



# Full wwPDB NMR Structure Validation Report ⓘ

Feb 7, 2022 – 07:48 PM EST

PDB ID : 1B9R  
Title : TERPREDOXIN FROM PSEUDOMONAS SP.  
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Deposited on : 1999-02-15

This is a Full wwPDB NMR Structure 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/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
RCI : v\_1n\_11\_5\_13\_A (Berjanski et al., 2005)  
PANAV : Wang et al. (2010)  
ShiftChecker : 2.26  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.26

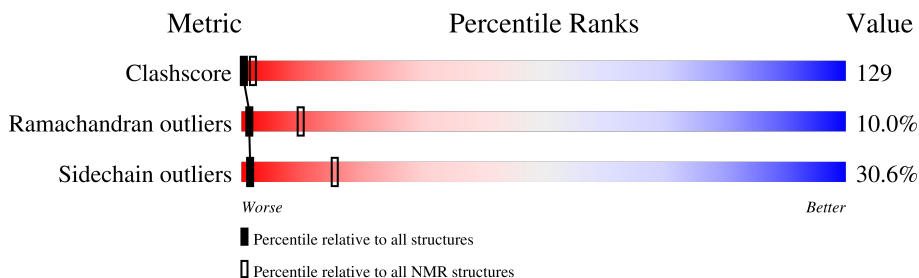
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment was not calculated.

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) | NMR archive (#Entries) |
|-----------------------|--------------------------|------------------------|
| Clashscore            | 158937                   | 12864                  |
| Ramachandran outliers | 154571                   | 11451                  |
| Sidechain outliers    | 154315                   | 11428                  |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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  $\leq 5\%$ .

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 105    |                  |

## 2 Ensemble composition and analysis

This entry contains 15 models. Model 6 is the overall representative, medoid model (most similar to other models).

The following residues are included in the computation of the global validation metrics.

| Well-defined (core) protein residues |                       |                   |              |
|--------------------------------------|-----------------------|-------------------|--------------|
| Well-defined core                    | Residue range (total) | Backbone RMSD (Å) | Medoid model |
| 1                                    | A:1-A:102 (102)       | 0.54              | 6            |

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 3 clusters and 1 single-model cluster was found.

| Cluster number        | Models                       |
|-----------------------|------------------------------|
| 1                     | 1, 2, 3, 6, 7, 9, 11, 13, 15 |
| 2                     | 8, 10, 14                    |
| 3                     | 4, 5                         |
| Single-model clusters | 12                           |

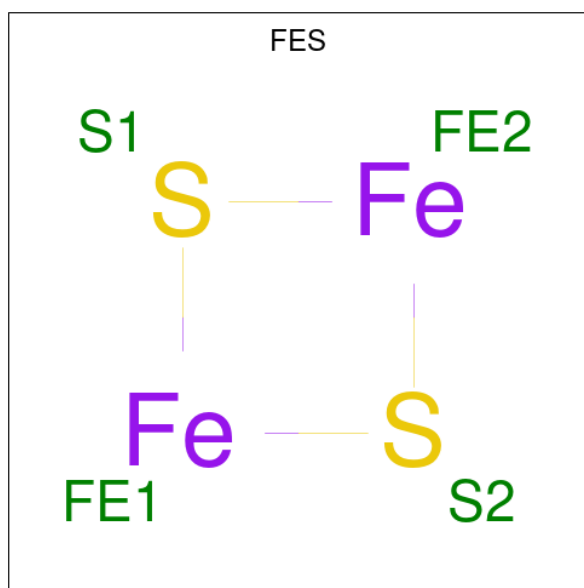
### 3 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 1513 atoms, of which 737 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called PROTEIN (TERPREDOXIN).

| Mol | Chain | Residues | Atoms |     |     |     |     |   | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|-------|
|     |       |          | Total | C   | H   | N   | O   | S |       |
| 1   | A     | 105      | 1509  | 474 | 737 | 127 | 163 | 8 | 0     |

- Molecule 2 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe<sub>2</sub>S<sub>2</sub>).



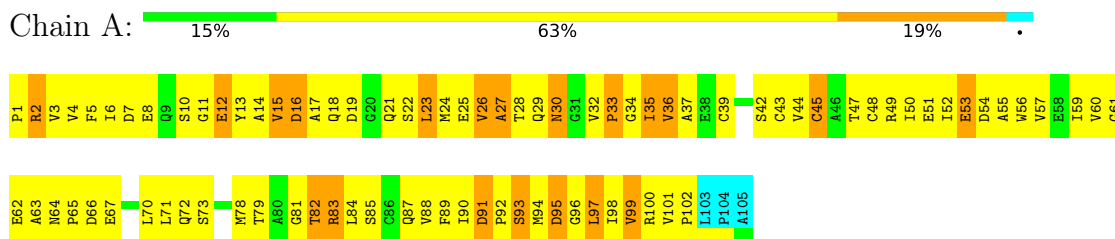
| Mol | Chain | Residues | Atoms |    |   |
|-----|-------|----------|-------|----|---|
|     |       |          | Total | Fe | S |
| 2   | A     | 1        | 4     | 2  | 2 |

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

### 4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-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. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: PROTEIN (TERPREDOXIN)

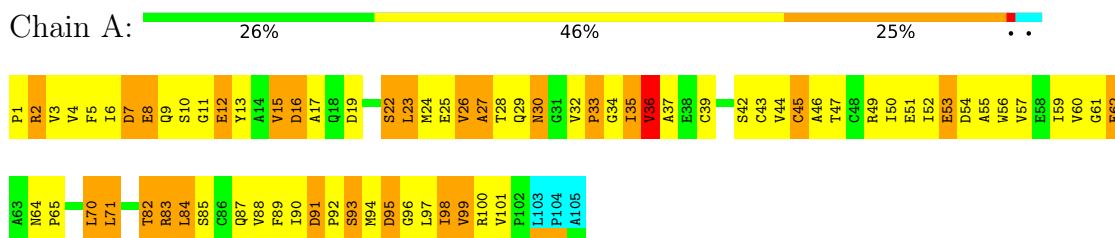


### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

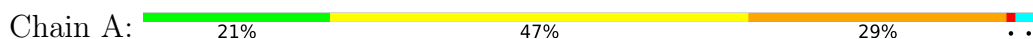
#### 4.2.1 Score per residue for model 1

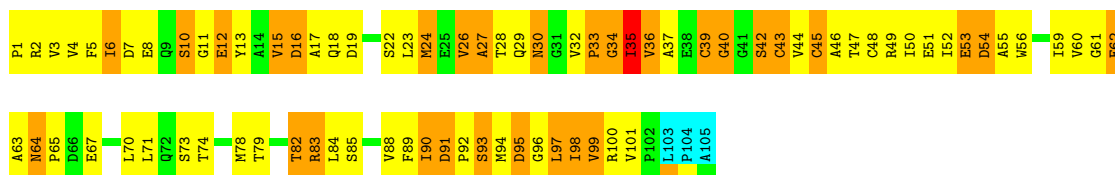
- Molecule 1: PROTEIN (TERPREDOXIN)



#### 4.2.2 Score per residue for model 2

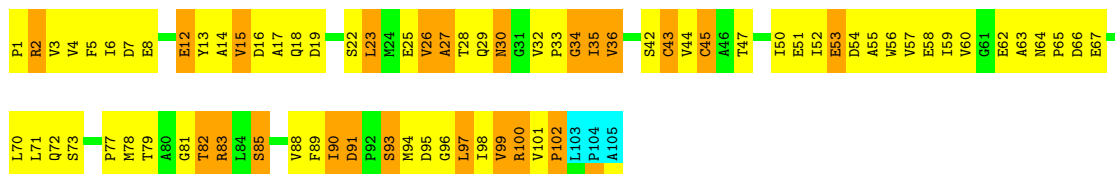
- Molecule 1: PROTEIN (TERPREDOXIN)





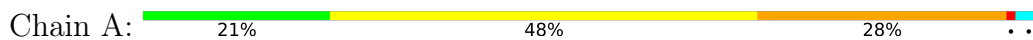
### 4.2.3 Score per residue for model 3

- Molecule 1: PROTEIN (TERPREDOXIN)



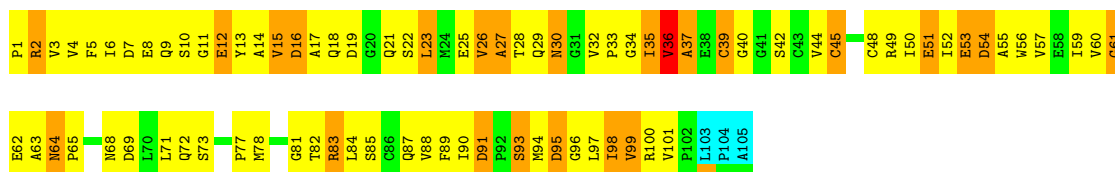
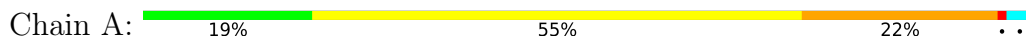
### 4.2.4 Score per residue for model 4

- Molecule 1: PROTEIN (TERPREDOXIN)



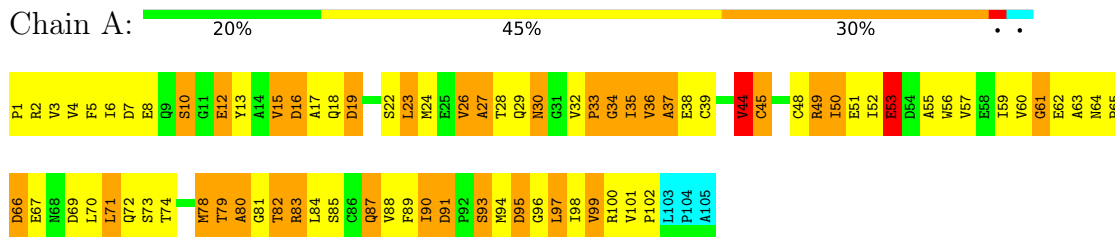
### 4.2.5 Score per residue for model 5

- Molecule 1: PROTEIN (TERPREDOXIN)



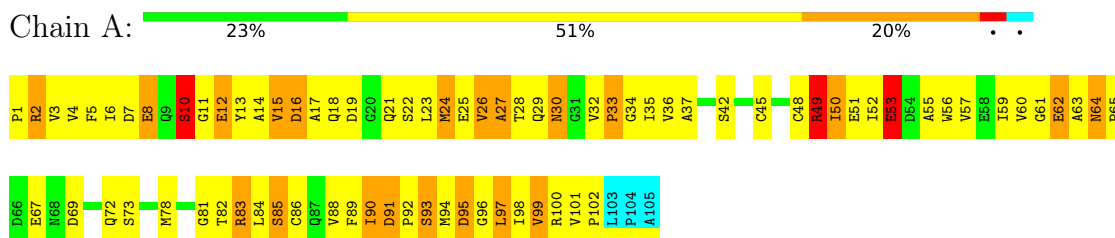
### 4.2.6 Score per residue for model 6 (medoid)

- Molecule 1: PROTEIN (TERPREDOXIN)



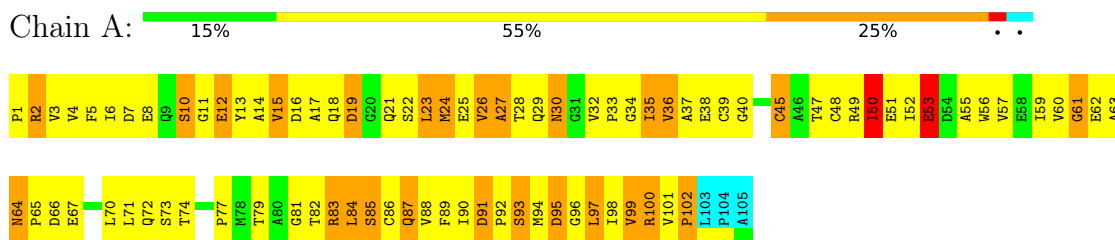
#### 4.2.7 Score per residue for model 7

- Molecule 1: PROTEIN (TERPREDOXIN)



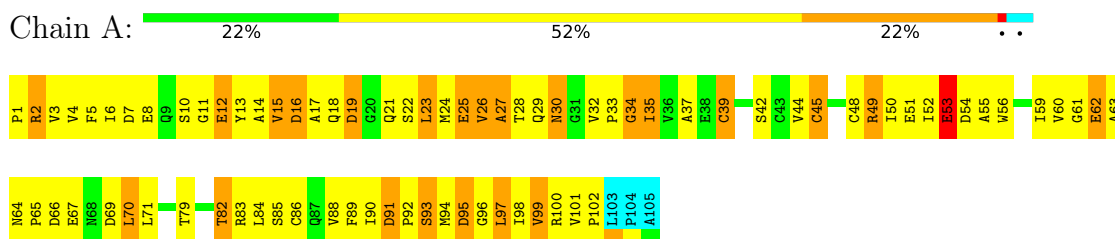
#### 4.2.8 Score per residue for model 8

- Molecule 1: PROTEIN (TERPREDOXIN)



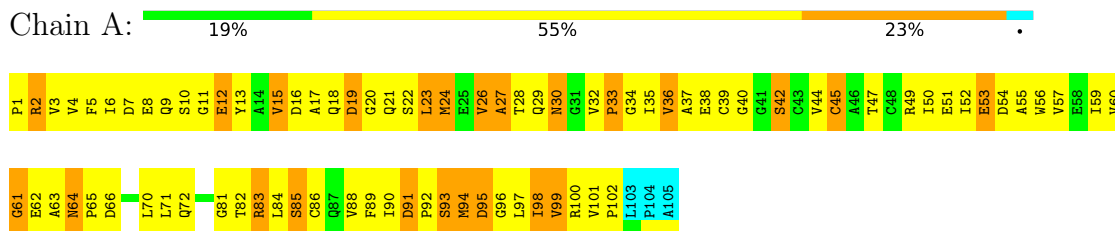
#### 4.2.9 Score per residue for model 9

- Molecule 1: PROTEIN (TERPREDOXIN)



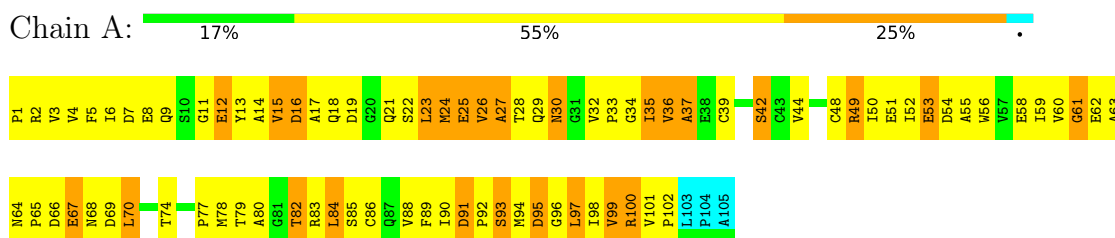
#### 4.2.10 Score per residue for model 10

- Molecule 1: PROTEIN (TERPREDOXIN)



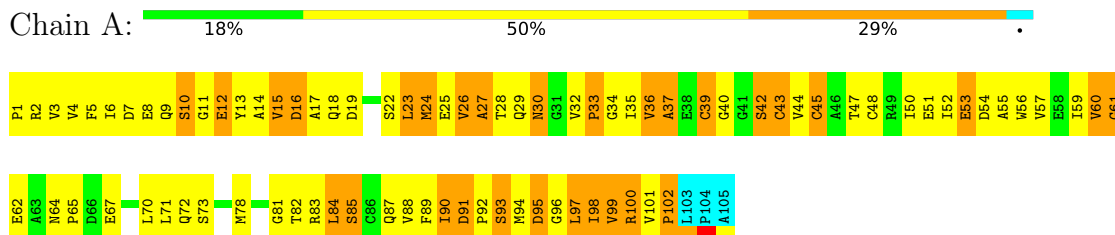
#### 4.2.11 Score per residue for model 11

- Molecule 1: PROTEIN (TERPREDOXIN)



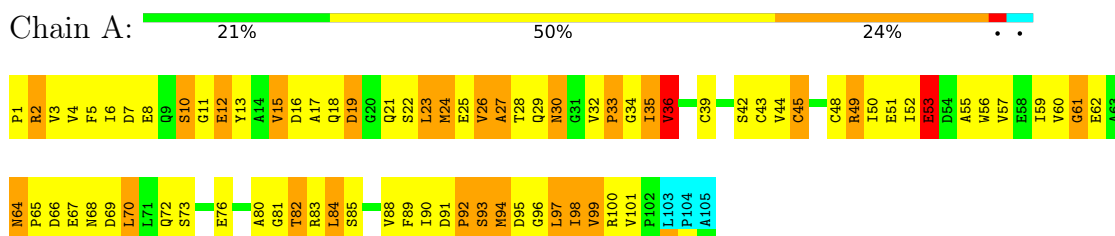
#### 4.2.12 Score per residue for model 12

- Molecule 1: PROTEIN (TERPREDOXIN)



#### 4.2.13 Score per residue for model 13

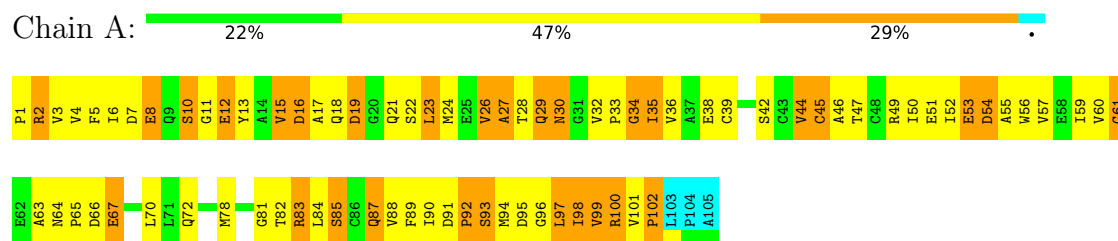
- Molecule 1: PROTEIN (TERPREDOXIN)





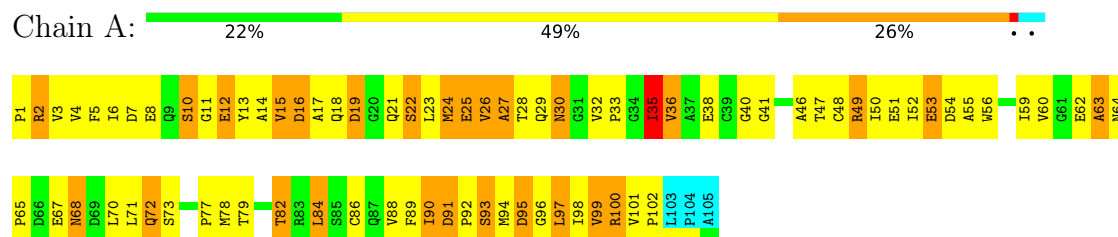
#### 4.2.14 Score per residue for model 14

- Molecule 1: PROTEIN (TERPREDOXIN)



#### 4.2.15 Score per residue for model 15

- Molecule 1: PROTEIN (TERPREDOXIN)



## 5 Refinement protocol and experimental data overview

The models were refined using the following method: *distance geometry*.

Of the 150 calculated structures, 15 were deposited, based on the following criterion: *LEAST RESTRAINT VIOLATION*.

The following table shows the software used for structure solution, optimisation and refinement.

| Software name | Classification     | Version |
|---------------|--------------------|---------|
| X-PLOR        | refinement         | 3.85    |
| XPLOR         | structure solution |         |

No chemical shift data was provided.

## 6 Model quality i

### 6.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: FES

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 6.2 Too-close contacts i

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each 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 averaged over the ensemble.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|-----|-------|-------|----------|----------|---------|
| 1   | A     | 751   | 714      | 714      | 189±9   |
| 2   | A     | 4     | 0        | 0        | 1±1     |
| All | All   | 11325 | 10710    | 10710    | 2838    |

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 129.

All unique clashes are listed below, sorted by their clash magnitude.

| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:HD13 | 1.07     | 1.27        | 12     | 4     |
| 1:A:23:LEU:HD13 | 1:A:99:VAL:HG11 | 1.06     | 1.08        | 14     | 3     |
| 1:A:56:TRP:NE1  | 1:A:98:ILE:HD13 | 1.04     | 1.67        | 5      | 15    |
| 1:A:15:VAL:HG21 | 1:A:30:ASN:OD1  | 1.02     | 1.55        | 4      | 15    |
| 1:A:51:GLU:CG   | 1:A:82:THR:HG23 | 0.97     | 1.89        | 2      | 8     |
| 1:A:52:ILE:HG22 | 1:A:53:GLU:OE1  | 0.96     | 1.61        | 13     | 6     |
| 1:A:3:VAL:HG12  | 1:A:15:VAL:HG12 | 0.95     | 1.35        | 10     | 15    |
| 1:A:23:LEU:HD13 | 1:A:99:VAL:CG1  | 0.95     | 1.91        | 14     | 3     |
| 1:A:97:LEU:HD22 | 1:A:98:ILE:N    | 0.94     | 1.77        | 8      | 2     |
| 1:A:23:LEU:CD1  | 1:A:99:VAL:HG11 | 0.94     | 1.91        | 10     | 3     |
| 1:A:23:LEU:HD23 | 1:A:85:SER:CB   | 0.94     | 1.93        | 6      | 1     |

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| Atom-1          | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|-----------------|------------------|----------|-------------|--------|-------|
|                 |                  |          |             | Worst  | Total |
| 1:A:97:LEU:C    | 1:A:98:ILE:HD12  | 0.93     | 1.84        | 5      | 15    |
| 1:A:94:MET:CB   | 1:A:97:LEU:HD21  | 0.93     | 1.92        | 5      | 1     |
| 1:A:23:LEU:HD11 | 1:A:97:LEU:HD11  | 0.93     | 1.37        | 12     | 4     |
| 1:A:3:VAL:CG2   | 1:A:97:LEU:HD13  | 0.92     | 1.95        | 12     | 4     |
| 1:A:3:VAL:HG12  | 1:A:15:VAL:CG1   | 0.91     | 1.95        | 11     | 15    |
| 1:A:23:LEU:HD11 | 1:A:97:LEU:HD21  | 0.90     | 1.42        | 7      | 6     |
| 1:A:32:VAL:HG12 | 1:A:33:PRO:HD2   | 0.87     | 1.46        | 11     | 7     |
| 1:A:60:VAL:HG13 | 1:A:94:MET:CE    | 0.86     | 2.01        | 8      | 5     |
| 1:A:94:MET:CG   | 1:A:97:LEU:HD21  | 0.85     | 2.00        | 5      | 1     |
| 1:A:6:ILE:O     | 1:A:101:VAL:HG23 | 0.85     | 1.70        | 13     | 15    |
| 1:A:5:PHE:O     | 1:A:6:ILE:HD13   | 0.84     | 1.72        | 2      | 12    |
| 1:A:98:ILE:HD12 | 1:A:98:ILE:N     | 0.84     | 1.88        | 13     | 14    |
| 1:A:6:ILE:HD12  | 1:A:99:VAL:O     | 0.83     | 1.73        | 9      | 3     |
| 1:A:56:TRP:CE3  | 1:A:97:LEU:HD12  | 0.83     | 2.09        | 10     | 1     |
| 1:A:60:VAL:HG22 | 1:A:94:MET:HG2   | 0.82     | 1.48        | 8      | 12    |
| 1:A:88:VAL:HG13 | 1:A:94:MET:HE1   | 0.82     | 1.51        | 8      | 1     |
| 1:A:56:TRP:O    | 1:A:60:VAL:HG23  | 0.82     | 1.74        | 15     | 9     |
| 1:A:15:VAL:HG21 | 1:A:30:ASN:CG    | 0.81     | 1.94        | 10     | 15    |
| 1:A:60:VAL:HG22 | 1:A:94:MET:SD    | 0.81     | 2.15        | 5      | 2     |
| 1:A:23:LEU:HD23 | 1:A:85:SER:HB2   | 0.81     | 1.52        | 6      | 1     |
| 1:A:62:GLU:CB   | 1:A:88:VAL:HG21  | 0.80     | 2.06        | 2      | 2     |
| 1:A:56:TRP:CE3  | 1:A:97:LEU:HD23  | 0.80     | 2.10        | 5      | 1     |
| 1:A:98:ILE:N    | 1:A:98:ILE:HD12  | 0.80     | 1.90        | 8      | 1     |
| 1:A:36:VAL:HG11 | 1:A:50:ILE:HG12  | 0.79     | 1.53        | 15     | 1     |
| 1:A:42:SER:O    | 1:A:44:VAL:HG23  | 0.79     | 1.76        | 10     | 5     |
| 1:A:36:VAL:HG12 | 1:A:48:CYS:HA    | 0.79     | 1.55        | 15     | 2     |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:HG    | 0.78     | 1.55        | 15     | 7     |
| 1:A:94:MET:HG2  | 1:A:97:LEU:HD11  | 0.78     | 1.55        | 13     | 1     |
| 1:A:15:VAL:HG22 | 1:A:16:ASP:H     | 0.78     | 1.37        | 5      | 15    |
| 1:A:5:PHE:CE2   | 1:A:23:LEU:HD12  | 0.78     | 2.14        | 6      | 2     |
| 1:A:97:LEU:HD22 | 1:A:97:LEU:C     | 0.78     | 1.99        | 12     | 2     |
| 1:A:50:ILE:HD12 | 1:A:85:SER:CB    | 0.78     | 2.08        | 4      | 2     |
| 1:A:60:VAL:CG1  | 1:A:88:VAL:HG11  | 0.78     | 2.08        | 7      | 6     |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:HB2   | 0.77     | 1.54        | 5      | 2     |
| 1:A:39:CYS:HB2  | 1:A:44:VAL:HG22  | 0.77     | 1.56        | 12     | 2     |
| 1:A:23:LEU:HD23 | 1:A:52:ILE:HD11  | 0.77     | 1.54        | 1      | 3     |
| 1:A:56:TRP:CE2  | 1:A:98:ILE:HD13  | 0.77     | 2.14        | 10     | 15    |
| 1:A:32:VAL:HG12 | 1:A:33:PRO:CD    | 0.76     | 2.10        | 11     | 7     |
| 1:A:23:LEU:HD12 | 1:A:99:VAL:HG13  | 0.76     | 1.56        | 8      | 1     |
| 1:A:59:ILE:HG23 | 1:A:93:SER:O     | 0.75     | 1.81        | 14     | 14    |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:CD1   | 0.75     | 2.12        | 8      | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:60:VAL:HG13 | 1:A:94:MET:HE1  | 0.74     | 1.59        | 13     | 2     |
| 1:A:23:LEU:HD22 | 1:A:99:VAL:HG11 | 0.74     | 1.59        | 6      | 1     |
| 1:A:2:ARG:O     | 1:A:3:VAL:HG23  | 0.73     | 1.84        | 12     | 15    |
| 1:A:44:VAL:HG12 | 1:A:44:VAL:O    | 0.73     | 1.83        | 9      | 6     |
| 1:A:49:ARG:O    | 1:A:50:ILE:HD13 | 0.73     | 1.83        | 14     | 2     |
| 1:A:94:MET:O    | 1:A:97:LEU:HD12 | 0.73     | 1.83        | 3      | 2     |
| 1:A:35:ILE:HG22 | 1:A:36:VAL:HG22 | 0.72     | 1.61        | 14     | 2     |
| 1:A:13:TYR:CE2  | 1:A:33:PRO:CD   | 0.72     | 2.73        | 7      | 8     |
| 1:A:36:VAL:HG22 | 1:A:37:ALA:N    | 0.72     | 1.98        | 1      | 1     |
| 1:A:60:VAL:HG13 | 1:A:94:MET:HE3  | 0.72     | 1.61        | 4      | 3     |
| 1:A:70:LEU:O    | 1:A:74:THR:HG23 | 0.72     | 1.83        | 4      | 2     |
| 1:A:98:ILE:N    | 1:A:98:ILE:CD1  | 0.71     | 2.53        | 10     | 15    |
| 1:A:35:ILE:HG22 | 1:A:36:VAL:CG2  | 0.71     | 2.15        | 3      | 1     |
| 1:A:94:MET:HB3  | 1:A:97:LEU:HD21 | 0.71     | 1.61        | 5      | 2     |
| 1:A:46:ALA:HB1  | 1:A:71:LEU:HD11 | 0.71     | 1.63        | 15     | 1     |
| 1:A:48:CYS:O    | 1:A:50:ILE:HD12 | 0.71     | 1.86        | 2      | 1     |
| 1:A:23:LEU:C    | 1:A:23:LEU:HD23 | 0.70     | 2.07        | 8      | 1     |
| 1:A:1:PRO:HB3   | 1:A:95:ASP:HA   | 0.70     | 1.64        | 5      | 15    |
| 1:A:23:LEU:HD13 | 1:A:99:VAL:CB   | 0.70     | 2.16        | 6      | 2     |
| 1:A:35:ILE:HG21 | 1:A:50:ILE:HD11 | 0.69     | 1.63        | 9      | 1     |
| 1:A:4:VAL:O     | 1:A:99:VAL:N    | 0.69     | 2.25        | 10     | 15    |
| 1:A:67:GLU:HA   | 1:A:70:LEU:HD23 | 0.69     | 1.65        | 9      | 3     |
| 1:A:32:VAL:O    | 1:A:34:GLY:N    | 0.69     | 2.25        | 4      | 7     |
| 1:A:53:GLU:HG3  | 1:A:98:ILE:HB   | 0.69     | 1.64        | 13     | 6     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:HG2  | 0.69     | 1.63        | 6      | 2     |
| 1:A:23:LEU:CD2  | 1:A:99:VAL:HG11 | 0.68     | 2.18        | 6      | 1     |
| 1:A:52:ILE:HD12 | 1:A:60:VAL:HG21 | 0.68     | 1.64        | 2      | 7     |
| 1:A:27:ALA:HA   | 1:A:32:VAL:CG2  | 0.68     | 2.19        | 8      | 15    |
| 1:A:36:VAL:O    | 1:A:36:VAL:HG13 | 0.68     | 1.86        | 12     | 1     |
| 1:A:36:VAL:HG12 | 1:A:48:CYS:CA   | 0.68     | 2.19        | 15     | 1     |
| 1:A:36:VAL:HG11 | 1:A:50:ILE:CG1  | 0.68     | 2.19        | 15     | 1     |
| 1:A:35:ILE:HG22 | 1:A:36:VAL:HG12 | 0.67     | 1.65        | 6      | 2     |
| 1:A:23:LEU:HD21 | 1:A:85:SER:HA   | 0.67     | 1.66        | 8      | 1     |
| 1:A:6:ILE:HG12  | 1:A:99:VAL:O    | 0.67     | 1.89        | 14     | 12    |
| 1:A:60:VAL:HG13 | 1:A:88:VAL:HG11 | 0.67     | 1.65        | 7      | 3     |
| 1:A:88:VAL:HG13 | 1:A:94:MET:CE   | 0.67     | 2.19        | 8      | 1     |
| 1:A:35:ILE:O    | 1:A:35:ILE:HG22 | 0.67     | 1.87        | 13     | 5     |
| 1:A:23:LEU:HD11 | 1:A:97:LEU:CD2  | 0.67     | 2.18        | 7      | 3     |
| 1:A:56:TRP:CE3  | 1:A:97:LEU:CD1  | 0.67     | 2.78        | 10     | 1     |
| 1:A:62:GLU:CG   | 1:A:88:VAL:HG21 | 0.66     | 2.19        | 9      | 2     |
| 1:A:94:MET:HG2  | 1:A:97:LEU:HD21 | 0.66     | 1.66        | 5      | 1     |

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| Atom-1          | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|-----------------|------------------|----------|-------------|--------|-------|
|                 |                  |          |             | Worst  | Total |
| 1:A:5:PHE:CD1   | 1:A:99:VAL:CG2   | 0.66     | 2.78        | 2      | 14    |
| 1:A:13:TYR:CE2  | 1:A:33:PRO:HD3   | 0.66     | 2.26        | 8      | 15    |
| 1:A:60:VAL:HG11 | 1:A:88:VAL:HG11  | 0.66     | 1.68        | 3      | 2     |
| 1:A:71:LEU:O    | 1:A:74:THR:HG23  | 0.66     | 1.91        | 2      | 2     |
| 1:A:3:VAL:CG1   | 1:A:15:VAL:CG1   | 0.66     | 2.74        | 12     | 15    |
| 1:A:97:LEU:C    | 1:A:97:LEU:HD22  | 0.65     | 2.11        | 3      | 2     |
| 1:A:50:ILE:HD12 | 1:A:85:SER:HB3   | 0.65     | 1.68        | 12     | 3     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:NE    | 0.65     | 2.06        | 4      | 6     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:HD3   | 0.65     | 1.68        | 14     | 3     |
| 1:A:35:ILE:HG13 | 1:A:101:VAL:HG11 | 0.65     | 1.68        | 8      | 1     |
| 1:A:94:MET:HB3  | 1:A:97:LEU:HD11  | 0.65     | 1.68        | 5      | 2     |
| 1:A:27:ALA:HA   | 1:A:32:VAL:HG21  | 0.65     | 1.68        | 15     | 15    |
| 1:A:56:TRP:CZ2  | 1:A:96:GLY:O     | 0.65     | 2.50        | 10     | 15    |
| 1:A:53:GLU:CD   | 1:A:56:TRP:CD1   | 0.65     | 2.70        | 13     | 6     |
| 1:A:23:LEU:HD22 | 1:A:99:VAL:CG1   | 0.65     | 2.20        | 6      | 1     |
| 1:A:94:MET:CG   | 1:A:97:LEU:HD11  | 0.65     | 2.21        | 13     | 1     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:CD    | 0.65     | 2.21        | 4      | 4     |
| 1:A:5:PHE:CZ    | 1:A:26:VAL:HB    | 0.65     | 2.26        | 3      | 15    |
| 1:A:13:TYR:CZ   | 1:A:33:PRO:CD    | 0.65     | 2.80        | 2      | 8     |
| 1:A:46:ALA:HB1  | 1:A:71:LEU:CD2   | 0.65     | 2.21        | 1      | 1     |
| 1:A:83:ARG:NH2  | 1:A:88:VAL:HG21  | 0.65     | 2.06        | 13     | 1     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:HG3   | 0.64     | 1.69        | 2      | 1     |
| 1:A:7:ASP:OD2   | 1:A:101:VAL:HG21 | 0.64     | 1.93        | 13     | 2     |
| 1:A:36:VAL:O    | 1:A:37:ALA:HB3   | 0.64     | 1.93        | 5      | 2     |
| 1:A:13:TYR:CE2  | 1:A:33:PRO:HD2   | 0.63     | 2.28        | 4      | 8     |
| 1:A:13:TYR:CD2  | 1:A:32:VAL:HA    | 0.63     | 2.28        | 9      | 15    |
| 1:A:26:VAL:O    | 1:A:30:ASN:OD1   | 0.63     | 2.16        | 4      | 15    |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:HD22  | 0.63     | 1.68        | 3      | 2     |
| 1:A:32:VAL:CG1  | 1:A:33:PRO:CD    | 0.63     | 2.76        | 3      | 7     |
| 1:A:59:ILE:HG22 | 1:A:94:MET:CG    | 0.63     | 2.23        | 1      | 1     |
| 1:A:63:ALA:HB3  | 1:A:67:GLU:OE1   | 0.63     | 1.94        | 9      | 1     |
| 1:A:37:ALA:HB1  | 1:A:45:CYS:SG    | 0.63     | 2.33        | 9      | 2     |
| 1:A:39:CYS:HB2  | 1:A:44:VAL:HG12  | 0.63     | 1.69        | 1      | 2     |
| 1:A:3:VAL:CG2   | 1:A:97:LEU:CD1   | 0.63     | 2.76        | 12     | 4     |
| 1:A:63:ALA:HB3  | 1:A:67:GLU:CB    | 0.63     | 2.23        | 3      | 1     |
| 1:A:38:GLU:HG3  | 1:A:47:THR:HG21  | 0.63     | 1.69        | 10     | 1     |
| 1:A:7:ASP:OD1   | 1:A:101:VAL:HG21 | 0.63     | 1.93        | 10     | 1     |
| 1:A:97:LEU:C    | 1:A:97:LEU:CD2   | 0.63     | 2.67        | 3      | 4     |
| 1:A:5:PHE:CD1   | 1:A:99:VAL:HG21  | 0.62     | 2.29        | 8      | 5     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:CD    | 0.62     | 2.15        | 8      | 1     |
| 1:A:1:PRO:HG2   | 1:A:90:ILE:CG2   | 0.62     | 2.25        | 13     | 15    |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:5:PHE:HE2   | 1:A:27:ALA:HB2  | 0.62     | 1.54        | 11     | 15    |
| 1:A:23:LEU:HD23 | 1:A:52:ILE:CD1  | 0.62     | 2.24        | 1      | 1     |
| 1:A:53:GLU:OE2  | 1:A:56:TRP:CD1  | 0.62     | 2.53        | 8      | 6     |
| 1:A:51:GLU:HG2  | 1:A:82:THR:HG23 | 0.62     | 1.72        | 2      | 1     |
| 1:A:23:LEU:HD21 | 1:A:50:ILE:CG2  | 0.62     | 2.25        | 6      | 2     |
| 1:A:23:LEU:HD11 | 1:A:50:ILE:HG21 | 0.62     | 1.72        | 8      | 1     |
| 1:A:56:TRP:O    | 1:A:60:VAL:N    | 0.61     | 2.32        | 5      | 15    |
| 1:A:60:VAL:HG22 | 1:A:97:LEU:HD21 | 0.61     | 1.72        | 1      | 1     |
| 1:A:37:ALA:HB3  | 2:A:106:FES:S2  | 0.61     | 2.36        | 2      | 1     |
| 1:A:60:VAL:HG13 | 1:A:94:MET:SD   | 0.61     | 2.35        | 5      | 5     |
| 1:A:22:SER:HA   | 1:A:88:VAL:O    | 0.61     | 1.93        | 4      | 11    |
| 1:A:17:ALA:HB3  | 1:A:90:ILE:CD1  | 0.61     | 2.25        | 2      | 15    |
| 1:A:63:ALA:HB3  | 1:A:67:GLU:HB3  | 0.61     | 1.71        | 3      | 1     |
| 1:A:23:LEU:CD2  | 1:A:52:ILE:CD1  | 0.61     | 2.78        | 11     | 2     |
| 1:A:56:TRP:HA   | 1:A:59:ILE:HD12 | 0.61     | 1.73        | 6      | 15    |
| 1:A:26:VAL:O    | 1:A:29:GLN:N    | 0.61     | 2.34        | 9      | 15    |
| 1:A:59:ILE:HG22 | 1:A:94:MET:HG2  | 0.60     | 1.71        | 1      | 1     |
| 1:A:56:TRP:CE2  | 1:A:98:ILE:CD1  | 0.60     | 2.83        | 1      | 15    |
| 1:A:56:TRP:HE1  | 1:A:98:ILE:HD13 | 0.60     | 1.53        | 5      | 12    |
| 1:A:1:PRO:CB    | 1:A:95:ASP:HA   | 0.60     | 2.27        | 10     | 15    |
| 1:A:91:ASP:O    | 1:A:93:SER:N    | 0.60     | 2.34        | 13     | 15    |
| 1:A:35:ILE:O    | 1:A:36:VAL:HG12 | 0.60     | 1.96        | 8      | 1     |
| 1:A:23:LEU:CG   | 1:A:99:VAL:HG11 | 0.60     | 2.27        | 6      | 2     |
| 1:A:5:PHE:CE2   | 1:A:23:LEU:O    | 0.60     | 2.55        | 5      | 12    |
| 1:A:62:GLU:HB3  | 1:A:88:VAL:HG21 | 0.60     | 1.72        | 2      | 2     |
| 1:A:64:ASN:HB2  | 1:A:65:PRO:CD   | 0.60     | 2.27        | 9      | 12    |
| 1:A:64:ASN:CB   | 1:A:65:PRO:CD   | 0.60     | 2.80        | 14     | 12    |
| 1:A:57:VAL:HG13 | 1:A:81:GLY:HA2  | 0.60     | 1.73        | 3      | 3     |
| 1:A:26:VAL:HG12 | 1:A:30:ASN:OD1  | 0.59     | 1.97        | 3      | 15    |
| 1:A:23:LEU:CD1  | 1:A:23:LEU:N    | 0.59     | 2.65        | 11     | 2     |
| 1:A:23:LEU:CD1  | 1:A:97:LEU:HD21 | 0.59     | 2.24        | 7      | 3     |
| 1:A:53:GLU:OE2  | 1:A:98:ILE:O    | 0.59     | 2.20        | 13     | 6     |
| 1:A:67:GLU:OE1  | 1:A:84:LEU:HD11 | 0.59     | 1.98        | 4      | 1     |
| 1:A:23:LEU:HD12 | 1:A:99:VAL:CG1  | 0.59     | 2.25        | 8      | 1     |
| 1:A:1:PRO:CD    | 1:A:90:ILE:HG21 | 0.59     | 2.27        | 1      | 15    |
| 1:A:16:ASP:O    | 1:A:26:VAL:CG1  | 0.59     | 2.50        | 9      | 15    |
| 1:A:51:GLU:HG3  | 1:A:82:THR:HG23 | 0.59     | 1.75        | 6      | 2     |
| 1:A:5:PHE:CZ    | 1:A:23:LEU:O    | 0.59     | 2.55        | 8      | 8     |
| 1:A:63:ALA:CB   | 1:A:67:GLU:CB   | 0.59     | 2.80        | 3      | 1     |
| 1:A:27:ALA:HB1  | 1:A:32:VAL:HB   | 0.59     | 1.74        | 6      | 14    |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:CG   | 0.59     | 2.28        | 15     | 7     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:12:GLU:O    | 1:A:13:TYR:CD1  | 0.59     | 2.56        | 2      | 15    |
| 1:A:6:ILE:HG22  | 1:A:7:ASP:N     | 0.59     | 2.13        | 7      | 8     |
| 1:A:35:ILE:HD12 | 1:A:35:ILE:N    | 0.59     | 2.13        | 14     | 2     |
| 1:A:52:ILE:CG2  | 1:A:53:GLU:OE1  | 0.59     | 2.51        | 9      | 3     |
| 1:A:51:GLU:CD   | 1:A:82:THR:HG23 | 0.58     | 2.18        | 2      | 1     |
| 1:A:60:VAL:CG1  | 1:A:88:VAL:CG1  | 0.58     | 2.80        | 3      | 2     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:HE   | 0.58     | 1.58        | 11     | 2     |
| 1:A:23:LEU:CG   | 1:A:97:LEU:HD11 | 0.58     | 2.28        | 7      | 2     |
| 1:A:3:VAL:CG1   | 1:A:15:VAL:HG12 | 0.58     | 2.21        | 10     | 3     |
| 1:A:30:ASN:HB2  | 1:A:32:VAL:CG2  | 0.58     | 2.29        | 14     | 15    |
| 1:A:5:PHE:CE1   | 1:A:99:VAL:HG21 | 0.58     | 2.34        | 1      | 12    |
| 1:A:83:ARG:NH1  | 1:A:88:VAL:HG22 | 0.58     | 2.12        | 1      | 1     |
| 1:A:30:ASN:HB2  | 1:A:32:VAL:HG23 | 0.58     | 1.76        | 7      | 15    |
| 1:A:5:PHE:O     | 1:A:6:ILE:HG13  | 0.58     | 1.99        | 7      | 3     |
| 1:A:86:CYS:O    | 1:A:89:PHE:CZ   | 0.58     | 2.57        | 10     | 2     |
| 1:A:3:VAL:O     | 1:A:15:VAL:O    | 0.57     | 2.22        | 2      | 15    |
| 1:A:51:GLU:O    | 1:A:100:ARG:N   | 0.57     | 2.37        | 2      | 12    |
| 1:A:1:PRO:HB3   | 1:A:95:ASP:CA   | 0.57     | 2.28        | 1      | 15    |
| 1:A:90:ILE:HD11 | 1:A:97:LEU:CD2  | 0.57     | 2.30        | 6      | 5     |
| 1:A:56:TRP:CE3  | 1:A:97:LEU:HB2  | 0.57     | 2.34        | 12     | 1     |
| 1:A:13:TYR:CZ   | 1:A:33:PRO:HD3  | 0.57     | 2.35        | 1      | 7     |
| 1:A:17:ALA:HB1  | 1:A:90:ILE:HG13 | 0.57     | 1.76        | 5      | 15    |
| 1:A:35:ILE:C    | 1:A:36:VAL:HG12 | 0.57     | 2.19        | 8      | 2     |
| 1:A:3:VAL:CG2   | 1:A:97:LEU:HD23 | 0.57     | 2.29        | 14     | 5     |
| 1:A:90:ILE:HD13 | 1:A:97:LEU:HD12 | 0.57     | 1.76        | 1      | 1     |
| 1:A:91:ASP:C    | 1:A:93:SER:H    | 0.57     | 2.02        | 1      | 7     |
| 1:A:13:TYR:CD2  | 1:A:32:VAL:HG13 | 0.57     | 2.34        | 5      | 3     |
| 1:A:71:LEU:HA   | 1:A:74:THR:HG23 | 0.57     | 1.77        | 8      | 1     |
| 1:A:32:VAL:CG1  | 1:A:33:PRO:HD2  | 0.57     | 2.30        | 9      | 12    |
| 1:A:46:ALA:HB1  | 1:A:71:LEU:HD21 | 0.56     | 1.75        | 1      | 1     |
| 1:A:70:LEU:C    | 1:A:70:LEU:HD12 | 0.56     | 2.21        | 1      | 1     |
| 1:A:50:ILE:HG21 | 1:A:85:SER:HB3  | 0.56     | 1.77        | 3      | 2     |
| 1:A:53:GLU:CG   | 1:A:98:ILE:HB   | 0.56     | 2.30        | 8      | 6     |
| 1:A:23:LEU:HD23 | 1:A:24:MET:N    | 0.56     | 2.15        | 8      | 1     |
| 1:A:2:ARG:O     | 1:A:96:GLY:CA   | 0.56     | 2.54        | 13     | 15    |
| 1:A:83:ARG:NH1  | 1:A:88:VAL:CG2  | 0.56     | 2.69        | 6      | 3     |
| 1:A:53:GLU:OE1  | 1:A:53:GLU:O    | 0.56     | 2.23        | 13     | 6     |
| 1:A:88:VAL:HG12 | 1:A:94:MET:CE   | 0.56     | 2.30        | 7      | 2     |
| 1:A:23:LEU:HD12 | 1:A:99:VAL:HG21 | 0.56     | 1.75        | 15     | 1     |
| 1:A:97:LEU:HD22 | 1:A:97:LEU:O    | 0.56     | 2.01        | 9      | 2     |
| 1:A:67:GLU:OE2  | 1:A:71:LEU:HD22 | 0.56     | 2.01        | 3      | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:23:LEU:CD1  | 1:A:99:VAL:CG1  | 0.56     | 2.78        | 14     | 3     |
| 1:A:4:VAL:N     | 1:A:97:LEU:O    | 0.56     | 2.38        | 13     | 4     |
| 1:A:35:ILE:O    | 1:A:36:VAL:HG13 | 0.56     | 2.00        | 14     | 3     |
| 1:A:35:ILE:CG2  | 1:A:36:VAL:N    | 0.56     | 2.68        | 4      | 1     |
| 1:A:83:ARG:CZ   | 1:A:88:VAL:CG2  | 0.56     | 2.84        | 6      | 2     |
| 1:A:1:PRO:N     | 1:A:17:ALA:O    | 0.56     | 2.39        | 1      | 15    |
| 1:A:56:TRP:CD2  | 1:A:97:LEU:HA   | 0.56     | 2.36        | 12     | 9     |
| 1:A:7:ASP:O     | 1:A:11:GLY:N    | 0.55     | 2.39        | 2      | 4     |
| 1:A:23:LEU:HD11 | 1:A:50:ILE:CG2  | 0.55     | 2.30        | 8      | 1     |
| 1:A:84:LEU:CD2  | 1:A:84:LEU:N    | 0.55     | 2.68        | 8      | 1     |
| 1:A:91:ASP:O    | 1:A:94:MET:N    | 0.55     | 2.38        | 13     | 1     |
| 1:A:3:VAL:CG1   | 1:A:4:VAL:N     | 0.55     | 2.70        | 10     | 15    |
| 1:A:22:SER:CB   | 1:A:88:VAL:O    | 0.55     | 2.54        | 4      | 12    |
| 1:A:23:LEU:HD23 | 1:A:99:VAL:HG13 | 0.55     | 1.78        | 5      | 1     |
| 1:A:23:LEU:HD21 | 1:A:50:ILE:HG21 | 0.55     | 1.79        | 6      | 3     |
| 1:A:70:LEU:C    | 1:A:70:LEU:HD23 | 0.55     | 2.20        | 6      | 1     |
| 1:A:55:ALA:HB3  | 1:A:56:TRP:CD1  | 0.55     | 2.36        | 9      | 8     |
| 1:A:59:ILE:CG2  | 1:A:93:SER:O    | 0.55     | 2.54        | 2      | 13    |
| 1:A:24:MET:HB2  | 1:A:36:VAL:HG11 | 0.55     | 1.77        | 12     | 1     |
| 1:A:63:ALA:HB3  | 1:A:67:GLU:OE2  | 0.55     | 2.01        | 15     | 1     |
| 1:A:5:PHE:O     | 1:A:6:ILE:CD1   | 0.55     | 2.55        | 3      | 10    |
| 1:A:88:VAL:HG12 | 1:A:89:PHE:N    | 0.55     | 2.16        | 10     | 4     |
| 1:A:88:VAL:O    | 1:A:89:PHE:CG   | 0.55     | 2.60        | 1      | 3     |
| 1:A:83:ARG:NE   | 1:A:88:VAL:HG23 | 0.55     | 2.17        | 4      | 1     |
| 1:A:35:ILE:O    | 1:A:36:VAL:CB   | 0.55     | 2.54        | 8      | 2     |
| 1:A:55:ALA:O    | 1:A:59:ILE:HD12 | 0.55     | 2.02        | 10     | 13    |
| 1:A:88:VAL:C    | 1:A:89:PHE:CG   | 0.55     | 2.80        | 1      | 3     |
| 1:A:34:GLY:O    | 1:A:36:VAL:N    | 0.55     | 2.40        | 6      | 5     |
| 1:A:60:VAL:HG21 | 1:A:97:LEU:HD21 | 0.55     | 1.78        | 13     | 1     |
| 1:A:3:VAL:O     | 1:A:4:VAL:HG23  | 0.55     | 2.01        | 5      | 8     |
| 1:A:56:TRP:CH2  | 1:A:96:GLY:O    | 0.55     | 2.60        | 9      | 15    |
| 1:A:23:LEU:HD21 | 1:A:50:ILE:CB   | 0.55     | 2.32        | 6      | 2     |
| 1:A:5:PHE:CE2   | 1:A:27:ALA:HB2  | 0.55     | 2.37        | 11     | 14    |
| 1:A:53:GLU:OE1  | 1:A:55:ALA:N    | 0.55     | 2.40        | 1      | 7     |
| 1:A:3:VAL:CG2   | 1:A:97:LEU:CD2  | 0.55     | 2.85        | 14     | 5     |
| 1:A:5:PHE:HB2   | 1:A:13:TYR:HB2  | 0.54     | 1.79        | 1      | 15    |
| 1:A:53:GLU:OE1  | 1:A:54:ASP:N    | 0.54     | 2.40        | 2      | 8     |
| 1:A:61:GLY:O    | 1:A:83:ARG:NH2  | 0.54     | 2.40        | 1      | 1     |
| 1:A:96:GLY:O    | 1:A:98:ILE:CD1  | 0.54     | 2.55        | 10     | 1     |
| 1:A:12:GLU:C    | 1:A:13:TYR:CD1  | 0.54     | 2.80        | 1      | 15    |
| 1:A:94:MET:O    | 1:A:97:LEU:CD1  | 0.54     | 2.55        | 1      | 3     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:88:VAL:C    | 1:A:89:PHE:CD1  | 0.54     | 2.80        | 10     | 6     |
| 1:A:60:VAL:O    | 1:A:62:GLU:N    | 0.54     | 2.39        | 12     | 7     |
| 1:A:70:LEU:HD22 | 1:A:70:LEU:O    | 0.54     | 2.03        | 12     | 1     |
| 1:A:48:CYS:O    | 1:A:50:ILE:N    | 0.54     | 2.41        | 5      | 4     |
| 1:A:2:ARG:O     | 1:A:96:GLY:N    | 0.54     | 2.41        | 5      | 15    |
| 1:A:45:CYS:SG   | 1:A:47:THR:HG22 | 0.54     | 2.43        | 3      | 1     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:CG   | 0.54     | 2.32        | 6      | 2     |
| 1:A:50:ILE:HG21 | 1:A:85:SER:OG   | 0.54     | 2.01        | 9      | 1     |
| 1:A:50:ILE:CD1  | 1:A:85:SER:CB   | 0.54     | 2.86        | 4      | 1     |
| 1:A:1:PRO:HB3   | 1:A:95:ASP:CB   | 0.54     | 2.32        | 3      | 15    |
| 1:A:95:ASP:N    | 1:A:95:ASP:OD1  | 0.54     | 2.41        | 9      | 3     |
| 1:A:36:VAL:HG21 | 1:A:48:CYS:HB3  | 0.54     | 1.80        | 8      | 1     |
| 1:A:1:PRO:CG    | 1:A:95:ASP:OD1  | 0.54     | 2.55        | 3      | 1     |
| 1:A:6:ILE:N     | 1:A:99:VAL:O    | 0.54     | 2.41        | 3      | 7     |
| 1:A:4:VAL:O     | 1:A:98:ILE:HG23 | 0.54     | 2.03        | 12     | 3     |
| 1:A:1:PRO:HB3   | 1:A:95:ASP:HB3  | 0.54     | 1.80        | 15     | 11    |
| 1:A:13:TYR:CE2  | 1:A:32:VAL:HA   | 0.54     | 2.38        | 10     | 14    |
| 1:A:50:ILE:HG21 | 1:A:85:SER:CB   | 0.54     | 2.33        | 3      | 2     |
| 1:A:6:ILE:CG2   | 1:A:7:ASP:N     | 0.54     | 2.71        | 9      | 3     |
| 1:A:53:GLU:OE1  | 1:A:53:GLU:N    | 0.54     | 2.40        | 9      | 3     |
| 1:A:7:ASP:OD2   | 1:A:9:GLN:N     | 0.53     | 2.42        | 1      | 1     |
| 1:A:19:ASP:HA   | 1:A:90:ILE:HG22 | 0.53     | 1.80        | 3      | 15    |
| 1:A:50:ILE:CG2  | 1:A:85:SER:CB   | 0.53     | 2.86        | 3      | 2     |
| 1:A:83:ARG:NH1  | 1:A:88:VAL:HG23 | 0.53     | 2.18        | 10     | 1     |
| 1:A:83:ARG:NH1  | 1:A:84:LEU:O    | 0.53     | 2.41        | 10     | 1     |
| 1:A:53:GLU:HG2  | 1:A:98:ILE:HB   | 0.53     | 1.80        | 11     | 9     |
| 1:A:56:TRP:CD1  | 1:A:56:TRP:N    | 0.53     | 2.77        | 8      | 15    |
| 1:A:44:VAL:O    | 1:A:44:VAL:CG1  | 0.53     | 2.55        | 9      | 1     |
| 1:A:3:VAL:N     | 1:A:15:VAL:O    | 0.53     | 2.39        | 14     | 13    |
| 1:A:56:TRP:NE1  | 1:A:98:ILE:CD1  | 0.53     | 2.61        | 6      | 6     |
| 1:A:36:VAL:O    | 1:A:37:ALA:CB   | 0.53     | 2.57        | 5      | 2     |
| 1:A:36:VAL:O    | 1:A:36:VAL:CG1  | 0.53     | 2.56        | 12     | 1     |
| 1:A:39:CYS:CB   | 1:A:44:VAL:HG12 | 0.53     | 2.33        | 1      | 2     |
| 1:A:34:GLY:O    | 1:A:35:ILE:C    | 0.53     | 2.46        | 11     | 6     |
| 1:A:39:CYS:HB2  | 1:A:44:VAL:HG23 | 0.53     | 1.79        | 6      | 1     |
| 1:A:88:VAL:CG1  | 1:A:89:PHE:N    | 0.53     | 2.72        | 15     | 2     |
| 1:A:94:MET:CB   | 1:A:97:LEU:CD1  | 0.53     | 2.87        | 13     | 1     |
| 1:A:99:VAL:O    | 1:A:100:ARG:HG2 | 0.53     | 2.04        | 10     | 4     |
| 1:A:60:VAL:O    | 1:A:61:GLY:C    | 0.53     | 2.46        | 8      | 9     |
| 1:A:24:MET:O    | 1:A:24:MET:HE3  | 0.53     | 2.03        | 7      | 1     |
| 1:A:97:LEU:CD2  | 1:A:98:ILE:N    | 0.53     | 2.71        | 12     | 2     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:CB   | 0.53     | 2.33        | 10     | 2     |
| 1:A:6:ILE:O     | 1:A:101:VAL:CG2 | 0.53     | 2.54        | 2      | 4     |
| 1:A:6:ILE:CD1   | 1:A:99:VAL:O    | 0.53     | 2.54        | 9      | 3     |
| 1:A:3:VAL:HA    | 1:A:97:LEU:O    | 0.53     | 2.04        | 10     | 14    |
| 1:A:5:PHE:CD1   | 1:A:99:VAL:HG23 | 0.53     | 2.39        | 7      | 12    |
| 1:A:56:TRP:CE3  | 1:A:97:LEU:CB   | 0.53     | 2.92        | 3      | 3     |
| 1:A:91:ASP:OD1  | 1:A:93:SER:CB   | 0.53     | 2.57        | 9      | 3     |
| 1:A:37:ALA:CB   | 1:A:45:CYS:SG   | 0.53     | 2.97        | 12     | 1     |
| 1:A:36:VAL:HG23 | 1:A:37:ALA:N    | 0.53     | 2.18        | 7      | 1     |
| 1:A:6:ILE:CG1   | 1:A:99:VAL:O    | 0.53     | 2.57        | 2      | 5     |
| 1:A:63:ALA:CB   | 1:A:83:ARG:CD   | 0.53     | 2.86        | 11     | 1     |
| 1:A:89:PHE:CD1  | 1:A:89:PHE:N    | 0.52     | 2.75        | 14     | 11    |
| 1:A:1:PRO:HG2   | 1:A:90:ILE:HG23 | 0.52     | 1.80        | 1      | 14    |
| 1:A:90:ILE:HD11 | 1:A:97:LEU:HD23 | 0.52     | 1.80        | 6      | 5     |
| 1:A:23:LEU:HA   | 1:A:26:VAL:HG23 | 0.52     | 1.81        | 14     | 1     |
| 1:A:33:PRO:O    | 1:A:35:ILE:N    | 0.52     | 2.42        | 4      | 5     |
| 1:A:60:VAL:CG1  | 1:A:94:MET:HE3  | 0.52     | 2.34        | 8      | 1     |
| 1:A:90:ILE:CD1  | 1:A:97:LEU:HD23 | 0.52     | 2.34        | 4      | 5     |
| 1:A:28:THR:CG2  | 1:A:35:ILE:CD1  | 0.52     | 2.87        | 4      | 1     |
| 1:A:37:ALA:CB   | 2:A:106:FES:S1  | 0.52     | 2.98        | 4      | 1     |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:HB3  | 0.52     | 1.81        | 10     | 1     |
| 1:A:10:SER:HB3  | 1:A:13:TYR:CE1  | 0.52     | 2.40        | 1      | 7     |
| 1:A:16:ASP:O    | 1:A:26:VAL:HG13 | 0.52     | 2.05        | 14     | 5     |
| 1:A:10:SER:HB2  | 1:A:13:TYR:CZ   | 0.52     | 2.40        | 13     | 3     |
| 1:A:83:ARG:NE   | 1:A:88:VAL:CG2  | 0.52     | 2.73        | 4      | 1     |
| 1:A:83:ARG:CZ   | 1:A:88:VAL:HG21 | 0.52     | 2.35        | 6      | 1     |
| 1:A:35:ILE:HG22 | 1:A:36:VAL:N    | 0.52     | 2.19        | 4      | 3     |
| 1:A:64:ASN:OD1  | 1:A:64:ASN:N    | 0.52     | 2.34        | 13     | 2     |
| 1:A:64:ASN:N    | 1:A:64:ASN:OD1  | 0.52     | 2.42        | 1      | 2     |
| 1:A:64:ASN:CB   | 1:A:65:PRO:HD2  | 0.52     | 2.35        | 10     | 4     |
| 1:A:35:ILE:O    | 1:A:36:VAL:CG1  | 0.52     | 2.58        | 8      | 2     |
| 1:A:62:GLU:OE1  | 1:A:83:ARG:CB   | 0.52     | 2.58        | 2      | 1     |
| 1:A:91:ASP:O    | 1:A:95:ASP:OD1  | 0.51     | 2.28        | 6      | 11    |
| 1:A:83:ARG:CD   | 1:A:88:VAL:HG23 | 0.51     | 2.35        | 3      | 1     |
| 1:A:94:MET:O    | 1:A:97:LEU:HG   | 0.51     | 2.04        | 5      | 1     |
| 1:A:1:PRO:CD    | 1:A:17:ALA:O    | 0.51     | 2.58        | 13     | 14    |
| 1:A:56:TRP:O    | 1:A:59:ILE:N    | 0.51     | 2.43        | 3      | 1     |
| 1:A:36:VAL:HG13 | 1:A:37:ALA:H    | 0.51     | 1.65        | 6      | 1     |
| 1:A:84:LEU:CB   | 1:A:87:GLN:HB2  | 0.51     | 2.35        | 8      | 1     |
| 1:A:82:THR:O    | 1:A:83:ARG:CG   | 0.51     | 2.58        | 9      | 1     |
| 1:A:19:ASP:OD2  | 1:A:92:PRO:CD   | 0.51     | 2.58        | 10     | 1     |

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| Atom-1           | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|------------------|-----------------|----------|-------------|--------|-------|
|                  |                 |          |             | Worst  | Total |
| 1:A:49:ARG:NH1   | 1:A:71:LEU:HD23 | 0.51     | 2.20        | 10     | 1     |
| 1:A:2:ARG:CD     | 1:A:96:GLY:HA2  | 0.51     | 2.35        | 1      | 1     |
| 1:A:91:ASP:N     | 1:A:91:ASP:OD1  | 0.51     | 2.42        | 1      | 1     |
| 1:A:56:TRP:CE3   | 1:A:97:LEU:HA   | 0.51     | 2.41        | 9      | 10    |
| 1:A:5:PHE:CB     | 1:A:13:TYR:HB2  | 0.51     | 2.35        | 13     | 13    |
| 1:A:27:ALA:O     | 1:A:30:ASN:N    | 0.51     | 2.44        | 1      | 14    |
| 1:A:23:LEU:HD21  | 1:A:50:ILE:HB   | 0.51     | 1.83        | 6      | 1     |
| 1:A:7:ASP:HB3    | 1:A:13:TYR:CE1  | 0.51     | 2.41        | 14     | 3     |
| 1:A:15:VAL:CG2   | 1:A:30:ASN:CG   | 0.51     | 2.78        | 6      | 15    |
| 1:A:61:GLY:O     | 1:A:62:GLU:O    | 0.51     | 2.29        | 2      | 3     |
| 1:A:10:SER:HB2   | 1:A:13:TYR:CE1  | 0.51     | 2.40        | 14     | 1     |
| 1:A:37:ALA:CB    | 2:A:106:FES:S2  | 0.51     | 2.98        | 9      | 1     |
| 1:A:99:VAL:O     | 1:A:100:ARG:CG  | 0.51     | 2.59        | 10     | 1     |
| 1:A:90:ILE:CD1   | 1:A:97:LEU:CD2  | 0.51     | 2.89        | 4      | 4     |
| 1:A:50:ILE:CG2   | 1:A:85:SER:HB2  | 0.51     | 2.36        | 11     | 1     |
| 1:A:1:PRO:HD2    | 1:A:90:ILE:HG21 | 0.51     | 1.82        | 1      | 15    |
| 1:A:15:VAL:CG2   | 1:A:16:ASP:H    | 0.51     | 2.14        | 6      | 1     |
| 1:A:23:LEU:HD23  | 1:A:85:SER:OG   | 0.51     | 2.05        | 6      | 1     |
| 1:A:63:ALA:HB3   | 1:A:83:ARG:HD2  | 0.51     | 1.82        | 9      | 1     |
| 1:A:85:SER:OG    | 1:A:86:CYS:N    | 0.51     | 2.43        | 10     | 1     |
| 1:A:36:VAL:O     | 1:A:47:THR:HG23 | 0.51     | 2.06        | 3      | 1     |
| 1:A:90:ILE:CD1   | 1:A:97:LEU:HD12 | 0.51     | 2.36        | 1      | 1     |
| 1:A:63:ALA:N     | 1:A:83:ARG:HE   | 0.51     | 2.04        | 9      | 2     |
| 1:A:57:VAL:HG13  | 1:A:62:GLU:HG3  | 0.51     | 1.82        | 7      | 1     |
| 1:A:83:ARG:O     | 1:A:85:SER:N    | 0.51     | 2.44        | 13     | 1     |
| 1:A:27:ALA:HA    | 1:A:30:ASN:ND2  | 0.50     | 2.21        | 9      | 14    |
| 1:A:33:PRO:O     | 1:A:34:GLY:C    | 0.50     | 2.49        | 6      | 7     |
| 1:A:30:ASN:OD1   | 1:A:30:ASN:N    | 0.50     | 2.43        | 8      | 15    |
| 1:A:53:GLU:CD    | 1:A:53:GLU:N    | 0.50     | 2.65        | 4      | 6     |
| 1:A:88:VAL:CG1   | 1:A:94:MET:CE   | 0.50     | 2.88        | 12     | 4     |
| 1:A:94:MET:CG    | 1:A:97:LEU:CD1  | 0.50     | 2.89        | 13     | 1     |
| 1:A:88:VAL:O     | 1:A:89:PHE:CD1  | 0.50     | 2.65        | 1      | 1     |
| 1:A:64:ASN:OD1   | 1:A:66:ASP:N    | 0.50     | 2.43        | 3      | 1     |
| 1:A:68:ASN:ND2   | 1:A:78:MET:SD   | 0.50     | 2.84        | 15     | 1     |
| 1:A:22:SER:HB2   | 1:A:88:VAL:O    | 0.50     | 2.07        | 10     | 8     |
| 1:A:91:ASP:C     | 1:A:93:SER:N    | 0.50     | 2.65        | 13     | 3     |
| 1:A:53:GLU:OE2   | 1:A:56:TRP:CG   | 0.50     | 2.64        | 13     | 6     |
| 1:A:101:VAL:HG13 | 1:A:102:PRO:HD2 | 0.50     | 1.82        | 4      | 3     |
| 1:A:50:ILE:HG22  | 1:A:51:GLU:H    | 0.50     | 1.67        | 10     | 2     |
| 1:A:24:MET:HB2   | 1:A:36:VAL:HG21 | 0.50     | 1.82        | 12     | 1     |
| 1:A:3:VAL:HG11   | 1:A:5:PHE:CE1   | 0.50     | 2.41        | 10     | 4     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:62:GLU:HB3  | 1:A:88:VAL:CG2  | 0.50     | 2.36        | 9      | 2     |
| 1:A:21:GLN:O    | 1:A:90:ILE:N    | 0.50     | 2.40        | 9      | 5     |
| 1:A:50:ILE:HG23 | 1:A:51:GLU:N    | 0.50     | 2.20        | 7      | 1     |
| 1:A:15:VAL:HG22 | 1:A:16:ASP:N    | 0.50     | 2.19        | 4      | 11    |
| 1:A:22:SER:CA   | 1:A:88:VAL:O    | 0.50     | 2.59        | 4      | 6     |
| 1:A:23:LEU:CD1  | 1:A:97:LEU:HD11 | 0.50     | 2.37        | 7      | 1     |
| 1:A:63:ALA:CB   | 1:A:83:ARG:NE   | 0.50     | 2.74        | 11     | 2     |
| 1:A:24:MET:CE   | 1:A:37:ALA:HB2  | 0.50     | 2.36        | 10     | 1     |
| 1:A:62:GLU:HB2  | 1:A:88:VAL:CG2  | 0.50     | 2.37        | 12     | 1     |
| 1:A:23:LEU:HD23 | 1:A:99:VAL:CG1  | 0.50     | 2.36        | 5      | 1     |
| 1:A:66:ASP:N    | 1:A:66:ASP:OD1  | 0.50     | 2.45        | 6      | 1     |
| 1:A:94:MET:HB3  | 1:A:97:LEU:HD13 | 0.50     | 1.82        | 13     | 1     |
| 1:A:15:VAL:O    | 1:A:16:ASP:OD1  | 0.49     | 2.30        | 14     | 5     |
| 1:A:62:GLU:HG3  | 1:A:94:MET:CE   | 0.49     | 2.37        | 5      | 2     |
| 1:A:68:ASN:O    | 1:A:72:GLN:CG   | 0.49     | 2.59        | 15     | 1     |
| 1:A:2:ARG:O     | 1:A:96:GLY:HA2  | 0.49     | 2.07        | 8      | 14    |
| 1:A:88:VAL:C    | 1:A:89:PHE:CD2  | 0.49     | 2.86        | 1      | 1     |
| 1:A:22:SER:CB   | 1:A:85:SER:O    | 0.49     | 2.60        | 9      | 4     |
| 1:A:62:GLU:CB   | 1:A:88:VAL:CG2  | 0.49     | 2.90        | 9      | 1     |
| 1:A:24:MET:CE   | 1:A:37:ALA:CB   | 0.49     | 2.90        | 10     | 1     |
| 1:A:83:ARG:NH1  | 1:A:87:GLN:HB3  | 0.49     | 2.22        | 14     | 1     |
| 1:A:50:ILE:CG2  | 1:A:51:GLU:N    | 0.49     | 2.75        | 15     | 1     |
| 1:A:68:ASN:ND2  | 1:A:78:MET:CE   | 0.49     | 2.75        | 4      | 1     |
| 1:A:56:TRP:CE3  | 1:A:59:ILE:HG21 | 0.49     | 2.42        | 7      | 8     |
| 1:A:5:PHE:HB2   | 1:A:13:TYR:CB   | 0.49     | 2.38        | 13     | 13    |
| 1:A:7:ASP:O     | 1:A:11:GLY:HA2  | 0.49     | 2.08        | 10     | 12    |
| 1:A:5:PHE:CE1   | 1:A:23:LEU:HD12 | 0.49     | 2.43        | 15     | 3     |
| 1:A:90:ILE:HD11 | 1:A:97:LEU:CD1  | 0.49     | 2.37        | 3      | 1     |
| 1:A:90:ILE:HD13 | 1:A:97:LEU:CD1  | 0.49     | 2.37        | 1      | 1     |
| 1:A:51:GLU:CG   | 1:A:82:THR:CG2  | 0.49     | 2.79        | 2      | 1     |
| 1:A:23:LEU:N    | 1:A:23:LEU:HD13 | 0.49     | 2.22        | 11     | 1     |
| 1:A:66:ASP:O    | 1:A:69:ASP:N    | 0.49     | 2.46        | 13     | 2     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:HB2  | 0.49     | 1.84        | 14     | 1     |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:CD2  | 0.49     | 2.37        | 3      | 2     |
| 1:A:84:LEU:HB2  | 1:A:87:GLN:CB   | 0.49     | 2.38        | 8      | 1     |
| 1:A:23:LEU:HD21 | 1:A:97:LEU:CD1  | 0.49     | 2.38        | 11     | 1     |
| 1:A:57:VAL:HG13 | 1:A:62:GLU:CG   | 0.49     | 2.38        | 7      | 2     |
| 1:A:5:PHE:HA    | 1:A:99:VAL:O    | 0.49     | 2.08        | 6      | 8     |
| 1:A:56:TRP:CH2  | 1:A:96:GLY:C    | 0.49     | 2.86        | 5      | 11    |
| 1:A:2:ARG:HG3   | 1:A:3:VAL:N     | 0.49     | 2.21        | 4      | 5     |
| 1:A:50:ILE:CD1  | 1:A:85:SER:HB3  | 0.49     | 2.36        | 4      | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:36:VAL:HG23 | 1:A:37:ALA:H    | 0.49     | 1.67        | 5      | 1     |
| 1:A:19:ASP:OD2  | 1:A:92:PRO:N    | 0.49     | 2.46        | 10     | 1     |
| 1:A:36:VAL:HG22 | 1:A:48:CYS:HB3  | 0.49     | 1.84        | 12     | 1     |
| 1:A:83:ARG:CZ   | 1:A:83:ARG:HB3  | 0.49     | 2.38        | 12     | 1     |
| 1:A:7:ASP:CG    | 1:A:8:GLU:N     | 0.49     | 2.65        | 1      | 2     |
| 1:A:60:VAL:CG2  | 1:A:97:LEU:CD2  | 0.49     | 2.91        | 1      | 1     |
| 1:A:15:VAL:CG1  | 1:A:26:VAL:HG11 | 0.49     | 2.37        | 14     | 4     |
| 1:A:62:GLU:HB2  | 1:A:88:VAL:HG22 | 0.49     | 1.83        | 12     | 1     |
| 1:A:52:ILE:CG2  | 1:A:56:TRP:HB2  | 0.48     | 2.38        | 5      | 9     |
| 1:A:24:MET:CB   | 1:A:36:VAL:HG21 | 0.48     | 2.38        | 12     | 1     |
| 1:A:99:VAL:HG12 | 1:A:100:ARG:H   | 0.48     | 1.67        | 1      | 4     |
| 1:A:57:VAL:CG1  | 1:A:62:GLU:CD   | 0.48     | 2.81        | 7      | 1     |
| 1:A:60:VAL:HG12 | 1:A:83:ARG:NH1  | 0.48     | 2.23        | 1      | 1     |
| 1:A:91:ASP:OD1  | 1:A:94:MET:SD   | 0.48     | 2.72        | 1      | 2     |
| 1:A:92:PRO:HA   | 1:A:95:ASP:OD1  | 0.48     | 2.09        | 14     | 9     |
| 1:A:63:ALA:CB   | 1:A:83:ARG:HD2  | 0.48     | 2.38        | 11     | 1     |
| 1:A:37:ALA:HB3  | 1:A:45:CYS:SG   | 0.48     | 2.48        | 12     | 1     |
| 1:A:87:GLN:O    | 1:A:89:PHE:CE2  | 0.48     | 2.66        | 1      | 1     |
| 1:A:64:ASN:HB2  | 1:A:65:PRO:HD2  | 0.48     | 1.84        | 2      | 13    |
| 1:A:83:ARG:NH1  | 1:A:88:VAL:HG21 | 0.48     | 2.23        | 6      | 1     |
| 1:A:67:GLU:HG3  | 1:A:87:GLN:CG   | 0.48     | 2.38        | 12     | 1     |
| 1:A:56:TRP:CE2  | 1:A:97:LEU:HA   | 0.48     | 2.44        | 3      | 2     |
| 1:A:60:VAL:CG1  | 1:A:94:MET:CE   | 0.48     | 2.86        | 8      | 1     |
| 1:A:49:ARG:O    | 1:A:102:PRO:CG  | 0.48     | 2.62        | 15     | 1     |
| 1:A:15:VAL:HG13 | 1:A:16:ASP:N    | 0.48     | 2.23        | 3      | 15    |
| 1:A:10:SER:OG   | 1:A:12:GLU:O    | 0.48     | 2.32        | 8      | 2     |
| 1:A:49:ARG:NH1  | 1:A:71:LEU:CD2  | 0.48     | 2.76        | 10     | 1     |
| 1:A:34:GLY:O    | 1:A:35:ILE:O    | 0.48     | 2.31        | 4      | 2     |
| 1:A:57:VAL:HG21 | 1:A:81:GLY:CA   | 0.48     | 2.39        | 7      | 3     |
| 1:A:50:ILE:HG22 | 1:A:51:GLU:N    | 0.48     | 2.24        | 14     | 4     |
| 1:A:3:VAL:N     | 1:A:16:ASP:HA   | 0.47     | 2.24        | 6      | 14    |
| 1:A:5:PHE:O     | 1:A:13:TYR:N    | 0.47     | 2.39        | 7      | 5     |
| 1:A:101:VAL:O   | 1:A:102:PRO:O   | 0.47     | 2.31        | 12     | 3     |
| 1:A:62:GLU:CG   | 1:A:94:MET:HE1  | 0.47     | 2.39        | 5      | 1     |
| 1:A:60:VAL:HG12 | 1:A:88:VAL:HG11 | 0.47     | 1.83        | 7      | 1     |
| 1:A:53:GLU:HB3  | 1:A:98:ILE:CG2  | 0.47     | 2.38        | 12     | 8     |
| 1:A:90:ILE:CD1  | 1:A:97:LEU:CD1  | 0.47     | 2.92        | 3      | 2     |
| 1:A:13:TYR:HB3  | 1:A:32:VAL:HG22 | 0.47     | 1.86        | 4      | 3     |
| 1:A:62:GLU:HA   | 1:A:83:ARG:NE   | 0.47     | 2.24        | 1      | 1     |
| 1:A:18:GLN:NE2  | 1:A:21:GLN:OE1  | 0.47     | 2.47        | 10     | 1     |
| 1:A:23:LEU:HD23 | 1:A:52:ILE:HD13 | 0.47     | 1.85        | 11     | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:60:VAL:HG12 | 1:A:83:ARG:HH22 | 0.47     | 1.69        | 13     | 1     |
| 1:A:62:GLU:CG   | 1:A:94:MET:CE   | 0.47     | 2.92        | 5      | 1     |
| 1:A:38:GLU:CB   | 1:A:47:THR:OG1  | 0.47     | 2.62        | 15     | 1     |
| 1:A:4:VAL:O     | 1:A:98:ILE:HA   | 0.47     | 2.09        | 11     | 7     |
| 1:A:90:ILE:CG2  | 1:A:91:ASP:N    | 0.47     | 2.77        | 2      | 8     |
| 1:A:53:GLU:O    | 1:A:57:VAL:HG23 | 0.47     | 2.10        | 4      | 5     |
| 1:A:56:TRP:HE3  | 1:A:97:LEU:HD23 | 0.47     | 1.58        | 5      | 1     |
| 1:A:39:CYS:O    | 1:A:42:SER:N    | 0.47     | 2.47        | 9      | 1     |
| 1:A:24:MET:HE1  | 1:A:37:ALA:CB   | 0.47     | 2.40        | 10     | 1     |
| 1:A:32:VAL:O    | 1:A:33:PRO:O    | 0.47     | 2.33        | 2      | 1     |
| 1:A:35:ILE:O    | 1:A:36:VAL:C    | 0.47     | 2.52        | 2      | 2     |
| 1:A:90:ILE:HD11 | 1:A:97:LEU:HD11 | 0.47     | 1.86        | 3      | 2     |
| 1:A:3:VAL:HG11  | 1:A:5:PHE:HE1   | 0.47     | 1.69        | 10     | 3     |
| 1:A:23:LEU:CD2  | 1:A:97:LEU:HD11 | 0.47     | 2.40        | 11     | 1     |
| 1:A:67:GLU:HB3  | 1:A:84:LEU:HD13 | 0.47     | 1.87        | 12     | 1     |
| 1:A:94:MET:HG2  | 1:A:97:LEU:CD2  | 0.47     | 2.39        | 5      | 1     |
| 1:A:70:LEU:HD12 | 1:A:70:LEU:O    | 0.47     | 2.10        | 9      | 1     |
| 1:A:68:ASN:O    | 1:A:68:ASN:ND2  | 0.47     | 2.48        | 11     | 1     |
| 1:A:23:LEU:HG   | 1:A:99:VAL:CG2  | 0.47     | 2.40        | 3      | 6     |
| 1:A:60:VAL:HG22 | 1:A:94:MET:CG   | 0.47     | 2.35        | 10     | 2     |
| 1:A:72:GLN:NE2  | 1:A:78:MET:SD   | 0.47     | 2.88        | 6      | 1     |
| 1:A:84:LEU:H    | 1:A:84:LEU:HD12 | 0.47     | 1.69        | 1      | 1     |
| 1:A:62:GLU:OE2  | 1:A:82:THR:O    | 0.47     | 2.33        | 3      | 1     |
| 1:A:60:VAL:CG2  | 1:A:97:LEU:HD11 | 0.47     | 2.39        | 10     | 1     |
| 1:A:24:MET:SD   | 1:A:86:CYS:CB   | 0.47     | 3.03        | 11     | 1     |
| 1:A:36:VAL:CG2  | 1:A:37:ALA:N    | 0.47     | 2.70        | 1      | 1     |
| 1:A:63:ALA:CB   | 1:A:67:GLU:HB3  | 0.47     | 2.40        | 7      | 2     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:CZ   | 0.47     | 2.40        | 14     | 3     |
| 1:A:70:LEU:HD12 | 1:A:70:LEU:C    | 0.47     | 2.31        | 9      | 2     |
| 1:A:57:VAL:CG1  | 1:A:81:GLY:HA2  | 0.46     | 2.40        | 12     | 5     |
| 1:A:23:LEU:HD21 | 1:A:97:LEU:HD11 | 0.46     | 1.86        | 11     | 1     |
| 1:A:51:GLU:OE2  | 1:A:82:THR:HG23 | 0.46     | 2.11        | 11     | 1     |
| 1:A:24:MET:CE   | 1:A:36:VAL:HG23 | 0.46     | 2.40        | 2      | 1     |
| 1:A:23:LEU:CD2  | 1:A:52:ILE:HD11 | 0.46     | 2.41        | 3      | 3     |
| 1:A:22:SER:OG   | 1:A:85:SER:O    | 0.46     | 2.33        | 4      | 1     |
| 1:A:20:GLY:N    | 1:A:90:ILE:O    | 0.46     | 2.49        | 10     | 1     |
| 1:A:83:ARG:HD2  | 1:A:88:VAL:HG23 | 0.46     | 1.86        | 3      | 1     |
| 1:A:63:ALA:HA   | 1:A:83:ARG:NH2  | 0.46     | 2.26        | 4      | 1     |
| 1:A:22:SER:HB3  | 1:A:88:VAL:O    | 0.46     | 2.10        | 9      | 3     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:CB   | 0.46     | 2.40        | 7      | 1     |
| 1:A:67:GLU:N    | 1:A:67:GLU:OE1  | 0.46     | 2.48        | 14     | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:23:LEU:HD12 | 1:A:99:VAL:CG2  | 0.46     | 2.40        | 15     | 1     |
| 1:A:8:GLU:O     | 1:A:8:GLU:HG3   | 0.46     | 2.11        | 11     | 5     |
| 1:A:10:SER:HB3  | 1:A:13:TYR:CZ   | 0.46     | 2.44        | 7      | 3     |
| 1:A:91:ASP:OD1  | 1:A:93:SER:OG   | 0.46     | 2.32        | 10     | 3     |
| 1:A:19:ASP:OD1  | 1:A:91:ASP:CA   | 0.46     | 2.64        | 11     | 1     |
| 1:A:91:ASP:O    | 1:A:92:PRO:C    | 0.46     | 2.54        | 13     | 2     |
| 1:A:5:PHE:CE2   | 1:A:23:LEU:HG   | 0.46     | 2.44        | 14     | 1     |
| 1:A:45:CYS:O    | 2:A:106:FES:S1  | 0.46     | 2.74        | 13     | 4     |
| 1:A:45:CYS:O    | 2:A:106:FES:S2  | 0.46     | 2.74        | 10     | 3     |
| 1:A:63:ALA:HB1  | 1:A:67:GLU:HB3  | 0.46     | 1.88        | 7      | 1     |
| 1:A:22:SER:HB2  | 1:A:85:SER:O    | 0.46     | 2.11        | 9      | 6     |
| 1:A:48:CYS:O    | 1:A:49:ARG:C    | 0.46     | 2.54        | 11     | 2     |
| 1:A:63:ALA:HA   | 1:A:83:ARG:CZ   | 0.46     | 2.41        | 7      | 1     |
| 1:A:17:ALA:HB3  | 1:A:90:ILE:HD12 | 0.46     | 1.86        | 2      | 4     |
| 1:A:52:ILE:O    | 1:A:53:GLU:O    | 0.46     | 2.34        | 4      | 5     |
| 1:A:5:PHE:CZ    | 1:A:23:LEU:HD12 | 0.46     | 2.45        | 6      | 1     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:HD2  | 0.46     | 1.86        | 11     | 1     |
| 1:A:36:VAL:CG2  | 1:A:48:CYS:CB   | 0.46     | 2.93        | 12     | 1     |
| 1:A:19:ASP:HA   | 1:A:90:ILE:C    | 0.46     | 2.31        | 1      | 5     |
| 1:A:1:PRO:CD    | 1:A:18:GLN:HA   | 0.46     | 2.40        | 8      | 8     |
| 1:A:71:LEU:O    | 1:A:74:THR:CG2  | 0.46     | 2.62        | 2      | 1     |
| 1:A:49:ARG:C    | 1:A:50:ILE:HD13 | 0.46     | 2.30        | 10     | 1     |
| 1:A:23:LEU:HG   | 1:A:99:VAL:HG22 | 0.46     | 1.87        | 15     | 1     |
| 1:A:62:GLU:O    | 1:A:63:ALA:O    | 0.46     | 2.33        | 15     | 1     |
| 1:A:83:ARG:CZ   | 1:A:88:VAL:HG22 | 0.46     | 2.41        | 1      | 1     |
| 1:A:7:ASP:O     | 1:A:11:GLY:CA   | 0.46     | 2.64        | 13     | 4     |
| 1:A:99:VAL:C    | 1:A:100:ARG:CG  | 0.46     | 2.84        | 14     | 2     |
| 1:A:4:VAL:HG22  | 1:A:14:ALA:HA   | 0.46     | 1.88        | 12     | 2     |
| 1:A:36:VAL:O    | 2:A:106:FES:S2  | 0.46     | 2.74        | 12     | 1     |
| 1:A:18:GLN:O    | 1:A:19:ASP:C    | 0.45     | 2.54        | 2      | 10    |
| 1:A:62:GLU:CA   | 1:A:88:VAL:HG21 | 0.45     | 2.41        | 2      | 1     |
| 1:A:19:ASP:HA   | 1:A:90:ILE:CG2  | 0.45     | 2.41        | 14     | 2     |
| 1:A:90:ILE:HG22 | 1:A:91:ASP:N    | 0.45     | 2.26        | 2      | 6     |
| 1:A:7:ASP:OD1   | 1:A:8:GLU:N     | 0.45     | 2.42        | 5      | 2     |
| 1:A:42:SER:O    | 1:A:43:CYS:SG   | 0.45     | 2.73        | 12     | 1     |
| 1:A:10:SER:CB   | 1:A:13:TYR:CZ   | 0.45     | 2.99        | 13     | 1     |
| 1:A:24:MET:O    | 1:A:35:ILE:HD11 | 0.45     | 2.11        | 4      | 1     |
| 1:A:8:GLU:O     | 1:A:8:GLU:CG    | 0.45     | 2.65        | 6      | 5     |
| 1:A:56:TRP:CD2  | 1:A:97:LEU:HD12 | 0.45     | 2.47        | 10     | 1     |
| 1:A:36:VAL:HG23 | 1:A:47:THR:HB   | 0.45     | 1.89        | 14     | 1     |
| 1:A:50:ILE:CG1  | 1:A:85:SER:HB3  | 0.45     | 2.41        | 4      | 2     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:60:VAL:HG22 | 1:A:97:LEU:CD2  | 0.45     | 2.40        | 1      | 1     |
| 1:A:62:GLU:OE2  | 1:A:84:LEU:O    | 0.45     | 2.35        | 2      | 1     |
| 1:A:10:SER:CB   | 1:A:13:TYR:CE1  | 0.45     | 2.99        | 14     | 2     |
| 1:A:24:MET:SD   | 1:A:24:MET:O    | 0.45     | 2.75        | 13     | 1     |
| 1:A:26:VAL:O    | 1:A:27:ALA:C    | 0.45     | 2.55        | 5      | 15    |
| 1:A:26:VAL:O    | 1:A:29:GLN:HB2  | 0.45     | 2.12        | 2      | 12    |
| 1:A:30:ASN:HD22 | 1:A:32:VAL:HG21 | 0.45     | 1.71        | 6      | 14    |
| 1:A:35:ILE:O    | 1:A:36:VAL:HB   | 0.45     | 2.11        | 8      | 2     |
| 1:A:2:ARG:C     | 1:A:96:GLY:HA2  | 0.45     | 2.31        | 8      | 7     |
| 1:A:24:MET:SD   | 1:A:86:CYS:HB3  | 0.45     | 2.52        | 11     | 3     |
| 1:A:60:VAL:CG2  | 1:A:97:LEU:HD21 | 0.45     | 2.41        | 13     | 1     |
| 1:A:92:PRO:CA   | 1:A:95:ASP:OD1  | 0.45     | 2.64        | 14     | 1     |
| 1:A:38:GLU:HB2  | 1:A:47:THR:OG1  | 0.45     | 2.12        | 15     | 1     |
| 1:A:53:GLU:HB3  | 1:A:98:ILE:HB   | 0.45     | 1.88        | 11     | 5     |
| 1:A:70:LEU:C    | 1:A:70:LEU:HD13 | 0.45     | 2.32        | 12     | 1     |
| 1:A:23:LEU:HB3  | 1:A:99:VAL:HG11 | 0.45     | 1.88        | 15     | 2     |
| 1:A:17:ALA:CB   | 1:A:90:ILE:HG13 | 0.45     | 2.42        | 10     | 3     |
| 1:A:101:VAL:N   | 1:A:102:PRO:HD3 | 0.45     | 2.27        | 6      | 1     |
| 1:A:22:SER:HB3  | 1:A:89:PHE:CE2  | 0.45     | 2.46        | 2      | 1     |
| 1:A:68:ASN:ND2  | 1:A:68:ASN:O    | 0.45     | 2.50        | 15     | 2     |
| 1:A:49:ARG:CG   | 1:A:49:ARG:O    | 0.45     | 2.65        | 6      | 1     |
| 1:A:24:MET:HG3  | 1:A:25:GLU:N    | 0.45     | 2.27        | 9      | 1     |
| 1:A:39:CYS:CB   | 1:A:44:VAL:HB   | 0.45     | 2.42        | 11     | 1     |
| 1:A:1:PRO:HD2   | 1:A:17:ALA:C    | 0.44     | 2.32        | 10     | 11    |
| 1:A:94:MET:HB3  | 1:A:97:LEU:CD2  | 0.44     | 2.42        | 10     | 2     |
| 1:A:56:TRP:CH2  | 1:A:95:ASP:O    | 0.44     | 2.69        | 14     | 3     |
| 1:A:25:GLU:HG3  | 1:A:26:VAL:N    | 0.44     | 2.27        | 9      | 1     |
| 1:A:27:ALA:CB   | 1:A:32:VAL:HB   | 0.44     | 2.43        | 5      | 5     |
| 1:A:39:CYS:O    | 1:A:40:GLY:C    | 0.44     | 2.55        | 2      | 4     |
| 1:A:83:ARG:NH1  | 1:A:87:GLN:CB   | 0.44     | 2.80        | 4      | 1     |
| 1:A:63:ALA:HB2  | 1:A:83:ARG:NH1  | 0.44     | 2.27        | 7      | 1     |
| 1:A:49:ARG:O    | 1:A:102:PRO:CD  | 0.44     | 2.65        | 9      | 2     |
| 1:A:49:ARG:O    | 1:A:102:PRO:HD2 | 0.44     | 2.12        | 9      | 1     |
| 1:A:94:MET:HB3  | 1:A:97:LEU:HD22 | 0.44     | 1.87        | 10     | 1     |
| 1:A:39:CYS:HB2  | 1:A:44:VAL:CG1  | 0.44     | 2.43        | 13     | 1     |
| 1:A:45:CYS:SG   | 1:A:46:ALA:N    | 0.44     | 2.91        | 2      | 2     |
| 1:A:53:GLU:HG2  | 1:A:55:ALA:H    | 0.44     | 1.73        | 13     | 4     |
| 1:A:71:LEU:HA   | 1:A:74:THR:CG2  | 0.44     | 2.43        | 8      | 1     |
| 1:A:7:ASP:OD2   | 1:A:9:GLN:HB2   | 0.44     | 2.13        | 1      | 1     |
| 1:A:2:ARG:CG    | 1:A:3:VAL:N     | 0.44     | 2.80        | 2      | 4     |
| 1:A:26:VAL:C    | 1:A:30:ASN:OD1  | 0.44     | 2.56        | 6      | 8     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:3:VAL:HG22  | 1:A:97:LEU:O    | 0.44     | 2.12        | 8      | 1     |
| 1:A:23:LEU:CD2  | 1:A:85:SER:HB2  | 0.44     | 2.43        | 14     | 2     |
| 1:A:68:ASN:O    | 1:A:72:GLN:HG3  | 0.44     | 2.12        | 15     | 1     |
| 1:A:90:ILE:HA   | 1:A:94:MET:HE2  | 0.44     | 1.90        | 3      | 1     |
| 1:A:53:GLU:OE2  | 1:A:98:ILE:HB   | 0.44     | 2.13        | 9      | 4     |
| 1:A:84:LEU:HD23 | 2:A:106:FES:S1  | 0.44     | 2.52        | 13     | 1     |
| 1:A:53:GLU:OE1  | 1:A:53:GLU:C    | 0.44     | 2.56        | 7      | 6     |
| 1:A:67:GLU:HG3  | 1:A:84:LEU:HD21 | 0.44     | 1.88        | 9      | 1     |
| 1:A:1:PRO:HD2   | 1:A:17:ALA:O    | 0.44     | 2.11        | 13     | 7     |
| 1:A:94:MET:CA   | 1:A:97:LEU:HD21 | 0.44     | 2.43        | 5      | 1     |
| 1:A:2:ARG:HD2   | 1:A:96:GLY:HA2  | 0.43     | 1.90        | 1      | 1     |
| 1:A:1:PRO:O     | 1:A:16:ASP:HB3  | 0.43     | 2.13        | 15     | 10    |
| 1:A:27:ALA:HB1  | 1:A:35:ILE:HG12 | 0.43     | 1.89        | 9      | 1     |
| 1:A:93:SER:O    | 1:A:94:MET:HG3  | 0.43     | 2.14        | 5      | 2     |
| 1:A:79:THR:O    | 1:A:80:ALA:C    | 0.43     | 2.56        | 6      | 2     |
| 1:A:61:GLY:HA2  | 1:A:83:ARG:CZ   | 0.43     | 2.43        | 13     | 1     |
| 1:A:2:ARG:HD3   | 1:A:16:ASP:OD1  | 0.43     | 2.12        | 14     | 1     |
| 1:A:91:ASP:CG   | 1:A:93:SER:OG   | 0.43     | 2.56        | 14     | 1     |
| 1:A:39:CYS:HB2  | 1:A:42:SER:CB   | 0.43     | 2.43        | 10     | 1     |
| 1:A:56:TRP:HA   | 1:A:59:ILE:HB   | 0.43     | 1.89        | 15     | 6     |
| 1:A:3:VAL:CG1   | 1:A:15:VAL:HG13 | 0.43     | 2.43        | 12     | 8     |
| 1:A:15:VAL:HG11 | 1:A:26:VAL:CG1  | 0.43     | 2.44        | 14     | 2     |
| 1:A:50:ILE:HD12 | 1:A:85:SER:HB2  | 0.43     | 1.89        | 4      | 1     |
| 1:A:5:PHE:C     | 1:A:6:ILE:HG12  | 0.43     | 2.33        | 13     | 7     |
| 1:A:5:PHE:CE1   | 1:A:99:VAL:CG2  | 0.43     | 3.02        | 12     | 2     |
| 1:A:5:PHE:C     | 1:A:99:VAL:O    | 0.43     | 2.57        | 11     | 1     |
| 1:A:51:GLU:OE2  | 1:A:79:THR:OG1  | 0.43     | 2.32        | 15     | 1     |
| 1:A:50:ILE:CG2  | 1:A:85:SER:HB3  | 0.43     | 2.41        | 3      | 1     |
| 1:A:24:MET:HB2  | 1:A:85:SER:CB   | 0.43     | 2.44        | 4      | 1     |
| 1:A:9:GLN:HB2   | 1:A:13:TYR:OH   | 0.43     | 2.13        | 5      | 1     |
| 1:A:21:GLN:O    | 1:A:90:ILE:HG12 | 0.43     | 2.14        | 8      | 2     |
| 1:A:19:ASP:HA   | 1:A:90:ILE:CB   | 0.43     | 2.43        | 14     | 1     |
| 1:A:16:ASP:O    | 1:A:26:VAL:HG11 | 0.43     | 2.12        | 1      | 1     |
| 1:A:88:VAL:HG12 | 1:A:94:MET:HE1  | 0.43     | 1.90        | 7      | 1     |
| 1:A:101:VAL:CG1 | 1:A:102:PRO:HD2 | 0.43     | 2.43        | 11     | 2     |
| 1:A:19:ASP:OD2  | 1:A:91:ASP:C    | 0.43     | 2.57        | 10     | 1     |
| 1:A:42:SER:O    | 1:A:44:VAL:CG2  | 0.43     | 2.66        | 3      | 1     |
| 1:A:53:GLU:OE1  | 1:A:56:TRP:HB2  | 0.43     | 2.13        | 9      | 5     |
| 1:A:18:GLN:CD   | 1:A:21:GLN:OE1  | 0.43     | 2.57        | 10     | 2     |
| 1:A:3:VAL:HG13  | 1:A:4:VAL:N     | 0.43     | 2.28        | 13     | 4     |
| 1:A:60:VAL:CG2  | 1:A:94:MET:SD   | 0.43     | 3.00        | 5      | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:24:MET:HE2  | 1:A:25:GLU:HG2  | 0.43     | 1.90        | 7      | 1     |
| 1:A:24:MET:SD   | 1:A:37:ALA:HB2  | 0.43     | 2.53        | 11     | 1     |
| 1:A:19:ASP:HA   | 1:A:90:ILE:O    | 0.43     | 2.14        | 13     | 2     |
| 1:A:53:GLU:HG3  | 1:A:55:ALA:H    | 0.43     | 1.73        | 2      | 6     |
| 1:A:35:ILE:N    | 1:A:35:ILE:CD1  | 0.42     | 2.81        | 14     | 2     |
| 1:A:15:VAL:C    | 1:A:16:ASP:OD1  | 0.42     | 2.57        | 9      | 3     |
| 1:A:23:LEU:CD2  | 1:A:85:SER:HA   | 0.42     | 2.41        | 8      | 1     |
| 1:A:24:MET:SD   | 1:A:25:GLU:HG2  | 0.42     | 2.54        | 12     | 1     |
| 1:A:56:TRP:CZ2  | 1:A:98:ILE:CD1  | 0.42     | 3.02        | 5      | 2     |
| 1:A:57:VAL:CG1  | 1:A:62:GLU:CG   | 0.42     | 2.97        | 1      | 1     |
| 1:A:42:SER:O    | 1:A:43:CYS:C    | 0.42     | 2.57        | 2      | 1     |
| 1:A:51:GLU:CG   | 1:A:82:THR:HA   | 0.42     | 2.44        | 2      | 1     |
| 1:A:84:LEU:O    | 1:A:87:GLN:HG3  | 0.42     | 2.13        | 6      | 1     |
| 1:A:23:LEU:HD11 | 1:A:97:LEU:CG   | 0.42     | 2.44        | 7      | 1     |
| 1:A:25:GLU:O    | 1:A:26:VAL:C    | 0.42     | 2.57        | 12     | 11    |
| 1:A:4:VAL:HA    | 1:A:14:ALA:HA   | 0.42     | 1.90        | 11     | 8     |
| 1:A:83:ARG:HD2  | 1:A:84:LEU:N    | 0.42     | 2.30        | 4      | 1     |
| 1:A:90:ILE:HD13 | 1:A:97:LEU:HD11 | 0.42     | 1.91        | 5      | 1     |
| 1:A:17:ALA:CB   | 1:A:90:ILE:CD1  | 0.42     | 2.97        | 14     | 1     |
| 1:A:40:GLY:O    | 1:A:41:GLY:C    | 0.42     | 2.58        | 15     | 1     |
| 1:A:64:ASN:OD1  | 1:A:65:PRO:HD2  | 0.42     | 2.14        | 3      | 1     |
| 1:A:1:PRO:HG3   | 1:A:95:ASP:CG   | 0.42     | 2.34        | 13     | 2     |
| 1:A:62:GLU:HG2  | 1:A:88:VAL:HG11 | 0.42     | 1.91        | 9      | 1     |
| 1:A:62:GLU:OE1  | 1:A:83:ARG:O    | 0.42     | 2.38        | 2      | 1     |
| 1:A:8:GLU:O     | 1:A:8:GLU:CD    | 0.42     | 2.58        | 7      | 1     |
| 1:A:100:ARG:CZ  | 1:A:100:ARG:HB2 | 0.42     | 2.44        | 14     | 1     |
| 1:A:97:LEU:HD11 | 1:A:99:VAL:HG22 | 0.42     | 1.90        | 15     | 1     |
| 1:A:63:ALA:CB   | 1:A:67:GLU:HB2  | 0.42     | 2.44        | 3      | 1     |
| 1:A:2:ARG:O     | 1:A:3:VAL:CG2   | 0.42     | 2.64        | 9      | 2     |
| 1:A:18:GLN:N    | 1:A:21:GLN:NE2  | 0.42     | 2.68        | 8      | 1     |
| 1:A:11:GLY:O    | 1:A:12:GLU:HB2  | 0.42     | 2.15        | 11     | 1     |
| 1:A:1:PRO:HB3   | 1:A:95:ASP:CG   | 0.42     | 2.35        | 5      | 1     |
| 1:A:84:LEU:HB3  | 1:A:87:GLN:CB   | 0.42     | 2.45        | 5      | 1     |
| 1:A:36:VAL:HG22 | 1:A:48:CYS:CB   | 0.42     | 2.44        | 12     | 1     |
| 1:A:39:CYS:CB   | 1:A:44:VAL:HG22 | 0.42     | 2.45        | 14     | 2     |
| 1:A:56:TRP:O    | 1:A:60:VAL:CG2  | 0.42     | 2.59        | 15     | 1     |
| 1:A:54:ASP:O    | 1:A:54:ASP:OD1  | 0.42     | 2.38        | 1      | 1     |
| 1:A:60:VAL:CG2  | 1:A:94:MET:HG2  | 0.42     | 2.42        | 9      | 2     |
| 1:A:78:MET:HB3  | 1:A:82:THR:HG21 | 0.42     | 1.92        | 2      | 1     |
| 1:A:51:GLU:CD   | 1:A:79:THR:OG1  | 0.42     | 2.58        | 4      | 1     |
| 1:A:7:ASP:CG    | 1:A:33:PRO:HG2  | 0.42     | 2.35        | 10     | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:26:VAL:O    | 1:A:30:ASN:N    | 0.42     | 2.53        | 12     | 1     |
| 1:A:22:SER:OG   | 1:A:24:MET:HG3  | 0.42     | 2.14        | 15     | 1     |
| 1:A:91:ASP:OD2  | 1:A:93:SER:OG   | 0.42     | 2.33        | 8      | 2     |
| 1:A:57:VAL:CG2  | 1:A:81:GLY:CA   | 0.42     | 2.98        | 7      | 1     |
| 1:A:23:LEU:O    | 1:A:23:LEU:HG   | 0.42     | 2.15        | 14     | 2     |
| 1:A:89:PHE:O    | 1:A:94:MET:HE1  | 0.42     | 2.14        | 10     | 1     |
| 1:A:39:CYS:O    | 1:A:42:SER:OG   | 0.42     | 2.36        | 11     | 1     |
| 1:A:23:LEU:CD1  | 1:A:99:VAL:CG2  | 0.42     | 2.98        | 15     | 1     |
| 1:A:3:VAL:CG2   | 1:A:97:LEU:HB2  | 0.41     | 2.43        | 1      | 1     |
| 1:A:42:SER:C    | 1:A:43:CYS:SG   | 0.41     | 2.98        | 3      | 1     |
| 1:A:6:ILE:CG1   | 1:A:100:ARG:HG2 | 0.41     | 2.45        | 4      | 1     |
| 1:A:83:ARG:NH1  | 1:A:87:GLN:HB2  | 0.41     | 2.30        | 4      | 1     |
| 1:A:26:VAL:HB   | 1:A:30:ASN:HD21 | 0.41     | 1.75        | 5      | 2     |
| 1:A:35:ILE:HG13 | 1:A:101:VAL:CG1 | 0.41     | 2.43        | 8      | 1     |
| 1:A:53:GLU:HB3  | 1:A:98:ILE:HG22 | 0.41     | 1.92        | 8      | 1     |
| 1:A:54:ASP:CG   | 1:A:54:ASP:O    | 0.41     | 2.58        | 15     | 1     |
| 1:A:51:GLU:O    | 1:A:100:ARG:HB2 | 0.41     | 2.15        | 8      | 3     |
| 1:A:86:CYS:O    | 1:A:86:CYS:SG   | 0.41     | 2.78        | 7      | 1     |
| 1:A:53:GLU:CG   | 1:A:56:TRP:HD1  | 0.41     | 2.29        | 13     | 1     |
| 1:A:2:ARG:HB3   | 1:A:96:GLY:HA2  | 0.41     | 1.92        | 5      | 1     |
| 1:A:1:PRO:CG    | 1:A:90:ILE:CG2  | 0.41     | 2.98        | 8      | 1     |
| 1:A:35:ILE:HD12 | 1:A:35:ILE:H    | 0.41     | 1.74        | 14     | 1     |
| 1:A:64:ASN:CG   | 1:A:66:ASP:OD1  | 0.41     | 2.59        | 6      | 1     |
| 1:A:23:LEU:HD11 | 1:A:97:LEU:CD1  | 0.41     | 2.45        | 7      | 1     |
| 1:A:67:GLU:CD   | 1:A:68:ASN:N    | 0.41     | 2.74        | 11     | 1     |
| 1:A:6:ILE:HG13  | 1:A:100:ARG:NE  | 0.41     | 2.30        | 12     | 1     |
| 1:A:53:GLU:CG   | 1:A:56:TRP:CD1  | 0.41     | 3.03        | 13     | 1     |
| 1:A:67:GLU:HG3  | 1:A:83:ARG:NH1  | 0.41     | 2.30        | 14     | 1     |
| 1:A:48:CYS:O    | 1:A:50:ILE:CD1  | 0.41     | 2.68        | 6      | 1     |
| 1:A:69:ASP:OD1  | 1:A:69:ASP:C    | 0.41     | 2.59        | 6      | 1     |
| 1:A:94:MET:CG   | 1:A:97:LEU:CD2  | 0.41     | 2.88        | 5      | 1     |
| 1:A:3:VAL:O     | 1:A:15:VAL:N    | 0.41     | 2.43        | 11     | 2     |
| 1:A:92:PRO:HA   | 1:A:95:ASP:CG   | 0.41     | 2.36        | 14     | 1     |
| 1:A:39:CYS:CB   | 1:A:44:VAL:HG23 | 0.41     | 2.45        | 6      | 1     |
| 1:A:21:GLN:O    | 1:A:89:PHE:HA   | 0.41     | 2.16        | 9      | 2     |
| 1:A:64:ASN:OD1  | 1:A:66:ASP:HB2  | 0.41     | 2.16        | 14     | 2     |
| 1:A:6:ILE:HD13  | 1:A:100:ARG:CG  | 0.41     | 2.46        | 7      | 1     |
| 1:A:97:LEU:HD13 | 1:A:97:LEU:O    | 0.41     | 2.16        | 8      | 1     |
| 1:A:60:VAL:O    | 1:A:62:GLU:HG2  | 0.41     | 2.16        | 12     | 1     |
| 1:A:50:ILE:HB   | 1:A:85:SER:CB   | 0.41     | 2.46        | 13     | 1     |
| 1:A:15:VAL:CG1  | 1:A:26:VAL:CG1  | 0.41     | 2.99        | 14     | 1     |

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| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:46:ALA:HB1  | 1:A:71:LEU:HD23 | 0.41     | 1.92        | 1      | 1     |
| 1:A:32:VAL:HG13 | 1:A:33:PRO:HD2  | 0.41     | 1.93        | 4      | 2     |
| 1:A:70:LEU:HD12 | 1:A:71:LEU:N    | 0.41     | 2.31        | 2      | 1     |
| 1:A:2:ARG:HD2   | 1:A:16:ASP:OD2  | 0.41     | 2.15        | 4      | 1     |
| 1:A:53:GLU:CD   | 1:A:56:TRP:HD1  | 0.41     | 2.16        | 6      | 3     |
| 1:A:3:VAL:O     | 1:A:4:VAL:CG2   | 0.41     | 2.69        | 8      | 2     |
| 1:A:94:MET:O    | 1:A:97:LEU:CG   | 0.41     | 2.67        | 5      | 1     |
| 1:A:91:ASP:OD1  | 1:A:92:PRO:HD2  | 0.41     | 2.15        | 7      | 2     |
| 1:A:99:VAL:O    | 1:A:100:ARG:HG3 | 0.41     | 2.16        | 8      | 1     |
| 1:A:19:ASP:OD2  | 1:A:92:PRO:HD3  | 0.41     | 2.16        | 10     | 1     |
| 1:A:67:GLU:OE2  | 1:A:68:ASN:N    | 0.41     | 2.53        | 11     | 1     |
| 1:A:83:ARG:HB3  | 1:A:83:ARG:NH1  | 0.41     | 2.31        | 12     | 1     |
| 1:A:63:ALA:CB   | 1:A:67:GLU:HG2  | 0.41     | 2.46        | 15     | 1     |
| 1:A:15:VAL:HG21 | 1:A:26:VAL:HG12 | 0.41     | 1.93        | 3      | 1     |
| 1:A:48:CYS:SG   | 1:A:84:LEU:HB3  | 0.41     | 2.56        | 11     | 1     |
| 1:A:77:PRO:C    | 1:A:78:MET:CG   | 0.41     | 2.89        | 11     | 1     |
| 1:A:77:PRO:O    | 1:A:78:MET:HG2  | 0.41     | 2.16        | 11     | 1     |
| 1:A:15:VAL:CG2  | 1:A:16:ASP:N    | 0.40     | 2.83        | 5      | 1     |
| 1:A:23:LEU:C    | 1:A:23:LEU:CD2  | 0.40     | 2.79        | 8      | 1     |
| 1:A:27:ALA:CB   | 1:A:35:ILE:CG1  | 0.40     | 2.99        | 9      | 1     |
| 1:A:53:GLU:OE2  | 1:A:98:ILE:N    | 0.40     | 2.54        | 9      | 1     |
| 1:A:69:ASP:O    | 1:A:69:ASP:OD1  | 0.40     | 2.39        | 9      | 1     |
| 1:A:66:ASP:O    | 1:A:70:LEU:N    | 0.40     | 2.44        | 10     | 1     |
| 1:A:57:VAL:HG21 | 1:A:80:ALA:O    | 0.40     | 2.16        | 13     | 1     |
| 1:A:94:MET:CB   | 1:A:97:LEU:HD13 | 0.40     | 2.46        | 13     | 1     |
| 1:A:67:GLU:N    | 1:A:67:GLU:CD   | 0.40     | 2.73        | 12     | 1     |
| 1:A:33:PRO:C    | 1:A:35:ILE:N    | 0.40     | 2.75        | 14     | 1     |
| 1:A:94:MET:HB3  | 1:A:97:LEU:CD1  | 0.40     | 2.42        | 5      | 1     |
| 1:A:23:LEU:HG   | 1:A:97:LEU:HD11 | 0.40     | 1.93        | 7      | 1     |
| 1:A:57:VAL:CG1  | 1:A:62:GLU:HG3  | 0.40     | 2.47        | 7      | 1     |
| 1:A:89:PHE:O    | 1:A:90:ILE:O    | 0.40     | 2.40        | 12     | 1     |
| 1:A:79:THR:C    | 1:A:82:THR:HG1  | 0.40     | 2.19        | 2      | 1     |
| 1:A:50:ILE:HB   | 1:A:85:SER:OG   | 0.40     | 2.16        | 3      | 1     |
| 1:A:62:GLU:OE2  | 1:A:94:MET:HE1  | 0.40     | 2.17        | 10     | 1     |
| 1:A:32:VAL:C    | 1:A:34:GLY:N    | 0.40     | 2.74        | 1      | 1     |
| 1:A:42:SER:O    | 1:A:44:VAL:N    | 0.40     | 2.55        | 2      | 1     |
| 1:A:6:ILE:HB    | 1:A:100:ARG:HA  | 0.40     | 1.93        | 6      | 1     |
| 1:A:91:ASP:OD1  | 1:A:93:SER:HB3  | 0.40     | 2.15        | 11     | 1     |
| 1:A:6:ILE:HG13  | 1:A:100:ARG:CB  | 0.40     | 2.47        | 14     | 1     |

## 6.3 Torsion angles [i](#)

### 6.3.1 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 NMR 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     | 101/105 (96%)   | 72±3 (71±3%) | 19±3 (19±3%) | 10±1 (10±1%) | 1           | 10 |
| All | All   | 1515/1575 (96%) | 1078 (71%)   | 285 (19%)    | 152 (10%)    | 1           | 10 |

All 28 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 12  | GLU  | 15             |
| 1   | A     | 15  | VAL  | 15             |
| 1   | A     | 27  | ALA  | 15             |
| 1   | A     | 35  | ILE  | 13             |
| 1   | A     | 36  | VAL  | 9              |
| 1   | A     | 61  | GLY  | 9              |
| 1   | A     | 33  | PRO  | 8              |
| 1   | A     | 34  | GLY  | 7              |
| 1   | A     | 90  | ILE  | 7              |
| 1   | A     | 102 | PRO  | 6              |
| 1   | A     | 53  | GLU  | 6              |
| 1   | A     | 49  | ARG  | 6              |
| 1   | A     | 37  | ALA  | 5              |
| 1   | A     | 62  | GLU  | 4              |
| 1   | A     | 84  | LEU  | 4              |
| 1   | A     | 92  | PRO  | 4              |
| 1   | A     | 77  | PRO  | 4              |
| 1   | A     | 44  | VAL  | 3              |
| 1   | A     | 10  | SER  | 2              |
| 1   | A     | 40  | GLY  | 2              |
| 1   | A     | 43  | CYS  | 1              |
| 1   | A     | 80  | ALA  | 1              |
| 1   | A     | 50  | ILE  | 1              |
| 1   | A     | 19  | ASP  | 1              |
| 1   | A     | 54  | ASP  | 1              |
| 1   | A     | 60  | VAL  | 1              |
| 1   | A     | 94  | MET  | 1              |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 63  | ALA  | 1              |

### 6.3.2 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 NMR 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     | 84/86 (98%)     | 58±3 (69±3%) | 26±3 (31±3%) | <b>1</b> <b>15</b> |
| All | All   | 1260/1290 (98%) | 874 (69%)    | 386 (31%)    | <b>1</b> <b>15</b> |

All 56 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 26  | VAL  | 15             |
| 1   | A     | 28  | THR  | 15             |
| 1   | A     | 30  | ASN  | 15             |
| 1   | A     | 53  | GLU  | 15             |
| 1   | A     | 82  | THR  | 15             |
| 1   | A     | 93  | SER  | 15             |
| 1   | A     | 99  | VAL  | 15             |
| 1   | A     | 91  | ASP  | 13             |
| 1   | A     | 23  | LEU  | 12             |
| 1   | A     | 24  | MET  | 12             |
| 1   | A     | 95  | ASP  | 12             |
| 1   | A     | 97  | LEU  | 12             |
| 1   | A     | 2   | ARG  | 11             |
| 1   | A     | 16  | ASP  | 11             |
| 1   | A     | 45  | CYS  | 11             |
| 1   | A     | 83  | ARG  | 10             |
| 1   | A     | 72  | GLN  | 10             |
| 1   | A     | 8   | GLU  | 9              |
| 1   | A     | 73  | SER  | 9              |
| 1   | A     | 42  | SER  | 8              |
| 1   | A     | 70  | LEU  | 8              |
| 1   | A     | 49  | ARG  | 7              |
| 1   | A     | 98  | ILE  | 7              |
| 1   | A     | 64  | ASN  | 7              |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 85  | SER  | 7              |
| 1   | A     | 10  | SER  | 7              |
| 1   | A     | 36  | VAL  | 6              |
| 1   | A     | 78  | MET  | 6              |
| 1   | A     | 100 | ARG  | 6              |
| 1   | A     | 19  | ASP  | 6              |
| 1   | A     | 47  | THR  | 5              |
| 1   | A     | 71  | LEU  | 5              |
| 1   | A     | 39  | CYS  | 5              |
| 1   | A     | 84  | LEU  | 5              |
| 1   | A     | 43  | CYS  | 4              |
| 1   | A     | 54  | ASP  | 4              |
| 1   | A     | 79  | THR  | 4              |
| 1   | A     | 25  | GLU  | 4              |
| 1   | A     | 38  | GLU  | 4              |
| 1   | A     | 58  | GLU  | 3              |
| 1   | A     | 68  | ASN  | 3              |
| 1   | A     | 50  | ILE  | 3              |
| 1   | A     | 87  | GLN  | 3              |
| 1   | A     | 9   | GLN  | 3              |
| 1   | A     | 22  | SER  | 2              |
| 1   | A     | 35  | ILE  | 2              |
| 1   | A     | 29  | GLN  | 2              |
| 1   | A     | 94  | MET  | 2              |
| 1   | A     | 69  | ASP  | 2              |
| 1   | A     | 66  | ASP  | 2              |
| 1   | A     | 67  | GLU  | 2              |
| 1   | A     | 7   | ASP  | 1              |
| 1   | A     | 6   | ILE  | 1              |
| 1   | A     | 51  | GLU  | 1              |
| 1   | A     | 44  | VAL  | 1              |
| 1   | A     | 76  | GLU  | 1              |

### 6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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



## 6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.6 Ligand geometry [i](#)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds for which Mogul statistics could be retrieved, the number of bonds that are observed in the model and the number of bonds 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 is the number of standard deviations the observed value is removed from the expected value. A bond length with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond lengths.

| Mol | Type | Chain | Res | Link | Bond lengths |           |      |
|-----|------|-------|-----|------|--------------|-----------|------|
|     |      |       |     |      | Counts       | RMSZ      | #Z>2 |
| 2   | FES  | A     | 106 | 1    | 0,4,4        | 0.00±0.00 | -    |

In the following table, the Counts columns list the number of angles for which Mogul statistics could be retrieved, the number of angles that are observed in the model and the number of 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 angle is the number of standard deviations the observed value is removed from the expected value. A bond angle with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond angles.

| Mol | Type | Chain | Res | Link | Bond angles |      |      |
|-----|------|-------|-----|------|-------------|------|------|
|     |      |       |     |      | Counts      | RMSZ | #Z>2 |
| 2   | FES  | A     | 106 | 1    | -           | -    | -    |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings     |
|-----|------|-------|-----|------|---------|----------|-----------|
| 2   | FES  | A     | 106 | 1    | -       | -        | 0±0,1,1,1 |

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.

## 6.7 Other polymers [i](#)

There are no such molecules in this entry.

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

There are no chain breaks in this entry.

## 7 Chemical shift validation

No chemical shift data were provided