# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 4, 2023 – 09:15 AM EDT

| | | |
|---|---|---|
| PDB ID | : | 6OVR |
| Title | : | X-ray crystal structure of a bacterial reiterative transcription complex of pyrG promoter variant -1G |
| Authors | : | Shin, Y.; Murakami, K.S. |
| Deposited on | : | 2019-05-08 |
| Resolution | : | 2.84 Å(reported) |

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
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:

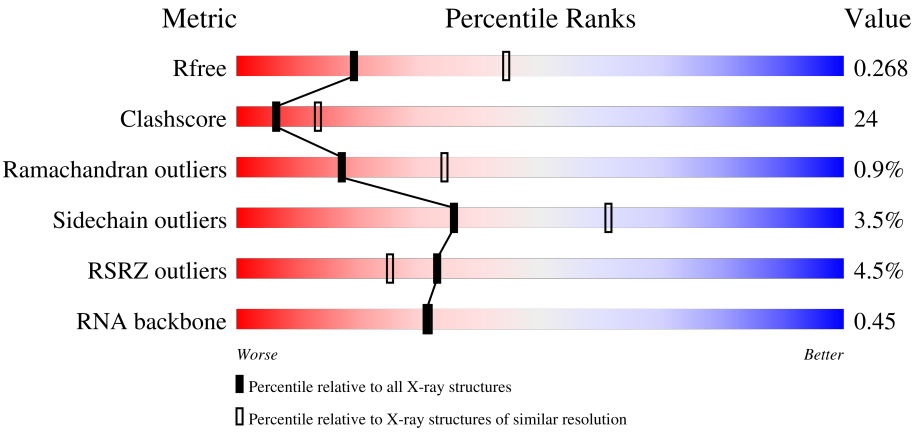
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.5 (274361), CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.35.1 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.35.1 |

# 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.84 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) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| $R_{free}$ | 130704 | 1031 (2.86-2.82) |
| Clashscore | 141614 | 1078 (2.86-2.82) |
| Ramachandran outliers | 138981 | 1050 (2.86-2.82) |
| Sidechain outliers | 138945 | 1051 (2.86-2.82) |
| RSRZ outliers | 127900 | 1019 (2.86-2.82) |
| RNA backbone | 3102 | 1077 (3.10-2.58) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 315 | 46% 24% 28% |
| 1 | B | 315 | 35% 36% 29% |
| 2 | C | 1119 | 4% 61% 35% |
| 3 | D | 1524 | 3% 59% 36% |

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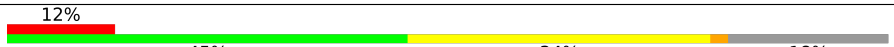
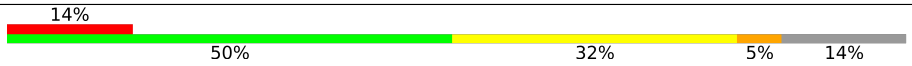
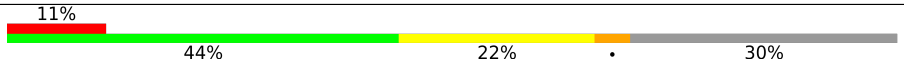
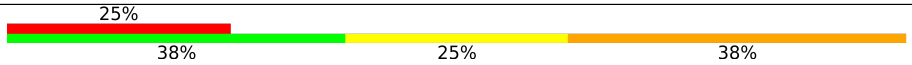
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 4 | E | 99 |   |
| 5 | F | 423 |   |
| 6 | G | 22 |   |
| 7 | H | 27 |   |
| 8 | I | 8 |   |

## 2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 28535 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 subunit alpha.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 226 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1782 | 1138 | 310 | 332 | 2 | | | |
| 1 | B | 224 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1767 | 1129 | 307 | 329 | 2 | | | |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | C | 1107 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 8726 | 5523 | 1551 | 1628 | 24 | | | |

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | D | 1484 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 11722 | 7431 | 2065 | 2191 | 35 | | | |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | E | 94 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 761 | 486 | 132 | 139 | 4 | | | |

- Molecule 5 is a protein called RNA polymerase sigma factor SigA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | F | 346 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2790 | 1760 | 508 | 518 | 4 | | | |

- Molecule 6 is a DNA chain called DNA (5'-D(P*GP*GP*TP*GP*CP*AP*TP*CP*AP*GP *AP*GP*CP*CP*CP*GP*AP*AP*A)-3').

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | G | 19 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 387 | 183 | 75 | 110 | 19 | | | |

- Molecule 7 is a DNA chain called DNA (5'-D(*TP*AP*TP*AP*AP*TP*GP*GP*GP*CP*TP*GP*AP*TP*GP*CP*AP*GP*G)-3').

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | H | 19 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 394 | 188 | 76 | 112 | 18 | | | |

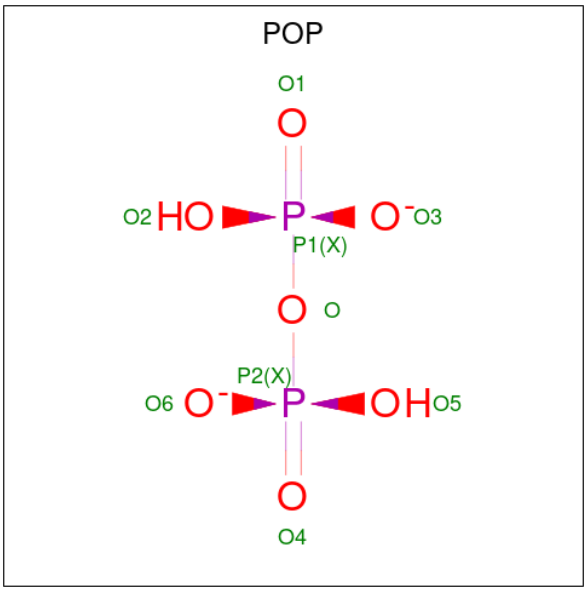
- Molecule 8 is a RNA chain called RNA (5'-D(*(GTP))-R(P*GP*GP*GP*GP*GP*GP*G)-3').

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | I | 8 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 193 | 80 | 40 | 63 | 10 | | | |

- Molecule 9 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|
| 9 | B | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 9 | D | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |

- Molecule 10 is PYROPHOSPHATE 2- (three-letter code: POP) (formula: $H_2O_7P_2$).



| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 10 | C | 1 | Total O P<br>9 7 2 | 0 | 0 |

- Molecule 11 is ZINC ION (three-letter code: ZN) (formula: Zn).

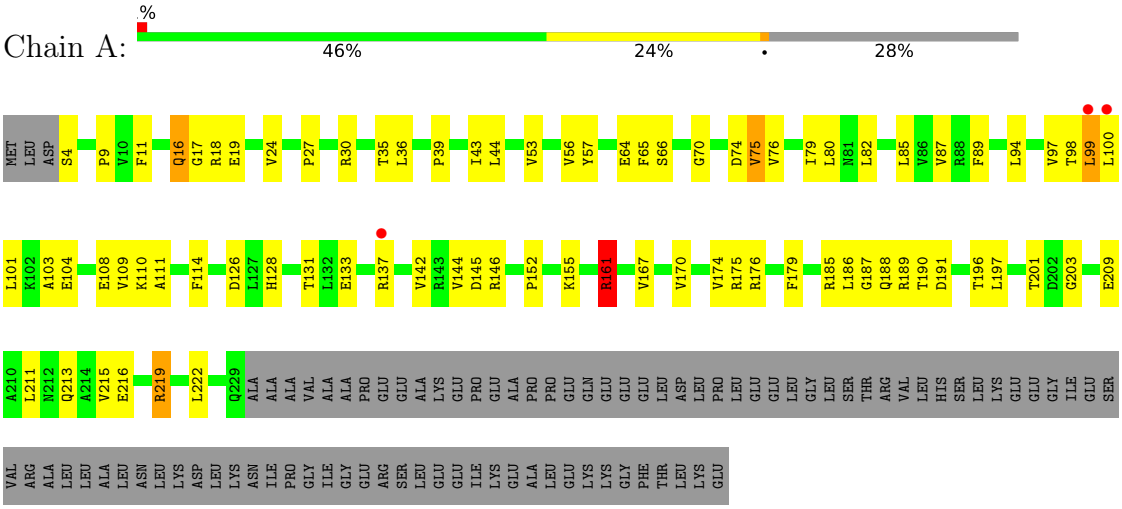
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 11 | D | 2 | Total Zn<br>2 2 | 0 | 0 |

# 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 electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.

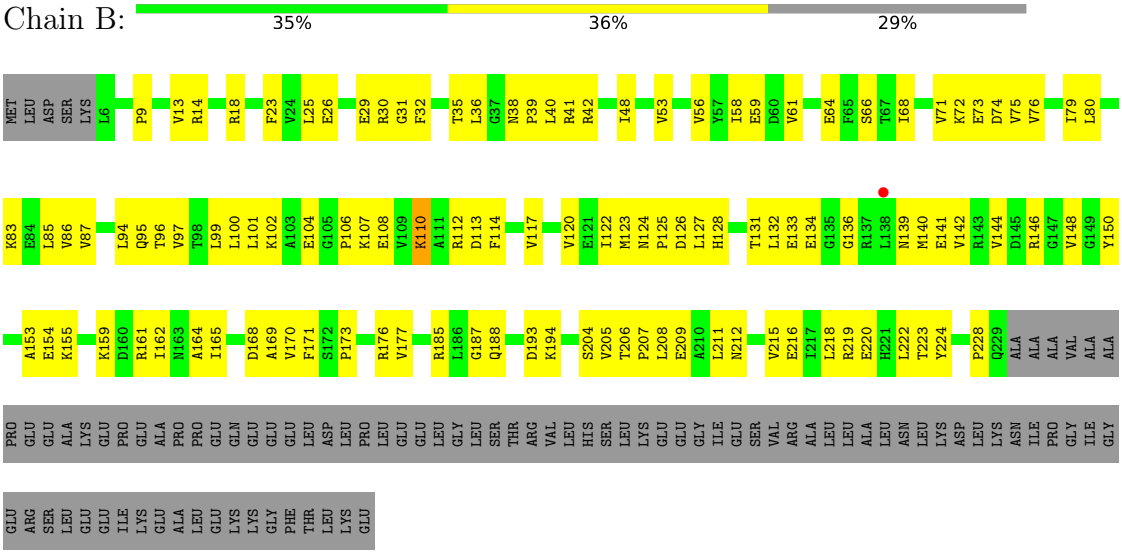
• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain A:



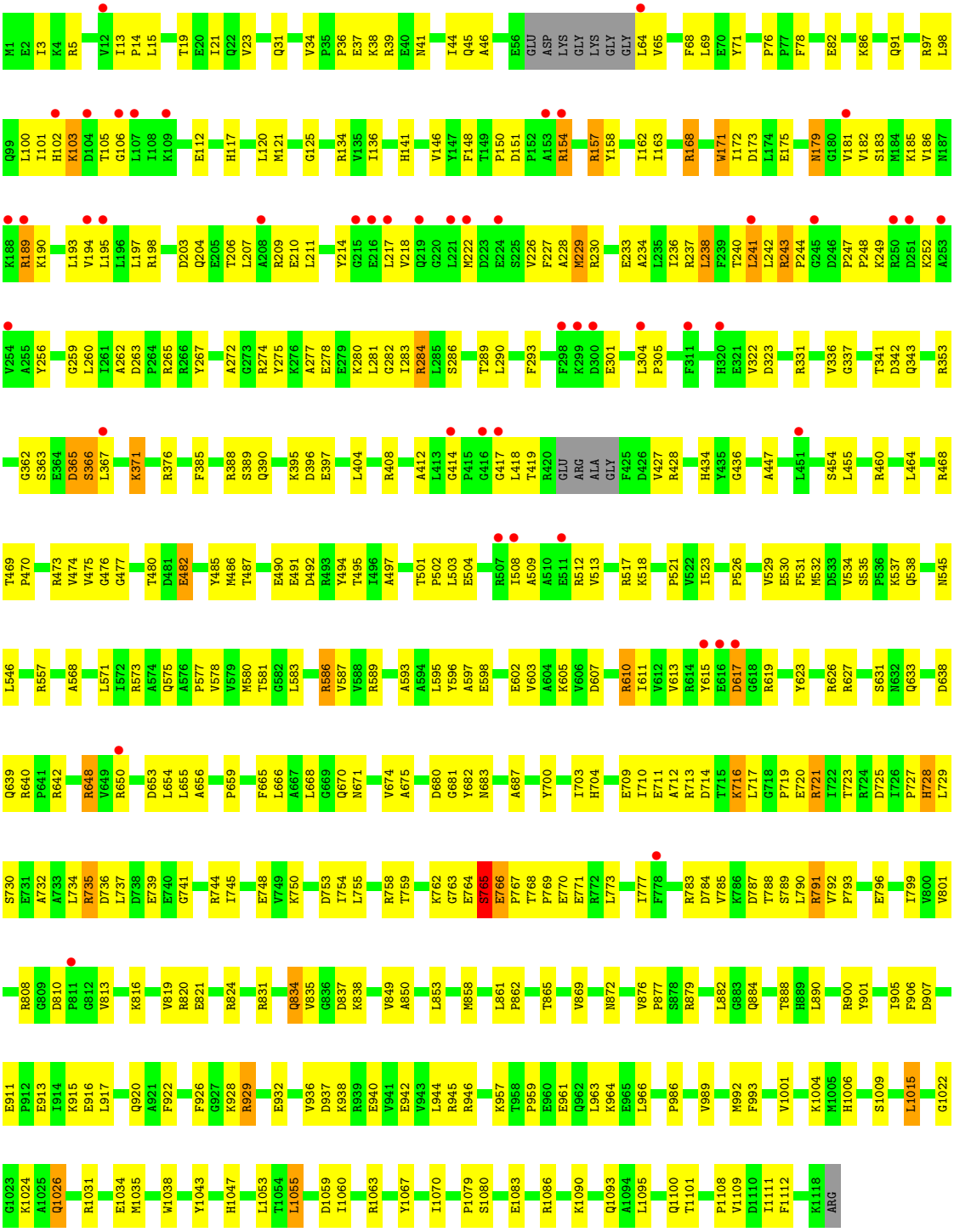

• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain B:

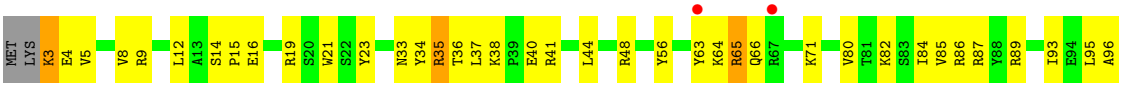


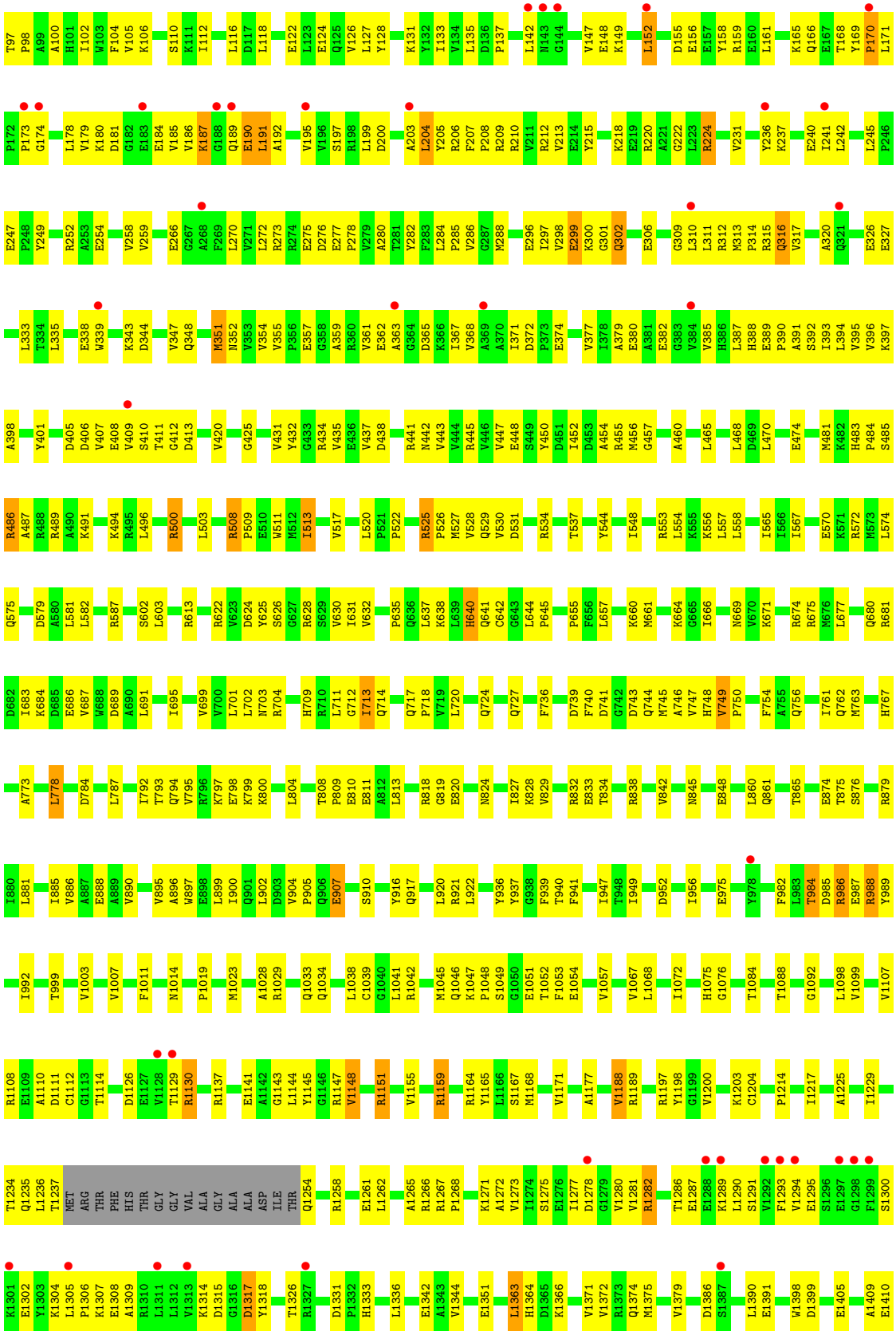

• Molecule 2: DNA-directed RNA polymerase subunit beta

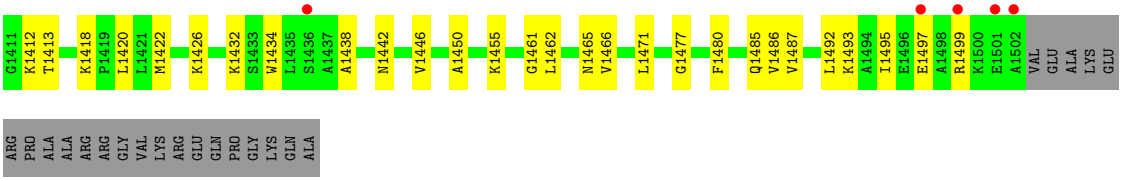
Chain C:



• Molecule 3: DNA-directed RNA polymerase subunit beta'


T97 P98 A99 A100 H101 I102 W103 F104 V105 K106 S110 K111 I112 L116 D117 L118 E122 L123 E124 Q125 V126 L127 Y128 K131 Y132 I133 V134 L135 D136 P137 L142 N143 G144 V147 E148 K149 L152 D155 E156 E157 Y158 R159 E160 L161 K165 Q166 E167 T168 Y169 P170 L171
P172 P173 G174 L178 V179 K180 D181 G182 E183 E184 V185 V186 K187 G188 Q189 E190 L191 A192 V195 V196 S197 R198 L199 D200 A203 L204 Y205 R206 P207 P208 R209 R210 V211 R212 V213 E214 Y215 K218 E219 R220 A221 G222 L223 R224 V231 Y236 K237 E240 I241 L242 L245 P246
E247 P248 Y249 R252 A253 E254 V258 V259 E266 G267 A268 P269 L270 V271 L272 R273 R274 E275 D276 E277 P278 V279 A280 T281 Y282 F283 L284 P285 V286 G287 M288 E296 I297 V298 E299 K300 G301 Q302 E306 G309 L310 L311 R312 M313 P314 R315 Q316 V317 A320 Q321 E326 E327
L333 T334 L335 E338 W339 K343 D344 V347 Q348 M351 N352 V353 V354 V355 P356 E357 G358 A359 R360 V361 E362 A363 G364 D365 K366 I367 V368 A369 A370 I371 D372 P373 E374 V377 I378 A379 E380 A381 E382 G383 V384 V385 H386 L387 H388 E389 P390 A391 S392 I393 L394 V395 V396 K397
A398 Y401 D405 D406 V407 E408 V409 S410 T411 G412 D413 V420 G425 V431 Y432 G433 R434 V435 E436 V437 D438 R441 N442 V443 V444 R445 V446 V447 E448 S449 Y450 D451 I452 D453 A454 R455 M456 G457 A460 L465 L468 D469 L470 E474 M481 K482 H483 P484 S485
R486 A487 R488 R489 A490 K491 K494 R495 L496 R500 L503 R508 P509 E510 W511 M512 T513 V517 L520 P521 P522 R525 P526 M527 V528 Q529 V530 D531 R534 T537 Y544 I548 R553 L554 K555 K556 L557 L558 I565 I566 T567 E570 K571 R572 M573 L574
Q575 D579 A580 L581 L582 R587 S602 L603 R613 R622 V623 D624 Y625 S626 G627 R628 S629 V630 I631 V632 P635 Q636 L637 K638 L639 H640 Q641 C642 G643 L644 P645 P655 F656 L657 K660 M661 K664 G665 I666 N669 V670 K671 R674 R675 W676 L677 Q680 R681
D682 I683 K684 D685 E686 V687 W688 D689 A690 L691 I695 V699 V700 L701 L702 N703 R704 H709 R710 L711 G712 I713 Q714 Q717 P718 V719 L720 Q724 Q727 F736 D739 F740 D741 G742 D743 Q744 M745 A746 V747 H748 V749 P750 F754 A755 Q756 I761 Q762 M763 H767
A773 L778 D784 L787 I792 T793 Q794 V795 R796 K797 E798 K799 K800 L804 T808 P809 E810 E811 A812 L813 R818 G819 E820 N824 I827 K828 V829 R832 E833 T834 R838 V842 N845 E848 L860 Q961 T865 E874 T875 S876 R879
I880 L881 I885 V886 A887 E888 A889 V890 V895 A896 W897 E898 L899 I900 Q901 L902 D903 V904 P905 Q906 E907 S910 Y916 Q917 L920 R921 L922 Y936 Y937 G938 F939 T940 F941 I947 T948 I949 D952 I956 E975 Y978 F982 L983 T984 D985 R986 E987 R988 Y989
I992 T999 V1003 V1007 F1011 N1014 P1019 M1023 A1028 R1029 Q1033 Q1034 L1038 C1039 G1040 L1041 R1042 M1045 Q1046 K1047 P1048 S1049 G1050 E1051 T1052 F1053 E1054 V1057 V1067 L1068 I1072 H1075 G1076 T1084 T1088 G1092 L1098 V1099 V1107
R1108 E1109 A1110 D1111 C1112 G1113 T1114 D1126 E1127 V1128 T1129 R1130 R1137 E1141 A1142 G1143 L1144 Y1145 G1146 R1147 V1148 R1151 V1155 R1159 R1164 Y1165 L1166 S1167 M1168 V1171 A1177 V1188 R1189 R1197 Y1198 G1199 V1200 K1203 C1204 P1214 I1217 A1225 I1229
T1234 Q1235 L1236 T1237 MET ARG THR PHE HIS THR GLY GLY VAL ALA GLY ALA ALA ASP ILE THR Q1254 R1258 E1261 L1262 A1265 R1266 R1267 P1268 K1271 A1272 V1273 I1274 S1275 E1276 I1277 D1278 G1279 V1280 V1281 R1282 T1286 E1287 E1288 K1289 L1290 S1291 V1292 F1293 V1294 E1295 S1296 E1297 G1298 F1299 S1300
K1301 E1302 Y1303 K1304 L1305 P1306 K1307 E1308 A1309 R1310 L1311 L1312 V1313 K1314 D1315 G1316 D1317 Y1318 T1326 R1327 D1331 P1332 H1333 L1336 E1342 A1343 V1344 E1351 L1363 H1364 D1365 K1366 V1371 V1372 R1373 Q1374 M1375 V1379 D1386 S1387 L1390 E1391 W1398 D1399 E1405 A1409 E1410





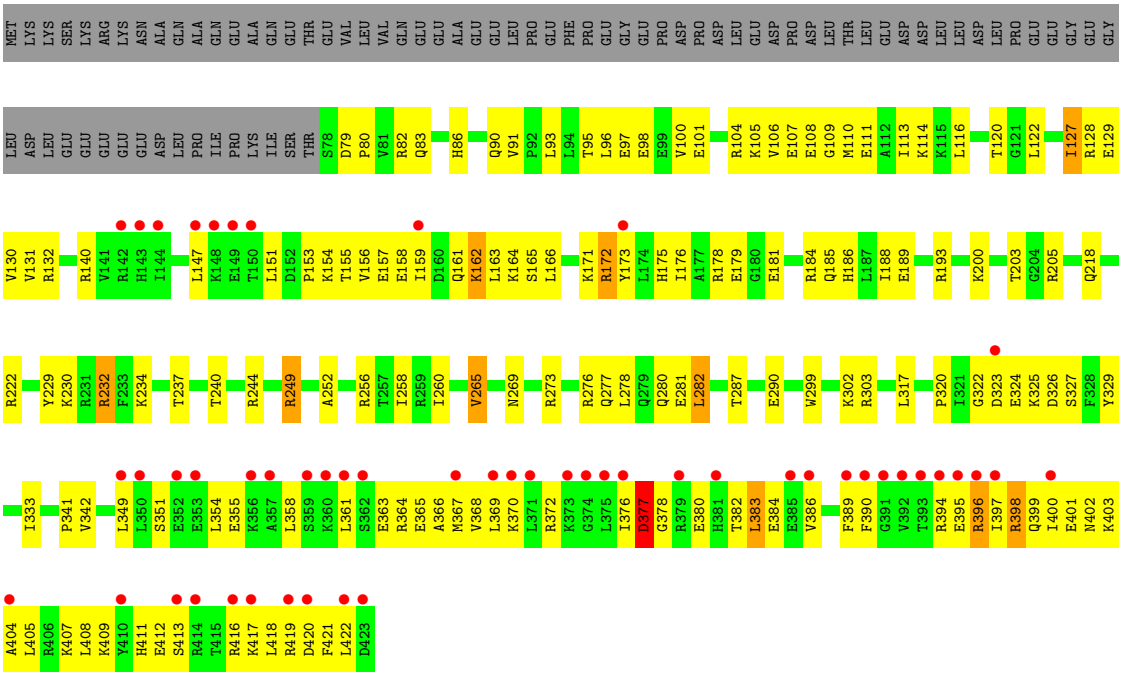
• Molecule 4: DNA-directed RNA polymerase subunit omega

Chain E:



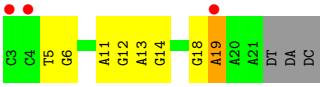

• Molecule 5: RNA polymerase sigma factor SigA

Chain F:

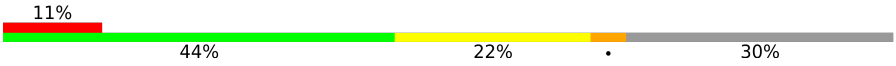
• Molecule 6: DNA (5'-D(P*GP*GP*TP*GP*CP*AP*TP*CP*AP*GP*AP*GP*CP*CP*CP*GP*AP*AP*A)-3')

Chain G:

• Molecule 7: DNA (5'-D(*TP*AP*TP*AP*AP*TP*GP*GP*GP*CP*TP*GP*AP*TP*GP*CP*AP*GP*G)-3')

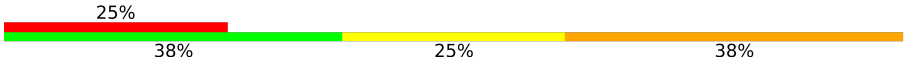
Chain H:

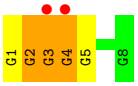




• Molecule 8: RNA (5'-D(*(GTP))-R(P*GP*GP*GP*GP*GP*GP*G)-3')

Chain I:



# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | C 1 2 1 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 185.90Å 101.42Å 295.19Å<br>90.00° 98.64° 90.00° | Depositor |
| Resolution (Å) | 41.69 – 2.84<br>41.69 – 2.84 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 96.5 (41.69-2.84)<br>96.5 (41.69-2.84) | Depositor<br>EDS |
| $R_{merge}$ | (Not available) | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 1.72 (at 2.86Å) | Xtriage |
| Refinement program | PHENIX (1.14_3260: ???) | Depositor |
| R, $R_{free}$ | 0.222 , 0.268<br>0.222 , 0.268 | Depositor<br>DCC |
| $R_{free}$ test set | 1994 reflections (1.61%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 79.0 | Xtriage |
| Anisotropy | 0.659 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.29 , 64.0 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.49$, $< L^2 > = 0.33$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.95 | EDS |
| Total number of atoms | 28535 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 102.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.11% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

# 5 Model quality

## 5.1 Standard geometry

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

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 | 0.50 | 1/1814 (0.1%) | 0.70 | 1/2466 (0.0%) |
| 1 | B | 0.53 | 0/1799 | 0.72 | 0/2447 |
| 2 | C | 0.52 | 3/8892 (0.0%) | 0.72 | 5/12028 (0.0%) |
| 3 | D | 0.57 | 3/11928 (0.0%) | 0.75 | 12/16127 (0.1%) |
| 4 | E | 0.52 | 0/775 | 0.80 | 3/1045 (0.3%) |
| 5 | F | 0.58 | 5/2835 (0.2%) | 0.74 | 6/3816 (0.2%) |
| 6 | G | 1.14 | 1/434 (0.2%) | 1.06 | 1/666 (0.2%) |
| 7 | H | 0.87 | 0/442 | 1.00 | 2/680 (0.3%) |
| 8 | I | 0.79 | 0/181 | 1.36 | 1/283 (0.4%) |
| All | All | 0.57 | 13/29100 (0.0%) | 0.75 | 31/39558 (0.1%) |

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 |
|---|---|---|---|
| 1 | A | 0 | 1 |
| 3 | D | 0 | 2 |
| 5 | F | 0 | 1 |
| All | All | 0 | 4 |

All (13) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 5 | F | 249 | ARG | CB-CG | 10.78 | 1.81 | 1.52 |
| 2 | C | 37 | GLU | CB-CG | -10.32 | 1.32 | 1.52 |
| 2 | C | 37 | GLU | CD-OE1 | -8.63 | 1.16 | 1.25 |
| 5 | F | 249 | ARG | CZ-NH2 | -8.59 | 1.21 | 1.33 |
| 5 | F | 249 | ARG | NE-CZ | 8.53 | 1.44 | 1.33 |
| 2 | C | 37 | GLU | CD-OE2 | 7.38 | 1.33 | 1.25 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 6 | G | 19 | DA | P-O5' | 6.97 | 1.66 | 1.59 |
| 3 | D | 1148 | VAL | CB-CG2 | -6.40 | 1.39 | 1.52 |
| 3 | D | 749 | VAL | CB-CG2 | -5.64 | 1.41 | 1.52 |
| 3 | D | 299 | GLU | CB-CG | 5.47 | 1.62 | 1.52 |
| 5 | F | 249 | ARG | CD-NE | 5.30 | 1.55 | 1.46 |
| 1 | A | 75 | VAL | CB-CG1 | -5.05 | 1.42 | 1.52 |
| 5 | F | 265 | VAL | CB-CG1 | -5.04 | 1.42 | 1.52 |

All (31) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 5 | F | 249 | ARG | NE-CZ-NH2 | 13.02 | 126.81 | 120.30 |
| 6 | G | 19 | DA | O4'-C4'-C3' | -8.25 | 101.05 | 106.00 |
| 5 | F | 249 | ARG | NH1-CZ-NH2 | -7.98 | 110.62 | 119.40 |
| 3 | D | 513 | ILE | CG1-CB-CG2 | -7.95 | 93.91 | 111.40 |
| 3 | D | 35 | ARG | NE-CZ-NH2 | -7.32 | 116.64 | 120.30 |
| 3 | D | 1151 | ARG | CA-CB-CG | 7.21 | 129.26 | 113.40 |
| 5 | F | 249 | ARG | CD-NE-CZ | 7.10 | 133.54 | 123.60 |
| 3 | D | 152 | LEU | CA-CB-CG | 6.97 | 131.34 | 115.30 |
| 3 | D | 1151 | ARG | NE-CZ-NH1 | -6.76 | 116.92 | 120.30 |
| 3 | D | 170 | PRO | C-N-CA | -6.73 | 104.88 | 121.70 |
| 4 | E | 85 | LEU | CB-CG-CD1 | -6.34 | 100.22 | 111.00 |
| 3 | D | 204 | LEU | CB-CG-CD1 | -6.32 | 100.26 | 111.00 |
| 5 | F | 127 | ILE | CG1-CB-CG2 | -6.13 | 97.91 | 111.40 |
| 4 | E | 30 | LEU | CB-CG-CD1 | -5.99 | 100.83 | 111.00 |
| 2 | C | 203 | ASP | CB-CG-OD1 | 5.87 | 123.58 | 118.30 |
| 3 | D | 191 | LEU | CB-CG-CD2 | -5.82 | 101.10 | 111.00 |
| 2 | C | 260 | LEU | CA-CB-CG | 5.78 | 128.60 | 115.30 |
| 4 | E | 26 | ARG | CG-CD-NE | 5.72 | 123.80 | 111.80 |
| 7 | H | 1 | DT | O4'-C1'-N1 | 5.70 | 111.99 | 108.00 |
| 1 | A | 99 | LEU | CB-CG-CD2 | -5.46 | 101.72 | 111.00 |
| 7 | H | 5 | DA | O4'-C1'-N9 | 5.43 | 111.80 | 108.00 |
| 5 | F | 282 | LEU | CA-CB-CG | 5.43 | 127.79 | 115.30 |
| 2 | C | 241 | LEU | CA-CB-CG | 5.43 | 127.78 | 115.30 |
| 5 | F | 383 | LEU | CA-CB-CG | 5.29 | 127.47 | 115.30 |
| 2 | C | 1055 | LEU | CA-CB-CG | 5.23 | 127.33 | 115.30 |
| 8 | I | 2 | G | O4'-C1'-N9 | -5.22 | 104.03 | 108.20 |
| 3 | D | 1422 | MET | CA-CB-CG | 5.18 | 122.11 | 113.30 |
| 3 | D | 739 | ASP | CB-CG-OD2 | 5.05 | 122.85 | 118.30 |
| 3 | D | 713 | ILE | CG1-CB-CG2 | -5.02 | 100.35 | 111.40 |
| 2 | C | 37 | GLU | CB-CA-C | -5.02 | 100.36 | 110.40 |
| 3 | D | 191 | LEU | CA-CB-CG | 5.02 | 126.84 | 115.30 |

There are no chirality outliers.

All (4) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 1 | A | 161 | ARG | Peptide |
| 3 | D | 1129 | THR | Peptide |
| 3 | D | 65 | ARG | Peptide |
| 5 | F | 389 | PHE | Peptide |

## 5.2 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 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 | 1782 | 0 | 1834 | 86 | 0 |
| 1 | B | 1767 | 0 | 1816 | 118 | 0 |
| 2 | C | 8726 | 0 | 8814 | 428 | 0 |
| 3 | D | 11722 | 0 | 11950 | 601 | 13 |
| 4 | E | 761 | 0 | 778 | 43 | 0 |
| 5 | F | 2790 | 0 | 2853 | 183 | 11 |
| 6 | G | 387 | 0 | 212 | 9 | 0 |
| 7 | H | 394 | 0 | 217 | 9 | 0 |
| 8 | I | 193 | 0 | 88 | 3 | 0 |
| 9 | B | 1 | 0 | 0 | 0 | 0 |
| 9 | D | 1 | 0 | 0 | 0 | 0 |
| 10 | C | 9 | 0 | 0 | 0 | 0 |
| 11 | D | 2 | 0 | 0 | 0 | 0 |
| All | All | 28535 | 0 | 28562 | 1358 | 13 |

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 24.

All (1358) 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) |
|---|---|---|---|
| 5:F:249:ARG:CG | 5:F:249:ARG:CB | 1.81 | 1.58 |
| 3:D:371:ILE:CD1 | 3:D:372:ASP:H | 1.36 | 1.38 |
| 2:C:605:LYS:HB3 | 2:C:610:ARG:NH2 | 1.35 | 1.36 |
| 3:D:411:THR:O | 5:F:178:ARG:NH2 | 1.58 | 1.36 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:411:THR:C | 5:F:178:ARG:NH2 | 1.90 | 1.23 |
| 2:C:605:LYS:CB | 2:C:610:ARG:NH2 | 2.06 | 1.19 |
| 5:F:258:ILE:O | 5:F:258:ILE:HD12 | 1.39 | 1.17 |
| 3:D:371:ILE:HD12 | 3:D:372:ASP:N | 1.58 | 1.16 |
| 2:C:367:LEU:HA | 2:C:371:LYS:HE3 | 1.29 | 1.13 |
| 3:D:411:THR:O | 5:F:178:ARG:CZ | 1.97 | 1.11 |
| 2:C:13:ILE:HD12 | 2:C:14:PRO:HD2 | 1.33 | 1.11 |
| 2:C:68:PHE:HA | 2:C:98:LEU:HD12 | 1.28 | 1.10 |
| 3:D:135:LEU:O | 3:D:149:LYS:HE2 | 1.52 | 1.09 |
| 3:D:890:VAL:HG11 | 3:D:922:LEU:HD13 | 1.34 | 1.07 |
| 3:D:411:THR:O | 5:F:178:ARG:NE | 1.88 | 1.06 |
| 2:C:366:SER:O | 2:C:371:LYS:NZ | 1.90 | 1.04 |
| 2:C:1101:THR:OG1 | 2:C:1111:ILE:HD11 | 1.55 | 1.04 |
| 3:D:572:ARG:HH12 | 5:F:83:GLN:HG2 | 1.22 | 1.03 |
| 3:D:218:LYS:NZ | 3:D:338:GLU:CA | 2.23 | 1.01 |
| 3:D:992:ILE:HD11 | 3:D:1054:GLU:HB3 | 1.42 | 1.01 |
| 1:A:57:TYR:CD1 | 1:A:161:ARG:NH1 | 2.28 | 1.01 |
| 3:D:371:ILE:CD1 | 3:D:372:ASP:N | 2.17 | 1.01 |
| 3:D:890:VAL:CG1 | 3:D:922:LEU:HD13 | 1.90 | 1.00 |
| 3:D:1047:LYS:CE | 3:D:1048:PRO:HG2 | 1.93 | 0.99 |
| 5:F:230:LYS:O | 5:F:232:ARG:HD2 | 1.63 | 0.98 |
| 3:D:218:LYS:HE3 | 3:D:338:GLU:HG2 | 1.45 | 0.97 |
| 5:F:258:ILE:O | 5:F:258:ILE:CD1 | 2.12 | 0.97 |
| 1:B:71:VAL:HG12 | 1:B:132:LEU:HG | 1.45 | 0.97 |
| 3:D:218:LYS:NZ | 3:D:338:GLU:HA | 1.78 | 0.96 |
| 2:C:605:LYS:CB | 2:C:610:ARG:HH22 | 1.70 | 0.96 |
| 3:D:371:ILE:HD13 | 3:D:372:ASP:CG | 1.84 | 0.96 |
| 1:A:57:TYR:CE2 | 1:A:161:ARG:NH2 | 2.34 | 0.96 |
| 2:C:1067:TYR:OH | 3:D:674:ARG:NH1 | 1.99 | 0.96 |
| 3:D:36:THR:HG23 | 3:D:38:LYS:H | 1.29 | 0.96 |
| 2:C:723:THR:HG22 | 2:C:725:ASP:H | 1.29 | 0.95 |
| 3:D:273:ARG:HB3 | 3:D:278:PRO:HA | 1.47 | 0.94 |
| 3:D:218:LYS:NZ | 3:D:339:TRP:N | 2.17 | 0.92 |
| 2:C:486:MET:HG3 | 2:C:490:GLU:HG3 | 1.48 | 0.92 |
| 3:D:168:THR:HG22 | 3:D:394:LEU:HD13 | 1.52 | 0.92 |
| 3:D:361:VAL:HG23 | 3:D:365:ASP:HB2 | 1.49 | 0.92 |
| 3:D:371:ILE:HD12 | 3:D:372:ASP:H | 0.75 | 0.91 |
| 3:D:371:ILE:HD13 | 3:D:372:ASP:OD1 | 1.69 | 0.91 |
| 3:D:218:LYS:CE | 3:D:338:GLU:CB | 2.49 | 0.90 |
| 1:B:102:LYS:HG3 | 1:B:139:ASN:HB2 | 1.51 | 0.90 |
| 1:B:56:VAL:HG23 | 1:B:142:VAL:HG12 | 1.52 | 0.90 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:F:237:THR:HG1 | 7:H:4:DA:H8 | 1.13 | 0.90 |
| 3:D:205:TYR:HD1 | 3:D:390:PRO:HB3 | 1.36 | 0.90 |
| 2:C:501:THR:HG21 | 2:C:513:VAL:HG23 | 1.52 | 0.89 |
| 3:D:218:LYS:HZ2 | 3:D:338:GLU:HA | 1.33 | 0.89 |
| 1:B:124:ASN:HD22 | 1:B:127:LEU:CD1 | 1.85 | 0.89 |
| 3:D:828:LYS:HD2 | 3:D:833:GLU:HB3 | 1.55 | 0.88 |
| 1:B:124:ASN:ND2 | 1:B:127:LEU:HD12 | 1.89 | 0.88 |
| 3:D:174:GLY:H | 3:D:209:ARG:HH12 | 1.20 | 0.88 |
| 2:C:367:LEU:HA | 2:C:371:LYS:CE | 2.04 | 0.87 |
| 1:A:99:LEU:HD11 | 1:A:114:PHE:HB3 | 1.54 | 0.87 |
| 2:C:575:GLN:OE1 | 2:C:671:ASN:N | 2.07 | 0.86 |
| 3:D:116:LEU:HD11 | 3:D:465:LEU:HD21 | 1.55 | 0.86 |
| 2:C:210:GLU:HB3 | 2:C:211:LEU:HD22 | 1.55 | 0.86 |
| 3:D:142:LEU:HD12 | 3:D:161:LEU:HD11 | 1.56 | 0.86 |
| 3:D:181:ASP:HB2 | 3:D:205:TYR:HD2 | 1.40 | 0.86 |
| 3:D:209:ARG:HA | 3:D:347:VAL:HG12 | 1.55 | 0.86 |
| 5:F:372:ARG:HH12 | 5:F:380:GLU:HA | 1.40 | 0.85 |
| 3:D:208:PRO:O | 3:D:347:VAL:HG11 | 1.75 | 0.85 |
| 5:F:372:ARG:O | 5:F:372:ARG:NH1 | 2.08 | 0.85 |
| 2:C:605:LYS:HB3 | 2:C:610:ARG:HH22 | 0.77 | 0.84 |
| 3:D:241:ILE:HD11 | 3:D:310:LEU:HD11 | 1.59 | 0.84 |
| 3:D:631:ILE:HD11 | 3:D:745:MET:SD | 2.17 | 0.84 |
| 3:D:1047:LYS:HE2 | 3:D:1048:PRO:CG | 2.08 | 0.84 |
| 3:D:173:PRO:HA | 3:D:209:ARG:HH22 | 1.43 | 0.84 |
| 3:D:218:LYS:HZ1 | 3:D:338:GLU:CA | 1.91 | 0.84 |
| 3:D:1047:LYS:NZ | 3:D:1048:PRO:HG2 | 1.93 | 0.84 |
| 3:D:896:ALA:O | 3:D:900:ILE:HD12 | 1.78 | 0.83 |
| 1:A:76:VAL:O | 1:A:79:ILE:HG22 | 1.79 | 0.83 |
| 2:C:428:ARG:NH2 | 2:C:447:ALA:O | 2.12 | 0.83 |
| 1:B:112:ARG:HG2 | 1:B:125:PRO:HB2 | 1.59 | 0.83 |
| 3:D:496:LEU:HD23 | 3:D:1390:LEU:HD21 | 1.60 | 0.82 |
| 1:A:57:TYR:CZ | 1:A:161:ARG:NH2 | 2.44 | 0.82 |
| 1:A:85:LEU:HD21 | 1:A:87:VAL:HG13 | 1.61 | 0.82 |
| 2:C:23:VAL:HA | 2:C:121:MET:HE1 | 1.61 | 0.82 |
| 2:C:607:ASP:HB3 | 2:C:610:ARG:HG3 | 1.62 | 0.82 |
| 5:F:116:LEU:HD22 | 5:F:127:ILE:HG21 | 1.61 | 0.82 |
| 2:C:150:PRO:HD3 | 2:C:322:VAL:HG11 | 1.61 | 0.81 |
| 2:C:683:ASN:HB3 | 2:C:872:ASN:HB2 | 1.60 | 0.81 |
| 2:C:367:LEU:HD12 | 2:C:371:LYS:NZ | 1.93 | 0.81 |
| 3:D:890:VAL:HG11 | 3:D:922:LEU:CD1 | 2.09 | 0.81 |
| 3:D:218:LYS:HZ1 | 3:D:338:GLU:C | 1.84 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:1281:VAL:HG22 | 3:D:1317:ASP:H | 1.45 | 0.81 |
| 6:G:18:DG:H2' | 6:G:19:DA:H5' | 1.62 | 0.81 |
| 2:C:716:LYS:HE2 | 2:C:716:LYS:H | 1.45 | 0.80 |
| 3:D:1047:LYS:CE | 3:D:1048:PRO:CG | 2.58 | 0.80 |
| 3:D:218:LYS:HE3 | 3:D:338:GLU:CG | 2.11 | 0.80 |
| 2:C:503:LEU:HD12 | 2:C:508:ILE:HA | 1.63 | 0.80 |
| 3:D:218:LYS:CE | 3:D:338:GLU:HB3 | 2.11 | 0.80 |
| 3:D:413:ASP:H | 5:F:178:ARG:HH22 | 1.28 | 0.80 |
| 3:D:628:ARG:HH21 | 3:D:746:ALA:HB2 | 1.43 | 0.80 |
| 1:B:85:LEU:HA | 1:B:124:ASN:HD21 | 1.47 | 0.80 |
| 1:A:57:TYR:CD2 | 1:A:161:ARG:NH2 | 2.50 | 0.79 |
| 2:C:229:MET:HG3 | 2:C:233:GLU:HB2 | 1.64 | 0.79 |
| 3:D:203:ALA:HB1 | 3:D:393:ILE:HD11 | 1.64 | 0.79 |
| 3:D:218:LYS:HZ2 | 3:D:339:TRP:H | 1.31 | 0.79 |
| 3:D:800:LYS:NZ | 3:D:819:GLY:O | 2.16 | 0.79 |
| 2:C:728:HIS:ND1 | 5:F:422:LEU:O | 2.15 | 0.79 |
| 2:C:890:LEU:HD23 | 2:C:890:LEU:O | 1.82 | 0.79 |
| 3:D:65:ARG:HH21 | 5:F:377:ASP:H | 1.28 | 0.79 |
| 2:C:367:LEU:HD12 | 2:C:371:LYS:HZ2 | 1.45 | 0.78 |
| 3:D:181:ASP:HB2 | 3:D:205:TYR:CD2 | 2.18 | 0.78 |
| 2:C:589:ARG:HE | 2:C:596:TYR:HE2 | 1.32 | 0.78 |
| 3:D:218:LYS:NZ | 3:D:339:TRP:H | 1.80 | 0.78 |
| 3:D:218:LYS:HE2 | 3:D:338:GLU:HB3 | 1.66 | 0.78 |
| 3:D:218:LYS:CE | 3:D:338:GLU:CG | 2.62 | 0.78 |
| 3:D:259:VAL:HG12 | 3:D:296:GLU:O | 1.85 | 0.77 |
| 5:F:116:LEU:HD21 | 5:F:163:LEU:HD21 | 1.65 | 0.77 |
| 1:A:108:GLU:HG2 | 1:A:131:THR:HG23 | 1.67 | 0.77 |
| 2:C:474:VAL:HG11 | 2:C:529:VAL:HG22 | 1.65 | 0.77 |
| 5:F:397:ILE:HD13 | 5:F:400:ILE:HD11 | 1.66 | 0.77 |
| 3:D:371:ILE:HD13 | 3:D:372:ASP:CB | 2.14 | 0.77 |
| 3:D:209:ARG:HA | 3:D:347:VAL:CG1 | 2.14 | 0.77 |
| 3:D:224:ARG:NH1 | 3:D:254:GLU:OE1 | 2.16 | 0.77 |
| 4:E:26:ARG:HD3 | 4:E:30:LEU:HD11 | 1.64 | 0.77 |
| 5:F:131:VAL:HG13 | 5:F:178:ARG:HG2 | 1.66 | 0.77 |
| 3:D:1047:LYS:HE2 | 3:D:1048:PRO:HD2 | 1.65 | 0.77 |
| 4:E:80:VAL:CG2 | 4:E:85:LEU:HD11 | 2.14 | 0.77 |
| 1:A:111:ALA:HA | 1:A:114:PHE:HE2 | 1.50 | 0.76 |
| 3:D:218:LYS:NZ | 3:D:338:GLU:C | 2.39 | 0.76 |
| 3:D:631:ILE:HD11 | 3:D:745:MET:HB2 | 1.66 | 0.76 |
| 3:D:1047:LYS:HE2 | 3:D:1048:PRO:CD | 2.15 | 0.76 |
| 3:D:33:ASN:HB3 | 3:D:36:THR:HG22 | 1.66 | 0.76 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:19:GLU:HA | 1:A:201:THR:HG22 | 1.67 | 0.76 |
| 2:C:162:ILE:HD11 | 2:C:172:ILE:HD12 | 1.66 | 0.76 |
| 2:C:711:GLU:OE1 | 2:C:713:ARG:NH2 | 2.20 | 0.75 |
| 1:B:18:ARG:NH1 | 1:B:204:SER:O | 2.20 | 0.75 |
| 5:F:265:VAL:O | 5:F:269:ASN:ND2 | 2.19 | 0.75 |
| 4:E:50:THR:HG22 | 4:E:53:GLY:O | 1.86 | 0.75 |
| 2:C:226:VAL:O | 2:C:229:MET:HE2 | 1.87 | 0.75 |
| 2:C:78:PHE:HB3 | 2:C:82:GLU:HG2 | 1.68 | 0.75 |
| 2:C:150:PRO:HA | 2:C:158:TYR:HD1 | 1.50 | 0.75 |
| 3:D:1126:ASP:O | 3:D:1130:ARG:HA | 1.87 | 0.75 |
| 3:D:675:ARG:HH22 | 5:F:420:ASP:HA | 1.50 | 0.74 |
| 2:C:521:PRO:HB3 | 3:D:1068:LEU:HD21 | 1.68 | 0.74 |
| 3:D:171:LEU:HD21 | 3:D:390:PRO:HG2 | 1.69 | 0.74 |
| 1:B:206:THR:HG22 | 1:B:209:GLU:HB2 | 1.69 | 0.74 |
| 3:D:224:ARG:HH11 | 3:D:254:GLU:CD | 1.90 | 0.74 |
| 3:D:808:THR:HG23 | 3:D:811:GLU:HB2 | 1.70 | 0.74 |
| 1:A:111:ALA:HA | 1:A:114:PHE:CE2 | 2.22 | 0.73 |
| 2:C:23:VAL:HA | 2:C:121:MET:CE | 2.18 | 0.73 |
| 3:D:691:LEU:HD22 | 3:D:720:LEU:HD21 | 1.69 | 0.73 |
| 5:F:120:THR:HB | 5:F:122:LEU:HD13 | 1.67 | 0.73 |
| 2:C:343:GLN:HG3 | 2:C:385:PHE:HB2 | 1.71 | 0.73 |
| 1:A:79:ILE:HD11 | 1:A:167:VAL:CG2 | 2.19 | 0.73 |
| 1:B:128:HIS:HE1 | 1:B:131:THR:HG22 | 1.54 | 0.73 |
| 3:D:44:LEU:HB3 | 3:D:525:ARG:NH2 | 2.03 | 0.73 |
| 2:C:605:LYS:HB2 | 2:C:610:ARG:NH2 | 2.04 | 0.73 |
| 2:C:267:TYR:CZ | 2:C:290:LEU:HD11 | 2.24 | 0.73 |
| 3:D:1286:THR:O | 3:D:1307:LYS:NZ | 2.18 | 0.72 |
| 4:E:39:VAL:HG11 | 4:E:72:ARG:HB2 | 1.69 | 0.72 |
| 2:C:280:LYS:HE3 | 2:C:323:ASP:OD2 | 1.89 | 0.72 |
| 3:D:686:GLU:OE1 | 3:D:686:GLU:N | 2.22 | 0.72 |
| 3:D:1108:ARG:NH2 | 3:D:1198:TYR:O | 2.21 | 0.72 |
| 2:C:495:THR:HG23 | 2:C:530:GLU:OE1 | 1.90 | 0.72 |
| 3:D:572:ARG:NH1 | 5:F:83:GLN:HG2 | 2.01 | 0.72 |
| 3:D:798:GLU:OE2 | 3:D:824:ASN:ND2 | 2.20 | 0.72 |
| 3:D:828:LYS:CD | 3:D:833:GLU:HB3 | 2.20 | 0.72 |
| 3:D:100:ALA:HB3 | 3:D:575:GLN:HE22 | 1.54 | 0.72 |
| 3:D:625:TYR:HB3 | 3:D:749:VAL:HG22 | 1.71 | 0.72 |
| 3:D:767:HIS:CE1 | 4:E:6:ILE:HD13 | 2.24 | 0.72 |
| 3:D:975:GLU:OE2 | 3:D:988:ARG:NH1 | 2.21 | 0.72 |
| 3:D:1155:VAL:HG11 | 3:D:1177:ALA:HB2 | 1.71 | 0.72 |
| 3:D:218:LYS:HZ2 | 3:D:339:TRP:N | 1.85 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:875:THR:HG21 | 3:D:902:LEU:HD21 | 1.72 | 0.72 |
| 1:A:94:LEU:O | 1:A:146:ARG:NH1 | 2.23 | 0.71 |
| 5:F:122:LEU:HB3 | 5:F:127:ILE:HD11 | 1.72 | 0.71 |
| 1:B:124:ASN:HB2 | 1:B:127:LEU:HG | 1.70 | 0.71 |
| 2:C:936:VAL:HG11 | 2:C:959:PRO:HB2 | 1.70 | 0.71 |
| 3:D:1450:ALA:HA | 3:D:1455:LYS:HD2 | 1.71 | 0.71 |
| 1:A:104:GLU:HG2 | 1:A:137:ARG:HD3 | 1.72 | 0.71 |
| 3:D:169:TYR:HE1 | 3:D:395:VAL:HG12 | 1.56 | 0.71 |
| 5:F:400:ILE:HA | 5:F:403:LYS:HG2 | 1.71 | 0.71 |
| 1:A:39:PRO:O | 1:A:43:ILE:HG13 | 1.91 | 0.71 |
| 1:A:216:GLU:OE2 | 1:A:219:ARG:NH2 | 2.24 | 0.71 |
| 3:D:218:LYS:CE | 3:D:338:GLU:HA | 2.21 | 0.71 |
| 3:D:1305:LEU:HD21 | 3:D:1309:ALA:HB3 | 1.72 | 0.71 |
| 1:B:176:ARG:NH2 | 3:D:888:GLU:OE1 | 2.23 | 0.70 |
| 3:D:231:VAL:O | 3:D:236:TYR:OH | 2.08 | 0.70 |
| 3:D:408:GLU:HA | 5:F:164:LYS:NZ | 2.07 | 0.70 |
| 3:D:297:ILE:HD12 | 3:D:297:ILE:O | 1.92 | 0.70 |
| 3:D:581:LEU:HD23 | 3:D:582:LEU:HD23 | 1.73 | 0.70 |
| 3:D:1267:ARG:NH1 | 3:D:1331:ASP:OD2 | 2.23 | 0.70 |
| 1:A:56:VAL:HG13 | 1:A:142:VAL:HG12 | 1.74 | 0.70 |
| 3:D:513:ILE:O | 3:D:513:ILE:HD12 | 1.92 | 0.70 |
| 3:D:36:THR:HG23 | 3:D:38:LYS:N | 2.02 | 0.70 |
| 3:D:116:LEU:HD21 | 3:D:465:LEU:CD2 | 2.22 | 0.70 |
| 3:D:809:PRO:HG3 | 3:D:829:VAL:HG11 | 1.74 | 0.70 |
| 1:B:101:LEU:HD21 | 1:B:113:ASP:O | 1.92 | 0.69 |
| 3:D:1282:ARG:HA | 3:D:1315:ASP:OD1 | 1.91 | 0.69 |
| 1:A:222:LEU:HD22 | 1:B:215:VAL:HG23 | 1.75 | 0.69 |
| 2:C:753:ASP:OD2 | 3:D:681:ARG:NH2 | 2.25 | 0.69 |
| 3:D:368:VAL:HG22 | 3:D:377:VAL:HG22 | 1.73 | 0.69 |
| 3:D:984:THR:HB | 3:D:987:GLU:H | 1.55 | 0.69 |
| 2:C:172:ILE:HG12 | 2:C:186:VAL:HG22 | 1.73 | 0.69 |
| 2:C:150:PRO:HA | 2:C:158:TYR:CD1 | 2.26 | 0.69 |
| 2:C:242:LEU:N | 2:C:242:LEU:HD22 | 2.08 | 0.69 |
| 1:A:101:LEU:HD12 | 1:A:114:PHE:CE1 | 2.28 | 0.69 |
| 3:D:64:LYS:O | 3:D:65:ARG:HG3 | 1.93 | 0.69 |
| 2:C:495:THR:HG22 | 2:C:517:ARG:HD3 | 1.73 | 0.69 |
| 2:C:460:ARG:HD2 | 2:C:485:TYR:CZ | 2.28 | 0.69 |
| 2:C:719:PRO:HB3 | 2:C:820:ARG:HH12 | 1.58 | 0.68 |
| 3:D:1294:VAL:O | 3:D:1300:SER:HB3 | 1.93 | 0.68 |
| 2:C:13:ILE:HD12 | 2:C:14:PRO:CD | 2.19 | 0.68 |
| 1:B:58:ILE:HG13 | 1:B:61:VAL:HG12 | 1.74 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:85:LEU:HD21 | 1:B:122:ILE:HG23 | 1.76 | 0.68 |
| 2:C:395:LYS:HD3 | 2:C:397:GLU:HB3 | 1.74 | 0.68 |
| 2:C:754:ILE:HG13 | 2:C:791:ARG:HE | 1.58 | 0.68 |
| 2:C:890:LEU:HD21 | 2:C:901:TYR:CD2 | 2.28 | 0.68 |
| 3:D:218:LYS:HZ1 | 3:D:338:GLU:HB3 | 1.58 | 0.68 |
| 1:B:58:ILE:HD11 | 1:B:61:VAL:HB | 1.75 | 0.68 |
| 3:D:413:ASP:N | 5:F:178:ARG:HH22 | 1.92 | 0.68 |
| 5:F:363:GLU:O | 5:F:367:MET:N | 2.27 | 0.68 |
| 3:D:179:VAL:HG21 | 3:D:191:LEU:HD12 | 1.74 | 0.67 |
| 2:C:163:ILE:HG13 | 2:C:171:TRP:HD1 | 1.59 | 0.67 |
| 3:D:218:LYS:NZ | 3:D:338:GLU:CB | 2.56 | 0.67 |
| 3:D:411:THR:HA | 3:D:435:VAL:HG13 | 1.76 | 0.67 |
| 3:D:371:ILE:HD13 | 3:D:372:ASP:N | 2.09 | 0.67 |
| 3:D:245:LEU:HD12 | 3:D:309:GLY:O | 1.94 | 0.67 |
| 5:F:365:GLU:HG2 | 5:F:403:LYS:HE3 | 1.76 | 0.67 |
| 2:C:535:SER:OG | 2:C:537:LYS:HG3 | 1.95 | 0.67 |
| 3:D:992:ILE:CD1 | 3:D:1054:GLU:HB3 | 2.22 | 0.67 |
| 1:B:124:ASN:HD22 | 1:B:127:LEU:HD11 | 1.57 | 0.67 |
| 3:D:96:ALA:HB3 | 3:D:554:LEU:HD23 | 1.75 | 0.67 |
| 3:D:133:ILE:HD12 | 3:D:152:LEU:HB3 | 1.76 | 0.67 |
| 3:D:218:LYS:CE | 3:D:338:GLU:HG2 | 2.22 | 0.67 |
| 3:D:1271:LYS:HD2 | 3:D:1331:ASP:HB2 | 1.77 | 0.67 |
| 2:C:244:PRO:O | 5:F:82:ARG:NH1 | 2.27 | 0.67 |
| 3:D:218:LYS:HZ1 | 3:D:338:GLU:CB | 2.08 | 0.67 |
| 3:D:485:SER:O | 3:D:487:ALA:N | 2.24 | 0.67 |
| 3:D:1019:PRO:O | 3:D:1023:MET:HG3 | 1.95 | 0.67 |
| 3:D:1273:VAL:H | 3:D:1326:THR:HG22 | 1.59 | 0.67 |
| 1:A:4:SER:O | 1:A:189:ARG:NH1 | 2.27 | 0.66 |
| 2:C:189:ARG:NH1 | 2:C:242:LEU:O | 2.27 | 0.66 |
| 2:C:390:GLN:NE2 | 2:C:414:GLY:HA2 | 2.09 | 0.66 |
| 2:C:835:VAL:HA | 2:C:849:VAL:HG23 | 1.76 | 0.66 |
| 5:F:110:MET:HG2 | 5:F:128:ARG:HH22 | 1.60 | 0.66 |
| 2:C:396:ASP:HA | 2:C:633:GLN:NE2 | 2.11 | 0.66 |
| 3:D:1235:GLN:O | 3:D:1236:LEU:HD12 | 1.96 | 0.66 |
| 1:A:211:LEU:O | 1:A:215:VAL:HG12 | 1.95 | 0.66 |
| 2:C:241:LEU:CB | 2:C:242:LEU:HD22 | 2.26 | 0.66 |
| 2:C:728:HIS:C | 2:C:729:LEU:HD22 | 2.16 | 0.66 |
| 3:D:640:HIS:CD2 | 3:D:641:GLN:HG3 | 2.30 | 0.66 |
| 2:C:512:ARG:HB3 | 2:C:523:ILE:HD11 | 1.77 | 0.66 |
| 3:D:191:LEU:HD21 | 3:D:197:SER:CB | 2.26 | 0.66 |
| 4:E:39:VAL:HG12 | 4:E:72:ARG:HH11 | 1.60 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:F:193:ARG:HB3 | 7:H:7:DG:H5' | 1.78 | 0.66 |
| 2:C:154:ARG:NH2 | 2:C:175:GLU:OE2 | 2.29 | 0.66 |
| 2:C:615:TYR:HD2 | 2:C:619:ARG:HE | 1.42 | 0.66 |
| 3:D:407:VAL:O | 5:F:164:LYS:NZ | 2.29 | 0.66 |
| 5:F:104:ARG:O | 5:F:108:GLU:HG3 | 1.96 | 0.66 |
| 1:B:110:LYS:HZ2 | 1:B:112:ARG:HG3 | 1.59 | 0.66 |
| 3:D:1046:GLN:HE21 | 3:D:1076:GLY:HA3 | 1.60 | 0.66 |
| 2:C:168:ARG:NH2 | 2:C:265:ARG:O | 2.29 | 0.65 |
| 2:C:503:LEU:CD1 | 2:C:508:ILE:HA | 2.25 | 0.65 |
| 2:C:229:MET:CE | 2:C:237:ARG:HE | 2.08 | 0.65 |
| 3:D:266:GLU:HG3 | 3:D:314:PRO:HB3 | 1.78 | 0.65 |
| 2:C:913:GLU:O | 2:C:917:LEU:HD12 | 1.95 | 0.65 |
| 1:B:128:HIS:HE1 | 1:B:131:THR:CG2 | 2.10 | 0.65 |
| 1:B:153:ALA:O | 1:B:155:LYS:N | 2.29 | 0.65 |
| 2:C:233:GLU:OE1 | 2:C:233:GLU:N | 2.20 | 0.65 |
| 3:D:93:ILE:HB | 3:D:517:VAL:HG12 | 1.79 | 0.65 |
| 2:C:1047:HIS:CE1 | 3:D:1471:LEU:HD11 | 2.31 | 0.65 |
| 2:C:1006:HIS:HB2 | 2:C:1024:LYS:HG3 | 1.77 | 0.65 |
| 2:C:495:THR:HG22 | 2:C:517:ARG:CD | 2.26 | 0.65 |
| 3:D:899:LEU:HD22 | 3:D:917:GLN:HB3 | 1.77 | 0.65 |
| 3:D:1151:ARG:HB3 | 3:D:1151:ARG:CZ | 2.22 | 0.65 |
| 5:F:154:LYS:NZ | 5:F:155:THR:HG22 | 2.12 | 0.65 |
| 3:D:218:LYS:CE | 3:D:338:GLU:CA | 2.75 | 0.65 |
| 3:D:762:GLN:OE1 | 4:E:20:THR:HG21 | 1.96 | 0.65 |
| 2:C:105:THR:HG23 | 2:C:106:GLY:H | 1.60 | 0.65 |
| 2:C:884:GLN:O | 2:C:888:THR:HG23 | 1.97 | 0.65 |
| 5:F:322:GLY:O | 5:F:324:GLU:N | 2.30 | 0.65 |
| 5:F:372:ARG:NH1 | 5:F:380:GLU:HA | 2.10 | 0.64 |
| 2:C:182:VAL:HG23 | 2:C:193:LEU:HB3 | 1.79 | 0.64 |
| 3:D:192:ALA:HB3 | 3:D:195:VAL:HB | 1.77 | 0.64 |
| 3:D:1144:LEU:O | 3:D:1147:ARG:HG3 | 1.96 | 0.64 |
| 5:F:363:GLU:OE1 | 5:F:363:GLU:HA | 1.95 | 0.64 |
| 1:B:95:GLN:HE21 | 1:B:146:ARG:HD2 | 1.62 | 0.64 |
| 3:D:1033:GLN:N | 3:D:1033:GLN:OE1 | 2.30 | 0.64 |
| 3:D:408:GLU:HA | 5:F:164:LYS:HZ1 | 1.61 | 0.64 |
| 1:A:215:VAL:HG23 | 1:B:222:LEU:HD22 | 1.78 | 0.64 |
| 1:B:124:ASN:HD22 | 1:B:127:LEU:HD12 | 1.47 | 0.64 |
| 1:A:57:TYR:CE1 | 1:A:161:ARG:NH1 | 2.62 | 0.64 |
| 2:C:68:PHE:HA | 2:C:98:LEU:CD1 | 2.16 | 0.64 |
| 2:C:545:ASN:HB3 | 2:C:583:LEU:HD22 | 1.79 | 0.64 |
| 3:D:1047:LYS:CD | 3:D:1048:PRO:HG2 | 2.27 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:674:VAL:HG23 | 2:C:869:VAL:HG13 | 1.79 | 0.64 |
| 3:D:904:VAL:HG22 | 3:D:905:PRO:HD2 | 1.78 | 0.64 |
| 5:F:326:ASP:O | 6:G:19:DA:N6 | 2.31 | 0.64 |
| 2:C:853:LEU:HB2 | 2:C:858:MET:CE | 2.28 | 0.64 |
| 3:D:361:VAL:CG2 | 3:D:365:ASP:HB2 | 2.24 | 0.64 |
| 1:B:95:GLN:NE2 | 1:B:146:ARG:HD2 | 2.12 | 0.64 |
| 3:D:205:TYR:CD1 | 3:D:390:PRO:HB3 | 2.27 | 0.64 |
| 5:F:365:GLU:HG3 | 5:F:404:ALA:HB2 | 1.80 | 0.64 |
| 3:D:280:ALA:HB1 | 3:D:282:TYR:CE2 | 2.33 | 0.64 |
| 5:F:265:VAL:HG22 | 5:F:269:ASN:HD21 | 1.63 | 0.64 |
| 3:D:218:LYS:NZ | 3:D:338:GLU:HB3 | 2.14 | 0.63 |
| 3:D:1364:HIS:ND1 | 3:D:1366:LYS:HB2 | 2.13 | 0.63 |
| 3:D:116:LEU:HD21 | 3:D:465:LEU:HD22 | 1.80 | 0.63 |
| 1:B:61:VAL:CG2 | 1:B:66:SER:HB2 | 2.29 | 0.63 |
| 5:F:122:LEU:CB | 5:F:127:ILE:HD11 | 2.27 | 0.63 |
| 1:B:110:LYS:HZ1 | 1:B:112:ARG:HD2 | 1.63 | 0.63 |
| 3:D:137:PRO:HB3 | 3:D:147:VAL:HG12 | 1.81 | 0.63 |
| 4:E:80:VAL:HG21 | 4:E:85:LEU:HD11 | 1.80 | 0.63 |
| 5:F:101:GLU:O | 5:F:105:LYS:HG3 | 1.97 | 0.63 |
| 1:B:124:ASN:ND2 | 1:B:127:LEU:CD1 | 2.53 | 0.63 |
| 2:C:853:LEU:HB2 | 2:C:858:MET:HE2 | 1.80 | 0.63 |
| 3:D:218:LYS:HE2 | 3:D:338:GLU:CB | 2.24 | 0.63 |
| 5:F:116:LEU:O | 5:F:120:THR:OG1 | 2.08 | 0.63 |
| 5:F:132:ARG:HH21 | 5:F:184:ARG:CZ | 2.11 | 0.63 |
| 2:C:238:LEU:O | 2:C:242:LEU:CD2 | 2.47 | 0.63 |
| 1:B:100:LEU:HG | 1:B:141:GLU:HG2 | 1.81 | 0.63 |
| 3:D:1273:VAL:HG12 | 3:D:1326:THR:HG22 | 1.81 | 0.62 |
| 2:C:716:LYS:NZ | 3:D:529:GLN:HE22 | 1.96 | 0.62 |
| 4:E:88:GLU:O | 4:E:92:LEU:HD13 | 1.99 | 0.62 |
| 3:D:1111:ASP:OD1 | 3:D:1189:ARG:NH2 | 2.33 | 0.62 |
| 2:C:473:ARG:O | 2:C:480:THR:HG22 | 1.99 | 0.62 |
| 3:D:631:ILE:CD1 | 3:D:745:MET:HB2 | 2.29 | 0.62 |
| 3:D:367:ILE:HB | 3:D:377:VAL:HG23 | 1.82 | 0.62 |
| 5:F:269:ASN:O | 5:F:273:ARG:HG3 | 2.00 | 0.62 |
| 1:B:72:LYS:HE2 | 1:B:133:GLU:HG3 | 1.82 | 0.61 |
| 2:C:150:PRO:HD3 | 2:C:322:VAL:CG1 | 2.30 | 0.61 |
| 2:C:163:ILE:HG13 | 2:C:171:TRP:CD1 | 2.34 | 0.61 |
| 2:C:495:THR:CG2 | 2:C:517:ARG:HE | 2.13 | 0.61 |
| 2:C:946:ARG:HH12 | 3:D:861:GLN:HE22 | 1.46 | 0.61 |
| 3:D:808:THR:CG2 | 3:D:811:GLU:HB2 | 2.29 | 0.61 |
| 1:A:35:THR:OG1 | 1:B:42:ARG:HD3 | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:937:ASP:HB3 | 2:C:940:GLU:HG3 | 1.82 | 0.61 |
| 1:B:80:LEU:HD21 | 3:D:842:VAL:HG12 | 1.83 | 0.61 |
| 8:I:3:G:N3 | 8:I:4:G:N2 | 2.48 | 0.61 |
| 2:C:238:LEU:O | 2:C:242:LEU:HD23 | 2.00 | 0.61 |
| 2:C:709:GLU:HG3 | 2:C:824:ARG:HG2 | 1.81 | 0.61 |
| 3:D:116:LEU:HB3 | 3:D:118:LEU:HD13 | 1.81 | 0.61 |
| 3:D:412:GLY:N | 5:F:178:ARG:NH2 | 2.47 | 0.61 |
| 2:C:390:GLN:HE21 | 2:C:414:GLY:HA2 | 1.65 | 0.61 |
| 3:D:1151:ARG:CZ | 3:D:1151:ARG:CB | 2.78 | 0.61 |
| 2:C:1101:THR:OG1 | 2:C:1111:ILE:CD1 | 2.43 | 0.61 |
| 3:D:530:VAL:HG22 | 3:D:531:ASP:H | 1.64 | 0.61 |
| 1:A:57:TYR:CD1 | 1:A:161:ARG:CZ | 2.84 | 0.61 |
| 2:C:97:ARG:NH1 | 2:C:112:GLU:OE2 | 2.34 | 0.61 |
| 2:C:390:GLN:O | 2:C:390:GLN:HG2 | 2.01 | 0.61 |
| 2:C:545:ASN:O | 2:C:581:THR:HG21 | 2.01 | 0.61 |
| 2:C:1095:LEU:HD23 | 3:D:582:LEU:HD22 | 1.83 | 0.61 |
| 3:D:474:GLU:HG3 | 3:D:496:LEU:HD11 | 1.81 | 0.61 |
| 1:A:85:LEU:HD21 | 1:A:87:VAL:CG1 | 2.31 | 0.61 |
| 2:C:468:ARG:NH2 | 2:C:490:GLU:OE2 | 2.34 | 0.61 |
| 3:D:258:VAL:HG12 | 3:D:297:ILE:HG22 | 1.83 | 0.61 |
| 3:D:500:ARG:NH1 | 3:D:1390:LEU:HD11 | 2.15 | 0.61 |
| 3:D:761:ILE:HD12 | 4:E:20:THR:HB | 1.83 | 0.61 |
| 2:C:214:TYR:HB3 | 2:C:217:LEU:HD12 | 1.83 | 0.60 |
| 2:C:241:LEU:HB2 | 2:C:242:LEU:HD22 | 1.83 | 0.60 |
| 2:C:640:ARG:HD3 | 2:C:642:ARG:HH22 | 1.64 | 0.60 |
| 3:D:286:VAL:O | 3:D:311:LEU:HD12 | 2.01 | 0.60 |
| 3:D:671:LYS:HE3 | 5:F:421:PHE:HA | 1.83 | 0.60 |
| 3:D:956:ILE:HD13 | 3:D:1039:CYS:O | 2.01 | 0.60 |
| 2:C:598:GLU:HG3 | 2:C:623:TYR:OH | 2.01 | 0.60 |
| 5:F:185:GLN:O | 5:F:189:GLU:HG3 | 2.01 | 0.60 |
| 3:D:199:LEU:HD11 | 3:D:397:LYS:HD2 | 1.83 | 0.60 |
| 3:D:500:ARG:HH11 | 3:D:1390:LEU:HD11 | 1.66 | 0.60 |
| 3:D:1461:GLY:O | 3:D:1465:ASN:ND2 | 2.34 | 0.60 |
| 2:C:64:LEU:N | 2:C:103:LYS:HB3 | 2.17 | 0.60 |
| 4:E:40:LEU:HD21 | 4:E:67:GLU:HA | 1.84 | 0.60 |
| 1:B:110:LYS:NZ | 1:B:112:ARG:HG3 | 2.16 | 0.60 |
| 1:B:206:THR:HG22 | 1:B:209:GLU:CB | 2.31 | 0.60 |
| 2:C:277:ALA:O | 2:C:281:LEU:HD12 | 2.02 | 0.60 |
| 3:D:199:LEU:HD21 | 3:D:397:LYS:HG3 | 1.84 | 0.60 |
| 8:I:2:G:N3 | 8:I:2:G:H2' | 2.16 | 0.60 |
| 2:C:711:GLU:O | 2:C:758:ARG:NH1 | 2.33 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:572:ARG:HH12 | 5:F:83:GLN:CG | 2.07 | 0.60 |
| 1:B:206:THR:HG22 | 1:B:209:GLU:CG | 2.32 | 0.60 |
| 3:D:631:ILE:HD11 | 3:D:745:MET:CB | 2.31 | 0.60 |
| 3:D:631:ILE:HG22 | 3:D:740:PHE:CE2 | 2.37 | 0.60 |
| 2:C:727:PRO:O | 2:C:729:LEU:HD23 | 2.01 | 0.59 |
| 2:C:607:ASP:CB | 2:C:610:ARG:HG3 | 2.31 | 0.59 |
| 3:D:1143:GLY:O | 3:D:1147:ARG:HD2 | 2.00 | 0.59 |
| 1:B:64:GLU:HG2 | 1:B:76:VAL:HG12 | 1.84 | 0.59 |
| 3:D:208:PRO:HG3 | 3:D:387:LEU:HD12 | 1.84 | 0.59 |
| 3:D:988:ARG:HG3 | 3:D:989:TYR:N | 2.17 | 0.59 |
| 2:C:915:LYS:NZ | 3:D:952:ASP:OD2 | 2.34 | 0.59 |
| 3:D:410:SER:O | 3:D:435:VAL:HG11 | 2.03 | 0.59 |
| 3:D:1003:VAL:O | 3:D:1007:VAL:HG23 | 2.01 | 0.59 |
| 1:B:26:GLU:HB3 | 1:B:194:LYS:HG3 | 1.85 | 0.59 |
| 2:C:154:ARG:CZ | 2:C:175:GLU:OE2 | 2.51 | 0.59 |
| 2:C:501:THR:O | 2:C:503:LEU:HD22 | 2.01 | 0.59 |
| 5:F:109:GLY:O | 5:F:113:ILE:HG13 | 2.02 | 0.59 |
| 2:C:723:THR:O | 2:C:741:GLY:HA3 | 2.03 | 0.59 |
| 4:E:30:LEU:HD12 | 4:E:30:LEU:N | 2.18 | 0.59 |
| 5:F:164:LYS:HZ2 | 5:F:171:LYS:HE3 | 1.67 | 0.59 |
| 5:F:372:ARG:HH22 | 5:F:380:GLU:HB3 | 1.68 | 0.59 |
| 2:C:586:ARG:O | 2:C:586:ARG:HG3 | 2.00 | 0.59 |
| 3:D:14:SER:HB3 | 3:D:511:TRP:CE2 | 2.38 | 0.59 |
| 3:D:65:ARG:NH2 | 5:F:376:ILE:HA | 2.17 | 0.59 |
| 3:D:241:ILE:HD11 | 3:D:310:LEU:CD1 | 2.31 | 0.59 |
| 3:D:1405:GLU:OE2 | 3:D:1409:ALA:N | 2.35 | 0.59 |
| 3:D:1042:ARG:HB3 | 3:D:1057:VAL:HB | 1.84 | 0.59 |
| 1:A:18:ARG:O | 1:A:201:THR:HG21 | 2.02 | 0.58 |
| 3:D:65:ARG:HH21 | 5:F:376:ILE:HA | 1.68 | 0.58 |
| 3:D:288:MET:HB2 | 3:D:311:LEU:HD11 | 1.85 | 0.58 |
| 5:F:376:ILE:O | 5:F:377:ASP:HB3 | 2.03 | 0.58 |
| 1:B:86:VAL:HG13 | 1:B:123:MET:HB2 | 1.84 | 0.58 |
| 2:C:436:GLY:HA2 | 2:C:538:GLN:O | 2.02 | 0.58 |
| 2:C:238:LEU:O | 2:C:241:LEU:HB2 | 2.03 | 0.58 |
| 2:C:768:THR:HG23 | 2:C:771:GLU:H | 1.66 | 0.58 |
| 3:D:184:GLU:N | 3:D:184:GLU:OE1 | 2.36 | 0.58 |
| 3:D:209:ARG:CA | 3:D:347:VAL:HG12 | 2.29 | 0.58 |
| 4:E:26:ARG:HD3 | 4:E:30:LEU:CD1 | 2.31 | 0.58 |
| 3:D:82:LYS:HB2 | 3:D:84:ILE:HG22 | 1.86 | 0.58 |
| 2:C:711:GLU:HB2 | 2:C:713:ARG:HH21 | 1.68 | 0.58 |
| 2:C:890:LEU:HD21 | 2:C:901:TYR:CG | 2.38 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:985:ASP:HA | 3:D:988:ARG:HG2 | 1.86 | 0.58 |
| 5:F:361:LEU:HD13 | 5:F:407:LYS:HB3 | 1.84 | 0.58 |
| 1:A:85:LEU:CD2 | 1:A:87:VAL:HG13 | 2.32 | 0.58 |
| 1:B:85:LEU:HD22 | 1:B:87:VAL:HG13 | 1.86 | 0.58 |
| 2:C:162:ILE:HD13 | 2:C:290:LEU:HD21 | 1.85 | 0.58 |
| 2:C:290:LEU:N | 2:C:290:LEU:HD12 | 2.18 | 0.58 |
| 3:D:174:GLY:N | 3:D:209:ARG:HH12 | 1.97 | 0.58 |
| 3:D:899:LEU:HD21 | 3:D:921:ARG:HD3 | 1.86 | 0.58 |
| 3:D:1225:ALA:O | 3:D:1229:ILE:HG13 | 2.03 | 0.58 |
| 2:C:745:ILE:HD12 | 2:C:745:ILE:H | 1.68 | 0.58 |
| 1:A:44:LEU:O | 1:A:174:VAL:HG11 | 2.04 | 0.58 |
| 3:D:465:LEU:N | 3:D:465:LEU:HD23 | 2.18 | 0.58 |
| 2:C:719:PRO:CB | 2:C:820:ARG:HH12 | 2.15 | 0.58 |
| 3:D:218:LYS:HZ1 | 3:D:339:TRP:N | 1.99 | 0.58 |
| 3:D:1495:ILE:O | 3:D:1499:ARG:HG3 | 2.04 | 0.58 |
| 2:C:683:ASN:HB3 | 2:C:872:ASN:HD22 | 1.68 | 0.57 |
| 1:B:110:LYS:NZ | 1:B:112:ARG:HD2 | 2.18 | 0.57 |
| 2:C:15:LEU:O | 2:C:586:ARG:NH2 | 2.31 | 0.57 |
| 2:C:396:ASP:HA | 2:C:633:GLN:HE22 | 1.68 | 0.57 |
| 3:D:1272:ALA:HA | 3:D:1326:THR:HG23 | 1.85 | 0.57 |
| 5:F:398:ARG:O | 5:F:398:ARG:NH1 | 2.37 | 0.57 |
| 6:G:5:DT:H2" | 6:G:6:DG:C8 | 2.39 | 0.57 |
| 2:C:861:LEU:HB3 | 2:C:862:PRO:HD2 | 1.86 | 0.57 |
| 5:F:162:LYS:HE2 | 5:F:165:SER:HB2 | 1.86 | 0.57 |
| 5:F:230:LYS:O | 5:F:232:ARG:CD | 2.47 | 0.57 |
| 3:D:352:ASN:HB3 | 5:F:104:ARG:CZ | 2.34 | 0.57 |
| 2:C:173:ASP:HB2 | 2:C:185:LYS:HE3 | 1.86 | 0.57 |
| 3:D:165:LYS:HD2 | 3:D:166:GLN:H | 1.69 | 0.57 |
| 3:D:312:ARG:NH1 | 3:D:315:ARG:HH22 | 2.03 | 0.57 |
| 2:C:209:ARG:HG3 | 2:C:210:GLU:N | 2.19 | 0.57 |
| 3:D:218:LYS:HZ2 | 3:D:338:GLU:CA | 1.99 | 0.57 |
| 3:D:218:LYS:HE2 | 3:D:338:GLU:CG | 2.32 | 0.57 |
| 2:C:475:VAL:O | 2:C:477:GLY:N | 2.37 | 0.57 |
| 5:F:111:GLU:HA | 5:F:114:LYS:HG2 | 1.87 | 0.57 |
| 5:F:91:VAL:O | 5:F:193:ARG:NH2 | 2.33 | 0.57 |
| 1:A:64:GLU:O | 1:A:75:VAL:HG13 | 2.05 | 0.57 |
| 1:B:94:LEU:HD11 | 1:B:96:THR:O | 2.05 | 0.57 |
| 2:C:272:ALA:HA | 2:C:464:LEU:HD13 | 1.86 | 0.57 |
| 3:D:558:LEU:HD23 | 3:D:567:ILE:HD12 | 1.86 | 0.57 |
| 3:D:1048:PRO:HD3 | 3:D:1075:HIS:ND1 | 2.19 | 0.57 |
| 3:D:1342:GLU:CD | 3:D:1342:GLU:H | 2.07 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:34:VAL:HG23 | 2:C:39:ARG:HG2 | 1.86 | 0.56 |
| 2:C:179:ASN:ND2 | 2:C:181:VAL:HG12 | 2.19 | 0.56 |
| 3:D:218:LYS:HE3 | 3:D:338:GLU:HA | 1.87 | 0.56 |
| 1:A:201:THR:HG23 | 1:A:203:GLY:H | 1.70 | 0.56 |
| 2:C:367:LEU:CD1 | 2:C:371:LYS:HZ2 | 2.16 | 0.56 |
| 2:C:650:ARG:HH11 | 2:C:650:ARG:HB2 | 1.70 | 0.56 |
| 3:D:956:ILE:CD1 | 3:D:1039:CYS:O | 2.53 | 0.56 |
| 1:B:38:ASN:O | 1:B:42:ARG:HG3 | 2.06 | 0.56 |
| 2:C:249:LYS:HB2 | 2:C:252:LYS:HG2 | 1.86 | 0.56 |
| 2:C:1060:ILE:HD11 | 2:C:1083:GLU:HG2 | 1.87 | 0.56 |
| 3:D:44:LEU:HB3 | 3:D:525:ARG:HH22 | 1.69 | 0.56 |
| 3:D:122:GLU:HG2 | 3:D:152:LEU:HD21 | 1.88 | 0.56 |
| 3:D:170:PRO:HA | 3:D:392:SER:OG | 2.04 | 0.56 |
| 3:D:347:VAL:CG2 | 3:D:351:MET:HG3 | 2.36 | 0.56 |
| 3:D:628:ARG:NH2 | 3:D:746:ALA:HB2 | 2.17 | 0.56 |
| 5:F:398:ARG:HH12 | 5:F:402:ASN:ND2 | 2.03 | 0.56 |
| 2:C:593:ALA:HB1 | 2:C:659:PRO:HD2 | 1.86 | 0.56 |
| 1:B:41:ARG:HG3 | 1:B:177:VAL:CG2 | 2.35 | 0.56 |
| 2:C:916:GLU:O | 2:C:920:GLN:HG3 | 2.06 | 0.56 |
| 2:C:366:SER:O | 2:C:367:LEU:HD12 | 2.06 | 0.56 |
| 1:B:132:LEU:HD21 | 1:B:136:GLY:HA3 | 1.88 | 0.56 |
| 3:D:565:ILE:HD12 | 3:D:565:ILE:H | 1.70 | 0.56 |
| 1:B:110:LYS:NZ | 1:B:112:ARG:CG | 2.69 | 0.56 |
| 1:B:132:LEU:HD21 | 1:B:136:GLY:CA | 2.35 | 0.56 |
| 2:C:198:ARG:HH22 | 2:C:230:ARG:HA | 1.70 | 0.56 |
| 3:D:699:VAL:N | 3:D:756:GLN:OE1 | 2.36 | 0.56 |
| 3:D:1047:LYS:HD3 | 3:D:1048:PRO:HG2 | 1.88 | 0.56 |
| 5:F:91:VAL:HG11 | 5:F:189:GLU:O | 2.05 | 0.56 |
| 5:F:154:LYS:HD3 | 5:F:155:THR:HG22 | 1.87 | 0.56 |
| 1:B:58:ILE:HD13 | 1:B:68:ILE:HD11 | 1.88 | 0.55 |
| 1:B:153:ALA:C | 1:B:155:LYS:H | 2.09 | 0.55 |
| 2:C:146:VAL:HG13 | 2:C:162:ILE:HG22 | 1.88 | 0.55 |
| 2:C:238:LEU:HG | 2:C:242:LEU:HD21 | 1.88 | 0.55 |
| 4:E:57:ASP:O | 4:E:63:TRP:NE1 | 2.38 | 0.55 |
| 2:C:668:LEU:HD12 | 2:C:668:LEU:H | 1.70 | 0.55 |
| 3:D:258:VAL:HG22 | 3:D:273:ARG:O | 2.06 | 0.55 |
| 3:D:272:LEU:HD21 | 3:D:298:VAL:CG1 | 2.36 | 0.55 |
| 1:B:101:LEU:HG | 1:B:114:PHE:HA | 1.88 | 0.55 |
| 1:B:170:VAL:HG11 | 3:D:848:GLU:HG3 | 1.87 | 0.55 |
| 2:C:14:PRO:HB2 | 2:C:586:ARG:NH2 | 2.21 | 0.55 |
| 3:D:405:ASP:CG | 3:D:406:ASP:H | 2.10 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:87:VAL:HG21 | 1:A:144:VAL:HG11 | 1.89 | 0.55 |
| 1:B:99:LEU:HB2 | 1:B:142:VAL:HG22 | 1.88 | 0.55 |
| 2:C:397:GLU:HG3 | 2:C:631:SER:HB2 | 1.87 | 0.55 |
| 2:C:1101:THR:HB | 3:D:5:VAL:HG13 | 1.89 | 0.55 |
| 2:C:750:LYS:HE3 | 3:D:680:GLN:OE1 | 2.07 | 0.55 |
| 3:D:173:PRO:HA | 3:D:209:ARG:NH2 | 2.17 | 0.55 |
| 3:D:508:ARG:NH1 | 3:D:509:PRO:HD2 | 2.22 | 0.55 |
| 2:C:376:ARG:HE | 5:F:276:ARG:HG2 | 1.71 | 0.55 |
| 2:C:602:GLU:CG | 2:C:648:ARG:HE | 2.19 | 0.55 |
| 3:D:203:ALA:O | 3:D:204:LEU:HD23 | 2.07 | 0.55 |
| 3:D:1372:VAL:HA | 3:D:1375:MET:SD | 2.47 | 0.55 |
| 1:A:57:TYR:CG | 1:A:161:ARG:CZ | 2.89 | 0.55 |
| 1:B:58:ILE:HG22 | 1:B:140:MET:HB3 | 1.88 | 0.55 |
| 1:B:208:LEU:H | 1:B:208:LEU:HD23 | 1.72 | 0.55 |
| 3:D:95:LEU:HD22 | 3:D:574:LEU:HD21 | 1.89 | 0.55 |
| 3:D:185:VAL:HG13 | 3:D:189:GLN:HB3 | 1.89 | 0.55 |
| 3:D:326:GLU:N | 3:D:326:GLU:OE2 | 2.40 | 0.55 |
| 3:D:348:GLN:HB2 | 3:D:351:MET:CE | 2.37 | 0.55 |
| 3:D:704:ARG:HB2 | 3:D:745:MET:CE | 2.37 | 0.55 |
| 5:F:232:ARG:HG2 | 5:F:232:ARG:HH11 | 1.72 | 0.55 |
| 1:B:85:LEU:HD22 | 1:B:87:VAL:CG1 | 2.36 | 0.54 |
| 3:D:481:MET:O | 3:D:489:ARG:HD3 | 2.08 | 0.54 |
| 1:B:108:GLU:HA | 1:B:131:THR:HA | 1.90 | 0.54 |
| 3:D:669:ASN:HB3 | 5:F:417:LYS:HE2 | 1.88 | 0.54 |
| 3:D:808:THR:HG23 | 3:D:811:GLU:H | 1.72 | 0.54 |
| 3:D:875:THR:HG21 | 3:D:902:LEU:CD2 | 2.36 | 0.54 |
| 3:D:881:LEU:O | 3:D:885:ILE:HG12 | 2.07 | 0.54 |
| 3:D:886:VAL:O | 3:D:890:VAL:HG23 | 2.08 | 0.54 |
| 3:D:1145:TYR:CD1 | 3:D:1168:MET:HE2 | 2.43 | 0.54 |
| 5:F:358:LEU:HB3 | 5:F:366:ALA:HB1 | 1.87 | 0.54 |
| 1:A:87:VAL:CG2 | 1:A:144:VAL:HG11 | 2.37 | 0.54 |
| 1:A:201:THR:HG23 | 1:A:203:GLY:N | 2.22 | 0.54 |
| 3:D:317:VAL:HG12 | 3:D:339:TRP:CB | 2.36 | 0.54 |
| 3:D:666:ILE:HD11 | 3:D:684:LYS:HZ2 | 1.72 | 0.54 |
| 5:F:401:GLU:O | 5:F:405:LEU:HD13 | 2.07 | 0.54 |
| 3:D:100:ALA:HA | 3:D:513:ILE:HG22 | 1.88 | 0.54 |
| 3:D:683:ILE:HG23 | 3:D:687:VAL:HG11 | 1.89 | 0.54 |
| 3:D:1047:LYS:CE | 3:D:1048:PRO:HD2 | 2.35 | 0.54 |
| 1:A:99:LEU:CD1 | 1:A:114:PHE:HB3 | 2.34 | 0.54 |
| 3:D:171:LEU:HD11 | 3:D:390:PRO:O | 2.07 | 0.54 |
| 3:D:181:ASP:CB | 3:D:205:TYR:HD2 | 2.15 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:554:LEU:HB2 | 3:D:570:GLU:HG2 | 1.88 | 0.54 |
| 3:D:1046:GLN:NE2 | 3:D:1076:GLY:HA3 | 2.23 | 0.54 |
| 5:F:299:TRP:HA | 5:F:303:ARG:HD3 | 1.89 | 0.54 |
| 1:B:206:THR:HG22 | 1:B:209:GLU:CD | 2.28 | 0.54 |
| 2:C:136:ILE:HB | 2:C:336:VAL:HG13 | 1.90 | 0.54 |
| 2:C:480:THR:HG21 | 2:C:482:GLU:HG2 | 1.89 | 0.54 |
| 2:C:587:VAL:HG11 | 2:C:666:LEU:HD22 | 1.90 | 0.54 |
| 2:C:1111:ILE:HD12 | 2:C:1111:ILE:H | 1.73 | 0.54 |
| 3:D:661:MET:CE | 3:D:677:LEU:HD11 | 2.38 | 0.54 |
| 5:F:129:GLU:HG3 | 5:F:147:LEU:HD21 | 1.90 | 0.54 |
| 1:A:57:TYR:CE1 | 1:A:161:ARG:NH2 | 2.72 | 0.54 |
| 3:D:890:VAL:HG13 | 3:D:922:LEU:HD13 | 1.87 | 0.54 |
| 3:D:361:VAL:O | 3:D:382:GLU:HA | 2.08 | 0.54 |
| 3:D:544:TYR:O | 3:D:548:ILE:HG13 | 2.08 | 0.54 |
| 3:D:630:VAL:HA | 3:D:744:GLN:HG2 | 1.88 | 0.54 |
| 1:B:72:LYS:HG3 | 1:B:131:THR:OG1 | 2.07 | 0.54 |
| 3:D:200:ASP:O | 3:D:397:LYS:HG2 | 2.08 | 0.54 |
| 3:D:661:MET:HE2 | 3:D:677:LEU:HD11 | 1.90 | 0.54 |
| 3:D:1295:GLU:OE2 | 3:D:1300:SER:HB2 | 2.08 | 0.54 |
| 5:F:164:LYS:NZ | 5:F:171:LYS:HE3 | 2.23 | 0.54 |
| 5:F:277:GLN:O | 5:F:281:GLU:HG2 | 2.07 | 0.54 |
| 3:D:275:GLU:OE1 | 3:D:275:GLU:N | 2.40 | 0.54 |
| 3:D:895:VAL:HG11 | 3:D:922:LEU:HD21 | 1.89 | 0.54 |
| 5:F:132:ARG:HH21 | 5:F:184:ARG:NH2 | 2.06 | 0.54 |
| 1:B:110:LYS:HZ1 | 1:B:112:ARG:CD | 2.20 | 0.53 |
| 2:C:64:LEU:HA | 2:C:103:LYS:H | 1.72 | 0.53 |
| 2:C:816:LYS:O | 2:C:819:VAL:HG12 | 2.08 | 0.53 |
| 3:D:135:LEU:O | 3:D:149:LYS:CE | 2.42 | 0.53 |
| 3:D:695:ILE:HD12 | 3:D:718:PRO:HG2 | 1.90 | 0.53 |
| 3:D:1273:VAL:H | 3:D:1326:THR:CG2 | 2.20 | 0.53 |
| 2:C:179:ASN:HD21 | 2:C:181:VAL:HG12 | 1.71 | 0.53 |
| 2:C:227:PHE:O | 2:C:229:MET:N | 2.41 | 0.53 |
| 2:C:666:LEU:HG | 2:C:668:LEU:HD11 | 1.91 | 0.53 |
| 3:D:828:LYS:CD | 3:D:833:GLU:CB | 2.86 | 0.53 |
| 2:C:3:ILE:HA | 2:C:900:ARG:O | 2.08 | 0.53 |
| 2:C:280:LYS:HE3 | 2:C:323:ASP:CG | 2.28 | 0.53 |
| 2:C:1035:MET:HG2 | 2:C:1038:TRP:CZ3 | 2.42 | 0.53 |
| 3:D:669:ASN:ND2 | 5:F:417:LYS:HG2 | 2.24 | 0.53 |
| 3:D:792:ILE:HG13 | 3:D:793:THR:HG23 | 1.90 | 0.53 |
| 2:C:262:ALA:HA | 2:C:289:THR:OG1 | 2.07 | 0.53 |
| 3:D:936:TYR:O | 3:D:940:THR:HG23 | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:1286:THR:HG22 | 3:D:1287:GLU:H | 1.74 | 0.53 |
| 2:C:97:ARG:O | 2:C:98:LEU:HD13 | 2.09 | 0.53 |
| 2:C:890:LEU:CD2 | 2:C:901:TYR:CD2 | 2.92 | 0.53 |
| 1:B:132:LEU:HD23 | 1:B:133:GLU:N | 2.24 | 0.53 |
| 2:C:367:LEU:CA | 2:C:371:LYS:HE3 | 2.21 | 0.53 |
| 2:C:495:THR:HG22 | 2:C:517:ARG:NE | 2.23 | 0.53 |
| 2:C:683:ASN:CB | 2:C:872:ASN:HD22 | 2.22 | 0.53 |
| 2:C:1109:VAL:O | 2:C:1111:ILE:HD12 | 2.08 | 0.53 |
| 3:D:15:PRO:O | 3:D:19:ARG:HG3 | 2.08 | 0.53 |
| 3:D:666:ILE:CD1 | 3:D:684:LYS:HZ2 | 2.21 | 0.53 |
| 3:D:675:ARG:HH22 | 5:F:420:ASP:CA | 2.20 | 0.53 |
| 3:D:865:THR:HG22 | 3:D:874:GLU:HG2 | 1.91 | 0.53 |
| 1:B:68:ILE:HB | 1:B:71:VAL:HG22 | 1.90 | 0.53 |
| 7:H:17:DT:H2' | 7:H:18:DG:C8 | 2.44 | 0.53 |
| 1:A:39:PRO:HG3 | 1:B:39:PRO:HG3 | 1.91 | 0.53 |
| 1:A:70:GLY:N | 2:C:607:ASP:OD1 | 2.42 | 0.53 |
| 1:B:110:LYS:HZ1 | 1:B:112:ARG:CG | 2.22 | 0.53 |
| 2:C:787:ASP:OD2 | 2:C:791:ARG:NH2 | 2.41 | 0.53 |
| 3:D:142:LEU:HD12 | 3:D:161:LEU:CD1 | 2.33 | 0.53 |
| 3:D:657:LEU:HG | 3:D:661:MET:CE | 2.39 | 0.53 |
| 5:F:278:LEU:C | 5:F:282:LEU:HD12 | 2.29 | 0.53 |
| 2:C:595:LEU:C | 2:C:596:TYR:HD1 | 2.13 | 0.53 |
| 2:C:1100:GLN:OE1 | 2:C:1108:PRO:HB3 | 2.08 | 0.53 |
| 3:D:1046:GLN:HA | 3:D:1052:THR:HA | 1.90 | 0.53 |
| 2:C:102:HIS:HE1 | 2:C:365:ASP:HA | 1.73 | 0.53 |
| 2:C:473:ARG:NE | 2:C:482:GLU:OE2 | 2.33 | 0.53 |
| 2:C:1004:LYS:HD3 | 3:D:744:GLN:NE2 | 2.23 | 0.53 |
| 3:D:1155:VAL:HG11 | 3:D:1177:ALA:CB | 2.38 | 0.53 |
| 5:F:154:LYS:HD3 | 5:F:155:THR:CG2 | 2.38 | 0.53 |
| 5:F:398:ARG:NH2 | 5:F:399:GLN:HG3 | 2.24 | 0.53 |
| 1:B:216:GLU:OE1 | 1:B:219:ARG:NE | 2.43 | 0.52 |
| 2:C:97:ARG:HG2 | 2:C:112:GLU:HB2 | 1.90 | 0.52 |
| 2:C:229:MET:HE1 | 2:C:237:ARG:HE | 1.73 | 0.52 |
| 3:D:361:VAL:HG23 | 3:D:365:ASP:CB | 2.30 | 0.52 |
| 3:D:491:LYS:HD2 | 3:D:494:LYS:HE3 | 1.90 | 0.52 |
| 3:D:1286:THR:HG22 | 3:D:1287:GLU:N | 2.24 | 0.52 |
| 3:D:1487:VAL:HG23 | 4:E:74:VAL:HG13 | 1.91 | 0.52 |
| 5:F:106:VAL:O | 5:F:110:MET:HG3 | 2.10 | 0.52 |
| 1:A:209:GLU:O | 1:A:213:GLN:HG2 | 2.09 | 0.52 |
| 2:C:492:ASP:HB3 | 2:C:518:LYS:HG2 | 1.92 | 0.52 |
| 3:D:581:LEU:O | 3:D:603:LEU:HD12 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:473:ARG:HB3 | 2:C:480:THR:HG21 | 1.91 | 0.52 |
| 2:C:495:THR:HG22 | 2:C:517:ARG:HE | 1.74 | 0.52 |
| 2:C:654:LEU:HD11 | 2:C:656:ALA:O | 2.09 | 0.52 |
| 3:D:809:PRO:O | 3:D:813:LEU:HD12 | 2.09 | 0.52 |
| 3:D:1033:GLN:CD | 3:D:1033:GLN:H | 2.13 | 0.52 |
| 1:A:110:LYS:HD3 | 1:A:128:HIS:HA | 1.91 | 0.52 |
| 1:A:179:PHE:HB3 | 1:A:197:LEU:HD23 | 1.92 | 0.52 |
| 2:C:911:GLU:O | 2:C:915:LYS:HG2 | 2.10 | 0.52 |
| 3:D:1290:LEU:HD12 | 3:D:1307:LYS:HD3 | 1.90 | 0.52 |
| 2:C:154:ARG:CB | 2:C:157:ARG:HG2 | 2.40 | 0.52 |
| 2:C:470:PRO:HD3 | 2:C:485:TYR:CE1 | 2.44 | 0.52 |
| 2:C:259:GLY:HA2 | 2:C:263:ASP:HB2 | 1.91 | 0.52 |
| 3:D:1492:LEU:CD1 | 3:D:1493:LYS:HE2 | 2.39 | 0.52 |
| 4:E:26:ARG:CD | 4:E:30:LEU:HD11 | 2.36 | 0.52 |
| 4:E:39:VAL:HG12 | 4:E:72:ARG:NH1 | 2.25 | 0.52 |
| 1:B:14:ARG:HG2 | 1:B:14:ARG:HH11 | 1.74 | 0.52 |
| 1:B:31:GLY:N | 1:B:193:ASP:OD1 | 2.43 | 0.52 |
| 3:D:191:LEU:HD21 | 3:D:197:SER:HB3 | 1.91 | 0.52 |
| 3:D:1287:GLU:C | 3:D:1307:LYS:HZ2 | 2.12 | 0.52 |
| 5:F:256:ARG:HH21 | 5:F:258:ILE:HD11 | 1.74 | 0.52 |
| 2:C:214:TYR:O | 2:C:218:VAL:HG23 | 2.09 | 0.52 |
| 2:C:611:ILE:O | 2:C:611:ILE:HG13 | 2.09 | 0.52 |
| 2:C:793:PRO:HG2 | 2:C:796:GLU:OE1 | 2.10 | 0.52 |
| 3:D:804:LEU:O | 3:D:827:ILE:HG23 | 2.10 | 0.52 |
| 1:A:65:PHE:CE2 | 2:C:703:ILE:HD13 | 2.45 | 0.52 |
| 2:C:154:ARG:HB3 | 2:C:157:ARG:HG2 | 1.91 | 0.52 |
| 2:C:727:PRO:HB2 | 2:C:728:HIS:CD2 | 2.45 | 0.52 |
| 3:D:750:PRO:O | 3:D:756:GLN:NE2 | 2.43 | 0.52 |
| 3:D:828:LYS:NZ | 3:D:833:GLU:HB2 | 2.25 | 0.52 |
| 3:D:1047:LYS:HZ2 | 3:D:1048:PRO:HG2 | 1.73 | 0.52 |
| 3:D:1254:GLN:HB3 | 3:D:1258:ARG:HB2 | 1.90 | 0.52 |
| 5:F:96:LEU:O | 5:F:100:VAL:HG12 | 2.10 | 0.52 |
| 5:F:153:PRO:HA | 5:F:156:VAL:HG22 | 1.91 | 0.52 |
| 1:A:57:TYR:CG | 1:A:161:ARG:NH2 | 2.77 | 0.51 |
| 2:C:179:ASN:CG | 2:C:181:VAL:H | 2.12 | 0.51 |
| 2:C:603:VAL:HA | 2:C:613:VAL:HG23 | 1.91 | 0.51 |
| 2:C:758:ARG:HH21 | 2:C:788:THR:HG22 | 1.74 | 0.51 |
| 3:D:65:ARG:HH21 | 5:F:377:ASP:N | 2.01 | 0.51 |
| 3:D:470:LEU:HB2 | 3:D:503:LEU:HD21 | 1.91 | 0.51 |
| 3:D:1486:VAL:HG13 | 4:E:29:GLN:NE2 | 2.24 | 0.51 |
| 5:F:403:LYS:O | 5:F:407:LYS:HB2 | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:101:LEU:HD11 | 1:A:109:VAL:HG11 | 1.92 | 0.51 |
| 1:B:58:ILE:HG22 | 1:B:140:MET:CB | 2.39 | 0.51 |
| 1:B:107:LYS:HE2 | 1:B:108:GLU:O | 2.11 | 0.51 |
| 2:C:1055:LEU:HD13 | 2:C:1079:PRO:HB3 | 1.91 | 0.51 |
| 2:C:764:GLU:HA | 2:C:766:GLU:OE1 | 2.10 | 0.51 |
| 2:C:770:GLU:OE2 | 2:C:770:GLU:N | 2.37 | 0.51 |
| 2:C:788:THR:HG22 | 2:C:788:THR:O | 2.10 | 0.51 |
| 5:F:166:LEU:HB2 | 5:F:171:LYS:CG | 2.41 | 0.51 |
| 1:A:9:PRO:HD2 | 1:B:224:TYR:CD1 | 2.46 | 0.51 |
| 3:D:116:LEU:CD1 | 3:D:465:LEU:HD21 | 2.34 | 0.51 |
| 3:D:178:LEU:HD23 | 3:D:190:GLU:OE1 | 2.10 | 0.51 |
| 3:D:371:ILE:CD1 | 3:D:372:ASP:CB | 2.87 | 0.51 |
| 1:A:39:PRO:HG3 | 1:B:39:PRO:CG | 2.40 | 0.51 |
| 2:C:36:PRO:HA | 2:C:39:ARG:HG3 | 1.93 | 0.51 |
| 2:C:263:ASP:O | 2:C:265:ARG:N | 2.40 | 0.51 |
| 3:D:93:ILE:HB | 3:D:517:VAL:CG1 | 2.40 | 0.51 |
| 3:D:413:ASP:H | 5:F:178:ARG:NH2 | 2.04 | 0.51 |
| 2:C:412:ALA:O | 2:C:417:GLY:HA3 | 2.11 | 0.51 |
| 5:F:349:LEU:HD22 | 5:F:421:PHE:HZ | 1.76 | 0.51 |
| 2:C:236:ILE:O | 2:C:240:THR:HG23 | 2.11 | 0.51 |
| 3:D:208:PRO:O | 3:D:347:VAL:CG1 | 2.54 | 0.51 |
| 3:D:285:PRO:HG2 | 3:D:311:LEU:HG | 1.92 | 0.51 |
| 3:D:702:LEU:O | 3:D:713:ILE:HA | 2.11 | 0.51 |
| 2:C:906:PHE:CG | 3:D:1067:VAL:HG12 | 2.46 | 0.51 |
| 3:D:374:GLU:OE2 | 3:D:374:GLU:N | 2.31 | 0.51 |
| 3:D:522:PRO:HA | 3:D:525:ARG:HG3 | 1.92 | 0.51 |
| 6:G:12:DG:H5" | 6:G:12:DG:H8 | 1.76 | 0.51 |
| 3:D:527:MET:HE2 | 3:D:537:THR:HB | 1.92 | 0.51 |
| 2:C:502:PRO:O | 2:C:503:LEU:HD13 | 2.11 | 0.51 |
| 2:C:1031:ARG:HB2 | 3:D:622:ARG:NH1 | 2.26 | 0.51 |
| 3:D:258:VAL:O | 3:D:272:LEU:HA | 2.11 | 0.51 |
| 4:E:33:HIS:O | 4:E:36:LYS:HG3 | 2.11 | 0.51 |
| 2:C:267:TYR:CE1 | 2:C:290:LEU:HD11 | 2.46 | 0.50 |
| 2:C:504:GLU:HG2 | 2:C:509:ALA:HB2 | 1.93 | 0.50 |
| 4:E:33:HIS:NE2 | 4:E:89:MET:HB3 | 2.27 | 0.50 |
| 2:C:768:THR:OG1 | 2:C:770:GLU:OE2 | 2.30 | 0.50 |
| 3:D:657:LEU:HG | 3:D:661:MET:HE2 | 1.93 | 0.50 |
| 3:D:1485:GLN:O | 4:E:75:PHE:HA | 2.11 | 0.50 |
| 5:F:162:LYS:HE2 | 5:F:162:LYS:HA | 1.92 | 0.50 |
| 5:F:394:ARG:NH1 | 5:F:395:GLU:OE2 | 2.44 | 0.50 |
| 1:A:79:ILE:HD11 | 1:A:167:VAL:HG22 | 1.91 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:704:HIS:CD2 | 2:C:831:ARG:HD2 | 2.46 | 0.50 |
| 3:D:65:ARG:NH2 | 5:F:377:ASP:H | 2.05 | 0.50 |
| 3:D:988:ARG:O | 3:D:992:ILE:HG23 | 2.10 | 0.50 |
| 3:D:1462:LEU:O | 3:D:1466:VAL:HG23 | 2.11 | 0.50 |
| 5:F:129:GLU:HA | 5:F:132:ARG:HB2 | 1.92 | 0.50 |
| 1:A:9:PRO:HB3 | 1:A:27:PRO:O | 2.12 | 0.50 |
| 1:A:19:GLU:HA | 1:A:201:THR:CG2 | 2.41 | 0.50 |
| 2:C:589:ARG:NE | 2:C:596:TYR:HE2 | 2.05 | 0.50 |
| 3:D:288:MET:HA | 3:D:306:GLU:O | 2.11 | 0.50 |
| 3:D:631:ILE:HD11 | 3:D:745:MET:CG | 2.41 | 0.50 |
| 3:D:1280:VAL:HG12 | 3:D:1318:TYR:HA | 1.93 | 0.50 |
| 2:C:64:LEU:HD13 | 2:C:102:HIS:CD2 | 2.47 | 0.50 |
| 2:C:571:LEU:HD22 | 2:C:700:TYR:HA | 1.93 | 0.50 |
| 2:C:575:GLN:HG3 | 2:C:670:GLN:HA | 1.92 | 0.50 |
| 1:A:65:PHE:HE2 | 2:C:703:ILE:HD13 | 1.76 | 0.50 |
| 2:C:286:SER:OG | 2:C:301:GLU:OE1 | 2.28 | 0.50 |
| 2:C:922:PHE:CE2 | 2:C:964:LYS:HB2 | 2.46 | 0.50 |
| 3:D:124:GLU:OE2 | 3:D:128:TYR:CD1 | 2.64 | 0.50 |
| 3:D:526:PRO:HB2 | 3:D:528:VAL:HG13 | 1.93 | 0.50 |
| 1:A:170:VAL:O | 1:A:170:VAL:HG23 | 2.12 | 0.50 |
| 1:B:112:ARG:CG | 1:B:125:PRO:HB2 | 2.35 | 0.50 |
| 2:C:21:ILE:HD12 | 2:C:455:LEU:HD22 | 1.94 | 0.50 |
| 2:C:1067:TYR:CZ | 5:F:342:VAL:HG12 | 2.46 | 0.50 |
| 3:D:412:GLY:CA | 5:F:178:ARG:NH2 | 2.74 | 0.50 |
| 2:C:577:PRO:HB3 | 2:C:993:PHE:CG | 2.46 | 0.50 |
| 2:C:650:ARG:HB2 | 2:C:650:ARG:NH1 | 2.26 | 0.50 |
| 3:D:1159:ARG:HG3 | 3:D:1159:ARG:O | 2.11 | 0.50 |
| 2:C:283:ILE:HD13 | 2:C:305:PRO:HB3 | 1.94 | 0.50 |
| 6:G:12:DG:N2 | 7:H:17:DT:O2 | 2.45 | 0.50 |
| 2:C:31:GLN:HB3 | 2:C:34:VAL:HG22 | 1.94 | 0.49 |
| 2:C:1090:LYS:HE2 | 2:C:1112:PHE:CZ | 2.47 | 0.49 |
| 3:D:695:ILE:CD1 | 3:D:720:LEU:HD11 | 2.42 | 0.49 |
| 1:A:19:GLU:CA | 1:A:201:THR:HG22 | 2.39 | 0.49 |
| 2:C:1111:ILE:HD12 | 2:C:1111:ILE:N | 2.27 | 0.49 |
| 3:D:704:ARG:HB2 | 3:D:745:MET:HE2 | 1.94 | 0.49 |
| 2:C:719:PRO:HB3 | 2:C:820:ARG:HH22 | 1.77 | 0.49 |
| 3:D:787:LEU:HD21 | 3:D:947:ILE:HG21 | 1.94 | 0.49 |
| 3:D:1289:LYS:C | 3:D:1307:LYS:HE2 | 2.33 | 0.49 |
| 5:F:154:LYS:O | 5:F:158:GLU:HG2 | 2.12 | 0.49 |
| 1:A:74:ASP:HB3 | 2:C:627:ARG:NH2 | 2.28 | 0.49 |
| 3:D:1305:LEU:HD23 | 3:D:1306:PRO:O | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:1364:HIS:CE1 | 3:D:1366:LYS:HB2 | 2.47 | 0.49 |
| 5:F:400:ILE:HG22 | 5:F:403:LYS:HE2 | 1.95 | 0.49 |
| 2:C:69:LEU:HB2 | 2:C:97:ARG:O | 2.13 | 0.49 |
| 2:C:835:VAL:HA | 2:C:849:VAL:CG2 | 2.42 | 0.49 |
| 2:C:877:PRO:HG3 | 3:D:1023:MET:CE | 2.42 | 0.49 |
| 3:D:218:LYS:HE3 | 3:D:338:GLU:CB | 2.35 | 0.49 |
| 3:D:362:GLU:HG3 | 3:D:363:ALA:N | 2.27 | 0.49 |
| 3:D:158:TYR:CE1 | 3:D:454:ALA:HB3 | 2.48 | 0.49 |
| 3:D:513:ILE:HD12 | 3:D:513:ILE:C | 2.31 | 0.49 |
| 4:E:30:LEU:HD12 | 4:E:30:LEU:H | 1.78 | 0.49 |
| 5:F:128:ARG:NH1 | 5:F:181:GLU:OE1 | 2.45 | 0.49 |
| 5:F:265:VAL:HG22 | 5:F:269:ASN:ND2 | 2.28 | 0.49 |
| 2:C:209:ARG:NE | 2:C:210:GLU:OE1 | 2.45 | 0.49 |
| 2:C:597:ALA:HB2 | 2:C:655:LEU:HD11 | 1.94 | 0.49 |
| 2:C:719:PRO:HB3 | 2:C:820:ARG:NH1 | 2.26 | 0.49 |
| 3:D:82:LYS:O | 3:D:85:VAL:HG22 | 2.13 | 0.49 |
| 3:D:102:ILE:HB | 3:D:579:ASP:OD2 | 2.12 | 0.49 |
| 3:D:581:LEU:O | 3:D:602:SER:HB2 | 2.12 | 0.49 |
| 3:D:810:GLU:OE2 | 3:D:810:GLU:N | 2.30 | 0.49 |
| 3:D:907:GLU:OE2 | 3:D:910:SER:N | 2.33 | 0.49 |
| 4:E:39:VAL:CG1 | 4:E:72:ARG:HH11 | 2.25 | 0.49 |
| 5:F:365:GLU:OE2 | 5:F:365:GLU:HA | 2.13 | 0.49 |
| 2:C:148:PHE:HD1 | 2:C:280:LYS:NZ | 2.11 | 0.49 |
| 2:C:640:ARG:HB2 | 2:C:642:ARG:NH2 | 2.28 | 0.49 |
| 2:C:838:LYS:HE3 | 3:D:741:ASP:O | 2.12 | 0.49 |
| 2:C:97:ARG:HG2 | 2:C:112:GLU:CB | 2.43 | 0.49 |
| 2:C:633:GLN:N | 2:C:633:GLN:OE1 | 2.46 | 0.49 |
| 5:F:349:LEU:HD22 | 5:F:421:PHE:CZ | 2.48 | 0.49 |
| 2:C:682:TYR:CE1 | 3:D:635:PRO:HD2 | 2.48 | 0.49 |
| 5:F:166:LEU:HB2 | 5:F:171:LYS:HG3 | 1.94 | 0.49 |
| 1:B:220:GLU:O | 1:B:223:THR:OG1 | 2.24 | 0.48 |
| 2:C:97:ARG:HH11 | 2:C:97:ARG:HG3 | 1.78 | 0.48 |
| 2:C:173:ASP:HB2 | 2:C:185:LYS:HB3 | 1.93 | 0.48 |
| 2:C:890:LEU:HD21 | 2:C:901:TYR:CE2 | 2.47 | 0.48 |
| 3:D:34:TYR:CB | 5:F:260:ILE:HG22 | 2.43 | 0.48 |
| 3:D:66:GLN:HB3 | 5:F:376:ILE:CG2 | 2.43 | 0.48 |
| 3:D:270:LEU:HB2 | 3:D:284:LEU:HD11 | 1.95 | 0.48 |
| 3:D:553:ARG:HG3 | 3:D:557:LEU:HD13 | 1.95 | 0.48 |
| 3:D:695:ILE:HD11 | 3:D:720:LEU:HD11 | 1.95 | 0.48 |
| 3:D:1165:TYR:CE1 | 3:D:1214:PRO:HB3 | 2.48 | 0.48 |
| 5:F:162:LYS:CE | 5:F:165:SER:HB2 | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:F:229:TYR:CE1 | 5:F:230:LYS:HD3 | 2.47 | 0.48 |
| 2:C:157:ARG:HD2 | 2:C:157:ARG:N | 2.27 | 0.48 |
| 2:C:617:ASP:HB2 | 2:C:619:ARG:HG2 | 1.94 | 0.48 |
| 2:C:1009:SER:O | 3:D:624:ASP:HB3 | 2.13 | 0.48 |
| 3:D:207:PHE:CE2 | 5:F:97:GLU:HB2 | 2.48 | 0.48 |
| 5:F:365:GLU:CD | 5:F:400:ILE:HB | 2.33 | 0.48 |
| 1:A:66:SER:O | 1:A:75:VAL:HG12 | 2.13 | 0.48 |
| 1:A:85:LEU:C | 1:A:85:LEU:HD23 | 2.34 | 0.48 |
| 3:D:33:ASN:HB2 | 3:D:40:GLU:OE2 | 2.12 | 0.48 |
| 3:D:191:LEU:HD21 | 3:D:197:SER:HB2 | 1.96 | 0.48 |
| 3:D:556:LYS:NZ | 5:F:222:ARG:HH21 | 2.11 | 0.48 |
| 5:F:398:ARG:O | 5:F:401:GLU:HB3 | 2.13 | 0.48 |
| 1:A:103:ALA:O | 1:A:104:GLU:HG3 | 2.12 | 0.48 |
| 1:A:111:ALA:O | 1:A:114:PHE:HD2 | 1.95 | 0.48 |
| 1:B:206:THR:HG23 | 1:B:209:GLU:H | 1.79 | 0.48 |
| 2:C:234:ALA:O | 2:C:237:ARG:HB2 | 2.14 | 0.48 |
| 2:C:243:ARG:HD3 | 2:C:256:TYR:CE2 | 2.48 | 0.48 |
| 3:D:137:PRO:HA | 3:D:452:ILE:CD1 | 2.42 | 0.48 |
| 3:D:437:VAL:HG21 | 5:F:175:HIS:CE1 | 2.48 | 0.48 |
| 5:F:386:VAL:HG13 | 5:F:390:PHE:CE1 | 2.48 | 0.48 |
| 3:D:179:VAL:HG12 | 3:D:180:LYS:N | 2.29 | 0.48 |
| 3:D:828:LYS:HZ2 | 3:D:833:GLU:HB2 | 1.79 | 0.48 |
| 5:F:234:LYS:HD2 | 7:H:5:DA:OP2 | 2.12 | 0.48 |
| 1:A:97:VAL:HG13 | 1:A:98:THR:N | 2.29 | 0.48 |
| 2:C:64:LEU:HD12 | 2:C:101:ILE:O | 2.13 | 0.48 |
| 2:C:194:VAL:HG23 | 2:C:197:LEU:HD12 | 1.95 | 0.48 |
| 2:C:586:ARG:HA | 2:C:589:ARG:HB3 | 1.96 | 0.48 |
| 2:C:728:HIS:CE1 | 5:F:422:LEU:O | 2.67 | 0.48 |
| 2:C:734:LEU:HD23 | 2:C:737:LEU:HD12 | 1.96 | 0.48 |
| 2:C:765:SER:O | 2:C:765:SER:OG | 2.31 | 0.48 |
| 3:D:186:VAL:HG12 | 3:D:189:GLN:HB2 | 1.94 | 0.48 |
| 3:D:834:THR:HB | 3:D:838:ARG:HD2 | 1.95 | 0.48 |
| 3:D:204:LEU:HD11 | 3:D:445:ARG:HH11 | 1.78 | 0.48 |
| 3:D:347:VAL:HG23 | 3:D:351:MET:HG3 | 1.96 | 0.48 |
| 7:H:17:DT:H2" | 7:H:18:DG:H5' | 1.96 | 0.48 |
| 1:B:132:LEU:HD21 | 1:B:136:GLY:C | 2.34 | 0.48 |
| 3:D:556:LYS:NZ | 5:F:222:ARG:NH2 | 2.61 | 0.48 |
| 3:D:1047:LYS:CG | 3:D:1048:PRO:HD2 | 2.44 | 0.48 |
| 3:D:1084:THR:O | 3:D:1088:THR:HG23 | 2.14 | 0.48 |
| 3:D:1379:VAL:HA | 3:D:1420:LEU:HB2 | 1.95 | 0.48 |
| 5:F:287:THR:HG22 | 5:F:290:GLU:OE2 | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:148:PHE:HD1 | 2:C:280:LYS:HZ2 | 1.62 | 0.48 |
| 2:C:242:LEU:N | 2:C:242:LEU:CD2 | 2.77 | 0.48 |
| 3:D:701:LEU:HB2 | 3:D:748:HIS:HB2 | 1.96 | 0.48 |
| 3:D:1068:LEU:O | 3:D:1072:ILE:HG12 | 2.14 | 0.48 |
| 3:D:1167:SER:O | 3:D:1171:VAL:HG23 | 2.13 | 0.48 |
| 4:E:80:VAL:HG23 | 4:E:85:LEU:HD11 | 1.95 | 0.48 |
| 5:F:372:ARG:HH12 | 5:F:380:GLU:CA | 2.19 | 0.48 |
| 1:A:53:VAL:HG21 | 1:A:82:LEU:O | 2.14 | 0.48 |
| 1:B:159:LYS:HE2 | 1:B:164:ALA:O | 2.13 | 0.48 |
| 2:C:31:GLN:O | 2:C:34:VAL:HG22 | 2.13 | 0.48 |
| 2:C:627:ARG:NH1 | 2:C:640:ARG:HA | 2.29 | 0.48 |
| 3:D:1047:LYS:CD | 3:D:1048:PRO:HD2 | 2.44 | 0.48 |
| 3:D:1189:ARG:HB3 | 3:D:1204:CYS:HA | 1.96 | 0.48 |
| 3:D:1197:ARG:HB2 | 3:D:1398:TRP:CZ2 | 2.49 | 0.48 |
| 3:D:1499:ARG:NH1 | 4:E:84:ARG:HG2 | 2.28 | 0.48 |
| 1:A:99:LEU:HD12 | 1:A:100:LEU:H | 1.79 | 0.47 |
| 2:C:290:LEU:O | 2:C:301:GLU:HB2 | 2.14 | 0.47 |
| 3:D:348:GLN:HB2 | 3:D:351:MET:HE2 | 1.95 | 0.47 |
| 3:D:401:TYR:C | 3:D:443:VAL:HG23 | 2.34 | 0.47 |
| 2:C:710:ILE:HD12 | 2:C:790:LEU:HB2 | 1.96 | 0.47 |
| 2:C:777:ILE:HD13 | 5:F:408:LEU:HD13 | 1.95 | 0.47 |
| 3:D:896:ALA:O | 3:D:900:ILE:CD1 | 2.57 | 0.47 |
| 3:D:1266:ARG:CZ | 7:H:18:DG:H4' | 2.45 | 0.47 |
| 4:E:44:GLU:O | 4:E:66:LYS:HE2 | 2.14 | 0.47 |
| 1:A:24:VAL:HG22 | 1:A:196:THR:HG23 | 1.94 | 0.47 |
| 1:B:64:GLU:HG3 | 1:B:79:ILE:HD12 | 1.94 | 0.47 |
| 3:D:1047:LYS:NZ | 3:D:1048:PRO:CG | 2.71 | 0.47 |
| 3:D:1282:ARG:HD2 | 3:D:1293:PHE:HB2 | 1.95 | 0.47 |
| 1:A:89:PHE:HB2 | 1:A:146:ARG:NH2 | 2.29 | 0.47 |
| 1:A:222:LEU:HD11 | 1:B:218:LEU:HD23 | 1.96 | 0.47 |
| 1:B:112:ARG:HG2 | 1:B:125:PRO:CB | 2.37 | 0.47 |
| 2:C:14:PRO:HB2 | 2:C:586:ARG:HH21 | 1.79 | 0.47 |
| 2:C:568:ALA:CB | 2:C:668:LEU:HB3 | 2.45 | 0.47 |
| 2:C:367:LEU:HD12 | 2:C:371:LYS:HZ1 | 1.75 | 0.47 |
| 2:C:627:ARG:HA | 2:C:638:ASP:OD1 | 2.14 | 0.47 |
| 2:C:1043:TYR:CG | 3:D:763:MET:HG2 | 2.50 | 0.47 |
| 3:D:411:THR:HG22 | 5:F:178:ARG:HB2 | 1.97 | 0.47 |
| 3:D:897:TRP:CH2 | 3:D:902:LEU:HD13 | 2.49 | 0.47 |
| 3:D:1293:PHE:CD1 | 3:D:1302:GLU:HB3 | 2.50 | 0.47 |
| 5:F:130:VAL:HG11 | 5:F:159:ILE:HG22 | 1.95 | 0.47 |
| 1:B:9:PRO:HB2 | 1:B:25:LEU:HD11 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:468:ARG:HG3 | 2:C:485:TYR:HB3 | 1.97 | 0.47 |
| 3:D:14:SER:HB3 | 3:D:511:TRP:CZ2 | 2.49 | 0.47 |
| 3:D:126:VAL:O | 3:D:457:GLY:N | 2.42 | 0.47 |
| 3:D:212:ARG:HG3 | 3:D:344:ASP:OD1 | 2.14 | 0.47 |
| 3:D:949:ILE:HD11 | 3:D:1023:MET:CE | 2.45 | 0.47 |
| 2:C:247:PRO:O | 2:C:252:LYS:HD3 | 2.14 | 0.47 |
| 2:C:730:SER:O | 2:C:734:LEU:HD12 | 2.15 | 0.47 |
| 2:C:1111:ILE:HG22 | 2:C:1111:ILE:O | 2.15 | 0.47 |
| 3:D:266:GLU:OE2 | 3:D:315:ARG:NH2 | 2.43 | 0.47 |
| 3:D:420:VAL:HG23 | 3:D:425:GLY:HA2 | 1.96 | 0.47 |
| 3:D:885:ILE:HD12 | 3:D:937:TYR:CG | 2.50 | 0.47 |
| 3:D:1275:SER:OG | 3:D:1277:ILE:O | 2.33 | 0.47 |
| 3:D:1305:LEU:HD11 | 3:D:1326:THR:HB | 1.97 | 0.47 |
| 2:C:190:LYS:HE3 | 2:C:190:LYS:HB3 | 1.50 | 0.47 |
| 2:C:283:ILE:HG22 | 2:C:284:ARG:N | 2.30 | 0.47 |
| 3:D:12:LEU:HD21 | 3:D:104:PHE:CZ | 2.49 | 0.47 |
| 3:D:316:GLN:O | 3:D:316:GLN:HG3 | 2.15 | 0.47 |
| 3:D:357:GLU:HB2 | 3:D:387:LEU:HD23 | 1.97 | 0.47 |
| 3:D:530:VAL:HG22 | 3:D:531:ASP:N | 2.28 | 0.47 |
| 3:D:613:ARG:HA | 3:D:613:ARG:HD3 | 1.76 | 0.47 |
| 3:D:1147:ARG:HD3 | 3:D:1188:VAL:HG11 | 1.97 | 0.47 |
| 5:F:147:LEU:HD23 | 5:F:151:LEU:HD11 | 1.95 | 0.47 |
| 2:C:185:LYS:HB2 | 2:C:190:LYS:HD2 | 1.96 | 0.47 |
| 3:D:207:PHE:HB2 | 3:D:391:ALA:HB2 | 1.96 | 0.47 |
| 3:D:398:ALA:HB2 | 3:D:447:VAL:HG12 | 1.96 | 0.47 |
| 4:E:30:LEU:HB3 | 4:E:35:PHE:CD1 | 2.49 | 0.47 |
| 3:D:156:GLU:H | 3:D:156:GLU:CD | 2.14 | 0.46 |
| 3:D:252:ARG:HB3 | 3:D:301:GLY:HA2 | 1.97 | 0.46 |
| 5:F:403:LYS:HG3 | 5:F:404:ALA:N | 2.30 | 0.46 |
| 1:A:4:SER:HB3 | 1:A:189:ARG:HH22 | 1.80 | 0.46 |
| 1:A:11:PHE:O | 1:B:228:PRO:HA | 2.14 | 0.46 |
| 1:A:76:VAL:O | 1:A:80:LEU:HD13 | 2.14 | 0.46 |
| 1:A:176:ARG:NH2 | 2:C:865:THR:HG22 | 2.30 | 0.46 |
| 1:B:117:VAL:HB | 1:B:120:VAL:HG22 | 1.98 | 0.46 |
| 2:C:243:ARG:HD3 | 2:C:256:TYR:CZ | 2.50 | 0.46 |
| 2:C:714:ASP:OD1 | 2:C:820:ARG:NH1 | 2.48 | 0.46 |
| 3:D:8:VAL:HG12 | 3:D:1434:TRP:HZ2 | 1.81 | 0.46 |
| 3:D:237:LYS:O | 3:D:240:GLU:HB2 | 2.15 | 0.46 |
| 3:D:438:ASP:OD1 | 3:D:441:ARG:NH2 | 2.44 | 0.46 |
| 3:D:999:THR:O | 3:D:1003:VAL:HG13 | 2.14 | 0.46 |
| 3:D:1261:GLU:OE1 | 3:D:1268:PRO:HA | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:13:ILE:HG13 | 2:C:14:PRO:O | 2.16 | 0.46 |
| 2:C:928:LYS:HG3 | 2:C:932:GLU:OE1 | 2.15 | 0.46 |
| 2:C:1004:LYS:HD3 | 3:D:744:GLN:HE22 | 1.80 | 0.46 |
| 3:D:1336:LEU:HB2 | 3:D:1344:VAL:HG21 | 1.97 | 0.46 |
| 2:C:82:GLU:HG3 | 2:C:86:LYS:NZ | 2.31 | 0.46 |
| 2:C:727:PRO:O | 2:C:729:LEU:CD2 | 2.63 | 0.46 |
| 2:C:1038:TRP:CE2 | 3:D:1099:VAL:HG11 | 2.50 | 0.46 |
| 2:C:1101:THR:CG2 | 2:C:1111:ILE:HD11 | 2.46 | 0.46 |
| 1:A:191:ASP:OD1 | 2:C:938:LYS:NZ | 2.37 | 0.46 |
| 6:G:12:DG:C6 | 6:G:13:DA:C6 | 3.04 | 0.46 |
| 2:C:1043:TYR:CD2 | 3:D:763:MET:HG2 | 2.50 | 0.46 |
| 3:D:1399:ASP:OD2 | 3:D:1432:LYS:NZ | 2.49 | 0.46 |
| 3:D:1492:LEU:HD11 | 3:D:1493:LYS:HE2 | 1.98 | 0.46 |
| 5:F:105:LYS:HE2 | 5:F:179:GLU:OE2 | 2.15 | 0.46 |
| 2:C:97:ARG:NH1 | 2:C:97:ARG:HG3 | 2.30 | 0.46 |
| 2:C:238:LEU:HG | 2:C:242:LEU:CD2 | 2.45 | 0.46 |
| 3:D:347:VAL:HG22 | 3:D:351:MET:HG3 | 1.97 | 0.46 |
| 3:D:409:VAL:HG23 | 3:D:435:VAL:HG21 | 1.96 | 0.46 |
| 3:D:666:ILE:HD11 | 3:D:684:LYS:NZ | 2.30 | 0.46 |
| 1:A:99:LEU:HD21 | 1:A:114:PHE:CG | 2.50 | 0.46 |
| 1:B:97:VAL:HG13 | 1:B:144:VAL:HG22 | 1.96 | 0.46 |
| 1:B:124:ASN:HB2 | 1:B:127:LEU:CG | 2.42 | 0.46 |
| 1:B:153:ALA:HB2 | 1:B:168:ASP:N | 2.31 | 0.46 |
| 2:C:31:GLN:HB3 | 2:C:34:VAL:CG2 | 2.46 | 0.46 |
| 2:C:337:GLY:O | 2:C:341:THR:HG23 | 2.15 | 0.46 |
| 2:C:497:ALA:HB3 | 2:C:532:MET:HG3 | 1.98 | 0.46 |
| 2:C:668:LEU:HD12 | 2:C:668:LEU:N | 2.30 | 0.46 |
| 2:C:762:LYS:HE2 | 2:C:783:ARG:O | 2.14 | 0.46 |
| 3:D:704:ARG:HD3 | 3:D:736:PHE:O | 2.15 | 0.46 |
| 1:A:185:ARG:CZ | 1:A:187:GLY:HA2 | 2.46 | 0.46 |
| 1:B:64:GLU:HB2 | 1:B:165:ILE:HG21 | 1.98 | 0.46 |
| 2:C:501:THR:CG2 | 2:C:513:VAL:HG23 | 2.35 | 0.46 |
| 2:C:578:VAL:HG23 | 2:C:671:ASN:CG | 2.37 | 0.46 |
| 2:C:602:GLU:HG3 | 2:C:648:ARG:HE | 1.81 | 0.46 |
| 2:C:716:LYS:HZ2 | 3:D:529:GLN:HE22 | 1.64 | 0.46 |
| 3:D:556:LYS:HZ1 | 5:F:222:ARG:HH21 | 1.64 | 0.46 |
| 5:F:107:GLU:O | 5:F:111:GLU:HG3 | 2.16 | 0.46 |
| 5:F:130:VAL:HG21 | 5:F:159:ILE:HG21 | 1.97 | 0.46 |
| 2:C:204:GLN:HA | 2:C:207:LEU:HD23 | 1.98 | 0.46 |
| 2:C:627:ARG:HD2 | 2:C:639:GLN:O | 2.16 | 0.46 |
| 2:C:929:ARG:NH2 | 2:C:940:GLU:OE2 | 2.49 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:942:GLU:HG3 | 2:C:945:ARG:HH21 | 1.81 | 0.46 |
| 2:C:946:ARG:NH1 | 3:D:861:GLN:HE22 | 2.14 | 0.46 |
| 3:D:155:ASP:OD1 | 3:D:159:ARG:NH2 | 2.49 | 0.46 |
| 3:D:683:ILE:CG2 | 3:D:687:VAL:HG11 | 2.45 | 0.46 |
| 5:F:382:THR:HB | 5:F:383:LEU:HD12 | 1.96 | 0.46 |
| 2:C:68:PHE:HD2 | 2:C:98:LEU:HD11 | 1.81 | 0.45 |
| 2:C:627:ARG:NH1 | 2:C:639:GLN:O | 2.49 | 0.45 |
| 2:C:810:ASP:HB2 | 2:C:813:VAL:CG1 | 2.46 | 0.45 |
| 3:D:97:THR:HG22 | 3:D:98:PRO:O | 2.15 | 0.45 |
| 3:D:637:LEU:HD13 | 3:D:642:CYS:HA | 1.98 | 0.45 |
| 3:D:1277:ILE:HG13 | 3:D:1278:ASP:N | 2.30 | 0.45 |
| 3:D:1410:GLU:HB3 | 3:D:1412:LYS:HE2 | 1.97 | 0.45 |
| 5:F:366:ALA:O | 5:F:370:LYS:HB2 | 2.16 | 0.45 |
| 2:C:206:THR:HA | 2:C:209:ARG:HD3 | 1.98 | 0.45 |
| 2:C:366:SER:O | 2:C:366:SER:OG | 2.29 | 0.45 |
| 3:D:1148:VAL:HG22 | 3:D:1189:ARG:HB2 | 1.97 | 0.45 |
| 4:E:26:ARG:HD2 | 4:E:67:GLU:OE1 | 2.17 | 0.45 |
| 1:A:104:GLU:HG2 | 1:A:137:ARG:CD | 2.43 | 0.45 |
| 2:C:282:GLY:C | 2:C:283:ILE:HD12 | 2.37 | 0.45 |
| 2:C:739:GLU:CD | 2:C:739:GLU:H | 2.20 | 0.45 |
| 3:D:169:TYR:O | 3:D:392:SER:HB3 | 2.16 | 0.45 |
| 3:D:556:LYS:HD3 | 5:F:218:GLN:NE2 | 2.32 | 0.45 |
| 2:C:236:ILE:HG23 | 2:C:248:PRO:HB2 | 1.99 | 0.45 |
| 2:C:716:LYS:HZ1 | 3:D:529:GLN:HE22 | 1.64 | 0.45 |
| 3:D:437:VAL:HG11 | 5:F:175:HIS:ND1 | 2.32 | 0.45 |
| 3:D:773:ALA:HB1 | 3:D:1363:LEU:HD12 | 1.99 | 0.45 |
| 4:E:84:ARG:HG3 | 4:E:88:GLU:OE1 | 2.16 | 0.45 |
| 2:C:769:PRO:HD2 | 3:D:65:ARG:NH1 | 2.32 | 0.45 |
| 3:D:1148:VAL:HA | 3:D:1164:ARG:O | 2.17 | 0.45 |
| 5:F:329:TYR:CE2 | 5:F:333:ILE:HD11 | 2.51 | 0.45 |
| 2:C:5:ARG:HH11 | 2:C:5:ARG:HB3 | 1.82 | 0.45 |
| 2:C:1001:VAL:HG22 | 3:D:724:GLN:HB2 | 1.98 | 0.45 |
| 3:D:131:LYS:N | 3:D:456:MET:HE2 | 2.32 | 0.45 |
| 3:D:199:LEU:HG | 3:D:200:ASP:O | 2.15 | 0.45 |
| 3:D:1112:CYS:SG | 3:D:1114:THR:HG22 | 2.56 | 0.45 |
| 3:D:1438:ALA:N | 3:D:1446:VAL:HG11 | 2.31 | 0.45 |
| 5:F:164:LYS:HD2 | 5:F:171:LYS:CD | 2.45 | 0.45 |
| 5:F:278:LEU:O | 5:F:282:LEU:HD12 | 2.15 | 0.45 |
| 2:C:175:GLU:O | 2:C:183:SER:OG | 2.20 | 0.45 |
| 2:C:687:ALA:HB1 | 2:C:850:ALA:HB2 | 1.99 | 0.45 |
| 4:E:85:LEU:N | 4:E:85:LEU:HD12 | 2.32 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:F:162:LYS:NZ | 5:F:165:SER:HB2 | 2.31 | 0.45 |
| 1:A:133:GLU:OE2 | 2:C:610:ARG:NH2 | 2.49 | 0.45 |
| 3:D:3:LYS:HG3 | 3:D:4:GLU:H | 1.82 | 0.45 |
| 3:D:432:TYR:O | 3:D:448:GLU:HA | 2.17 | 0.45 |
| 3:D:628:ARG:HE | 3:D:628:ARG:HB2 | 1.70 | 0.45 |
| 3:D:632:VAL:O | 3:D:727:GLN:HA | 2.16 | 0.45 |
| 3:D:1295:GLU:HA | 3:D:1300:SER:CB | 2.47 | 0.45 |
| 5:F:181:GLU:O | 5:F:185:GLN:HG2 | 2.17 | 0.45 |
| 5:F:232:ARG:HG2 | 5:F:232:ARG:NH1 | 2.31 | 0.45 |
| 5:F:369:LEU:O | 5:F:372:ARG:HB3 | 2.17 | 0.45 |
| 2:C:45:GLN:HG2 | 2:C:71:TYR:HE2 | 1.81 | 0.45 |
| 2:C:681:GLY:HA2 | 3:D:939:PHE:CE1 | 2.52 | 0.45 |
| 2:C:820:ARG:H | 2:C:820:ARG:HG2 | 1.65 | 0.45 |
| 3:D:199:LEU:HD12 | 3:D:199:LEU:HA | 1.72 | 0.45 |
| 3:D:354:VAL:HG22 | 3:D:354:VAL:O | 2.17 | 0.45 |
| 3:D:489:ARG:NH1 | 3:D:1391:GLU:OE2 | 2.50 | 0.45 |
| 3:D:1003:VAL:HG21 | 3:D:1041:LEU:HD22 | 1.98 | 0.45 |
| 1:B:161:ARG:HG3 | 1:B:162:ILE:O | 2.17 | 0.45 |
| 2:C:278:GLU:HG2 | 2:C:284:ARG:HA | 1.99 | 0.45 |
| 2:C:882:LEU:HD23 | 2:C:882:LEU:HA | 1.70 | 0.45 |
| 3:D:23:TYR:CE1 | 3:D:89:ARG:HD3 | 2.51 | 0.45 |
| 3:D:63:TYR:CZ | 3:D:71:LYS:HE2 | 2.51 | 0.45 |
| 3:D:431:VAL:HG11 | 3:D:448:GLU:CD | 2.38 | 0.45 |
| 5:F:368:VAL:O | 5:F:390:PHE:HE2 | 1.99 | 0.45 |
| 2:C:195:LEU:HD22 | 2:C:238:LEU:HB2 | 1.98 | 0.44 |
| 2:C:263:ASP:C | 2:C:265:ARG:H | 2.20 | 0.44 |
| 3:D:1028:ALA:O | 3:D:1029:ARG:HG2 | 2.18 | 0.44 |
| 3:D:1054:GLU:H | 3:D:1054:GLU:HG3 | 1.62 | 0.44 |
| 5:F:97:GLU:HA | 5:F:100:VAL:HG12 | 2.00 | 0.44 |
| 2:C:68:PHE:CA | 2:C:98:LEU:HD12 | 2.21 | 0.44 |
| 2:C:583:LEU:O | 2:C:587:VAL:HG23 | 2.17 | 0.44 |
| 2:C:766:GLU:O | 2:C:767:PRO:C | 2.55 | 0.44 |
| 3:D:669:ASN:HD22 | 5:F:417:LYS:HG2 | 1.82 | 0.44 |
| 3:D:916:TYR:CZ | 3:D:920:LEU:HD21 | 2.52 | 0.44 |
| 3:D:1480:PHE:O | 4:E:18:ARG:NH2 | 2.50 | 0.44 |
| 1:A:36:LEU:O | 1:A:39:PRO:HD2 | 2.18 | 0.44 |
| 1:B:29:GLU:HG2 | 1:B:30:ARG:N | 2.33 | 0.44 |
| 1:B:83:LYS:HE2 | 1:B:168:ASP:HB2 | 1.97 | 0.44 |
| 1:B:169:ALA:HB1 | 1:B:171:PHE:CE2 | 2.53 | 0.44 |
| 2:C:259:GLY:HA2 | 2:C:263:ASP:CB | 2.48 | 0.44 |
| 2:C:385:PHE:O | 2:C:389:SER:HB3 | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:573:ARG:HB2 | 2:C:670:GLN:HE21 | 1.81 | 0.44 |
| 3:D:165:LYS:HD2 | 3:D:166:GLN:N | 2.32 | 0.44 |
| 3:D:361:VAL:HG21 | 3:D:379:ALA:CB | 2.47 | 0.44 |
| 3:D:792:ILE:HD13 | 3:D:941:PHE:CE2 | 2.53 | 0.44 |
| 1:A:16:GLN:OE1 | 1:A:17:GLY:N | 2.51 | 0.44 |
| 2:C:460:ARG:HD2 | 2:C:485:TYR:CE1 | 2.52 | 0.44 |
| 2:C:650:ARG:NH1 | 2:C:653:ASP:OD1 | 2.49 | 0.44 |
| 3:D:171:LEU:HD21 | 3:D:390:PRO:CG | 2.44 | 0.44 |
| 3:D:187:LYS:HG2 | 3:D:200:ASP:OD2 | 2.18 | 0.44 |
| 3:D:310:LEU:HD12 | 3:D:310:LEU:HA | 1.68 | 0.44 |
| 3:D:455:ARG:HB2 | 3:D:460:ALA:HB2 | 1.98 | 0.44 |
| 3:D:534:ARG:HE | 3:D:534:ARG:HB3 | 1.69 | 0.44 |
| 3:D:689:ASP:CG | 4:E:51:LEU:HD11 | 2.38 | 0.44 |
| 4:E:17:TYR:O | 4:E:21:VAL:HG23 | 2.18 | 0.44 |
| 5:F:252:ALA:HB1 | 5:F:265:VAL:HG11 | 2.00 | 0.44 |
| 1:B:40:LEU:HD21 | 1:B:218:LEU:HD22 | 1.98 | 0.44 |
| 3:D:56:TYR:HA | 3:D:80:VAL:HG23 | 1.99 | 0.44 |
| 3:D:206:ARG:HD2 | 3:D:206:ARG:HA | 1.77 | 0.44 |
| 3:D:348:GLN:HB2 | 3:D:351:MET:HE3 | 2.00 | 0.44 |
| 3:D:1047:LYS:CD | 3:D:1048:PRO:CD | 2.96 | 0.44 |
| 3:D:1053:PHE:CE2 | 3:D:1072:ILE:HG23 | 2.52 | 0.44 |
| 3:D:1165:TYR:CZ | 3:D:1214:PRO:HB3 | 2.53 | 0.44 |
| 2:C:34:VAL:CG2 | 2:C:39:ARG:HG2 | 2.47 | 0.44 |
| 2:C:280:LYS:HE3 | 2:C:323:ASP:OD1 | 2.17 | 0.44 |
| 2:C:290:LEU:HD12 | 2:C:290:LEU:H | 1.82 | 0.44 |
| 2:C:470:PRO:HB2 | 2:C:534:VAL:HG21 | 2.00 | 0.44 |
| 2:C:1053:LEU:HD11 | 3:D:1466:VAL:HG13 | 2.00 | 0.44 |
| 3:D:297:ILE:HD12 | 3:D:297:ILE:C | 2.37 | 0.44 |
| 3:D:799:LYS:NZ | 3:D:1014:ASN:HA | 2.32 | 0.44 |
| 3:D:1314:LYS:O | 3:D:1317:ASP:HB2 | 2.18 | 0.44 |
| 5:F:101:GLU:O | 5:F:104:ARG:HB3 | 2.17 | 0.44 |
| 5:F:364:ARG:HE | 5:F:364:ARG:C | 2.20 | 0.44 |
| 1:A:18:ARG:O | 1:A:201:THR:CG2 | 2.66 | 0.44 |
| 2:C:404:LEU:O | 2:C:408:ARG:HG3 | 2.18 | 0.44 |
| 3:D:124:GLU:OE2 | 3:D:128:TYR:HD1 | 1.99 | 0.44 |
| 3:D:169:TYR:HE1 | 3:D:395:VAL:CG1 | 2.26 | 0.44 |
| 3:D:186:VAL:HG13 | 3:D:187:LYS:O | 2.18 | 0.44 |
| 3:D:1045:MET:HB3 | 3:D:1045:MET:HE2 | 1.88 | 0.44 |
| 3:D:1053:PHE:CE2 | 3:D:1072:ILE:HD12 | 2.53 | 0.44 |
| 5:F:105:LYS:HB3 | 5:F:105:LYS:HE3 | 1.53 | 0.44 |
| 5:F:412:GLU:OE1 | 5:F:418:LEU:HB2 | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:58:ILE:HG13 | 1:B:61:VAL:CG1 | 2.44 | 0.44 |
| 2:C:207:LEU:C | 2:C:207:LEU:HD12 | 2.38 | 0.44 |
| 2:C:719:PRO:CB | 2:C:820:ARG:HH22 | 2.31 | 0.44 |
| 2:C:732:ALA:O | 2:C:735:ARG:HG2 | 2.17 | 0.44 |
| 2:C:1101:THR:OG1 | 2:C:1109:VAL:O | 2.36 | 0.44 |
| 3:D:85:VAL:C | 3:D:87:ARG:H | 2.20 | 0.44 |
| 3:D:1048:PRO:HD3 | 3:D:1075:HIS:CG | 2.53 | 0.44 |
| 3:D:1053:PHE:CD2 | 3:D:1072:ILE:HG23 | 2.52 | 0.44 |
| 3:D:1262:LEU:CD1 | 3:D:1351:GLU:HB3 | 2.47 | 0.44 |
| 3:D:1442:ASN:OD1 | 6:G:11:DA:H4' | 2.18 | 0.44 |
| 2:C:197:LEU:HD23 | 2:C:197:LEU:HA | 1.76 | 0.44 |
| 2:C:304:LEU:HD22 | 2:C:304:LEU:HA | 1.71 | 0.44 |
| 2:C:759:THR:HB | 2:C:785:VAL:HB | 1.99 | 0.44 |
| 2:C:905:ILE:O | 2:C:907:ASP:N | 2.51 | 0.44 |
| 3:D:808:THR:OG1 | 3:D:810:GLU:OE2 | 2.28 | 0.44 |
| 3:D:1107:VAL:HA | 3:D:1200:VAL:O | 2.17 | 0.44 |
| 3:D:1267:ARG:HD2 | 3:D:1331:ASP:OD2 | 2.17 | 0.44 |
| 3:D:1386:ASP:OD2 | 3:D:1413:THR:HG22 | 2.17 | 0.44 |
| 5:F:354:LEU:O | 5:F:358:LEU:HD13 | 2.18 | 0.44 |
| 1:B:128:HIS:CE1 | 1:B:131:THR:CG2 | 2.97 | 0.43 |
| 1:B:173:PRO:HB2 | 1:B:205:VAL:HG12 | 1.99 | 0.43 |
| 3:D:34:TYR:HB3 | 5:F:260:ILE:HG22 | 1.99 | 0.43 |
| 3:D:231:VAL:HG22 | 3:D:242:LEU:O | 2.18 | 0.43 |
| 3:D:794:GLN:HG3 | 3:D:795:VAL:N | 2.32 | 0.43 |
| 3:D:876:SER:OG | 3:D:879:ARG:HG3 | 2.18 | 0.43 |
| 5:F:172:ARG:HG3 | 5:F:173:TYR:CD1 | 2.53 | 0.43 |
| 1:B:219:ARG:HG2 | 1:B:219:ARG:HH11 | 1.83 | 0.43 |
| 2:C:675:ALA:HA | 2:C:989:VAL:HG22 | 2.00 | 0.43 |
| 2:C:1022:GLY:O | 2:C:1026:GLN:NE2 | 2.51 | 0.43 |
| 3:D:204:LEU:O | 3:D:393:ILE:HD12 | 2.17 | 0.43 |
| 3:D:483:HIS:O | 3:D:489:ARG:HG2 | 2.18 | 0.43 |
| 3:D:660:LYS:HA | 3:D:660:LYS:HD3 | 1.82 | 0.43 |
| 3:D:711:LEU:HD13 | 3:D:778:LEU:CD1 | 2.49 | 0.43 |
| 1:B:219:ARG:HG2 | 1:B:219:ARG:NH1 | 2.34 | 0.43 |
| 2:C:230:ARG:HB2 | 2:C:233:GLU:OE1 | 2.18 | 0.43 |
| 2:C:755:LEU:HD11 | 2:C:792:VAL:HG22 | 2.00 | 0.43 |
| 3:D:209:ARG:N | 3:D:389:GLU:O | 2.32 | 0.43 |
| 3:D:684:LYS:O | 3:D:687:VAL:HG12 | 2.18 | 0.43 |
| 1:A:152:PRO:O | 1:A:155:LYS:HB2 | 2.17 | 0.43 |
| 1:B:170:VAL:HG23 | 1:B:170:VAL:O | 2.17 | 0.43 |
| 2:C:957:LYS:HD3 | 2:C:961:GLU:HB3 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:187:LYS:HE3 | 3:D:200:ASP:OD2 | 2.17 | 0.43 |
| 3:D:520:LEU:O | 3:D:525:ARG:HD3 | 2.18 | 0.43 |
| 3:D:792:ILE:HD13 | 3:D:941:PHE:CD2 | 2.54 | 0.43 |
| 3:D:900:ILE:HD12 | 3:D:900:ILE:H | 1.83 | 0.43 |
| 5:F:193:ARG:NH1 | 7:H:7:DG:N7 | 2.66 | 0.43 |
| 2:C:64:LEU:HD11 | 2:C:100:LEU:HD11 | 2.00 | 0.43 |
| 2:C:229:MET:HE2 | 2:C:229:MET:HB3 | 1.82 | 0.43 |
| 2:C:627:ARG:HE | 2:C:627:ARG:HB3 | 1.61 | 0.43 |
| 2:C:763:GLY:O | 2:C:765:SER:N | 2.52 | 0.43 |
| 2:C:890:LEU:HD23 | 2:C:890:LEU:C | 2.37 | 0.43 |
| 2:C:905:ILE:C | 2:C:907:ASP:H | 2.21 | 0.43 |
| 3:D:317:VAL:HG12 | 3:D:339:TRP:HB3 | 2.00 | 0.43 |
| 3:D:818:ARG:HB3 | 3:D:820:GLU:HG3 | 2.00 | 0.43 |
| 4:E:70:THR:OG1 | 4:E:72:ARG:HG3 | 2.19 | 0.43 |
| 5:F:164:LYS:HZ2 | 5:F:171:LYS:CE | 2.32 | 0.43 |
| 1:A:176:ARG:CZ | 2:C:865:THR:HG22 | 2.48 | 0.43 |
| 1:B:48:ILE:C | 1:B:148:VAL:HG12 | 2.39 | 0.43 |
| 1:B:85:LEU:HD23 | 1:B:86:VAL:N | 2.34 | 0.43 |
| 3:D:12:LEU:HD23 | 3:D:12:LEU:HA | 1.66 | 0.43 |
| 3:D:266:GLU:CD | 3:D:315:ARG:HD2 | 2.39 | 0.43 |
| 4:E:79:LEU:HD23 | 4:E:79:LEU:HA | 1.70 | 0.43 |
| 5:F:184:ARG:O | 5:F:188:ILE:HG13 | 2.18 | 0.43 |
| 1:B:13:VAL:HG22 | 1:B:23:PHE:CD1 | 2.54 | 0.43 |
| 2:C:754:ILE:CG1 | 2:C:791:ARG:HE | 2.27 | 0.43 |
| 3:D:362:GLU:HG3 | 3:D:363:ALA:H | 1.82 | 0.43 |
| 3:D:526:PRO:HG2 | 5:F:317:LEU:HD11 | 2.01 | 0.43 |
| 3:D:631:ILE:CG1 | 3:D:745:MET:HB2 | 2.48 | 0.43 |
| 3:D:1047:LYS:HD3 | 3:D:1048:PRO:CG | 2.49 | 0.43 |
| 3:D:1293:PHE:CE1 | 3:D:1302:GLU:HG2 | 2.54 | 0.43 |
| 1:A:97:VAL:HG12 | 1:A:144:VAL:HB | 1.99 | 0.43 |
| 2:C:713:ARG:HG2 | 2:C:720:GLU:OE1 | 2.18 | 0.43 |
| 2:C:748:GLU:HA | 2:C:799:ILE:HD13 | 1.99 | 0.43 |
| 3:D:41:ARG:HH21 | 3:D:48:ARG:NH1 | 2.17 | 0.43 |
| 3:D:116:LEU:CB | 3:D:118:LEU:HD13 | 2.48 | 0.43 |
| 3:D:408:GLU:HA | 5:F:164:LYS:CE | 2.49 | 0.43 |
| 3:D:1371:VAL:O | 3:D:1374:GLN:N | 2.52 | 0.43 |
| 3:D:1487:VAL:HG23 | 4:E:74:VAL:CG1 | 2.49 | 0.43 |
| 5:F:132:ARG:NH2 | 5:F:184:ARG:NH2 | 2.66 | 0.43 |
| 5:F:200:LYS:O | 5:F:203:THR:HG23 | 2.19 | 0.43 |
| 2:C:605:LYS:HD3 | 2:C:610:ARG:HH12 | 1.84 | 0.43 |
| 2:C:763:GLY:C | 2:C:765:SER:H | 2.22 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:890:LEU:CD2 | 2:C:901:TYR:CE2 | 3.02 | 0.43 |
| 3:D:208:PRO:CG | 3:D:387:LEU:HD12 | 2.49 | 0.43 |
| 1:A:185:ARG:NH2 | 1:A:187:GLY:O | 2.52 | 0.43 |
| 2:C:274:ARG:HH22 | 2:C:284:ARG:CZ | 2.32 | 0.43 |
| 2:C:283:ILE:CG2 | 2:C:284:ARG:N | 2.82 | 0.43 |
| 2:C:508:ILE:HG21 | 2:C:526:PRO:HB3 | 2.01 | 0.43 |
| 3:D:335:LEU:HD23 | 3:D:335:LEU:HA | 1.82 | 0.43 |
| 3:D:1262:LEU:HD11 | 3:D:1351:GLU:HB3 | 2.01 | 0.43 |
| 2:C:76:PRO:HG3 | 2:C:120:LEU:HD12 | 2.01 | 0.42 |
| 2:C:172:ILE:HG12 | 2:C:186:VAL:CG2 | 2.45 | 0.42 |
| 2:C:206:THR:HA | 2:C:209:ARG:HG2 | 2.00 | 0.42 |
| 3:D:361:VAL:HG22 | 3:D:362:GLU:O | 2.18 | 0.42 |
| 3:D:626:SER:HA | 3:D:747:VAL:O | 2.19 | 0.42 |
| 3:D:640:HIS:CD2 | 3:D:640:HIS:H | 2.37 | 0.42 |
| 5:F:396:ARG:O | 5:F:400:ILE:HG12 | 2.19 | 0.42 |
| 1:B:104:GLU:HA | 1:B:132:LEU:HD13 | 2.00 | 0.42 |
| 2:C:229:MET:SD | 2:C:237:ARG:HG3 | 2.58 | 0.42 |
| 3:D:272:LEU:CD2 | 3:D:298:VAL:CG1 | 2.97 | 0.42 |
| 5:F:163:LEU:HD23 | 5:F:163:LEU:HA | 1.52 | 0.42 |
| 1:B:101:LEU:HD23 | 1:B:101:LEU:HA | 1.39 | 0.42 |
| 3:D:128:TYR:CE1 | 3:D:587:ARG:HD2 | 2.54 | 0.42 |
| 3:D:213:VAL:HG13 | 3:D:215:TYR:CE2 | 2.54 | 0.42 |
| 3:D:1148:VAL:CG2 | 3:D:1189:ARG:HG3 | 2.49 | 0.42 |
| 1:B:94:LEU:HD12 | 1:B:95:GLN:N | 2.33 | 0.42 |
| 2:C:595:LEU:C | 2:C:596:TYR:CD1 | 2.93 | 0.42 |
| 2:C:712:ALA:HB3 | 2:C:821:GLU:CG | 2.50 | 0.42 |
| 2:C:736:ASP:O | 2:C:744:ARG:HG2 | 2.19 | 0.42 |
| 2:C:876:VAL:H | 2:C:877:PRO:HD2 | 1.85 | 0.42 |
| 3:D:33:ASN:HB3 | 3:D:36:THR:CG2 | 2.45 | 0.42 |
| 3:D:352:ASN:OD1 | 3:D:352:ASN:N | 2.52 | 0.42 |
| 3:D:486:ARG:O | 3:D:489:ARG:HB2 | 2.20 | 0.42 |
| 3:D:984:THR:HG22 | 3:D:986:ARG:H | 1.84 | 0.42 |
| 3:D:1092:GLY:HA3 | 6:G:14:DG:O4' | 2.20 | 0.42 |
| 3:D:1197:ARG:HB2 | 3:D:1398:TRP:CH2 | 2.54 | 0.42 |
| 5:F:240:THR:O | 5:F:244:ARG:HG3 | 2.19 | 0.42 |
| 2:C:1070:ILE:HG21 | 3:D:655:PRO:HB2 | 2.00 | 0.42 |
| 3:D:258:VAL:HG12 | 3:D:297:ILE:CG2 | 2.48 | 0.42 |
| 3:D:273:ARG:HB2 | 3:D:277:GLU:O | 2.20 | 0.42 |
| 3:D:314:PRO:HB2 | 3:D:317:VAL:HG22 | 2.01 | 0.42 |
| 3:D:413:ASP:N | 5:F:178:ARG:NH2 | 2.65 | 0.42 |
| 3:D:684:LYS:HZ3 | 3:D:684:LYS:HG3 | 1.76 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:949:ILE:HD11 | 3:D:1023:MET:HE1 | 2.00 | 0.42 |
| 3:D:1286:THR:HB | 3:D:1289:LYS:H | 1.85 | 0.42 |
| 2:C:241:LEU:HB2 | 2:C:242:LEU:CD2 | 2.50 | 0.42 |
| 2:C:469:THR:OG1 | 2:C:538:GLN:NE2 | 2.53 | 0.42 |
| 2:C:773:LEU:O | 2:C:777:ILE:HG13 | 2.19 | 0.42 |
| 2:C:783:ARG:CZ | 2:C:783:ARG:HB3 | 2.49 | 0.42 |
| 3:D:352:ASN:HB3 | 5:F:104:ARG:NH2 | 2.35 | 0.42 |
| 3:D:1286:THR:N | 3:D:1289:LYS:O | 2.49 | 0.42 |
| 3:D:1291:SER:HB2 | 3:D:1304:LYS:HG2 | 2.01 | 0.42 |
| 5:F:320:PRO:HA | 5:F:327:SER:O | 2.20 | 0.42 |
| 1:A:57:TYR:CD1 | 1:A:161:ARG:NH2 | 2.87 | 0.42 |
| 2:C:280:LYS:CE | 2:C:323:ASP:OD2 | 2.62 | 0.42 |
| 2:C:1063:ARG:HG3 | 5:F:341:PRO:HG3 | 2.02 | 0.42 |
| 3:D:128:TYR:HD2 | 3:D:128:TYR:HA | 1.70 | 0.42 |
| 3:D:210:ARG:HG2 | 3:D:388:HIS:HB2 | 2.02 | 0.42 |
| 3:D:317:VAL:HG12 | 3:D:339:TRP:HB2 | 2.01 | 0.42 |
| 3:D:394:LEU:HD11 | 3:D:396:VAL:HG12 | 2.01 | 0.42 |
| 3:D:644:LEU:HD12 | 3:D:645:PRO:HD2 | 2.01 | 0.42 |
| 5:F:166:LEU:O | 5:F:171:LYS:NZ | 2.30 | 0.42 |
| 5:F:364:ARG:CZ | 5:F:368:VAL:HG23 | 2.50 | 0.42 |
| 1:B:185:ARG:NH1 | 1:B:187:GLY:O | 2.53 | 0.42 |
| 1:B:212:ASN:HA | 1:B:215:VAL:HG12 | 2.02 | 0.42 |
| 2:C:762:LYS:HD2 | 2:C:784:ASP:C | 2.40 | 0.42 |
| 2:C:926:PHE:O | 2:C:929:ARG:HB3 | 2.19 | 0.42 |
| 1:B:73:GLU:OE1 | 1:B:73:GLU:N | 2.40 | 0.42 |
| 2:C:966:LEU:HD13 | 2:C:986:PRO:HB3 | 2.01 | 0.42 |
| 3:D:112:ILE:HG23 | 3:D:465:LEU:HD11 | 2.02 | 0.42 |
| 3:D:148:GLU:H | 3:D:148:GLU:HG2 | 1.49 | 0.42 |
| 3:D:553:ARG:HG3 | 3:D:557:LEU:CD1 | 2.50 | 0.42 |
| 4:E:37:ASN:HB3 | 4:E:93:TYR:CD1 | 2.55 | 0.42 |
| 5:F:260:ILE:CD1 | 5:F:265:VAL:HB | 2.49 | 0.42 |
| 5:F:351:SER:HA | 5:F:354:LEU:HB2 | 2.02 | 0.42 |
| 2:C:64:LEU:HD12 | 2:C:65:VAL:H | 1.85 | 0.42 |
| 3:D:71:LYS:O | 3:D:80:VAL:HG12 | 2.20 | 0.42 |
| 3:D:371:ILE:CD1 | 3:D:372:ASP:CA | 2.95 | 0.42 |
| 3:D:1047:LYS:CE | 3:D:1048:PRO:CD | 2.88 | 0.42 |
| 1:A:97:VAL:HG22 | 1:A:98:THR:H | 1.85 | 0.41 |
| 2:C:121:MET:CE | 2:C:125:GLY:HA2 | 2.50 | 0.41 |
| 2:C:283:ILE:CD1 | 2:C:305:PRO:HB3 | 2.50 | 0.41 |
| 2:C:331:ARG:NH1 | 2:C:427:VAL:HG23 | 2.34 | 0.41 |
| 2:C:611:ILE:HD11 | 2:C:655:LEU:HB3 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:1015:LEU:HD21 | 5:F:333:ILE:HG22 | 2.02 | 0.41 |
| 3:D:128:TYR:HE1 | 3:D:587:ARG:HD2 | 1.85 | 0.41 |
| 3:D:273:ARG:HH11 | 3:D:278:PRO:HD3 | 1.85 | 0.41 |
| 3:D:641:GLN:HE21 | 3:D:717:GLN:NE2 | 2.18 | 0.41 |
| 3:D:711:LEU:HB3 | 3:D:714:GLN:OE1 | 2.20 | 0.41 |
| 3:D:1034:GLN:O | 3:D:1038:LEU:HD12 | 2.20 | 0.41 |
| 3:D:1098:LEU:HD23 | 3:D:1098:LEU:HA | 1.82 | 0.41 |
| 3:D:1137:ARG:O | 3:D:1141:GLU:HG3 | 2.20 | 0.41 |
| 4:E:30:LEU:HD23 | 4:E:35:PHE:HD1 | 1.85 | 0.41 |
| 4:E:50:THR:CG2 | 4:E:53:GLY:H | 2.32 | 0.41 |
| 5:F:95:THR:OG1 | 5:F:98:GLU:HG3 | 2.20 | 0.41 |
| 1:A:30:ARG:HB2 | 1:A:191:ASP:O | 2.19 | 0.41 |
| 2:C:207:LEU:O | 2:C:211:LEU:HD23 | 2.21 | 0.41 |
| 2:C:768:THR:HG23 | 2:C:771:GLU:N | 2.33 | 0.41 |
| 2:C:834:GLN:HG2 | 2:C:837:ASP:OD2 | 2.20 | 0.41 |
| 2:C:959:PRO:O | 2:C:963:LEU:HG | 2.19 | 0.41 |
| 2:C:1059:ASP:OD2 | 2:C:1080:SER:HB3 | 2.20 | 0.41 |
| 3:D:36:THR:C | 3:D:38:LYS:H | 2.23 | 0.41 |
| 4:E:40:LEU:HA | 4:E:72:ARG:HH12 | 1.85 | 0.41 |
| 5:F:154:LYS:HZ3 | 5:F:155:THR:HG22 | 1.83 | 0.41 |
| 1:A:213:GLN:HG2 | 1:A:213:GLN:H | 1.57 | 0.41 |
| 1:B:106:PRO:HD3 | 1:B:134:GLU:HG2 | 2.03 | 0.41 |
| 2:C:388:ARG:HG2 | 2:C:388:ARG:HH11 | 1.83 | 0.41 |
| 3:D:14:SER:HB2 | 3:D:16:GLU:OE2 | 2.20 | 0.41 |
| 3:D:437:VAL:HG11 | 5:F:175:HIS:CE1 | 2.56 | 0.41 |
| 3:D:450:TYR:C | 3:D:452:ILE:H | 2.23 | 0.41 |
| 3:D:1047:LYS:HG2 | 3:D:1048:PRO:HD2 | 2.01 | 0.41 |
| 5:F:157:GLU:O | 5:F:161:GLN:HG2 | 2.20 | 0.41 |
| 6:G:5:DT:O2 | 7:H:24:DG:N2 | 2.53 | 0.41 |
| 2:C:719:PRO:HG2 | 2:C:721:ARG:NH2 | 2.35 | 0.41 |
| 1:B:128:HIS:CE1 | 1:B:131:THR:HG22 | 2.43 | 0.41 |
| 2:C:365:ASP:N | 2:C:365:ASP:OD2 | 2.54 | 0.41 |
| 2:C:717:LEU:HD21 | 2:C:763:GLY:HA2 | 2.02 | 0.41 |
| 3:D:127:LEU:HD23 | 3:D:127:LEU:HA | 1.78 | 0.41 |
| 3:D:205:TYR:CE1 | 3:D:390:PRO:HG3 | 2.56 | 0.41 |
| 3:D:222:GLY:HA2 | 3:D:333:LEU:O | 2.21 | 0.41 |
| 3:D:272:LEU:HD21 | 3:D:298:VAL:HG11 | 2.01 | 0.41 |
| 3:D:431:VAL:HG12 | 3:D:432:TYR:N | 2.35 | 0.41 |
| 3:D:860:LEU:O | 3:D:876:SER:HB2 | 2.21 | 0.41 |
| 4:E:26:ARG:O | 4:E:29:GLN:HB2 | 2.20 | 0.41 |
| 1:B:23:PHE:HE1 | 1:B:208:LEU:HB3 | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:C:19:THR:O | 2:C:23:VAL:HG23 | 2.20 | 0.41 |
| 2:C:495:THR:HA | 2:C:517:ARG:HG2 | 2.01 | 0.41 |
| 2:C:754:ILE:CG2 | 2:C:789:SER:HB3 | 2.51 | 0.41 |
| 3:D:105:VAL:O | 3:D:110:SER:HB2 | 2.21 | 0.41 |
| 3:D:800:LYS:HZ3 | 3:D:820:GLU:C | 2.23 | 0.41 |
| 3:D:1110:ALA:O | 3:D:1203:LYS:HG2 | 2.20 | 0.41 |
| 5:F:383:LEU:HB2 | 5:F:384:GLU:OE2 | 2.20 | 0.41 |
| 1:B:150:TYR:CE2 | 1:B:170:VAL:HG12 | 2.56 | 0.41 |
| 1:B:188:GLN:CD | 1:B:188:GLN:H | 2.23 | 0.41 |
| 2:C:580:MET:HE1 | 2:C:665:PHE:CE2 | 2.55 | 0.41 |
| 2:C:763:GLY:C | 2:C:765:SER:N | 2.74 | 0.41 |
| 2:C:808:ARG:NH1 | 2:C:820:ARG:HD2 | 2.36 | 0.41 |
| 3:D:116:LEU:HD11 | 3:D:465:LEU:CD2 | 2.38 | 0.41 |
| 3:D:137:PRO:HB3 | 3:D:147:VAL:CG1 | 2.50 | 0.41 |
| 3:D:313:MET:HA | 3:D:314:PRO:HD3 | 1.94 | 0.41 |
| 3:D:720:LEU:H | 3:D:720:LEU:HD12 | 1.85 | 0.41 |
| 1:B:32:PHE:HA | 1:B:35:THR:HB | 2.02 | 0.41 |
| 1:B:53:VAL:HG22 | 1:B:144:VAL:HG12 | 2.02 | 0.41 |
| 2:C:91:GLN:HG3 | 2:C:117:HIS:HB3 | 2.02 | 0.41 |
| 2:C:207:LEU:HD11 | 2:C:222:MET:CE | 2.51 | 0.41 |
| 2:C:487:THR:OG1 | 2:C:490:GLU:HG2 | 2.21 | 0.41 |
| 2:C:810:ASP:HB2 | 2:C:813:VAL:HG11 | 2.02 | 0.41 |
| 2:C:944:LEU:HA | 2:C:944:LEU:HD23 | 1.90 | 0.41 |
| 3:D:191:LEU:N | 3:D:191:LEU:HD22 | 2.35 | 0.41 |
| 3:D:218:LYS:HE2 | 3:D:338:GLU:CD | 2.41 | 0.41 |
| 3:D:343:LYS:NZ | 3:D:380:GLU:OE2 | 2.41 | 0.41 |
| 5:F:363:GLU:OE1 | 5:F:366:ALA:HB3 | 2.21 | 0.41 |
| 1:B:36:LEU:O | 1:B:39:PRO:HD2 | 2.21 | 0.41 |
| 2:C:151:ASP:HB3 | 2:C:157:ARG:O | 2.21 | 0.41 |
| 2:C:714:ASP:OD2 | 2:C:820:ARG:HD3 | 2.20 | 0.41 |
| 2:C:884:GLN:HB2 | 2:C:992:MET:CE | 2.51 | 0.41 |
| 3:D:181:ASP:N | 3:D:205:TYR:HE2 | 2.19 | 0.41 |
| 3:D:231:VAL:O | 3:D:231:VAL:HG23 | 2.21 | 0.41 |
| 3:D:245:LEU:CD2 | 3:D:249:TYR:HB3 | 2.50 | 0.41 |
| 3:D:1217:ILE:HG21 | 3:D:1480:PHE:CG | 2.55 | 0.41 |
| 5:F:79:ASP:HA | 5:F:80:PRO:HD3 | 1.91 | 0.41 |
| 5:F:172:ARG:O | 5:F:176:ILE:HG12 | 2.21 | 0.41 |
| 5:F:276:ARG:O | 5:F:280:GLN:HB2 | 2.21 | 0.41 |
| 8:I:3:G:C2 | 8:I:4:G:N2 | 2.89 | 0.41 |
| 2:C:546:LEU:HA | 2:C:581:THR:HG21 | 2.03 | 0.41 |
| 3:D:1145:TYR:CG | 3:D:1168:MET:HE2 | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:E:50:THR:HG23 | 4:E:53:GLY:H | 1.86 | 0.41 |
| 5:F:166:LEU:HB2 | 5:F:171:LYS:HG2 | 2.03 | 0.41 |
| 1:B:18:ARG:O | 1:B:207:PRO:HD3 | 2.22 | 0.40 |
| 3:D:169:TYR:CE1 | 3:D:395:VAL:HG12 | 2.46 | 0.40 |
| 3:D:468:LEU:HD23 | 3:D:468:LEU:HA | 1.65 | 0.40 |
| 3:D:1237:THR:O | 3:D:1237:THR:HG22 | 2.22 | 0.40 |
| 3:D:1471:LEU:HD21 | 3:D:1477:GLY:HA2 | 2.03 | 0.40 |
| 4:E:44:GLU:O | 4:E:66:LYS:CE | 2.69 | 0.40 |
| 1:A:186:LEU:HD12 | 1:A:186:LEU:HA | 1.92 | 0.40 |
| 1:B:40:LEU:N | 1:B:40:LEU:HD23 | 2.36 | 0.40 |
| 1:B:124:ASN:OD1 | 1:B:124:ASN:N | 2.47 | 0.40 |
| 1:B:141:GLU:OE1 | 1:B:161:ARG:NH2 | 2.54 | 0.40 |
| 1:B:211:LEU:O | 1:B:215:VAL:HG12 | 2.21 | 0.40 |
| 2:C:195:LEU:CD2 | 2:C:238:LEU:HB2 | 2.51 | 0.40 |
| 2:C:1086:ARG:HE | 2:C:1111:ILE:HG22 | 1.86 | 0.40 |
| 3:D:355:VAL:CG1 | 3:D:367:ILE:HA | 2.51 | 0.40 |
| 3:D:845:ASN:OD1 | 3:D:848:GLU:N | 2.46 | 0.40 |
| 2:C:41:ASN:OD1 | 2:C:46:ALA:HA | 2.22 | 0.40 |
| 2:C:376:ARG:NE | 5:F:276:ARG:HG2 | 2.36 | 0.40 |
| 2:C:494:TYR:CD2 | 2:C:531:PHE:CE2 | 3.09 | 0.40 |
| 2:C:573:ARG:HB2 | 2:C:670:GLN:NE2 | 2.36 | 0.40 |
| 2:C:758:ARG:HE | 2:C:788:THR:HG22 | 1.86 | 0.40 |
| 2:C:799:ILE:O | 2:C:801:VAL:HG13 | 2.21 | 0.40 |
| 2:C:876:VAL:HG22 | 2:C:884:GLN:NE2 | 2.37 | 0.40 |
| 2:C:877:PRO:HG3 | 3:D:1023:MET:HE3 | 2.01 | 0.40 |
| 3:D:359:ALA:H | 3:D:385:VAL:HG22 | 1.85 | 0.40 |
| 1:A:190:THR:OG1 | 1:A:191:ASP:N | 2.55 | 0.40 |
| 1:B:75:VAL:O | 1:B:79:ILE:HG13 | 2.21 | 0.40 |
| 2:C:44:ILE:HD13 | 2:C:44:ILE:HA | 1.86 | 0.40 |
| 2:C:598:GLU:HG3 | 2:C:615:TYR:OH | 2.21 | 0.40 |
| 2:C:861:LEU:HD13 | 2:C:865:THR:OG1 | 2.21 | 0.40 |
| 3:D:16:GLU:OE2 | 3:D:16:GLU:N | 2.30 | 0.40 |
| 3:D:703:ASN:HA | 3:D:712:GLY:O | 2.22 | 0.40 |
| 3:D:1049:SER:OG | 3:D:1051:GLU:HG2 | 2.22 | 0.40 |
| 3:D:1265:ALA:O | 3:D:1333:HIS:HE1 | 2.04 | 0.40 |
| 5:F:140:ARG:HE | 5:F:140:ARG:HB2 | 1.62 | 0.40 |
| 5:F:358:LEU:CB | 5:F:366:ALA:HB1 | 2.51 | 0.40 |
| 2:C:247:PRO:HA | 2:C:248:PRO:HD3 | 1.77 | 0.40 |
| 2:C:486:MET:SD | 2:C:491:GLU:HA | 2.62 | 0.40 |
| 2:C:1093:GLN:HG2 | 3:D:21:TRP:CH2 | 2.56 | 0.40 |
| 3:D:204:LEU:CD1 | 3:D:445:ARG:HH11 | 2.35 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:F:86:HIS:O | 5:F:90:GLN:NE2 | 2.53 | 0.40 |

All (13) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:D:301:GLY:N | 5:F:249:ARG:NH1[4_1349] | 1.44 | 0.76 |
| 3:D:300:LYS:O | 5:F:249:ARG:NE[4_1349] | 1.58 | 0.62 |
| 3:D:302:GLN:N | 5:F:249:ARG:NH2[4_1349] | 1.66 | 0.54 |
| 3:D:302:GLN:N | 5:F:249:ARG:CZ[4_1349] | 1.77 | 0.43 |
| 3:D:300:LYS:C | 5:F:249:ARG:NE[4_1349] | 1.80 | 0.40 |
| 3:D:302:GLN:CG | 5:F:249:ARG:NH2[4_1349] | 1.81 | 0.39 |
| 3:D:301:GLY:N | 5:F:249:ARG:CZ[4_1349] | 1.91 | 0.29 |
| 3:D:35:ARG:NH2 | 3:D:327:GLU:OE1[4_1359] | 1.98 | 0.22 |
| 3:D:300:LYS:C | 5:F:249:ARG:NH1[4_1349] | 2.00 | 0.20 |
| 3:D:299:GLU:O | 5:F:249:ARG:NH1[4_1349] | 2.14 | 0.06 |
| 3:D:301:GLY:C | 5:F:249:ARG:CZ[4_1349] | 2.16 | 0.04 |
| 3:D:985:ASP:CB | 3:D:1497:GLU:OE2[1_545] | 2.16 | 0.04 |
| 3:D:300:LYS:C | 5:F:249:ARG:CZ[4_1349] | 2.19 | 0.01 |

## 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 X-ray entries followed by that with respect to entries of similar resolution.

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 | 224/315 (71%) | 211 (94%) | 13 (6%) | 0 | 100 | 100 |
| 1 | B | 222/315 (70%) | 202 (91%) | 18 (8%) | 2 (1%) | 17 | 34 |
| 2 | C | 1101/1119 (98%) | 1036 (94%) | 53 (5%) | 12 (1%) | 14 | 30 |
| 3 | D | 1480/1524 (97%) | 1398 (94%) | 71 (5%) | 11 (1%) | 22 | 42 |
| 4 | E | 92/99 (93%) | 89 (97%) | 3 (3%) | 0 | 100 | 100 |
| 5 | F | 344/423 (81%) | 316 (92%) | 23 (7%) | 5 (2%) | 10 | 22 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| All | All | 3463/3795 (91%) | 3252 (94%) | 181 (5%) | 30 (1%) | 17 34 |

All (30) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 154 | GLU |
| 2 | C | 363 | SER |
| 2 | C | 418 | LEU |
| 2 | C | 419 | THR |
| 3 | D | 486 | ARG |
| 3 | D | 664 | LYS |
| 3 | D | 1130 | ARG |
| 5 | F | 323 | ASP |
| 5 | F | 377 | ASP |
| 2 | C | 362 | GLY |
| 2 | C | 476 | GLY |
| 3 | D | 743 | ASP |
| 3 | D | 984 | THR |
| 2 | C | 228 | ALA |
| 3 | D | 320 | ALA |
| 3 | D | 442 | ASN |
| 2 | C | 229 | MET |
| 3 | D | 37 | LEU |
| 3 | D | 86 | ARG |
| 3 | D | 187 | LYS |
| 3 | D | 484 | PRO |
| 2 | C | 766 | GLU |
| 2 | C | 1015 | LEU |
| 2 | C | 1034 | GLU |
| 5 | F | 325 | LYS |
| 5 | F | 378 | GLY |
| 5 | F | 416 | ARG |
| 1 | B | 59 | GLU |
| 2 | C | 728 | HIS |
| 2 | C | 765 | SER |

### 5.3.2 Protein sidechains

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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 | 199/273 (73%) | 192 (96%) | 7 (4%) | 36 | 61 |
| 1 | B | 197/273 (72%) | 194 (98%) | 3 (2%) | 65 | 82 |
| 2 | C | 931/941 (99%) | 892 (96%) | 39 (4%) | 30 | 54 |
| 3 | D | 1250/1279 (98%) | 1213 (97%) | 37 (3%) | 41 | 65 |
| 4 | E | 83/88 (94%) | 80 (96%) | 3 (4%) | 35 | 60 |
| 5 | F | 296/371 (80%) | 281 (95%) | 15 (5%) | 24 | 45 |
| All | All | 2956/3225 (92%) | 2852 (96%) | 104 (4%) | 36 | 61 |

All (104) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 16 | GLN |
| 1 | A | 126 | ASP |
| 1 | A | 145 | ASP |
| 1 | A | 161 | ARG |
| 1 | A | 175 | ARG |
| 1 | A | 188 | GLN |
| 1 | A | 219 | ARG |
| 1 | B | 74 | ASP |
| 1 | B | 110 | LYS |
| 1 | B | 126 | ASP |
| 2 | C | 38 | LYS |
| 2 | C | 103 | LYS |
| 2 | C | 134 | ARG |
| 2 | C | 141 | HIS |
| 2 | C | 154 | ARG |
| 2 | C | 157 | ARG |
| 2 | C | 168 | ARG |
| 2 | C | 171 | TRP |
| 2 | C | 179 | ASN |
| 2 | C | 189 | ARG |
| 2 | C | 238 | LEU |
| 2 | C | 243 | ARG |
| 2 | C | 275 | TYR |
| 2 | C | 284 | ARG |
| 2 | C | 293 | PHE |
| 2 | C | 342 | ASP |
| 2 | C | 353 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | C | 365 | ASP |
| 2 | C | 366 | SER |
| 2 | C | 371 | LYS |
| 2 | C | 434 | HIS |
| 2 | C | 454 | SER |
| 2 | C | 482 | GLU |
| 2 | C | 557 | ARG |
| 2 | C | 586 | ARG |
| 2 | C | 610 | ARG |
| 2 | C | 617 | ASP |
| 2 | C | 626 | ARG |
| 2 | C | 648 | ARG |
| 2 | C | 680 | ASP |
| 2 | C | 716 | LYS |
| 2 | C | 721 | ARG |
| 2 | C | 735 | ARG |
| 2 | C | 765 | SER |
| 2 | C | 791 | ARG |
| 2 | C | 834 | GLN |
| 2 | C | 879 | ARG |
| 2 | C | 929 | ARG |
| 2 | C | 1026 | GLN |
| 3 | D | 3 | LYS |
| 3 | D | 9 | ARG |
| 3 | D | 106 | LYS |
| 3 | D | 190 | GLU |
| 3 | D | 220 | ARG |
| 3 | D | 224 | ARG |
| 3 | D | 247 | GLU |
| 3 | D | 276 | ASP |
| 3 | D | 302 | GLN |
| 3 | D | 316 | GLN |
| 3 | D | 351 | MET |
| 3 | D | 434 | ARG |
| 3 | D | 500 | ARG |
| 3 | D | 508 | ARG |
| 3 | D | 525 | ARG |
| 3 | D | 638 | LYS |
| 3 | D | 640 | HIS |
| 3 | D | 709 | HIS |
| 3 | D | 754 | PHE |
| 3 | D | 778 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | D | 784 | ASP |
| 3 | D | 797 | LYS |
| 3 | D | 832 | ARG |
| 3 | D | 907 | GLU |
| 3 | D | 982 | PHE |
| 3 | D | 986 | ARG |
| 3 | D | 988 | ARG |
| 3 | D | 1011 | PHE |
| 3 | D | 1159 | ARG |
| 3 | D | 1188 | VAL |
| 3 | D | 1234 | THR |
| 3 | D | 1282 | ARG |
| 3 | D | 1308 | GLU |
| 3 | D | 1317 | ASP |
| 3 | D | 1363 | LEU |
| 3 | D | 1418 | LYS |
| 3 | D | 1426 | LYS |
| 4 | E | 15 | SER |
| 4 | E | 84 | ARG |
| 4 | E | 87 | LYS |
| 5 | F | 93 | LEU |
| 5 | F | 162 | LYS |
| 5 | F | 172 | ARG |
| 5 | F | 186 | HIS |
| 5 | F | 205 | ARG |
| 5 | F | 232 | ARG |
| 5 | F | 302 | LYS |
| 5 | F | 355 | GLU |
| 5 | F | 377 | ASP |
| 5 | F | 396 | ARG |
| 5 | F | 398 | ARG |
| 5 | F | 409 | LYS |
| 5 | F | 411 | HIS |
| 5 | F | 413 | SER |
| 5 | F | 419 | ARG |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 128 | HIS |
| 1 | A | 213 | GLN |
| 1 | B | 95 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 124 | ASN |
| 1 | B | 163 | ASN |
| 1 | B | 229 | GLN |
| 2 | C | 102 | HIS |
| 2 | C | 139 | GLN |
| 2 | C | 204 | GLN |
| 2 | C | 647 | GLN |
| 2 | C | 1047 | HIS |
| 3 | D | 33 | ASN |
| 3 | D | 151 | GLN |
| 3 | D | 529 | GLN |
| 3 | D | 611 | GLN |
| 3 | D | 640 | HIS |
| 3 | D | 717 | GLN |
| 3 | D | 744 | GLN |
| 3 | D | 861 | GLN |
| 3 | D | 1046 | GLN |
| 3 | D | 1445 | HIS |
| 5 | F | 175 | HIS |
| 5 | F | 248 | ASN |
| 5 | F | 402 | ASN |

### 5.3.3 RNA

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 8 | I | 7/8 (87%) | 3 (42%) | 2 (28%) |

All (3) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | I | 3 | G |
| 8 | I | 4 | G |
| 8 | I | 5 | G |

All (2) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | I | 1 | GTP |
| 8 | I | 4 | G |

## 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 5 ligands modelled in this entry, 4 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 | $\#\|Z\| > 2$ |
| 10 | POP | C | 1201 | - | 6,8,8 | 0.51 | 0 | 13,13,13 | 1.31 | 1 (7%) |

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 |
|---|---|---|---|---|---|---|---|
| 10 | POP | C | 1201 | - | - | 0/6/6/6 | - |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 10 | C | 1201 | POP | P2-O-P1 | -2.86 | 123.03 | 132.83 |

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6 Fit of model and data

## 6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, $95^{th}$ percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|
| 1 | A | 226/315 (71%) | -0.11 | 3 (1%) 77 74 | 71, 95, 118, 132 | 0 |
| 1 | B | 224/315 (71%) | -0.02 | 1 (0%) 92 91 | 68, 96, 127, 146 | 0 |
| 2 | C | 1107/1119 (98%) | 0.16 | 48 (4%) 35 27 | 54, 94, 165, 203 | 0 |
| 3 | D | 1484/1524 (97%) | 0.13 | 47 (3%) 47 41 | 49, 87, 149, 204 | 0 |
| 4 | E | 94/99 (94%) | 0.01 | 0 100 100 | 64, 102, 152, 157 | 0 |
| 5 | F | 346/423 (81%) | 0.65 | 52 (15%) 2 1 | 62, 107, 206, 228 | 0 |
| 6 | G | 19/22 (86%) | 0.63 | 3 (15%) 2 1 | 66, 123, 229, 241 | 0 |
| 7 | H | 19/27 (70%) | 0.11 | 3 (15%) 2 1 | 92, 125, 233, 239 | 0 |
| 8 | I | 7/8 (87%) | 1.04 | 2 (28%) 0 0 | 68, 83, 172, 195 | 0 |
| All | All | 3526/3852 (91%) | 0.17 | 159 (4%) 33 25 | 49, 94, 165, 241 | 0 |

All (159) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 5 | F | 392 | VAL | 9.6 |
| 5 | F | 397 | ILE | 8.2 |
| 5 | F | 376 | ILE | 8.1 |
| 5 | F | 396 | ARG | 8.0 |
| 5 | F | 374 | GLY | 7.7 |
| 5 | F | 375 | LEU | 7.5 |
| 5 | F | 419 | ARG | 6.6 |
| 5 | F | 390 | PHE | 6.1 |
| 5 | F | 422 | LEU | 6.1 |
| 3 | D | 173 | PRO | 5.8 |
| 5 | F | 356 | LYS | 5.6 |
| 5 | F | 400 | ILE | 5.5 |
| 5 | F | 149 | GLU | 5.5 |
| 5 | F | 357 | ALA | 5.4 |
| 5 | F | 361 | LEU | 5.4 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 5 | F | 414 | ARG | 5.1 |
| 5 | F | 147 | LEU | 5.0 |
| 5 | F | 370 | LYS | 4.9 |
| 5 | F | 148 | LYS | 4.9 |
| 6 | G | 3 | DC | 4.8 |
| 5 | F | 394 | ARG | 4.8 |
| 2 | C | 107 | LEU | 4.7 |
| 5 | F | 391 | GLY | 4.7 |
| 2 | C | 188 | LYS | 4.6 |
| 5 | F | 393 | THR | 4.6 |
| 3 | D | 1129 | THR | 4.5 |
| 3 | D | 144 | GLY | 4.5 |
| 5 | F | 367 | MET | 4.5 |
| 2 | C | 245 | GLY | 4.5 |
| 2 | C | 311 | PHE | 4.4 |
| 5 | F | 371 | LEU | 4.3 |
| 3 | D | 1128 | VAL | 4.3 |
| 3 | D | 1301 | LYS | 4.2 |
| 3 | D | 1297 | GLU | 4.1 |
| 5 | F | 349 | LEU | 4.1 |
| 2 | C | 219 | GLN | 4.0 |
| 2 | C | 194 | VAL | 4.0 |
| 5 | F | 389 | PHE | 3.9 |
| 7 | H | 25 | DG | 3.9 |
| 7 | H | 24 | DG | 3.9 |
| 2 | C | 216 | GLU | 3.8 |
| 3 | D | 1502 | ALA | 3.8 |
| 5 | F | 386 | VAL | 3.8 |
| 8 | I | 4 | G | 3.8 |
| 5 | F | 352 | GLU | 3.7 |
| 5 | F | 395 | GLU | 3.7 |
| 5 | F | 369 | LEU | 3.7 |
| 2 | C | 617 | ASP | 3.6 |
| 5 | F | 413 | SER | 3.6 |
| 5 | F | 416 | ARG | 3.6 |
| 7 | H | 23 | DA | 3.6 |
| 5 | F | 417 | LYS | 3.6 |
| 3 | D | 1298 | GLY | 3.6 |
| 3 | D | 174 | GLY | 3.6 |
| 2 | C | 104 | ASP | 3.3 |
| 5 | F | 353 | GLU | 3.3 |
| 5 | F | 362 | SER | 3.3 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | B | 138 | LEU | 3.3 |
| 2 | C | 304 | LEU | 3.2 |
| 5 | F | 150 | THR | 3.2 |
| 5 | F | 381 | HIS | 3.2 |
| 5 | F | 410 | TYR | 3.1 |
| 5 | F | 173 | TYR | 3.1 |
| 3 | D | 188 | GLY | 3.1 |
| 3 | D | 409 | VAL | 3.1 |
| 3 | D | 310 | LEU | 3.1 |
| 2 | C | 416 | GLY | 3.1 |
| 5 | F | 142 | ARG | 3.0 |
| 2 | C | 102 | HIS | 3.0 |
| 5 | F | 385 | GLU | 2.9 |
| 3 | D | 268 | ALA | 2.9 |
| 2 | C | 254 | VAL | 2.9 |
| 5 | F | 143 | HIS | 2.9 |
| 3 | D | 1299 | PHE | 2.9 |
| 3 | D | 363 | ALA | 2.9 |
| 2 | C | 64 | LEU | 2.8 |
| 2 | C | 811 | PRO | 2.8 |
| 2 | C | 417 | GLY | 2.8 |
| 2 | C | 221 | LEU | 2.8 |
| 3 | D | 67 | ARG | 2.7 |
| 3 | D | 1278 | ASP | 2.7 |
| 3 | D | 1294 | VAL | 2.7 |
| 2 | C | 109 | LYS | 2.7 |
| 2 | C | 189 | ARG | 2.7 |
| 3 | D | 1289 | LYS | 2.7 |
| 3 | D | 384 | VAL | 2.7 |
| 3 | D | 1293 | PHE | 2.7 |
| 3 | D | 1313 | VAL | 2.7 |
| 3 | D | 142 | LEU | 2.6 |
| 5 | F | 379 | ARG | 2.6 |
| 3 | D | 170 | PRO | 2.6 |
| 2 | C | 208 | ALA | 2.6 |
| 2 | C | 217 | LEU | 2.5 |
| 2 | C | 251 | ASP | 2.5 |
| 8 | I | 3 | G | 2.5 |
| 3 | D | 978 | TYR | 2.5 |
| 3 | D | 152 | LEU | 2.5 |
| 2 | C | 181 | VAL | 2.5 |
| 3 | D | 1497 | GLU | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 5 | F | 323 | ASP | 2.5 |
| 2 | C | 215 | GLY | 2.5 |
| 5 | F | 360 | LYS | 2.5 |
| 2 | C | 367 | LEU | 2.5 |
| 1 | A | 137 | ARG | 2.4 |
| 2 | C | 195 | LEU | 2.4 |
| 5 | F | 420 | ASP | 2.4 |
| 2 | C | 778 | PHE | 2.4 |
| 3 | D | 143 | ASN | 2.4 |
| 2 | C | 153 | ALA | 2.4 |
| 1 | A | 99 | LEU | 2.4 |
| 2 | C | 12 | VAL | 2.4 |
| 2 | C | 106 | GLY | 2.4 |
| 5 | F | 373 | LYS | 2.4 |
| 2 | C | 250 | ARG | 2.3 |
| 3 | D | 183 | GLU | 2.3 |
| 3 | D | 241 | ILE | 2.3 |
| 3 | D | 1305 | LEU | 2.3 |
| 3 | D | 1288 | GLU | 2.3 |
| 3 | D | 1327 | ARG | 2.3 |
| 3 | D | 369 | ALA | 2.3 |
| 5 | F | 350 | LEU | 2.3 |
| 3 | D | 195 | VAL | 2.3 |
| 5 | F | 359 | SER | 2.3 |
| 2 | C | 224 | GLU | 2.3 |
| 3 | D | 1387 | SER | 2.3 |
| 2 | C | 650 | ARG | 2.3 |
| 5 | F | 404 | ALA | 2.3 |
| 6 | G | 4 | DC | 2.2 |
| 2 | C | 320 | HIS | 2.2 |
| 3 | D | 63 | TYR | 2.2 |
| 3 | D | 1501 | GLU | 2.2 |
| 6 | G | 19 | DA | 2.2 |
| 2 | C | 299 | LYS | 2.2 |
| 2 | C | 241 | LEU | 2.2 |
| 3 | D | 1292 | VAL | 2.2 |
| 2 | C | 154 | ARG | 2.2 |
| 5 | F | 423 | ASP | 2.2 |
| 3 | D | 189 | GLN | 2.2 |
| 2 | C | 507 | ARG | 2.2 |
| 2 | C | 253 | ALA | 2.2 |
| 2 | C | 508 | ILE | 2.2 |

*Continued on next page...*

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 3 | D | 1436 | SER | 2.2 |
| 2 | C | 222 | MET | 2.2 |
| 2 | C | 300 | ASP | 2.2 |
| 3 | D | 321 | GLN | 2.2 |
| 3 | D | 1311 | LEU | 2.1 |
| 2 | C | 414 | GLY | 2.1 |
| 3 | D | 203 | ALA | 2.1 |
| 1 | A | 100 | LEU | 2.1 |
| 2 | C | 298 | PHE | 2.1 |
| 2 | C | 451 | LEU | 2.1 |
| 2 | C | 616 | GLU | 2.1 |
| 5 | F | 144 | ILE | 2.1 |
| 2 | C | 511 | GLU | 2.1 |
| 3 | D | 339 | TRP | 2.1 |
| 3 | D | 236 | TYR | 2.1 |
| 2 | C | 615 | TYR | 2.0 |
| 5 | F | 159 | ILE | 2.0 |
| 3 | D | 1499 | ARG | 2.0 |

## 6.2 Non-standard residues in protein, DNA, RNA chains (i)

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

## 6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

## 6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, $95^{th}$ percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 10 | POP | C | 1201 | 9/9 | 0.91 | 0.15 | 78,95,107,114 | 0 |
| 9 | MG | D | 2001 | 1/1 | 0.92 | 0.25 | 48,48,48,48 | 0 |
| 9 | MG | B | 1001 | 1/1 | 0.93 | 0.37 | 78,78,78,78 | 0 |
| 11 | ZN | D | 2002 | 1/1 | 0.97 | 0.12 | 113,113,113,113 | 0 |
| 11 | ZN | D | 2003 | 1/1 | 0.99 | 0.28 | 116,116,116,116 | 0 |

## 6.5 Other polymers (i)

There are no such residues in this entry.