| 18  | R     | 424 | PHE  | Peptide |
| 18  | R     | 426 | VAL  | Peptide |

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 11526 | 0        | 11612    | 862     | 0            |
| 2   | B     | 9350  | 0        | 9231     | 839     | 0            |
| 3   | C     | 2423  | 0        | 2412     | 122     | 0            |
| 4   | D     | 431   | 0        | 428      | 16      | 0            |
| 5   | E     | 1735  | 0        | 1764     | 70      | 0            |
| 6   | F     | 823   | 0        | 841      | 52      | 0            |
| 7   | G     | 1526  | 0        | 1540     | 73      | 0            |
| 8   | H     | 1052  | 0        | 1021     | 42      | 0            |
| 9   | I     | 466   | 0        | 466      | 55      | 0            |
| 10  | J     | 569   | 0        | 585      | 45      | 0            |
| 11  | K     | 793   | 0        | 790      | 41      | 0            |
| 12  | L     | 352   | 0        | 375      | 22      | 0            |
| 13  | M     | 856   | 0        | 855      | 46      | 0            |
| 14  | N     | 1029  | 0        | 1061     | 57      | 0            |
| 15  | O     | 3811  | 0        | 3802     | 243     | 0            |
| 16  | P     | 4764  | 0        | 4711     | 528     | 0            |
| 17  | Q     | 3254  | 0        | 3296     | 484     | 0            |
| 18  | R     | 2535  | 0        | 2594     | 459     | 0            |
| 19  | S     | 108   | 0        | 53       | 19      | 0            |
| 20  | T     | 641   | 0        | 362      | 130     | 0            |
| 21  | U     | 490   | 0        | 267      | 45      | 0            |
| 22  | A     | 2     | 0        | 0        | 0       | 0            |
| 22  | B     | 1     | 0        | 0        | 0       | 0            |
| 22  | I     | 1     | 0        | 0        | 0       | 0            |
| 22  | J     | 1     | 0        | 0        | 0       | 0            |
| 22  | L     | 1     | 0        | 0        | 0       | 0            |
| 22  | Q     | 1     | 0        | 0        | 0       | 0            |
| 23  | A     | 1     | 0        | 0        | 0       | 0            |
| 24  | B     | 5     | 0        | 0        | 2       | 0            |
| All | All   | 48547 | 0        | 48066    | 3403    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 35.

All (3403) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.



| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:20:TRP:CZ3   | 17:Q:22:ILE:CG2   | 1.76                     | 1.66              |
| 2:B:116:ALA:H     | 18:R:282:SER:CB   | 1.05                     | 1.65              |
| 17:Q:12:THR:HG21  | 17:Q:33:HIS:CE1   | 1.12                     | 1.62              |
| 16:P:725:VAL:HG21 | 17:Q:446:TYR:CD1  | 1.14                     | 1.60              |
| 17:Q:356:VAL:HG21 | 18:R:208:TYR:CD2  | 1.09                     | 1.59              |
| 17:Q:356:VAL:CG2  | 18:R:208:TYR:CD2  | 1.85                     | 1.58              |
| 17:Q:356:VAL:HG21 | 18:R:208:TYR:CE2  | 1.05                     | 1.55              |
| 17:Q:12:THR:CG2   | 17:Q:33:HIS:HE1   | 1.10                     | 1.53              |
| 17:Q:20:TRP:HZ3   | 17:Q:22:ILE:CG2   | 1.10                     | 1.53              |
| 1:A:672:ASP:H     | 2:B:783:MET:CE    | 1.21                     | 1.50              |
| 17:Q:356:VAL:HG11 | 18:R:208:TYR:CD1  | 1.43                     | 1.50              |
| 17:Q:366:TYR:CD1  | 18:R:215:THR:HG23 | 1.43                     | 1.49              |
| 2:B:815:ARG:NH2   | 2:B:821:ILE:CG1   | 1.72                     | 1.48              |
| 1:A:474:LYS:HD3   | 2:B:1096:SER:CB   | 1.39                     | 1.47              |
| 2:B:101:GLN:NE2   | 18:R:359:MET:HE1  | 1.17                     | 1.47              |
| 2:B:1084:THR:O    | 2:B:1088:LEU:CG   | 1.64                     | 1.45              |
| 2:B:116:ALA:H     | 18:R:282:SER:CA   | 1.28                     | 1.44              |
| 1:A:628:PHE:HD2   | 2:B:784:ASP:CB    | 1.32                     | 1.43              |
| 1:A:1018:TYR:CD1  | 20:T:16:DT:H5''   | 1.55                     | 1.42              |
| 1:A:1014:SER:HA   | 20:T:17:DT:C6     | 1.54                     | 1.41              |
| 2:B:117:VAL:CG2   | 18:R:276:GLN:HG3  | 1.49                     | 1.39              |
| 1:A:1238:MET:CB   | 1:A:1521:THR:OG1  | 1.68                     | 1.39              |
| 15:O:492:ARG:CG   | 15:O:496:GLY:HA2  | 1.50                     | 1.38              |
| 1:A:1654:PHE:CZ   | 6:F:89:GLU:HA     | 1.58                     | 1.38              |
| 17:Q:386:LEU:HA   | 18:R:241:ARG:NH2  | 1.10                     | 1.38              |
| 17:Q:186:CYS:HB3  | 18:R:208:TYR:CE2  | 1.60                     | 1.36              |
| 1:A:672:ASP:OD1   | 2:B:952:HIS:CD2   | 1.79                     | 1.36              |
| 1:A:1018:TYR:CE1  | 20:T:16:DT:OP1    | 1.78                     | 1.36              |
| 1:A:672:ASP:N     | 2:B:783:MET:CE    | 1.83                     | 1.34              |
| 1:A:651:ALA:CB    | 2:B:1084:THR:HG23 | 1.54                     | 1.34              |
| 17:Q:356:VAL:CG2  | 18:R:208:TYR:CE2  | 1.95                     | 1.33              |
| 17:Q:360:LYS:NZ   | 18:R:211:ARG:HH22 | 1.24                     | 1.33              |
| 1:A:651:ALA:HB3   | 2:B:1084:THR:CG2  | 1.56                     | 1.32              |
| 19:S:5:G:N2       | 20:T:19:DC:O2     | 1.60                     | 1.32              |
| 17:Q:323:ASP:C    | 17:Q:324:ARG:N    | 1.79                     | 1.31              |
| 2:B:931:TRP:HB3   | 2:B:936:MET:CE    | 1.61                     | 1.31              |
| 16:P:389:TRP:HZ2  | 18:R:146:SER:C    | 1.32                     | 1.31              |
| 16:P:725:VAL:CG2  | 17:Q:446:TYR:CD1  | 2.11                     | 1.31              |
| 1:A:1238:MET:HB2  | 1:A:1521:THR:OG1  | 1.12                     | 1.30              |
| 17:Q:26:ARG:HB3   | 17:Q:34:VAL:CG1   | 1.61                     | 1.29              |
| 17:Q:356:VAL:HG11 | 18:R:208:TYR:CE1  | 1.69                     | 1.28              |
| 1:A:474:LYS:CD    | 2:B:1096:SER:CB   | 2.10                     | 1.27              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:628:PHE:CD2   | 2:B:784:ASP:HB2   | 1.68                     | 1.27              |
| 20:T:4:DG:N2      | 21:U:46:DC:O2     | 1.67                     | 1.27              |
| 2:B:817:ARG:CB    | 21:U:17:DT:H5'    | 1.63                     | 1.26              |
| 2:B:1096:SER:O    | 2:B:1097:ASP:CG   | 1.75                     | 1.25              |
| 1:A:672:ASP:N     | 2:B:783:MET:HE3   | 1.40                     | 1.25              |
| 2:B:101:GLN:NE2   | 18:R:359:MET:CE   | 1.99                     | 1.25              |
| 2:B:116:ALA:N     | 18:R:282:SER:CB   | 1.79                     | 1.24              |
| 1:A:474:LYS:CD    | 2:B:1096:SER:HB3  | 1.69                     | 1.23              |
| 1:A:640:ASN:ND2   | 2:B:1090:ASP:OD2  | 1.71                     | 1.23              |
| 15:O:200:ASN:CB   | 17:Q:14:ASN:HB2   | 1.69                     | 1.23              |
| 1:A:1018:TYR:CE1  | 20:T:16:DT:H5''   | 1.73                     | 1.23              |
| 2:B:113:VAL:CG1   | 20:T:39:DT:H4'    | 1.67                     | 1.22              |
| 17:Q:366:TYR:CG   | 18:R:215:THR:HG23 | 1.73                     | 1.22              |
| 2:B:894:LYS:HE3   | 17:Q:405:ASP:OD2  | 1.35                     | 1.22              |
| 2:B:1079:LEU:CD2  | 2:B:1088:LEU:HB3  | 1.69                     | 1.22              |
| 17:Q:12:THR:CG2   | 17:Q:33:HIS:CE1   | 1.95                     | 1.22              |
| 2:B:115:SER:O     | 18:R:280:SER:HB2  | 1.38                     | 1.22              |
| 2:B:115:SER:C     | 18:R:280:SER:HB2  | 1.50                     | 1.21              |
| 15:O:200:ASN:CA   | 17:Q:14:ASN:HB2   | 1.69                     | 1.21              |
| 1:A:1018:TYR:HE1  | 20:T:16:DT:OP1    | 0.88                     | 1.20              |
| 16:P:443:ASP:HB3  | 18:R:3:GLU:N      | 1.57                     | 1.20              |
| 16:P:725:VAL:HG21 | 17:Q:446:TYR:CG   | 1.77                     | 1.20              |
| 2:B:1093:LEU:CD1  | 2:B:1098:TYR:HB2  | 1.70                     | 1.20              |
| 17:Q:386:LEU:CA   | 18:R:241:ARG:NH2  | 2.03                     | 1.19              |
| 17:Q:20:TRP:CZ3   | 17:Q:22:ILE:HG23  | 1.48                     | 1.19              |
| 1:A:511:VAL:HG12  | 1:A:575:LYS:O     | 1.04                     | 1.18              |
| 1:A:1238:MET:CA   | 1:A:1521:THR:OG1  | 1.92                     | 1.18              |
| 2:B:117:VAL:HG21  | 18:R:276:GLN:CB   | 1.50                     | 1.18              |
| 16:P:55:LEU:HB3   | 18:R:227:HIS:ND1  | 1.56                     | 1.18              |
| 1:A:70:LYS:NZ     | 17:Q:27:ARG:HH12  | 1.39                     | 1.18              |
| 17:Q:378:LEU:CD1  | 18:R:231:LEU:HD21 | 1.74                     | 1.18              |
| 1:A:511:VAL:CG1   | 1:A:575:LYS:O     | 1.92                     | 1.17              |
| 2:B:817:ARG:CB    | 21:U:17:DT:C5'    | 2.22                     | 1.17              |
| 16:P:389:TRP:NE1  | 18:R:146:SER:HB2  | 1.58                     | 1.17              |
| 17:Q:356:VAL:HG13 | 18:R:212:HIS:CE1  | 1.80                     | 1.17              |
| 2:B:117:VAL:CG2   | 18:R:276:GLN:CG   | 2.23                     | 1.17              |
| 2:B:116:ALA:HB2   | 18:R:282:SER:O    | 1.01                     | 1.16              |
| 2:B:117:VAL:HG21  | 18:R:276:GLN:CG   | 1.75                     | 1.16              |
| 2:B:1078:ALA:O    | 2:B:1082:HIS:N    | 1.75                     | 1.16              |
| 1:A:646:GLU:HG3   | 1:A:650:LEU:HD12  | 1.21                     | 1.16              |
| 1:A:547:ILE:CD1   | 17:Q:26:ARG:HH22  | 1.59                     | 1.15              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:817:ARG:HB3   | 21:U:17:DT:H5'    | 1.20                     | 1.15              |
| 16:P:389:TRP:CE2  | 18:R:146:SER:HB2  | 1.82                     | 1.15              |
| 20:T:9:DC:N4      | 21:U:41:DG:H1     | 1.41                     | 1.15              |
| 16:P:389:TRP:CZ2  | 18:R:146:SER:C    | 2.19                     | 1.15              |
| 20:T:9:DC:N4      | 21:U:41:DG:N1     | 1.92                     | 1.15              |
| 2:B:1079:LEU:HD23 | 2:B:1088:LEU:CB   | 1.77                     | 1.15              |
| 2:B:817:ARG:HB3   | 21:U:17:DT:C5'    | 1.77                     | 1.15              |
| 1:A:628:PHE:CD2   | 2:B:784:ASP:CB    | 2.24                     | 1.14              |
| 17:Q:22:ILE:CD1   | 17:Q:24:ASP:OD1   | 1.96                     | 1.13              |
| 2:B:116:ALA:N     | 18:R:282:SER:CA   | 2.01                     | 1.13              |
| 1:A:476:VAL:HA    | 2:B:1095:SER:O    | 1.47                     | 1.12              |
| 1:A:1238:MET:HB2  | 1:A:1521:THR:CB   | 1.79                     | 1.12              |
| 2:B:1079:LEU:HG   | 2:B:1088:LEU:HD22 | 1.19                     | 1.12              |
| 17:Q:386:LEU:CA   | 18:R:241:ARG:HH22 | 1.59                     | 1.12              |
| 2:B:113:VAL:O     | 18:R:282:SER:HA   | 1.49                     | 1.12              |
| 17:Q:366:TYR:CD2  | 18:R:215:THR:OG1  | 2.00                     | 1.12              |
| 17:Q:360:LYS:NZ   | 18:R:211:ARG:NH2  | 1.96                     | 1.12              |
| 2:B:931:TRP:HB3   | 2:B:936:MET:HE3   | 1.17                     | 1.11              |
| 16:P:435:ARG:NH2  | 18:R:140:ILE:CD1  | 2.14                     | 1.11              |
| 1:A:508:PRO:HA    | 1:A:577:VAL:O     | 1.46                     | 1.11              |
| 2:B:116:ALA:N     | 18:R:282:SER:HB3  | 1.41                     | 1.11              |
| 17:Q:20:TRP:CZ3   | 17:Q:22:ILE:HG22  | 1.58                     | 1.11              |
| 2:B:116:ALA:CB    | 18:R:282:SER:O    | 1.97                     | 1.11              |
| 17:Q:134:LYS:O    | 17:Q:138:LEU:HB2  | 1.50                     | 1.11              |
| 16:P:358:SER:OG   | 18:R:196:GLU:OE1  | 1.67                     | 1.10              |
| 17:Q:356:VAL:HB   | 18:R:208:TYR:HA   | 1.22                     | 1.10              |
| 2:B:114:SER:HB3   | 18:R:282:SER:HA   | 1.34                     | 1.10              |
| 15:O:200:ASN:CB   | 17:Q:14:ASN:CB    | 2.28                     | 1.10              |
| 2:B:815:ARG:NH2   | 2:B:821:ILE:HG12  | 0.77                     | 1.10              |
| 17:Q:356:VAL:CG1  | 18:R:208:TYR:CD1  | 2.33                     | 1.10              |
| 17:Q:26:ARG:HB3   | 17:Q:34:VAL:HG13  | 1.12                     | 1.09              |
| 17:Q:323:ASP:CA   | 17:Q:324:ARG:N    | 2.14                     | 1.09              |
| 19:S:3:G:N2       | 20:T:21:DC:O2     | 1.84                     | 1.09              |
| 1:A:597:LYS:HB2   | 2:B:1082:HIS:HA   | 1.33                     | 1.09              |
| 16:P:420:GLU:OE2  | 18:R:3:GLU:OE2    | 1.68                     | 1.09              |
| 16:P:477:TYR:CE2  | 18:R:2:PHE:CE2    | 2.40                     | 1.09              |
| 1:A:543:LEU:CD2   | 1:A:578:TYR:OH    | 2.00                     | 1.09              |
| 1:A:651:ALA:HB2   | 2:B:1084:THR:HG23 | 1.33                     | 1.09              |
| 1:A:1014:SER:HB3  | 20:T:17:DT:C7     | 1.83                     | 1.08              |
| 17:Q:355:VAL:CG1  | 18:R:212:HIS:HA   | 1.82                     | 1.08              |
| 15:O:200:ASN:HA   | 17:Q:14:ASN:HB2   | 1.24                     | 1.08              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1240:LEU:HD11 | 1:A:1521:THR:CG2  | 1.84                     | 1.08              |
| 15:O:241:ASP:OD1  | 15:O:380:SER:HB2  | 1.50                     | 1.08              |
| 17:Q:9:ILE:HG13   | 17:Q:10:CYS:H     | 1.06                     | 1.08              |
| 17:Q:258:MET:HE2  | 17:Q:438:PHE:HE2  | 1.16                     | 1.08              |
| 17:Q:17:SER:O     | 17:Q:29:CYS:HB2   | 1.55                     | 1.07              |
| 2:B:1093:LEU:HD12 | 2:B:1098:TYR:HB2  | 1.36                     | 1.06              |
| 1:A:627:ASP:HA    | 2:B:784:ASP:OD1   | 1.54                     | 1.06              |
| 1:A:1654:PHE:CE2  | 6:F:89:GLU:HA     | 1.90                     | 1.06              |
| 15:O:491:PHE:HE2  | 15:O:502:LEU:HD11 | 1.19                     | 1.06              |
| 16:P:477:TYR:HE2  | 18:R:2:PHE:CE2    | 1.72                     | 1.06              |
| 2:B:113:VAL:HG11  | 20:T:39:DT:H4'    | 1.06                     | 1.06              |
| 2:B:115:SER:O     | 18:R:280:SER:CB   | 2.02                     | 1.06              |
| 17:Q:366:TYR:CD1  | 18:R:215:THR:CG2  | 2.38                     | 1.06              |
| 2:B:320:LEU:HD23  | 2:B:325:GLN:HB3   | 1.31                     | 1.06              |
| 16:P:189:THR:HG22 | 16:P:247:ILE:HG23 | 1.34                     | 1.06              |
| 1:A:651:ALA:HB3   | 2:B:1084:THR:HG21 | 1.30                     | 1.05              |
| 2:B:1084:THR:HB   | 2:B:1087:LEU:CD2  | 1.85                     | 1.05              |
| 16:P:435:ARG:NH2  | 18:R:140:ILE:HD13 | 1.68                     | 1.05              |
| 2:B:815:ARG:HH12  | 2:B:899:GLN:HG3   | 1.21                     | 1.05              |
| 17:Q:366:TYR:CG   | 18:R:215:THR:CG2  | 2.38                     | 1.05              |
| 1:A:628:PHE:HD2   | 2:B:784:ASP:HB2   | 0.91                     | 1.05              |
| 16:P:55:LEU:HB3   | 18:R:227:HIS:CE1  | 1.90                     | 1.05              |
| 16:P:389:TRP:CZ2  | 18:R:147:GLN:N    | 2.24                     | 1.05              |
| 17:Q:15:CYS:HB3   | 17:Q:17:SER:N     | 1.70                     | 1.05              |
| 1:A:628:PHE:HB2   | 2:B:785:ASP:H     | 1.12                     | 1.05              |
| 18:R:350:SER:O    | 18:R:354:LEU:HB2  | 1.56                     | 1.05              |
| 1:A:543:LEU:HD21  | 1:A:578:TYR:OH    | 1.57                     | 1.04              |
| 15:O:491:PHE:HB3  | 15:O:498:TRP:HZ3  | 1.20                     | 1.04              |
| 17:Q:5:ILE:O      | 17:Q:19:LEU:O     | 1.74                     | 1.04              |
| 2:B:113:VAL:HG11  | 20:T:39:DT:C4'    | 1.87                     | 1.04              |
| 15:O:492:ARG:HG2  | 15:O:496:GLY:CA   | 1.86                     | 1.04              |
| 17:Q:186:CYS:CB   | 18:R:208:TYR:CE2  | 2.41                     | 1.04              |
| 2:B:116:ALA:HB2   | 18:R:282:SER:C    | 1.76                     | 1.04              |
| 16:P:389:TRP:HZ2  | 18:R:146:SER:CA   | 1.68                     | 1.04              |
| 17:Q:186:CYS:HB3  | 18:R:208:TYR:CZ   | 1.93                     | 1.04              |
| 17:Q:323:ASP:C    | 17:Q:324:ARG:CA   | 2.24                     | 1.04              |
| 2:B:117:VAL:HG22  | 18:R:276:GLN:HG3  | 1.08                     | 1.04              |
| 15:O:492:ARG:CG   | 15:O:496:GLY:CA   | 2.34                     | 1.04              |
| 19:S:5:G:N2       | 20:T:19:DC:C2     | 2.26                     | 1.03              |
| 2:B:1063:ARG:HG3  | 20:T:22:DG:OP2    | 1.57                     | 1.03              |
| 15:O:492:ARG:HG3  | 15:O:496:GLY:O    | 1.57                     | 1.03              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:356:VAL:CB   | 18:R:208:TYR:CD2  | 2.39                     | 1.03              |
| 17:Q:386:LEU:HD12 | 18:R:241:ARG:NH2  | 1.73                     | 1.03              |
| 17:Q:356:VAL:HG11 | 18:R:208:TYR:CG   | 1.94                     | 1.02              |
| 2:B:1079:LEU:HG   | 2:B:1088:LEU:CD2  | 1.84                     | 1.02              |
| 2:B:1096:SER:O    | 2:B:1097:ASP:CB   | 2.06                     | 1.02              |
| 1:A:651:ALA:CB    | 2:B:1084:THR:CG2  | 2.25                     | 1.02              |
| 1:A:672:ASP:N     | 2:B:783:MET:HE1   | 1.74                     | 1.02              |
| 1:A:953:GLU:OE2   | 2:B:519:LYS:NZ    | 1.93                     | 1.02              |
| 17:Q:357:TYR:CD2  | 17:Q:489:VAL:HG22 | 1.93                     | 1.02              |
| 2:B:321:GLN:N     | 2:B:325:GLN:OE1   | 1.92                     | 1.01              |
| 1:A:1014:SER:CA   | 20:T:17:DT:C6     | 2.43                     | 1.01              |
| 2:B:114:SER:HB3   | 18:R:282:SER:CA   | 1.89                     | 1.01              |
| 2:B:1084:THR:C    | 2:B:1088:LEU:HG   | 1.80                     | 1.01              |
| 16:P:435:ARG:HH21 | 18:R:140:ILE:CD1  | 1.69                     | 1.01              |
| 16:P:443:ASP:HB2  | 18:R:2:PHE:HB3    | 1.42                     | 1.01              |
| 16:P:389:TRP:CZ2  | 18:R:146:SER:CB   | 2.44                     | 1.01              |
| 1:A:547:ILE:HD12  | 17:Q:26:ARG:HH22  | 1.20                     | 1.00              |
| 2:B:1068:GLY:O    | 2:B:1069:ILE:HD13 | 1.59                     | 1.00              |
| 2:B:116:ALA:N     | 18:R:282:SER:N    | 2.07                     | 1.00              |
| 2:B:785:ASP:OD2   | 2:B:926:VAL:HB    | 1.62                     | 1.00              |
| 2:B:817:ARG:HB2   | 21:U:17:DT:C5'    | 1.90                     | 1.00              |
| 2:B:1084:THR:OG1  | 2:B:1088:LEU:HD21 | 1.61                     | 1.00              |
| 16:P:443:ASP:CB   | 18:R:3:GLU:N      | 2.18                     | 1.00              |
| 16:P:625:ASP:O    | 16:P:629:ARG:HB2  | 1.61                     | 1.00              |
| 17:Q:378:LEU:HD11 | 18:R:231:LEU:HD21 | 1.02                     | 1.00              |
| 2:B:115:SER:C     | 18:R:280:SER:CB   | 2.27                     | 1.00              |
| 17:Q:9:ILE:HG13   | 17:Q:10:CYS:N     | 1.77                     | 1.00              |
| 20:T:11:DA:C2     | 20:T:12:DC:C2     | 2.50                     | 1.00              |
| 1:A:672:ASP:CB    | 2:B:783:MET:CE    | 2.40                     | 1.00              |
| 17:Q:22:ILE:CD1   | 17:Q:26:ARG:NE    | 2.25                     | 1.00              |
| 1:A:1506:ARG:O    | 1:A:1522:GLU:HG3  | 1.61                     | 0.99              |
| 1:A:672:ASP:HB2   | 2:B:783:MET:HE1   | 1.41                     | 0.99              |
| 17:Q:12:THR:CB    | 17:Q:33:HIS:CE1   | 2.44                     | 0.99              |
| 2:B:1079:LEU:HD23 | 2:B:1088:LEU:HB3  | 1.00                     | 0.99              |
| 17:Q:9:ILE:HB     | 17:Q:16:PRO:HB2   | 1.43                     | 0.99              |
| 16:P:186:TYR:HB3  | 18:R:198:LEU:CD2  | 1.93                     | 0.98              |
| 17:Q:360:LYS:HZ3  | 18:R:211:ARG:NH2  | 1.56                     | 0.98              |
| 1:A:511:VAL:O     | 1:A:574:ASN:ND2   | 1.96                     | 0.98              |
| 1:A:672:ASP:HB2   | 2:B:783:MET:CE    | 1.94                     | 0.97              |
| 17:Q:356:VAL:CB   | 18:R:208:TYR:CG   | 2.46                     | 0.97              |
| 17:Q:366:TYR:CE2  | 18:R:215:THR:OG1  | 2.11                     | 0.97              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:T:9:DC:H2''    | 20:T:10:DA:H8     | 1.28                     | 0.97              |
| 1:A:511:VAL:HG13  | 1:A:574:ASN:HB2   | 1.47                     | 0.97              |
| 1:A:1654:PHE:HB2  | 6:F:134:ILE:HG23  | 1.47                     | 0.97              |
| 1:A:1021:ARG:NH2  | 20:T:16:DT:OP1    | 1.98                     | 0.96              |
| 15:O:491:PHE:HE2  | 15:O:502:LEU:CD1  | 1.77                     | 0.96              |
| 1:A:1641:ILE:H    | 1:A:1641:ILE:HD12 | 1.29                     | 0.96              |
| 1:A:463:LYS:NZ    | 20:T:16:DT:H6     | 1.63                     | 0.96              |
| 17:Q:15:CYS:SG    | 17:Q:17:SER:HB2   | 2.05                     | 0.96              |
| 1:A:642:ASN:HB3   | 2:B:1086:PHE:CD2  | 2.00                     | 0.96              |
| 1:A:671:GLN:HB2   | 2:B:783:MET:HE2   | 1.47                     | 0.96              |
| 1:A:1018:TYR:CE1  | 20:T:16:DT:C5'    | 2.48                     | 0.96              |
| 2:B:114:SER:CB    | 18:R:282:SER:CA   | 2.44                     | 0.96              |
| 17:Q:356:VAL:HB   | 18:R:208:TYR:CA   | 1.94                     | 0.96              |
| 11:K:104:ARG:HH21 | 11:K:106:GLN:HE21 | 1.13                     | 0.96              |
| 1:A:628:PHE:HB3   | 2:B:785:ASP:CG    | 1.86                     | 0.95              |
| 2:B:894:LYS:HZ2   | 17:Q:405:ASP:HB3  | 1.31                     | 0.95              |
| 2:B:817:ARG:HB2   | 21:U:17:DT:H5''   | 1.46                     | 0.95              |
| 2:B:929:ARG:HH12  | 11:K:96:PRO:HB2   | 1.30                     | 0.95              |
| 16:P:477:TYR:CE2  | 18:R:2:PHE:HE2    | 1.83                     | 0.95              |
| 1:A:712:ILE:H     | 11:K:106:GLN:HE22 | 1.15                     | 0.95              |
| 2:B:101:GLN:HE21  | 18:R:359:MET:CE   | 1.70                     | 0.95              |
| 17:Q:22:ILE:HD11  | 17:Q:26:ARG:NE    | 1.81                     | 0.95              |
| 1:A:1014:SER:HB3  | 20:T:17:DT:C5     | 2.02                     | 0.94              |
| 16:P:389:TRP:CZ2  | 18:R:146:SER:HB2  | 2.01                     | 0.94              |
| 17:Q:366:TYR:CE1  | 18:R:215:THR:HA   | 2.03                     | 0.94              |
| 1:A:475:ARG:O     | 2:B:1095:SER:O    | 1.86                     | 0.94              |
| 1:A:672:ASP:CB    | 2:B:783:MET:HE1   | 1.96                     | 0.94              |
| 2:B:320:LEU:HD21  | 2:B:325:GLN:C     | 1.87                     | 0.94              |
| 17:Q:381:MET:HG3  | 18:R:238:THR:HG21 | 1.48                     | 0.94              |
| 1:A:1240:LEU:CD1  | 1:A:1521:THR:HG23 | 1.98                     | 0.94              |
| 2:B:320:LEU:CD2   | 2:B:325:GLN:HB3   | 1.98                     | 0.94              |
| 2:B:1104:CYS:CB   | 2:B:1107:CYS:SG   | 2.55                     | 0.93              |
| 16:P:725:VAL:CG2  | 17:Q:446:TYR:CG   | 2.42                     | 0.93              |
| 17:Q:356:VAL:CB   | 18:R:208:TYR:HA   | 1.99                     | 0.93              |
| 2:B:1058:GLN:HG2  | 2:B:1096:SER:O    | 1.67                     | 0.93              |
| 17:Q:9:ILE:CG1    | 17:Q:10:CYS:H     | 1.79                     | 0.93              |
| 1:A:1018:TYR:CD1  | 20:T:16:DT:C5'    | 2.51                     | 0.93              |
| 2:B:1104:CYS:HB3  | 2:B:1107:CYS:SG   | 2.08                     | 0.93              |
| 17:Q:386:LEU:HA   | 18:R:241:ARG:CZ   | 1.98                     | 0.93              |
| 2:B:213:HIS:CD2   | 2:B:643:PHE:HZ    | 1.87                     | 0.93              |
| 1:A:618:TYR:CE1   | 2:B:783:MET:HB3   | 2.03                     | 0.92              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:386:LEU:CB   | 18:R:241:ARG:HH22 | 1.80                     | 0.92              |
| 16:P:389:TRP:CZ2  | 18:R:146:SER:CA   | 2.52                     | 0.92              |
| 1:A:1654:PHE:CZ   | 6:F:89:GLU:CA     | 2.52                     | 0.92              |
| 17:Q:15:CYS:CB    | 17:Q:16:PRO:HA    | 1.99                     | 0.92              |
| 18:R:168:ILE:HG23 | 18:R:169:PRO:HD3  | 1.52                     | 0.92              |
| 15:O:491:PHE:HB3  | 15:O:498:TRP:CZ3  | 2.04                     | 0.92              |
| 17:Q:155:GLN:HA   | 20:T:49:DC:H2"    | 1.53                     | 0.91              |
| 1:A:70:LYS:NZ     | 17:Q:27:ARG:NH1   | 2.18                     | 0.91              |
| 2:B:320:LEU:CD2   | 2:B:325:GLN:CB    | 2.48                     | 0.91              |
| 17:Q:356:VAL:HB   | 18:R:208:TYR:CG   | 2.05                     | 0.91              |
| 17:Q:356:VAL:CG1  | 18:R:208:TYR:CG   | 2.52                     | 0.91              |
| 17:Q:357:TYR:CD2  | 17:Q:489:VAL:HA   | 2.05                     | 0.91              |
| 17:Q:378:LEU:HD11 | 18:R:231:LEU:CD2  | 1.97                     | 0.91              |
| 17:Q:186:CYS:HB3  | 18:R:208:TYR:HE2  | 1.29                     | 0.91              |
| 2:B:117:VAL:CG1   | 18:R:277:ILE:HA   | 2.01                     | 0.91              |
| 16:P:389:TRP:HE1  | 18:R:146:SER:HB2  | 1.29                     | 0.91              |
| 17:Q:15:CYS:HB3   | 17:Q:16:PRO:CA    | 2.00                     | 0.91              |
| 1:A:672:ASP:OD1   | 2:B:952:HIS:HD2   | 1.54                     | 0.91              |
| 2:B:115:SER:O     | 18:R:280:SER:CA   | 2.17                     | 0.91              |
| 2:B:894:LYS:NZ    | 17:Q:405:ASP:CB   | 2.34                     | 0.91              |
| 16:P:662:LEU:HB3  | 16:P:665:ASN:HB2  | 1.52                     | 0.91              |
| 1:A:1240:LEU:HD11 | 1:A:1521:THR:HG21 | 1.51                     | 0.91              |
| 17:Q:22:ILE:HD12  | 17:Q:24:ASP:OD1   | 1.68                     | 0.91              |
| 17:Q:353:VAL:HG12 | 17:Q:489:VAL:CG1  | 2.00                     | 0.91              |
| 2:B:101:GLN:HE22  | 18:R:359:MET:CE   | 1.80                     | 0.90              |
| 17:Q:26:ARG:CB    | 17:Q:34:VAL:HG13  | 1.99                     | 0.90              |
| 1:A:637:PHE:H     | 2:B:1091:ARG:HH22 | 1.14                     | 0.90              |
| 2:B:1084:THR:HB   | 2:B:1087:LEU:HD22 | 1.49                     | 0.90              |
| 1:A:628:PHE:HD2   | 2:B:784:ASP:HB3   | 1.35                     | 0.90              |
| 2:B:114:SER:HB3   | 18:R:282:SER:C    | 1.91                     | 0.90              |
| 16:P:477:TYR:CE2  | 18:R:2:PHE:CZ     | 2.58                     | 0.90              |
| 2:B:950:ASN:OD1   | 2:B:952:HIS:HD2   | 1.54                     | 0.90              |
| 17:Q:19:LEU:HD11  | 17:Q:27:ARG:HB3   | 1.54                     | 0.90              |
| 17:Q:262:LEU:O    | 17:Q:446:TYR:OH   | 1.90                     | 0.90              |
| 16:P:532:GLU:HA   | 16:P:554:ASN:HD22 | 1.37                     | 0.89              |
| 16:P:358:SER:HB3  | 16:P:377:ARG:HD3  | 1.55                     | 0.89              |
| 20:T:11:DA:C6     | 20:T:12:DC:C4     | 2.60                     | 0.89              |
| 1:A:354:SER:OG    | 1:A:355:PHE:CD1   | 2.25                     | 0.89              |
| 17:Q:350:ARG:CD   | 17:Q:486:GLN:HG2  | 2.03                     | 0.89              |
| 2:B:1084:THR:HB   | 2:B:1087:LEU:HD23 | 1.53                     | 0.89              |
| 17:Q:20:TRP:CZ3   | 17:Q:22:ILE:HG21  | 2.08                     | 0.89              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:350:ARG:NH1  | 17:Q:486:GLN:OE1  | 2.05                     | 0.89              |
| 2:B:950:ASN:OD1   | 2:B:952:HIS:CD2   | 2.26                     | 0.89              |
| 15:O:527:MET:SD   | 15:O:530:ARG:NH2  | 2.46                     | 0.89              |
| 16:P:55:LEU:CB    | 18:R:227:HIS:CE1  | 2.55                     | 0.89              |
| 17:Q:313:THR:O    | 17:Q:317:MET:HB2  | 1.71                     | 0.89              |
| 2:B:776:ILE:C     | 2:B:951:PRO:HD3   | 1.93                     | 0.89              |
| 1:A:1014:SER:CB   | 20:T:17:DT:C7     | 2.50                     | 0.88              |
| 17:Q:3:THR:HG22   | 17:Q:20:TRP:HB2   | 1.53                     | 0.88              |
| 17:Q:258:MET:CE   | 17:Q:438:PHE:HE2  | 1.85                     | 0.88              |
| 2:B:284:SER:HB2   | 9:I:14:GLY:HA3    | 1.55                     | 0.88              |
| 20:T:9:DC:H2''    | 20:T:10:DA:C8     | 2.08                     | 0.88              |
| 20:T:9:DC:N4      | 21:U:41:DG:C6     | 2.40                     | 0.88              |
| 2:B:711:GLN:HG2   | 2:B:713:PRO:HD2   | 1.55                     | 0.88              |
| 2:B:1084:THR:O    | 2:B:1088:LEU:HG   | 0.71                     | 0.88              |
| 1:A:1637:PRO:CB   | 1:A:1647:ASN:HD21 | 1.87                     | 0.88              |
| 2:B:114:SER:CB    | 18:R:282:SER:C    | 2.42                     | 0.88              |
| 1:A:646:GLU:CG    | 1:A:650:LEU:HD12  | 2.02                     | 0.88              |
| 15:O:491:PHE:CE2  | 15:O:502:LEU:HD11 | 2.08                     | 0.88              |
| 1:A:70:LYS:HZ3    | 17:Q:27:ARG:HH12  | 0.88                     | 0.87              |
| 16:P:186:TYR:HB3  | 18:R:198:LEU:HD23 | 1.54                     | 0.87              |
| 1:A:1486:VAL:HG23 | 9:I:51:THR:HG22   | 1.57                     | 0.87              |
| 1:A:1654:PHE:CE2  | 6:F:89:GLU:CA     | 2.55                     | 0.87              |
| 17:Q:20:TRP:CH2   | 17:Q:22:ILE:CG2   | 2.56                     | 0.87              |
| 1:A:1506:ARG:O    | 1:A:1522:GLU:CG   | 2.23                     | 0.87              |
| 2:B:776:ILE:O     | 2:B:951:PRO:HD3   | 1.75                     | 0.87              |
| 15:O:492:ARG:HG2  | 15:O:496:GLY:HA2  | 0.89                     | 0.87              |
| 17:Q:360:LYS:HZ1  | 18:R:211:ARG:NH2  | 1.69                     | 0.87              |
| 1:A:672:ASP:OD1   | 2:B:952:HIS:NE2   | 2.07                     | 0.87              |
| 17:Q:29:CYS:SG    | 17:Q:33:HIS:HB2   | 2.15                     | 0.87              |
| 2:B:320:LEU:HD13  | 2:B:326:VAL:HG22  | 1.57                     | 0.86              |
| 16:P:196:TYR:O    | 16:P:197:ARG:NH1  | 2.07                     | 0.86              |
| 17:Q:12:THR:CB    | 17:Q:33:HIS:ND1   | 2.37                     | 0.86              |
| 1:A:672:ASP:CA    | 2:B:783:MET:HE1   | 2.04                     | 0.86              |
| 1:A:707:THR:HG22  | 1:A:709:ARG:H     | 1.40                     | 0.86              |
| 1:A:618:TYR:CE1   | 2:B:783:MET:CB    | 2.58                     | 0.86              |
| 1:A:1014:SER:CB   | 20:T:17:DT:C5     | 2.57                     | 0.86              |
| 1:A:508:PRO:CA    | 1:A:577:VAL:O     | 2.23                     | 0.86              |
| 2:B:1096:SER:O    | 2:B:1097:ASP:OD1  | 1.91                     | 0.86              |
| 13:M:38:PHE:HB3   | 13:M:53:LEU:HD11  | 1.55                     | 0.86              |
| 2:B:816:ASN:HB3   | 21:U:18:DG:OP1    | 1.76                     | 0.86              |
| 1:A:637:PHE:N     | 2:B:1091:ARG:HH22 | 1.72                     | 0.86              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:65:CYS:HB3    | 1:A:75:HIS:NE2    | 1.91                     | 0.85              |
| 17:Q:258:MET:HE2  | 17:Q:438:PHE:CE2  | 2.09                     | 0.85              |
| 16:P:55:LEU:CB    | 18:R:227:HIS:ND1  | 2.38                     | 0.85              |
| 1:A:672:ASP:CA    | 2:B:783:MET:CE    | 2.55                     | 0.85              |
| 2:B:320:LEU:HD23  | 2:B:325:GLN:CB    | 2.05                     | 0.85              |
| 19:S:5:G:N1       | 20:T:19:DC:N3     | 2.23                     | 0.85              |
| 1:A:700:ILE:O     | 1:A:706:HIS:ND1   | 2.09                     | 0.85              |
| 16:P:725:VAL:CG2  | 17:Q:446:TYR:CB   | 2.54                     | 0.85              |
| 1:A:628:PHE:HB2   | 2:B:785:ASP:N     | 1.90                     | 0.85              |
| 16:P:725:VAL:CG2  | 17:Q:446:TYR:HB3  | 2.07                     | 0.85              |
| 17:Q:350:ARG:HD3  | 17:Q:486:GLN:HG2  | 1.56                     | 0.85              |
| 17:Q:385:PHE:O    | 18:R:241:ARG:CZ   | 2.25                     | 0.85              |
| 16:P:725:VAL:HG21 | 17:Q:446:TYR:HD1  | 1.02                     | 0.84              |
| 2:B:894:LYS:NZ    | 17:Q:405:ASP:HB3  | 1.91                     | 0.84              |
| 1:A:70:LYS:HZ3    | 17:Q:27:ARG:NH1   | 1.72                     | 0.84              |
| 2:B:894:LYS:CE    | 17:Q:405:ASP:OD2  | 2.21                     | 0.84              |
| 16:P:389:TRP:CE2  | 18:R:146:SER:CB   | 2.60                     | 0.84              |
| 15:O:200:ASN:CA   | 17:Q:14:ASN:CB    | 2.54                     | 0.84              |
| 15:O:488:HIS:HB2  | 15:O:531:ILE:HG21 | 1.59                     | 0.84              |
| 1:A:1637:PRO:CG   | 1:A:1647:ASN:HD21 | 1.90                     | 0.84              |
| 17:Q:353:VAL:HG12 | 17:Q:489:VAL:HG13 | 1.59                     | 0.84              |
| 17:Q:381:MET:HG3  | 18:R:238:THR:CG2  | 2.07                     | 0.84              |
| 1:A:597:LYS:HB2   | 2:B:1082:HIS:CA   | 2.07                     | 0.84              |
| 16:P:446:ASP:HA   | 18:R:200:THR:HG22 | 1.60                     | 0.84              |
| 17:Q:15:CYS:HB3   | 17:Q:16:PRO:C     | 1.98                     | 0.84              |
| 1:A:463:LYS:NZ    | 20:T:16:DT:C6     | 2.41                     | 0.84              |
| 1:A:1238:MET:O    | 1:A:1521:THR:OG1  | 1.96                     | 0.83              |
| 1:A:1013:THR:HB   | 20:T:17:DT:H3     | 1.42                     | 0.83              |
| 1:A:1014:SER:O    | 20:T:17:DT:H5'    | 1.78                     | 0.83              |
| 2:B:213:HIS:CD2   | 2:B:643:PHE:CZ    | 2.67                     | 0.83              |
| 15:O:491:PHE:HD2  | 15:O:498:TRP:HE3  | 1.25                     | 0.83              |
| 16:P:55:LEU:HG    | 18:R:227:HIS:CB   | 2.07                     | 0.83              |
| 16:P:443:ASP:HB2  | 18:R:2:PHE:CB     | 2.08                     | 0.83              |
| 20:T:11:DA:C6     | 20:T:12:DC:N4     | 2.46                     | 0.83              |
| 2:B:1063:ARG:CG   | 20:T:22:DG:OP2    | 2.27                     | 0.83              |
| 1:A:1637:PRO:HG3  | 1:A:1647:ASN:ND2  | 1.93                     | 0.83              |
| 2:B:931:TRP:CB    | 2:B:936:MET:CE    | 2.53                     | 0.83              |
| 16:P:725:VAL:HG23 | 17:Q:446:TYR:HB3  | 1.58                     | 0.82              |
| 18:R:373:LEU:HD12 | 18:R:411:VAL:HG21 | 1.61                     | 0.82              |
| 13:M:38:PHE:HB2   | 14:N:119:LEU:HB2  | 1.58                     | 0.82              |
| 2:B:518:ARG:HB3   | 2:B:540:GLY:HA3   | 1.61                     | 0.82              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:O:200:ASN:HA   | 17:Q:14:ASN:CB    | 2.08                     | 0.82              |
| 1:A:486:PRO:HG2   | 2:B:781:TYR:O     | 1.78                     | 0.82              |
| 1:A:547:ILE:HD12  | 17:Q:26:ARG:NH2   | 1.92                     | 0.82              |
| 2:B:117:VAL:HG12  | 18:R:277:ILE:HA   | 1.59                     | 0.82              |
| 17:Q:15:CYS:HB3   | 17:Q:16:PRO:HA    | 1.60                     | 0.82              |
| 2:B:116:ALA:H     | 18:R:282:SER:HB3  | 1.07                     | 0.82              |
| 17:Q:20:TRP:CE3   | 17:Q:22:ILE:HG23  | 2.15                     | 0.82              |
| 2:B:815:ARG:HH12  | 2:B:899:GLN:CG    | 1.92                     | 0.82              |
| 17:Q:26:ARG:CB    | 17:Q:34:VAL:CG1   | 2.53                     | 0.82              |
| 1:A:628:PHE:CD2   | 2:B:784:ASP:HB3   | 2.09                     | 0.82              |
| 17:Q:350:ARG:NE   | 17:Q:486:GLN:HG2  | 1.93                     | 0.82              |
| 18:R:171:ARG:O    | 18:R:174:GLU:N    | 2.11                     | 0.82              |
| 1:A:1246:VAL:HG13 | 1:A:1250:GLN:HB3  | 1.61                     | 0.82              |
| 2:B:894:LYS:HZ1   | 17:Q:405:ASP:CG   | 1.81                     | 0.82              |
| 1:A:1014:SER:HA   | 20:T:17:DT:N1     | 1.94                     | 0.81              |
| 2:B:818:GLY:O     | 2:B:820:PRO:CD    | 2.28                     | 0.81              |
| 17:Q:20:TRP:HZ3   | 17:Q:22:ILE:HG22  | 0.65                     | 0.81              |
| 16:P:188:GLN:HG2  | 16:P:360:TRP:HB3  | 1.61                     | 0.81              |
| 16:P:662:LEU:HB2  | 16:P:665:ASN:HD22 | 1.45                     | 0.81              |
| 17:Q:357:TYR:CG   | 17:Q:489:VAL:HG22 | 2.15                     | 0.81              |
| 1:A:550:SER:H     | 1:A:553:GLN:HE22  | 1.28                     | 0.81              |
| 1:A:1637:PRO:HG3  | 1:A:1647:ASN:HD21 | 1.42                     | 0.81              |
| 16:P:346:ASN:OD1  | 16:P:347:LEU:N    | 2.12                     | 0.81              |
| 1:A:477:ASN:H     | 2:B:1095:SER:CB   | 1.91                     | 0.81              |
| 1:A:628:PHE:HB2   | 2:B:784:ASP:HB3   | 1.61                     | 0.81              |
| 1:A:1654:PHE:CD2  | 6:F:89:GLU:HG2    | 2.15                     | 0.81              |
| 2:B:817:ARG:CB    | 21:U:17:DT:H5"    | 2.04                     | 0.81              |
| 15:O:491:PHE:HD2  | 15:O:498:TRP:CE3  | 1.98                     | 0.81              |
| 17:Q:350:ARG:CZ   | 17:Q:486:GLN:OE1  | 2.29                     | 0.81              |
| 1:A:597:LYS:O     | 2:B:1082:HIS:NE2  | 2.13                     | 0.81              |
| 1:A:1031:HIS:N    | 1:A:1039:ARG:O    | 2.11                     | 0.81              |
| 2:B:1096:SER:C    | 2:B:1097:ASP:OD1  | 2.19                     | 0.81              |
| 16:P:355:GLU:HB3  | 18:R:24:ILE:HD12  | 1.62                     | 0.81              |
| 1:A:1014:SER:HA   | 20:T:17:DT:C5     | 2.13                     | 0.81              |
| 1:A:642:ASN:ND2   | 2:B:1086:PHE:HE2  | 1.77                     | 0.80              |
| 16:P:487:ASN:HB3  | 18:R:138:PHE:CZ   | 2.13                     | 0.80              |
| 16:P:245:ILE:HD12 | 16:P:269:PHE:HD2  | 1.43                     | 0.80              |
| 1:A:597:LYS:CB    | 2:B:1082:HIS:HA   | 2.12                     | 0.80              |
| 1:A:1240:LEU:CD1  | 1:A:1521:THR:CG2  | 2.57                     | 0.80              |
| 16:P:435:ARG:HH21 | 18:R:140:ILE:HD11 | 1.43                     | 0.80              |
| 18:R:250:LEU:HD21 | 18:R:307:LYS:HG2  | 1.63                     | 0.80              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:81:LEU:HD12   | 1:A:82:PRO:HD2    | 1.63                     | 0.80              |
| 1:A:600:MET:HB3   | 2:B:1082:HIS:HD2  | 1.44                     | 0.80              |
| 1:A:1654:PHE:CD2  | 6:F:89:GLU:CG     | 2.65                     | 0.80              |
| 1:A:1014:SER:CA   | 20:T:17:DT:C5     | 2.65                     | 0.80              |
| 12:L:48:CYS:HB3   | 12:L:52:GLY:H     | 1.45                     | 0.80              |
| 19:S:4:C:O2       | 20:T:20:DG:N2     | 2.14                     | 0.80              |
| 1:A:102:CYS:SG    | 1:A:105:CYS:N     | 2.54                     | 0.80              |
| 1:A:587:VAL:HG12  | 1:A:637:PHE:HD1   | 1.47                     | 0.80              |
| 1:A:600:MET:HB3   | 2:B:1082:HIS:CD2  | 2.17                     | 0.80              |
| 1:A:638:PRO:CG    | 2:B:1087:LEU:CD1  | 2.60                     | 0.80              |
| 2:B:1093:LEU:HD11 | 2:B:1098:TYR:HB2  | 1.64                     | 0.80              |
| 15:O:492:ARG:HG3  | 15:O:496:GLY:C    | 2.03                     | 0.80              |
| 1:A:527:PRO:HD3   | 1:A:554:ARG:HH12  | 1.46                     | 0.79              |
| 1:A:547:ILE:HD11  | 17:Q:26:ARG:HH22  | 1.46                     | 0.79              |
| 2:B:1049:THR:OG1  | 17:Q:24:ASP:HB2   | 1.82                     | 0.79              |
| 6:F:99:LEU:HD23   | 7:G:112:PRO:HD3   | 1.64                     | 0.79              |
| 18:R:11:ARG:NH1   | 21:U:4:DA:P       | 2.51                     | 0.79              |
| 1:A:646:GLU:HG3   | 1:A:650:LEU:CD1   | 2.08                     | 0.79              |
| 2:B:1079:LEU:CG   | 2:B:1088:LEU:HB3  | 2.07                     | 0.79              |
| 20:T:11:DA:N1     | 20:T:12:DC:N3     | 2.31                     | 0.79              |
| 1:A:1014:SER:HB3  | 20:T:17:DT:H73    | 1.64                     | 0.79              |
| 2:B:954:PHE:O     | 2:B:956:SER:N     | 2.15                     | 0.79              |
| 2:B:1075:GLU:O    | 2:B:1079:LEU:HD13 | 1.81                     | 0.79              |
| 18:R:78:ARG:NH2   | 20:T:43:DT:H5"    | 1.97                     | 0.79              |
| 21:U:38:DG:C2     | 21:U:39:DT:O2     | 2.35                     | 0.79              |
| 16:P:375:PHE:HD2  | 16:P:402:ILE:HD13 | 1.48                     | 0.79              |
| 16:P:389:TRP:CH2  | 18:R:147:GLN:N    | 2.50                     | 0.79              |
| 16:P:577:LEU:O    | 17:Q:506:LYS:NZ   | 2.15                     | 0.79              |
| 18:R:26:TYR:HB3   | 18:R:169:PRO:HB3  | 1.63                     | 0.79              |
| 1:A:354:SER:OG    | 1:A:355:PHE:HD1   | 1.63                     | 0.79              |
| 1:A:1322:ILE:HG21 | 1:A:1457:ILE:HD11 | 1.62                     | 0.79              |
| 16:P:477:TYR:HE2  | 18:R:2:PHE:CZ     | 1.98                     | 0.79              |
| 1:A:1238:MET:C    | 1:A:1521:THR:OG1  | 2.22                     | 0.79              |
| 15:O:491:PHE:CE2  | 15:O:502:LEU:CD1  | 2.66                     | 0.79              |
| 2:B:492:ASN:ND2   | 2:B:722:GLY:O     | 2.16                     | 0.78              |
| 2:B:816:ASN:CB    | 21:U:18:DG:OP1    | 2.31                     | 0.78              |
| 17:Q:192:TYR:HD1  | 17:Q:193:PHE:H    | 1.29                     | 0.78              |
| 1:A:1038:ILE:HB   | 1:A:1047:GLN:H    | 1.48                     | 0.78              |
| 1:A:1303:SER:HA   | 1:A:1308:VAL:H    | 1.48                     | 0.78              |
| 15:O:434:LEU:HD22 | 15:O:439:ILE:HD11 | 1.65                     | 0.78              |
| 17:Q:366:TYR:CZ   | 18:R:215:THR:HA   | 2.17                     | 0.78              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:511:VAL:HG12  | 1:A:575:LYS:C     | 2.02                     | 0.78              |
| 16:P:484:ARG:HB2  | 16:P:488:LEU:HB3  | 1.64                     | 0.78              |
| 20:T:8:DT:H2'     | 20:T:9:DC:C6      | 2.17                     | 0.78              |
| 1:A:1013:THR:HB   | 20:T:17:DT:N3     | 1.98                     | 0.78              |
| 2:B:1086:PHE:HZ   | 7:G:109:PRO:O     | 1.67                     | 0.78              |
| 17:Q:17:SER:O     | 17:Q:29:CYS:CB    | 2.30                     | 0.78              |
| 17:Q:323:ASP:C    | 17:Q:324:ARG:HA   | 2.04                     | 0.78              |
| 18:R:11:ARG:NH1   | 21:U:4:DA:OP2     | 2.17                     | 0.78              |
| 1:A:321:LYS:HE3   | 1:A:325:ASP:OD2   | 1.84                     | 0.78              |
| 16:P:245:ILE:HD12 | 16:P:269:PHE:CD2  | 2.19                     | 0.78              |
| 19:S:4:C:O2       | 20:T:20:DG:N1     | 2.17                     | 0.78              |
| 1:A:1258:ILE:HD11 | 1:A:1507:CYS:SG   | 2.23                     | 0.78              |
| 7:G:237:HIS:HB2   | 7:G:244:SER:HB3   | 1.66                     | 0.78              |
| 1:A:642:ASN:CG    | 2:B:1086:PHE:HE2  | 1.87                     | 0.77              |
| 16:P:247:ILE:HG22 | 16:P:248:PRO:HD3  | 1.64                     | 0.77              |
| 16:P:443:ASP:HB3  | 18:R:3:GLU:HB3    | 1.66                     | 0.77              |
| 16:P:596:ILE:HA   | 16:P:599:LYS:HB3  | 1.65                     | 0.77              |
| 18:R:158:THR:HG23 | 18:R:161:ASN:HB3  | 1.66                     | 0.77              |
| 1:A:1014:SER:CB   | 20:T:17:DT:H71    | 2.14                     | 0.77              |
| 9:I:28:VAL:N      | 9:I:37:TYR:O      | 2.16                     | 0.77              |
| 2:B:641:TYR:HB3   | 2:B:643:PHE:CE1   | 2.19                     | 0.77              |
| 2:B:818:GLY:O     | 2:B:820:PRO:HD3   | 1.85                     | 0.77              |
| 16:P:389:TRP:HH2  | 18:R:149:LYS:H    | 1.31                     | 0.77              |
| 17:Q:12:THR:OG1   | 17:Q:33:HIS:ND1   | 2.17                     | 0.77              |
| 7:G:140:GLN:NE2   | 7:G:225:ILE:O     | 2.18                     | 0.77              |
| 16:P:585:GLU:HA   | 16:P:588:SER:HB3  | 1.66                     | 0.77              |
| 2:B:818:GLY:O     | 2:B:820:PRO:N     | 2.18                     | 0.77              |
| 17:Q:355:VAL:C    | 18:R:212:HIS:CE1  | 2.58                     | 0.77              |
| 15:O:492:ARG:NH2  | 15:O:535:GLU:OE1  | 2.17                     | 0.77              |
| 18:R:248:LYS:HA   | 18:R:298:GLN:NE2  | 2.00                     | 0.77              |
| 9:I:53:ASP:O      | 9:I:61:ARG:NH2    | 2.18                     | 0.77              |
| 16:P:263:ILE:HG21 | 16:P:276:SER:HA   | 1.65                     | 0.77              |
| 17:Q:378:LEU:CD1  | 18:R:231:LEU:CD2  | 2.57                     | 0.77              |
| 1:A:638:PRO:HG3   | 2:B:1087:LEU:HD11 | 1.67                     | 0.76              |
| 20:T:4:DG:N2      | 21:U:46:DC:C2     | 2.33                     | 0.76              |
| 2:B:113:VAL:O     | 18:R:282:SER:CA   | 2.30                     | 0.76              |
| 16:P:214:LEU:HB2  | 16:P:222:GLN:NE2  | 1.99                     | 0.76              |
| 20:T:11:DA:C2     | 20:T:12:DC:N3     | 2.52                     | 0.76              |
| 17:Q:386:LEU:CD1  | 18:R:241:ARG:NH2  | 2.48                     | 0.76              |
| 1:A:1506:ARG:O    | 1:A:1522:GLU:CD   | 2.24                     | 0.76              |
| 1:A:474:LYS:HD2   | 2:B:1096:SER:CB   | 2.14                     | 0.76              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:H:26:ILE:HD12   | 8:H:42:ILE:HD12   | 1.65                     | 0.76              |
| 16:P:218:VAL:HG23 | 16:P:219:LEU:HB3  | 1.68                     | 0.76              |
| 16:P:477:TYR:CD2  | 18:R:2:PHE:CZ     | 2.73                     | 0.76              |
| 17:Q:356:VAL:HG13 | 18:R:212:HIS:NE2  | 2.01                     | 0.76              |
| 1:A:90:PHE:O      | 1:A:92:ASN:N      | 2.19                     | 0.76              |
| 2:B:883:GLU:OE1   | 2:B:906:ARG:NH1   | 2.19                     | 0.76              |
| 2:B:954:PHE:O     | 2:B:957:ARG:N     | 2.19                     | 0.76              |
| 15:O:392:GLN:HB2  | 15:O:395:LEU:HD13 | 1.66                     | 0.76              |
| 17:Q:331:ILE:HG22 | 17:Q:475:ALA:HB1  | 1.68                     | 0.76              |
| 1:A:606:ARG:NH2   | 11:K:98:GLU:OE2   | 2.19                     | 0.75              |
| 7:G:56:ASN:HB3    | 7:G:59:GLN:HB3    | 1.68                     | 0.75              |
| 2:B:921:HIS:NE2   | 2:B:965:GLU:OE1   | 2.19                     | 0.75              |
| 7:G:26:ASN:ND2    | 7:G:37:CYS:SG     | 2.58                     | 0.75              |
| 7:G:140:GLN:HB3   | 7:G:217:TRP:HD1   | 1.49                     | 0.75              |
| 1:A:543:LEU:HD22  | 1:A:578:TYR:OH    | 1.83                     | 0.75              |
| 1:A:642:ASN:HB3   | 2:B:1086:PHE:HD2  | 1.48                     | 0.75              |
| 18:R:9:THR:HG21   | 18:R:13:PHE:CD2   | 2.21                     | 0.75              |
| 1:A:545:SER:HB2   | 17:Q:34:VAL:HG21  | 1.68                     | 0.75              |
| 16:P:357:LEU:HB3  | 18:R:191:ILE:O    | 1.85                     | 0.75              |
| 1:A:618:TYR:OH    | 2:B:780:GLY:O     | 2.03                     | 0.75              |
| 2:B:320:LEU:CD2   | 2:B:325:GLN:C     | 2.55                     | 0.75              |
| 17:Q:357:TYR:HD2  | 17:Q:489:VAL:HA   | 1.51                     | 0.75              |
| 1:A:1237:GLN:HA   | 1:A:1521:THR:O    | 1.87                     | 0.75              |
| 1:A:1238:MET:N    | 1:A:1521:THR:OG1  | 2.19                     | 0.75              |
| 8:H:63:LEU:HB3    | 8:H:88:SER:HB2    | 1.67                     | 0.75              |
| 17:Q:15:CYS:CB    | 17:Q:16:PRO:CA    | 2.62                     | 0.75              |
| 9:I:33:CYS:O      | 13:M:59:ARG:NH1   | 2.20                     | 0.75              |
| 15:O:383:TYR:OH   | 15:O:595:ASP:N    | 2.20                     | 0.75              |
| 16:P:462:ILE:HB   | 16:P:483:HIS:HB3  | 1.69                     | 0.75              |
| 1:A:509:GLU:CD    | 1:A:579:ARG:HE    | 1.90                     | 0.75              |
| 17:Q:22:ILE:HD11  | 17:Q:24:ASP:OD1   | 1.86                     | 0.75              |
| 2:B:816:ASN:OD1   | 21:U:18:DG:OP1    | 2.04                     | 0.75              |
| 2:B:1060:VAL:O    | 2:B:1067:GLY:HA3  | 1.86                     | 0.75              |
| 15:O:241:ASP:CG   | 15:O:380:SER:HB2  | 2.07                     | 0.75              |
| 17:Q:22:ILE:CG1   | 17:Q:24:ASP:OD1   | 2.34                     | 0.75              |
| 17:Q:386:LEU:HA   | 18:R:241:ARG:HH22 | 0.94                     | 0.75              |
| 15:O:492:ARG:O    | 15:O:493:ASP:O    | 2.05                     | 0.74              |
| 16:P:625:ASP:O    | 16:P:629:ARG:CB   | 2.34                     | 0.74              |
| 1:A:637:PHE:N     | 2:B:1091:ARG:NH2  | 2.33                     | 0.74              |
| 17:Q:3:THR:O      | 17:Q:20:TRP:HB3   | 1.87                     | 0.74              |
| 17:Q:357:TYR:CD2  | 17:Q:489:VAL:CG2  | 2.68                     | 0.74              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:815:ARG:NH1   | 2:B:899:GLN:HG3   | 2.00                     | 0.74              |
| 16:P:358:SER:CB   | 18:R:196:GLU:OE1  | 2.35                     | 0.74              |
| 1:A:1637:PRO:O    | 1:A:1641:ILE:N    | 2.18                     | 0.74              |
| 2:B:143:TRP:HB3   | 2:B:152:LEU:HB2   | 1.68                     | 0.74              |
| 17:Q:378:LEU:HD21 | 18:R:235:ILE:HD13 | 1.68                     | 0.74              |
| 1:A:672:ASP:H     | 2:B:783:MET:HE3   | 0.59                     | 0.74              |
| 17:Q:355:VAL:O    | 18:R:211:ARG:HB3  | 1.86                     | 0.74              |
| 1:A:464:GLU:HB3   | 1:A:469:LYS:HB2   | 1.70                     | 0.74              |
| 2:B:935:ASP:OD1   | 3:C:69:ARG:NH1    | 2.21                     | 0.74              |
| 9:I:2:SER:O       | 9:I:9:PHE:N       | 2.21                     | 0.74              |
| 17:Q:22:ILE:CD1   | 17:Q:26:ARG:CZ    | 2.65                     | 0.74              |
| 1:A:771:PHE:HE1   | 1:A:776:LEU:HD13  | 1.53                     | 0.74              |
| 2:B:465:LEU:HA    | 2:B:485:THR:HG21  | 1.68                     | 0.74              |
| 8:H:106:GLU:HG2   | 8:H:112:ILE:HG12  | 1.68                     | 0.74              |
| 15:O:444:SER:O    | 15:O:447:THR:OG1  | 2.06                     | 0.74              |
| 16:P:420:GLU:CD   | 18:R:3:GLU:OE2    | 2.26                     | 0.74              |
| 2:B:891:GLU:HG2   | 2:B:892:SER:H     | 1.52                     | 0.73              |
| 16:P:597:LYS:HE3  | 17:Q:323:ASP:HB3  | 1.68                     | 0.73              |
| 17:Q:155:GLN:HA   | 20:T:49:DC:C2'    | 2.18                     | 0.73              |
| 17:Q:186:CYS:O    | 18:R:208:TYR:OH   | 2.03                     | 0.73              |
| 17:Q:323:ASP:HA   | 17:Q:324:ARG:N    | 2.01                     | 0.73              |
| 17:Q:356:VAL:CG1  | 18:R:208:TYR:CE1  | 2.61                     | 0.73              |
| 1:A:489:ASN:ND2   | 2:B:781:TYR:OH    | 2.21                     | 0.73              |
| 1:A:526:GLY:HA2   | 1:A:554:ARG:CZ    | 2.18                     | 0.73              |
| 1:A:618:TYR:CZ    | 2:B:783:MET:HB2   | 2.23                     | 0.73              |
| 1:A:637:PHE:O     | 2:B:1091:ARG:NH1  | 2.21                     | 0.73              |
| 2:B:335:ARG:HG3   | 2:B:340:ALA:HB3   | 1.70                     | 0.73              |
| 2:B:1079:LEU:HD23 | 2:B:1088:LEU:CA   | 2.18                     | 0.73              |
| 15:O:181:ARG:HH22 | 15:O:222:CYS:HA   | 1.52                     | 0.73              |
| 16:P:67:ASP:HA    | 16:P:545:SER:O    | 1.88                     | 0.73              |
| 18:R:253:ILE:O    | 18:R:256:GLU:N    | 2.22                     | 0.73              |
| 14:N:157:ARG:NH1  | 14:N:159:ASP:OD1  | 2.21                     | 0.73              |
| 16:P:435:ARG:NH2  | 18:R:140:ILE:HD11 | 1.98                     | 0.73              |
| 1:A:550:SER:N     | 1:A:553:GLN:HE22  | 1.85                     | 0.73              |
| 2:B:1084:THR:OG1  | 2:B:1088:LEU:CD2  | 2.36                     | 0.73              |
| 3:C:229:LEU:HB2   | 3:C:293:ARG:HD2   | 1.69                     | 0.73              |
| 15:O:200:ASN:CG   | 17:Q:14:ASN:HB2   | 2.09                     | 0.73              |
| 1:A:94:LEU:HB2    | 1:A:355:PHE:CD2   | 2.23                     | 0.73              |
| 3:C:91:VAL:HG21   | 10:J:60:PHE:HB3   | 1.69                     | 0.73              |
| 20:T:14:DG:N2     | 21:U:37:DA:C2     | 2.56                     | 0.73              |
| 2:B:212:ASN:HB3   | 2:B:589:ASP:O     | 1.89                     | 0.73              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:626:LEU:HD21 | 16:P:665:ASN:HA   | 1.70                     | 0.73              |
| 1:A:591:ARG:NH2   | 19:S:6:A:H1'      | 2.04                     | 0.73              |
| 1:A:636:HIS:HB3   | 2:B:1091:ARG:HH21 | 1.54                     | 0.73              |
| 2:B:114:SER:OG    | 18:R:282:SER:C    | 2.26                     | 0.73              |
| 2:B:213:HIS:HD2   | 2:B:643:PHE:HZ    | 1.33                     | 0.73              |
| 16:P:264:ILE:HG22 | 16:P:275:GLU:HB2  | 1.71                     | 0.73              |
| 17:Q:258:MET:CE   | 17:Q:438:PHE:CE2  | 2.70                     | 0.72              |
| 1:A:646:GLU:OE1   | 1:A:1651:THR:HG21 | 1.89                     | 0.72              |
| 2:B:212:ASN:HB3   | 2:B:589:ASP:C     | 2.09                     | 0.72              |
| 15:O:492:ARG:HG3  | 15:O:496:GLY:CA   | 2.10                     | 0.72              |
| 14:N:81:THR:HA    | 14:N:86:ASP:HA    | 1.72                     | 0.72              |
| 3:C:241:GLY:N     | 3:C:263:ASP:OD2   | 2.17                     | 0.72              |
| 1:A:597:LYS:O     | 2:B:1082:HIS:CD2  | 2.42                     | 0.72              |
| 1:A:1319:ASN:O    | 1:A:1323:HIS:ND1  | 2.18                     | 0.72              |
| 1:A:10:GLU:OE2    | 1:A:1645:LYS:HG3  | 1.88                     | 0.72              |
| 1:A:637:PHE:H     | 2:B:1091:ARG:NH2  | 1.85                     | 0.72              |
| 1:A:834:ARG:HH12  | 2:B:1007:TYR:HE2  | 1.35                     | 0.72              |
| 1:A:1541:ILE:O    | 5:E:147:HIS:NE2   | 2.23                     | 0.72              |
| 2:B:1017:ALA:O    | 3:C:65:ASN:ND2    | 2.22                     | 0.72              |
| 9:I:23:VAL:O      | 9:I:39:LYS:NZ     | 2.22                     | 0.72              |
| 16:P:302:VAL:HG11 | 16:P:362:ARG:HH11 | 1.55                     | 0.72              |
| 16:P:442:LEU:HA   | 16:P:443:ASP:OD1  | 1.90                     | 0.72              |
| 16:P:446:ASP:CA   | 18:R:200:THR:HG22 | 2.19                     | 0.72              |
| 17:Q:12:THR:OG1   | 17:Q:33:HIS:CE1   | 2.42                     | 0.72              |
| 18:R:252:GLY:O    | 18:R:256:GLU:HB2  | 1.89                     | 0.72              |
| 1:A:1654:PHE:HB2  | 6:F:134:ILE:CG2   | 2.19                     | 0.72              |
| 2:B:745:GLN:OE1   | 3:C:93:GLN:NE2    | 2.23                     | 0.72              |
| 2:B:894:LYS:NZ    | 17:Q:405:ASP:CG   | 2.42                     | 0.72              |
| 17:Q:356:VAL:HB   | 18:R:208:TYR:CB   | 2.20                     | 0.72              |
| 1:A:1014:SER:HB2  | 20:T:17:DT:H71    | 1.69                     | 0.72              |
| 2:B:168:ASN:HA    | 2:B:173:ASN:HD22  | 1.53                     | 0.72              |
| 8:H:48:PRO:O      | 8:H:146:ARG:NH2   | 2.22                     | 0.72              |
| 16:P:230:HIS:O    | 16:P:232:ASN:ND2  | 2.23                     | 0.72              |
| 20:T:11:DA:C5     | 20:T:12:DC:C4     | 2.77                     | 0.72              |
| 1:A:671:GLN:HB2   | 2:B:783:MET:CE    | 2.18                     | 0.72              |
| 1:A:672:ASP:HB2   | 2:B:783:MET:SD    | 2.28                     | 0.72              |
| 18:R:162:PHE:HA   | 18:R:165:ILE:HD12 | 1.72                     | 0.72              |
| 2:B:1050:GLY:HA2  | 17:Q:24:ASP:HA    | 1.71                     | 0.71              |
| 16:P:659:LEU:H    | 16:P:659:LEU:HD13 | 1.54                     | 0.71              |
| 18:R:414:PHE:HA   | 18:R:417:ILE:HG22 | 1.70                     | 0.71              |
| 1:A:1613:MET:HE3  | 1:A:1622:LEU:HD13 | 1.71                     | 0.71              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:939:SER:HA    | 2:B:1013:MET:HG2  | 1.72                     | 0.71              |
| 3:C:278:GLU:OE2   | 3:C:281:ARG:NH1   | 2.22                     | 0.71              |
| 17:Q:322:ARG:O    | 17:Q:324:ARG:N    | 2.22                     | 0.71              |
| 1:A:474:LYS:HD3   | 2:B:1096:SER:HB3  | 0.75                     | 0.71              |
| 1:A:1306:TYR:O    | 1:A:1499:ARG:NH2  | 2.22                     | 0.71              |
| 16:P:420:GLU:O    | 16:P:441:ASP:HA   | 1.88                     | 0.71              |
| 18:R:303:THR:HA   | 18:R:358:PHE:CZ   | 2.25                     | 0.71              |
| 7:G:32:ASN:ND2    | 7:G:34:THR:OG1    | 2.24                     | 0.71              |
| 15:O:389:SER:HA   | 15:O:395:LEU:HB3  | 1.71                     | 0.71              |
| 1:A:706:HIS:CE1   | 1:A:815:ARG:HH12  | 2.09                     | 0.71              |
| 1:A:80:GLU:HA     | 1:A:359:VAL:HG12  | 1.71                     | 0.71              |
| 1:A:642:ASN:HB3   | 2:B:1086:PHE:CE2  | 2.25                     | 0.71              |
| 2:B:134:ARG:HD3   | 2:B:160:GLY:HA3   | 1.72                     | 0.71              |
| 2:B:1084:THR:CB   | 2:B:1087:LEU:HD23 | 2.20                     | 0.71              |
| 3:C:60:ASP:OD2    | 11:K:78:TYR:OH    | 2.04                     | 0.71              |
| 4:D:47:LYS:NZ     | 7:G:84:TYR:OH     | 2.23                     | 0.71              |
| 16:P:443:ASP:HB3  | 18:R:3:GLU:CA     | 2.21                     | 0.71              |
| 1:A:1301:GLU:O    | 1:A:1305:GLU:N    | 2.21                     | 0.71              |
| 2:B:505:ARG:HB3   | 2:B:509:PHE:HD2   | 1.54                     | 0.71              |
| 16:P:622:TYR:O    | 16:P:626:LEU:HB2  | 1.90                     | 0.71              |
| 1:A:973:GLU:HG3   | 1:A:975:ASP:H     | 1.55                     | 0.71              |
| 1:A:1654:PHE:CE2  | 6:F:89:GLU:CG     | 2.74                     | 0.71              |
| 2:B:184:LYS:HD2   | 2:B:735:HIS:CD2   | 2.25                     | 0.71              |
| 3:C:65:ASN:OD1    | 3:C:68:ARG:NH2    | 2.24                     | 0.71              |
| 1:A:1184:ALA:O    | 1:A:1188:ILE:HG12 | 1.91                     | 0.70              |
| 2:B:547:HIS:HD1   | 2:B:760:TYR:HH    | 1.37                     | 0.70              |
| 2:B:1084:THR:CB   | 2:B:1087:LEU:CD2  | 2.65                     | 0.70              |
| 13:M:40:LEU:HD11  | 13:M:51:PHE:HB3   | 1.72                     | 0.70              |
| 16:P:315:PHE:HB3  | 16:P:317:ILE:HD11 | 1.73                     | 0.70              |
| 17:Q:386:LEU:CD1  | 18:R:241:ARG:HH22 | 2.03                     | 0.70              |
| 20:T:11:DA:C4     | 20:T:12:DC:C5     | 2.79                     | 0.70              |
| 20:T:12:DC:H2''   | 20:T:13:DT:H5'    | 1.72                     | 0.70              |
| 2:B:894:LYS:HZ2   | 17:Q:405:ASP:CB   | 1.96                     | 0.70              |
| 7:G:149:ILE:HB    | 7:G:153:PHE:HB2   | 1.73                     | 0.70              |
| 15:O:225:LEU:HD11 | 15:O:228:GLN:HB2  | 1.73                     | 0.70              |
| 15:O:379:ARG:HA   | 15:O:382:GLN:NE2  | 2.06                     | 0.70              |
| 2:B:17:ARG:NH1    | 2:B:758:ASP:OD2   | 2.25                     | 0.70              |
| 2:B:213:HIS:HD2   | 2:B:643:PHE:CZ    | 2.08                     | 0.70              |
| 2:B:1127:CYS:SG   | 2:B:1171:ASN:ND2  | 2.63                     | 0.70              |
| 17:Q:22:ILE:HD12  | 17:Q:24:ASP:CG    | 2.11                     | 0.70              |
| 17:Q:350:ARG:CZ   | 17:Q:486:GLN:CD   | 2.60                     | 0.70              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1641:ILE:HD12 | 1:A:1641:ILE:N    | 2.05                     | 0.70              |
| 2:B:812:ALA:CB    | 2:B:815:ARG:HH11  | 2.04                     | 0.70              |
| 16:P:435:ARG:HH21 | 18:R:140:ILE:HD13 | 1.33                     | 0.70              |
| 2:B:817:ARG:NE    | 21:U:16:DA:O3'    | 2.24                     | 0.70              |
| 2:B:1075:GLU:O    | 2:B:1079:LEU:CD1  | 2.39                     | 0.70              |
| 3:C:227:TYR:HB3   | 3:C:300:PHE:CD1   | 2.27                     | 0.70              |
| 17:Q:355:VAL:CG1  | 18:R:212:HIS:CA   | 2.64                     | 0.70              |
| 1:A:1248:ASP:N    | 1:A:1248:ASP:OD1  | 2.23                     | 0.70              |
| 16:P:389:TRP:NE1  | 18:R:146:SER:CB   | 2.49                     | 0.70              |
| 16:P:719:LEU:HD13 | 16:P:733:THR:HG21 | 1.73                     | 0.70              |
| 15:O:100:LEU:HD22 | 15:O:107:ILE:HD11 | 1.72                     | 0.70              |
| 16:P:182:LEU:HD13 | 16:P:184:SER:H    | 1.56                     | 0.70              |
| 16:P:567:ILE:HB   | 16:P:569:VAL:HG23 | 1.74                     | 0.70              |
| 1:A:512:THR:HG21  | 1:A:514:TYR:CE2   | 2.27                     | 0.70              |
| 1:A:526:GLY:HA2   | 1:A:554:ARG:NH2   | 2.06                     | 0.70              |
| 1:A:627:ASP:CA    | 2:B:784:ASP:OD1   | 2.35                     | 0.70              |
| 15:O:104:ILE:HD12 | 15:O:107:ILE:HD12 | 1.72                     | 0.70              |
| 1:A:403:LEU:HB2   | 1:A:419:ILE:HG21  | 1.74                     | 0.70              |
| 16:P:355:GLU:HA   | 18:R:24:ILE:HD12  | 1.74                     | 0.70              |
| 17:Q:286:LEU:HB3  | 17:Q:300:ASN:HB3  | 1.73                     | 0.70              |
| 1:A:7:VAL:HG21    | 2:B:1177:ALA:HB2  | 1.73                     | 0.69              |
| 1:A:1047:GLN:NE2  | 1:A:1587:ASP:OD2  | 2.25                     | 0.69              |
| 2:B:731:VAL:HA    | 10:J:60:PHE:HE1   | 1.55                     | 0.69              |
| 2:B:895:PHE:CE2   | 20:T:39:DT:OP1    | 2.45                     | 0.69              |
| 5:E:17:ARG:HH12   | 5:E:36:GLU:HA     | 1.55                     | 0.69              |
| 17:Q:245:SER:HB3  | 17:Q:284:LEU:HD13 | 1.73                     | 0.69              |
| 1:A:1641:ILE:H    | 1:A:1641:ILE:CD1  | 1.98                     | 0.69              |
| 17:Q:192:TYR:HD1  | 17:Q:193:PHE:N    | 1.89                     | 0.69              |
| 1:A:30:LYS:NZ     | 1:A:51:ASP:OD2    | 2.25                     | 0.69              |
| 1:A:647:ALA:O     | 1:A:652:ASN:ND2   | 2.26                     | 0.69              |
| 17:Q:186:CYS:SG   | 18:R:208:TYR:CE2  | 2.85                     | 0.69              |
| 17:Q:322:ARG:C    | 17:Q:324:ARG:N    | 2.46                     | 0.69              |
| 1:A:597:LYS:HD3   | 2:B:1081:GLY:O    | 1.92                     | 0.69              |
| 2:B:117:VAL:HB    | 18:R:277:ILE:CA   | 2.14                     | 0.69              |
| 2:B:1065:ARG:O    | 2:B:1066:HIS:HB2  | 1.92                     | 0.69              |
| 17:Q:22:ILE:HG13  | 17:Q:24:ASP:OD1   | 1.92                     | 0.69              |
| 1:A:597:LYS:HD2   | 2:B:1082:HIS:HA   | 1.74                     | 0.69              |
| 2:B:795:GLU:OE1   | 3:C:217:ALA:N     | 2.24                     | 0.69              |
| 2:B:816:ASN:CG    | 21:U:18:DG:OP1    | 2.31                     | 0.69              |
| 1:A:527:PRO:HD3   | 1:A:554:ARG:HH22  | 1.57                     | 0.69              |
| 2:B:116:ALA:N     | 18:R:282:SER:C    | 2.45                     | 0.69              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:274:ILE:HD13 | 16:P:305:PHE:HE2  | 1.58                     | 0.69              |
| 1:A:638:PRO:HG3   | 2:B:1087:LEU:CD1  | 2.22                     | 0.69              |
| 1:A:646:GLU:CD    | 1:A:1651:THR:HG21 | 2.13                     | 0.69              |
| 1:A:1259:SER:OG   | 1:A:1260:LYS:N    | 2.22                     | 0.69              |
| 9:I:26:SER:HA     | 9:I:39:LYS:HE2    | 1.73                     | 0.69              |
| 16:P:405:TYR:HB2  | 16:P:416:LEU:HD12 | 1.75                     | 0.69              |
| 16:P:487:ASN:HB3  | 18:R:138:PHE:CE1  | 2.27                     | 0.69              |
| 17:Q:183:LYS:O    | 17:Q:187:THR:OG1  | 2.11                     | 0.69              |
| 2:B:480:GLN:OE1   | 2:B:507:SER:N     | 2.24                     | 0.69              |
| 2:B:1060:VAL:O    | 2:B:1067:GLY:CA   | 2.41                     | 0.69              |
| 16:P:186:TYR:CB   | 18:R:198:LEU:HD23 | 2.21                     | 0.69              |
| 16:P:446:ASP:N    | 18:R:200:THR:CG2  | 2.55                     | 0.69              |
| 16:P:473:HIS:NE2  | 18:R:1:MET:HB2    | 2.08                     | 0.69              |
| 1:A:593:PRO:HD3   | 19:S:6:A:H2       | 1.58                     | 0.69              |
| 1:A:641:GLU:HB2   | 6:F:99:LEU:HD12   | 1.75                     | 0.69              |
| 16:P:446:ASP:N    | 18:R:200:THR:HG22 | 2.08                     | 0.69              |
| 17:Q:360:LYS:HZ3  | 18:R:211:ARG:HH22 | 0.71                     | 0.69              |
| 16:P:275:GLU:HG3  | 16:P:288:SER:HA   | 1.76                     | 0.68              |
| 16:P:675:PHE:HE2  | 16:P:741:ILE:HG21 | 1.57                     | 0.68              |
| 1:A:587:VAL:HG12  | 1:A:637:PHE:CD1   | 2.27                     | 0.68              |
| 1:A:1619:CYS:O    | 1:A:1623:THR:N    | 2.19                     | 0.68              |
| 2:B:698:SER:O     | 2:B:702:ASN:ND2   | 2.25                     | 0.68              |
| 9:I:28:VAL:HG23   | 9:I:39:LYS:HA     | 1.74                     | 0.68              |
| 16:P:218:VAL:HB   | 16:P:245:ILE:HG23 | 1.76                     | 0.68              |
| 18:R:349:ILE:O    | 18:R:353:VAL:HB   | 1.93                     | 0.68              |
| 1:A:628:PHE:CB    | 2:B:785:ASP:H     | 2.00                     | 0.68              |
| 8:H:8:ASP:OD1     | 8:H:9:ILE:N       | 2.25                     | 0.68              |
| 16:P:592:LEU:HA   | 16:P:595:GLN:HB2  | 1.74                     | 0.68              |
| 18:R:264:SER:O    | 18:R:266:SER:OG   | 2.09                     | 0.68              |
| 18:R:365:TRP:HB3  | 18:R:418:CYS:HB2  | 1.76                     | 0.68              |
| 2:B:1107:CYS:O    | 2:B:1195:ARG:NH2  | 2.25                     | 0.68              |
| 3:C:216:HIS:ND1   | 3:C:218:LYS:HG2   | 2.09                     | 0.68              |
| 3:C:232:GLN:N     | 3:C:292:GLY:O     | 2.27                     | 0.68              |
| 1:A:65:CYS:CB     | 1:A:75:HIS:NE2    | 2.54                     | 0.68              |
| 1:A:407:GLN:O     | 1:A:411:VAL:N     | 2.25                     | 0.68              |
| 1:A:511:VAL:HG11  | 1:A:575:LYS:N     | 2.08                     | 0.68              |
| 2:B:924:LYS:NZ    | 19:S:6:A:OP1      | 2.25                     | 0.68              |
| 2:B:934:ILE:HB    | 3:C:69:ARG:HD2    | 1.73                     | 0.68              |
| 2:B:1189:LEU:HD12 | 2:B:1196:LEU:HD11 | 1.74                     | 0.68              |
| 6:F:58:PHE:HA     | 6:F:61:HIS:CE1    | 2.28                     | 0.68              |
| 17:Q:353:VAL:CG1  | 17:Q:489:VAL:CG1  | 2.71                     | 0.68              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:356:VAL:HG11 | 18:R:208:TYR:CZ   | 2.27                     | 0.68              |
| 15:O:461:VAL:HG11 | 15:O:513:LYS:HB3  | 1.75                     | 0.68              |
| 1:A:862:THR:O     | 1:A:878:ARG:NH1   | 2.26                     | 0.68              |
| 2:B:1093:LEU:CD1  | 2:B:1098:TYR:CB   | 2.62                     | 0.68              |
| 2:B:1105:ARG:NH1  | 2:B:1172:GLU:OE1  | 2.26                     | 0.68              |
| 9:I:3:VAL:HG22    | 9:I:8:ILE:HG23    | 1.75                     | 0.68              |
| 1:A:1003:ARG:NH2  | 2:B:540:GLY:HA2   | 2.09                     | 0.68              |
| 15:O:487:ARG:HH21 | 15:O:502:LEU:HD13 | 1.57                     | 0.68              |
| 17:Q:162:ILE:HG21 | 17:Q:226:LEU:HD11 | 1.73                     | 0.68              |
| 2:B:895:PHE:HE2   | 20:T:39:DT:OP1    | 1.75                     | 0.68              |
| 16:P:363:ILE:HG23 | 16:P:374:VAL:HG13 | 1.76                     | 0.68              |
| 16:P:393:VAL:HG23 | 16:P:394:VAL:H    | 1.59                     | 0.68              |
| 17:Q:8:PRO:HG2    | 17:Q:19:LEU:HD23  | 1.75                     | 0.68              |
| 20:T:9:DC:C2'     | 20:T:10:DA:C8     | 2.76                     | 0.68              |
| 2:B:841:ASP:N     | 2:B:845:LEU:O     | 2.20                     | 0.68              |
| 18:R:361:ASP:O    | 18:R:364:VAL:HG22 | 1.94                     | 0.68              |
| 1:A:1242:ILE:HG22 | 1:A:1536:ILE:HG22 | 1.74                     | 0.67              |
| 2:B:1079:LEU:CD2  | 2:B:1088:LEU:CB   | 2.55                     | 0.67              |
| 3:C:32:ASN:OD1    | 3:C:33:VAL:N      | 2.27                     | 0.67              |
| 16:P:480:VAL:HG23 | 16:P:492:LEU:HD21 | 1.76                     | 0.67              |
| 17:Q:22:ILE:CD1   | 17:Q:26:ARG:HE    | 2.04                     | 0.67              |
| 1:A:672:ASP:OD2   | 2:B:783:MET:SD    | 2.53                     | 0.67              |
| 1:A:1654:PHE:CD2  | 6:F:89:GLU:HG3    | 2.28                     | 0.67              |
| 2:B:894:LYS:HZ1   | 17:Q:405:ASP:CB   | 2.04                     | 0.67              |
| 2:B:1047:ARG:CZ   | 2:B:1049:THR:HG22 | 2.24                     | 0.67              |
| 2:B:1078:ALA:O    | 2:B:1082:HIS:HB2  | 1.93                     | 0.67              |
| 14:N:85:HIS:HE1   | 14:N:141:GLU:HG3  | 1.58                     | 0.67              |
| 16:P:357:LEU:O    | 18:R:194:GLY:HA2  | 1.93                     | 0.67              |
| 3:C:127:THR:H     | 3:C:130:ASN:HB2   | 1.60                     | 0.67              |
| 15:O:506:PHE:O    | 15:O:510:VAL:N    | 2.23                     | 0.67              |
| 17:Q:356:VAL:CG2  | 18:R:208:TYR:HD2  | 1.97                     | 0.67              |
| 21:U:38:DG:C2     | 21:U:39:DT:C2     | 2.82                     | 0.67              |
| 1:A:355:PHE:HD1   | 1:A:355:PHE:H     | 1.39                     | 0.67              |
| 2:B:480:GLN:O     | 2:B:484:TYR:OH    | 2.12                     | 0.67              |
| 2:B:1096:SER:O    | 2:B:1097:ASP:HB3  | 1.93                     | 0.67              |
| 1:A:70:LYS:HZ2    | 17:Q:27:ARG:NH1   | 1.92                     | 0.67              |
| 1:A:1260:LYS:NZ   | 1:A:1500:GLN:OE1  | 2.27                     | 0.67              |
| 16:P:229:ARG:HG3  | 16:P:230:HIS:H    | 1.57                     | 0.67              |
| 17:Q:386:LEU:HD12 | 18:R:241:ARG:HH22 | 1.58                     | 0.67              |
| 1:A:509:GLU:OE2   | 1:A:584:ARG:NH2   | 2.28                     | 0.67              |
| 1:A:1600:ARG:NH2  | 1:A:1620:GLN:OE1  | 2.27                     | 0.67              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:511:VAL:CG1   | 1:A:575:LYS:N     | 2.58                     | 0.67              |
| 1:A:543:LEU:HD21  | 1:A:578:TYR:HH    | 1.57                     | 0.67              |
| 16:P:238:LEU:HD11 | 16:P:284:VAL:HB   | 1.74                     | 0.67              |
| 16:P:367:SER:OG   | 16:P:368:HIS:N    | 2.28                     | 0.67              |
| 16:P:384:ASP:HB3  | 16:P:389:TRP:HB3  | 1.76                     | 0.67              |
| 2:B:213:HIS:HB2   | 2:B:643:PHE:HE2   | 1.58                     | 0.67              |
| 15:O:189:PHE:O    | 15:O:192:THR:OG1  | 2.11                     | 0.67              |
| 1:A:855:ARG:NH1   | 1:A:868:THR:O     | 2.26                     | 0.67              |
| 2:B:184:LYS:NZ    | 10:J:69:ARG:HH22  | 1.92                     | 0.67              |
| 1:A:652:ASN:HB2   | 1:A:655:SER:HB2   | 1.77                     | 0.67              |
| 2:B:113:VAL:C     | 18:R:282:SER:HA   | 2.15                     | 0.67              |
| 5:E:17:ARG:NH1    | 5:E:35:VAL:O      | 2.27                     | 0.67              |
| 16:P:468:VAL:HG22 | 16:P:477:TYR:HB3  | 1.76                     | 0.67              |
| 18:R:236:PHE:O    | 18:R:240:ILE:HG22 | 1.94                     | 0.67              |
| 18:R:361:ASP:HB2  | 18:R:364:VAL:HG13 | 1.77                     | 0.67              |
| 15:O:453:TYR:CE2  | 15:O:473:PHE:HB2  | 2.29                     | 0.66              |
| 16:P:506:THR:HG23 | 16:P:542:ARG:HD3  | 1.78                     | 0.66              |
| 17:Q:232:LEU:HA   | 17:Q:287:TRP:CD1  | 2.30                     | 0.66              |
| 1:A:512:THR:HG22  | 1:A:513:ALA:N     | 2.10                     | 0.66              |
| 2:B:1014:TYR:HD1  | 2:B:1021:GLU:HA   | 1.60                     | 0.66              |
| 15:O:446:LEU:O    | 15:O:450:LEU:N    | 2.26                     | 0.66              |
| 16:P:362:ARG:HH22 | 16:P:364:GLU:HG3  | 1.61                     | 0.66              |
| 16:P:498:LEU:HD13 | 17:Q:368:GLN:HE21 | 1.59                     | 0.66              |
| 17:Q:361:PRO:O    | 17:Q:363:SER:N    | 2.28                     | 0.66              |
| 1:A:1148:LEU:HG   | 1:A:1155:PHE:HE2  | 1.60                     | 0.66              |
| 9:I:26:SER:O      | 9:I:39:LYS:N      | 2.27                     | 0.66              |
| 15:O:379:ARG:CA   | 15:O:382:GLN:HE22 | 2.09                     | 0.66              |
| 5:E:88:VAL:HB     | 5:E:116:ILE:HA    | 1.78                     | 0.66              |
| 1:A:690:GLU:HB3   | 11:K:77:ARG:HH22  | 1.61                     | 0.66              |
| 2:B:116:ALA:CB    | 18:R:282:SER:C    | 2.51                     | 0.66              |
| 2:B:564:ILE:O     | 2:B:567:SER:OG    | 2.14                     | 0.66              |
| 2:B:843:ASP:OD2   | 12:L:29:TYR:OH    | 2.13                     | 0.66              |
| 17:Q:15:CYS:HB2   | 17:Q:16:PRO:HA    | 1.77                     | 0.66              |
| 17:Q:355:VAL:CA   | 18:R:212:HIS:HE1  | 2.04                     | 0.66              |
| 2:B:107:PRO:O     | 2:B:171:HIS:NE2   | 2.21                     | 0.66              |
| 2:B:1107:CYS:HB2  | 2:B:1130:ARG:HH11 | 1.61                     | 0.66              |
| 5:E:55:ARG:HG3    | 5:E:84:ASP:HA     | 1.77                     | 0.66              |
| 17:Q:104:PHE:CZ   | 17:Q:156:LEU:HB2  | 2.31                     | 0.66              |
| 17:Q:412:LYS:O    | 17:Q:416:ILE:HG13 | 1.96                     | 0.66              |
| 2:B:974:LEU:O     | 10:J:47:ARG:NH2   | 2.29                     | 0.66              |
| 11:K:54:THR:HG22  | 11:K:61:ALA:HA    | 1.78                     | 0.66              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 15:O:200:ASN:CG   | 17:Q:14:ASN:CB   | 2.64                     | 0.66              |
| 16:P:355:GLU:CB   | 18:R:24:ILE:HD12 | 2.25                     | 0.66              |
| 2:B:815:ARG:NH2   | 2:B:821:ILE:CB   | 2.58                     | 0.66              |
| 2:B:1092:LEU:HD23 | 2:B:1092:LEU:C   | 2.16                     | 0.66              |
| 9:I:38:PRO:HD2    | 9:I:41:GLN:HE21  | 1.61                     | 0.66              |
| 14:N:63:ASP:OD2   | 14:N:66:LYS:NZ   | 2.25                     | 0.66              |
| 16:P:443:ASP:HB3  | 18:R:3:GLU:CB    | 2.26                     | 0.66              |
| 18:R:250:LEU:HB2  | 18:R:270:PHE:HE2 | 1.60                     | 0.66              |
| 2:B:144:SER:HA    | 2:B:151:ASN:HA   | 1.76                     | 0.66              |
| 2:B:916:LYS:HD3   | 2:B:924:LYS:HD2  | 1.77                     | 0.66              |
| 7:G:28:ILE:HD13   | 7:G:35:SER:HB3   | 1.78                     | 0.66              |
| 11:K:60:SER:OG    | 11:K:104:ARG:NH2 | 2.29                     | 0.65              |
| 1:A:1037:SER:OG   | 1:A:1039:ARG:NE  | 2.25                     | 0.65              |
| 15:O:179:PHE:O    | 15:O:183:ILE:N   | 2.22                     | 0.65              |
| 16:P:419:ARG:HG2  | 16:P:420:GLU:N   | 2.10                     | 0.65              |
| 16:P:555:THR:HG22 | 16:P:556:GLN:HG2 | 1.78                     | 0.65              |
| 16:P:724:LEU:CD1  | 17:Q:443:GLN:HG2 | 2.26                     | 0.65              |
| 17:Q:15:CYS:SG    | 17:Q:17:SER:CB   | 2.83                     | 0.65              |
| 1:A:385:LEU:HD23  | 1:A:437:PHE:HA   | 1.77                     | 0.65              |
| 1:A:504:LYS:O     | 1:A:506:THR:HG23 | 1.96                     | 0.65              |
| 2:B:115:SER:O     | 18:R:280:SER:N   | 2.29                     | 0.65              |
| 2:B:731:VAL:HG13  | 10:J:60:PHE:CD1  | 2.32                     | 0.65              |
| 3:C:64:ALA:O      | 3:C:68:ARG:N     | 2.21                     | 0.65              |
| 3:C:85:PHE:HE1    | 3:C:204:LEU:HD22 | 1.60                     | 0.65              |
| 15:O:466:GLY:O    | 15:O:469:ARG:NE  | 2.29                     | 0.65              |
| 19:S:4:C:O5'      | 19:S:4:C:H6      | 1.79                     | 0.65              |
| 3:C:212:ILE:HG13  | 3:C:215:ASP:H    | 1.61                     | 0.65              |
| 17:Q:355:VAL:HG11 | 18:R:212:HIS:HA  | 1.76                     | 0.65              |
| 1:A:372:LYS:HA    | 1:A:377:VAL:HA   | 1.78                     | 0.65              |
| 2:B:954:PHE:O     | 2:B:955:PRO:C    | 2.33                     | 0.65              |
| 9:I:10:CYS:HB3    | 9:I:13:CYS:SG    | 2.37                     | 0.65              |
| 15:O:487:ARG:HA   | 15:O:491:PHE:HB2 | 1.78                     | 0.65              |
| 18:R:6:ILE:HG22   | 18:R:245:VAL:HA  | 1.78                     | 0.65              |
| 18:R:417:ILE:O    | 18:R:420:ASP:HB2 | 1.96                     | 0.65              |
| 1:A:1302:TYR:HA   | 1:A:1305:GLU:HB3 | 1.77                     | 0.65              |
| 1:A:1640:ARG:NH1  | 1:A:1640:ARG:HG2 | 2.11                     | 0.65              |
| 16:P:420:GLU:HB2  | 16:P:442:LEU:N   | 2.12                     | 0.65              |
| 17:Q:409:ALA:O    | 17:Q:413:LEU:HB2 | 1.97                     | 0.65              |
| 3:C:222:VAL:C     | 3:C:224:THR:H    | 2.00                     | 0.65              |
| 15:O:327:GLU:HB3  | 15:O:331:LYS:HE3 | 1.77                     | 0.65              |
| 1:A:1162:ASN:HB3  | 1:A:1165:LYS:HG2 | 1.77                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1461:ASN:OD1  | 1:A:1462:PHE:N    | 2.29                     | 0.65              |
| 2:B:1050:GLY:CA   | 17:Q:24:ASP:HA    | 2.27                     | 0.65              |
| 16:P:458:LYS:HD3  | 16:P:459:PRO:HD3  | 1.78                     | 0.65              |
| 16:P:662:LEU:CB   | 16:P:665:ASN:HB2  | 2.26                     | 0.65              |
| 17:Q:366:TYR:HA   | 17:Q:369:TRP:NE1  | 2.12                     | 0.65              |
| 1:A:474:LYS:CD    | 2:B:1096:SER:HB2  | 2.21                     | 0.65              |
| 2:B:115:SER:C     | 18:R:282:SER:HB3  | 2.16                     | 0.65              |
| 2:B:662:ASP:OD1   | 2:B:663:ILE:N     | 2.30                     | 0.65              |
| 2:B:1079:LEU:CG   | 2:B:1088:LEU:HD22 | 2.12                     | 0.65              |
| 16:P:355:GLU:HA   | 18:R:24:ILE:CD1   | 2.27                     | 0.65              |
| 17:Q:288:GLU:O    | 17:Q:290:THR:N    | 2.30                     | 0.65              |
| 18:R:217:THR:HG22 | 18:R:239:LEU:HD21 | 1.77                     | 0.65              |
| 1:A:672:ASP:CA    | 2:B:783:MET:HE3   | 2.24                     | 0.65              |
| 2:B:143:TRP:O     | 2:B:152:LEU:N     | 2.28                     | 0.65              |
| 9:I:8:ILE:HG22    | 9:I:17:LEU:HD12   | 1.79                     | 0.65              |
| 1:A:339:PHE:O     | 1:A:1629:ASN:ND2  | 2.30                     | 0.64              |
| 1:A:568:VAL:O     | 1:A:571:HIS:ND1   | 2.25                     | 0.64              |
| 1:A:916:THR:O     | 1:A:919:LYS:NZ    | 2.28                     | 0.64              |
| 1:A:1185:VAL:HA   | 1:A:1188:ILE:HB   | 1.79                     | 0.64              |
| 1:A:1258:ILE:HD12 | 1:A:1258:ILE:O    | 1.96                     | 0.64              |
| 16:P:315:PHE:HB3  | 16:P:317:ILE:CD1  | 2.27                     | 0.64              |
| 17:Q:104:PHE:CE1  | 20:T:49:DC:OP1    | 2.51                     | 0.64              |
| 1:A:1326:GLU:HA   | 1:A:1329:ILE:HD12 | 1.78                     | 0.64              |
| 2:B:817:ARG:CG    | 21:U:17:DT:H5'    | 2.25                     | 0.64              |
| 2:B:1051:PRO:HD3  | 2:B:1066:HIS:O    | 1.97                     | 0.64              |
| 2:B:1098:TYR:CE1  | 2:B:1177:ALA:HB1  | 2.33                     | 0.64              |
| 16:P:446:ASP:HA   | 18:R:200:THR:CG2  | 2.27                     | 0.64              |
| 1:A:872:ASP:OD2   | 1:A:875:LEU:N     | 2.30                     | 0.64              |
| 1:A:1104:TYR:HB3  | 1:A:1120:TYR:HE2  | 1.63                     | 0.64              |
| 2:B:812:ALA:HA    | 2:B:815:ARG:HD2   | 1.79                     | 0.64              |
| 18:R:206:ARG:C    | 18:R:207:ASN:HB2  | 2.17                     | 0.64              |
| 18:R:427:PRO:HG2  | 18:R:429:ARG:HH21 | 1.63                     | 0.64              |
| 17:Q:355:VAL:HG13 | 18:R:212:HIS:HA   | 1.79                     | 0.64              |
| 17:Q:356:VAL:CG1  | 18:R:212:HIS:CE1  | 2.69                     | 0.64              |
| 1:A:358:ASP:OD1   | 1:A:358:ASP:N     | 2.31                     | 0.64              |
| 4:D:39:PHE:HZ     | 7:G:83:GLY:HA3    | 1.62                     | 0.64              |
| 15:O:600:LYS:HG3  | 15:O:601:ASN:H    | 1.62                     | 0.64              |
| 16:P:729:ALA:O    | 16:P:733:THR:HG22 | 1.96                     | 0.64              |
| 1:A:827:THR:HG21  | 2:B:1026:ILE:HA   | 1.78                     | 0.64              |
| 1:A:1018:TYR:CE1  | 20:T:16:DT:P      | 2.89                     | 0.64              |
| 1:A:1299:ASN:HA   | 1:A:1302:TYR:CZ   | 2.32                     | 0.64              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:O:63:LEU:HB2   | 15:O:71:ILE:HG13  | 1.79                     | 0.64              |
| 16:P:487:ASN:HB3  | 18:R:138:PHE:HZ   | 1.60                     | 0.64              |
| 16:P:658:LYS:O    | 16:P:747:LEU:HG   | 1.97                     | 0.64              |
| 16:P:698:LYS:HE2  | 17:Q:124:ARG:HH21 | 1.62                     | 0.64              |
| 3:C:69:ARG:NE     | 11:K:71:THR:OG1   | 2.23                     | 0.64              |
| 15:O:186:SER:HA   | 15:O:189:PHE:CE2  | 2.33                     | 0.64              |
| 16:P:421:ILE:HG22 | 16:P:423:ILE:HG13 | 1.79                     | 0.64              |
| 2:B:936:MET:CG    | 2:B:948:ILE:HD11  | 2.27                     | 0.64              |
| 15:O:446:LEU:HD11 | 15:O:476:ALA:HB1  | 1.80                     | 0.64              |
| 16:P:62:LYS:HG2   | 16:P:63:SER:N     | 2.13                     | 0.64              |
| 16:P:658:LYS:HB3  | 16:P:660:LYS:H    | 1.62                     | 0.64              |
| 1:A:95:TYR:OH     | 1:A:99:ARG:NH1    | 2.31                     | 0.64              |
| 1:A:1654:PHE:CE2  | 6:F:89:GLU:HG3    | 2.33                     | 0.64              |
| 3:C:89:THR:OG1    | 3:C:201:GLU:N     | 2.17                     | 0.64              |
| 13:M:36:THR:HG21  | 13:M:62:TYR:HE2   | 1.63                     | 0.64              |
| 13:M:57:ASN:HD21  | 13:M:60:LEU:HB2   | 1.62                     | 0.64              |
| 15:O:218:LEU:HD12 | 15:O:221:TYR:HB2  | 1.79                     | 0.64              |
| 15:O:430:ARG:HG2  | 15:O:482:TYR:OH   | 1.97                     | 0.64              |
| 16:P:221:ARG:HH12 | 16:P:264:ILE:HG21 | 1.63                     | 0.64              |
| 1:A:109:ARG:NH1   | 1:A:230:ARG:O     | 2.30                     | 0.64              |
| 1:A:1651:THR:HG21 | 2:B:1086:PHE:HB2  | 1.80                     | 0.64              |
| 2:B:709:PHE:HE2   | 2:B:992:PRO:HG2   | 1.63                     | 0.64              |
| 15:O:440:ILE:O    | 15:O:444:SER:N    | 2.31                     | 0.64              |
| 1:A:527:PRO:HD3   | 1:A:554:ARG:NH1   | 2.13                     | 0.63              |
| 1:A:879:LEU:HA    | 1:A:882:ILE:HG22  | 1.80                     | 0.63              |
| 16:P:380:MET:HB3  | 16:P:393:VAL:HG21 | 1.79                     | 0.63              |
| 16:P:592:LEU:O    | 16:P:596:ILE:HG22 | 1.98                     | 0.63              |
| 17:Q:19:LEU:HD11  | 17:Q:27:ARG:CB    | 2.27                     | 0.63              |
| 17:Q:198:ILE:HD12 | 17:Q:390:THR:HA   | 1.81                     | 0.63              |
| 17:Q:356:VAL:HG12 | 18:R:208:TYR:O    | 1.98                     | 0.63              |
| 1:A:368:ARG:HA    | 1:A:380:ASN:HD22  | 1.63                     | 0.63              |
| 1:A:638:PRO:CG    | 2:B:1087:LEU:HD11 | 2.26                     | 0.63              |
| 1:A:1013:THR:CB   | 20:T:17:DT:N3     | 2.61                     | 0.63              |
| 17:Q:22:ILE:HD11  | 17:Q:26:ARG:HE    | 1.62                     | 0.63              |
| 17:Q:101:LYS:HE3  | 17:Q:154:LEU:HD12 | 1.79                     | 0.63              |
| 1:A:552:GLU:O     | 15:O:246:ASN:ND2  | 2.31                     | 0.63              |
| 1:A:628:PHE:HB3   | 2:B:785:ASP:OD1   | 1.99                     | 0.63              |
| 1:A:880:GLN:NE2   | 2:B:633:THR:H     | 1.96                     | 0.63              |
| 7:G:167:THR:O     | 7:G:218:VAL:N     | 2.29                     | 0.63              |
| 13:M:61:GLU:N     | 13:M:101:VAL:O    | 2.25                     | 0.63              |
| 17:Q:337:SER:HB2  | 17:Q:448:LYS:HD3  | 1.80                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:646:GLU:OE2   | 6:F:91:ALA:HB1    | 1.98                     | 0.63              |
| 1:A:672:ASP:CG    | 2:B:783:MET:SD    | 2.76                     | 0.63              |
| 2:B:307:GLU:HB2   | 9:I:7:LEU:HD11    | 1.80                     | 0.63              |
| 2:B:787:MET:HG3   | 2:B:928:SER:N     | 2.12                     | 0.63              |
| 1:A:852:ASP:OD1   | 1:A:855:ARG:NE    | 2.29                     | 0.63              |
| 1:A:882:ILE:O     | 1:A:889:SER:OG    | 2.17                     | 0.63              |
| 1:A:1139:ASN:ND2  | 5:E:204:THR:O     | 2.31                     | 0.63              |
| 2:B:674:ILE:HG12  | 2:B:688:HIS:HB2   | 1.79                     | 0.63              |
| 2:B:1117:VAL:HG21 | 2:B:1162:GLY:HA2  | 1.79                     | 0.63              |
| 11:K:64:GLN:HE21  | 11:K:100:LEU:HD22 | 1.63                     | 0.63              |
| 1:A:1105:ARG:NH1  | 1:A:1138:GLU:HG2  | 2.14                     | 0.63              |
| 2:B:145:VAL:N     | 2:B:150:GLU:O     | 2.23                     | 0.63              |
| 3:C:150:SER:OG    | 3:C:155:GLU:OE2   | 2.17                     | 0.63              |
| 6:F:83:PRO:HB2    | 6:F:152:ILE:HD13  | 1.80                     | 0.63              |
| 16:P:697:GLU:OE1  | 16:P:697:GLU:N    | 2.25                     | 0.63              |
| 1:A:618:TYR:CE1   | 2:B:783:MET:HB2   | 2.33                     | 0.63              |
| 2:B:216:ALA:HA    | 2:B:234:ILE:HD13  | 1.80                     | 0.63              |
| 2:B:366:GLY:O     | 2:B:370:LYS:N     | 2.24                     | 0.63              |
| 15:O:61:ASP:OD1   | 15:O:106:ARG:NH2  | 2.31                     | 0.63              |
| 16:P:596:ILE:HD13 | 17:Q:272:GLN:NE2  | 2.14                     | 0.63              |
| 16:P:760:ILE:HA   | 16:P:763:SER:HB3  | 1.81                     | 0.63              |
| 1:A:1634:LEU:O    | 1:A:1640:ARG:NH1  | 2.31                     | 0.63              |
| 1:A:1635:ASP:O    | 1:A:1640:ARG:HD2  | 1.99                     | 0.63              |
| 2:B:225:ARG:NH2   | 2:B:268:GLU:OE1   | 2.24                     | 0.63              |
| 2:B:731:VAL:HG13  | 10:J:60:PHE:HD1   | 1.63                     | 0.63              |
| 17:Q:12:THR:HG1   | 17:Q:33:HIS:CE1   | 2.15                     | 0.63              |
| 17:Q:278:GLU:O    | 17:Q:279:THR:OG1  | 2.14                     | 0.63              |
| 19:S:3:G:C2       | 20:T:21:DC:O2     | 2.52                     | 0.63              |
| 1:A:833:LEU:HD22  | 1:A:943:ILE:HG21  | 1.81                     | 0.63              |
| 1:A:956:ARG:NH2   | 1:A:979:GLY:HA3   | 2.13                     | 0.63              |
| 2:B:532:HIS:ND1   | 24:B:1301:SO4:O4  | 2.31                     | 0.63              |
| 2:B:790:ASN:HA    | 2:B:936:MET:SD    | 2.39                     | 0.63              |
| 3:C:89:THR:HG1    | 3:C:201:GLU:H     | 1.45                     | 0.63              |
| 9:I:60:LEU:O      | 9:I:64:LYS:N      | 2.31                     | 0.63              |
| 17:Q:6:ARG:O      | 17:Q:7:GLY:O      | 2.17                     | 0.63              |
| 17:Q:8:PRO:HB2    | 17:Q:19:LEU:HD23  | 1.79                     | 0.63              |
| 18:R:346:ILE:HB   | 18:R:375:LYS:HE2  | 1.80                     | 0.63              |
| 1:A:1032:VAL:HG22 | 1:A:1038:ILE:HD13 | 1.81                     | 0.62              |
| 2:B:96:SER:HB2    | 2:B:144:SER:HB3   | 1.80                     | 0.62              |
| 10:J:18:TRP:NE1   | 10:J:55:ASP:OD2   | 2.32                     | 0.62              |
| 16:P:384:ASP:OD2  | 16:P:387:ASN:HB2  | 1.99                     | 0.62              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:435:ARG:HH22 | 18:R:140:ILE:CD1  | 2.09                     | 0.62              |
| 1:A:964:LYS:NZ    | 2:B:672:MET:O     | 2.32                     | 0.62              |
| 2:B:158:CYS:O     | 2:B:457:ILE:N     | 2.32                     | 0.62              |
| 2:B:320:LEU:HD21  | 2:B:325:GLN:O     | 1.98                     | 0.62              |
| 2:B:534:PRO:HG3   | 2:B:542:LEU:HD12  | 1.81                     | 0.62              |
| 2:B:1137:ASP:HA   | 2:B:1140:LYS:HD2  | 1.80                     | 0.62              |
| 16:P:420:GLU:HA   | 16:P:442:LEU:O    | 1.99                     | 0.62              |
| 16:P:700:LEU:HD12 | 16:P:703:PHE:HD2  | 1.64                     | 0.62              |
| 16:P:721:CYS:SG   | 17:Q:442:LEU:HD23 | 2.39                     | 0.62              |
| 17:Q:355:VAL:HG12 | 18:R:212:HIS:CA   | 2.26                     | 0.62              |
| 1:A:373:LEU:N     | 1:A:376:GLU:O     | 2.32                     | 0.62              |
| 1:A:1262:LEU:HB2  | 1:A:1265:GLU:HG3  | 1.80                     | 0.62              |
| 1:A:1646:LEU:HD11 | 2:B:1086:PHE:CE1  | 2.33                     | 0.62              |
| 2:B:811:LEU:HD13  | 2:B:823:GLN:HB2   | 1.80                     | 0.62              |
| 16:P:305:PHE:HE1  | 16:P:314:GLN:HG3  | 1.64                     | 0.62              |
| 17:Q:10:CYS:CB    | 17:Q:17:SER:H     | 2.12                     | 0.62              |
| 17:Q:329:LYS:HA   | 17:Q:332:LEU:HD23 | 1.80                     | 0.62              |
| 17:Q:386:LEU:CG   | 18:R:241:ARG:HH22 | 2.11                     | 0.62              |
| 2:B:1063:ARG:NE   | 20:T:22:DG:OP2    | 2.31                     | 0.62              |
| 3:C:58:ASN:HA     | 3:C:296:ASN:ND2   | 2.15                     | 0.62              |
| 5:E:100:ILE:HG23  | 5:E:105:PHE:HB2   | 1.81                     | 0.62              |
| 16:P:603:ARG:O    | 16:P:607:VAL:HG23 | 1.99                     | 0.62              |
| 17:Q:3:THR:HG22   | 17:Q:20:TRP:CB    | 2.29                     | 0.62              |
| 17:Q:356:VAL:HG22 | 18:R:208:TYR:CE2  | 2.24                     | 0.62              |
| 17:Q:410:ARG:HA   | 17:Q:413:LEU:HB3  | 1.80                     | 0.62              |
| 1:A:520:ARG:HH21  | 1:A:559:ASN:HD21  | 1.48                     | 0.62              |
| 6:F:61:HIS:HA     | 6:F:64:ILE:HB     | 1.81                     | 0.62              |
| 16:P:209:LYS:NZ   | 16:P:277:VAL:HG11 | 2.14                     | 0.62              |
| 16:P:405:TYR:HE2  | 16:P:414:ILE:HG13 | 1.64                     | 0.62              |
| 16:P:722:TRP:CD1  | 17:Q:264:PRO:HD3  | 2.34                     | 0.62              |
| 20:T:21:DC:O5'    | 20:T:21:DC:H6     | 1.81                     | 0.62              |
| 1:A:15:ASP:HB2    | 2:B:1197:ARG:HB3  | 1.79                     | 0.62              |
| 1:A:1603:MET:HG2  | 1:A:1612:LYS:HG2  | 1.81                     | 0.62              |
| 16:P:345:ASP:OD1  | 16:P:345:ASP:N    | 2.32                     | 0.62              |
| 16:P:414:ILE:HG12 | 16:P:425:GLY:H    | 1.62                     | 0.62              |
| 16:P:442:LEU:HB3  | 16:P:477:TYR:CZ   | 2.34                     | 0.62              |
| 18:R:173:MET:O    | 18:R:177:LEU:HB2  | 2.00                     | 0.62              |
| 1:A:1258:ILE:HB   | 1:A:1501:ILE:CD1  | 2.29                     | 0.62              |
| 2:B:314:LYS:O     | 2:B:315:LYS:HG2   | 1.99                     | 0.62              |
| 2:B:1105:ARG:HH21 | 2:B:1174:THR:HG22 | 1.64                     | 0.62              |
| 8:H:103:LYS:HB3   | 8:H:115:TYR:HD2   | 1.64                     | 0.62              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:357:TYR:CE2  | 17:Q:489:VAL:HA   | 2.34                     | 0.62              |
| 1:A:70:LYS:HZ2    | 17:Q:27:ARG:HH12  | 1.40                     | 0.62              |
| 1:A:512:THR:HG22  | 1:A:513:ALA:H     | 1.65                     | 0.62              |
| 1:A:782:ASP:OD1   | 1:A:783:LYS:N     | 2.33                     | 0.62              |
| 1:A:1507:CYS:HB3  | 1:A:1520:VAL:O    | 1.99                     | 0.62              |
| 5:E:26:ARG:NH1    | 5:E:133:GLU:OE1   | 2.29                     | 0.62              |
| 8:H:115:TYR:HE1   | 8:H:124:ARG:HG3   | 1.65                     | 0.62              |
| 17:Q:318:LEU:HB3  | 17:Q:476:ILE:HD12 | 1.82                     | 0.62              |
| 18:R:273:TRP:O    | 18:R:277:ILE:HG22 | 1.99                     | 0.62              |
| 2:B:302:LEU:HD13  | 2:B:379:ARG:NH1   | 2.14                     | 0.62              |
| 16:P:356:GLU:OE1  | 16:P:377:ARG:NE   | 2.33                     | 0.62              |
| 17:Q:274:ILE:HD13 | 17:Q:282:ARG:HH12 | 1.64                     | 0.62              |
| 20:T:7:DT:H3      | 21:U:43:DA:H61    | 1.46                     | 0.62              |
| 1:A:511:VAL:HG13  | 1:A:574:ASN:CB    | 2.25                     | 0.62              |
| 1:A:1240:LEU:HD12 | 1:A:1521:THR:HG23 | 1.78                     | 0.62              |
| 2:B:815:ARG:NH1   | 2:B:899:GLN:CD    | 2.53                     | 0.62              |
| 15:O:393:LEU:HD21 | 15:O:438:GLN:HE22 | 1.64                     | 0.62              |
| 16:P:631:SER:O    | 16:P:686:TYR:OH   | 2.17                     | 0.62              |
| 16:P:721:CYS:SG   | 17:Q:439:ILE:HG22 | 2.39                     | 0.62              |
| 18:R:361:ASP:OD1  | 18:R:361:ASP:N    | 2.25                     | 0.62              |
| 1:A:17:GLY:O      | 2:B:1195:ARG:N    | 2.33                     | 0.61              |
| 2:B:70:GLU:HA     | 2:B:98:SER:HB3    | 1.82                     | 0.61              |
| 2:B:302:LEU:HD13  | 2:B:379:ARG:HH12  | 1.65                     | 0.61              |
| 16:P:622:TYR:OH   | 16:P:665:ASN:O    | 2.16                     | 0.61              |
| 17:Q:299:SER:O    | 17:Q:299:SER:OG   | 2.11                     | 0.61              |
| 18:R:160:HIS:HA   | 18:R:163:LYS:HE2  | 1.81                     | 0.61              |
| 18:R:242:ILE:HG22 | 18:R:245:VAL:HG22 | 1.81                     | 0.61              |
| 1:A:547:ILE:CD1   | 17:Q:26:ARG:NH2   | 2.45                     | 0.61              |
| 1:A:1176:ARG:NH2  | 6:F:154:ASP:O     | 2.32                     | 0.61              |
| 2:B:1053:ASN:N    | 2:B:1058:GLN:O    | 2.29                     | 0.61              |
| 7:G:141:SER:O     | 7:G:217:TRP:NE1   | 2.34                     | 0.61              |
| 16:P:596:ILE:HD13 | 17:Q:272:GLN:CD   | 2.20                     | 0.61              |
| 1:A:702:PRO:HD3   | 1:A:712:ILE:HD11  | 1.82                     | 0.61              |
| 1:A:1510:PRO:HG3  | 1:A:1520:VAL:HG23 | 1.81                     | 0.61              |
| 2:B:368:GLN:HG3   | 2:B:372:ARG:HH12  | 1.65                     | 0.61              |
| 3:C:69:ARG:HH21   | 11:K:71:THR:H     | 1.47                     | 0.61              |
| 15:O:403:LEU:HB3  | 15:O:424:LEU:HB2  | 1.81                     | 0.61              |
| 16:P:434:ARG:HB3  | 18:R:143:THR:HG21 | 1.81                     | 0.61              |
| 16:P:584:ARG:O    | 16:P:588:SER:HB2  | 2.00                     | 0.61              |
| 18:R:75:GLN:HA    | 18:R:78:ARG:HE    | 1.64                     | 0.61              |
| 2:B:796:ARG:HD2   | 10:J:8:PHE:HA     | 1.82                     | 0.61              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:812:ALA:HB1  | 2:B:815:ARG:HH11  | 1.66                     | 0.61              |
| 3:C:84:TYR:HB3   | 12:L:64:LEU:HD11  | 1.82                     | 0.61              |
| 16:P:376:ASP:O   | 16:P:378:SER:N    | 2.33                     | 0.61              |
| 17:Q:324:ARG:NE  | 17:Q:324:ARG:O    | 2.33                     | 0.61              |
| 1:A:94:LEU:HB2   | 1:A:355:PHE:HD2   | 1.63                     | 0.61              |
| 2:B:651:ARG:NH2  | 2:B:690:GLU:OE2   | 2.23                     | 0.61              |
| 12:L:68:GLU:HG2  | 12:L:70:ARG:H     | 1.65                     | 0.61              |
| 16:P:629:ARG:NH2 | 16:P:662:LEU:HD21 | 2.14                     | 0.61              |
| 17:Q:230:ILE:O   | 17:Q:234:CYS:HB2  | 2.00                     | 0.61              |
| 17:Q:265:GLU:OE1 | 17:Q:265:GLU:N    | 2.31                     | 0.61              |
| 1:A:638:PRO:CG   | 2:B:1087:LEU:HD12 | 2.29                     | 0.61              |
| 1:A:1300:ASN:OD1 | 1:A:1301:GLU:N    | 2.33                     | 0.61              |
| 1:A:1307:ASP:HB3 | 1:A:1499:ARG:HH12 | 1.64                     | 0.61              |
| 2:B:234:ILE:HG12 | 2:B:381:LEU:HD13  | 1.81                     | 0.61              |
| 2:B:324:THR:HG23 | 2:B:347:LEU:HD13  | 1.81                     | 0.61              |
| 2:B:547:HIS:ND1  | 2:B:760:TYR:OH    | 2.26                     | 0.61              |
| 15:O:205:ARG:HD3 | 15:O:331:LYS:HA   | 1.82                     | 0.61              |
| 15:O:379:ARG:CB  | 15:O:591:TYR:OH   | 2.49                     | 0.61              |
| 17:Q:115:GLN:NE2 | 17:Q:191:PRO:O    | 2.27                     | 0.61              |
| 19:S:4:C:O2      | 20:T:20:DG:C2     | 2.53                     | 0.61              |
| 1:A:1640:ARG:HG2 | 1:A:1640:ARG:HH11 | 1.66                     | 0.61              |
| 1:A:1650:GLY:C   | 1:A:1652:GLY:H    | 2.02                     | 0.61              |
| 2:B:114:SER:CB   | 18:R:282:SER:HA   | 1.97                     | 0.61              |
| 5:E:47:CYS:HA    | 5:E:53:PRO:HA     | 1.81                     | 0.61              |
| 13:M:34:SER:OG   | 14:N:128:ASN:ND2  | 2.33                     | 0.61              |
| 15:O:383:TYR:O   | 15:O:387:HIS:N    | 2.32                     | 0.61              |
| 17:Q:356:VAL:HB  | 18:R:208:TYR:CD2  | 2.23                     | 0.61              |
| 1:A:952:LEU:HD12 | 1:A:957:VAL:HA    | 1.83                     | 0.61              |
| 2:B:838:GLU:O    | 12:L:63:ARG:NH2   | 2.34                     | 0.61              |
| 3:C:164:ALA:HB2  | 3:C:191:ILE:HB    | 1.83                     | 0.61              |
| 14:N:89:ILE:HG12 | 14:N:139:VAL:HG22 | 1.83                     | 0.61              |
| 16:P:55:LEU:CA   | 18:R:227:HIS:CE1  | 2.84                     | 0.61              |
| 20:T:4:DG:H8     | 20:T:4:DG:O5'     | 1.82                     | 0.61              |
| 1:A:597:LYS:O    | 2:B:1082:HIS:CE1  | 2.53                     | 0.61              |
| 1:A:729:LYS:HD2  | 8:H:120:GLY:HA3   | 1.82                     | 0.61              |
| 1:A:1654:PHE:CE2 | 6:F:89:GLU:N      | 2.69                     | 0.61              |
| 11:K:88:PHE:HB3  | 11:K:106:GLN:HB2  | 1.81                     | 0.61              |
| 13:M:51:PHE:HD2  | 13:M:94:PRO:HG3   | 1.65                     | 0.61              |
| 18:R:295:PRO:O   | 18:R:297:PHE:N    | 2.33                     | 0.61              |
| 2:B:910:THR:O    | 2:B:1035:ARG:NH2  | 2.33                     | 0.61              |
| 5:E:200:ARG:O    | 5:E:208:TYR:N     | 2.32                     | 0.61              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:N:113:SER:HG   | 14:N:115:SER:HG   | 1.46                     | 0.61              |
| 15:O:152:GLN:O    | 15:O:155:SER:OG   | 2.16                     | 0.61              |
| 15:O:442:VAL:O    | 15:O:446:LEU:N    | 2.29                     | 0.61              |
| 16:P:290:GLU:O    | 16:P:343:LEU:HD21 | 2.00                     | 0.61              |
| 16:P:486:ALA:HB1  | 18:R:137:SER:OG   | 2.01                     | 0.61              |
| 1:A:638:PRO:HG2   | 2:B:1087:LEU:CD1  | 2.31                     | 0.60              |
| 1:A:1450:ILE:HA   | 1:A:1453:HIS:HD2  | 1.65                     | 0.60              |
| 16:P:221:ARG:NH1  | 16:P:264:ILE:HG21 | 2.16                     | 0.60              |
| 16:P:724:LEU:HD12 | 17:Q:443:GLN:HA   | 1.83                     | 0.60              |
| 1:A:1459:LYS:HD3  | 1:A:1473:LYS:HD3  | 1.83                     | 0.60              |
| 2:B:931:TRP:CB    | 2:B:936:MET:HE3   | 2.11                     | 0.60              |
| 3:C:227:TYR:HB3   | 3:C:300:PHE:HD1   | 1.66                     | 0.60              |
| 15:O:379:ARG:HA   | 15:O:382:GLN:CD   | 2.21                     | 0.60              |
| 16:P:475:ARG:H    | 16:P:475:ARG:HD2  | 1.65                     | 0.60              |
| 17:Q:232:LEU:HD22 | 17:Q:287:TRP:CD1  | 2.36                     | 0.60              |
| 18:R:26:TYR:CB    | 18:R:169:PRO:HB3  | 2.31                     | 0.60              |
| 1:A:1302:TYR:O    | 1:A:1306:TYR:N    | 2.33                     | 0.60              |
| 2:B:494:TYR:HB3   | 2:B:700:LEU:HD11  | 1.82                     | 0.60              |
| 3:C:57:ILE:HG13   | 3:C:297:HIS:CD2   | 2.36                     | 0.60              |
| 6:F:66:ARG:O      | 6:F:70:LYS:N      | 2.32                     | 0.60              |
| 15:O:353:GLU:HG3  | 15:O:354:SER:H    | 1.65                     | 0.60              |
| 16:P:220:THR:HG22 | 16:P:241:PRO:HB3  | 1.82                     | 0.60              |
| 1:A:925:MET:SD    | 2:B:955:PRO:HB3   | 2.41                     | 0.60              |
| 1:A:1643:VAL:O    | 2:B:1179:PRO:HD2  | 2.00                     | 0.60              |
| 2:B:929:ARG:NH1   | 11:K:96:PRO:HB2   | 2.10                     | 0.60              |
| 15:O:458:GLU:HB3  | 15:O:513:LYS:HD2  | 1.82                     | 0.60              |
| 16:P:687:GLN:O    | 16:P:689:GLN:NE2  | 2.35                     | 0.60              |
| 5:E:176:PRO:HB2   | 5:E:212:ARG:HD3   | 1.83                     | 0.60              |
| 16:P:477:TYR:CE2  | 18:R:2:PHE:HZ     | 2.19                     | 0.60              |
| 16:P:477:TYR:HE2  | 18:R:2:PHE:HE2    | 1.19                     | 0.60              |
| 4:D:47:LYS:HB3    | 4:D:82:LEU:HD21   | 1.83                     | 0.60              |
| 15:O:328:LEU:HA   | 15:O:331:LYS:HB2  | 1.82                     | 0.60              |
| 18:R:257:ILE:CG2  | 18:R:267:GLY:H    | 2.13                     | 0.60              |
| 1:A:260:GLN:O     | 1:A:264:ASN:N     | 2.27                     | 0.60              |
| 3:C:132:ILE:HB    | 3:C:208:CYS:HB2   | 1.84                     | 0.60              |
| 15:O:62:ASP:O     | 15:O:67:ASP:N     | 2.35                     | 0.60              |
| 16:P:55:LEU:HA    | 18:R:227:HIS:CE1  | 2.36                     | 0.60              |
| 17:Q:15:CYS:HB3   | 17:Q:17:SER:H     | 1.62                     | 0.60              |
| 18:R:412:ARG:NE   | 18:R:432:GLU:OE2  | 2.28                     | 0.60              |
| 1:A:216:ARG:NH2   | 1:A:338:VAL:O     | 2.34                     | 0.60              |
| 1:A:709:ARG:NH1   | 1:A:737:LEU:O     | 2.33                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1640:ARG:HH11 | 1:A:1640:ARG:CG   | 2.15                     | 0.60              |
| 2:B:320:LEU:CD2   | 2:B:325:GLN:HB2   | 2.30                     | 0.60              |
| 2:B:815:ARG:NH1   | 2:B:899:GLN:CG    | 2.62                     | 0.60              |
| 2:B:1087:LEU:HD23 | 2:B:1088:LEU:HD23 | 1.83                     | 0.60              |
| 3:C:236:LEU:HD11  | 3:C:290:LYS:HG3   | 1.83                     | 0.60              |
| 7:G:22:LYS:NZ     | 7:G:77:VAL:O      | 2.33                     | 0.60              |
| 14:N:40:LEU:HA    | 14:N:51:GLN:HE22  | 1.66                     | 0.60              |
| 16:P:446:ASP:CA   | 18:R:200:THR:CG2  | 2.80                     | 0.60              |
| 1:A:597:LYS:CD    | 2:B:1081:GLY:O    | 2.50                     | 0.60              |
| 2:B:987:ASN:OD1   | 2:B:990:ASP:N     | 2.24                     | 0.60              |
| 3:C:77:SER:OG     | 3:C:219:PHE:O     | 2.20                     | 0.60              |
| 16:P:608:GLN:HA   | 16:P:611:ILE:HD12 | 1.83                     | 0.60              |
| 17:Q:154:LEU:H    | 17:Q:154:LEU:HD22 | 1.66                     | 0.60              |
| 1:A:1188:ILE:O    | 1:A:1192:SER:N    | 2.30                     | 0.60              |
| 2:B:296:ASP:OD2   | 2:B:379:ARG:NH2   | 2.34                     | 0.60              |
| 2:B:420:TYR:HE1   | 2:B:455:GLU:HB3   | 1.65                     | 0.60              |
| 9:I:2:SER:HB2     | 9:I:11:LEU:HD21   | 1.83                     | 0.60              |
| 16:P:320:ILE:O    | 16:P:320:ILE:HG12 | 2.01                     | 0.60              |
| 16:P:657:SER:HA   | 16:P:747:LEU:O    | 2.02                     | 0.60              |
| 2:B:1161:ASP:OD1  | 2:B:1165:ASN:N    | 2.28                     | 0.59              |
| 5:E:88:VAL:HG21   | 5:E:116:ILE:HG12  | 1.82                     | 0.59              |
| 16:P:473:HIS:CE1  | 18:R:1:MET:SD     | 2.95                     | 0.59              |
| 17:Q:378:LEU:HD21 | 18:R:235:ILE:CD1  | 2.32                     | 0.59              |
| 1:A:719:ILE:O     | 1:A:724:PRO:HA    | 2.02                     | 0.59              |
| 15:O:447:THR:HB   | 15:O:505:PHE:CZ   | 2.37                     | 0.59              |
| 17:Q:366:TYR:CB   | 18:R:215:THR:CG2  | 2.80                     | 0.59              |
| 18:R:177:LEU:HD21 | 18:R:185:LYS:HA   | 1.84                     | 0.59              |
| 1:A:1194:GLY:O    | 1:A:1197:SER:OG   | 2.20                     | 0.59              |
| 1:A:1654:PHE:HZ   | 6:F:89:GLU:HA     | 1.56                     | 0.59              |
| 2:B:311:ARG:HE    | 9:I:16:LEU:HG     | 1.66                     | 0.59              |
| 9:I:12:ASP:OD2    | 13:M:59:ARG:NH2   | 2.36                     | 0.59              |
| 15:O:352:LEU:HD11 | 15:O:392:GLN:HG3  | 1.84                     | 0.59              |
| 1:A:195:LYS:O     | 1:A:198:SER:OG    | 2.14                     | 0.59              |
| 2:B:790:ASN:HA    | 2:B:936:MET:CE    | 2.33                     | 0.59              |
| 16:P:60:VAL:O     | 16:P:61:VAL:HG23  | 2.02                     | 0.59              |
| 16:P:355:GLU:HB3  | 18:R:24:ILE:HG23  | 1.83                     | 0.59              |
| 17:Q:12:THR:HB    | 17:Q:33:HIS:ND1   | 2.18                     | 0.59              |
| 17:Q:389:GLN:O    | 18:R:243:PRO:HG3  | 2.01                     | 0.59              |
| 20:T:19:DC:H2'    | 20:T:20:DG:C8     | 2.37                     | 0.59              |
| 1:A:91:PHE:O      | 1:A:95:TYR:N      | 2.24                     | 0.59              |
| 2:B:1058:GLN:CG   | 2:B:1096:SER:O    | 2.45                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:C:136:LEU:HB3   | 3:C:204:LEU:HG    | 1.84                     | 0.59              |
| 15:O:484:PHE:CE1  | 15:O:528:PHE:HA   | 2.36                     | 0.59              |
| 1:A:1035:ASP:OD2  | 1:A:1039:ARG:NH2  | 2.33                     | 0.59              |
| 2:B:396:ALA:HB1   | 2:B:523:GLU:OE1   | 2.02                     | 0.59              |
| 2:B:931:TRP:HB3   | 2:B:936:MET:HE2   | 1.74                     | 0.59              |
| 3:C:243:SER:OG    | 3:C:246:ARG:NH2   | 2.36                     | 0.59              |
| 17:Q:139:LYS:HG2  | 17:Q:237:ILE:HG12 | 1.85                     | 0.59              |
| 18:R:78:ARG:HH21  | 20:T:43:DT:H5''   | 1.64                     | 0.59              |
| 1:A:1105:ARG:HH12 | 1:A:1138:GLU:HG2  | 1.66                     | 0.59              |
| 1:A:1508:VAL:O    | 1:A:1508:VAL:HG12 | 2.00                     | 0.59              |
| 1:A:1619:CYS:HA   | 1:A:1622:LEU:HB3  | 1.85                     | 0.59              |
| 1:A:1651:THR:O    | 1:A:1651:THR:HG22 | 2.01                     | 0.59              |
| 2:B:117:VAL:CB    | 18:R:277:ILE:HA   | 2.31                     | 0.59              |
| 5:E:9:ILE:HG22    | 5:E:39:LEU:HD11   | 1.85                     | 0.59              |
| 15:O:61:ASP:HA    | 15:O:64:ASP:HB2   | 1.84                     | 0.59              |
| 1:A:513:ALA:O     | 1:A:516:ILE:HG22  | 2.02                     | 0.59              |
| 1:A:552:GLU:HG2   | 1:A:553:GLN:H     | 1.67                     | 0.59              |
| 1:A:1289:SER:HB3  | 1:A:1475:GLU:HG2  | 1.85                     | 0.59              |
| 16:P:362:ARG:NH2  | 16:P:364:GLU:HG3  | 2.18                     | 0.59              |
| 1:A:642:ASN:CB    | 2:B:1086:PHE:CE2  | 2.85                     | 0.59              |
| 3:C:131:THR:O     | 3:C:175:GLN:NE2   | 2.34                     | 0.59              |
| 6:F:106:PRO:HG2   | 7:G:55:GLU:HG2    | 1.84                     | 0.59              |
| 17:Q:186:CYS:CB   | 18:R:208:TYR:HE2  | 1.95                     | 0.59              |
| 17:Q:227:TYR:O    | 17:Q:230:ILE:HG13 | 2.03                     | 0.59              |
| 18:R:299:THR:CG2  | 18:R:305:THR:HA   | 2.33                     | 0.59              |
| 18:R:314:TRP:NE1  | 18:R:363:GLU:OE2  | 2.35                     | 0.59              |
| 1:A:1013:THR:C    | 20:T:17:DT:C2     | 2.76                     | 0.59              |
| 2:B:420:TYR:CE1   | 2:B:455:GLU:HB3   | 2.37                     | 0.59              |
| 2:B:560:ARG:O     | 2:B:563:SER:OG    | 2.16                     | 0.59              |
| 8:H:93:TYR:HA     | 8:H:145:ARG:HB3   | 1.84                     | 0.59              |
| 16:P:477:TYR:CD2  | 18:R:2:PHE:HZ     | 2.19                     | 0.59              |
| 2:B:116:ALA:CA    | 18:R:282:SER:C    | 2.71                     | 0.58              |
| 2:B:299:ASP:OD1   | 2:B:301:PHE:N     | 2.35                     | 0.58              |
| 2:B:1074:MET:CE   | 20:T:18:DT:H4'    | 2.33                     | 0.58              |
| 9:I:19:ASN:HB3    | 9:I:22:ALA:HB2    | 1.85                     | 0.58              |
| 15:O:422:GLN:NE2  | 15:O:591:TYR:O    | 2.36                     | 0.58              |
| 1:A:464:GLU:HB2   | 1:A:465:GLY:HA2   | 1.85                     | 0.58              |
| 1:A:591:ARG:HH21  | 19:S:6:A:H1'      | 1.67                     | 0.58              |
| 16:P:197:ARG:HD2  | 16:P:262:GLY:N    | 2.18                     | 0.58              |
| 17:Q:350:ARG:NE   | 17:Q:486:GLN:CG   | 2.64                     | 0.58              |
| 1:A:596:HIS:CD2   | 1:A:598:ALA:HB3   | 2.38                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:671:GLN:CB    | 2:B:783:MET:CE    | 2.80                     | 0.58              |
| 1:A:1316:VAL:HG13 | 1:A:1320:GLN:HE21 | 1.68                     | 0.58              |
| 3:C:86:PHE:HE2    | 3:C:205:LYS:HG3   | 1.69                     | 0.58              |
| 15:O:446:LEU:O    | 15:O:450:LEU:HG   | 2.03                     | 0.58              |
| 16:P:59:ILE:O     | 16:P:552:LEU:HA   | 2.04                     | 0.58              |
| 17:Q:9:ILE:HB     | 17:Q:16:PRO:CB    | 2.26                     | 0.58              |
| 17:Q:20:TRP:CH2   | 17:Q:22:ILE:HG21  | 2.29                     | 0.58              |
| 18:R:11:ARG:HG3   | 18:R:12:LYS:H     | 1.68                     | 0.58              |
| 2:B:1119:ARG:NH2  | 2:B:1160:GLU:OE2  | 2.36                     | 0.58              |
| 3:C:311:GLU:OE1   | 3:C:311:GLU:N     | 2.34                     | 0.58              |
| 7:G:140:GLN:HB3   | 7:G:217:TRP:CD1   | 2.36                     | 0.58              |
| 15:O:130:PRO:O    | 15:O:134:SER:N    | 2.25                     | 0.58              |
| 16:P:458:LYS:HZ3  | 16:P:458:LYS:HA   | 1.68                     | 0.58              |
| 17:Q:22:ILE:HD11  | 17:Q:26:ARG:CD    | 2.33                     | 0.58              |
| 17:Q:375:LEU:HA   | 17:Q:378:LEU:HD12 | 1.84                     | 0.58              |
| 18:R:362:ALA:O    | 18:R:365:TRP:HB2  | 2.02                     | 0.58              |
| 1:A:582:LYS:HE3   | 1:A:584:ARG:HE    | 1.67                     | 0.58              |
| 1:A:793:ILE:HG23  | 1:A:794:VAL:H     | 1.68                     | 0.58              |
| 1:A:1258:ILE:HB   | 1:A:1501:ILE:HD12 | 1.83                     | 0.58              |
| 8:H:110:ASP:O     | 8:H:129:TYR:N     | 2.36                     | 0.58              |
| 17:Q:10:CYS:HB2   | 17:Q:17:SER:H     | 1.67                     | 0.58              |
| 17:Q:249:CYS:SG   | 17:Q:282:ARG:NH1  | 2.77                     | 0.58              |
| 1:A:53:ALA:HA     | 1:A:63:SER:HB2    | 1.85                     | 0.58              |
| 1:A:65:CYS:HB3    | 1:A:75:HIS:CE1    | 2.38                     | 0.58              |
| 1:A:411:VAL:HG11  | 1:A:416:ARG:HE    | 1.68                     | 0.58              |
| 1:A:474:LYS:HD2   | 2:B:1096:SER:HB2  | 1.83                     | 0.58              |
| 1:A:1637:PRO:CA   | 1:A:1647:ASN:HD21 | 2.16                     | 0.58              |
| 2:B:1105:ARG:NH2  | 2:B:1173:THR:O    | 2.36                     | 0.58              |
| 2:B:1134:ARG:HD3  | 2:B:1167:PHE:HE1  | 1.67                     | 0.58              |
| 4:D:89:LEU:HD23   | 4:D:92:ILE:HD12   | 1.86                     | 0.58              |
| 16:P:443:ASP:CB   | 18:R:3:GLU:HB3    | 2.31                     | 0.58              |
| 17:Q:8:PRO:O      | 17:Q:9:ILE:C      | 2.42                     | 0.58              |
| 17:Q:26:ARG:HB3   | 17:Q:34:VAL:HG11  | 1.75                     | 0.58              |
| 17:Q:142:LYS:NZ   | 17:Q:146:ASP:OD2  | 2.25                     | 0.58              |
| 18:R:257:ILE:HG23 | 18:R:266:SER:HB3  | 1.86                     | 0.58              |
| 1:A:62:CYS:SG     | 1:A:65:CYS:N      | 2.75                     | 0.58              |
| 2:B:280:LEU:HD23  | 2:B:354:LEU:HD13  | 1.85                     | 0.58              |
| 2:B:464:PHE:O     | 2:B:468:GLY:N     | 2.31                     | 0.58              |
| 2:B:1093:LEU:HD13 | 2:B:1093:LEU:O    | 2.04                     | 0.58              |
| 15:O:445:TYR:O    | 15:O:449:TRP:N    | 2.23                     | 0.58              |
| 18:R:168:ILE:HG12 | 18:R:169:PRO:N    | 2.18                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:192:ALA:O     | 1:A:196:ALA:N     | 2.29                     | 0.58              |
| 1:A:628:PHE:CB    | 2:B:784:ASP:HB3   | 2.34                     | 0.58              |
| 1:A:628:PHE:CB    | 2:B:785:ASP:CG    | 2.67                     | 0.58              |
| 5:E:14:ARG:HD2    | 5:E:141:VAL:HG13  | 1.86                     | 0.58              |
| 5:E:165:LEU:O     | 5:E:169:ARG:N     | 2.36                     | 0.58              |
| 16:P:428:GLU:N    | 16:P:433:VAL:HG11 | 2.18                     | 0.58              |
| 16:P:622:TYR:CZ   | 16:P:668:SER:HB3  | 2.38                     | 0.58              |
| 20:T:14:DG:H8     | 20:T:14:DG:O5'    | 1.85                     | 0.58              |
| 1:A:1155:PHE:CD2  | 1:A:1163:GLU:HG2  | 2.38                     | 0.58              |
| 1:A:1274:GLU:HA   | 1:A:1290:TYR:HB3  | 1.85                     | 0.58              |
| 2:B:211:ARG:HD2   | 2:B:239:VAL:HG11  | 1.85                     | 0.58              |
| 2:B:504:HIS:CD2   | 2:B:506:GLY:H     | 2.21                     | 0.58              |
| 3:C:40:PHE:HA     | 3:C:58:ASN:HB2    | 1.85                     | 0.58              |
| 16:P:436:ILE:CG2  | 18:R:141:TRP:O    | 2.52                     | 0.58              |
| 16:P:739:ASP:OD2  | 17:Q:271:LYS:HE2  | 2.04                     | 0.58              |
| 1:A:469:LYS:O     | 2:B:1070:ARG:NH1  | 2.30                     | 0.58              |
| 1:A:638:PRO:HB3   | 2:B:1087:LEU:HD12 | 1.86                     | 0.58              |
| 1:A:672:ASP:CB    | 2:B:783:MET:SD    | 2.91                     | 0.58              |
| 2:B:841:ASP:HA    | 2:B:847:TYR:CZ    | 2.39                     | 0.58              |
| 2:B:893:ASN:OD1   | 20:T:39:DT:OP1    | 2.21                     | 0.58              |
| 15:O:387:HIS:ND1  | 15:O:606:MET:SD   | 2.76                     | 0.58              |
| 1:A:671:GLN:CB    | 2:B:783:MET:HE2   | 2.29                     | 0.57              |
| 1:A:1447:GLN:HG3  | 1:A:1460:TYR:HB3  | 1.85                     | 0.57              |
| 1:A:355:PHE:CD1   | 1:A:355:PHE:N     | 2.73                     | 0.57              |
| 1:A:537:GLN:HB2   | 1:A:578:TYR:OH    | 2.04                     | 0.57              |
| 1:A:642:ASN:CG    | 2:B:1086:PHE:CE2  | 2.73                     | 0.57              |
| 14:N:123:SER:HA   | 14:N:131:LEU:H    | 1.69                     | 0.57              |
| 15:O:391:GLN:NE2  | 15:O:609:TYR:OH   | 2.36                     | 0.57              |
| 16:P:535:VAL:HG12 | 16:P:552:LEU:HB2  | 1.85                     | 0.57              |
| 17:Q:24:ASP:OD2   | 17:Q:26:ARG:NH1   | 2.31                     | 0.57              |
| 1:A:1258:ILE:HD12 | 1:A:1258:ILE:C    | 2.24                     | 0.57              |
| 2:B:1063:ARG:CD   | 20:T:22:DG:OP2    | 2.51                     | 0.57              |
| 2:B:1063:ARG:HD3  | 20:T:22:DG:OP1    | 2.04                     | 0.57              |
| 13:M:81:PHE:HB2   | 13:M:88:ILE:HD12  | 1.85                     | 0.57              |
| 16:P:329:ILE:HD12 | 16:P:330:PRO:HD2  | 1.86                     | 0.57              |
| 17:Q:355:VAL:C    | 18:R:212:HIS:ND1  | 2.57                     | 0.57              |
| 17:Q:366:TYR:HA   | 17:Q:369:TRP:CD1  | 2.39                     | 0.57              |
| 17:Q:378:LEU:CD2  | 18:R:235:ILE:HD13 | 2.34                     | 0.57              |
| 20:T:11:DA:N1     | 20:T:12:DC:C4     | 2.71                     | 0.57              |
| 1:A:1559:ARG:HD2  | 1:A:1587:ASP:OD1  | 2.04                     | 0.57              |
| 7:G:232:THR:O     | 7:G:248:THR:N     | 2.35                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:M:41:TYR:HB3   | 14:N:29:PHE:HB3   | 1.86                     | 0.57              |
| 15:O:390:GLN:HE21 | 15:O:432:LYS:H    | 1.52                     | 0.57              |
| 15:O:480:LEU:HA   | 15:O:483:ILE:HD12 | 1.86                     | 0.57              |
| 16:P:391:THR:OG1  | 18:R:146:SER:HB3  | 2.04                     | 0.57              |
| 16:P:419:ARG:CG   | 16:P:420:GLU:H    | 2.17                     | 0.57              |
| 16:P:422:ILE:HG13 | 16:P:442:LEU:HD11 | 1.87                     | 0.57              |
| 17:Q:441:ASP:O    | 17:Q:445:ARG:HG2  | 2.04                     | 0.57              |
| 18:R:175:ILE:O    | 18:R:178:LEU:HB3  | 2.04                     | 0.57              |
| 20:T:8:DT:H2'     | 20:T:9:DC:H6      | 1.68                     | 0.57              |
| 1:A:1050:TYR:HB3  | 1:A:1054:ALA:HA   | 1.86                     | 0.57              |
| 1:A:1311:GLU:OE1  | 1:A:1311:GLU:N    | 2.36                     | 0.57              |
| 12:L:32:ALA:HB3   | 12:L:55:ILE:HG23  | 1.87                     | 0.57              |
| 13:M:13:GLU:HG3   | 13:M:87:SER:HB2   | 1.86                     | 0.57              |
| 15:O:484:PHE:CB   | 15:O:528:PHE:HD1  | 2.17                     | 0.57              |
| 15:O:484:PHE:HB2  | 15:O:528:PHE:HD1  | 1.68                     | 0.57              |
| 16:P:186:TYR:CD1  | 18:R:198:LEU:HB3  | 2.40                     | 0.57              |
| 1:A:579:ARG:NH2   | 1:A:585:ASP:OD1   | 2.34                     | 0.57              |
| 1:A:755:ILE:HD12  | 1:A:780:ILE:HD11  | 1.87                     | 0.57              |
| 1:A:1053:ASP:OD2  | 1:A:1580:ARG:NH2  | 2.37                     | 0.57              |
| 1:A:1246:VAL:O    | 1:A:1517:ARG:NH2  | 2.38                     | 0.57              |
| 1:A:1310:LYS:HA   | 1:A:1313:LEU:HB3  | 1.86                     | 0.57              |
| 2:B:117:VAL:HB    | 18:R:277:ILE:HA   | 1.86                     | 0.57              |
| 2:B:1155:ASP:OD2  | 7:G:239:THR:N     | 2.37                     | 0.57              |
| 7:G:147:LEU:HB2   | 7:G:155:ALA:HB3   | 1.86                     | 0.57              |
| 15:O:379:ARG:CB   | 15:O:382:GLN:HE22 | 2.17                     | 0.57              |
| 17:Q:140:ILE:HG22 | 17:Q:236:MET:HG2  | 1.85                     | 0.57              |
| 1:A:581:ILE:HD11  | 1:A:605:VAL:HG21  | 1.87                     | 0.57              |
| 1:A:1010:ALA:O    | 1:A:1013:THR:OG1  | 2.23                     | 0.57              |
| 16:P:355:GLU:CA   | 18:R:24:ILE:HD12  | 2.34                     | 0.57              |
| 16:P:422:ILE:CG1  | 16:P:442:LEU:HD11 | 2.35                     | 0.57              |
| 16:P:732:LEU:O    | 16:P:735:GLU:N    | 2.37                     | 0.57              |
| 17:Q:22:ILE:HD12  | 17:Q:24:ASP:OD2   | 2.04                     | 0.57              |
| 17:Q:186:CYS:HB3  | 18:R:208:TYR:OH   | 2.05                     | 0.57              |
| 18:R:138:PHE:CE2  | 18:R:140:ILE:HD11 | 2.38                     | 0.57              |
| 1:A:477:ASN:H     | 2:B:1095:SER:HB2  | 1.70                     | 0.57              |
| 1:A:493:ASN:HA    | 1:A:653:THR:HG21  | 1.86                     | 0.57              |
| 1:A:1262:LEU:H    | 1:A:1265:GLU:CD   | 2.07                     | 0.57              |
| 2:B:1084:THR:O    | 2:B:1088:LEU:CB   | 2.48                     | 0.57              |
| 15:O:422:GLN:NE2  | 15:O:589:GLN:O    | 2.38                     | 0.57              |
| 16:P:391:THR:HG23 | 18:R:149:LYS:HD3  | 1.86                     | 0.57              |
| 17:Q:366:TYR:CB   | 18:R:215:THR:HG21 | 2.33                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:103:LEU:HD12  | 1:A:241:PRO:HD2   | 1.87                     | 0.57              |
| 2:B:114:SER:O     | 18:R:281:LYS:CA   | 2.25                     | 0.57              |
| 2:B:117:VAL:CG1   | 18:R:277:ILE:CA   | 2.80                     | 0.57              |
| 2:B:627:GLY:N     | 2:B:641:TYR:O     | 2.34                     | 0.57              |
| 10:J:9:SER:HB2    | 10:J:45:CYS:SG    | 2.45                     | 0.57              |
| 15:O:385:MET:HA   | 15:O:388:VAL:HG12 | 1.87                     | 0.57              |
| 16:P:384:ASP:HB3  | 16:P:389:TRP:CD1  | 2.39                     | 0.57              |
| 18:R:177:LEU:CD2  | 18:R:185:LYS:HA   | 2.34                     | 0.57              |
| 1:A:87:ASN:N      | 1:A:355:PHE:O     | 2.32                     | 0.57              |
| 1:A:371:SER:O     | 1:A:378:HIS:N     | 2.37                     | 0.57              |
| 1:A:747:ILE:HG22  | 1:A:774:GLY:HA2   | 1.87                     | 0.57              |
| 16:P:376:ASP:C    | 16:P:378:SER:H    | 2.09                     | 0.57              |
| 16:P:419:ARG:HG2  | 16:P:420:GLU:H    | 1.67                     | 0.57              |
| 16:P:725:VAL:HG23 | 17:Q:446:TYR:CG   | 2.35                     | 0.57              |
| 17:Q:286:LEU:HD13 | 17:Q:286:LEU:H    | 1.69                     | 0.57              |
| 18:R:354:LEU:HG   | 18:R:368:TYR:OH   | 2.04                     | 0.57              |
| 2:B:156:ARG:HH21  | 2:B:450:LEU:HD12  | 1.70                     | 0.56              |
| 2:B:709:PHE:CE2   | 2:B:992:PRO:HG2   | 2.39                     | 0.56              |
| 2:B:817:ARG:HB3   | 21:U:17:DT:C4'    | 2.35                     | 0.56              |
| 3:C:160:ALA:O     | 3:C:196:LEU:N     | 2.36                     | 0.56              |
| 17:Q:20:TRP:CE2   | 17:Q:28:THR:HB    | 2.39                     | 0.56              |
| 17:Q:436:LEU:HD12 | 17:Q:436:LEU:H    | 1.70                     | 0.56              |
| 1:A:618:TYR:HE1   | 2:B:783:MET:HB3   | 1.65                     | 0.56              |
| 2:B:117:VAL:HG21  | 18:R:276:GLN:HB3  | 1.75                     | 0.56              |
| 2:B:379:ARG:HE    | 2:B:580:GLY:HA2   | 1.69                     | 0.56              |
| 2:B:752:VAL:HG21  | 2:B:965:GLU:HG3   | 1.88                     | 0.56              |
| 2:B:812:ALA:HB2   | 2:B:815:ARG:HH11  | 1.70                     | 0.56              |
| 2:B:1099:THR:OG1  | 2:B:1100:GLN:N    | 2.38                     | 0.56              |
| 8:H:25:ARG:NH1    | 8:H:27:GLU:OE2    | 2.32                     | 0.56              |
| 9:I:15:ASP:OD2    | 9:I:32:GLN:N      | 2.36                     | 0.56              |
| 15:O:487:ARG:HE   | 15:O:502:LEU:HD13 | 1.69                     | 0.56              |
| 17:Q:328:LEU:HD22 | 17:Q:328:LEU:H    | 1.69                     | 0.56              |
| 17:Q:366:TYR:HB2  | 18:R:215:THR:HG21 | 1.87                     | 0.56              |
| 18:R:299:THR:HG21 | 18:R:305:THR:HA   | 1.86                     | 0.56              |
| 1:A:556:ALA:HA    | 15:O:242:VAL:HG12 | 1.87                     | 0.56              |
| 1:A:831:ASP:OD2   | 2:B:1010:ASN:ND2  | 2.37                     | 0.56              |
| 1:A:1013:THR:CB   | 20:T:17:DT:H3     | 2.15                     | 0.56              |
| 2:B:212:ASN:HD22  | 2:B:212:ASN:N     | 2.02                     | 0.56              |
| 2:B:894:LYS:HE3   | 17:Q:405:ASP:CG   | 2.21                     | 0.56              |
| 16:P:24:SER:OG    | 18:R:321:GLN:OE1  | 2.22                     | 0.56              |
| 16:P:68:THR:HB    | 16:P:545:SER:HB3  | 1.87                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:320:ILE:O    | 16:P:322:GLY:N    | 2.38                     | 0.56              |
| 16:P:629:ARG:HH22 | 16:P:662:LEU:HD21 | 1.70                     | 0.56              |
| 17:Q:22:ILE:HD12  | 17:Q:26:ARG:NE    | 2.18                     | 0.56              |
| 1:A:593:PRO:HB3   | 20:T:18:DT:H1'    | 1.86                     | 0.56              |
| 1:A:1016:SER:OG   | 1:A:1197:SER:OG   | 2.19                     | 0.56              |
| 1:A:1182:GLY:O    | 1:A:1650:GLY:CA   | 2.54                     | 0.56              |
| 2:B:60:LEU:O      | 2:B:64:GLY:N      | 2.37                     | 0.56              |
| 2:B:338:PHE:HZ    | 2:B:357:ILE:HD11  | 1.69                     | 0.56              |
| 2:B:705:PRO:HG2   | 2:B:921:HIS:CE1   | 2.40                     | 0.56              |
| 6:F:140:ASP:OD1   | 6:F:142:SER:N     | 2.35                     | 0.56              |
| 7:G:37:CYS:HB2    | 7:G:125:TRP:NE1   | 2.20                     | 0.56              |
| 9:I:30:CYS:HB3    | 9:I:35:ALA:H      | 1.70                     | 0.56              |
| 1:A:509:GLU:CG    | 1:A:579:ARG:HE    | 2.18                     | 0.56              |
| 2:B:247:THR:OG1   | 2:B:477:ASP:OD1   | 2.21                     | 0.56              |
| 2:B:320:LEU:HD11  | 2:B:326:VAL:HA    | 1.87                     | 0.56              |
| 2:B:714:ARG:HG2   | 2:B:959:THR:HG22  | 1.86                     | 0.56              |
| 2:B:753:LYS:O     | 2:B:981:SER:N     | 2.24                     | 0.56              |
| 2:B:768:GLY:N     | 2:B:1032:TYR:OH   | 2.38                     | 0.56              |
| 5:E:40:GLU:O      | 5:E:44:ALA:N      | 2.27                     | 0.56              |
| 5:E:183:PRO:O     | 5:E:187:TYR:N     | 2.34                     | 0.56              |
| 15:O:379:ARG:HA   | 15:O:382:GLN:OE1  | 2.05                     | 0.56              |
| 15:O:457:ARG:O    | 15:O:460:GLU:N    | 2.38                     | 0.56              |
| 16:P:209:LYS:HZ1  | 16:P:277:VAL:HG11 | 1.69                     | 0.56              |
| 18:R:309:ALA:O    | 18:R:313:LEU:HB2  | 2.05                     | 0.56              |
| 1:A:320:VAL:HA    | 1:A:323:ILE:HD12  | 1.88                     | 0.56              |
| 2:B:264:TRP:CD1   | 2:B:265:ARG:HG2   | 2.40                     | 0.56              |
| 7:G:29:ASP:OD1    | 7:G:30:GLU:N      | 2.36                     | 0.56              |
| 8:H:3:ASN:OD1     | 8:H:4:THR:N       | 2.38                     | 0.56              |
| 16:P:290:GLU:HB3  | 16:P:342:GLN:HB3  | 1.86                     | 0.56              |
| 19:S:5:G:C2       | 20:T:19:DC:N3     | 2.74                     | 0.56              |
| 1:A:1088:HIS:CG   | 6:F:152:ILE:HD11  | 2.41                     | 0.56              |
| 2:B:913:ILE:HD11  | 2:B:930:LYS:H     | 1.71                     | 0.56              |
| 14:N:85:HIS:CE1   | 14:N:141:GLU:HG3  | 2.40                     | 0.56              |
| 15:O:442:VAL:HA   | 15:O:445:TYR:HB3  | 1.87                     | 0.56              |
| 16:P:273:ARG:HG2  | 16:P:291:PRO:HB3  | 1.87                     | 0.56              |
| 16:P:450:ARG:NH2  | 16:P:506:THR:O    | 2.38                     | 0.56              |
| 16:P:657:SER:O    | 16:P:657:SER:OG   | 2.19                     | 0.56              |
| 17:Q:96:ILE:HD12  | 17:Q:103:LEU:HD12 | 1.87                     | 0.56              |
| 1:A:653:THR:OG1   | 1:A:654:ASP:N     | 2.39                     | 0.56              |
| 2:B:566:TYR:HB3   | 13:M:74:ASN:OD1   | 2.06                     | 0.56              |
| 2:B:1074:MET:HE1  | 20:T:18:DT:C4'    | 2.36                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1084:THR:O    | 2:B:1088:LEU:CD2  | 2.49                     | 0.56              |
| 7:G:234:ARG:N     | 7:G:246:ASP:O     | 2.37                     | 0.56              |
| 16:P:428:GLU:HB3  | 16:P:433:VAL:HG21 | 1.87                     | 0.56              |
| 17:Q:495:LYS:HD2  | 17:Q:499:LYS:HZ2  | 1.71                     | 0.56              |
| 18:R:222:LEU:O    | 18:R:226:ARG:HG3  | 2.06                     | 0.56              |
| 18:R:294:VAL:HB   | 18:R:295:PRO:CD   | 2.36                     | 0.56              |
| 1:A:1463:ASP:OD2  | 1:A:1468:LYS:N    | 2.35                     | 0.56              |
| 2:B:714:ARG:HG2   | 2:B:959:THR:CG2   | 2.36                     | 0.56              |
| 7:G:82:LEU:HD11   | 7:G:125:TRP:HB2   | 1.87                     | 0.56              |
| 10:J:45:CYS:O     | 10:J:48:ARG:HG2   | 2.06                     | 0.56              |
| 13:M:75:GLN:O     | 14:N:58:PHE:N     | 2.39                     | 0.56              |
| 1:A:512:THR:HG21  | 1:A:514:TYR:HE2   | 1.70                     | 0.56              |
| 11:K:50:LEU:HD11  | 11:K:64:GLN:HB2   | 1.87                     | 0.56              |
| 16:P:666:SER:HB3  | 16:P:742:TRP:NE1  | 2.21                     | 0.56              |
| 16:P:713:ILE:O    | 16:P:717:LYS:HG2  | 2.06                     | 0.56              |
| 18:R:171:ARG:O    | 18:R:174:GLU:HB3  | 2.05                     | 0.56              |
| 1:A:117:ARG:HB3   | 1:A:185:ARG:NH1   | 2.20                     | 0.55              |
| 1:A:880:GLN:HG3   | 1:A:972:TYR:OH    | 2.06                     | 0.55              |
| 2:B:1093:LEU:HD11 | 2:B:1098:TYR:CB   | 2.33                     | 0.55              |
| 6:F:99:LEU:O      | 6:F:102:SER:OG    | 2.15                     | 0.55              |
| 6:F:147:SER:N     | 6:F:150:GLU:OE2   | 2.35                     | 0.55              |
| 13:M:36:THR:HG21  | 13:M:62:TYR:CE2   | 2.41                     | 0.55              |
| 16:P:185:GLN:C    | 18:R:198:LEU:HD23 | 2.27                     | 0.55              |
| 16:P:300:LEU:HA   | 16:P:320:ILE:HA   | 1.87                     | 0.55              |
| 16:P:697:GLU:HG2  | 16:P:698:LYS:H    | 1.70                     | 0.55              |
| 16:P:725:VAL:CG2  | 17:Q:446:TYR:HD1  | 1.81                     | 0.55              |
| 17:Q:410:ARG:HE   | 17:Q:413:LEU:HD13 | 1.71                     | 0.55              |
| 1:A:36:THR:HG22   | 1:A:45:VAL:HG21   | 1.86                     | 0.55              |
| 1:A:37:VAL:HG12   | 1:A:38:LEU:HG     | 1.88                     | 0.55              |
| 1:A:1179:ILE:HD11 | 1:A:1183:GLU:OE2  | 2.07                     | 0.55              |
| 2:B:17:ARG:O      | 2:B:21:ARG:N      | 2.30                     | 0.55              |
| 15:O:491:PHE:CD2  | 15:O:498:TRP:CE3  | 2.88                     | 0.55              |
| 16:P:724:LEU:HD11 | 17:Q:443:GLN:HG2  | 1.88                     | 0.55              |
| 1:A:543:LEU:HB2   | 17:Q:34:VAL:O     | 2.06                     | 0.55              |
| 1:A:666:VAL:HG23  | 1:A:667:ARG:HG3   | 1.87                     | 0.55              |
| 2:B:20:GLU:OE2    | 2:B:24:ARG:NH1    | 2.33                     | 0.55              |
| 2:B:321:GLN:O     | 2:B:322:ASN:HB2   | 2.06                     | 0.55              |
| 2:B:1061:LYS:O    | 2:B:1067:GLY:HA3  | 2.05                     | 0.55              |
| 2:B:1078:ALA:C    | 2:B:1082:HIS:HB2  | 2.26                     | 0.55              |
| 8:H:21:ASN:OD1    | 8:H:22:LYS:N      | 2.39                     | 0.55              |
| 15:O:379:ARG:HA   | 15:O:382:GLN:HE22 | 1.69                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:194:ARG:HG2  | 16:P:538:LEU:HD11 | 1.87                     | 0.55              |
| 16:P:420:GLU:O    | 16:P:442:LEU:HD22 | 2.07                     | 0.55              |
| 16:P:760:ILE:O    | 16:P:764:LEU:HG   | 2.06                     | 0.55              |
| 1:A:527:PRO:HD3   | 1:A:554:ARG:NH2   | 2.20                     | 0.55              |
| 1:A:882:ILE:HG13  | 1:A:888:LYS:HB3   | 1.88                     | 0.55              |
| 1:A:959:VAL:HG22  | 1:A:965:THR:HG22  | 1.88                     | 0.55              |
| 2:B:132:SER:OG    | 2:B:462:GLN:NE2   | 2.39                     | 0.55              |
| 7:G:40:ARG:HB2    | 7:G:123:TYR:HE1   | 1.70                     | 0.55              |
| 15:O:498:TRP:HB3  | 15:O:502:LEU:HD12 | 1.88                     | 0.55              |
| 16:P:301:GLN:HG3  | 16:P:361:LYS:H    | 1.70                     | 0.55              |
| 18:R:408:ILE:HG23 | 18:R:435:LEU:HD13 | 1.87                     | 0.55              |
| 1:A:1238:MET:HE2  | 1:A:1525:ASN:N    | 2.22                     | 0.55              |
| 2:B:816:ASN:HB3   | 21:U:18:DG:P      | 2.46                     | 0.55              |
| 16:P:254:ILE:HD11 | 16:P:365:TRP:HD1  | 1.71                     | 0.55              |
| 18:R:253:ILE:HA   | 18:R:256:GLU:HB3  | 1.89                     | 0.55              |
| 1:A:1637:PRO:CB   | 1:A:1647:ASN:ND2  | 2.64                     | 0.55              |
| 3:C:69:ARG:NH2    | 11:K:70:HIS:HB2   | 2.21                     | 0.55              |
| 16:P:323:ASN:HA   | 16:P:350:THR:HA   | 1.88                     | 0.55              |
| 17:Q:131:HIS:O    | 17:Q:135:ILE:HG12 | 2.05                     | 0.55              |
| 17:Q:308:SER:O    | 17:Q:312:LEU:HD22 | 2.05                     | 0.55              |
| 17:Q:505:ILE:HA   | 17:Q:508:ALA:HB3  | 1.88                     | 0.55              |
| 18:R:16:ARG:HG3   | 18:R:184:ASN:ND2  | 2.22                     | 0.55              |
| 18:R:222:LEU:HD23 | 18:R:226:ARG:NH2  | 2.20                     | 0.55              |
| 18:R:412:ARG:NH2  | 18:R:439:GLU:OE2  | 2.35                     | 0.55              |
| 20:T:11:DA:C5     | 20:T:12:DC:N4     | 2.75                     | 0.55              |
| 1:A:588:LEU:HD22  | 2:B:1087:LEU:HD21 | 1.88                     | 0.55              |
| 2:B:186:GLU:CD    | 2:B:731:VAL:H     | 2.10                     | 0.55              |
| 2:B:728:THR:HG21  | 10:J:56:LEU:HD21  | 1.88                     | 0.55              |
| 2:B:731:VAL:HG11  | 10:J:59:LYS:HB3   | 1.88                     | 0.55              |
| 2:B:818:GLY:C     | 2:B:820:PRO:N     | 2.59                     | 0.55              |
| 2:B:851:TYR:HD1   | 2:B:881:TYR:CE1   | 2.24                     | 0.55              |
| 15:O:173:HIS:HB3  | 15:O:221:TYR:CE2  | 2.41                     | 0.55              |
| 15:O:359:GLY:HA2  | 15:O:362:ASN:HD22 | 1.72                     | 0.55              |
| 15:O:383:TYR:OH   | 15:O:595:ASP:O    | 2.16                     | 0.55              |
| 16:P:353:ASP:OD1  | 16:P:355:GLU:HG3  | 2.06                     | 0.55              |
| 17:Q:104:PHE:HZ   | 17:Q:156:LEU:HB2  | 1.72                     | 0.55              |
| 17:Q:310:PHE:O    | 17:Q:314:ILE:HG13 | 2.06                     | 0.55              |
| 17:Q:331:ILE:CG2  | 17:Q:475:ALA:HB1  | 2.36                     | 0.55              |
| 18:R:83:HIS:O     | 18:R:85:ARG:N     | 2.39                     | 0.55              |
| 1:A:463:LYS:HZ1   | 20:T:16:DT:H2'    | 1.72                     | 0.55              |
| 1:A:938:VAL:O     | 1:A:941:SER:OG    | 2.16                     | 0.55              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1104:TYR:HB3 | 1:A:1120:TYR:CE2  | 2.42                     | 0.55              |
| 2:B:74:PHE:HE1   | 2:B:94:LYS:HG3    | 1.70                     | 0.55              |
| 2:B:894:LYS:CE   | 17:Q:405:ASP:CG   | 2.75                     | 0.55              |
| 3:C:95:GLU:OE1   | 3:C:95:GLU:N      | 2.39                     | 0.55              |
| 3:C:172:GLN:H    | 3:C:175:GLN:HB2   | 1.70                     | 0.55              |
| 16:P:762:ARG:HA  | 16:P:762:ARG:HE   | 1.71                     | 0.55              |
| 1:A:487:ASP:OD2  | 11:K:95:HIS:NE2   | 2.30                     | 0.55              |
| 1:A:642:ASN:ND2  | 2:B:1086:PHE:CE2  | 2.68                     | 0.55              |
| 1:A:1182:GLY:O   | 1:A:1650:GLY:HA2  | 2.06                     | 0.55              |
| 1:A:1297:PHE:CE2 | 9:I:58:SER:HB2    | 2.42                     | 0.55              |
| 1:A:1660:VAL:O   | 7:G:102:GLU:HA    | 2.07                     | 0.55              |
| 2:B:936:MET:HG2  | 2:B:948:ILE:HD11  | 1.88                     | 0.55              |
| 3:C:218:LYS:HG3  | 3:C:218:LYS:O     | 2.06                     | 0.55              |
| 5:E:78:LEU:HD12  | 5:E:107:THR:O     | 2.07                     | 0.55              |
| 8:H:115:TYR:CE1  | 8:H:124:ARG:HG3   | 2.42                     | 0.55              |
| 16:P:371:LYS:HD2 | 16:P:432:PRO:HB3  | 1.89                     | 0.55              |
| 20:T:11:DA:C2    | 20:T:12:DC:C4     | 2.95                     | 0.55              |
| 1:A:553:GLN:N    | 1:A:553:GLN:OE1   | 2.40                     | 0.55              |
| 3:C:253:PRO:HD2  | 14:N:180:PHE:HB3  | 1.88                     | 0.55              |
| 4:D:19:PRO:HA    | 7:G:47:VAL:HG12   | 1.89                     | 0.55              |
| 15:O:443:ALA:O   | 15:O:446:LEU:HB3  | 2.07                     | 0.55              |
| 16:P:348:HIS:HE1 | 18:R:154:LYS:HD3  | 1.72                     | 0.55              |
| 16:P:614:GLU:OE2 | 16:P:734:LYS:NZ   | 2.26                     | 0.55              |
| 17:Q:177:TYR:OH  | 17:Q:248:SER:O    | 2.11                     | 0.55              |
| 18:R:23:TYR:HD1  | 18:R:173:MET:HG3  | 1.71                     | 0.55              |
| 1:A:1238:MET:HE3 | 1:A:1526:PHE:HA   | 1.90                     | 0.54              |
| 7:G:138:PHE:CZ   | 7:G:146:GLY:HA3   | 2.42                     | 0.54              |
| 16:P:443:ASP:HB2 | 18:R:2:PHE:CA     | 2.37                     | 0.54              |
| 16:P:486:ALA:O   | 18:R:138:PHE:CE1  | 2.59                     | 0.54              |
| 2:B:641:TYR:CB   | 2:B:643:PHE:CE1   | 2.89                     | 0.54              |
| 16:P:182:LEU:CD1 | 16:P:185:GLN:HG2  | 2.36                     | 0.54              |
| 16:P:348:HIS:HE1 | 18:R:154:LYS:CD   | 2.21                     | 0.54              |
| 16:P:743:SER:OG  | 17:Q:250:GLN:HG3  | 2.07                     | 0.54              |
| 17:Q:8:PRO:HB2   | 17:Q:19:LEU:CD2   | 2.36                     | 0.54              |
| 18:R:301:SER:O   | 18:R:303:THR:N    | 2.35                     | 0.54              |
| 1:A:527:PRO:CD   | 1:A:554:ARG:HH12  | 2.19                     | 0.54              |
| 1:A:1018:TYR:HB2 | 20:T:17:DT:H5''   | 1.89                     | 0.54              |
| 2:B:115:SER:O    | 18:R:280:SER:C    | 2.33                     | 0.54              |
| 2:B:320:LEU:HD22 | 2:B:325:GLN:HB2   | 1.87                     | 0.54              |
| 7:G:74:ASN:OD1   | 7:G:75:ASN:N      | 2.41                     | 0.54              |
| 18:R:246:GLN:NE2 | 18:R:247:ILE:HD12 | 2.22                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1014:SER:O    | 20:T:17:DT:O4'    | 2.25                     | 0.54              |
| 2:B:71:LYS:N      | 2:B:97:VAL:O      | 2.40                     | 0.54              |
| 2:B:265:ARG:O     | 2:B:267:ASN:ND2   | 2.39                     | 0.54              |
| 2:B:1105:ARG:HG2  | 2:B:1172:GLU:HB3  | 1.90                     | 0.54              |
| 7:G:235:ASN:H     | 7:G:246:ASP:HB3   | 1.72                     | 0.54              |
| 16:P:229:ARG:HG3  | 16:P:230:HIS:N    | 2.21                     | 0.54              |
| 17:Q:186:CYS:O    | 18:R:208:TYR:CZ   | 2.61                     | 0.54              |
| 18:R:357:PRO:HB3  | 18:R:359:MET:SD   | 2.48                     | 0.54              |
| 2:B:99:VAL:HG12   | 2:B:100:GLU:H     | 1.72                     | 0.54              |
| 13:M:43:LYS:HB2   | 14:N:29:PHE:CD1   | 2.43                     | 0.54              |
| 14:N:54:TRP:CD1   | 14:N:135:LYS:HB2  | 2.42                     | 0.54              |
| 17:Q:6:ARG:HA     | 17:Q:18:ARG:HD2   | 1.88                     | 0.54              |
| 1:A:111:LYS:HD2   | 1:A:114:GLU:HG2   | 1.88                     | 0.54              |
| 2:B:683:ASN:HA    | 14:N:150:TYR:CE1  | 2.42                     | 0.54              |
| 2:B:1074:MET:CE   | 20:T:18:DT:C4'    | 2.86                     | 0.54              |
| 3:C:105:PRO:HB2   | 3:C:187:ALA:HB3   | 1.88                     | 0.54              |
| 7:G:235:ASN:HD22  | 7:G:237:HIS:CE1   | 2.26                     | 0.54              |
| 10:J:31:ASP:OD1   | 10:J:34:THR:N     | 2.29                     | 0.54              |
| 14:N:125:ALA:C    | 14:N:127:ASP:H    | 2.11                     | 0.54              |
| 15:O:441:PHE:O    | 15:O:445:TYR:N    | 2.28                     | 0.54              |
| 16:P:598:LEU:HA   | 16:P:601:ARG:HG3  | 1.89                     | 0.54              |
| 17:Q:136:ILE:HG12 | 17:Q:243:PHE:CZ   | 2.42                     | 0.54              |
| 2:B:1114:GLN:OE1  | 2:B:1129:ARG:NH2  | 2.38                     | 0.54              |
| 16:P:185:GLN:C    | 18:R:198:LEU:CD2  | 2.76                     | 0.54              |
| 16:P:194:ARG:CZ   | 16:P:511:ILE:HG12 | 2.38                     | 0.54              |
| 17:Q:366:TYR:HA   | 17:Q:369:TRP:CE2  | 2.43                     | 0.54              |
| 18:R:427:PRO:HG2  | 18:R:429:ARG:NH2  | 2.23                     | 0.54              |
| 20:T:7:DT:H3      | 21:U:43:DA:N6     | 2.06                     | 0.54              |
| 1:A:321:LYS:CE    | 1:A:325:ASP:OD2   | 2.56                     | 0.54              |
| 2:B:832:TRP:CZ3   | 2:B:834:LYS:HA    | 2.43                     | 0.54              |
| 2:B:1065:ARG:O    | 2:B:1066:HIS:CB   | 2.56                     | 0.54              |
| 3:C:134:LEU:HD23  | 3:C:169:PHE:HA    | 1.89                     | 0.54              |
| 3:C:157:TYR:HB2   | 3:C:160:ALA:HB2   | 1.90                     | 0.54              |
| 17:Q:314:ILE:O    | 17:Q:318:LEU:HB2  | 2.08                     | 0.54              |
| 17:Q:323:ASP:N    | 17:Q:324:ARG:N    | 2.55                     | 0.54              |
| 19:S:5:G:H8       | 19:S:5:G:O5'      | 1.90                     | 0.54              |
| 1:A:435:ASN:O     | 1:A:439:ASP:N     | 2.41                     | 0.54              |
| 1:A:578:TYR:N     | 1:A:578:TYR:CD1   | 2.75                     | 0.54              |
| 1:A:627:ASP:N     | 1:A:631:ASP:OD2   | 2.41                     | 0.54              |
| 1:A:1018:TYR:HE1  | 20:T:16:DT:P      | 2.14                     | 0.54              |
| 2:B:101:GLN:HE21  | 18:R:359:MET:HE1  | 0.73                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:396:ALA:HA    | 2:B:521:LEU:CD1   | 2.37                     | 0.54              |
| 2:B:432:ILE:O     | 2:B:435:GLY:N     | 2.31                     | 0.54              |
| 2:B:492:ASN:OD1   | 2:B:495:ARG:N     | 2.30                     | 0.54              |
| 8:H:29:ALA:HA     | 8:H:37:LYS:HA     | 1.90                     | 0.54              |
| 17:Q:366:TYR:HB2  | 18:R:215:THR:CG2  | 2.38                     | 0.54              |
| 18:R:252:GLY:O    | 18:R:256:GLU:CB   | 2.56                     | 0.54              |
| 1:A:462:LYS:O     | 1:A:464:GLU:N     | 2.38                     | 0.54              |
| 1:A:1443:GLN:HG2  | 1:A:1446:ARG:NH2  | 2.23                     | 0.54              |
| 2:B:566:TYR:HE1   | 2:B:572:PRO:HA    | 1.72                     | 0.54              |
| 5:E:185:ALA:O     | 5:E:189:GLY:N     | 2.40                     | 0.54              |
| 15:O:360:VAL:HA   | 15:O:363:THR:HG22 | 1.89                     | 0.54              |
| 15:O:532:ALA:O    | 15:O:536:SER:N    | 2.41                     | 0.54              |
| 16:P:384:ASP:HB3  | 16:P:389:TRP:HD1  | 1.71                     | 0.54              |
| 17:Q:356:VAL:HG23 | 18:R:208:TYR:CD2  | 2.24                     | 0.54              |
| 17:Q:374:THR:HG23 | 18:R:219:LEU:HD13 | 1.90                     | 0.54              |
| 1:A:457:LYS:HG3   | 1:A:1619:CYS:SG   | 2.48                     | 0.53              |
| 1:A:591:ARG:HB2   | 1:A:633:MET:HG2   | 1.90                     | 0.53              |
| 1:A:1328:ALA:HA   | 1:A:1331:LYS:HB3  | 1.90                     | 0.53              |
| 2:B:114:SER:O     | 18:R:280:SER:O    | 2.25                     | 0.53              |
| 2:B:1051:PRO:HG2  | 2:B:1059:PRO:HA   | 1.90                     | 0.53              |
| 7:G:45:LEU:HD13   | 7:G:47:VAL:HG13   | 1.90                     | 0.53              |
| 9:I:11:LEU:N      | 9:I:37:TYR:OH     | 2.37                     | 0.53              |
| 15:O:361:PHE:HZ   | 15:O:399:PHE:HB2  | 1.73                     | 0.53              |
| 17:Q:22:ILE:HD12  | 17:Q:26:ARG:NH1   | 2.24                     | 0.53              |
| 17:Q:330:TRP:O    | 17:Q:334:LEU:HB2  | 2.08                     | 0.53              |
| 18:R:250:LEU:O    | 18:R:253:ILE:N    | 2.40                     | 0.53              |
| 2:B:792:SER:O     | 2:B:796:ARG:HG3   | 2.08                     | 0.53              |
| 3:C:81:GLU:O      | 12:L:69:ALA:N     | 2.32                     | 0.53              |
| 7:G:170:HIS:HA    | 7:G:215:GLY:HA3   | 1.90                     | 0.53              |
| 16:P:383:ILE:HG12 | 16:P:390:GLN:HG2  | 1.89                     | 0.53              |
| 16:P:411:LYS:HB2  | 16:P:412:ASN:OD1  | 2.08                     | 0.53              |
| 1:A:672:ASP:CG    | 2:B:783:MET:CE    | 2.77                     | 0.53              |
| 2:B:101:GLN:HE22  | 18:R:359:MET:HE3  | 1.71                     | 0.53              |
| 5:E:26:ARG:HH21   | 5:E:187:TYR:C     | 2.12                     | 0.53              |
| 16:P:577:LEU:HD21 | 17:Q:499:LYS:HB2  | 1.89                     | 0.53              |
| 18:R:231:LEU:O    | 18:R:235:ILE:HG12 | 2.08                     | 0.53              |
| 18:R:416:LYS:O    | 18:R:419:LEU:N    | 2.41                     | 0.53              |
| 1:A:1513:GLU:O    | 1:A:1516:LYS:N    | 2.37                     | 0.53              |
| 2:B:45:HIS:O      | 2:B:48:SER:OG     | 2.18                     | 0.53              |
| 2:B:994:ASP:HA    | 2:B:1007:TYR:OH   | 2.09                     | 0.53              |
| 15:O:200:ASN:OD1  | 17:Q:14:ASN:HB2   | 2.08                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:254:ILE:HD11 | 16:P:365:TRP:CD1  | 2.43                     | 0.53              |
| 16:P:421:ILE:CG2  | 16:P:423:ILE:HG13 | 2.38                     | 0.53              |
| 16:P:452:THR:HG21 | 16:P:508:ILE:HG22 | 1.90                     | 0.53              |
| 16:P:778:ASP:OD1  | 16:P:779:ASP:N    | 2.42                     | 0.53              |
| 1:A:520:ARG:HH21  | 1:A:559:ASN:ND2   | 2.06                     | 0.53              |
| 1:A:949:GLN:HA    | 1:A:981:TYR:HA    | 1.90                     | 0.53              |
| 1:A:962:SER:HB3   | 2:B:670:VAL:HG12  | 1.90                     | 0.53              |
| 1:A:1637:PRO:HB3  | 1:A:1647:ASN:ND2  | 2.23                     | 0.53              |
| 3:C:43:ASN:O      | 3:C:55:ASP:N      | 2.37                     | 0.53              |
| 9:I:35:ALA:HB2    | 13:M:59:ARG:HH22  | 1.72                     | 0.53              |
| 15:O:484:PHE:CZ   | 15:O:528:PHE:HA   | 2.43                     | 0.53              |
| 16:P:185:GLN:O    | 18:R:198:LEU:HD21 | 2.08                     | 0.53              |
| 1:A:1136:VAL:HG11 | 1:A:1140:PHE:HD2  | 1.74                     | 0.53              |
| 1:A:1238:MET:HE1  | 1:A:1524:VAL:HG13 | 1.90                     | 0.53              |
| 1:A:1239:THR:HG23 | 1:A:1518:VAL:HG11 | 1.89                     | 0.53              |
| 2:B:650:LEU:HB3   | 2:B:663:ILE:CG2   | 2.39                     | 0.53              |
| 5:E:83:CYS:HB2    | 5:E:110:PHE:CZ    | 2.43                     | 0.53              |
| 15:O:487:ARG:NH2  | 15:O:502:LEU:HD13 | 2.22                     | 0.53              |
| 16:P:436:ILE:HG21 | 18:R:141:TRP:O    | 2.09                     | 0.53              |
| 1:A:1506:ARG:O    | 1:A:1522:GLU:OE1  | 2.26                     | 0.53              |
| 2:B:731:VAL:HA    | 10:J:60:PHE:CE1   | 2.42                     | 0.53              |
| 15:O:434:LEU:HD22 | 15:O:439:ILE:CD1  | 2.35                     | 0.53              |
| 16:P:186:TYR:CD1  | 18:R:198:LEU:HD23 | 2.44                     | 0.53              |
| 16:P:715:TYR:CE1  | 16:P:733:THR:HG23 | 2.44                     | 0.53              |
| 17:Q:350:ARG:CD   | 17:Q:486:GLN:CG   | 2.83                     | 0.53              |
| 18:R:250:LEU:HD23 | 18:R:251:TRP:H    | 1.72                     | 0.53              |
| 20:T:17:DT:H6     | 20:T:17:DT:O5'    | 1.92                     | 0.53              |
| 1:A:646:GLU:OE2   | 6:F:91:ALA:CB     | 2.57                     | 0.53              |
| 13:M:60:LEU:HA    | 13:M:102:SER:HA   | 1.90                     | 0.53              |
| 15:O:418:ILE:HG12 | 15:O:475:ALA:HB2  | 1.91                     | 0.53              |
| 16:P:433:VAL:HG23 | 16:P:434:ARG:O    | 2.08                     | 0.53              |
| 16:P:470:SER:O    | 16:P:505:PRO:HD2  | 2.08                     | 0.53              |
| 2:B:75:ASP:OD1    | 2:B:93:ASN:N      | 2.42                     | 0.53              |
| 2:B:320:LEU:CD2   | 2:B:326:VAL:N     | 2.71                     | 0.53              |
| 2:B:1106:GLU:O    | 2:B:1197:ARG:NH2  | 2.38                     | 0.53              |
| 8:H:101:ALA:HB2   | 8:H:116:TYR:CE2   | 2.44                     | 0.53              |
| 9:I:46:LYS:HE3    | 9:I:48:VAL:HG23   | 1.91                     | 0.53              |
| 15:O:352:LEU:HD21 | 15:O:395:LEU:HD11 | 1.91                     | 0.53              |
| 16:P:302:VAL:HG21 | 16:P:362:ARG:HD2  | 1.91                     | 0.53              |
| 16:P:455:LYS:H    | 16:P:455:LYS:HD2  | 1.74                     | 0.53              |
| 2:B:954:PHE:CB    | 2:B:955:PRO:CD    | 2.87                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1074:MET:HE1  | 20:T:18:DT:O4'    | 2.09                     | 0.53              |
| 7:G:47:VAL:HB     | 7:G:65:HIS:CD2    | 2.44                     | 0.53              |
| 15:O:484:PHE:CD1  | 15:O:528:PHE:HA   | 2.43                     | 0.53              |
| 16:P:215:ASN:N    | 16:P:220:THR:OG1  | 2.42                     | 0.53              |
| 18:R:209:ARG:H    | 18:R:209:ARG:HD3  | 1.74                     | 0.53              |
| 1:A:797:LEU:HD23  | 1:A:809:VAL:HG21  | 1.91                     | 0.52              |
| 1:A:1060:GLU:OE1  | 1:A:1580:ARG:NH1  | 2.43                     | 0.52              |
| 1:A:1637:PRO:HB3  | 1:A:1647:ASN:HD21 | 1.70                     | 0.52              |
| 2:B:778:TYR:CE2   | 2:B:937:PRO:HD3   | 2.44                     | 0.52              |
| 2:B:841:ASP:OD2   | 12:L:58:LYS:NZ    | 2.35                     | 0.52              |
| 2:B:916:LYS:NZ    | 19:S:5:G:H4'      | 2.24                     | 0.52              |
| 20:T:14:DG:H2'    | 20:T:15:DC:C6     | 2.44                     | 0.52              |
| 1:A:1049:MET:HB2  | 1:A:1052:GLY:HA2  | 1.92                     | 0.52              |
| 2:B:691:PHE:HB2   | 2:B:695:ASN:HD21  | 1.73                     | 0.52              |
| 2:B:828:GLY:HA3   | 2:B:862:PHE:CD1   | 2.43                     | 0.52              |
| 2:B:916:LYS:HZ2   | 19:S:5:G:H4'      | 1.73                     | 0.52              |
| 6:F:137:TYR:CD1   | 6:F:143:PHE:HB3   | 2.44                     | 0.52              |
| 7:G:219:ASP:OD1   | 7:G:222:GLY:N     | 2.42                     | 0.52              |
| 15:O:62:ASP:HB3   | 15:O:67:ASP:HB3   | 1.91                     | 0.52              |
| 15:O:473:PHE:O    | 15:O:477:PHE:N    | 2.40                     | 0.52              |
| 16:P:261:VAL:HG22 | 16:P:262:GLY:H    | 1.74                     | 0.52              |
| 1:A:836:THR:N     | 1:A:915:GLY:O     | 2.22                     | 0.52              |
| 16:P:261:VAL:HG22 | 16:P:262:GLY:N    | 2.24                     | 0.52              |
| 16:P:681:GLN:HA   | 16:P:684:GLN:HB2  | 1.92                     | 0.52              |
| 2:B:211:ARG:NH2   | 2:B:645:GLY:HA3   | 2.24                     | 0.52              |
| 2:B:403:LEU:HD11  | 2:B:411:MET:HE3   | 1.91                     | 0.52              |
| 2:B:755:ASN:ND2   | 2:B:980:ASP:OD1   | 2.43                     | 0.52              |
| 4:D:43:PHE:O      | 4:D:47:LYS:HG2    | 2.10                     | 0.52              |
| 7:G:20:HIS:ND1    | 7:G:20:HIS:O      | 2.43                     | 0.52              |
| 15:O:78:VAL:HG23  | 15:O:118:SER:HB3  | 1.91                     | 0.52              |
| 16:P:358:SER:HB3  | 16:P:377:ARG:CD   | 2.34                     | 0.52              |
| 16:P:544:SER:O    | 16:P:546:GLU:N    | 2.40                     | 0.52              |
| 17:Q:364:SER:O    | 17:Q:367:PHE:HB2  | 2.10                     | 0.52              |
| 1:A:50:TYR:OH     | 1:A:383:ASN:ND2   | 2.43                     | 0.52              |
| 1:A:600:MET:CB    | 2:B:1082:HIS:CD2  | 2.91                     | 0.52              |
| 1:A:1238:MET:CE   | 1:A:1525:ASN:C    | 2.78                     | 0.52              |
| 1:A:1297:PHE:HB3  | 1:A:1301:GLU:OE1  | 2.10                     | 0.52              |
| 1:A:1656:VAL:HG11 | 6:F:96:THR:HG21   | 1.89                     | 0.52              |
| 2:B:216:ALA:HB1   | 2:B:384:LEU:HD22  | 1.90                     | 0.52              |
| 2:B:643:PHE:N     | 2:B:643:PHE:CD1   | 2.77                     | 0.52              |
| 2:B:788:ILE:HB    | 2:B:948:ILE:HB    | 1.90                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:124:VAL:HB    | 5:E:125:PRO:HD3   | 1.91                     | 0.52              |
| 6:F:89:GLU:OE2    | 6:F:136:ARG:NE    | 2.41                     | 0.52              |
| 13:M:81:PHE:HD1   | 13:M:88:ILE:HB    | 1.74                     | 0.52              |
| 15:O:435:SER:HB3  | 15:O:438:GLN:HG3  | 1.91                     | 0.52              |
| 16:P:242:ILE:HD13 | 16:P:273:ARG:HE   | 1.75                     | 0.52              |
| 16:P:314:GLN:OE1  | 16:P:314:GLN:HA   | 2.09                     | 0.52              |
| 16:P:776:ASP:O    | 16:P:777:MET:HG2  | 2.10                     | 0.52              |
| 17:Q:159:THR:O    | 17:Q:163:SER:OG   | 2.16                     | 0.52              |
| 1:A:223:PHE:CE2   | 1:A:227:LEU:HD11  | 2.45                     | 0.52              |
| 1:A:463:LYS:HZ2   | 20:T:16:DT:H71    | 1.73                     | 0.52              |
| 1:A:1645:LYS:NZ   | 1:A:1645:LYS:CB   | 2.73                     | 0.52              |
| 2:B:37:LEU:HD12   | 2:B:759:ASP:HB3   | 1.91                     | 0.52              |
| 2:B:110:ASN:HA    | 2:B:118:GLU:HG2   | 1.92                     | 0.52              |
| 8:H:39:THR:HB     | 8:H:124:ARG:HB3   | 1.91                     | 0.52              |
| 10:J:8:PHE:HB2    | 10:J:48:ARG:HH22  | 1.73                     | 0.52              |
| 15:O:584:GLN:O    | 15:O:588:LEU:HG   | 2.09                     | 0.52              |
| 15:O:602:TYR:HA   | 15:O:605:LEU:HD12 | 1.92                     | 0.52              |
| 16:P:433:VAL:HG23 | 16:P:434:ARG:N    | 2.24                     | 0.52              |
| 1:A:93:GLN:HB2    | 1:A:355:PHE:HE2   | 1.75                     | 0.52              |
| 1:A:130:ILE:O     | 1:A:133:SER:OG    | 2.22                     | 0.52              |
| 1:A:638:PRO:CB    | 2:B:1087:LEU:HD12 | 2.39                     | 0.52              |
| 1:A:1640:ARG:NH1  | 1:A:1640:ARG:CG   | 2.73                     | 0.52              |
| 2:B:516:THR:HA    | 2:B:519:LYS:HE2   | 1.91                     | 0.52              |
| 2:B:773:VAL:HG21  | 2:B:1033:TYR:HE1  | 1.73                     | 0.52              |
| 2:B:841:ASP:OD1   | 2:B:842:GLU:N     | 2.38                     | 0.52              |
| 3:C:116:VAL:HG22  | 3:C:130:ASN:HB3   | 1.92                     | 0.52              |
| 6:F:117:PRO:HA    | 6:F:120:ILE:HD12  | 1.91                     | 0.52              |
| 9:I:29:GLU:HA     | 9:I:36:ILE:HA     | 1.91                     | 0.52              |
| 15:O:78:VAL:HG12  | 15:O:88:ILE:HG21  | 1.91                     | 0.52              |
| 16:P:389:TRP:CH2  | 18:R:149:LYS:CG   | 2.93                     | 0.52              |
| 18:R:303:THR:HG22 | 18:R:304:HIS:H    | 1.75                     | 0.52              |
| 1:A:1303:SER:O    | 1:A:1307:ASP:HA   | 2.10                     | 0.52              |
| 1:A:1654:PHE:HE2  | 6:F:89:GLU:N      | 2.07                     | 0.52              |
| 2:B:135:GLY:O     | 2:B:161:LEU:N     | 2.25                     | 0.52              |
| 2:B:368:GLN:O     | 2:B:372:ARG:NH1   | 2.43                     | 0.52              |
| 10:J:7:CYS:HA     | 10:J:49:MET:HG3   | 1.92                     | 0.52              |
| 15:O:169:THR:HA   | 15:O:172:HIS:ND1  | 2.25                     | 0.52              |
| 15:O:477:PHE:HE2  | 15:O:525:MET:HE1  | 1.74                     | 0.52              |
| 16:P:473:HIS:N    | 16:P:504:THR:HG21 | 2.24                     | 0.52              |
| 16:P:585:GLU:O    | 16:P:589:ILE:HG13 | 2.10                     | 0.52              |
| 16:P:622:TYR:O    | 16:P:626:LEU:CB   | 2.57                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:706:GLU:O    | 16:P:708:VAL:HG23 | 2.10                     | 0.52              |
| 17:Q:101:LYS:O    | 17:Q:105:LEU:HG   | 2.09                     | 0.52              |
| 17:Q:414:TYR:CE2  | 17:Q:419:LEU:HB3  | 2.45                     | 0.52              |
| 18:R:346:ILE:HD11 | 18:R:374:LEU:HD12 | 1.91                     | 0.52              |
| 18:R:436:LYS:HA   | 18:R:439:GLU:HB2  | 1.92                     | 0.52              |
| 1:A:464:GLU:HB2   | 1:A:465:GLY:CA    | 2.40                     | 0.52              |
| 1:A:552:GLU:HG2   | 1:A:553:GLN:N     | 2.25                     | 0.52              |
| 1:A:1238:MET:HB2  | 1:A:1521:THR:HB   | 1.84                     | 0.52              |
| 2:B:338:PHE:CE2   | 2:B:353:VAL:HG22  | 2.45                     | 0.52              |
| 2:B:658:LEU:HD23  | 2:B:660:LYS:HD3   | 1.91                     | 0.52              |
| 15:O:200:ASN:OD1  | 17:Q:14:ASN:CG    | 2.48                     | 0.52              |
| 15:O:357:GLY:HA2  | 15:O:360:VAL:HB   | 1.91                     | 0.52              |
| 16:P:419:ARG:CG   | 16:P:420:GLU:N    | 2.73                     | 0.52              |
| 17:Q:8:PRO:CB     | 17:Q:19:LEU:HD23  | 2.39                     | 0.52              |
| 18:R:153:ASN:OD1  | 18:R:154:LYS:N    | 2.43                     | 0.52              |
| 1:A:462:LYS:C     | 1:A:464:GLU:H     | 2.13                     | 0.52              |
| 1:A:526:GLY:HA2   | 1:A:554:ARG:NH1   | 2.25                     | 0.52              |
| 1:A:581:ILE:HD12  | 1:A:637:PHE:CE1   | 2.45                     | 0.52              |
| 2:B:120:LYS:HE2   | 18:R:352:TRP:CH2  | 2.45                     | 0.52              |
| 7:G:149:ILE:HG22  | 7:G:150:HIS:ND1   | 2.25                     | 0.52              |
| 15:O:491:PHE:CB   | 15:O:498:TRP:HZ3  | 2.07                     | 0.52              |
| 1:A:584:ARG:HD2   | 6:F:116:ASP:HB2   | 1.92                     | 0.51              |
| 1:A:846:ILE:O     | 1:A:849:THR:OG1   | 2.21                     | 0.51              |
| 2:B:322:ASN:HB3   | 2:B:325:GLN:HG3   | 1.92                     | 0.51              |
| 2:B:939:SER:HG    | 2:B:943:ILE:H     | 1.55                     | 0.51              |
| 2:B:1019:GLY:HA3  | 3:C:65:ASN:HB2    | 1.92                     | 0.51              |
| 2:B:1063:ARG:CG   | 20:T:22:DG:P      | 2.98                     | 0.51              |
| 9:I:37:TYR:HB3    | 9:I:41:GLN:NE2    | 2.25                     | 0.51              |
| 10:J:34:THR:O     | 10:J:38:ARG:N     | 2.36                     | 0.51              |
| 16:P:532:GLU:HA   | 16:P:554:ASN:ND2  | 2.17                     | 0.51              |
| 16:P:724:LEU:HD12 | 17:Q:443:GLN:CA   | 2.39                     | 0.51              |
| 16:P:748:GLU:HG2  | 16:P:749:LYS:HG3  | 1.91                     | 0.51              |
| 17:Q:355:VAL:HG12 | 18:R:212:HIS:HA   | 1.72                     | 0.51              |
| 1:A:81:LEU:HD12   | 1:A:82:PRO:CD     | 2.37                     | 0.51              |
| 1:A:244:ARG:HH22  | 1:A:312:SER:HA    | 1.75                     | 0.51              |
| 1:A:477:ASN:HB3   | 2:B:1047:ARG:NH1  | 2.25                     | 0.51              |
| 1:A:480:ALA:HB2   | 2:B:1046:VAL:HG23 | 1.92                     | 0.51              |
| 1:A:594:THR:HG23  | 1:A:599:SER:HB2   | 1.91                     | 0.51              |
| 1:A:772:LYS:HE3   | 8:H:137:GLN:HE21  | 1.76                     | 0.51              |
| 2:B:119:ARG:NH2   | 2:B:125:GLU:OE2   | 2.36                     | 0.51              |
| 2:B:1104:CYS:HB2  | 2:B:1128:CYS:SG   | 2.49                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:C:243:SER:HA    | 3:C:246:ARG:HE    | 1.75                     | 0.51              |
| 5:E:64:PRO:HB2    | 5:E:69:ILE:HG13   | 1.91                     | 0.51              |
| 7:G:40:ARG:HB2    | 7:G:123:TYR:CE1   | 2.44                     | 0.51              |
| 14:N:113:SER:OG   | 14:N:115:SER:OG   | 2.22                     | 0.51              |
| 17:Q:8:PRO:CG     | 17:Q:19:LEU:HD23  | 2.40                     | 0.51              |
| 1:A:1650:GLY:O    | 1:A:1652:GLY:N    | 2.44                     | 0.51              |
| 2:B:819:ASP:O     | 2:B:820:PRO:O     | 2.27                     | 0.51              |
| 16:P:712:ASP:OD1  | 16:P:712:ASP:N    | 2.44                     | 0.51              |
| 16:P:762:ARG:HG3  | 17:Q:139:LYS:CE   | 2.40                     | 0.51              |
| 1:A:368:ARG:HA    | 1:A:380:ASN:ND2   | 2.24                     | 0.51              |
| 1:A:1608:SER:O    | 1:A:1612:LYS:NZ   | 2.41                     | 0.51              |
| 2:B:807:GLU:O     | 2:B:903:ILE:N     | 2.38                     | 0.51              |
| 7:G:216:HIS:ND1   | 7:G:224:PRO:HB3   | 2.25                     | 0.51              |
| 13:M:55:GLY:N     | 13:M:62:TYR:O     | 2.36                     | 0.51              |
| 14:N:85:HIS:CD2   | 14:N:86:ASP:H     | 2.28                     | 0.51              |
| 16:P:362:ARG:HG3  | 16:P:363:ILE:N    | 2.24                     | 0.51              |
| 18:R:314:TRP:CD1  | 18:R:367:ILE:HD11 | 2.45                     | 0.51              |
| 1:A:440:SER:N     | 1:A:458:GLN:HE22  | 2.08                     | 0.51              |
| 1:A:579:ARG:NH1   | 1:A:585:ASP:OD2   | 2.29                     | 0.51              |
| 1:A:1651:THR:CG2  | 2:B:1086:PHE:HB2  | 2.41                     | 0.51              |
| 2:B:757:TYR:CE1   | 2:B:762:MET:HB2   | 2.46                     | 0.51              |
| 3:C:224:THR:HG21  | 10:J:43:ARG:NH2   | 2.25                     | 0.51              |
| 16:P:66:CYS:HB2   | 16:P:547:VAL:HB   | 1.92                     | 0.51              |
| 16:P:389:TRP:CZ2  | 18:R:147:GLN:CA   | 2.94                     | 0.51              |
| 16:P:389:TRP:CH2  | 18:R:147:GLN:CA   | 2.94                     | 0.51              |
| 1:A:401:ASP:O     | 1:A:404:SER:OG    | 2.24                     | 0.51              |
| 1:A:535:GLN:HB2   | 1:A:578:TYR:CD1   | 2.46                     | 0.51              |
| 2:B:777:SER:OG    | 2:B:951:PRO:HD2   | 2.11                     | 0.51              |
| 3:C:227:TYR:HB3   | 3:C:300:PHE:CE1   | 2.45                     | 0.51              |
| 16:P:299:ASP:O    | 16:P:320:ILE:HB   | 2.10                     | 0.51              |
| 16:P:389:TRP:CZ3  | 18:R:149:LYS:HB2  | 2.45                     | 0.51              |
| 16:P:417:THR:OG1  | 16:P:451:ILE:HB   | 2.10                     | 0.51              |
| 1:A:636:HIS:HB3   | 2:B:1091:ARG:HD2  | 1.93                     | 0.51              |
| 1:A:1516:LYS:HG3  | 1:A:1518:VAL:HG23 | 1.92                     | 0.51              |
| 2:B:736:ARG:O     | 2:B:904:LYS:NZ    | 2.26                     | 0.51              |
| 8:H:10:PHE:CD1    | 8:H:30:SER:HA     | 2.46                     | 0.51              |
| 8:H:112:ILE:HD11  | 8:H:129:TYR:CD1   | 2.46                     | 0.51              |
| 9:I:31:SER:O      | 9:I:34:LYS:NZ     | 2.37                     | 0.51              |
| 13:M:57:ASN:ND2   | 13:M:60:LEU:HB2   | 2.25                     | 0.51              |
| 16:P:704:LEU:HD23 | 17:Q:258:MET:HE3  | 1.93                     | 0.51              |
| 18:R:173:MET:O    | 18:R:176:PRO:HD2  | 2.10                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:248:PHE:CE2   | 1:A:444:GLN:HG2   | 2.46                     | 0.51              |
| 2:B:240:ARG:HG2   | 2:B:360:VAL:HB    | 1.93                     | 0.51              |
| 3:C:128:ASP:O     | 3:C:175:GLN:NE2   | 2.44                     | 0.51              |
| 3:C:237:GLN:HE21  | 3:C:288:LYS:HG2   | 1.75                     | 0.51              |
| 16:P:186:TYR:HD1  | 18:R:198:LEU:HB3  | 1.74                     | 0.51              |
| 16:P:267:ASN:OD1  | 16:P:268:SER:N    | 2.43                     | 0.51              |
| 16:P:378:SER:OG   | 16:P:379:LYS:HD2  | 2.11                     | 0.51              |
| 16:P:474:LYS:H    | 16:P:474:LYS:CD   | 2.23                     | 0.51              |
| 17:Q:97:GLY:O     | 17:Q:99:GLU:N     | 2.39                     | 0.51              |
| 17:Q:186:CYS:SG   | 18:R:208:TYR:HE2  | 2.31                     | 0.51              |
| 17:Q:192:TYR:CD1  | 17:Q:193:PHE:N    | 2.76                     | 0.51              |
| 17:Q:366:TYR:CG   | 18:R:215:THR:HG21 | 2.42                     | 0.51              |
| 1:A:409:ASP:OD1   | 1:A:410:LYS:N     | 2.42                     | 0.51              |
| 1:A:1268:ASP:N    | 1:A:1295:ARG:O    | 2.42                     | 0.51              |
| 1:A:1272:VAL:O    | 9:I:49:THR:N      | 2.38                     | 0.51              |
| 8:H:127:GLY:N     | 8:H:132:LEU:HD11  | 2.26                     | 0.51              |
| 9:I:9:PHE:HA      | 9:I:15:ASP:O      | 2.10                     | 0.51              |
| 11:K:66:VAL:O     | 11:K:68:GLU:HG2   | 2.11                     | 0.51              |
| 16:P:233:VAL:HG12 | 16:P:234:THR:H    | 1.75                     | 0.51              |
| 16:P:405:TYR:HE2  | 16:P:414:ILE:CG1  | 2.24                     | 0.51              |
| 16:P:438:TRP:HE3  | 16:P:439:LYS:O    | 1.93                     | 0.51              |
| 18:R:12:LYS:O     | 18:R:15:GLN:N     | 2.44                     | 0.51              |
| 18:R:406:LYS:O    | 18:R:410:TYR:HB2  | 2.11                     | 0.51              |
| 1:A:463:LYS:NZ    | 20:T:16:DT:C7     | 2.74                     | 0.51              |
| 1:A:941:SER:O     | 1:A:945:CYS:N     | 2.39                     | 0.51              |
| 1:A:991:LYS:N     | 1:A:994:GLU:OE1   | 2.43                     | 0.51              |
| 1:A:1316:VAL:HG13 | 1:A:1320:GLN:NE2  | 2.25                     | 0.51              |
| 1:A:1450:ILE:HA   | 1:A:1453:HIS:CD2  | 2.46                     | 0.51              |
| 2:B:173:ASN:OD1   | 2:B:174:LYS:N     | 2.44                     | 0.51              |
| 5:E:91:LYS:O      | 5:E:95:THR:N      | 2.27                     | 0.51              |
| 15:O:52:TYR:CZ    | 15:O:92:ASN:HB3   | 2.46                     | 0.51              |
| 16:P:330:PRO:HG3  | 16:P:342:GLN:CG   | 2.41                     | 0.51              |
| 16:P:634:THR:HG22 | 16:P:686:TYR:CE2  | 2.46                     | 0.51              |
| 17:Q:381:MET:CG   | 18:R:238:THR:HG21 | 2.32                     | 0.51              |
| 18:R:189:GLN:O    | 18:R:192:SER:OG   | 2.29                     | 0.51              |
| 1:A:748:ASN:OD1   | 1:A:773:ASP:N     | 2.37                     | 0.50              |
| 2:B:1078:ALA:O    | 2:B:1082:HIS:CB   | 2.59                     | 0.50              |
| 5:E:26:ARG:NH2    | 5:E:187:TYR:O     | 2.39                     | 0.50              |
| 13:M:22:ALA:HA    | 13:M:94:PRO:HD2   | 1.93                     | 0.50              |
| 16:P:188:GLN:HG2  | 16:P:360:TRP:CB   | 2.37                     | 0.50              |
| 16:P:380:MET:HB3  | 16:P:393:VAL:CG2  | 2.42                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:658:LYS:HB3  | 16:P:659:LEU:HD22 | 1.93                     | 0.50              |
| 17:Q:24:ASP:CG    | 17:Q:26:ARG:HE    | 2.14                     | 0.50              |
| 17:Q:270:THR:HA   | 17:Q:273:VAL:HG23 | 1.92                     | 0.50              |
| 17:Q:349:GLY:O    | 17:Q:352:ILE:N    | 2.44                     | 0.50              |
| 18:R:291:ARG:NH2  | 20:T:42:DA:OP2    | 2.43                     | 0.50              |
| 1:A:1449:ALA:O    | 1:A:1452:SER:OG   | 2.17                     | 0.50              |
| 2:B:143:TRP:CD1   | 2:B:152:LEU:HD12  | 2.45                     | 0.50              |
| 2:B:816:ASN:O     | 21:U:17:DT:H4'    | 2.11                     | 0.50              |
| 2:B:1079:LEU:CG   | 2:B:1088:LEU:CB   | 2.74                     | 0.50              |
| 8:H:11:GLN:HA     | 8:H:54:SER:HA     | 1.91                     | 0.50              |
| 8:H:102:TYR:CZ    | 8:H:115:TYR:HB3   | 2.45                     | 0.50              |
| 15:O:245:GLN:HG2  | 15:O:377:TYR:O    | 2.10                     | 0.50              |
| 16:P:272:PHE:HB2  | 16:P:300:LEU:HD11 | 1.93                     | 0.50              |
| 16:P:658:LYS:C    | 16:P:660:LYS:N    | 2.64                     | 0.50              |
| 17:Q:378:LEU:HD13 | 18:R:231:LEU:CD2  | 2.40                     | 0.50              |
| 21:U:40:DT:H6     | 21:U:40:DT:H5''   | 1.75                     | 0.50              |
| 1:A:1003:ARG:HD3  | 2:B:520:LEU:HD22  | 1.92                     | 0.50              |
| 1:A:1645:LYS:NZ   | 1:A:1645:LYS:HB3  | 2.26                     | 0.50              |
| 2:B:731:VAL:HG12  | 10:J:63:TYR:CE2   | 2.46                     | 0.50              |
| 2:B:1103:VAL:HG12 | 2:B:1110:ILE:HG22 | 1.92                     | 0.50              |
| 9:I:32:GLN:OE1    | 13:M:105:SER:HB2  | 2.11                     | 0.50              |
| 15:O:477:PHE:HA   | 15:O:480:LEU:HG   | 1.93                     | 0.50              |
| 16:P:227:LEU:HD23 | 16:P:227:LEU:H    | 1.75                     | 0.50              |
| 16:P:408:ILE:HD12 | 16:P:409:ASP:H    | 1.76                     | 0.50              |
| 16:P:410:ASP:O    | 16:P:411:LYS:HD3  | 2.10                     | 0.50              |
| 16:P:762:ARG:HG3  | 17:Q:139:LYS:NZ   | 2.27                     | 0.50              |
| 17:Q:447:ALA:HA   | 17:Q:450:THR:HB   | 1.93                     | 0.50              |
| 18:R:11:ARG:CZ    | 21:U:4:DA:O5'     | 2.45                     | 0.50              |
| 1:A:95:TYR:CD1    | 1:A:245:LYS:HD3   | 2.47                     | 0.50              |
| 1:A:102:CYS:HB3   | 1:A:107:HIS:H     | 1.76                     | 0.50              |
| 1:A:416:ARG:O     | 1:A:420:PHE:N     | 2.45                     | 0.50              |
| 1:A:509:GLU:CD    | 1:A:579:ARG:NE    | 2.63                     | 0.50              |
| 1:A:519:LEU:HA    | 1:A:522:ALA:HB3   | 1.92                     | 0.50              |
| 1:A:1261:VAL:HG12 | 1:A:1498:ILE:HB   | 1.93                     | 0.50              |
| 1:A:1648:ASN:OD1  | 1:A:1648:ASN:N    | 2.39                     | 0.50              |
| 2:B:168:ASN:OD1   | 2:B:169:ARG:HG2   | 2.11                     | 0.50              |
| 2:B:328:GLN:NE2   | 13:M:110:GLY:O    | 2.45                     | 0.50              |
| 2:B:428:VAL:O     | 2:B:432:ILE:N     | 2.43                     | 0.50              |
| 2:B:985:ILE:O     | 14:N:157:ARG:NH2  | 2.45                     | 0.50              |
| 2:B:1093:LEU:HD11 | 2:B:1098:TYR:HD1  | 1.76                     | 0.50              |
| 3:C:65:ASN:O      | 3:C:68:ARG:HB3    | 2.12                     | 0.50              |

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| Atom-1                     | Atom-2                     | Interatomic distance (Å) | Clash overlap (Å) |
|----------------------------|----------------------------|--------------------------|-------------------|
| 12:L:34:CYS:HB3            | 12:L:51:CYS:SG             | 2.51                     | 0.50              |
| 16:P:446:ASP:N             | 18:R:200:THR:HG21          | 2.25                     | 0.50              |
| 17:Q:353:VAL:CG1           | 17:Q:489:VAL:HG12          | 2.39                     | 0.50              |
| 18:R:361:ASP:HB2           | 18:R:364:VAL:CG1           | 2.42                     | 0.50              |
| 1:A:39:ASP:OD1             | 1:A:43:HIS:N               | 2.44                     | 0.50              |
| 1:A:56:ALA:HB3             | 1:A:69:GLU:HA              | 1.93                     | 0.50              |
| 1:A:419:ILE:O              | 1:A:422:ARG:N              | 2.43                     | 0.50              |
| 1:A:880:GLN:HE21           | 2:B:633:THR:H              | 1.59                     | 0.50              |
| 1:A:975:ASP:OD1            | 1:A:976:ALA:N              | 2.45                     | 0.50              |
| 2:B:279:ALA:HB1            | 2:B:354:LEU:HD11           | 1.93                     | 0.50              |
| 2:B:1093:LEU:HD12          | 2:B:1098:TYR:CB            | 2.25                     | 0.50              |
| 2:B:1093:LEU:HD11          | 2:B:1098:TYR:CD1           | 2.46                     | 0.50              |
| 3:C:308:MET:SD             | 3:C:316:LYS:NZ             | 2.70                     | 0.50              |
| 9:I:6:SER:H                | 9:I:45:LEU:HD11            | 1.76                     | 0.50              |
| 11:K:104:ARG:NH2           | 11:K:106:GLN:HE21          | 1.95                     | 0.50              |
| 14:N:124:THR:H             | 14:N:131:LEU:HB2           | 1.75                     | 0.50              |
| 16:P:50:LEU:HD11           | 18:R:259:ASP:OD1           | 2.11                     | 0.50              |
| 16:P:444:PRO:HG3           | 16:P:449:LEU:HD11          | 1.93                     | 0.50              |
| 18:R:257:ILE:HG23          | 18:R:267:GLY:H             | 1.75                     | 0.50              |
| 18:R:320:CYS:O             | 18:R:323:SER:HB3           | 2.11                     | 0.50              |
| 1:A:4:SER:HB3              | 1:A:576:LYS:NZ             | 2.26                     | 0.50              |
| 1:A:618:TYR:OH             | 2:B:783:MET:HB2            | 2.11                     | 0.50              |
| 2:B:641:TYR:CB             | 2:B:643:PHE:HE1            | 2.25                     | 0.50              |
| 2:B:790:ASN:HB2            | 2:B:936:MET:SD             | 2.51                     | 0.50              |
| 9:I:58:SER:HG              | 9:I:62:ALA:H               | 1.59                     | 0.50              |
| 15:O:198:PHE:CE1           | 15:O:236:LYS:HG3           | 2.47                     | 0.50              |
| 16:P:190:ALA:O             | 16:P:248:PRO:HA            | 2.12                     | 0.50              |
| 16:P:262:GLY:C             | 16:P:263:ILE:HG12          | 2.31                     | 0.50              |
| 16:P:487:ASN:CB            | 18:R:138:PHE:CE1           | 2.94                     | 0.50              |
| 17:Q:356:VAL:CG1           | 18:R:208:TYR:CD2           | 2.90                     | 0.50              |
| 17:Q:357:TYR:OH            | 17:Q:488:LEU:HB3           | 2.12                     | 0.50              |
| 21:U:38:DG:H2 <sup>+</sup> | 21:U:39:DT:O4 <sup>-</sup> | 2.12                     | 0.50              |
| 1:A:804:GLU:H              | 1:A:804:GLU:CD             | 2.15                     | 0.50              |
| 1:A:1040:ASP:OD1           | 1:A:1041:ALA:N             | 2.41                     | 0.50              |
| 2:B:532:HIS:CD2            | 2:B:719:CYS:HB3            | 2.46                     | 0.50              |
| 4:D:80:THR:HG21            | 15:O:227:PHE:CD2           | 2.46                     | 0.50              |
| 16:P:414:ILE:CD1           | 16:P:425:GLY:HA3           | 2.41                     | 0.50              |
| 16:P:443:ASP:CB            | 18:R:2:PHE:HB3             | 2.30                     | 0.50              |
| 16:P:725:VAL:HG23          | 17:Q:446:TYR:CB            | 2.26                     | 0.50              |
| 17:Q:119:LEU:HD13          | 17:Q:125:PHE:CG            | 2.47                     | 0.50              |
| 1:A:44:PRO:HG2             | 1:A:52:LEU:HD21            | 1.94                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:139:ILE:O     | 1:A:140:THR:OG1   | 2.29                     | 0.50              |
| 1:A:264:ASN:O     | 1:A:268:GLY:N     | 2.44                     | 0.50              |
| 1:A:543:LEU:HD22  | 1:A:578:TYR:CZ    | 2.47                     | 0.50              |
| 1:A:1459:LYS:HB2  | 1:A:1473:LYS:HB3  | 1.94                     | 0.50              |
| 1:A:1646:LEU:HD11 | 2:B:1086:PHE:CD1  | 2.47                     | 0.50              |
| 2:B:399:HIS:O     | 2:B:400:GLN:HG3   | 2.11                     | 0.50              |
| 2:B:717:TYR:O     | 2:B:721:MET:N     | 2.41                     | 0.50              |
| 2:B:790:ASN:CA    | 2:B:936:MET:SD    | 3.00                     | 0.50              |
| 10:J:53:HIS:NE2   | 10:J:55:ASP:OD1   | 2.39                     | 0.50              |
| 13:M:44:LYS:NZ    | 13:M:47:GLU:O     | 2.40                     | 0.50              |
| 15:O:99:ILE:O     | 15:O:102:SER:OG   | 2.19                     | 0.50              |
| 17:Q:10:CYS:HB2   | 17:Q:17:SER:N     | 2.25                     | 0.50              |
| 17:Q:10:CYS:SG    | 17:Q:29:CYS:SG    | 3.07                     | 0.50              |
| 17:Q:326:TYR:HB3  | 17:Q:330:TRP:CZ3  | 2.47                     | 0.50              |
| 17:Q:374:THR:O    | 17:Q:377:PHE:HB3  | 2.12                     | 0.50              |
| 18:R:302:ARG:O    | 18:R:303:THR:OG1  | 2.21                     | 0.50              |
| 1:A:535:GLN:O     | 1:A:578:TYR:HD1   | 1.95                     | 0.50              |
| 1:A:652:ASN:HB2   | 1:A:655:SER:CB    | 2.39                     | 0.50              |
| 2:B:396:ALA:HA    | 2:B:521:LEU:HD12  | 1.93                     | 0.50              |
| 2:B:599:GLU:H     | 2:B:599:GLU:CD    | 2.16                     | 0.50              |
| 2:B:795:GLU:HB3   | 3:C:216:HIS:CE1   | 2.46                     | 0.50              |
| 5:E:16:PHE:CZ     | 5:E:20:LYS:HE3    | 2.46                     | 0.50              |
| 7:G:37:CYS:HB2    | 7:G:125:TRP:CD1   | 2.47                     | 0.50              |
| 15:O:478:GLN:OE1  | 15:O:520:CYS:HB3  | 2.12                     | 0.50              |
| 16:P:319:ASP:OD1  | 16:P:324:TRP:HB3  | 2.12                     | 0.50              |
| 16:P:762:ARG:HG3  | 17:Q:139:LYS:HE3  | 1.93                     | 0.50              |
| 17:Q:162:ILE:HG22 | 17:Q:226:LEU:HD21 | 1.94                     | 0.50              |
| 21:U:38:DG:C6     | 21:U:39:DT:N3     | 2.80                     | 0.50              |
| 1:A:545:SER:CB    | 17:Q:34:VAL:HG21  | 2.39                     | 0.49              |
| 2:B:216:ALA:HB2   | 2:B:380:LYS:HE2   | 1.94                     | 0.49              |
| 2:B:954:PHE:HB2   | 2:B:955:PRO:CD    | 2.41                     | 0.49              |
| 6:F:66:ARG:HH22   | 7:G:90:LEU:HD13   | 1.76                     | 0.49              |
| 15:O:197:PHE:O    | 15:O:211:TYR:OH   | 2.21                     | 0.49              |
| 16:P:609:ASN:O    | 16:P:612:GLU:HB2  | 2.12                     | 0.49              |
| 17:Q:109:GLN:CD   | 17:Q:137:TRP:HE1  | 2.16                     | 0.49              |
| 1:A:19:LEU:N      | 2:B:1193:GLY:O    | 2.35                     | 0.49              |
| 1:A:95:TYR:CG     | 1:A:245:LYS:HD3   | 2.47                     | 0.49              |
| 1:A:621:THR:O     | 1:A:625:ASN:N     | 2.45                     | 0.49              |
| 1:A:671:GLN:OE1   | 2:B:783:MET:O     | 2.29                     | 0.49              |
| 1:A:1654:PHE:CB   | 6:F:134:ILE:HG23  | 2.33                     | 0.49              |
| 2:B:1075:GLU:OE1  | 2:B:1075:GLU:N    | 2.40                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1116:SER:N    | 2:B:1125:THR:O    | 2.44                     | 0.49              |
| 3:C:237:GLN:HE21  | 3:C:288:LYS:HE3   | 1.78                     | 0.49              |
| 6:F:77:ASP:OD1    | 6:F:78:GLN:N      | 2.44                     | 0.49              |
| 7:G:38:ILE:HG13   | 7:G:125:TRP:HD1   | 1.77                     | 0.49              |
| 14:N:35:LEU:N     | 14:N:116:LYS:O    | 2.35                     | 0.49              |
| 16:P:549:TYR:HE1  | 16:P:551:ALA:HB2  | 1.76                     | 0.49              |
| 16:P:551:ALA:C    | 16:P:552:LEU:HD23 | 2.32                     | 0.49              |
| 18:R:299:THR:OG1  | 18:R:300:GLY:N    | 2.45                     | 0.49              |
| 1:A:1242:ILE:HA   | 1:A:1536:ILE:HA   | 1.94                     | 0.49              |
| 2:B:1154:ASP:HB3  | 2:B:1157:GLN:HG2  | 1.94                     | 0.49              |
| 5:E:41:ASP:HA     | 5:E:44:ALA:HB3    | 1.94                     | 0.49              |
| 8:H:100:THR:OG1   | 8:H:139:ASN:OD1   | 2.21                     | 0.49              |
| 13:M:57:ASN:O     | 13:M:103:LYS:NZ   | 2.23                     | 0.49              |
| 15:O:429:ALA:HB3  | 15:O:482:TYR:CE2  | 2.47                     | 0.49              |
| 16:P:405:TYR:OH   | 16:P:414:ILE:HB   | 2.12                     | 0.49              |
| 18:R:85:ARG:HG2   | 18:R:85:ARG:HH11  | 1.77                     | 0.49              |
| 18:R:362:ALA:O    | 18:R:365:TRP:N    | 2.46                     | 0.49              |
| 21:U:38:DG:N2     | 21:U:39:DT:O2     | 2.45                     | 0.49              |
| 1:A:1246:VAL:HA   | 1:A:1250:GLN:OE1  | 2.13                     | 0.49              |
| 2:B:1102:SER:HA   | 2:B:1174:THR:O    | 2.12                     | 0.49              |
| 15:O:351:SER:HA   | 15:O:355:GLY:HA3  | 1.93                     | 0.49              |
| 15:O:507:GLN:HE22 | 15:O:543:ILE:HD11 | 1.78                     | 0.49              |
| 16:P:193:LEU:HG   | 16:P:250:ALA:HA   | 1.95                     | 0.49              |
| 16:P:353:ASP:OD2  | 16:P:379:LYS:NZ   | 2.46                     | 0.49              |
| 16:P:426:ALA:O    | 16:P:433:VAL:HG22 | 2.12                     | 0.49              |
| 17:Q:198:ILE:HG21 | 17:Q:390:THR:H    | 1.77                     | 0.49              |
| 17:Q:232:LEU:HD13 | 17:Q:287:TRP:HE1  | 1.77                     | 0.49              |
| 17:Q:356:VAL:N    | 18:R:212:HIS:CE1  | 2.80                     | 0.49              |
| 18:R:23:TYR:CD1   | 18:R:173:MET:HG3  | 2.47                     | 0.49              |
| 18:R:274:MET:HB3  | 18:R:308:PHE:HB3  | 1.94                     | 0.49              |
| 18:R:282:SER:O    | 18:R:282:SER:OG   | 2.27                     | 0.49              |
| 20:T:7:DT:O2      | 21:U:44:DG:N2     | 2.46                     | 0.49              |
| 1:A:831:ASP:HB3   | 2:B:1008:HIS:CG   | 2.47                     | 0.49              |
| 1:A:1185:VAL:O    | 1:A:1189:ALA:N    | 2.36                     | 0.49              |
| 1:A:1191:GLN:HE22 | 2:B:1078:ALA:HA   | 1.77                     | 0.49              |
| 1:A:1650:GLY:C    | 1:A:1652:GLY:N    | 2.66                     | 0.49              |
| 15:O:219:ARG:HE   | 15:O:230:TRP:HE1  | 1.61                     | 0.49              |
| 17:Q:335:THR:HG21 | 17:Q:478:ARG:HD2  | 1.95                     | 0.49              |
| 17:Q:357:TYR:HE2  | 17:Q:488:LEU:C    | 2.16                     | 0.49              |
| 18:R:160:HIS:O    | 18:R:164:LYS:HG3  | 2.13                     | 0.49              |
| 20:T:11:DA:N6     | 20:T:12:DC:N4     | 2.60                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:990:ILE:HD11  | 1:A:995:TYR:HD1   | 1.77                     | 0.49              |
| 1:A:1114:TYR:CD1  | 5:E:146:HIS:HA    | 2.48                     | 0.49              |
| 1:A:1238:MET:HG2  | 1:A:1524:VAL:HG22 | 1.94                     | 0.49              |
| 1:A:1299:ASN:HA   | 1:A:1302:TYR:CE2  | 2.48                     | 0.49              |
| 1:A:1657:LEU:O    | 6:F:133:VAL:N     | 2.45                     | 0.49              |
| 2:B:31:ASP:OD1    | 2:B:32:LYS:N      | 2.40                     | 0.49              |
| 2:B:1163:GLN:OE1  | 2:B:1163:GLN:N    | 2.46                     | 0.49              |
| 15:O:116:ILE:HA   | 15:O:119:ILE:HD12 | 1.94                     | 0.49              |
| 15:O:487:ARG:NH2  | 15:O:506:PHE:CE2  | 2.81                     | 0.49              |
| 16:P:196:TYR:HB3  | 16:P:206:ALA:HB1  | 1.93                     | 0.49              |
| 16:P:357:LEU:CD1  | 18:R:191:ILE:HD12 | 2.43                     | 0.49              |
| 16:P:722:TRP:CZ3  | 16:P:736:ILE:HD12 | 2.47                     | 0.49              |
| 18:R:206:ARG:C    | 18:R:207:ASN:CB   | 2.80                     | 0.49              |
| 1:A:1055:ILE:HB   | 1:A:1580:ARG:HH21 | 1.77                     | 0.49              |
| 1:A:1097:TYR:O    | 1:A:1101:THR:HG23 | 2.11                     | 0.49              |
| 2:B:42:VAL:HG21   | 2:B:190:ILE:HD12  | 1.94                     | 0.49              |
| 7:G:90:LEU:HD11   | 7:G:119:HIS:NE2   | 2.28                     | 0.49              |
| 15:O:474:TYR:O    | 15:O:478:GLN:N    | 2.24                     | 0.49              |
| 16:P:408:ILE:HB   | 16:P:453:VAL:HG21 | 1.95                     | 0.49              |
| 17:Q:274:ILE:HG12 | 17:Q:282:ARG:HH22 | 1.77                     | 0.49              |
| 1:A:129:LEU:HB3   | 1:A:132:GLU:OE1   | 2.12                     | 0.49              |
| 1:A:1508:VAL:O    | 1:A:1510:PRO:HD3  | 2.12                     | 0.49              |
| 2:B:368:GLN:HG3   | 2:B:372:ARG:NH1   | 2.27                     | 0.49              |
| 2:B:398:GLN:NE2   | 2:B:636:GLN:OE1   | 2.42                     | 0.49              |
| 8:H:38:LEU:HD11   | 8:H:123:MET:HG3   | 1.95                     | 0.49              |
| 9:I:54:ASP:OD1    | 9:I:55:ALA:N      | 2.45                     | 0.49              |
| 14:N:114:GLU:HG2  | 14:N:120:LYS:NZ   | 2.28                     | 0.49              |
| 16:P:274:ILE:CD1  | 16:P:305:PHE:HE2  | 2.25                     | 0.49              |
| 16:P:305:PHE:HZ   | 16:P:329:ILE:HG21 | 1.76                     | 0.49              |
| 16:P:357:LEU:HD12 | 18:R:191:ILE:HD12 | 1.94                     | 0.49              |
| 16:P:458:LYS:HA   | 16:P:458:LYS:NZ   | 2.28                     | 0.49              |
| 16:P:693:PHE:HA   | 16:P:746:ARG:NE   | 2.28                     | 0.49              |
| 17:Q:141:LEU:O    | 17:Q:144:ILE:HG13 | 2.12                     | 0.49              |
| 17:Q:247:ILE:HD12 | 17:Q:248:SER:H    | 1.77                     | 0.49              |
| 1:A:354:SER:OG    | 1:A:355:PHE:CE1   | 2.61                     | 0.49              |
| 1:A:552:GLU:OE1   | 1:A:552:GLU:N     | 2.38                     | 0.49              |
| 1:A:1014:SER:CB   | 20:T:17:DT:C6     | 2.91                     | 0.49              |
| 1:A:1090:ASP:HB3  | 1:A:1132:TYR:HD1  | 1.76                     | 0.49              |
| 1:A:1443:GLN:NE2  | 1:A:1461:ASN:OD1  | 2.46                     | 0.49              |
| 2:B:1079:LEU:H    | 2:B:1079:LEU:HD12 | 1.77                     | 0.49              |
| 3:C:113:LEU:HD23  | 3:C:210:LEU:HG    | 1.95                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:C:315:PHE:HE1   | 11:K:135:PHE:HD2  | 1.61                     | 0.49              |
| 5:E:107:THR:HG23  | 5:E:131:THR:HG23  | 1.95                     | 0.49              |
| 8:H:124:ARG:NH1   | 8:H:126:GLU:OE1   | 2.27                     | 0.49              |
| 15:O:205:ARG:HB2  | 15:O:331:LYS:HG2  | 1.95                     | 0.49              |
| 16:P:405:TYR:CE2  | 16:P:414:ILE:HB   | 2.48                     | 0.49              |
| 16:P:458:LYS:HD3  | 16:P:459:PRO:CD   | 2.43                     | 0.49              |
| 16:P:573:GLU:HB2  | 17:Q:499:LYS:NZ   | 2.27                     | 0.49              |
| 17:Q:22:ILE:HD12  | 17:Q:26:ARG:CZ    | 2.40                     | 0.49              |
| 17:Q:356:VAL:HG11 | 18:R:208:TYR:CD2  | 2.46                     | 0.49              |
| 17:Q:386:LEU:CA   | 18:R:241:ARG:CZ   | 2.74                     | 0.49              |
| 1:A:257:ASN:O     | 1:A:261:ILE:HD12  | 2.13                     | 0.49              |
| 1:A:1050:TYR:CE2  | 1:A:1580:ARG:HD3  | 2.47                     | 0.49              |
| 1:A:1447:GLN:NE2  | 1:A:1460:TYR:H    | 2.10                     | 0.49              |
| 1:A:1575:ILE:HG22 | 1:A:1576:SER:H    | 1.77                     | 0.49              |
| 3:C:297:HIS:CD2   | 3:C:298:PHE:H     | 2.30                     | 0.49              |
| 5:E:28:TYR:HA     | 5:E:64:PRO:HA     | 1.95                     | 0.49              |
| 15:O:592:PHE:O    | 15:O:594:TYR:N    | 2.45                     | 0.49              |
| 16:P:274:ILE:HD13 | 16:P:305:PHE:CE2  | 2.43                     | 0.49              |
| 16:P:319:ASP:HB2  | 16:P:363:ILE:CG1  | 2.43                     | 0.49              |
| 16:P:319:ASP:HB2  | 16:P:363:ILE:HG13 | 1.95                     | 0.49              |
| 1:A:1227:MET:O    | 1:A:1597:ALA:HB1  | 2.13                     | 0.48              |
| 2:B:887:LEU:N     | 12:L:56:LEU:O     | 2.42                     | 0.48              |
| 2:B:1114:GLN:HE21 | 2:B:1159:TRP:HZ3  | 1.61                     | 0.48              |
| 7:G:49:LEU:HD11   | 7:G:53:TYR:HB2    | 1.95                     | 0.48              |
| 15:O:383:TYR:HA   | 15:O:386:PHE:HB3  | 1.95                     | 0.48              |
| 16:P:300:LEU:N    | 16:P:300:LEU:HD23 | 2.27                     | 0.48              |
| 16:P:414:ILE:HG12 | 16:P:425:GLY:N    | 2.28                     | 0.48              |
| 17:Q:352:ILE:HD12 | 17:Q:380:TRP:CE3  | 2.48                     | 0.48              |
| 17:Q:363:SER:C    | 17:Q:365:ASP:N    | 2.65                     | 0.48              |
| 17:Q:385:PHE:O    | 18:R:241:ARG:NE   | 2.45                     | 0.48              |
| 18:R:304:HIS:NE2  | 18:R:361:ASP:HB3  | 2.28                     | 0.48              |
| 1:A:248:PHE:CD2   | 1:A:444:GLN:HG2   | 2.49                     | 0.48              |
| 1:A:332:GLN:NE2   | 1:A:349:LEU:HB3   | 2.28                     | 0.48              |
| 1:A:492:THR:HB    | 1:A:667:ARG:NH2   | 2.28                     | 0.48              |
| 1:A:646:GLU:OE1   | 2:B:1086:PHE:CB   | 2.61                     | 0.48              |
| 1:A:651:ALA:H     | 2:B:1084:THR:CG2  | 2.27                     | 0.48              |
| 1:A:656:GLN:HE22  | 2:B:1082:HIS:HD1  | 1.61                     | 0.48              |
| 2:B:752:VAL:HB    | 2:B:920:ARG:HH22  | 1.78                     | 0.48              |
| 8:H:103:LYS:HD2   | 8:H:115:TYR:CE2   | 2.47                     | 0.48              |
| 15:O:141:LYS:HA   | 15:O:179:PHE:HZ   | 1.78                     | 0.48              |
| 16:P:61:VAL:HB    | 16:P:551:ALA:HB3  | 1.94                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:347:LEU:HD22 | 16:P:385:PHE:HD2  | 1.78                     | 0.48              |
| 17:Q:266:PHE:HA   | 17:Q:269:TYR:HB2  | 1.94                     | 0.48              |
| 1:A:482:SER:OG    | 1:A:483:VAL:N     | 2.45                     | 0.48              |
| 1:A:1290:TYR:CE1  | 1:A:1474:LEU:HB2  | 2.48                     | 0.48              |
| 2:B:184:LYS:HZ2   | 10:J:69:ARG:HH22  | 1.60                     | 0.48              |
| 2:B:402:VAL:O     | 2:B:647:SER:HB3   | 2.13                     | 0.48              |
| 2:B:747:GLY:HA3   | 2:B:766:PRO:HB2   | 1.96                     | 0.48              |
| 7:G:24:VAL:O      | 7:G:128:GLN:NE2   | 2.36                     | 0.48              |
| 11:K:77:ARG:HD2   | 11:K:91:TYR:HD1   | 1.77                     | 0.48              |
| 13:M:83:PRO:HG2   | 14:N:49:LYS:HE3   | 1.94                     | 0.48              |
| 16:P:56:ASP:O     | 16:P:57:LEU:HD23  | 2.12                     | 0.48              |
| 16:P:223:ASN:HD22 | 16:P:286:VAL:HG11 | 1.78                     | 0.48              |
| 17:Q:10:CYS:HB3   | 17:Q:16:PRO:HA    | 1.93                     | 0.48              |
| 17:Q:239:PHE:HB2  | 17:Q:245:SER:OG   | 2.13                     | 0.48              |
| 18:R:15:GLN:OE1   | 18:R:181:THR:HG23 | 2.12                     | 0.48              |
| 18:R:23:TYR:CE1   | 18:R:170:LEU:HD23 | 2.49                     | 0.48              |
| 1:A:512:THR:CG2   | 1:A:513:ALA:H     | 2.24                     | 0.48              |
| 1:A:1025:LYS:HG2  | 1:A:1615:TYR:CD1  | 2.48                     | 0.48              |
| 1:A:1229:ALA:HB3  | 1:A:1597:ALA:HB2  | 1.94                     | 0.48              |
| 2:B:129:ARG:HH22  | 2:B:890:ASP:HA    | 1.78                     | 0.48              |
| 2:B:320:LEU:HD22  | 2:B:326:VAL:N     | 2.28                     | 0.48              |
| 2:B:736:ARG:HD3   | 2:B:738:ASP:OD2   | 2.13                     | 0.48              |
| 5:E:67:GLU:H      | 5:E:67:GLU:CD     | 2.16                     | 0.48              |
| 12:L:48:CYS:HB3   | 12:L:52:GLY:N     | 2.22                     | 0.48              |
| 13:M:80:LEU:HD21  | 14:N:38:PHE:CZ    | 2.49                     | 0.48              |
| 15:O:179:PHE:HD2  | 15:O:183:ILE:HD12 | 1.78                     | 0.48              |
| 15:O:484:PHE:HB2  | 15:O:528:PHE:CD1  | 2.48                     | 0.48              |
| 1:A:418:VAL:HG13  | 1:A:419:ILE:HG13  | 1.94                     | 0.48              |
| 1:A:552:GLU:H     | 1:A:552:GLU:CD    | 2.16                     | 0.48              |
| 1:A:734:THR:O     | 1:A:738:ASN:ND2   | 2.46                     | 0.48              |
| 2:B:585:CYS:HB2   | 2:B:595:TRP:CZ3   | 2.49                     | 0.48              |
| 2:B:745:GLN:NE2   | 10:J:1:MET:SD     | 2.81                     | 0.48              |
| 2:B:1087:LEU:CD2  | 2:B:1088:LEU:HD23 | 2.43                     | 0.48              |
| 16:P:194:ARG:O    | 16:P:195:ASN:ND2  | 2.46                     | 0.48              |
| 16:P:238:LEU:HD21 | 16:P:284:VAL:HG23 | 1.96                     | 0.48              |
| 17:Q:350:ARG:NE   | 17:Q:486:GLN:CD   | 2.66                     | 0.48              |
| 1:A:463:LYS:NZ    | 20:T:16:DT:H71    | 2.27                     | 0.48              |
| 1:A:966:LEU:HB3   | 1:A:969:PHE:CD2   | 2.49                     | 0.48              |
| 5:E:76:GLY:HA3    | 5:E:106:GLN:HB2   | 1.96                     | 0.48              |
| 15:O:532:ALA:HB1  | 15:O:537:VAL:HB   | 1.95                     | 0.48              |
| 16:P:294:PHE:CE2  | 16:P:299:ASP:HA   | 2.48                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:751:SER:O    | 16:P:753:PHE:N    | 2.46                     | 0.48              |
| 17:Q:22:ILE:HD11  | 17:Q:26:ARG:CG    | 2.44                     | 0.48              |
| 17:Q:140:ILE:O    | 17:Q:143:THR:HG22 | 2.14                     | 0.48              |
| 1:A:219:LEU:O     | 1:A:223:PHE:N     | 2.32                     | 0.48              |
| 1:A:1311:GLU:O    | 1:A:1314:GLN:HB3  | 2.13                     | 0.48              |
| 2:B:985:ILE:HG13  | 2:B:986:PHE:CD2   | 2.48                     | 0.48              |
| 2:B:1138:ALA:HB1  | 2:B:1153:ILE:HG13 | 1.95                     | 0.48              |
| 8:H:103:LYS:HD2   | 8:H:115:TYR:CD2   | 2.48                     | 0.48              |
| 14:N:56:ILE:HG12  | 14:N:137:PHE:HB2  | 1.94                     | 0.48              |
| 16:P:348:HIS:CE1  | 18:R:154:LYS:HE2  | 2.49                     | 0.48              |
| 16:P:475:ARG:HD2  | 16:P:475:ARG:N    | 2.28                     | 0.48              |
| 1:A:232:LYS:HE2   | 1:A:239:PHE:CZ    | 2.48                     | 0.48              |
| 1:A:613:THR:OG1   | 1:A:615:ARG:NH2   | 2.46                     | 0.48              |
| 1:A:647:ALA:HB2   | 2:B:1087:LEU:HD13 | 1.94                     | 0.48              |
| 1:A:1003:ARG:HD3  | 2:B:520:LEU:HB2   | 1.95                     | 0.48              |
| 1:A:1013:THR:O    | 20:T:17:DT:C2     | 2.67                     | 0.48              |
| 1:A:1490:GLU:HB3  | 1:A:1494:ARG:HH12 | 1.79                     | 0.48              |
| 1:A:1610:PHE:HA   | 1:A:1613:MET:HB3  | 1.96                     | 0.48              |
| 2:B:18:THR:O      | 2:B:21:ARG:HB3    | 2.14                     | 0.48              |
| 2:B:52:LEU:HD23   | 2:B:60:LEU:HD12   | 1.95                     | 0.48              |
| 2:B:211:ARG:HB3   | 2:B:401:GLU:OE2   | 2.13                     | 0.48              |
| 2:B:1064:LYS:HE2  | 2:B:1064:LYS:HB3  | 1.62                     | 0.48              |
| 15:O:162:PHE:O    | 15:O:211:TYR:HA   | 2.14                     | 0.48              |
| 15:O:498:TRP:CZ2  | 15:O:535:GLU:HB3  | 2.48                     | 0.48              |
| 16:P:60:VAL:HG12  | 16:P:61:VAL:H     | 1.78                     | 0.48              |
| 16:P:182:LEU:HD12 | 16:P:185:GLN:HG2  | 1.95                     | 0.48              |
| 16:P:300:LEU:HB3  | 16:P:320:ILE:HG22 | 1.96                     | 0.48              |
| 16:P:422:ILE:O    | 16:P:439:LYS:HB3  | 2.14                     | 0.48              |
| 16:P:436:ILE:HG23 | 18:R:141:TRP:HB2  | 1.95                     | 0.48              |
| 17:Q:234:CYS:SG   | 17:Q:284:LEU:HB3  | 2.53                     | 0.48              |
| 18:R:368:TYR:CE2  | 18:R:414:PHE:CZ   | 3.02                     | 0.48              |
| 18:R:402:ASN:O    | 18:R:406:LYS:HG2  | 2.14                     | 0.48              |
| 2:B:299:ASP:OD1   | 2:B:300:SER:N     | 2.47                     | 0.48              |
| 2:B:943:ILE:HD11  | 10:J:43:ARG:HB3   | 1.96                     | 0.48              |
| 2:B:1064:LYS:HD2  | 2:B:1064:LYS:O    | 2.13                     | 0.48              |
| 2:B:1187:SER:O    | 2:B:1190:SER:OG   | 2.27                     | 0.48              |
| 3:C:57:ILE:HG22   | 3:C:58:ASN:ND2    | 2.29                     | 0.48              |
| 7:G:134:GLU:HA    | 7:G:229:LEU:O     | 2.14                     | 0.48              |
| 15:O:348:THR:HG23 | 15:O:351:SER:H    | 1.78                     | 0.48              |
| 16:P:463:LEU:HA   | 16:P:482:SER:HA   | 1.96                     | 0.48              |
| 17:Q:417:PHE:HE1  | 18:R:265:SER:O    | 1.96                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 18:R:158:THR:OG1  | 18:R:159:TYR:N    | 2.46                     | 0.48              |
| 21:U:39:DT:H2"    | 21:U:40:DT:H5"    | 1.96                     | 0.48              |
| 1:A:371:SER:N     | 1:A:378:HIS:O     | 2.31                     | 0.48              |
| 1:A:830:MET:HG3   | 2:B:967:LEU:HD11  | 1.95                     | 0.48              |
| 2:B:939:SER:OG    | 2:B:942:GLY:N     | 2.46                     | 0.48              |
| 2:B:1159:TRP:O    | 2:B:1167:PHE:N    | 2.40                     | 0.48              |
| 12:L:34:CYS:HB3   | 12:L:51:CYS:HG    | 1.78                     | 0.48              |
| 15:O:61:ASP:O     | 15:O:65:LYS:N     | 2.44                     | 0.48              |
| 16:P:475:ARG:HH21 | 17:Q:364:SER:HA   | 1.78                     | 0.48              |
| 16:P:533:LEU:H    | 16:P:554:ASN:HB2  | 1.78                     | 0.48              |
| 16:P:658:LYS:C    | 16:P:660:LYS:H    | 2.17                     | 0.48              |
| 16:P:678:LEU:HD22 | 16:P:679:LEU:HD13 | 1.96                     | 0.48              |
| 17:Q:355:VAL:CA   | 18:R:212:HIS:CE1  | 2.60                     | 0.48              |
| 18:R:4:VAL:HG13   | 18:R:6:ILE:H      | 1.78                     | 0.48              |
| 18:R:82:ARG:HD2   | 18:R:82:ARG:O     | 2.14                     | 0.48              |
| 1:A:15:ASP:OD1    | 1:A:1631:ARG:HG3  | 2.13                     | 0.47              |
| 1:A:244:ARG:O     | 1:A:252:PHE:N     | 2.25                     | 0.47              |
| 1:A:367:PHE:CD1   | 2:B:1184:TYR:HD1  | 2.31                     | 0.47              |
| 1:A:920:PHE:CD1   | 1:A:921:PRO:HA    | 2.49                     | 0.47              |
| 1:A:1261:VAL:HB   | 1:A:1499:ARG:H    | 1.79                     | 0.47              |
| 2:B:301:PHE:CE2   | 2:B:386:ALA:HB2   | 2.49                     | 0.47              |
| 2:B:826:GLY:N     | 2:B:860:ALA:O     | 2.46                     | 0.47              |
| 2:B:954:PHE:CZ    | 2:B:963:PHE:CE1   | 3.03                     | 0.47              |
| 2:B:1097:ASP:O    | 2:B:1179:PRO:HA   | 2.14                     | 0.47              |
| 7:G:74:ASN:HB3    | 7:G:77:VAL:HG22   | 1.96                     | 0.47              |
| 16:P:389:TRP:HZ2  | 18:R:147:GLN:N    | 1.71                     | 0.47              |
| 17:Q:15:CYS:CB    | 17:Q:17:SER:N     | 2.60                     | 0.47              |
| 1:A:511:VAL:CG1   | 1:A:575:LYS:C     | 2.74                     | 0.47              |
| 1:A:537:GLN:HE21  | 1:A:541:GLY:HA2   | 1.78                     | 0.47              |
| 1:A:546:LEU:HB3   | 1:A:554:ARG:CZ    | 2.44                     | 0.47              |
| 1:A:771:PHE:HA    | 1:A:775:ALA:O     | 2.15                     | 0.47              |
| 1:A:966:LEU:HD11  | 2:B:525:TRP:CE3   | 2.49                     | 0.47              |
| 1:A:1240:LEU:HB2  | 1:A:1519:LEU:HB2  | 1.95                     | 0.47              |
| 1:A:1312:GLU:O    | 1:A:1316:VAL:N    | 2.26                     | 0.47              |
| 9:I:30:CYS:HB3    | 9:I:35:ALA:N      | 2.29                     | 0.47              |
| 15:O:109:SER:O    | 15:O:113:THR:OG1  | 2.29                     | 0.47              |
| 16:P:66:CYS:HB2   | 16:P:547:VAL:CG2  | 2.44                     | 0.47              |
| 16:P:412:ASN:OD1  | 16:P:412:ASN:N    | 2.45                     | 0.47              |
| 17:Q:123:MET:HE1  | 17:Q:184:TRP:HE1  | 1.78                     | 0.47              |
| 17:Q:499:LYS:HE3  | 17:Q:499:LYS:HB3  | 1.59                     | 0.47              |
| 18:R:275:CYS:SG   | 18:R:309:ALA:HA   | 2.54                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:468:ARG:NH2   | 1:A:1615:TYR:O    | 2.46                     | 0.47              |
| 1:A:1013:THR:HB   | 20:T:17:DT:C2     | 2.49                     | 0.47              |
| 2:B:113:VAL:O     | 18:R:282:SER:HB2  | 2.13                     | 0.47              |
| 2:B:1128:CYS:N    | 2:B:1170:GLY:O    | 2.30                     | 0.47              |
| 6:F:83:PRO:HB2    | 6:F:152:ILE:CD1   | 2.44                     | 0.47              |
| 6:F:137:TYR:HD1   | 6:F:143:PHE:HB3   | 1.78                     | 0.47              |
| 14:N:53:VAL:O     | 14:N:134:ASP:HB2  | 2.14                     | 0.47              |
| 15:O:72:GLY:O     | 15:O:76:ASN:N     | 2.45                     | 0.47              |
| 15:O:192:THR:O    | 15:O:196:LYS:N    | 2.27                     | 0.47              |
| 15:O:228:GLN:HA   | 15:O:231:SER:HB2  | 1.96                     | 0.47              |
| 15:O:478:GLN:NE2  | 15:O:481:CYS:SG   | 2.87                     | 0.47              |
| 18:R:200:THR:H    | 18:R:203:SER:HB3  | 1.79                     | 0.47              |
| 18:R:250:LEU:HG   | 18:R:307:LYS:HZ2  | 1.79                     | 0.47              |
| 1:A:248:PHE:O     | 1:A:249:THR:OG1   | 2.30                     | 0.47              |
| 1:A:597:LYS:CD    | 2:B:1082:HIS:HA   | 2.41                     | 0.47              |
| 1:A:1460:TYR:OH   | 1:A:1462:PHE:HB2  | 2.14                     | 0.47              |
| 2:B:207:ILE:HB    | 2:B:505:ARG:HD2   | 1.96                     | 0.47              |
| 2:B:314:LYS:C     | 2:B:316:ARG:H     | 2.18                     | 0.47              |
| 2:B:975:HIS:CG    | 14:N:166:LEU:HD22 | 2.50                     | 0.47              |
| 2:B:1120:ILE:HD12 | 15:O:117:GLN:HE21 | 1.79                     | 0.47              |
| 3:C:71:MET:HB2    | 3:C:317:SER:OG    | 2.15                     | 0.47              |
| 9:I:38:PRO:CD     | 9:I:41:GLN:HE21   | 2.26                     | 0.47              |
| 10:J:68:LYS:HE2   | 12:L:34:CYS:HB2   | 1.97                     | 0.47              |
| 15:O:63:LEU:HD11  | 15:O:112:GLY:N    | 2.28                     | 0.47              |
| 15:O:518:LYS:HB2  | 15:O:547:ASN:ND2  | 2.29                     | 0.47              |
| 17:Q:161:THR:OG1  | 17:Q:162:ILE:N    | 2.47                     | 0.47              |
| 1:A:440:SER:H     | 1:A:458:GLN:HE22  | 1.61                     | 0.47              |
| 1:A:597:LYS:HD2   | 2:B:1082:HIS:CA   | 2.44                     | 0.47              |
| 1:A:672:ASP:CG    | 2:B:950:ASN:HD21  | 2.18                     | 0.47              |
| 2:B:48:SER:HB3    | 2:B:404:LEU:HD13  | 1.96                     | 0.47              |
| 2:B:107:PRO:HG2   | 2:B:133:TYR:CE2   | 2.49                     | 0.47              |
| 2:B:492:ASN:HD21  | 2:B:723:LYS:HA    | 1.79                     | 0.47              |
| 2:B:1084:THR:CB   | 2:B:1087:LEU:HD22 | 2.33                     | 0.47              |
| 15:O:390:GLN:OE1  | 15:O:609:TYR:HB3  | 2.14                     | 0.47              |
| 15:O:602:TYR:O    | 15:O:606:MET:HG2  | 2.14                     | 0.47              |
| 16:P:271:ILE:HG12 | 16:P:272:PHE:N    | 2.29                     | 0.47              |
| 16:P:477:TYR:HD2  | 18:R:2:PHE:CZ     | 2.30                     | 0.47              |
| 16:P:582:ASP:N    | 16:P:585:GLU:HB2  | 2.29                     | 0.47              |
| 18:R:250:LEU:HD11 | 18:R:307:LYS:HG3  | 1.96                     | 0.47              |
| 18:R:440:SER:O    | 18:R:440:SER:OG   | 2.31                     | 0.47              |
| 7:G:48:SER:HB3    | 7:G:115:PHE:CE1   | 2.49                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:302:VAL:O    | 16:P:363:ILE:HD11 | 2.13                     | 0.47              |
| 16:P:397:LYS:O    | 16:P:397:LYS:HG2  | 2.14                     | 0.47              |
| 17:Q:319:SER:O    | 17:Q:319:SER:OG   | 2.30                     | 0.47              |
| 18:R:12:LYS:O     | 18:R:14:ALA:N     | 2.47                     | 0.47              |
| 1:A:507:TYR:CE1   | 1:A:639:GLN:O     | 2.68                     | 0.47              |
| 1:A:657:TYR:CZ    | 1:A:665:PRO:HB3   | 2.50                     | 0.47              |
| 1:A:1114:TYR:CE2  | 1:A:1115:LYS:HG2  | 2.49                     | 0.47              |
| 1:A:1555:VAL:HG21 | 5:E:212:ARG:HH12  | 1.80                     | 0.47              |
| 2:B:656:LEU:HD22  | 14:N:153:VAL:HG21 | 1.97                     | 0.47              |
| 2:B:787:MET:HB2   | 2:B:927:CYS:HA    | 1.92                     | 0.47              |
| 2:B:963:PHE:O     | 2:B:1027:TYR:OH   | 2.31                     | 0.47              |
| 2:B:1074:MET:CE   | 20:T:18:DT:O4'    | 2.62                     | 0.47              |
| 3:C:105:PRO:HG2   | 10:J:13:VAL:HG21  | 1.95                     | 0.47              |
| 3:C:316:LYS:HA    | 3:C:319:ARG:HB3   | 1.97                     | 0.47              |
| 5:E:50:MET:HG2    | 5:E:52:ARG:HB2    | 1.96                     | 0.47              |
| 11:K:50:LEU:O     | 11:K:54:THR:HG23  | 2.14                     | 0.47              |
| 16:P:465:VAL:HG13 | 16:P:480:VAL:HG13 | 1.96                     | 0.47              |
| 16:P:498:LEU:CD1  | 17:Q:368:GLN:HE21 | 2.26                     | 0.47              |
| 16:P:775:TRP:O    | 17:Q:109:GLN:NE2  | 2.47                     | 0.47              |
| 17:Q:135:ILE:O    | 17:Q:139:LYS:HD2  | 2.15                     | 0.47              |
| 17:Q:274:ILE:HG23 | 17:Q:282:ARG:NH2  | 2.30                     | 0.47              |
| 20:T:2:DT:H3      | 21:U:48:DA:H61    | 1.61                     | 0.47              |
| 20:T:11:DA:C4     | 20:T:12:DC:C4     | 3.02                     | 0.47              |
| 1:A:407:GLN:H     | 1:A:410:LYS:HE2   | 1.80                     | 0.47              |
| 2:B:113:VAL:O     | 18:R:282:SER:CB   | 2.63                     | 0.47              |
| 2:B:938:PHE:CE2   | 2:B:1014:TYR:HD2  | 2.32                     | 0.47              |
| 3:C:90:SER:HB3    | 3:C:202:ILE:HD11  | 1.97                     | 0.47              |
| 5:E:110:PHE:O     | 5:E:134:THR:HA    | 2.15                     | 0.47              |
| 6:F:76:LYS:HA     | 6:F:79:ARG:NH1    | 2.29                     | 0.47              |
| 7:G:92:ALA:HB3    | 7:G:104:LEU:HB2   | 1.97                     | 0.47              |
| 14:N:41:ASN:HD22  | 14:N:51:GLN:CD    | 2.18                     | 0.47              |
| 15:O:548:ASN:OD1  | 15:O:549:ASN:N    | 2.48                     | 0.47              |
| 1:A:597:LYS:HE3   | 1:A:660:PRO:HG2   | 1.97                     | 0.47              |
| 1:A:1637:PRO:CG   | 1:A:1647:ASN:ND2  | 2.62                     | 0.47              |
| 2:B:372:ARG:HH21  | 2:B:574:SER:HA    | 1.80                     | 0.47              |
| 2:B:541:LEU:O     | 2:B:543:ASN:ND2   | 2.47                     | 0.47              |
| 2:B:823:GLN:HG2   | 2:B:863:ASP:HA    | 1.97                     | 0.47              |
| 6:F:140:ASP:OD1   | 6:F:141:GLY:N     | 2.47                     | 0.47              |
| 7:G:241:ARG:HG2   | 15:O:189:PHE:CD2  | 2.49                     | 0.47              |
| 1:A:1238:MET:SD   | 1:A:1526:PHE:CE1  | 3.08                     | 0.47              |
| 1:A:1511:GLU:O    | 1:A:1513:GLU:N    | 2.48                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:219:ARG:HG2   | 2:B:221:SER:H     | 1.79                     | 0.47              |
| 2:B:992:PRO:HA    | 2:B:995:TYR:HB3   | 1.97                     | 0.47              |
| 9:I:30:CYS:N      | 9:I:35:ALA:O      | 2.38                     | 0.47              |
| 15:O:201:LYS:HD3  | 15:O:239:SER:OG   | 2.15                     | 0.47              |
| 16:P:186:TYR:HE1  | 16:P:447:THR:OG1  | 1.98                     | 0.47              |
| 16:P:263:ILE:CG2  | 16:P:277:VAL:HG12 | 2.44                     | 0.47              |
| 16:P:363:ILE:HA   | 16:P:373:LEU:O    | 2.14                     | 0.47              |
| 16:P:428:GLU:HG3  | 16:P:429:SER:N    | 2.29                     | 0.47              |
| 18:R:320:CYS:SG   | 18:R:346:ILE:HG13 | 2.55                     | 0.47              |
| 21:U:42:DA:H1'    | 21:U:43:DA:H5'    | 1.97                     | 0.47              |
| 1:A:239:PHE:HE2   | 1:A:263:ASN:HD22  | 1.63                     | 0.46              |
| 1:A:440:SER:H     | 1:A:458:GLN:NE2   | 2.12                     | 0.46              |
| 1:A:970:LYS:HE2   | 1:A:973:GLU:OE1   | 2.15                     | 0.46              |
| 1:A:1052:GLY:HA2  | 5:E:208:TYR:CE1   | 2.51                     | 0.46              |
| 2:B:264:TRP:NE1   | 2:B:265:ARG:HG2   | 2.30                     | 0.46              |
| 2:B:504:HIS:HB3   | 2:B:542:LEU:HD23  | 1.97                     | 0.46              |
| 3:C:64:ALA:HA     | 3:C:67:PHE:HB3    | 1.97                     | 0.46              |
| 3:C:87:ASN:OD1    | 3:C:88:ASN:N      | 2.48                     | 0.46              |
| 11:K:55:SER:OG    | 11:K:57:ASP:OD1   | 2.21                     | 0.46              |
| 15:O:174:ASP:HA   | 15:O:177:LYS:HE2  | 1.97                     | 0.46              |
| 15:O:477:PHE:O    | 15:O:480:LEU:HG   | 2.15                     | 0.46              |
| 16:P:304:ASP:HB2  | 16:P:363:ILE:O    | 2.15                     | 0.46              |
| 16:P:416:LEU:HD23 | 16:P:423:ILE:HD12 | 1.97                     | 0.46              |
| 17:Q:129:PHE:HE1  | 17:Q:169:SER:N    | 2.12                     | 0.46              |
| 1:A:202:THR:HG22  | 1:A:203:THR:O     | 2.16                     | 0.46              |
| 5:E:91:LYS:HA     | 5:E:94:LYS:HB3    | 1.97                     | 0.46              |
| 15:O:77:GLN:HE21  | 15:O:88:ILE:HA    | 1.80                     | 0.46              |
| 15:O:396:MET:HG3  | 15:O:434:LEU:HD11 | 1.54                     | 0.46              |
| 16:P:363:ILE:HG22 | 16:P:374:VAL:HG22 | 1.98                     | 0.46              |
| 17:Q:283:ASN:C    | 17:Q:284:LEU:HD12 | 2.36                     | 0.46              |
| 17:Q:327:PRO:HG2  | 17:Q:330:TRP:H    | 1.80                     | 0.46              |
| 18:R:356:PRO:CB   | 18:R:357:PRO:HA   | 2.45                     | 0.46              |
| 20:T:12:DC:C2'    | 20:T:13:DT:H5'    | 2.44                     | 0.46              |
| 1:A:831:ASP:N     | 1:A:831:ASP:OD1   | 2.48                     | 0.46              |
| 1:A:1092:GLU:O    | 1:A:1095:LEU:N    | 2.48                     | 0.46              |
| 2:B:54:GLU:O      | 2:B:59:GLY:HA2    | 2.15                     | 0.46              |
| 15:O:216:LEU:HB3  | 15:O:342:HIS:CD2  | 2.50                     | 0.46              |
| 15:O:434:LEU:CD2  | 15:O:439:ILE:HD11 | 2.39                     | 0.46              |
| 15:O:487:ARG:HG2  | 15:O:491:PHE:CG   | 2.50                     | 0.46              |
| 16:P:265:THR:HG23 | 16:P:274:ILE:HG12 | 1.97                     | 0.46              |
| 16:P:322:GLY:N    | 16:P:361:LYS:HD3  | 2.30                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:436:ILE:CG2  | 18:R:141:TRP:HB2  | 2.45                     | 0.46              |
| 16:P:442:LEU:N    | 16:P:442:LEU:HD13 | 2.31                     | 0.46              |
| 16:P:463:LEU:H    | 16:P:463:LEU:HD22 | 1.81                     | 0.46              |
| 16:P:540:LYS:O    | 16:P:541:LEU:HD13 | 2.16                     | 0.46              |
| 16:P:573:GLU:HB2  | 17:Q:499:LYS:HZ1  | 1.79                     | 0.46              |
| 16:P:724:LEU:HD12 | 17:Q:443:GLN:HG2  | 1.98                     | 0.46              |
| 18:R:200:THR:O    | 18:R:204:GLU:HG2  | 2.15                     | 0.46              |
| 1:A:590:ASN:HD21  | 2:B:1075:GLU:HG2  | 1.81                     | 0.46              |
| 2:B:273:VAL:HG21  | 2:B:378:ILE:HD11  | 1.98                     | 0.46              |
| 2:B:442:ASP:HB3   | 2:B:445:TYR:HB3   | 1.97                     | 0.46              |
| 2:B:794:ASP:HA    | 2:B:798:PHE:HB3   | 1.97                     | 0.46              |
| 16:P:361:LYS:HA   | 16:P:375:PHE:O    | 2.16                     | 0.46              |
| 16:P:751:SER:O    | 16:P:754:GLU:N    | 2.44                     | 0.46              |
| 18:R:253:ILE:HD13 | 18:R:257:ILE:HD12 | 1.97                     | 0.46              |
| 1:A:461:GLU:HG2   | 1:A:1618:THR:HB   | 1.98                     | 0.46              |
| 1:A:535:GLN:NE2   | 17:Q:26:ARG:HD3   | 2.31                     | 0.46              |
| 1:A:564:PRO:HD2   | 15:O:371:HIS:HA   | 1.96                     | 0.46              |
| 1:A:812:VAL:HA    | 1:A:815:ARG:HH21  | 1.80                     | 0.46              |
| 2:B:1104:CYS:SG   | 2:B:1107:CYS:N    | 2.70                     | 0.46              |
| 15:O:225:LEU:O    | 15:O:227:PHE:N    | 2.49                     | 0.46              |
| 15:O:241:ASP:OD2  | 15:O:378:THR:HG22 | 2.15                     | 0.46              |
| 16:P:394:VAL:HG12 | 16:P:434:ARG:NH1  | 2.30                     | 0.46              |
| 17:Q:128:GLU:O    | 17:Q:132:VAL:HG23 | 2.15                     | 0.46              |
| 17:Q:384:GLN:HA   | 17:Q:387:PRO:HD2  | 1.96                     | 0.46              |
| 19:S:3:G:N1       | 20:T:21:DC:N3     | 2.51                     | 0.46              |
| 1:A:81:LEU:CD2    | 1:A:85:CYS:SG     | 3.04                     | 0.46              |
| 1:A:1314:GLN:O    | 1:A:1318:SER:N    | 2.49                     | 0.46              |
| 2:B:212:ASN:CB    | 2:B:589:ASP:O     | 2.62                     | 0.46              |
| 2:B:517:VAL:HG23  | 2:B:518:ARG:HG3   | 1.96                     | 0.46              |
| 2:B:679:GLN:OE1   | 2:B:679:GLN:N     | 2.38                     | 0.46              |
| 2:B:887:LEU:HB2   | 12:L:56:LEU:HB2   | 1.97                     | 0.46              |
| 4:D:28:PRO:HD2    | 7:G:24:VAL:HG11   | 1.97                     | 0.46              |
| 15:O:531:ILE:HA   | 15:O:534:GLN:HB2  | 1.97                     | 0.46              |
| 16:P:659:LEU:HD12 | 16:P:742:TRP:CD1  | 2.50                     | 0.46              |
| 18:R:171:ARG:C    | 18:R:174:GLU:H    | 2.18                     | 0.46              |
| 18:R:250:LEU:HD21 | 18:R:307:LYS:CG   | 2.41                     | 0.46              |
| 18:R:250:LEU:HB2  | 18:R:270:PHE:CE2  | 2.45                     | 0.46              |
| 21:U:9:DT:H2''    | 21:U:10:DG:H5'    | 1.97                     | 0.46              |
| 1:A:707:THR:HG22  | 1:A:709:ARG:N     | 2.21                     | 0.46              |
| 1:A:1038:ILE:N    | 1:A:1047:GLN:O    | 2.43                     | 0.46              |
| 4:D:86:ILE:HA     | 4:D:89:LEU:HD12   | 1.96                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 11:K:70:HIS:CE1   | 11:K:93:ILE:HD12  | 2.50                     | 0.46              |
| 11:K:122:LYS:NZ   | 11:K:126:ASP:OD2  | 2.49                     | 0.46              |
| 15:O:453:TYR:CZ   | 15:O:473:PHE:HB2  | 2.51                     | 0.46              |
| 16:P:481:PHE:CE1  | 16:P:491:SER:HB2  | 2.50                     | 0.46              |
| 16:P:604:ILE:HG22 | 16:P:605:SER:N    | 2.31                     | 0.46              |
| 16:P:724:LEU:HB2  | 17:Q:446:TYR:HB3  | 1.96                     | 0.46              |
| 17:Q:283:ASN:CG   | 17:Q:284:LEU:H    | 2.18                     | 0.46              |
| 17:Q:410:ARG:HA   | 17:Q:413:LEU:CB   | 2.45                     | 0.46              |
| 21:U:5:DT:H2''    | 21:U:6:DG:H5'     | 1.98                     | 0.46              |
| 1:A:1104:TYR:CZ   | 1:A:1108:HIS:HD2  | 2.34                     | 0.46              |
| 2:B:71:LYS:HG3    | 2:B:421:LEU:HB3   | 1.97                     | 0.46              |
| 2:B:215:MET:HE2   | 2:B:217:ILE:HD11  | 1.97                     | 0.46              |
| 2:B:729:PRO:HG2   | 2:B:733:LEU:HD21  | 1.98                     | 0.46              |
| 2:B:912:GLN:N     | 2:B:915:ASP:OD2   | 2.48                     | 0.46              |
| 5:E:43:LYS:O      | 5:E:47:CYS:HB2    | 2.15                     | 0.46              |
| 15:O:540:CYS:O    | 15:O:544:ILE:N    | 2.40                     | 0.46              |
| 16:P:288:SER:O    | 16:P:288:SER:OG   | 2.31                     | 0.46              |
| 16:P:315:PHE:O    | 16:P:317:ILE:HD12 | 2.16                     | 0.46              |
| 17:Q:139:LYS:HZ3  | 17:Q:139:LYS:N    | 2.14                     | 0.46              |
| 17:Q:152:LEU:HB2  | 17:Q:154:LEU:HD13 | 1.97                     | 0.46              |
| 17:Q:282:ARG:HG2  | 17:Q:302:ALA:HB1  | 1.98                     | 0.46              |
| 17:Q:350:ARG:HD3  | 17:Q:486:GLN:CG   | 2.38                     | 0.46              |
| 18:R:354:LEU:C    | 18:R:356:PRO:HD3  | 2.37                     | 0.46              |
| 20:T:11:DA:C5     | 20:T:12:DC:C5     | 3.04                     | 0.46              |
| 20:T:19:DC:H2'    | 20:T:20:DG:H8     | 1.81                     | 0.46              |
| 1:A:1018:TYR:N    | 20:T:17:DT:H4'    | 2.31                     | 0.46              |
| 1:A:1245:ASP:OD1  | 1:A:1246:VAL:N    | 2.41                     | 0.46              |
| 1:A:1254:PHE:CE1  | 1:A:1258:ILE:HG21 | 2.51                     | 0.46              |
| 1:A:1270:VAL:HG22 | 1:A:1294:MET:HG2  | 1.98                     | 0.46              |
| 2:B:204:ARG:HH11  | 2:B:502:MET:HE1   | 1.81                     | 0.46              |
| 2:B:770:ASN:O     | 10:J:48:ARG:NH1   | 2.48                     | 0.46              |
| 2:B:815:ARG:HE    | 2:B:821:ILE:HA    | 1.80                     | 0.46              |
| 2:B:881:TYR:CZ    | 12:L:67:PHE:HE1   | 2.34                     | 0.46              |
| 2:B:954:PHE:CE1   | 2:B:963:PHE:CE1   | 3.04                     | 0.46              |
| 3:C:243:SER:O     | 3:C:247:PHE:N     | 2.27                     | 0.46              |
| 15:O:147:ILE:O    | 15:O:149:LYS:N    | 2.47                     | 0.46              |
| 16:P:290:GLU:OE2  | 16:P:291:PRO:HD2  | 2.16                     | 0.46              |
| 1:A:488:PRO:HB3   | 1:A:618:TYR:HE2   | 1.80                     | 0.46              |
| 1:A:495:ILE:HG22  | 1:A:604:LYS:O     | 2.15                     | 0.46              |
| 1:A:717:PRO:HG2   | 1:A:720:PHE:CD1   | 2.50                     | 0.46              |
| 1:A:1238:MET:CE   | 1:A:1524:VAL:HG13 | 2.46                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:894:LYS:C     | 2:B:896:GLN:H     | 2.17                     | 0.46              |
| 15:O:147:ILE:C    | 15:O:149:LYS:H    | 2.18                     | 0.46              |
| 16:P:768:TYR:HB3  | 16:P:769:GLN:H    | 1.35                     | 0.46              |
| 1:A:643:ALA:CA    | 2:B:1087:LEU:HB2  | 2.46                     | 0.45              |
| 1:A:1038:ILE:CG1  | 1:A:1047:GLN:HB2  | 2.46                     | 0.45              |
| 1:A:1297:PHE:HE2  | 9:I:58:SER:HB2    | 1.81                     | 0.45              |
| 1:A:1556:GLU:O    | 1:A:1560:ASN:ND2  | 2.49                     | 0.45              |
| 2:B:527:PHE:O     | 2:B:546:ALA:N     | 2.32                     | 0.45              |
| 2:B:529:CYS:SG    | 2:B:698:SER:N     | 2.86                     | 0.45              |
| 2:B:966:SER:OG    | 2:B:1029:GLY:HA3  | 2.16                     | 0.45              |
| 9:I:37:TYR:HB3    | 9:I:41:GLN:HE22   | 1.80                     | 0.45              |
| 11:K:77:ARG:HD2   | 11:K:91:TYR:CD1   | 2.51                     | 0.45              |
| 13:M:102:SER:HB3  | 13:M:105:SER:OG   | 2.16                     | 0.45              |
| 15:O:478:GLN:HA   | 15:O:481:CYS:SG   | 2.56                     | 0.45              |
| 16:P:182:LEU:HA   | 16:P:182:LEU:HD22 | 1.51                     | 0.45              |
| 16:P:190:ALA:O    | 16:P:247:ILE:O    | 2.34                     | 0.45              |
| 16:P:215:ASN:OD1  | 16:P:218:VAL:HA   | 2.16                     | 0.45              |
| 16:P:475:ARG:C    | 16:P:476:ILE:HD13 | 2.36                     | 0.45              |
| 1:A:241:PRO:HB2   | 1:A:254:THR:O     | 2.16                     | 0.45              |
| 1:A:771:PHE:CE1   | 1:A:776:LEU:HD13  | 2.43                     | 0.45              |
| 1:A:1662:ASN:HB3  | 7:G:101:SER:HA    | 1.97                     | 0.45              |
| 2:B:99:VAL:HG12   | 2:B:100:GLU:N     | 2.31                     | 0.45              |
| 2:B:302:LEU:O     | 2:B:306:LEU:N     | 2.43                     | 0.45              |
| 2:B:679:GLN:HE21  | 14:N:157:ARG:HA   | 1.81                     | 0.45              |
| 2:B:683:ASN:HA    | 14:N:150:TYR:CZ   | 2.50                     | 0.45              |
| 2:B:946:ASP:OD2   | 10:J:48:ARG:NH2   | 2.48                     | 0.45              |
| 3:C:127:THR:OG1   | 3:C:130:ASN:N     | 2.47                     | 0.45              |
| 3:C:232:GLN:HG2   | 3:C:232:GLN:O     | 2.16                     | 0.45              |
| 9:I:6:SER:N       | 9:I:45:LEU:HD11   | 2.31                     | 0.45              |
| 10:J:16:ASP:OD1   | 10:J:17:LYS:HG3   | 2.16                     | 0.45              |
| 13:M:75:GLN:HB2   | 14:N:60:SER:HA    | 1.98                     | 0.45              |
| 16:P:301:GLN:N    | 16:P:319:ASP:O    | 2.49                     | 0.45              |
| 18:R:207:ASN:HD21 | 18:R:209:ARG:HH21 | 1.63                     | 0.45              |
| 18:R:304:HIS:CD2  | 18:R:361:ASP:HB3  | 2.50                     | 0.45              |
| 20:T:39:DT:H2''   | 20:T:40:DG:H5'    | 1.98                     | 0.45              |
| 1:A:262:THR:O     | 1:A:266:VAL:HG23  | 2.17                     | 0.45              |
| 1:A:643:ALA:HB1   | 2:B:1087:LEU:HD12 | 1.98                     | 0.45              |
| 1:A:1293:HIS:CD2  | 1:A:1295:ARG:HH22 | 2.34                     | 0.45              |
| 2:B:554:GLN:HA    | 2:B:646:HIS:CD2   | 2.51                     | 0.45              |
| 2:B:1062:GLY:HA2  | 2:B:1067:GLY:H    | 1.81                     | 0.45              |
| 2:B:1104:CYS:HA   | 2:B:1172:GLU:O    | 2.17                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1110:ILE:HG13 | 2:B:1111:LEU:HG   | 1.98                     | 0.45              |
| 2:B:1134:ARG:HH12 | 2:B:1165:ASN:ND2  | 2.15                     | 0.45              |
| 3:C:121:PRO:O     | 3:C:125:LYS:N     | 2.49                     | 0.45              |
| 5:E:22:MET:O      | 5:E:26:ARG:N      | 2.34                     | 0.45              |
| 12:L:68:GLU:OE2   | 12:L:70:ARG:HD3   | 2.17                     | 0.45              |
| 13:M:58:GLU:O     | 13:M:103:LYS:NZ   | 2.49                     | 0.45              |
| 15:O:477:PHE:HD2  | 15:O:520:CYS:SG   | 2.40                     | 0.45              |
| 18:R:240:ILE:O    | 18:R:240:ILE:HG13 | 2.15                     | 0.45              |
| 1:A:63:SER:O      | 2:B:1162:GLY:HA3  | 2.16                     | 0.45              |
| 1:A:590:ASN:HD21  | 2:B:1075:GLU:CG   | 2.29                     | 0.45              |
| 2:B:71:LYS:HB3    | 2:B:425:ILE:HG13  | 1.97                     | 0.45              |
| 2:B:320:LEU:HD21  | 2:B:326:VAL:N     | 2.30                     | 0.45              |
| 2:B:335:ARG:NH2   | 2:B:342:PRO:O     | 2.49                     | 0.45              |
| 2:B:782:ASP:HB3   | 2:B:788:ILE:HG12  | 1.98                     | 0.45              |
| 3:C:222:VAL:HB    | 3:C:224:THR:O     | 2.16                     | 0.45              |
| 13:M:56:GLU:OE2   | 13:M:103:LYS:NZ   | 2.49                     | 0.45              |
| 14:N:38:PHE:CE2   | 14:N:40:LEU:HB2   | 2.52                     | 0.45              |
| 14:N:54:TRP:NE1   | 14:N:135:LYS:HD2  | 2.31                     | 0.45              |
| 15:O:189:PHE:HD1  | 15:O:193:TYR:CE2  | 2.33                     | 0.45              |
| 16:P:194:ARG:CZ   | 16:P:511:ILE:CG1  | 2.95                     | 0.45              |
| 16:P:198:ASP:CB   | 16:P:261:VAL:HG23 | 2.46                     | 0.45              |
| 16:P:574:TRP:O    | 16:P:577:LEU:HB2  | 2.17                     | 0.45              |
| 17:Q:253:LEU:HD11 | 17:Q:270:THR:CG2  | 2.46                     | 0.45              |
| 17:Q:366:TYR:CG   | 18:R:215:THR:CB   | 3.00                     | 0.45              |
| 18:R:207:ASN:HD21 | 18:R:209:ARG:NH2  | 2.14                     | 0.45              |
| 18:R:435:LEU:O    | 18:R:439:GLU:HG3  | 2.16                     | 0.45              |
| 20:T:31:DT:H2''   | 20:T:32:DG:H5'    | 1.99                     | 0.45              |
| 1:A:643:ALA:CB    | 2:B:1087:LEU:HA   | 2.46                     | 0.45              |
| 1:A:1274:GLU:HB2  | 9:I:47:VAL:HB     | 1.99                     | 0.45              |
| 1:A:1615:TYR:CD2  | 1:A:1616:GLU:HG3  | 2.51                     | 0.45              |
| 2:B:252:TYR:HB2   | 2:B:381:LEU:HD21  | 1.99                     | 0.45              |
| 2:B:726:MET:HG3   | 2:B:742:TYR:HB3   | 1.98                     | 0.45              |
| 2:B:1074:MET:HE2  | 20:T:18:DT:H4'    | 1.97                     | 0.45              |
| 3:C:273:ASP:CG    | 3:C:275:VAL:H     | 2.19                     | 0.45              |
| 8:H:90:ALA:HB1    | 8:H:96:VAL:HG21   | 1.99                     | 0.45              |
| 11:K:116:ALA:O    | 11:K:120:GLY:N    | 2.36                     | 0.45              |
| 17:Q:360:LYS:HZ1  | 18:R:211:ARG:HH21 | 1.58                     | 0.45              |
| 1:A:590:ASN:O     | 1:A:634:ASN:N     | 2.43                     | 0.45              |
| 1:A:1070:LEU:HD13 | 1:A:1155:PHE:HE1  | 1.81                     | 0.45              |
| 2:B:57:ASP:OD1    | 2:B:57:ASP:N      | 2.46                     | 0.45              |
| 2:B:134:ARG:HD3   | 2:B:160:GLY:CA    | 2.44                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:372:ARG:NH2   | 2:B:574:SER:HA    | 2.31                     | 0.45              |
| 2:B:1058:GLN:HG2  | 2:B:1096:SER:C    | 2.33                     | 0.45              |
| 2:B:1060:VAL:O    | 2:B:1068:GLY:N    | 2.50                     | 0.45              |
| 2:B:1079:LEU:CD1  | 2:B:1079:LEU:H    | 2.30                     | 0.45              |
| 2:B:1093:LEU:HD13 | 2:B:1093:LEU:C    | 2.37                     | 0.45              |
| 13:M:77:VAL:HG11  | 13:M:90:LEU:HB3   | 1.98                     | 0.45              |
| 16:P:344:ILE:HG22 | 16:P:345:ASP:H    | 1.81                     | 0.45              |
| 17:Q:341:ARG:HD3  | 17:Q:373:GLU:OE1  | 2.16                     | 0.45              |
| 20:T:13:DT:H3     | 21:U:37:DA:H61    | 1.65                     | 0.45              |
| 21:U:17:DT:H2''   | 21:U:18:DG:H5'    | 1.98                     | 0.45              |
| 1:A:31:GLN:HB2    | 1:A:78:HIS:CE1    | 2.51                     | 0.45              |
| 1:A:94:LEU:N      | 1:A:355:PHE:CE2   | 2.85                     | 0.45              |
| 1:A:782:ASP:H     | 1:A:785:GLN:HB2   | 1.81                     | 0.45              |
| 1:A:1136:VAL:HA   | 1:A:1174:TYR:CE2  | 2.52                     | 0.45              |
| 1:A:1299:ASN:HB2  | 1:A:1466:SER:O    | 2.17                     | 0.45              |
| 2:B:320:LEU:CD1   | 2:B:326:VAL:HA    | 2.46                     | 0.45              |
| 2:B:600:GLN:HG3   | 2:B:604:ILE:HD11  | 1.99                     | 0.45              |
| 7:G:62:MET:HA     | 7:G:66:LEU:HB2    | 1.99                     | 0.45              |
| 11:K:60:SER:OG    | 11:K:106:GLN:HG2  | 2.17                     | 0.45              |
| 15:O:540:CYS:O    | 15:O:543:ILE:N    | 2.50                     | 0.45              |
| 16:P:727:PRO:HA   | 16:P:729:ALA:H    | 1.82                     | 0.45              |
| 17:Q:408:ILE:HG13 | 17:Q:412:LYS:HD3  | 1.97                     | 0.45              |
| 18:R:25:ASN:HD21  | 18:R:81:GLU:HG3   | 0.67                     | 0.45              |
| 1:A:628:PHE:CB    | 2:B:785:ASP:OD1   | 2.64                     | 0.45              |
| 1:A:646:GLU:OE1   | 2:B:1086:PHE:HB3  | 2.16                     | 0.45              |
| 1:A:1039:ARG:CZ   | 6:F:139:PRO:HG2   | 2.47                     | 0.45              |
| 1:A:1239:THR:HB   | 1:A:1542:THR:OG1  | 2.17                     | 0.45              |
| 2:B:575:HIS:HB2   | 14:N:107:MET:HE2  | 1.99                     | 0.45              |
| 4:D:19:PRO:HG2    | 4:D:22:ILE:HD11   | 1.99                     | 0.45              |
| 15:O:477:PHE:CE1  | 15:O:480:LEU:HD11 | 2.52                     | 0.45              |
| 17:Q:361:PRO:C    | 17:Q:363:SER:H    | 2.20                     | 0.45              |
| 1:A:474:LYS:HD2   | 2:B:1092:LEU:HD21 | 1.98                     | 0.45              |
| 1:A:557:LEU:O     | 1:A:561:LEU:N     | 2.49                     | 0.45              |
| 2:B:545:PHE:HB3   | 2:B:549:CYS:HB3   | 1.98                     | 0.45              |
| 5:E:100:ILE:O     | 5:E:104:ASN:N     | 2.50                     | 0.45              |
| 11:K:46:LYS:NZ    | 11:K:67:GLU:HB2   | 2.32                     | 0.45              |
| 15:O:388:VAL:HG22 | 15:O:395:LEU:HD23 | 1.99                     | 0.45              |
| 15:O:399:PHE:CE2  | 15:O:403:LEU:HD11 | 2.51                     | 0.45              |
| 18:R:75:GLN:HB2   | 20:T:43:DT:O3'    | 2.17                     | 0.45              |
| 18:R:239:LEU:HD12 | 18:R:239:LEU:HA   | 1.74                     | 0.45              |
| 20:T:3:DT:O2      | 21:U:47:DA:C2     | 2.70                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1048:PHE:CZ   | 5:E:211:TYR:HB2   | 2.52                     | 0.45              |
| 1:A:1195:GLU:HB3  | 1:A:1196:PRO:HD3  | 1.98                     | 0.45              |
| 2:B:262:PHE:CZ    | 2:B:269:TYR:HB2   | 2.51                     | 0.45              |
| 2:B:890:ASP:O     | 12:L:54:ARG:HD3   | 2.17                     | 0.45              |
| 3:C:123:ASP:OD1   | 3:C:124:GLU:N     | 2.48                     | 0.45              |
| 3:C:230:LEU:HD22  | 3:C:231:PRO:HD2   | 1.97                     | 0.45              |
| 3:C:277:ARG:HB3   | 3:C:280:LEU:HD12  | 1.98                     | 0.45              |
| 3:C:309:THR:O     | 3:C:312:GLU:HB3   | 2.16                     | 0.45              |
| 8:H:103:LYS:HB3   | 8:H:115:TYR:CD2   | 2.50                     | 0.45              |
| 14:N:111:VAL:N    | 14:N:120:LYS:O    | 2.33                     | 0.45              |
| 15:O:396:MET:HE1  | 15:O:434:LEU:HD12 | 0.99                     | 0.45              |
| 15:O:610:TYR:CE2  | 15:O:612:GLU:HA   | 2.52                     | 0.45              |
| 16:P:778:ASP:CG   | 16:P:779:ASP:H    | 2.19                     | 0.45              |
| 18:R:34:ILE:HD12  | 18:R:34:ILE:HA    | 1.81                     | 0.45              |
| 21:U:37:DA:C2     | 21:U:38:DG:C5     | 3.05                     | 0.45              |
| 1:A:674:ILE:HA    | 1:A:786:TYR:OH    | 2.16                     | 0.44              |
| 1:A:1258:ILE:CD1  | 1:A:1507:CYS:SG   | 3.00                     | 0.44              |
| 2:B:459:SER:O     | 2:B:463:TYR:N     | 2.40                     | 0.44              |
| 15:O:82:SER:HA    | 15:O:87:ARG:CZ    | 2.47                     | 0.44              |
| 16:P:221:ARG:NH1  | 16:P:223:ASN:HD21 | 2.15                     | 0.44              |
| 16:P:577:LEU:HD11 | 17:Q:503:SER:HB3  | 1.99                     | 0.44              |
| 17:Q:150:GLU:OE1  | 17:Q:150:GLU:HA   | 2.17                     | 0.44              |
| 18:R:365:TRP:HA   | 18:R:365:TRP:CE3  | 2.53                     | 0.44              |
| 20:T:3:DT:H2''    | 20:T:4:DG:C8      | 2.51                     | 0.44              |
| 1:A:537:GLN:HB3   | 1:A:576:LYS:HB2   | 2.00                     | 0.44              |
| 1:A:547:ILE:HD11  | 17:Q:26:ARG:NH2   | 2.23                     | 0.44              |
| 1:A:593:PRO:HD3   | 20:T:18:DT:O2     | 2.17                     | 0.44              |
| 1:A:964:LYS:HE3   | 1:A:969:PHE:O     | 2.17                     | 0.44              |
| 1:A:1118:VAL:O    | 1:A:1118:VAL:HG12 | 2.18                     | 0.44              |
| 1:A:1158:SER:OG   | 1:A:1159:ASP:N    | 2.50                     | 0.44              |
| 2:B:407:PHE:O     | 2:B:411:MET:HG3   | 2.18                     | 0.44              |
| 2:B:974:LEU:HD23  | 10:J:44:TYR:HB3   | 1.99                     | 0.44              |
| 2:B:1134:ARG:HH12 | 2:B:1165:ASN:HD22 | 1.66                     | 0.44              |
| 3:C:74:GLU:HA     | 3:C:212:ILE:HB    | 1.99                     | 0.44              |
| 10:J:16:ASP:OD1   | 10:J:17:LYS:N     | 2.50                     | 0.44              |
| 11:K:66:VAL:HG12  | 11:K:67:GLU:N     | 2.32                     | 0.44              |
| 15:O:124:LYS:HD3  | 15:O:127:GLU:OE1  | 2.17                     | 0.44              |
| 16:P:399:TRP:CH2  | 18:R:294:VAL:HG23 | 2.52                     | 0.44              |
| 18:R:157:MET:HG3  | 18:R:162:PHE:HB2  | 1.99                     | 0.44              |
| 18:R:375:LYS:HA   | 18:R:375:LYS:HD3  | 1.57                     | 0.44              |
| 1:A:81:LEU:HD23   | 1:A:85:CYS:SG     | 2.57                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:195:LYS:HG2   | 1:A:201:ARG:HH22  | 1.82                     | 0.44              |
| 1:A:1090:ASP:HB3  | 1:A:1132:TYR:CD1  | 2.52                     | 0.44              |
| 1:A:1303:SER:OG   | 1:A:1308:VAL:O    | 2.13                     | 0.44              |
| 1:A:1320:GLN:HG3  | 1:A:1321:PHE:N    | 2.32                     | 0.44              |
| 2:B:184:LYS:HZ3   | 10:J:69:ARG:HH22  | 1.65                     | 0.44              |
| 2:B:996:PHE:O     | 2:B:999:GLN:N     | 2.51                     | 0.44              |
| 2:B:1092:LEU:C    | 2:B:1092:LEU:CD2  | 2.85                     | 0.44              |
| 5:E:13:TRP:HB2    | 5:E:42:PHE:CD2    | 2.53                     | 0.44              |
| 8:H:116:TYR:HB2   | 8:H:123:MET:HB3   | 1.99                     | 0.44              |
| 15:O:458:GLU:OE2  | 15:O:512:SER:HB2  | 2.18                     | 0.44              |
| 15:O:479:ALA:O    | 15:O:483:ILE:HG13 | 2.17                     | 0.44              |
| 16:P:186:TYR:CE1  | 16:P:448:THR:HG22 | 2.52                     | 0.44              |
| 16:P:504:THR:HG22 | 16:P:505:PRO:HD3  | 2.00                     | 0.44              |
| 17:Q:159:THR:HG22 | 17:Q:229:LYS:CB   | 2.46                     | 0.44              |
| 17:Q:357:TYR:CD2  | 17:Q:489:VAL:CA   | 2.92                     | 0.44              |
| 17:Q:366:TYR:CZ   | 18:R:215:THR:CA   | 2.95                     | 0.44              |
| 17:Q:418:PRO:HD3  | 18:R:233:TYR:OH   | 2.18                     | 0.44              |
| 18:R:15:GLN:HG3   | 18:R:184:ASN:HD22 | 1.83                     | 0.44              |
| 1:A:564:PRO:HB2   | 15:O:371:HIS:NE2  | 2.33                     | 0.44              |
| 1:A:697:TYR:CE1   | 1:A:701:ARG:HA    | 2.51                     | 0.44              |
| 1:A:720:PHE:CE2   | 8:H:141:TYR:HE2   | 2.35                     | 0.44              |
| 1:A:1136:VAL:HG22 | 1:A:1174:TYR:CD2  | 2.52                     | 0.44              |
| 1:A:1196:PRO:HB3  | 1:A:1575:ILE:HG21 | 1.98                     | 0.44              |
| 2:B:173:ASN:OD1   | 2:B:174:LYS:HG3   | 2.17                     | 0.44              |
| 2:B:449:VAL:O     | 2:B:453:VAL:HG23  | 2.17                     | 0.44              |
| 2:B:847:TYR:HB2   | 2:B:850:THR:OG1   | 2.18                     | 0.44              |
| 2:B:908:ARG:HG2   | 3:C:95:GLU:HG3    | 1.99                     | 0.44              |
| 2:B:949:ILE:CD1   | 2:B:954:PHE:CE2   | 3.00                     | 0.44              |
| 5:E:76:GLY:H      | 5:E:106:GLN:HG2   | 1.82                     | 0.44              |
| 5:E:177:ARG:NE    | 5:E:215:MET:HB2   | 2.32                     | 0.44              |
| 11:K:64:GLN:NE2   | 11:K:100:LEU:HD13 | 2.32                     | 0.44              |
| 13:M:42:LYS:O     | 14:N:30:LYS:N     | 2.46                     | 0.44              |
| 15:O:328:LEU:HA   | 15:O:331:LYS:HD2  | 1.99                     | 0.44              |
| 15:O:428:ILE:HD12 | 15:O:439:ILE:HD12 | 1.99                     | 0.44              |
| 15:O:492:ARG:C    | 15:O:493:ASP:O    | 2.55                     | 0.44              |
| 16:P:228:ASN:O    | 16:P:230:HIS:N    | 2.50                     | 0.44              |
| 16:P:466:ALA:O    | 16:P:478:MET:HA   | 2.17                     | 0.44              |
| 17:Q:283:ASN:OD1  | 17:Q:284:LEU:N    | 2.36                     | 0.44              |
| 17:Q:309:TYR:O    | 17:Q:313:THR:OG1  | 2.30                     | 0.44              |
| 1:A:93:GLN:CB     | 1:A:355:PHE:HE2   | 2.30                     | 0.44              |
| 1:A:248:PHE:CZ    | 1:A:444:GLN:HA    | 2.52                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:956:ARG:HH21  | 1:A:979:GLY:HA3   | 1.82                     | 0.44              |
| 1:A:1216:THR:HG22 | 1:A:1221:ARG:HB2  | 1.99                     | 0.44              |
| 2:B:228:SER:O     | 2:B:254:ASN:ND2   | 2.50                     | 0.44              |
| 2:B:649:MET:HE3   | 2:B:666:PRO:HG2   | 1.98                     | 0.44              |
| 2:B:785:ASP:N     | 2:B:785:ASP:OD1   | 2.51                     | 0.44              |
| 8:H:107:VAL:HB    | 8:H:111:LEU:CD1   | 2.47                     | 0.44              |
| 15:O:447:THR:HA   | 15:O:450:LEU:HD12 | 2.00                     | 0.44              |
| 15:O:477:PHE:CZ   | 15:O:516:PRO:HB2  | 2.53                     | 0.44              |
| 16:P:214:LEU:HB2  | 16:P:222:GLN:CD   | 2.38                     | 0.44              |
| 16:P:389:TRP:CH2  | 18:R:149:LYS:CB   | 3.00                     | 0.44              |
| 16:P:436:ILE:HG23 | 16:P:436:ILE:O    | 2.18                     | 0.44              |
| 16:P:451:ILE:HA   | 16:P:467:PHE:O    | 2.18                     | 0.44              |
| 16:P:507:GLY:O    | 16:P:539:VAL:HA   | 2.17                     | 0.44              |
| 16:P:738:LYS:HA   | 16:P:741:ILE:HG22 | 2.00                     | 0.44              |
| 17:Q:19:LEU:CD1   | 17:Q:27:ARG:CB    | 2.94                     | 0.44              |
| 17:Q:365:ASP:N    | 17:Q:365:ASP:OD1  | 2.50                     | 0.44              |
| 18:R:76:LYS:O     | 18:R:80:ARG:HG3   | 2.17                     | 0.44              |
| 18:R:350:SER:HB2  | 18:R:368:TYR:HE1  | 1.82                     | 0.44              |
| 18:R:372:HIS:CD2  | 18:R:410:TYR:HB3  | 2.52                     | 0.44              |
| 1:A:470:HIS:CD2   | 2:B:1056:THR:HG21 | 2.53                     | 0.44              |
| 1:A:609:PRO:HB2   | 1:A:610:ASN:ND2   | 2.33                     | 0.44              |
| 1:A:672:ASP:CB    | 2:B:783:MET:HE3   | 2.33                     | 0.44              |
| 1:A:680:LEU:HD12  | 1:A:820:TYR:CG    | 2.53                     | 0.44              |
| 1:A:683:LYS:HB2   | 8:H:20:TYR:CE1    | 2.53                     | 0.44              |
| 1:A:1229:ALA:HB1  | 1:A:1595:TYR:CE2  | 2.53                     | 0.44              |
| 1:A:1559:ARG:HG3  | 1:A:1586:ALA:HB1  | 2.00                     | 0.44              |
| 2:B:65:VAL:CG2    | 2:B:99:VAL:HB     | 2.48                     | 0.44              |
| 2:B:72:VAL:HG11   | 2:B:94:LYS:HE3    | 1.99                     | 0.44              |
| 2:B:712:SER:HA    | 2:B:715:ASN:HD22  | 1.83                     | 0.44              |
| 2:B:840:LEU:HA    | 2:B:846:PRO:HA    | 1.99                     | 0.44              |
| 2:B:954:PHE:C     | 2:B:956:SER:N     | 2.70                     | 0.44              |
| 2:B:1079:LEU:HD12 | 2:B:1079:LEU:N    | 2.33                     | 0.44              |
| 3:C:31:TRP:HA     | 3:C:35:LYS:HD2    | 2.00                     | 0.44              |
| 5:E:23:VAL:HG13   | 5:E:28:TYR:HD2    | 1.83                     | 0.44              |
| 9:I:15:ASP:OD2    | 9:I:31:SER:OG     | 2.27                     | 0.44              |
| 12:L:27:LEU:N     | 12:L:39:SER:HB2   | 2.32                     | 0.44              |
| 15:O:541:PHE:HA   | 15:O:544:ILE:HB   | 2.00                     | 0.44              |
| 16:P:343:LEU:N    | 16:P:343:LEU:HD23 | 2.32                     | 0.44              |
| 16:P:582:ASP:H    | 16:P:585:GLU:HB2  | 1.82                     | 0.44              |
| 17:Q:104:PHE:CD2  | 17:Q:105:LEU:HD23 | 2.53                     | 0.44              |
| 17:Q:437:THR:OG1  | 17:Q:440:GLU:HG3  | 2.17                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 18:R:305:THR:HB   | 18:R:308:PHE:CE1  | 2.52                     | 0.44              |
| 1:A:253:GLU:O     | 1:A:312:SER:N     | 2.51                     | 0.44              |
| 1:A:559:ASN:HD22  | 15:O:376:TYR:HB2  | 1.83                     | 0.44              |
| 1:A:584:ARG:NH1   | 1:A:644:ARG:HH12  | 2.15                     | 0.44              |
| 1:A:654:ASP:N     | 1:A:654:ASP:OD1   | 2.47                     | 0.44              |
| 1:A:672:ASP:CG    | 2:B:783:MET:HE3   | 2.38                     | 0.44              |
| 1:A:1028:GLU:HG3  | 1:A:1637:PRO:HD2  | 1.99                     | 0.44              |
| 1:A:1088:HIS:CD2  | 6:F:152:ILE:HD11  | 2.52                     | 0.44              |
| 1:A:1508:VAL:O    | 1:A:1509:HIS:C    | 2.55                     | 0.44              |
| 2:B:499:HIS:O     | 2:B:502:MET:HB3   | 2.18                     | 0.44              |
| 2:B:822:THR:HG22  | 2:B:823:GLN:HG3   | 1.99                     | 0.44              |
| 2:B:854:GLU:HA    | 2:B:874:TYR:HD2   | 1.83                     | 0.44              |
| 2:B:916:LYS:HB3   | 2:B:1036:LEU:HD12 | 2.00                     | 0.44              |
| 2:B:1093:LEU:CD1  | 2:B:1093:LEU:C    | 2.86                     | 0.44              |
| 3:C:60:ASP:O      | 3:C:63:ILE:N      | 2.41                     | 0.44              |
| 3:C:227:TYR:HA    | 3:C:299:ILE:O     | 2.17                     | 0.44              |
| 5:E:205:SER:OG    | 5:E:206:GLY:N     | 2.51                     | 0.44              |
| 9:I:8:ILE:O       | 9:I:17:LEU:N      | 2.50                     | 0.44              |
| 13:M:77:VAL:HG21  | 14:N:64:ILE:HG21  | 2.00                     | 0.44              |
| 15:O:153:ASP:HA   | 15:O:156:MET:HB3  | 2.00                     | 0.44              |
| 15:O:357:GLY:O    | 15:O:361:PHE:N    | 2.27                     | 0.44              |
| 16:P:283:ASP:OD1  | 16:P:284:VAL:N    | 2.50                     | 0.44              |
| 17:Q:108:PHE:O    | 17:Q:111:ILE:HG22 | 2.18                     | 0.44              |
| 18:R:408:ILE:HA   | 18:R:411:VAL:HG12 | 1.99                     | 0.44              |
| 1:A:512:THR:CG2   | 1:A:514:TYR:CE2   | 2.99                     | 0.44              |
| 1:A:584:ARG:HH12  | 1:A:644:ARG:HH12  | 1.65                     | 0.44              |
| 1:A:793:ILE:O     | 1:A:796:SER:N     | 2.48                     | 0.44              |
| 1:A:1654:PHE:CG   | 6:F:89:GLU:HG2    | 2.51                     | 0.44              |
| 3:C:67:PHE:HE2    | 3:C:314:PHE:CZ    | 2.35                     | 0.44              |
| 3:C:237:GLN:NE2   | 3:C:288:LYS:HG2   | 2.32                     | 0.44              |
| 3:C:240:LYS:HB2   | 3:C:263:ASP:OD2   | 2.18                     | 0.44              |
| 7:G:126:GLN:HG3   | 7:G:126:GLN:O     | 2.18                     | 0.44              |
| 7:G:242:VAL:HG21  | 15:O:148:PRO:HB2  | 2.00                     | 0.44              |
| 15:O:335:ILE:O    | 15:O:339:VAL:HG23 | 2.17                     | 0.44              |
| 15:O:450:LEU:HD22 | 15:O:473:PHE:CE1  | 2.53                     | 0.44              |
| 15:O:487:ARG:NE   | 15:O:502:LEU:HD13 | 2.31                     | 0.44              |
| 16:P:55:LEU:HB3   | 18:R:227:HIS:HD1  | 1.67                     | 0.44              |
| 16:P:389:TRP:HE1  | 18:R:146:SER:CB   | 2.13                     | 0.44              |
| 16:P:632:ILE:O    | 16:P:636:GLU:HG3  | 2.18                     | 0.44              |
| 17:Q:265:GLU:HB3  | 17:Q:269:TYR:CE1  | 2.52                     | 0.44              |
| 1:A:530:TRP:CD1   | 1:A:531:PRO:HA    | 2.52                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:560:GLN:NE2   | 15:O:239:SER:HA   | 2.32                     | 0.44              |
| 1:A:735:VAL:O     | 1:A:738:ASN:N     | 2.51                     | 0.44              |
| 1:A:1311:GLU:O    | 1:A:1315:ASN:N    | 2.44                     | 0.44              |
| 1:A:1492:ILE:O    | 1:A:1496:SER:N    | 2.49                     | 0.44              |
| 1:A:1646:LEU:HD11 | 2:B:1086:PHE:HE1  | 1.79                     | 0.44              |
| 2:B:25:PHE:CE1    | 10:J:59:LYS:HD2   | 2.53                     | 0.44              |
| 2:B:289:PHE:HD1   | 2:B:306:LEU:HD22  | 1.83                     | 0.44              |
| 2:B:822:THR:HG23  | 2:B:865:THR:HG23  | 2.00                     | 0.44              |
| 3:C:86:PHE:HB3    | 12:L:62:LYS:HG3   | 2.00                     | 0.44              |
| 16:P:330:PRO:HG3  | 16:P:342:GLN:HE21 | 1.82                     | 0.44              |
| 16:P:658:LYS:CB   | 16:P:660:LYS:H    | 2.29                     | 0.44              |
| 17:Q:22:ILE:HD13  | 17:Q:26:ARG:CZ    | 2.46                     | 0.44              |
| 17:Q:381:MET:O    | 17:Q:385:PHE:HB2  | 2.18                     | 0.44              |
| 17:Q:446:TYR:O    | 17:Q:449:GLN:HG2  | 2.18                     | 0.44              |
| 1:A:263:ASN:HA    | 1:A:266:VAL:HB    | 1.99                     | 0.43              |
| 1:A:1162:ASN:ND2  | 1:A:1164:LYS:HB2  | 2.33                     | 0.43              |
| 2:B:174:LYS:NZ    | 18:R:351:GLU:OE2  | 2.41                     | 0.43              |
| 2:B:292:ILE:O     | 2:B:579:ALA:HB3   | 2.18                     | 0.43              |
| 2:B:374:LEU:HD12  | 2:B:374:LEU:HA    | 1.78                     | 0.43              |
| 2:B:840:LEU:HD13  | 2:B:860:ALA:HB2   | 1.98                     | 0.43              |
| 2:B:891:GLU:O     | 2:B:892:SER:OG    | 2.25                     | 0.43              |
| 2:B:970:LYS:NZ    | 2:B:1011:GLU:OE2  | 2.39                     | 0.43              |
| 10:J:14:VAL:CG2   | 10:J:50:ILE:HG12  | 2.48                     | 0.43              |
| 14:N:87:TYR:HA    | 14:N:142:THR:HG22 | 2.00                     | 0.43              |
| 15:O:361:PHE:CZ   | 15:O:399:PHE:HB2  | 2.53                     | 0.43              |
| 16:P:186:TYR:N    | 18:R:198:LEU:HD23 | 2.33                     | 0.43              |
| 16:P:187:ILE:HG22 | 16:P:188:GLN:H    | 1.83                     | 0.43              |
| 17:Q:239:PHE:CG   | 17:Q:240:LYS:N    | 2.86                     | 0.43              |
| 17:Q:334:LEU:HD12 | 17:Q:334:LEU:HA   | 1.76                     | 0.43              |
| 18:R:161:ASN:O    | 18:R:164:LYS:HB2  | 2.18                     | 0.43              |
| 20:T:9:DC:H2''    | 20:T:10:DA:O5'    | 2.18                     | 0.43              |
| 1:A:413:LEU:HG    | 1:A:417:ARG:HH12  | 1.82                     | 0.43              |
| 1:A:482:SER:HB3   | 1:A:614:LEU:HG    | 2.01                     | 0.43              |
| 1:A:672:ASP:HA    | 2:B:952:HIS:NE2   | 2.33                     | 0.43              |
| 1:A:753:ASN:HA    | 1:A:784:SER:OG    | 2.18                     | 0.43              |
| 1:A:883:LEU:HD23  | 1:A:884:ARG:HH12  | 1.82                     | 0.43              |
| 1:A:1182:GLY:O    | 1:A:1650:GLY:HA3  | 2.18                     | 0.43              |
| 1:A:1305:GLU:HG2  | 9:I:59:SER:HB2    | 2.00                     | 0.43              |
| 2:B:395:ASP:HA    | 2:B:505:ARG:HH12  | 1.82                     | 0.43              |
| 2:B:881:TYR:HB2   | 2:B:906:ARG:HB3   | 1.98                     | 0.43              |
| 3:C:67:PHE:HE2    | 3:C:314:PHE:CE1   | 2.36                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:78:LEU:HD21   | 5:E:109:ILE:HD12  | 1.99                     | 0.43              |
| 16:P:49:THR:O     | 16:P:49:THR:OG1   | 2.35                     | 0.43              |
| 16:P:227:LEU:HD21 | 16:P:234:THR:O    | 2.17                     | 0.43              |
| 16:P:229:ARG:HE   | 16:P:230:HIS:CB   | 2.31                     | 0.43              |
| 18:R:80:ARG:O     | 18:R:83:HIS:HB3   | 2.18                     | 0.43              |
| 20:T:47:DT:H2''   | 20:T:48:DG:H5'    | 1.99                     | 0.43              |
| 1:A:403:LEU:HD22  | 1:A:419:ILE:HG22  | 2.00                     | 0.43              |
| 1:A:527:PRO:HD3   | 1:A:554:ARG:CZ    | 2.49                     | 0.43              |
| 1:A:1017:GLY:HA3  | 20:T:17:DT:O4'    | 2.18                     | 0.43              |
| 2:B:547:HIS:CG    | 2:B:760:TYR:HH    | 2.34                     | 0.43              |
| 2:B:851:TYR:HD1   | 2:B:881:TYR:HE1   | 1.65                     | 0.43              |
| 2:B:857:PRO:HG3   | 2:B:871:ILE:HD11  | 2.00                     | 0.43              |
| 2:B:1063:ARG:CD   | 20:T:22:DG:P      | 3.06                     | 0.43              |
| 3:C:80:ALA:HA     | 3:C:208:CYS:HA    | 2.00                     | 0.43              |
| 3:C:165:ARG:HB3   | 3:C:189:PRO:HB3   | 2.00                     | 0.43              |
| 3:C:334:THR:HG21  | 11:K:44:ARG:HB3   | 1.99                     | 0.43              |
| 9:I:3:VAL:HA      | 9:I:7:LEU:O       | 2.18                     | 0.43              |
| 15:O:241:ASP:CG   | 15:O:380:SER:CB   | 2.82                     | 0.43              |
| 16:P:246:LYS:HD3  | 16:P:266:GLU:OE2  | 2.17                     | 0.43              |
| 16:P:385:PHE:C    | 16:P:387:ASN:H    | 2.21                     | 0.43              |
| 16:P:389:TRP:CH2  | 18:R:147:GLN:C    | 2.91                     | 0.43              |
| 16:P:629:ARG:CZ   | 16:P:662:LEU:HD11 | 2.48                     | 0.43              |
| 17:Q:356:VAL:CG1  | 18:R:208:TYR:CZ   | 2.97                     | 0.43              |
| 1:A:481:ARG:NE    | 1:A:632:GLU:OE1   | 2.51                     | 0.43              |
| 1:A:628:PHE:CB    | 2:B:785:ASP:CB    | 2.96                     | 0.43              |
| 1:A:1258:ILE:O    | 1:A:1501:ILE:HD12 | 2.19                     | 0.43              |
| 1:A:1617:THR:CG2  | 20:T:14:DG:H4'    | 2.48                     | 0.43              |
| 2:B:229:TYR:HE1   | 2:B:253:LEU:HD11  | 1.83                     | 0.43              |
| 2:B:1116:SER:O    | 2:B:1124:SER:OG   | 2.24                     | 0.43              |
| 6:F:103:MET:O     | 6:F:104:ASN:HB2   | 2.18                     | 0.43              |
| 15:O:591:TYR:CE2  | 15:O:593:PRO:HG3  | 2.53                     | 0.43              |
| 15:O:600:LYS:HG3  | 15:O:601:ASN:N    | 2.32                     | 0.43              |
| 16:P:389:TRP:CH2  | 18:R:149:LYS:N    | 2.79                     | 0.43              |
| 16:P:696:PHE:HZ   | 16:P:745:ALA:HA   | 1.83                     | 0.43              |
| 17:Q:178:THR:HG22 | 17:Q:303:GLU:OE2  | 2.18                     | 0.43              |
| 17:Q:366:TYR:CG   | 18:R:215:THR:OG1  | 2.61                     | 0.43              |
| 17:Q:366:TYR:OH   | 18:R:218:ASP:OD2  | 2.33                     | 0.43              |
| 17:Q:472:ARG:O    | 17:Q:476:ILE:HG12 | 2.17                     | 0.43              |
| 18:R:76:LYS:HA    | 18:R:79:ARG:HB2   | 2.01                     | 0.43              |
| 1:A:449:GLY:C     | 1:A:451:VAL:H     | 2.21                     | 0.43              |
| 1:A:1038:ILE:HG13 | 1:A:1047:GLN:HB2  | 1.99                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1245:ASP:OD1  | 1:A:1245:ASP:N    | 2.51                     | 0.43              |
| 2:B:37:LEU:HB3    | 2:B:760:TYR:CE1   | 2.53                     | 0.43              |
| 2:B:790:ASN:CB    | 2:B:936:MET:SD    | 3.06                     | 0.43              |
| 7:G:45:LEU:HD13   | 7:G:47:VAL:CG1    | 2.48                     | 0.43              |
| 12:L:33:GLU:HG2   | 12:L:53:HIS:NE2   | 2.34                     | 0.43              |
| 14:N:149:ASP:O    | 14:N:153:VAL:HG12 | 2.19                     | 0.43              |
| 15:O:446:LEU:HA   | 15:O:449:TRP:HB3  | 1.99                     | 0.43              |
| 17:Q:484:ALA:O    | 17:Q:488:LEU:HG   | 2.18                     | 0.43              |
| 18:R:248:LYS:HA   | 18:R:298:GLN:CD   | 2.39                     | 0.43              |
| 1:A:109:ARG:HA    | 1:A:233:CYS:HA    | 2.01                     | 0.43              |
| 2:B:225:ARG:HB2   | 2:B:229:TYR:CD2   | 2.53                     | 0.43              |
| 2:B:832:TRP:HH2   | 2:B:837:LEU:HD21  | 1.83                     | 0.43              |
| 7:G:168:PHE:HA    | 7:G:217:TRP:HA    | 2.00                     | 0.43              |
| 13:M:67:ASP:HB3   | 13:M:70:SER:OG    | 2.18                     | 0.43              |
| 15:O:600:LYS:O    | 15:O:603:LYS:HB3  | 2.19                     | 0.43              |
| 16:P:329:ILE:HG13 | 16:P:330:PRO:O    | 2.18                     | 0.43              |
| 16:P:365:TRP:CE3  | 16:P:372:ILE:HG22 | 2.54                     | 0.43              |
| 16:P:675:PHE:HZ   | 16:P:742:TRP:CZ3  | 2.37                     | 0.43              |
| 17:Q:120:ILE:HA   | 17:Q:125:PHE:HB2  | 2.00                     | 0.43              |
| 17:Q:257:VAL:HG13 | 17:Q:262:LEU:HB2  | 2.00                     | 0.43              |
| 17:Q:285:THR:OG1  | 17:Q:287:TRP:HB3  | 2.19                     | 0.43              |
| 17:Q:323:ASP:C    | 17:Q:325:GLN:H    | 2.22                     | 0.43              |
| 18:R:216:LEU:HD23 | 18:R:216:LEU:HA   | 1.91                     | 0.43              |
| 18:R:415:LEU:HD21 | 18:R:428:SER:HB3  | 2.01                     | 0.43              |
| 1:A:474:LYS:HD2   | 2:B:1092:LEU:CD2  | 2.48                     | 0.43              |
| 1:A:966:LEU:HB3   | 1:A:969:PHE:HD2   | 1.84                     | 0.43              |
| 1:A:1330:VAL:HA   | 1:A:1333:ILE:HD12 | 2.01                     | 0.43              |
| 3:C:213:GLY:N     | 3:C:219:PHE:HB2   | 2.33                     | 0.43              |
| 13:M:80:LEU:C     | 13:M:88:ILE:HG13  | 2.39                     | 0.43              |
| 16:P:376:ASP:C    | 16:P:378:SER:N    | 2.72                     | 0.43              |
| 16:P:641:TRP:CE3  | 16:P:750:PRO:HD3  | 2.54                     | 0.43              |
| 17:Q:177:TYR:O    | 17:Q:180:ASP:HB2  | 2.19                     | 0.43              |
| 20:T:35:DT:H2''   | 20:T:36:DG:H5'    | 1.99                     | 0.43              |
| 1:A:194:ALA:O     | 1:A:198:SER:N     | 2.49                     | 0.43              |
| 1:A:741:PRO:HD2   | 1:A:801:TYR:CD2   | 2.54                     | 0.43              |
| 1:A:934:LYS:HG3   | 2:B:956:SER:OG    | 2.19                     | 0.43              |
| 1:A:1074:TYR:OH   | 1:A:1159:ASP:OD2  | 2.24                     | 0.43              |
| 1:A:1549:VAL:O    | 1:A:1553:TYR:N    | 2.51                     | 0.43              |
| 1:A:1575:ILE:HG22 | 1:A:1576:SER:N    | 2.34                     | 0.43              |
| 2:B:186:GLU:OE1   | 2:B:731:VAL:N     | 2.43                     | 0.43              |
| 2:B:641:TYR:HB3   | 2:B:643:PHE:CZ    | 2.53                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:725:THR:HA    | 2:B:1036:LEU:HA   | 1.99                     | 0.43              |
| 2:B:808:LYS:HA    | 2:B:902:SER:HA    | 1.99                     | 0.43              |
| 2:B:916:LYS:O     | 2:B:917:PHE:HD1   | 2.02                     | 0.43              |
| 3:C:161:HIS:CD2   | 3:C:195:LYS:HG2   | 2.53                     | 0.43              |
| 6:F:57:ASP:OD1    | 6:F:58:PHE:N      | 2.51                     | 0.43              |
| 10:J:7:CYS:HB2    | 10:J:46:CYS:SG    | 2.52                     | 0.43              |
| 15:O:224:GLU:OE1  | 15:O:224:GLU:N    | 2.43                     | 0.43              |
| 16:P:187:ILE:C    | 16:P:188:GLN:OE1  | 2.57                     | 0.43              |
| 16:P:446:ASP:H    | 18:R:200:THR:HG21 | 1.82                     | 0.43              |
| 16:P:745:ALA:O    | 16:P:747:LEU:N    | 2.44                     | 0.43              |
| 17:Q:488:LEU:HD21 | 17:Q:498:LEU:HD12 | 2.01                     | 0.43              |
| 18:R:307:LYS:HB3  | 18:R:308:PHE:H    | 1.66                     | 0.43              |
| 1:A:646:GLU:OE1   | 2:B:1086:PHE:HB2  | 2.19                     | 0.43              |
| 1:A:729:LYS:HE3   | 1:A:779:GLY:O     | 2.19                     | 0.43              |
| 1:A:1291:VAL:HA   | 1:A:1473:LYS:HA   | 2.01                     | 0.43              |
| 2:B:171:HIS:O     | 2:B:175:MET:HE3   | 2.19                     | 0.43              |
| 2:B:335:ARG:HH21  | 2:B:342:PRO:HA    | 1.83                     | 0.43              |
| 2:B:949:ILE:HD11  | 2:B:954:PHE:CE2   | 2.53                     | 0.43              |
| 2:B:1013:MET:SD   | 2:B:1026:ILE:HD11 | 2.59                     | 0.43              |
| 3:C:222:VAL:C     | 3:C:224:THR:N     | 2.69                     | 0.43              |
| 3:C:241:GLY:O     | 3:C:245:ARG:NH1   | 2.52                     | 0.43              |
| 3:C:294:VAL:CG2   | 3:C:297:HIS:HB3   | 2.49                     | 0.43              |
| 15:O:383:TYR:CE2  | 15:O:594:TYR:HD1  | 2.37                     | 0.43              |
| 16:P:226:HIS:NE2  | 16:P:232:ASN:HB3  | 2.34                     | 0.43              |
| 16:P:358:SER:HB2  | 18:R:196:GLU:CD   | 2.40                     | 0.43              |
| 16:P:650:LEU:HB3  | 17:Q:242:PHE:CD1  | 2.54                     | 0.43              |
| 17:Q:171:HIS:HA   | 17:Q:244:ASN:O    | 2.19                     | 0.43              |
| 17:Q:327:PRO:O    | 17:Q:331:ILE:HD13 | 2.18                     | 0.43              |
| 19:S:6:A:H8       | 19:S:6:A:O5'      | 2.02                     | 0.43              |
| 21:U:42:DA:H2''   | 21:U:43:DA:OP2    | 2.19                     | 0.43              |
| 1:A:109:ARG:C     | 1:A:230:ARG:HG2   | 2.39                     | 0.43              |
| 1:A:1060:GLU:HA   | 1:A:1063:MET:SD   | 2.59                     | 0.43              |
| 2:B:524:SER:HB3   | 2:B:528:LEU:HB2   | 2.00                     | 0.43              |
| 2:B:776:ILE:C     | 2:B:951:PRO:CD    | 2.77                     | 0.43              |
| 3:C:169:PHE:CE2   | 3:C:171:PRO:HG3   | 2.54                     | 0.43              |
| 3:C:226:SER:OG    | 3:C:227:TYR:N     | 2.52                     | 0.43              |
| 5:E:114:ASN:OD1   | 5:E:115:ASN:N     | 2.48                     | 0.43              |
| 5:E:154:ILE:HB    | 5:E:197:LYS:HB3   | 2.00                     | 0.43              |
| 10:J:49:MET:O     | 10:J:53:HIS:HB2   | 2.19                     | 0.43              |
| 10:J:53:HIS:CG    | 10:J:54:VAL:N     | 2.86                     | 0.43              |
| 11:K:49:LEU:HD11  | 11:K:61:ALA:HB1   | 2.01                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:N:113:SER:N    | 14:N:118:SER:O    | 2.49                     | 0.43              |
| 15:O:422:GLN:O    | 15:O:593:PRO:HD2  | 2.18                     | 0.43              |
| 16:P:381:ILE:HA   | 16:P:391:THR:O    | 2.19                     | 0.43              |
| 17:Q:177:TYR:OH   | 17:Q:252:LEU:N    | 2.52                     | 0.43              |
| 17:Q:375:LEU:HA   | 17:Q:375:LEU:HD23 | 1.87                     | 0.43              |
| 1:A:476:VAL:HG12  | 2:B:1095:SER:HB3  | 1.55                     | 0.42              |
| 1:A:579:ARG:HH22  | 1:A:585:ASP:CG    | 2.22                     | 0.42              |
| 1:A:808:LYS:O     | 1:A:812:VAL:HG23  | 2.19                     | 0.42              |
| 1:A:1261:VAL:N    | 1:A:1499:ARG:O    | 2.52                     | 0.42              |
| 1:A:1654:PHE:CE2  | 6:F:89:GLU:HG2    | 2.50                     | 0.42              |
| 2:B:75:ASP:OD1    | 2:B:76:GLY:N      | 2.52                     | 0.42              |
| 2:B:232:TYR:HD1   | 2:B:384:LEU:HG    | 1.83                     | 0.42              |
| 2:B:572:PRO:HD2   | 2:B:575:HIS:CE1   | 2.54                     | 0.42              |
| 2:B:929:ARG:HG2   | 2:B:930:LYS:O     | 2.18                     | 0.42              |
| 2:B:986:PHE:CD2   | 2:B:992:PRO:HG3   | 2.54                     | 0.42              |
| 3:C:42:VAL:HB     | 11:K:138:LYS:HG3  | 2.00                     | 0.42              |
| 3:C:85:PHE:CE1    | 3:C:204:LEU:HD22  | 2.47                     | 0.42              |
| 5:E:81:GLU:N      | 5:E:109:ILE:O     | 2.50                     | 0.42              |
| 10:J:45:CYS:SG    | 10:J:46:CYS:N     | 2.92                     | 0.42              |
| 16:P:192:ASP:OD1  | 16:P:212:SER:HA   | 2.19                     | 0.42              |
| 16:P:197:ARG:HA   | 16:P:197:ARG:HD3  | 1.75                     | 0.42              |
| 16:P:263:ILE:CG2  | 16:P:276:SER:HA   | 2.43                     | 0.42              |
| 16:P:264:ILE:HD13 | 16:P:265:THR:H    | 1.84                     | 0.42              |
| 16:P:458:LYS:HZ2  | 16:P:459:PRO:HD3  | 1.84                     | 0.42              |
| 16:P:472:ARG:CZ   | 16:P:472:ARG:HB3  | 2.48                     | 0.42              |
| 16:P:475:ARG:NH2  | 17:Q:364:SER:OG   | 2.52                     | 0.42              |
| 18:R:301:SER:C    | 18:R:302:ARG:HG2  | 2.39                     | 0.42              |
| 18:R:305:THR:O    | 18:R:306:ALA:C    | 2.57                     | 0.42              |
| 18:R:366:PHE:CE2  | 18:R:425:ALA:HB2  | 2.54                     | 0.42              |
| 1:A:120:CYS:HB3   | 1:A:189:VAL:HG21  | 2.01                     | 0.42              |
| 1:A:1121:ASP:OD1  | 5:E:197:LYS:NZ    | 2.46                     | 0.42              |
| 2:B:812:ALA:HB1   | 2:B:815:ARG:HD3   | 2.00                     | 0.42              |
| 2:B:1078:ALA:O    | 2:B:1082:HIS:CA   | 2.63                     | 0.42              |
| 5:E:7:ARG:O       | 5:E:11:ARG:N      | 2.36                     | 0.42              |
| 10:J:8:PHE:HB2    | 10:J:48:ARG:NH2   | 2.34                     | 0.42              |
| 14:N:69:SER:OG    | 14:N:70:LEU:N     | 2.52                     | 0.42              |
| 14:N:82:ILE:HB    | 14:N:87:TYR:CE1   | 2.54                     | 0.42              |
| 16:P:321:LYS:HB3  | 16:P:321:LYS:HE2  | 1.36                     | 0.42              |
| 16:P:551:ALA:O    | 16:P:552:LEU:HD23 | 2.20                     | 0.42              |
| 16:P:691:VAL:HG22 | 16:P:692:THR:O    | 2.19                     | 0.42              |
| 17:Q:253:LEU:HB3  | 17:Q:267:TYR:CD2  | 2.54                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:Q:269:TYR:HD2  | 17:Q:317:MET:HG3  | 1.84                     | 0.42              |
| 18:R:242:ILE:HG13 | 18:R:243:PRO:HD2  | 2.01                     | 0.42              |
| 1:A:651:ALA:H     | 2:B:1084:THR:HG22 | 1.84                     | 0.42              |
| 1:A:1055:ILE:HD11 | 1:A:1174:TYR:CZ   | 2.54                     | 0.42              |
| 1:A:1527:GLN:H    | 1:A:1527:GLN:CD   | 2.22                     | 0.42              |
| 3:C:84:TYR:CE2    | 3:C:207:HIS:CD2   | 3.07                     | 0.42              |
| 3:C:332:PRO:HG2   | 11:K:44:ARG:HG2   | 2.00                     | 0.42              |
| 5:E:123:LEU:O     | 5:E:126:SER:HB3   | 2.18                     | 0.42              |
| 14:N:78:THR:O     | 14:N:89:ILE:N     | 2.45                     | 0.42              |
| 15:O:97:LEU:O     | 15:O:101:SER:N    | 2.42                     | 0.42              |
| 15:O:409:ALA:O    | 15:O:417:LYS:HE2  | 2.19                     | 0.42              |
| 16:P:236:ILE:HD13 | 16:P:236:ILE:HA   | 1.91                     | 0.42              |
| 16:P:301:GLN:NE2  | 16:P:359:SER:O    | 2.52                     | 0.42              |
| 18:R:4:VAL:CG1    | 18:R:6:ILE:HG12   | 2.49                     | 0.42              |
| 18:R:162:PHE:HA   | 18:R:165:ILE:CD1  | 2.45                     | 0.42              |
| 18:R:374:LEU:HD22 | 18:R:374:LEU:HA   | 1.84                     | 0.42              |
| 1:A:325:ASP:O     | 1:A:329:ARG:HG3   | 2.19                     | 0.42              |
| 1:A:1035:ASP:O    | 1:A:1036:ASN:HB2  | 2.18                     | 0.42              |
| 1:A:1263:LEU:HG   | 1:A:1267:ILE:HD11 | 2.02                     | 0.42              |
| 2:B:390:SER:HB3   | 2:B:634:ARG:O     | 2.20                     | 0.42              |
| 2:B:393:ASN:HB3   | 2:B:396:ALA:HB2   | 2.01                     | 0.42              |
| 2:B:936:MET:HG3   | 2:B:948:ILE:HD11  | 2.00                     | 0.42              |
| 2:B:1011:GLU:N    | 2:B:1026:ILE:O    | 2.45                     | 0.42              |
| 8:H:92:ASP:O      | 8:H:145:ARG:HD3   | 2.19                     | 0.42              |
| 10:J:20:SER:O     | 10:J:24:LEU:HG    | 2.20                     | 0.42              |
| 15:O:430:ARG:HD2  | 15:O:610:TYR:CE1  | 2.54                     | 0.42              |
| 16:P:356:GLU:OE2  | 16:P:378:SER:HB3  | 2.18                     | 0.42              |
| 16:P:715:TYR:HE1  | 16:P:733:THR:HG23 | 1.84                     | 0.42              |
| 17:Q:167:LEU:HD22 | 17:Q:167:LEU:HA   | 1.90                     | 0.42              |
| 17:Q:288:GLU:O    | 17:Q:290:THR:HG22 | 2.19                     | 0.42              |
| 18:R:187:TYR:O    | 18:R:191:ILE:HG23 | 2.20                     | 0.42              |
| 18:R:358:PHE:O    | 18:R:360:GLU:N    | 2.47                     | 0.42              |
| 1:A:246:ASP:OD2   | 1:A:250:LYS:HB2   | 2.19                     | 0.42              |
| 1:A:627:ASP:C     | 2:B:784:ASP:OD1   | 2.58                     | 0.42              |
| 2:B:417:ILE:O     | 2:B:420:TYR:HB3   | 2.20                     | 0.42              |
| 2:B:795:GLU:HB3   | 3:C:216:HIS:NE2   | 2.34                     | 0.42              |
| 3:C:235:ILE:HG22  | 3:C:237:GLN:H     | 1.85                     | 0.42              |
| 15:O:347:VAL:HG11 | 15:O:395:LEU:HD21 | 2.02                     | 0.42              |
| 16:P:200:THR:OG1  | 16:P:280:ARG:NH1  | 2.53                     | 0.42              |
| 16:P:330:PRO:HG3  | 16:P:342:GLN:HG3  | 2.00                     | 0.42              |
| 16:P:422:ILE:HG12 | 16:P:442:LEU:HD11 | 2.01                     | 0.42              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 17:Q:6:ARG:HA    | 17:Q:18:ARG:CD    | 2.50                     | 0.42              |
| 17:Q:115:GLN:HB3 | 17:Q:190:MET:HE3  | 2.00                     | 0.42              |
| 17:Q:329:LYS:O   | 17:Q:332:LEU:HB2  | 2.19                     | 0.42              |
| 17:Q:500:ASP:O   | 17:Q:503:SER:OG   | 2.36                     | 0.42              |
| 18:R:30:ARG:NE   | 18:R:168:ILE:HD13 | 2.34                     | 0.42              |
| 1:A:407:GLN:O    | 1:A:411:VAL:HG23  | 2.20                     | 0.42              |
| 1:A:503:VAL:HG13 | 1:A:527:PRO:O     | 2.20                     | 0.42              |
| 1:A:511:VAL:HG11 | 1:A:575:LYS:CA    | 2.49                     | 0.42              |
| 1:A:671:GLN:CB   | 2:B:783:MET:HE3   | 2.48                     | 0.42              |
| 1:A:690:GLU:OE1  | 1:A:690:GLU:N     | 2.46                     | 0.42              |
| 1:A:826:PHE:O    | 2:B:776:ILE:HG13  | 2.19                     | 0.42              |
| 1:A:975:ASP:OD2  | 1:A:977:MET:HB3   | 2.20                     | 0.42              |
| 2:B:113:VAL:HB   | 18:R:281:LYS:HE3  | 2.01                     | 0.42              |
| 2:B:314:LYS:O    | 2:B:316:ARG:N     | 2.49                     | 0.42              |
| 2:B:1103:VAL:O   | 2:B:1173:THR:HA   | 2.18                     | 0.42              |
| 3:C:100:ARG:NH1  | 10:J:3:VAL:O      | 2.47                     | 0.42              |
| 5:E:96:PHE:O     | 5:E:99:HIS:HB3    | 2.20                     | 0.42              |
| 14:N:35:LEU:O    | 14:N:116:LYS:HD3  | 2.19                     | 0.42              |
| 15:O:82:SER:OG   | 15:O:87:ARG:NH1   | 2.53                     | 0.42              |
| 16:P:442:LEU:HB3 | 16:P:477:TYR:OH   | 2.20                     | 0.42              |
| 16:P:475:ARG:NH2 | 17:Q:364:SER:HA   | 2.34                     | 0.42              |
| 17:Q:7:GLY:HA3   | 17:Q:8:PRO:HD2    | 1.45                     | 0.42              |
| 17:Q:256:LEU:HG  | 17:Q:310:PHE:CE2  | 2.54                     | 0.42              |
| 1:A:75:HIS:N     | 1:A:364:PRO:HB3   | 2.34                     | 0.42              |
| 1:A:91:PHE:CE2   | 1:A:245:LYS:HD2   | 2.55                     | 0.42              |
| 1:A:246:ASP:HB2  | 1:A:250:LYS:H     | 1.85                     | 0.42              |
| 1:A:750:ILE:HG12 | 1:A:770:LEU:HD13  | 2.01                     | 0.42              |
| 2:B:90:TYR:CE2   | 2:B:92:GLY:HA2    | 2.54                     | 0.42              |
| 2:B:300:SER:O    | 2:B:303:THR:OG1   | 2.32                     | 0.42              |
| 2:B:343:ASP:OD1  | 2:B:344:GLN:HG3   | 2.20                     | 0.42              |
| 2:B:439:ASN:HB3  | 2:B:442:ASP:HB2   | 2.01                     | 0.42              |
| 2:B:654:ARG:NH2  | 2:B:659:ASP:OD2   | 2.53                     | 0.42              |
| 2:B:702:ASN:HB3  | 2:B:756:LEU:HD12  | 2.02                     | 0.42              |
| 2:B:1049:THR:O   | 2:B:1052:VAL:HG13 | 2.20                     | 0.42              |
| 3:C:233:ILE:HG12 | 3:C:291:LEU:HD22  | 2.01                     | 0.42              |
| 5:E:200:ARG:N    | 5:E:208:TYR:O     | 2.36                     | 0.42              |
| 8:H:62:SER:OG    | 8:H:63:LEU:N      | 2.53                     | 0.42              |
| 16:P:426:ALA:HB3 | 16:P:435:ARG:HD2  | 2.02                     | 0.42              |
| 16:P:473:HIS:CG  | 16:P:475:ARG:HD3  | 2.54                     | 0.42              |
| 17:Q:356:VAL:CA  | 18:R:208:TYR:HA   | 2.49                     | 0.42              |
| 17:Q:366:TYR:HE1 | 18:R:218:ASP:HB2  | 1.84                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:10:GLU:OE2    | 1:A:1645:LYS:CG   | 2.63                     | 0.42              |
| 1:A:477:ASN:HB3   | 2:B:1047:ARG:HH11 | 1.83                     | 0.42              |
| 1:A:812:VAL:HG22  | 1:A:815:ARG:NH2   | 2.35                     | 0.42              |
| 1:A:1238:MET:HE2  | 1:A:1525:ASN:H    | 1.83                     | 0.42              |
| 2:B:328:GLN:O     | 2:B:346:ASP:HB3   | 2.19                     | 0.42              |
| 2:B:648:ARG:NH1   | 2:B:650:LEU:HD21  | 2.34                     | 0.42              |
| 2:B:853:GLU:HG2   | 2:B:856:ASP:OD2   | 2.19                     | 0.42              |
| 3:C:69:ARG:HH21   | 11:K:71:THR:N     | 2.15                     | 0.42              |
| 3:C:103:LEU:HD23  | 3:C:218:LYS:HB3   | 2.01                     | 0.42              |
| 4:D:33:THR:O      | 4:D:37:LEU:N      | 2.32                     | 0.42              |
| 5:E:68:SER:HB3    | 5:E:75:MET:SD     | 2.60                     | 0.42              |
| 7:G:73:TYR:CZ     | 7:G:238:THR:HG21  | 2.55                     | 0.42              |
| 11:K:62:SER:OG    | 11:K:104:ARG:NH1  | 2.41                     | 0.42              |
| 16:P:324:TRP:CZ2  | 16:P:383:ILE:HG21 | 2.55                     | 0.42              |
| 16:P:438:TRP:CE3  | 16:P:439:LYS:O    | 2.73                     | 0.42              |
| 16:P:597:LYS:HD2  | 17:Q:321:ASP:OD1  | 2.19                     | 0.42              |
| 16:P:740:ILE:O    | 16:P:744:LEU:HG   | 2.20                     | 0.42              |
| 17:Q:297:ARG:HB2  | 17:Q:297:ARG:HH11 | 1.84                     | 0.42              |
| 17:Q:302:ALA:O    | 17:Q:303:GLU:C    | 2.58                     | 0.42              |
| 18:R:253:ILE:HG22 | 18:R:254:GLY:N    | 2.34                     | 0.42              |
| 20:T:11:DA:N3     | 20:T:12:DC:C6     | 2.88                     | 0.42              |
| 1:A:132:GLU:O     | 1:A:136:LEU:N     | 2.51                     | 0.42              |
| 1:A:259:LYS:O     | 1:A:262:THR:HB    | 2.18                     | 0.42              |
| 1:A:489:ASN:ND2   | 2:B:781:TYR:CZ    | 2.85                     | 0.42              |
| 1:A:560:GLN:HE22  | 15:O:238:ILE:HG22 | 1.85                     | 0.42              |
| 1:A:1051:GLY:CA   | 1:A:1580:ARG:HG2  | 2.49                     | 0.42              |
| 1:A:1482:LYS:HD2  | 2:B:307:GLU:OE1   | 2.20                     | 0.42              |
| 2:B:95:LEU:HD12   | 2:B:144:SER:O     | 2.20                     | 0.42              |
| 2:B:561:ILE:HB    | 2:B:562:PRO:HD3   | 2.02                     | 0.42              |
| 2:B:712:SER:N     | 2:B:713:PRO:HD2   | 2.35                     | 0.42              |
| 2:B:789:ILE:HD12  | 2:B:927:CYS:SG    | 2.59                     | 0.42              |
| 3:C:294:VAL:HG21  | 3:C:297:HIS:HB3   | 2.02                     | 0.42              |
| 4:D:27:LEU:HA     | 4:D:28:PRO:HD3    | 1.91                     | 0.42              |
| 4:D:89:LEU:HA     | 4:D:92:ILE:HD12   | 2.01                     | 0.42              |
| 5:E:55:ARG:NE     | 5:E:113:GLN:HE21  | 2.18                     | 0.42              |
| 7:G:33:GLY:HA3    | 7:G:230:ARG:HH22  | 1.85                     | 0.42              |
| 7:G:127:PRO:HG2   | 7:G:236:VAL:HG21  | 2.01                     | 0.42              |
| 9:I:29:GLU:HG3    | 9:I:36:ILE:HG13   | 2.01                     | 0.42              |
| 9:I:30:CYS:O      | 9:I:34:LYS:HA     | 2.20                     | 0.42              |
| 13:M:10:ILE:HB    | 14:N:70:LEU:HB3   | 2.01                     | 0.42              |
| 15:O:474:TYR:HA   | 15:O:477:PHE:HB3  | 2.00                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:393:VAL:HG23 | 16:P:394:VAL:N    | 2.31                     | 0.42              |
| 17:Q:147:GLN:N    | 17:Q:148:PRO:HD3  | 2.34                     | 0.42              |
| 17:Q:323:ASP:C    | 17:Q:325:GLN:N    | 2.72                     | 0.42              |
| 17:Q:439:ILE:H    | 17:Q:439:ILE:HG13 | 1.66                     | 0.42              |
| 17:Q:512:ARG:HA   | 17:Q:512:ARG:HD3  | 1.84                     | 0.42              |
| 18:R:426:VAL:HG23 | 18:R:427:PRO:HD2  | 2.02                     | 0.42              |
| 1:A:821:ILE:O     | 1:A:825:ALA:N     | 2.38                     | 0.42              |
| 1:A:1645:LYS:CB   | 1:A:1645:LYS:HZ2  | 2.33                     | 0.42              |
| 2:B:909:ARG:NH2   | 2:B:1042:ASP:OD1  | 2.53                     | 0.42              |
| 2:B:917:PHE:CE1   | 2:B:1035:ARG:HG3  | 2.55                     | 0.42              |
| 5:E:50:MET:HB3    | 5:E:52:ARG:H      | 1.85                     | 0.42              |
| 8:H:33:GLN:HB2    | 8:H:36:CYS:HB3    | 2.02                     | 0.42              |
| 14:N:83:ASP:C     | 14:N:85:HIS:H     | 2.23                     | 0.42              |
| 15:O:364:LEU:HB3  | 15:O:385:MET:HE3  | 2.02                     | 0.42              |
| 16:P:473:HIS:HA   | 16:P:474:LYS:HE3  | 2.02                     | 0.42              |
| 16:P:582:ASP:HB2  | 16:P:585:GLU:HG3  | 2.02                     | 0.42              |
| 16:P:607:VAL:O    | 16:P:611:ILE:HG13 | 2.20                     | 0.42              |
| 16:P:776:ASP:HB3  | 17:Q:134:LYS:HE3  | 2.02                     | 0.42              |
| 17:Q:112:LEU:CD1  | 17:Q:164:ILE:HD11 | 2.50                     | 0.42              |
| 17:Q:356:VAL:CB   | 18:R:208:TYR:CA   | 2.77                     | 0.42              |
| 1:A:103:LEU:CD1   | 1:A:241:PRO:HD2   | 2.50                     | 0.41              |
| 1:A:476:VAL:HA    | 2:B:1095:SER:C    | 2.17                     | 0.41              |
| 1:A:525:ASN:ND2   | 1:A:531:PRO:O     | 2.36                     | 0.41              |
| 1:A:535:GLN:C     | 1:A:578:TYR:CD1   | 2.93                     | 0.41              |
| 1:A:1246:VAL:CG1  | 1:A:1250:GLN:HB3  | 2.41                     | 0.41              |
| 1:A:1657:LEU:HD23 | 7:G:104:LEU:HB3   | 2.01                     | 0.41              |
| 2:B:1087:LEU:HD23 | 2:B:1088:LEU:CD2  | 2.50                     | 0.41              |
| 6:F:147:SER:O     | 6:F:150:GLU:HG2   | 2.19                     | 0.41              |
| 11:K:83:ASN:ND2   | 11:K:119:LYS:HD3  | 2.35                     | 0.41              |
| 13:M:10:ILE:O     | 14:N:69:SER:HA    | 2.20                     | 0.41              |
| 16:P:473:HIS:ND1  | 16:P:473:HIS:O    | 2.53                     | 0.41              |
| 16:P:492:LEU:HD22 | 16:P:492:LEU:N    | 2.35                     | 0.41              |
| 16:P:697:GLU:HB3  | 16:P:709:PRO:O    | 2.20                     | 0.41              |
| 16:P:768:TYR:O    | 16:P:771:ILE:N    | 2.53                     | 0.41              |
| 18:R:8:LEU:HB2    | 18:R:9:THR:HG22   | 2.01                     | 0.41              |
| 18:R:246:GLN:CD   | 18:R:247:ILE:HD12 | 2.40                     | 0.41              |
| 18:R:372:HIS:CE1  | 18:R:410:TYR:CD2  | 3.08                     | 0.41              |
| 1:A:1289:SER:CB   | 1:A:1475:GLU:HG2  | 2.49                     | 0.41              |
| 2:B:527:PHE:HE2   | 2:B:669:GLN:OE1   | 2.03                     | 0.41              |
| 2:B:565:LEU:HB3   | 2:B:570:VAL:HG21  | 2.01                     | 0.41              |
| 2:B:612:LYS:CG    | 2:B:622:ILE:HA    | 2.50                     | 0.41              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:C:146:ALA:HB1   | 3:C:156:LEU:HD23 | 2.02                     | 0.41              |
| 7:G:65:HIS:O      | 7:G:68:PRO:HD2   | 2.20                     | 0.41              |
| 8:H:30:SER:HB3    | 8:H:33:GLN:O     | 2.20                     | 0.41              |
| 14:N:81:THR:HG22  | 14:N:86:ASP:HB3  | 2.02                     | 0.41              |
| 15:O:502:LEU:HD22 | 15:O:506:PHE:CE2 | 2.55                     | 0.41              |
| 16:P:300:LEU:HA   | 16:P:320:ILE:CA  | 2.48                     | 0.41              |
| 16:P:504:THR:O    | 16:P:542:ARG:HG2 | 2.20                     | 0.41              |
| 17:Q:22:ILE:HD12  | 17:Q:26:ARG:HE   | 1.78                     | 0.41              |
| 17:Q:26:ARG:HD2   | 17:Q:34:VAL:HG11 | 2.02                     | 0.41              |
| 18:R:75:GLN:HA    | 18:R:78:ARG:NE   | 2.32                     | 0.41              |
| 1:A:76:GLN:HB3    | 1:A:364:PRO:HD3  | 2.02                     | 0.41              |
| 1:A:461:GLU:O     | 1:A:465:GLY:N    | 2.54                     | 0.41              |
| 1:A:597:LYS:HE3   | 1:A:660:PRO:CG   | 2.50                     | 0.41              |
| 2:B:311:ARG:NH2   | 9:I:17:LEU:O     | 2.53                     | 0.41              |
| 2:B:528:LEU:HA    | 2:B:528:LEU:HD23 | 1.86                     | 0.41              |
| 2:B:775:VAL:HG12  | 2:B:951:PRO:HB3  | 2.03                     | 0.41              |
| 2:B:929:ARG:HG2   | 2:B:930:LYS:N    | 2.34                     | 0.41              |
| 2:B:1112:THR:OG1  | 2:B:1128:CYS:SG  | 2.64                     | 0.41              |
| 3:C:128:ASP:HB2   | 3:C:175:GLN:HG3  | 2.02                     | 0.41              |
| 4:D:88:GLN:HE21   | 15:O:184:PRO:HB2 | 1.84                     | 0.41              |
| 7:G:47:VAL:HB     | 7:G:65:HIS:NE2   | 2.35                     | 0.41              |
| 13:M:42:LYS:HG3   | 13:M:51:PHE:HE1  | 1.85                     | 0.41              |
| 14:N:31:LYS:HE2   | 14:N:117:GLU:HG2 | 2.01                     | 0.41              |
| 16:P:64:LEU:CD2   | 16:P:64:LEU:H    | 2.33                     | 0.41              |
| 16:P:184:SER:C    | 18:R:198:LEU:HG  | 2.40                     | 0.41              |
| 16:P:348:HIS:HE1  | 18:R:154:LYS:CE  | 2.33                     | 0.41              |
| 16:P:358:SER:HB2  | 18:R:196:GLU:OE1 | 2.16                     | 0.41              |
| 17:Q:4:PHE:HE2    | 17:Q:18:ARG:HH11 | 1.67                     | 0.41              |
| 18:R:297:PHE:N    | 18:R:297:PHE:CD1 | 2.89                     | 0.41              |
| 18:R:402:ASN:O    | 18:R:405:ILE:HB  | 2.20                     | 0.41              |
| 1:A:407:GLN:HB2   | 1:A:410:LYS:HB3  | 2.01                     | 0.41              |
| 1:A:582:LYS:CE    | 1:A:584:ARG:HE   | 2.33                     | 0.41              |
| 1:A:733:THR:HG23  | 1:A:775:ALA:HA   | 2.02                     | 0.41              |
| 1:A:1003:ARG:CD   | 2:B:520:LEU:HD22 | 2.49                     | 0.41              |
| 1:A:1273:THR:HG22 | 9:I:48:VAL:HG13  | 2.02                     | 0.41              |
| 3:C:128:ASP:OD1   | 3:C:129:GLU:N    | 2.53                     | 0.41              |
| 5:E:33:GLU:OE1    | 5:E:33:GLU:N     | 2.42                     | 0.41              |
| 8:H:115:TYR:HE1   | 8:H:124:ARG:CG   | 2.32                     | 0.41              |
| 10:J:36:LEU:HD11  | 10:J:51:LEU:HD13 | 2.03                     | 0.41              |
| 14:N:82:ILE:O     | 14:N:87:TYR:HE1  | 2.04                     | 0.41              |
| 15:O:523:ASN:O    | 15:O:527:MET:N   | 2.46                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:611:ILE:CD1  | 16:P:731:LEU:HB2  | 2.50                     | 0.41              |
| 16:P:755:PRO:HB3  | 17:Q:131:HIS:HB3  | 2.03                     | 0.41              |
| 1:A:54:LEU:HA     | 1:A:54:LEU:HD23   | 1.85                     | 0.41              |
| 1:A:632:GLU:OE2   | 2:B:1043:LYS:HB3  | 2.19                     | 0.41              |
| 1:A:1129:PRO:HB2  | 1:A:1178:LEU:HD11 | 2.03                     | 0.41              |
| 2:B:918:SER:HA    | 2:B:923:GLN:O     | 2.21                     | 0.41              |
| 2:B:975:HIS:CE1   | 2:B:1003:ALA:HB2  | 2.56                     | 0.41              |
| 5:E:112:TYR:CD2   | 5:E:116:ILE:HD11  | 2.55                     | 0.41              |
| 7:G:158:LYS:HG2   | 15:O:105:ASN:OD1  | 2.21                     | 0.41              |
| 7:G:216:HIS:HD1   | 7:G:224:PRO:HB3   | 1.85                     | 0.41              |
| 10:J:30:LEU:HD11  | 10:J:38:ARG:NH1   | 2.34                     | 0.41              |
| 13:M:67:ASP:OD1   | 13:M:68:SER:N     | 2.53                     | 0.41              |
| 15:O:383:TYR:CE1  | 15:O:597:LEU:HD21 | 2.55                     | 0.41              |
| 16:P:186:TYR:HD1  | 18:R:198:LEU:HD23 | 1.82                     | 0.41              |
| 16:P:194:ARG:HA   | 16:P:209:LYS:O    | 2.20                     | 0.41              |
| 16:P:540:LYS:HE2  | 16:P:544:SER:O    | 2.21                     | 0.41              |
| 16:P:596:ILE:HB   | 17:Q:272:GLN:HG2  | 2.01                     | 0.41              |
| 16:P:666:SER:HB3  | 16:P:742:TRP:CE2  | 2.54                     | 0.41              |
| 16:P:697:GLU:HG2  | 16:P:698:LYS:N    | 2.34                     | 0.41              |
| 17:Q:353:VAL:HG11 | 17:Q:489:VAL:HG12 | 2.01                     | 0.41              |
| 18:R:165:ILE:H    | 18:R:165:ILE:HG13 | 1.49                     | 0.41              |
| 18:R:216:LEU:HD13 | 18:R:239:LEU:HD13 | 2.02                     | 0.41              |
| 20:T:14:DG:C2     | 21:U:37:DA:C2     | 3.09                     | 0.41              |
| 1:A:2:ASP:OD2     | 1:A:4:SER:OG      | 2.37                     | 0.41              |
| 1:A:67:LEU:HD11   | 2:B:1115:GLN:HG3  | 2.03                     | 0.41              |
| 1:A:91:PHE:O      | 1:A:94:LEU:HB3    | 2.21                     | 0.41              |
| 1:A:126:GLN:HB3   | 1:A:343:PRO:HD3   | 2.01                     | 0.41              |
| 1:A:358:ASP:HB2   | 1:A:359:VAL:H     | 1.64                     | 0.41              |
| 1:A:514:TYR:OH    | 6:F:102:SER:HA    | 2.21                     | 0.41              |
| 1:A:518:GLU:OE1   | 1:A:582:LYS:NZ    | 2.54                     | 0.41              |
| 1:A:539:GLU:HB3   | 1:A:570:THR:HB    | 2.02                     | 0.41              |
| 1:A:581:ILE:CD1   | 1:A:637:PHE:CE1   | 3.03                     | 0.41              |
| 1:A:772:LYS:HE3   | 8:H:137:GLN:NE2   | 2.35                     | 0.41              |
| 1:A:934:LYS:HE2   | 2:B:956:SER:OG    | 2.21                     | 0.41              |
| 1:A:989:GLY:HA3   | 2:B:709:PHE:HE1   | 1.85                     | 0.41              |
| 1:A:1319:ASN:C    | 1:A:1323:HIS:HD1  | 2.16                     | 0.41              |
| 2:B:117:VAL:HG23  | 18:R:276:GLN:HA   | 1.68                     | 0.41              |
| 2:B:178:TYR:O     | 2:B:182:GLN:HG2   | 2.20                     | 0.41              |
| 2:B:218:ILE:HG23  | 2:B:231:HIS:ND1   | 2.36                     | 0.41              |
| 2:B:560:ARG:HH22  | 2:B:618:PRO:HB2   | 1.85                     | 0.41              |
| 2:B:584:CYS:HB3   | 2:B:596:VAL:HG23  | 2.02                     | 0.41              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:B:893:ASN:ND2   | 20:T:39:DT:H5''  | 2.36                     | 0.41              |
| 2:B:1131:CYS:HB2  | 2:B:1170:GLY:HA2 | 2.02                     | 0.41              |
| 3:C:44:ILE:HA     | 3:C:54:PHE:CB    | 2.51                     | 0.41              |
| 9:I:19:ASN:OD1    | 9:I:21:ASN:N     | 2.48                     | 0.41              |
| 12:L:50:ASP:HA    | 17:Q:412:LYS:NZ  | 2.36                     | 0.41              |
| 14:N:63:ASP:OD1   | 14:N:65:SER:OG   | 2.32                     | 0.41              |
| 15:O:457:ARG:HB3  | 15:O:470:PHE:HE1 | 1.85                     | 0.41              |
| 17:Q:123:MET:HG2  | 17:Q:184:TRP:CZ2 | 2.56                     | 0.41              |
| 18:R:231:LEU:HD23 | 18:R:231:LEU:HA  | 1.78                     | 0.41              |
| 1:A:413:LEU:O     | 1:A:417:ARG:NH1  | 2.53                     | 0.41              |
| 1:A:638:PRO:HB3   | 1:A:643:ALA:HB1  | 2.03                     | 0.41              |
| 1:A:719:ILE:HG12  | 8:H:97:MET:HG2   | 2.02                     | 0.41              |
| 1:A:800:VAL:O     | 1:A:1079:LYS:HD2 | 2.21                     | 0.41              |
| 1:A:1478:ALA:O    | 9:I:19:ASN:ND2   | 2.53                     | 0.41              |
| 1:A:1481:GLU:OE1  | 1:A:1481:GLU:N   | 2.49                     | 0.41              |
| 2:B:135:GLY:N     | 2:B:161:LEU:O    | 2.52                     | 0.41              |
| 2:B:781:TYR:OH    | 11:K:96:PRO:HD2  | 2.21                     | 0.41              |
| 2:B:806:THR:OG1   | 2:B:904:LYS:HG2  | 2.21                     | 0.41              |
| 2:B:913:ILE:HD12  | 2:B:929:ARG:HA   | 2.02                     | 0.41              |
| 2:B:995:TYR:O     | 2:B:998:GLU:HB3  | 2.21                     | 0.41              |
| 2:B:1061:LYS:HE2  | 20:T:21:DC:OP2   | 2.21                     | 0.41              |
| 4:D:22:ILE:O      | 7:G:76:LYS:NZ    | 2.39                     | 0.41              |
| 4:D:88:GLN:O      | 4:D:92:ILE:HG13  | 2.21                     | 0.41              |
| 5:E:118:PRO:O     | 5:E:121:MET:HB2  | 2.20                     | 0.41              |
| 7:G:138:PHE:CD1   | 15:O:182:MET:SD  | 3.14                     | 0.41              |
| 15:O:181:ARG:NH2  | 15:O:221:TYR:O   | 2.54                     | 0.41              |
| 15:O:200:ASN:OD1  | 17:Q:14:ASN:CB   | 2.66                     | 0.41              |
| 18:R:219:LEU:O    | 18:R:223:ASN:ND2 | 2.51                     | 0.41              |
| 1:A:571:HIS:CE1   | 1:A:572:THR:HG23 | 2.56                     | 0.41              |
| 1:A:597:LYS:HB2   | 2:B:1082:HIS:CG  | 2.55                     | 0.41              |
| 1:A:793:ILE:HG23  | 1:A:794:VAL:N    | 2.32                     | 0.41              |
| 1:A:826:PHE:HB3   | 2:B:777:SER:HB2  | 2.03                     | 0.41              |
| 1:A:886:ASN:OD1   | 1:A:955:ARG:NH1  | 2.32                     | 0.41              |
| 1:A:1156:LYS:HE2  | 1:A:1156:LYS:HB2 | 1.91                     | 0.41              |
| 1:A:1233:ILE:HD11 | 1:A:1236:PRO:HA  | 2.03                     | 0.41              |
| 1:A:1314:GLN:O    | 1:A:1318:SER:OG  | 2.36                     | 0.41              |
| 1:A:1655:ASP:HB2  | 6:F:135:ARG:HB3  | 2.03                     | 0.41              |
| 2:B:127:ARG:NH2   | 2:B:193:TYR:OH   | 2.50                     | 0.41              |
| 3:C:240:LYS:HA    | 3:C:244:ALA:HB2  | 2.02                     | 0.41              |
| 5:E:39:LEU:O      | 5:E:42:PHE:HB3   | 2.21                     | 0.41              |
| 5:E:191:LYS:HB2   | 5:E:194:GLU:OE2  | 2.21                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:G:141:SER:HG    | 7:G:144:HIS:HD1   | 1.62                     | 0.41              |
| 13:M:42:LYS:HG3   | 13:M:51:PHE:CE1   | 2.56                     | 0.41              |
| 16:P:645:LYS:O    | 16:P:647:GLU:N    | 2.54                     | 0.41              |
| 18:R:16:ARG:NH2   | 18:R:183:GLU:OE2  | 2.54                     | 0.41              |
| 1:A:332:GLN:HG2   | 1:A:349:LEU:HD22  | 2.03                     | 0.41              |
| 1:A:628:PHE:CG    | 2:B:784:ASP:HB3   | 2.54                     | 0.41              |
| 1:A:810:LEU:HA    | 1:A:810:LEU:HD12  | 1.88                     | 0.41              |
| 1:A:1644:GLY:HA3  | 2:B:1179:PRO:HD3  | 2.02                     | 0.41              |
| 2:B:79:LEU:HB2    | 2:B:90:TYR:CE2    | 2.56                     | 0.41              |
| 2:B:211:ARG:HH22  | 2:B:645:GLY:HA3   | 1.86                     | 0.41              |
| 2:B:212:ASN:HD22  | 2:B:212:ASN:H     | 1.67                     | 0.41              |
| 2:B:460:LYS:O     | 2:B:463:TYR:HB3   | 2.21                     | 0.41              |
| 2:B:610:TYR:HE1   | 2:B:658:LEU:HD11  | 1.86                     | 0.41              |
| 2:B:612:LYS:HG2   | 2:B:622:ILE:HA    | 2.03                     | 0.41              |
| 2:B:1058:GLN:O    | 2:B:1059:PRO:O    | 2.39                     | 0.41              |
| 2:B:1202:PRO:HG3  | 7:G:46:TYR:CD2    | 2.56                     | 0.41              |
| 5:E:183:PRO:HA    | 5:E:186:LEU:HD12  | 2.03                     | 0.41              |
| 11:K:79:VAL:HG21  | 11:K:124:LEU:HD13 | 2.02                     | 0.41              |
| 14:N:82:ILE:HB    | 14:N:87:TYR:CD1   | 2.56                     | 0.41              |
| 15:O:484:PHE:CZ   | 15:O:527:MET:O    | 2.74                     | 0.41              |
| 15:O:487:ARG:HG2  | 15:O:491:PHE:CD2  | 2.56                     | 0.41              |
| 15:O:606:MET:HA   | 15:O:609:TYR:CD2  | 2.56                     | 0.41              |
| 15:O:606:MET:HA   | 15:O:609:TYR:HD2  | 1.84                     | 0.41              |
| 16:P:220:THR:HB   | 16:P:222:GLN:HE22 | 1.86                     | 0.41              |
| 16:P:329:ILE:HG13 | 16:P:330:PRO:N    | 2.33                     | 0.41              |
| 16:P:351:ILE:O    | 16:P:352:PHE:HB2  | 2.21                     | 0.41              |
| 16:P:414:ILE:HD13 | 16:P:425:GLY:HA3  | 2.03                     | 0.41              |
| 16:P:420:GLU:HB2  | 16:P:442:LEU:H    | 1.82                     | 0.41              |
| 16:P:484:ARG:HG3  | 16:P:488:LEU:HD23 | 2.02                     | 0.41              |
| 16:P:510:THR:C    | 16:P:511:ILE:HG13 | 2.41                     | 0.41              |
| 16:P:596:ILE:O    | 16:P:596:ILE:HD12 | 2.21                     | 0.41              |
| 16:P:662:LEU:CB   | 16:P:665:ASN:HD22 | 2.25                     | 0.41              |
| 16:P:732:LEU:O    | 16:P:733:THR:C    | 2.58                     | 0.41              |
| 16:P:764:LEU:O    | 16:P:766:GLY:N    | 2.54                     | 0.41              |
| 17:Q:15:CYS:CB    | 17:Q:17:SER:H     | 2.30                     | 0.41              |
| 17:Q:178:THR:CG2  | 17:Q:303:GLU:OE1  | 2.69                     | 0.41              |
| 17:Q:229:LYS:HA   | 17:Q:232:LEU:HB2  | 2.03                     | 0.41              |
| 17:Q:307:LEU:O    | 17:Q:311:MET:HG2  | 2.21                     | 0.41              |
| 17:Q:356:VAL:CG1  | 18:R:212:HIS:NE2  | 2.80                     | 0.41              |
| 17:Q:441:ASP:OD2  | 17:Q:445:ARG:NH1  | 2.54                     | 0.41              |
| 1:A:70:LYS:HZ2    | 17:Q:27:ARG:CZ    | 2.34                     | 0.41              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:366:ARG:HA    | 1:A:369:LEU:HG   | 2.02                     | 0.41              |
| 1:A:499:PRO:HG3   | 1:A:609:PRO:HA   | 2.03                     | 0.41              |
| 1:A:893:ASP:OD2   | 1:A:955:ARG:HB3  | 2.21                     | 0.41              |
| 1:A:1014:SER:O    | 20:T:17:DT:C5'   | 2.60                     | 0.41              |
| 1:A:1031:HIS:O    | 1:A:1039:ARG:N   | 2.53                     | 0.41              |
| 1:A:1104:TYR:OH   | 1:A:1117:SER:HB3 | 2.20                     | 0.41              |
| 1:A:1152:SER:O    | 1:A:1156:LYS:NZ  | 2.53                     | 0.41              |
| 1:A:1323:HIS:CE1  | 1:A:1454:HIS:NE2 | 2.89                     | 0.41              |
| 2:B:461:MET:O     | 2:B:464:PHE:HB3  | 2.21                     | 0.41              |
| 2:B:1136:GLU:O    | 2:B:1140:LYS:HG3 | 2.21                     | 0.41              |
| 3:C:40:PHE:O      | 11:K:134:LYS:NZ  | 2.54                     | 0.41              |
| 5:E:67:GLU:HA     | 5:E:70:SER:OG    | 2.20                     | 0.41              |
| 7:G:48:SER:OG     | 7:G:64:GLN:NE2   | 2.54                     | 0.41              |
| 7:G:50:ALA:HB3    | 7:G:53:TYR:HD2   | 1.86                     | 0.41              |
| 15:O:234:ILE:HA   | 15:O:237:ILE:HB  | 2.03                     | 0.41              |
| 16:P:450:ARG:O    | 16:P:468:VAL:HA  | 2.21                     | 0.41              |
| 16:P:698:LYS:HB3  | 17:Q:124:ARG:HB3 | 2.03                     | 0.41              |
| 17:Q:302:ALA:O    | 17:Q:305:ARG:N   | 2.53                     | 0.41              |
| 17:Q:435:GLN:H    | 17:Q:435:GLN:HG3 | 1.42                     | 0.41              |
| 18:R:9:THR:HG21   | 18:R:13:PHE:HD2  | 1.83                     | 0.41              |
| 18:R:350:SER:HA   | 18:R:353:VAL:HB  | 2.03                     | 0.41              |
| 1:A:81:LEU:HD11   | 1:A:430:ILE:HD11 | 2.01                     | 0.40              |
| 1:A:447:THR:O     | 1:A:447:THR:HG22 | 2.21                     | 0.40              |
| 1:A:511:VAL:HG11  | 1:A:575:LYS:H    | 1.85                     | 0.40              |
| 1:A:553:GLN:O     | 1:A:556:ALA:HB3  | 2.22                     | 0.40              |
| 1:A:633:MET:HB3   | 1:A:633:MET:HE2  | 1.85                     | 0.40              |
| 1:A:701:ARG:NH2   | 1:A:704:ASP:OD2  | 2.54                     | 0.40              |
| 1:A:718:THR:OG1   | 1:A:730:GLN:NE2  | 2.53                     | 0.40              |
| 1:A:1061:SER:OG   | 1:A:1062:HIS:N   | 2.53                     | 0.40              |
| 1:A:1238:MET:HE3  | 1:A:1525:ASN:C   | 2.42                     | 0.40              |
| 1:A:1300:ASN:OD1  | 1:A:1301:GLU:HG3 | 2.20                     | 0.40              |
| 1:A:1305:GLU:HG3  | 1:A:1306:TYR:CD1 | 2.56                     | 0.40              |
| 1:A:1646:LEU:HD22 | 1:A:1646:LEU:HA  | 1.76                     | 0.40              |
| 2:B:114:SER:O     | 18:R:281:LYS:HA  | 2.14                     | 0.40              |
| 2:B:212:ASN:N     | 2:B:212:ASN:ND2  | 2.68                     | 0.40              |
| 2:B:711:GLN:HB2   | 2:B:958:MET:HB2  | 2.03                     | 0.40              |
| 2:B:792:SER:HA    | 3:C:217:ALA:HB2  | 2.03                     | 0.40              |
| 2:B:874:TYR:CZ    | 2:B:876:SER:HB3  | 2.56                     | 0.40              |
| 2:B:1007:TYR:HB3  | 3:C:281:ARG:HD2  | 2.03                     | 0.40              |
| 5:E:22:MET:HB2    | 5:E:187:TYR:CE1  | 2.56                     | 0.40              |
| 6:F:93:ILE:HD13   | 6:F:93:ILE:HA    | 1.91                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:N:113:SER:OG   | 14:N:116:LYS:N    | 2.54                     | 0.40              |
| 15:O:236:LYS:HA   | 15:O:239:SER:HB3  | 2.03                     | 0.40              |
| 15:O:403:LEU:HD13 | 15:O:424:LEU:HA   | 2.04                     | 0.40              |
| 16:P:302:VAL:C    | 16:P:363:ILE:HD11 | 2.40                     | 0.40              |
| 16:P:408:ILE:HD11 | 16:P:455:LYS:HG3  | 2.03                     | 0.40              |
| 16:P:469:TYR:CE2  | 16:P:508:ILE:HB   | 2.56                     | 0.40              |
| 17:Q:116:ILE:O    | 17:Q:120:ILE:HG13 | 2.21                     | 0.40              |
| 17:Q:178:THR:HG22 | 17:Q:178:THR:H    | 1.63                     | 0.40              |
| 17:Q:262:LEU:HA   | 17:Q:262:LEU:HD23 | 1.67                     | 0.40              |
| 1:A:1124:LEU:HD23 | 1:A:1135:SER:OG   | 2.21                     | 0.40              |
| 1:A:1559:ARG:NH2  | 5:E:200:ARG:HD3   | 2.36                     | 0.40              |
| 2:B:26:ILE:HA     | 10:J:58:GLU:OE2   | 2.21                     | 0.40              |
| 2:B:1093:LEU:CD1  | 2:B:1098:TYR:CD1  | 3.04                     | 0.40              |
| 2:B:1158:ILE:HA   | 2:B:1167:PHE:O    | 2.20                     | 0.40              |
| 5:E:9:ILE:HG21    | 5:E:43:LYS:HD3    | 2.03                     | 0.40              |
| 13:M:55:GLY:HA3   | 13:M:62:TYR:HB2   | 2.03                     | 0.40              |
| 16:P:198:ASP:HB3  | 16:P:261:VAL:HG23 | 2.02                     | 0.40              |
| 16:P:272:PHE:HD2  | 16:P:292:LEU:HD11 | 1.85                     | 0.40              |
| 16:P:656:HIS:CE1  | 16:P:748:GLU:HG3  | 2.56                     | 0.40              |
| 17:Q:106:LYS:HB3  | 17:Q:106:LYS:HE3  | 1.81                     | 0.40              |
| 17:Q:187:THR:HG22 | 17:Q:380:TRP:HE1  | 1.86                     | 0.40              |
| 17:Q:366:TYR:OH   | 18:R:214:VAL:HG13 | 2.21                     | 0.40              |
| 18:R:357:PRO:HB3  | 18:R:359:MET:HB3  | 2.02                     | 0.40              |
| 1:A:81:LEU:CD1    | 1:A:82:PRO:HD2    | 2.45                     | 0.40              |
| 1:A:659:THR:HG1   | 1:A:664:SER:H     | 1.64                     | 0.40              |
| 1:A:1032:VAL:HG22 | 1:A:1038:ILE:CD1  | 2.48                     | 0.40              |
| 1:A:1195:GLU:O    | 1:A:1198:THR:OG1  | 2.29                     | 0.40              |
| 2:B:139:LEU:O     | 2:B:155:VAL:HA    | 2.21                     | 0.40              |
| 2:B:387:GLY:O     | 2:B:634:ARG:NH1   | 2.54                     | 0.40              |
| 2:B:883:GLU:HB3   | 2:B:904:LYS:CB    | 2.51                     | 0.40              |
| 3:C:105:PRO:HG3   | 10:J:6:ARG:NH2    | 2.37                     | 0.40              |
| 3:C:297:HIS:CD2   | 3:C:298:PHE:N     | 2.89                     | 0.40              |
| 5:E:154:ILE:O     | 5:E:197:LYS:N     | 2.46                     | 0.40              |
| 11:K:63:PHE:O     | 11:K:102:ASN:HA   | 2.21                     | 0.40              |
| 13:M:8:SER:OG     | 13:M:9:GLU:N      | 2.53                     | 0.40              |
| 14:N:111:VAL:O    | 14:N:120:LYS:N    | 2.34                     | 0.40              |
| 15:O:151:TRP:HA   | 15:O:154:VAL:HB   | 2.04                     | 0.40              |
| 15:O:171:CYS:O    | 15:O:175:MET:N    | 2.42                     | 0.40              |
| 15:O:414:ALA:HA   | 15:O:417:LYS:HD2  | 2.02                     | 0.40              |
| 15:O:487:ARG:HH21 | 15:O:502:LEU:CD1  | 2.29                     | 0.40              |
| 15:O:510:VAL:HG13 | 15:O:517:LEU:HG   | 2.04                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:P:219:LEU:HB2  | 16:P:244:SER:O    | 2.21                     | 0.40              |
| 16:P:358:SER:CB   | 18:R:196:GLU:CD   | 2.90                     | 0.40              |
| 16:P:418:SER:O    | 16:P:419:ARG:HB3  | 2.21                     | 0.40              |
| 16:P:437:SER:O    | 16:P:438:TRP:HD1  | 2.04                     | 0.40              |
| 16:P:616:SER:OG   | 16:P:618:ASP:N    | 2.48                     | 0.40              |
| 18:R:250:LEU:HD22 | 18:R:298:GLN:NE2  | 2.36                     | 0.40              |
| 18:R:253:ILE:O    | 18:R:255:VAL:N    | 2.54                     | 0.40              |
| 1:A:463:LYS:HD3   | 20:T:16:DT:C7     | 2.52                     | 0.40              |
| 1:A:628:PHE:CE2   | 2:B:784:ASP:HB2   | 2.41                     | 0.40              |
| 1:A:752:LYS:O     | 1:A:785:GLN:NE2   | 2.55                     | 0.40              |
| 1:A:771:PHE:CD1   | 1:A:776:LEU:HA    | 2.56                     | 0.40              |
| 2:B:119:ARG:HH22  | 2:B:125:GLU:CD    | 2.23                     | 0.40              |
| 2:B:286:ARG:HD3   | 9:I:9:PHE:CD2     | 2.57                     | 0.40              |
| 2:B:572:PRO:HG3   | 13:M:74:ASN:ND2   | 2.37                     | 0.40              |
| 2:B:698:SER:HB3   | 24:B:1301:SO4:S   | 2.60                     | 0.40              |
| 2:B:1114:GLN:HG3  | 2:B:1115:GLN:O    | 2.21                     | 0.40              |
| 5:E:29:PHE:N      | 5:E:63:ASN:O      | 2.46                     | 0.40              |
| 8:H:108:SER:OG    | 8:H:111:LEU:HG    | 2.21                     | 0.40              |
| 9:I:12:ASP:HB2    | 9:I:33:CYS:SG     | 2.61                     | 0.40              |
| 9:I:19:ASN:HB3    | 9:I:22:ALA:CB     | 2.51                     | 0.40              |
| 10:J:69:ARG:NH2   | 12:L:33:GLU:OE2   | 2.54                     | 0.40              |
| 16:P:68:THR:HG23  | 16:P:214:LEU:O    | 2.21                     | 0.40              |
| 18:R:205:VAL:O    | 18:R:205:VAL:HG12 | 2.20                     | 0.40              |
| 18:R:297:PHE:N    | 18:R:297:PHE:HD1  | 2.20                     | 0.40              |
| 1:A:184:LYS:HA    | 1:A:187:GLU:OE2   | 2.22                     | 0.40              |
| 1:A:510:PRO:HG2   | 6:F:102:SER:HB2   | 2.03                     | 0.40              |
| 1:A:590:ASN:OD1   | 1:A:591:ARG:N     | 2.54                     | 0.40              |
| 1:A:665:PRO:O     | 1:A:788:ALA:HB1   | 2.21                     | 0.40              |
| 1:A:980:GLY:HA2   | 1:A:997:PHE:CD2   | 2.56                     | 0.40              |
| 2:B:75:ASP:OD1    | 2:B:75:ASP:N      | 2.54                     | 0.40              |
| 2:B:228:SER:O     | 2:B:254:ASN:N     | 2.35                     | 0.40              |
| 2:B:338:PHE:HE2   | 2:B:353:VAL:HA    | 1.87                     | 0.40              |
| 7:G:91:ASP:OD1    | 7:G:104:LEU:N     | 2.44                     | 0.40              |
| 7:G:219:ASP:OD1   | 7:G:223:GLU:N     | 2.55                     | 0.40              |
| 16:P:217:ALA:O    | 16:P:219:LEU:N    | 2.51                     | 0.40              |
| 16:P:389:TRP:CZ3  | 18:R:149:LYS:N    | 2.89                     | 0.40              |
| 16:P:773:SER:O    | 16:P:775:TRP:N    | 2.54                     | 0.40              |
| 17:Q:6:ARG:HA     | 17:Q:18:ARG:HG3   | 2.02                     | 0.40              |
| 17:Q:348:ILE:HG12 | 17:Q:376:GLU:HB3  | 2.04                     | 0.40              |
| 18:R:219:LEU:HD23 | 18:R:219:LEU:HA   | 1.66                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|-----------|----------|-------------|-----|
| 1   | A     | 1447/1664 (87%) | 1307 (90%) | 131 (9%)  | 9 (1%)   | 25          | 57  |
| 2   | B     | 1171/1203 (97%) | 1094 (93%) | 61 (5%)   | 16 (1%)  | 11          | 37  |
| 3   | C     | 303/335 (90%)   | 276 (91%)  | 26 (9%)   | 1 (0%)   | 41          | 72  |
| 4   | D     | 50/137 (36%)    | 48 (96%)   | 2 (4%)    | 0        | 100         | 100 |
| 5   | E     | 210/215 (98%)   | 199 (95%)  | 11 (5%)   | 0        | 100         | 100 |
| 6   | F     | 98/155 (63%)    | 92 (94%)   | 6 (6%)    | 0        | 100         | 100 |
| 7   | G     | 189/326 (58%)   | 180 (95%)  | 9 (5%)    | 0        | 100         | 100 |
| 8   | H     | 127/146 (87%)   | 123 (97%)  | 4 (3%)    | 0        | 100         | 100 |
| 9   | I     | 61/125 (49%)    | 52 (85%)   | 8 (13%)   | 1 (2%)   | 9           | 34  |
| 10  | J     | 67/70 (96%)     | 61 (91%)   | 6 (9%)    | 0        | 100         | 100 |
| 11  | K     | 99/142 (70%)    | 94 (95%)   | 5 (5%)    | 0        | 100         | 100 |
| 12  | L     | 42/70 (60%)     | 38 (90%)   | 4 (10%)   | 0        | 100         | 100 |
| 13  | M     | 106/415 (26%)   | 101 (95%)  | 5 (5%)    | 0        | 100         | 100 |
| 14  | N     | 121/233 (52%)   | 112 (93%)  | 9 (7%)    | 0        | 100         | 100 |
| 15  | O     | 457/627 (73%)   | 418 (92%)  | 36 (8%)   | 3 (1%)   | 22          | 55  |
| 16  | P     | 573/894 (64%)   | 414 (72%)  | 113 (20%) | 46 (8%)  | 1           | 6   |
| 17  | Q     | 377/514 (73%)   | 311 (82%)  | 49 (13%)  | 17 (4%)  | 2           | 16  |
| 18  | R     | 289/507 (57%)   | 219 (76%)  | 41 (14%)  | 29 (10%) | 0           | 4   |
| All | All   | 5787/7778 (74%) | 5139 (89%) | 526 (9%)  | 122 (2%) | 10          | 30  |

All (122) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | B     | 819  | ASP  |
| 2   | B     | 820  | PRO  |
| 2   | B     | 954  | PHE  |
| 2   | B     | 1097 | ASP  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 15         | O            | 493        | ASP         |
| 16         | P            | 218        | VAL         |
| 16         | P            | 229        | ARG         |
| 16         | P            | 248        | PRO         |
| 16         | P            | 271        | ILE         |
| 16         | P            | 321        | LYS         |
| 16         | P            | 332        | ASN         |
| 16         | P            | 393        | VAL         |
| 16         | P            | 432        | PRO         |
| 16         | P            | 444        | PRO         |
| 16         | P            | 743        | SER         |
| 16         | P            | 752        | LEU         |
| 17         | Q            | 8          | PRO         |
| 17         | Q            | 9          | ILE         |
| 17         | Q            | 15         | CYS         |
| 17         | Q            | 289        | ARG         |
| 18         | R            | 11         | ARG         |
| 18         | R            | 155        | GLN         |
| 18         | R            | 247        | ILE         |
| 18         | R            | 294        | VAL         |
| 18         | R            | 295        | PRO         |
| 18         | R            | 296        | PRO         |
| 18         | R            | 302        | ARG         |
| 18         | R            | 306        | ALA         |
| 18         | R            | 307        | LYS         |
| 18         | R            | 359        | MET         |
| 18         | R            | 427        | PRO         |
| 1          | A            | 90         | PHE         |
| 1          | A            | 91         | PHE         |
| 1          | A            | 358        | ASP         |
| 1          | A            | 1651       | THR         |
| 2          | B            | 955        | PRO         |
| 2          | B            | 1059       | PRO         |
| 2          | B            | 1066       | HIS         |
| 15         | O            | 492        | ARG         |
| 16         | P            | 61         | VAL         |
| 16         | P            | 67         | ASP         |
| 16         | P            | 216        | ILE         |
| 16         | P            | 259        | ASN         |
| 16         | P            | 377        | ARG         |
| 16         | P            | 396        | ALA         |
| 16         | P            | 657        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 16         | P            | 659        | LEU         |
| 16         | P            | 726        | SER         |
| 16         | P            | 774        | SER         |
| 17         | Q            | 7          | GLY         |
| 17         | Q            | 196        | SER         |
| 17         | Q            | 280        | ASP         |
| 17         | Q            | 316        | TRP         |
| 17         | Q            | 317        | MET         |
| 17         | Q            | 362        | THR         |
| 18         | R            | 254        | GLY         |
| 18         | R            | 420        | ASP         |
| 1          | A            | 1259       | SER         |
| 1          | A            | 1505       | ASP         |
| 2          | B            | 322        | ASN         |
| 2          | B            | 784        | ASP         |
| 2          | B            | 1100       | GLN         |
| 16         | P            | 191        | SER         |
| 16         | P            | 201        | GLU         |
| 16         | P            | 269        | PHE         |
| 16         | P            | 301        | GLN         |
| 16         | P            | 365        | TRP         |
| 16         | P            | 437        | SER         |
| 16         | P            | 591        | ALA         |
| 16         | P            | 746        | ARG         |
| 17         | Q            | 364        | SER         |
| 18         | R            | 5          | PRO         |
| 18         | R            | 141        | TRP         |
| 18         | R            | 151        | PRO         |
| 18         | R            | 239        | LEU         |
| 18         | R            | 301        | SER         |
| 18         | R            | 323        | SER         |
| 1          | A            | 1650       | GLY         |
| 2          | B            | 815        | ARG         |
| 16         | P            | 263        | ILE         |
| 16         | P            | 290        | GLU         |
| 16         | P            | 394        | VAL         |
| 16         | P            | 446        | ASP         |
| 16         | P            | 545        | SER         |
| 16         | P            | 745        | ALA         |
| 17         | Q            | 13         | ASP         |
| 17         | Q            | 492        | ALA         |
| 18         | R            | 149        | LYS         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 18  | R     | 421  | LYS  |
| 1   | A     | 1050 | TYR  |
| 1   | A     | 1061 | SER  |
| 2   | B     | 786  | ALA  |
| 2   | B     | 1063 | ARG  |
| 3   | C     | 232  | GLN  |
| 15  | O     | 225  | LEU  |
| 16  | P     | 58   | HIS  |
| 16  | P     | 445  | ASP  |
| 16  | P     | 458  | LYS  |
| 16  | P     | 487  | ASN  |
| 16  | P     | 666  | SER  |
| 17  | Q     | 16   | PRO  |
| 18  | R     | 18   | LYS  |
| 18  | R     | 232  | ALA  |
| 18  | R     | 425  | ALA  |
| 2   | B     | 1052 | VAL  |
| 16  | P     | 187  | ILE  |
| 16  | P     | 297  | ILE  |
| 16  | P     | 500  | ILE  |
| 18  | R     | 262  | SER  |
| 18  | R     | 423  | GLY  |
| 2   | B     | 491  | ILE  |
| 16  | P     | 709  | PRO  |
| 17  | Q     | 451  | PRO  |
| 17  | Q     | 470  | PRO  |
| 18  | R     | 267  | GLY  |
| 2   | B     | 699  | ILE  |
| 17  | Q     | 327  | PRO  |
| 9   | I     | 47   | VAL  |
| 16  | P     | 233  | VAL  |
| 18  | R     | 293  | ILE  |
| 16  | P     | 568  | ILE  |
| 18  | R     | 357  | PRO  |

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.



| Mol | Chain | Analysed        | Rotameric  | Outliers  | Percentiles |     |
|-----|-------|-----------------|------------|-----------|-------------|-----|
| 1   | A     | 1289/1465 (88%) | 1271 (99%) | 18 (1%)   | 67          | 83  |
| 2   | B     | 1030/1053 (98%) | 1017 (99%) | 13 (1%)   | 69          | 84  |
| 3   | C     | 269/296 (91%)   | 269 (100%) | 0         | 100         | 100 |
| 4   | D     | 52/116 (45%)    | 52 (100%)  | 0         | 100         | 100 |
| 5   | E     | 194/197 (98%)   | 194 (100%) | 0         | 100         | 100 |
| 6   | F     | 90/137 (66%)    | 90 (100%)  | 0         | 100         | 100 |
| 7   | G     | 171/291 (59%)   | 171 (100%) | 0         | 100         | 100 |
| 8   | H     | 115/128 (90%)   | 115 (100%) | 0         | 100         | 100 |
| 9   | I     | 55/110 (50%)    | 55 (100%)  | 0         | 100         | 100 |
| 10  | J     | 64/65 (98%)     | 63 (98%)   | 1 (2%)    | 62          | 81  |
| 11  | K     | 91/130 (70%)    | 91 (100%)  | 0         | 100         | 100 |
| 12  | L     | 39/57 (68%)     | 39 (100%)  | 0         | 100         | 100 |
| 13  | M     | 98/371 (26%)    | 98 (100%)  | 0         | 100         | 100 |
| 14  | N     | 119/220 (54%)   | 119 (100%) | 0         | 100         | 100 |
| 15  | O     | 427/576 (74%)   | 420 (98%)  | 7 (2%)    | 62          | 81  |
| 16  | P     | 543/828 (66%)   | 374 (69%)  | 169 (31%) | 0           | 1   |
| 17  | Q     | 364/476 (76%)   | 293 (80%)  | 71 (20%)  | 1           | 4   |
| 18  | R     | 286/474 (60%)   | 209 (73%)  | 77 (27%)  | 0           | 1   |
| All | All   | 5296/6990 (76%) | 4940 (93%) | 356 (7%)  | 20          | 46  |

All (356) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 105  | CYS  |
| 1   | A     | 321  | LYS  |
| 1   | A     | 355  | PHE  |
| 1   | A     | 357  | MET  |
| 1   | A     | 358  | ASP  |
| 1   | A     | 578  | TYR  |
| 1   | A     | 646  | GLU  |
| 1   | A     | 1248 | ASP  |
| 1   | A     | 1249 | GLU  |
| 1   | A     | 1255 | CYS  |
| 1   | A     | 1506 | ARG  |
| 1   | A     | 1507 | CYS  |
| 1   | A     | 1640 | ARG  |
| 1   | A     | 1641 | ILE  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 1645       | LYS         |
| 1          | A            | 1646       | LEU         |
| 1          | A            | 1647       | ASN         |
| 1          | A            | 1648       | ASN         |
| 2          | B            | 784        | ASP         |
| 2          | B            | 787        | MET         |
| 2          | B            | 817        | ARG         |
| 2          | B            | 936        | MET         |
| 2          | B            | 949        | ILE         |
| 2          | B            | 1060       | VAL         |
| 2          | B            | 1064       | LYS         |
| 2          | B            | 1065       | ARG         |
| 2          | B            | 1086       | PHE         |
| 2          | B            | 1087       | LEU         |
| 2          | B            | 1091       | ARG         |
| 2          | B            | 1093       | LEU         |
| 2          | B            | 1096       | SER         |
| 10         | J            | 45         | CYS         |
| 15         | O            | 380        | SER         |
| 15         | O            | 434        | LEU         |
| 15         | O            | 435        | SER         |
| 15         | O            | 484        | PHE         |
| 15         | O            | 486        | PHE         |
| 15         | O            | 490        | ILE         |
| 15         | O            | 491        | PHE         |
| 16         | P            | 26         | TYR         |
| 16         | P            | 49         | THR         |
| 16         | P            | 50         | LEU         |
| 16         | P            | 56         | ASP         |
| 16         | P            | 64         | LEU         |
| 16         | P            | 66         | CYS         |
| 16         | P            | 181        | ARG         |
| 16         | P            | 182        | LEU         |
| 16         | P            | 183        | ASP         |
| 16         | P            | 185        | GLN         |
| 16         | P            | 187        | ILE         |
| 16         | P            | 192        | ASP         |
| 16         | P            | 193        | LEU         |
| 16         | P            | 194        | ARG         |
| 16         | P            | 195        | ASN         |
| 16         | P            | 198        | ASP         |
| 16         | P            | 201        | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 16         | P            | 205        | TYR         |
| 16         | P            | 207        | SER         |
| 16         | P            | 212        | SER         |
| 16         | P            | 213        | VAL         |
| 16         | P            | 214        | LEU         |
| 16         | P            | 219        | LEU         |
| 16         | P            | 220        | THR         |
| 16         | P            | 221        | ARG         |
| 16         | P            | 226        | HIS         |
| 16         | P            | 227        | LEU         |
| 16         | P            | 229        | ARG         |
| 16         | P            | 238        | LEU         |
| 16         | P            | 247        | ILE         |
| 16         | P            | 248        | PRO         |
| 16         | P            | 259        | ASN         |
| 16         | P            | 260        | LEU         |
| 16         | P            | 263        | ILE         |
| 16         | P            | 264        | ILE         |
| 16         | P            | 267        | ASN         |
| 16         | P            | 268        | SER         |
| 16         | P            | 269        | PHE         |
| 16         | P            | 273        | ARG         |
| 16         | P            | 276        | SER         |
| 16         | P            | 278        | HIS         |
| 16         | P            | 282        | CYS         |
| 16         | P            | 288        | SER         |
| 16         | P            | 292        | LEU         |
| 16         | P            | 295        | VAL         |
| 16         | P            | 296        | GLU         |
| 16         | P            | 300        | LEU         |
| 16         | P            | 314        | GLN         |
| 16         | P            | 320        | ILE         |
| 16         | P            | 321        | LYS         |
| 16         | P            | 329        | ILE         |
| 16         | P            | 342        | GLN         |
| 16         | P            | 343        | LEU         |
| 16         | P            | 345        | ASP         |
| 16         | P            | 347        | LEU         |
| 16         | P            | 348        | HIS         |
| 16         | P            | 355        | GLU         |
| 16         | P            | 360        | TRP         |
| 16         | P            | 362        | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 16         | P            | 364        | GLU         |
| 16         | P            | 365        | TRP         |
| 16         | P            | 367        | SER         |
| 16         | P            | 377        | ARG         |
| 16         | P            | 379        | LYS         |
| 16         | P            | 380        | MET         |
| 16         | P            | 381        | ILE         |
| 16         | P            | 384        | ASP         |
| 16         | P            | 386        | MET         |
| 16         | P            | 390        | GLN         |
| 16         | P            | 392        | GLU         |
| 16         | P            | 394        | VAL         |
| 16         | P            | 403        | ARG         |
| 16         | P            | 407        | ARG         |
| 16         | P            | 410        | ASP         |
| 16         | P            | 412        | ASN         |
| 16         | P            | 414        | ILE         |
| 16         | P            | 415        | LEU         |
| 16         | P            | 424        | VAL         |
| 16         | P            | 427        | SER         |
| 16         | P            | 428        | GLU         |
| 16         | P            | 433        | VAL         |
| 16         | P            | 438        | TRP         |
| 16         | P            | 439        | LYS         |
| 16         | P            | 442        | LEU         |
| 16         | P            | 443        | ASP         |
| 16         | P            | 453        | VAL         |
| 16         | P            | 455        | LYS         |
| 16         | P            | 456        | VAL         |
| 16         | P            | 458        | LYS         |
| 16         | P            | 461        | HIS         |
| 16         | P            | 463        | LEU         |
| 16         | P            | 465        | VAL         |
| 16         | P            | 468        | VAL         |
| 16         | P            | 469        | TYR         |
| 16         | P            | 474        | LYS         |
| 16         | P            | 480        | VAL         |
| 16         | P            | 491        | SER         |
| 16         | P            | 492        | LEU         |
| 16         | P            | 495        | SER         |
| 16         | P            | 496        | THR         |
| 16         | P            | 498        | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 16         | P            | 500        | ILE         |
| 16         | P            | 504        | THR         |
| 16         | P            | 508        | ILE         |
| 16         | P            | 511        | ILE         |
| 16         | P            | 531        | PHE         |
| 16         | P            | 534        | VAL         |
| 16         | P            | 535        | VAL         |
| 16         | P            | 538        | LEU         |
| 16         | P            | 539        | VAL         |
| 16         | P            | 555        | THR         |
| 16         | P            | 567        | ILE         |
| 16         | P            | 573        | GLU         |
| 16         | P            | 574        | TRP         |
| 16         | P            | 577        | LEU         |
| 16         | P            | 583        | GLU         |
| 16         | P            | 592        | LEU         |
| 16         | P            | 600        | GLU         |
| 16         | P            | 604        | ILE         |
| 16         | P            | 606        | ARG         |
| 16         | P            | 608        | GLN         |
| 16         | P            | 609        | ASN         |
| 16         | P            | 614        | GLU         |
| 16         | P            | 617        | HIS         |
| 16         | P            | 625        | ASP         |
| 16         | P            | 626        | LEU         |
| 16         | P            | 632        | ILE         |
| 16         | P            | 635        | ASN         |
| 16         | P            | 637        | LEU         |
| 16         | P            | 638        | LEU         |
| 16         | P            | 643        | LYS         |
| 16         | P            | 645        | LYS         |
| 16         | P            | 646        | ASP         |
| 16         | P            | 647        | GLU         |
| 16         | P            | 653        | SER         |
| 16         | P            | 656        | HIS         |
| 16         | P            | 657        | SER         |
| 16         | P            | 659        | LEU         |
| 16         | P            | 660        | LYS         |
| 16         | P            | 662        | LEU         |
| 16         | P            | 663        | LEU         |
| 16         | P            | 664        | GLU         |
| 16         | P            | 666        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 16         | P            | 667        | ASP         |
| 16         | P            | 671        | SER         |
| 16         | P            | 676        | SER         |
| 16         | P            | 679        | LEU         |
| 16         | P            | 692        | THR         |
| 16         | P            | 693        | PHE         |
| 16         | P            | 694        | ILE         |
| 16         | P            | 700        | LEU         |
| 16         | P            | 703        | PHE         |
| 16         | P            | 711        | LEU         |
| 16         | P            | 712        | ASP         |
| 16         | P            | 713        | ILE         |
| 16         | P            | 728        | GLN         |
| 16         | P            | 731        | LEU         |
| 16         | P            | 736        | ILE         |
| 16         | P            | 742        | TRP         |
| 16         | P            | 746        | ARG         |
| 16         | P            | 749        | LYS         |
| 16         | P            | 751        | SER         |
| 16         | P            | 753        | PHE         |
| 16         | P            | 754        | GLU         |
| 16         | P            | 762        | ARG         |
| 16         | P            | 770        | ASP         |
| 16         | P            | 771        | ILE         |
| 16         | P            | 772        | ILE         |
| 16         | P            | 777        | MET         |
| 17         | Q            | 17         | SER         |
| 17         | Q            | 21         | ARG         |
| 17         | Q            | 26         | ARG         |
| 17         | Q            | 27         | ARG         |
| 17         | Q            | 94         | LYS         |
| 17         | Q            | 95         | LEU         |
| 17         | Q            | 98         | HIS         |
| 17         | Q            | 101        | LYS         |
| 17         | Q            | 103        | LEU         |
| 17         | Q            | 119        | LEU         |
| 17         | Q            | 138        | LEU         |
| 17         | Q            | 139        | LYS         |
| 17         | Q            | 149        | GLN         |
| 17         | Q            | 150        | GLU         |
| 17         | Q            | 151        | GLU         |
| 17         | Q            | 152        | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 17         | Q            | 154        | LEU         |
| 17         | Q            | 164        | ILE         |
| 17         | Q            | 167        | LEU         |
| 17         | Q            | 169        | SER         |
| 17         | Q            | 176        | VAL         |
| 17         | Q            | 178        | THR         |
| 17         | Q            | 187        | THR         |
| 17         | Q            | 192        | TYR         |
| 17         | Q            | 226        | LEU         |
| 17         | Q            | 229        | LYS         |
| 17         | Q            | 232        | LEU         |
| 17         | Q            | 234        | CYS         |
| 17         | Q            | 241        | GLU         |
| 17         | Q            | 248        | SER         |
| 17         | Q            | 252        | LEU         |
| 17         | Q            | 254        | LEU         |
| 17         | Q            | 255        | LYS         |
| 17         | Q            | 256        | LEU         |
| 17         | Q            | 272        | GLN         |
| 17         | Q            | 273        | VAL         |
| 17         | Q            | 280        | ASP         |
| 17         | Q            | 285        | THR         |
| 17         | Q            | 286        | LEU         |
| 17         | Q            | 295        | THR         |
| 17         | Q            | 297        | ARG         |
| 17         | Q            | 299        | SER         |
| 17         | Q            | 301        | HIS         |
| 17         | Q            | 312        | LEU         |
| 17         | Q            | 318        | LEU         |
| 17         | Q            | 321        | ASP         |
| 17         | Q            | 324        | ARG         |
| 17         | Q            | 328        | LEU         |
| 17         | Q            | 337        | SER         |
| 17         | Q            | 348        | ILE         |
| 17         | Q            | 363        | SER         |
| 17         | Q            | 364        | SER         |
| 17         | Q            | 378        | LEU         |
| 17         | Q            | 384        | GLN         |
| 17         | Q            | 412        | LYS         |
| 17         | Q            | 419        | LEU         |
| 17         | Q            | 435        | GLN         |
| 17         | Q            | 436        | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 17         | Q            | 437        | THR         |
| 17         | Q            | 444        | GLU         |
| 17         | Q            | 445        | ARG         |
| 17         | Q            | 453        | PHE         |
| 17         | Q            | 478        | ARG         |
| 17         | Q            | 486        | GLN         |
| 17         | Q            | 494        | SER         |
| 17         | Q            | 495        | LYS         |
| 17         | Q            | 498        | LEU         |
| 17         | Q            | 502        | ILE         |
| 17         | Q            | 512        | ARG         |
| 17         | Q            | 513        | MET         |
| 17         | Q            | 514        | ASN         |
| 18         | R            | 1          | MET         |
| 18         | R            | 4          | VAL         |
| 18         | R            | 8          | LEU         |
| 18         | R            | 28         | SER         |
| 18         | R            | 74         | GLN         |
| 18         | R            | 80         | ARG         |
| 18         | R            | 84         | TRP         |
| 18         | R            | 85         | ARG         |
| 18         | R            | 87         | VAL         |
| 18         | R            | 143        | THR         |
| 18         | R            | 146        | SER         |
| 18         | R            | 149        | LYS         |
| 18         | R            | 156        | LYS         |
| 18         | R            | 158        | THR         |
| 18         | R            | 160        | HIS         |
| 18         | R            | 165        | ILE         |
| 18         | R            | 167        | LYS         |
| 18         | R            | 168        | ILE         |
| 18         | R            | 175        | ILE         |
| 18         | R            | 177        | LEU         |
| 18         | R            | 178        | LEU         |
| 18         | R            | 181        | THR         |
| 18         | R            | 182        | LYS         |
| 18         | R            | 189        | GLN         |
| 18         | R            | 202        | THR         |
| 18         | R            | 206        | ARG         |
| 18         | R            | 209        | ARG         |
| 18         | R            | 211        | ARG         |
| 18         | R            | 212        | HIS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 18         | R            | 214        | VAL         |
| 18         | R            | 216        | LEU         |
| 18         | R            | 230        | SER         |
| 18         | R            | 231        | LEU         |
| 18         | R            | 238        | THR         |
| 18         | R            | 240        | ILE         |
| 18         | R            | 242        | ILE         |
| 18         | R            | 245        | VAL         |
| 18         | R            | 246        | GLN         |
| 18         | R            | 247        | ILE         |
| 18         | R            | 249        | SER         |
| 18         | R            | 250        | LEU         |
| 18         | R            | 253        | ILE         |
| 18         | R            | 255        | VAL         |
| 18         | R            | 257        | ILE         |
| 18         | R            | 258        | LEU         |
| 18         | R            | 261        | LEU         |
| 18         | R            | 264        | SER         |
| 18         | R            | 272        | GLN         |
| 18         | R            | 275        | CYS         |
| 18         | R            | 276        | GLN         |
| 18         | R            | 282        | SER         |
| 18         | R            | 294        | VAL         |
| 18         | R            | 296        | PRO         |
| 18         | R            | 299        | THR         |
| 18         | R            | 307        | LYS         |
| 18         | R            | 308        | PHE         |
| 18         | R            | 324        | MET         |
| 18         | R            | 345        | LEU         |
| 18         | R            | 347        | ASP         |
| 18         | R            | 348        | LYS         |
| 18         | R            | 354        | LEU         |
| 18         | R            | 355        | THR         |
| 18         | R            | 361        | ASP         |
| 18         | R            | 365        | TRP         |
| 18         | R            | 373        | LEU         |
| 18         | R            | 374        | LEU         |
| 18         | R            | 375        | LYS         |
| 18         | R            | 403        | GLN         |
| 18         | R            | 409        | HIS         |
| 18         | R            | 410        | TYR         |
| 18         | R            | 411        | VAL         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 18         | R            | 426        | VAL         |
| 18         | R            | 427        | PRO         |
| 18         | R            | 429        | ARG         |
| 18         | R            | 430        | LEU         |
| 18         | R            | 437        | SER         |
| 18         | R            | 440        | SER         |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (77) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 107        | HIS         |
| 1          | A            | 383        | ASN         |
| 1          | A            | 458        | GLN         |
| 1          | A            | 470        | HIS         |
| 1          | A            | 489        | ASN         |
| 1          | A            | 537        | GLN         |
| 1          | A            | 559        | ASN         |
| 1          | A            | 560        | GLN         |
| 1          | A            | 610        | ASN         |
| 1          | A            | 639        | GLN         |
| 1          | A            | 730        | GLN         |
| 1          | A            | 880        | GLN         |
| 1          | A            | 949        | GLN         |
| 1          | A            | 1108       | HIS         |
| 1          | A            | 1314       | GLN         |
| 1          | A            | 1320       | GLN         |
| 1          | A            | 1443       | GLN         |
| 1          | A            | 1447       | GLN         |
| 1          | A            | 1453       | HIS         |
| 1          | A            | 1647       | ASN         |
| 2          | B            | 27         | ASN         |
| 2          | B            | 101        | GLN         |
| 2          | B            | 212        | ASN         |
| 2          | B            | 213        | HIS         |
| 2          | B            | 254        | ASN         |
| 2          | B            | 267        | ASN         |
| 2          | B            | 399        | HIS         |
| 2          | B            | 422        | GLN         |
| 2          | B            | 504        | HIS         |
| 2          | B            | 543        | ASN         |
| 2          | B            | 555        | GLN         |
| 2          | B            | 646        | HIS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | B            | 695        | ASN         |
| 2          | B            | 816        | ASN         |
| 2          | B            | 952        | HIS         |
| 2          | B            | 1066       | HIS         |
| 2          | B            | 1157       | GLN         |
| 2          | B            | 1165       | ASN         |
| 2          | B            | 1171       | ASN         |
| 3          | C            | 161        | HIS         |
| 3          | C            | 237        | GLN         |
| 3          | C            | 297        | HIS         |
| 4          | D            | 88         | GLN         |
| 7          | G            | 26         | ASN         |
| 7          | G            | 32         | ASN         |
| 7          | G            | 237        | HIS         |
| 8          | H            | 11         | GLN         |
| 8          | H            | 52         | GLN         |
| 9          | I            | 44         | ASN         |
| 11         | K            | 64         | GLN         |
| 11         | K            | 106        | GLN         |
| 12         | L            | 53         | HIS         |
| 14         | N            | 41         | ASN         |
| 14         | N            | 51         | GLN         |
| 14         | N            | 85         | HIS         |
| 14         | N            | 128        | ASN         |
| 15         | O            | 77         | GLN         |
| 15         | O            | 117        | GLN         |
| 15         | O            | 173        | HIS         |
| 15         | O            | 362        | ASN         |
| 15         | O            | 391        | GLN         |
| 15         | O            | 438        | GLN         |
| 15         | O            | 472        | HIS         |
| 15         | O            | 507        | GLN         |
| 16         | P            | 222        | GLN         |
| 16         | P            | 223        | ASN         |
| 16         | P            | 348        | HIS         |
| 16         | P            | 554        | ASN         |
| 16         | P            | 665        | ASN         |
| 17         | Q            | 145        | ASN         |
| 17         | Q            | 157        | HIS         |
| 17         | Q            | 368        | GLN         |
| 17         | Q            | 507        | ASN         |
| 18         | R            | 25         | ASN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | R     | 184 | ASN  |
| 18  | R     | 207 | ASN  |
| 18  | R     | 298 | GLN  |

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed  | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------|-------------------|-----------------|
| 19  | S     | 4/5 (80%) | 1 (25%)           | 0               |

All (1) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 19  | S     | 3   | G    |

There are no RNA pucker outliers to report.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 8 are monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res  | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |      |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 24  | SO4  | B     | 1301 | -    | 4,4,4        | 0.17 | 0           | 6,6,6       | 0.07 | 0           |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 2 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 24  | B     | 1301 | SO4  | 2       | 0            |

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 17  | Q     | 2                |
| 18  | R     | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | R     | 206:ARG   | C      | 207:ASN   | N      | 2.76         |
| 1     | Q     | 323:ASP   | C      | 324:ARG   | N      | 1.79         |
| 1     | Q     | 356:VAL   | C      | 357:TYR   | N      | 1.17         |

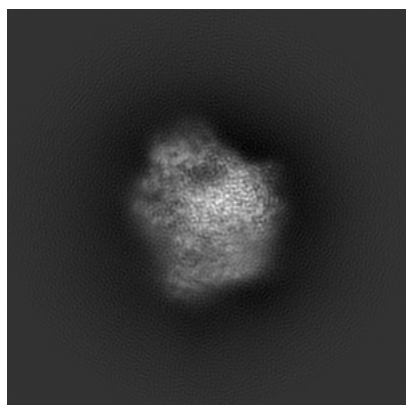
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-3593. These allow visual inspection of the internal detail of the map and identification of artifacts.

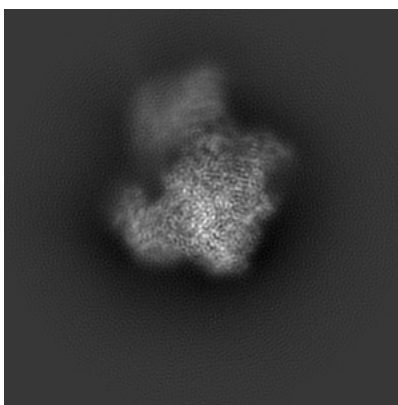
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

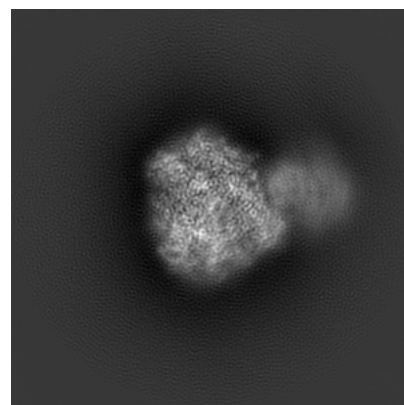
#### 6.1.1 Primary map



X



Y

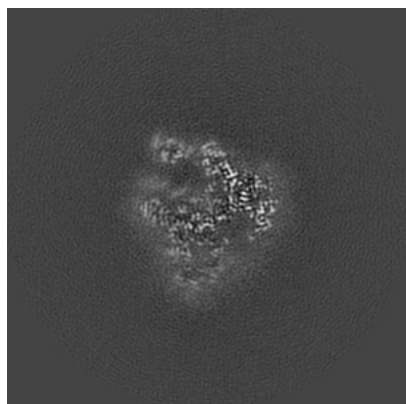


Z

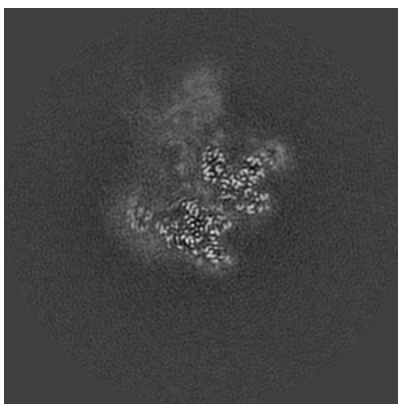
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

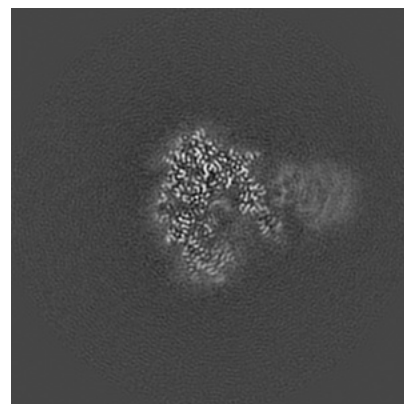
#### 6.2.1 Primary map



X Index: 165



Y Index: 165

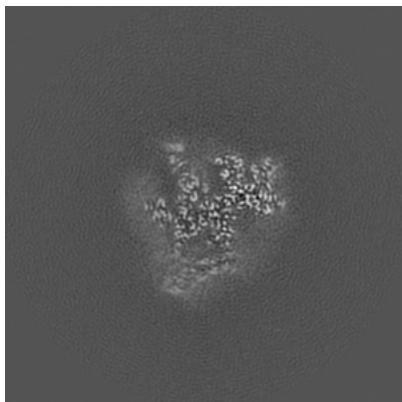


Z Index: 165

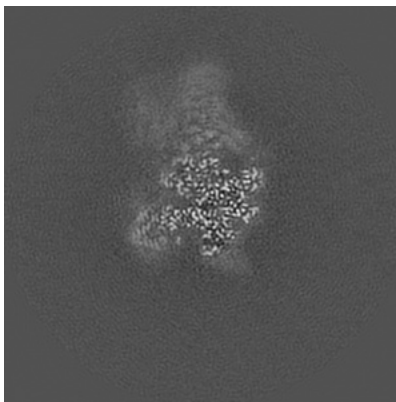
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

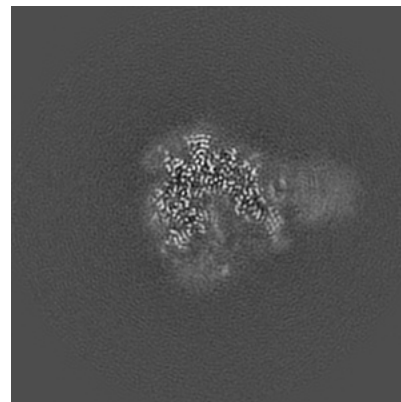
### 6.3.1 Primary map



X Index: 157



Y Index: 182



Z Index: 172

The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

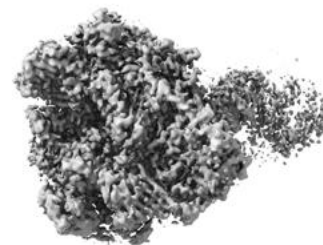
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.065. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.



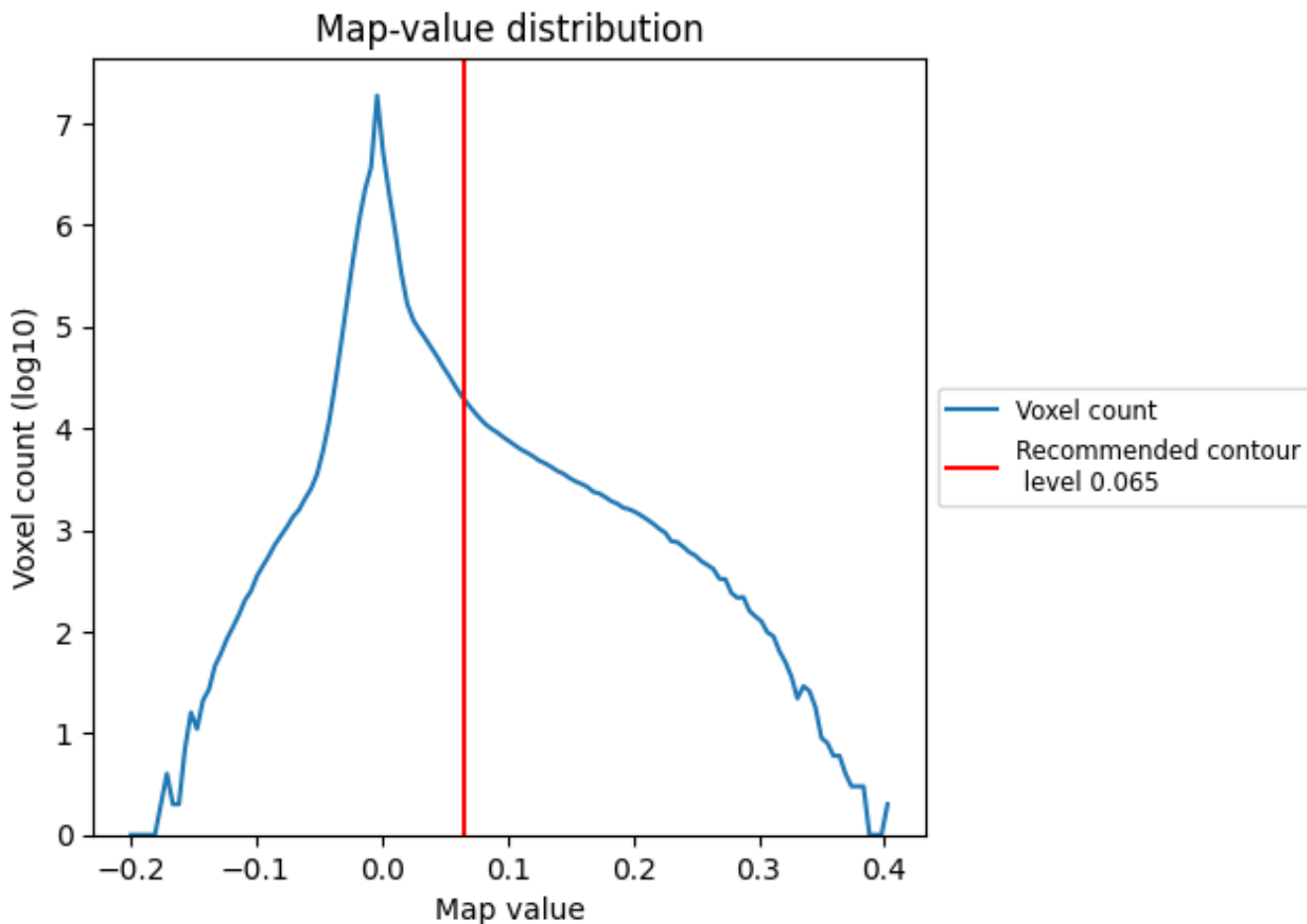
## 6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

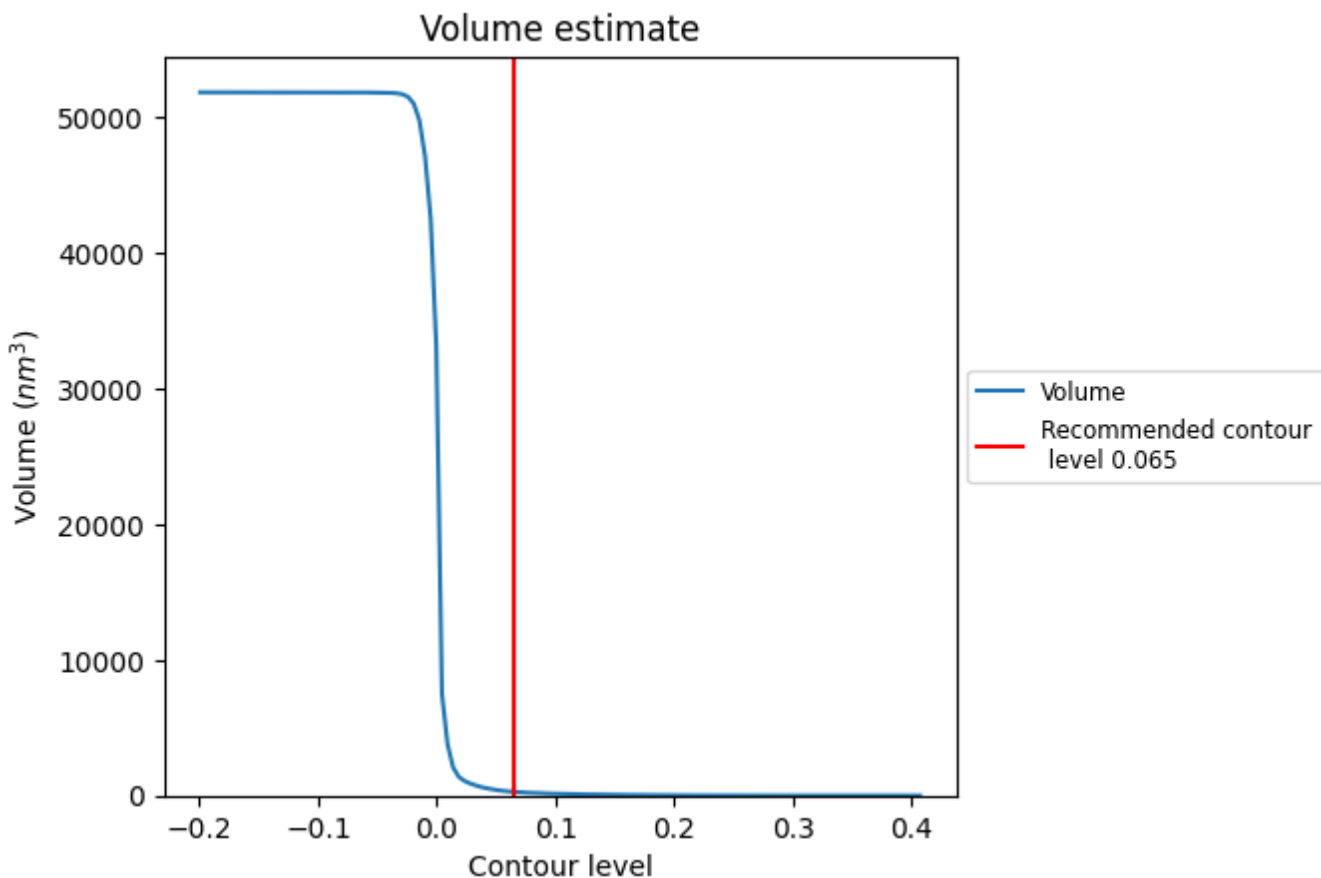
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

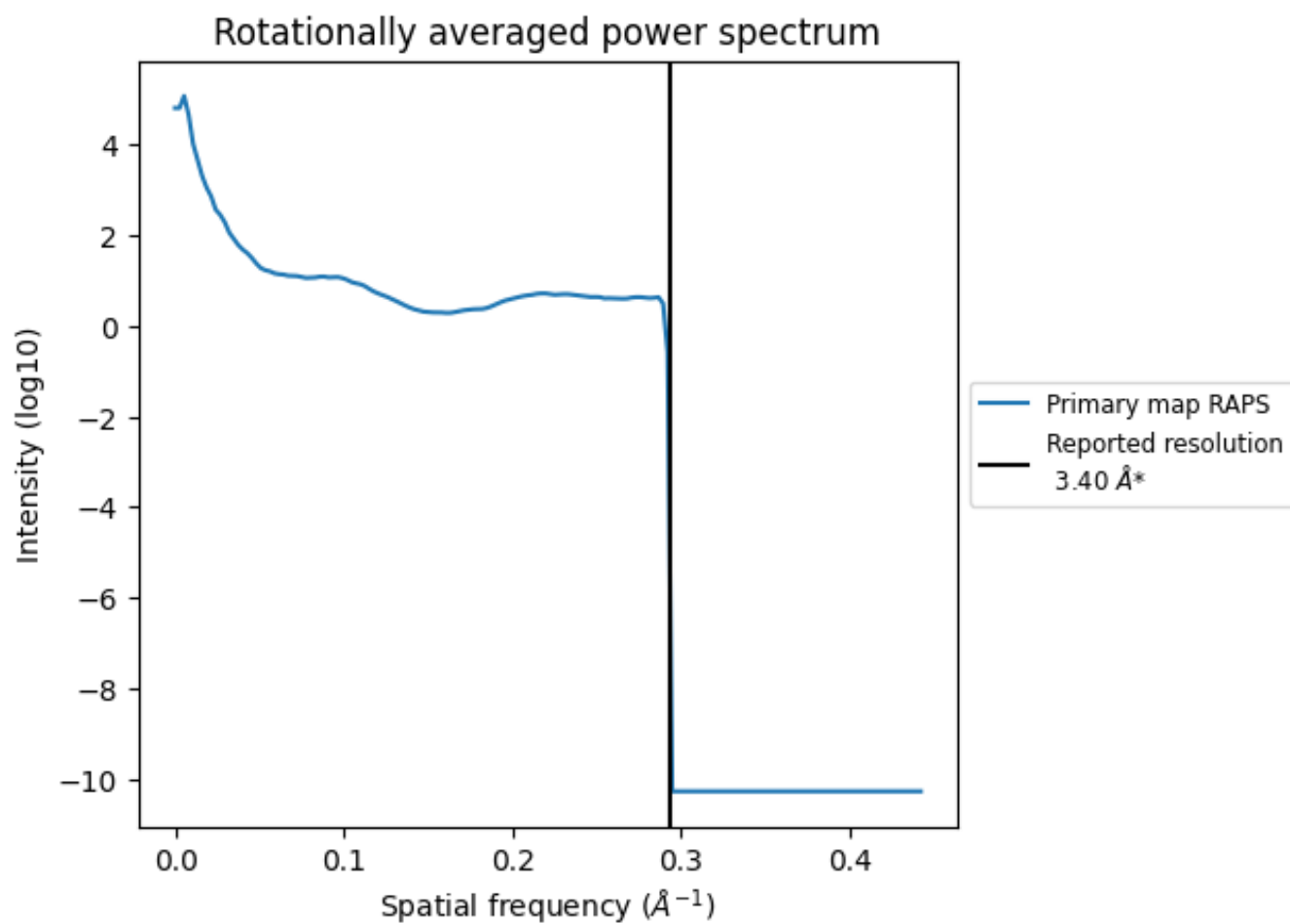
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 273 nm<sup>3</sup>; this corresponds to an approximate mass of 246 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [i](#)



\*Reported resolution corresponds to spatial frequency of 0.294 Å<sup>-1</sup>

## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit [i](#)

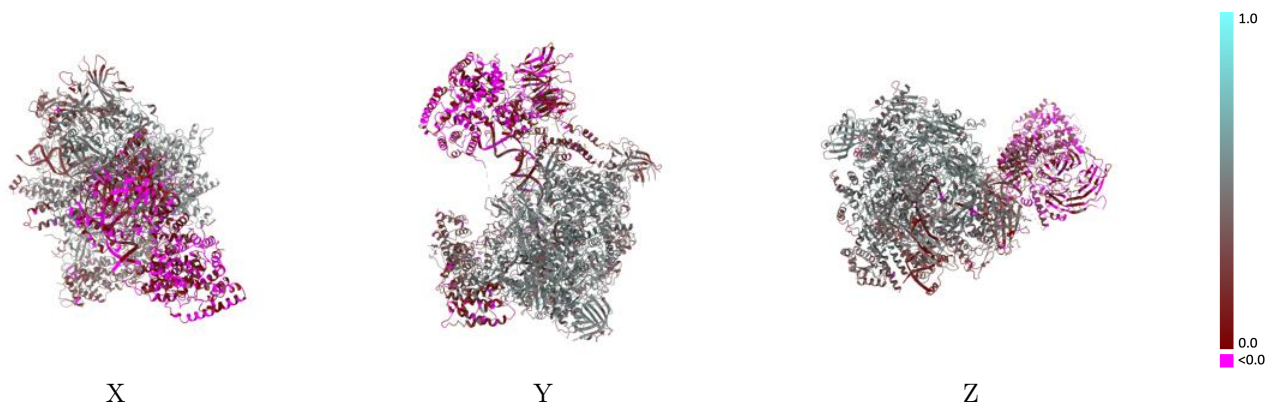
This section contains information regarding the fit between EMDB map EMD-3593 and PDB model 5N61. Per-residue inclusion information can be found in section 3 on page 9.

### 9.1 Map-model overlay [i](#)



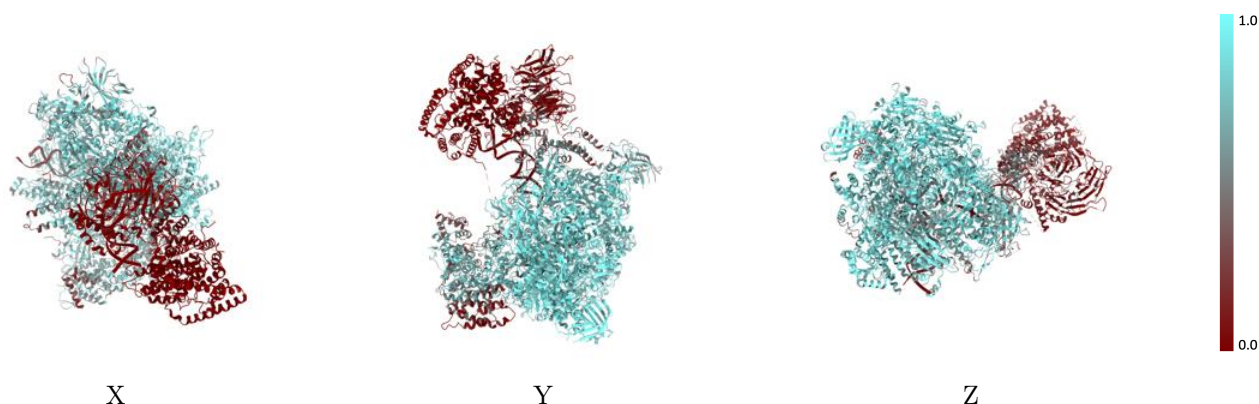
The images above show the 3D surface view of the map at the recommended contour level 0.065 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



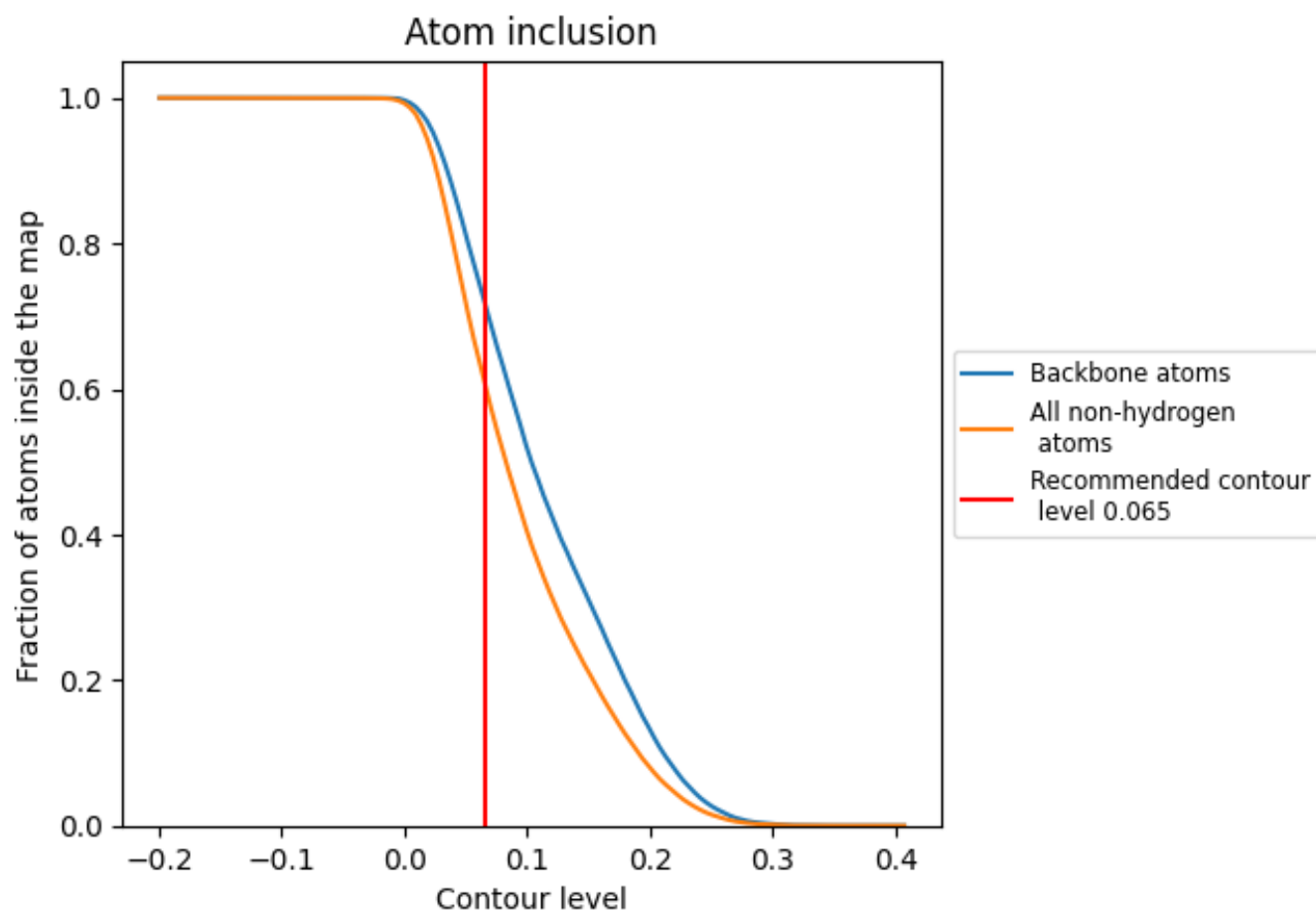
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.065).

## 9.4 Atom inclusion [i](#)















































At the recommended contour level, 72% of all backbone atoms, 61% of all non-hydrogen atoms, are inside the map.



## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.065) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion   | Q-score  |
|-------|--|--|
| All   |  0.6108   |  0.3430   |
| A     |  0.8017   |  0.4510   |
| B     |  0.8256   |  0.4740   |
| C     |  0.8764   |  0.4830   |
| D     |  0.7377   |  0.4080   |
| E     |  0.8304   |  0.4280   |
| F     |  0.7965   |  0.4770   |
| G     |  0.7098   |  0.3960   |
| H     |  0.8801   |  0.4860   |
| I     |  0.6875   |  0.3020   |
| J     |  0.8967   |  0.5110   |
| K     |  0.8431   |  0.4840   |
| L     |  0.8382   |  0.4670   |
| M     |  0.6355   |  0.3390   |
| N     |  0.6268  |  0.3470  |
| O     |  0.4817 |  0.2610 |
| P     |  0.0552 |  0.0410 |
| Q     |  0.0487 |  0.0480 |
| R     |  0.2271 |  0.1240 |
| S     |  0.4722 |  0.2280 |
| T     |  0.2683 |  0.1150 |
| U     |  0.2163 |  0.1170 |

