# WORLDWIDE

# wwPDB

## PROTEIN DATA BANK

# Full wwPDB EM Validation Report (i)

Nov 25, 2024 – 02:54 PM JST

| | | |
|---|---|---|
| PDB ID | : | 8XZV |
| EMDB ID | : | EMD-38799 |
| Title | : | Architecture of the spinach plastid-encoded RNA polymerase |
| Authors | : | Wang, G.-L.; Yu, L.-J.; Lu, C. |
| Deposited on | : | 2024-01-21 |
| Resolution | : | 3.16 Å(reported) |

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (i)) were used in the production of this report:
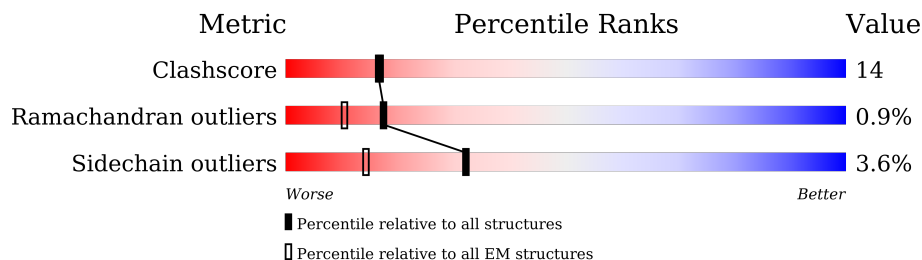
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev113 |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.40 |

# 1　Overall quality at a glance　ⓘ

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

The reported resolution of this entry is 3.16 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.
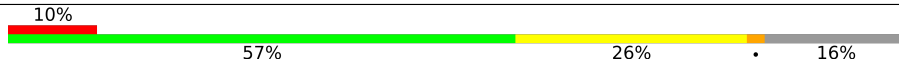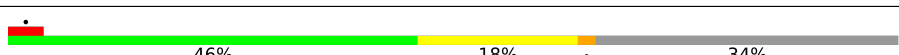
| Metric | Percentile Ranks | Value |
|---|---|---|
| Clashscore | | 14 |
| Ramachandran outliers | | 0.9% |
| Sidechain outliers | | 3.6% |

*Worse* *Better*

■ Percentile relative to all structures
▯ Percentile relative to all EM structures
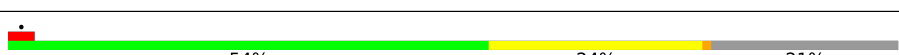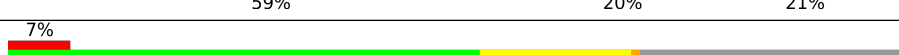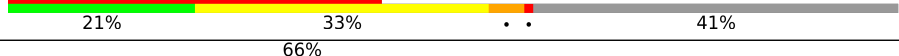
| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|---|---|---|
| Clashscore | 210492 | 15764 |
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=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 EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 335 | 47%　19%　·　33% |
| 1 | O | 335 | 7%　48%　18%　33% |
| 2 | B | 1070 | 20%　77%　22%　· |
| 3 | C | 677 | 29%　69%　29%　· |
| 4 | D | 1357 | 27%　72%　16%　·　10% |
| 5 | E | 472 | 67%　13%　19% |
| 6 | F | 181 | 49%　15%　36% |
| 6 | R | 181 | 56%　28%　33%　·　36% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 7 | G | 518 | 33% 13% 54% |
| 8 | H | 892 | 18% 46% 18% 33% |
| 9 | I | 490 | 10% 57% 26% 16% |
| 10 | K | 324 | 46% 18% 34% |
| 11 | L | 284 | 54% 24% 21% |
| 12 | M | 273 | 59% 20% 21% |
| 13 | N | 678 | 7% 53% 17% 30% |
| 14 | P | 170 | 5% 47% 15% 38% |
| 15 | Q | 143 | 50% 22% 27% |
| 16 | S | 583 | 42% 21% 33% 41% |
| 17 | J | 774 | 66% 46% 24% 29% |

## 2 Entry composition ⓘ

There are 18 unique types of molecules in this entry. The entry contains 58999 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | A | 225 | Total 1775 | C 1123 | N 309 | O 333 | S 10 | 0 | 0 |
| 1 | O | 223 | Total 1761 | C 1115 | N 307 | O 329 | S 10 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | B | 1070 | Total 8517 | C 5403 | N 1505 | O 1575 | S 34 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | C | 677 | Total 5507 | C 3525 | N 969 | O 985 | S 28 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | D | 1216 | Total 8374 | C 5215 | N 1551 | O 1582 | S 26 | 1 | 0 |

- Molecule 5 is a protein called Fructokinase-like 1, chloroplastic.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | E | 382 | Total 3079 | C 1957 | N 521 | O 584 | S 17 | 0 | 0 |

- Molecule 6 is a protein called Thioredoxin-like protein CITRX, chloroplastic.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| 6 | F | 116 | Total 940 | C 596 | N 154 | O 181 | S 9 | 0 | 0 |
| 6 | R | 116 | Total 940 | C 596 | N 154 | O 181 | S 9 | 0 | 0 |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| F | 21 | PHE | SER | conflict | UNP A0A9R0J865 |
| R | 21 | PHE | SER | conflict | UNP A0A9R0J865 |

- Molecule 7 is a protein called Protein PLASTID TRANSCRIPTIONALLY ACTIVE 12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| 7 | G | 237 | Total 2009 | C 1273 | N 354 | O 374 | S 8 | 0 | 0 |

- Molecule 8 is a protein called pTAC3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| 8 | H | 595 | Total 4653 | C 2944 | N 823 | O 860 | S 26 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| H | 892 | ALA | SER | conflict | UNP A0A9R0IP63 |

- Molecule 9 is a protein called Protein PLASTID TRANSCRIPTIONALLY ACTIVE 14 isoform X2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| 9 | I | 413 | Total 3373 | C 2162 | N 575 | O 615 | S 21 | 0 | 0 |

- Molecule 10 is a protein called pTAC6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| 10 | K | 214 | Total 1803 | C 1137 | N 320 | O 339 | S 7 | 0 | 0 |

- Molecule 11 is a protein called superoxide dismutase.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | L | 224 | Total 1817 | C 1176 | N 299 | O 338 | S 4 | 0 | 0 |

- Molecule 12 is a protein called superoxide dismutase.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | M | 215 | Total 1763 | C 1145 | N 294 | O 318 | S 6 | 0 | 0 |

- Molecule 13 is a protein called Protein PLASTID TRANSCRIPTIONALLY ACTIVE 10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | N | 475 | Total 4032 | C 2565 | N 693 | O 756 | S 18 | 0 | 0 |

- Molecule 14 is a protein called Protein PLASTID TRANSCRIPTIONALLY ACTIVE 7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | P | 105 | Total 840 | C 525 | N 148 | O 162 | S 5 | 0 | 0 |

- Molecule 15 is a protein called pTAC18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | Q | 104 | Total 902 | C 587 | N 156 | O 157 | S 2 | 0 | 0 |

- Molecule 16 is a protein called Fructokinase-like 2, chloroplastic isoform X2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | S | 344 | Total 2695 | C 1721 | N 462 | O 494 | S 18 | 0 | 0 |

There are 10 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| S | 114 | VAL | - | insertion | UNP A0A9R0K4E6 |
| S | 115 | LEU | - | insertion | UNP A0A9R0K4E6 |
| S | 116 | HIS | - | insertion | UNP A0A9R0K4E6 |
| S | 117 | THR | - | insertion | UNP A0A9R0K4E6 |
| S | 118 | GLU | - | insertion | UNP A0A9R0K4E6 |
| S | 119 | MET | - | insertion | UNP A0A9R0K4E6 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:-:|:-:|:-:|:-:|:-:|:-:|
| S | 120 | LYS | - | insertion | UNP A0A9R0K4E6 |
| S | 121 | LEU | - | insertion | UNP A0A9R0K4E6 |
| S | 122 | PHE | - | insertion | UNP A0A9R0K4E6 |
| S | 123 | SER | - | insertion | UNP A0A9R0K4E6 |

- Molecule 17 is a protein called MurE.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|:-:|:-:|:-:|:-:|:-:|:-:|:-:|:-:|:-:|:-:|
| | | | Total | C | N | O | S | | |
| 17 | J | 546 | 4218 | 2640 | 726 | 826 | 26 | 0 | 0 |

- Molecule 18 is FE (III) ION (three-letter code: FE) (formula: Fe) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms | | AltConf |
|:-:|:-:|:-:|:-:|:-:|:-:|
| | | | Total | Fe | |
| 18 | L | 1 | 1 | 1 | 0 |

# 3　Residue-property plots ⓘ

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

• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain A:

• Molecule 1: DNA-directed RNA polymerase subunit alpha
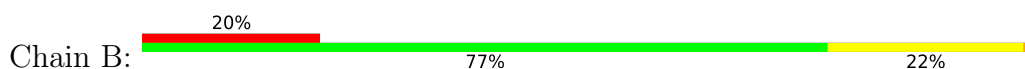
Chain O:
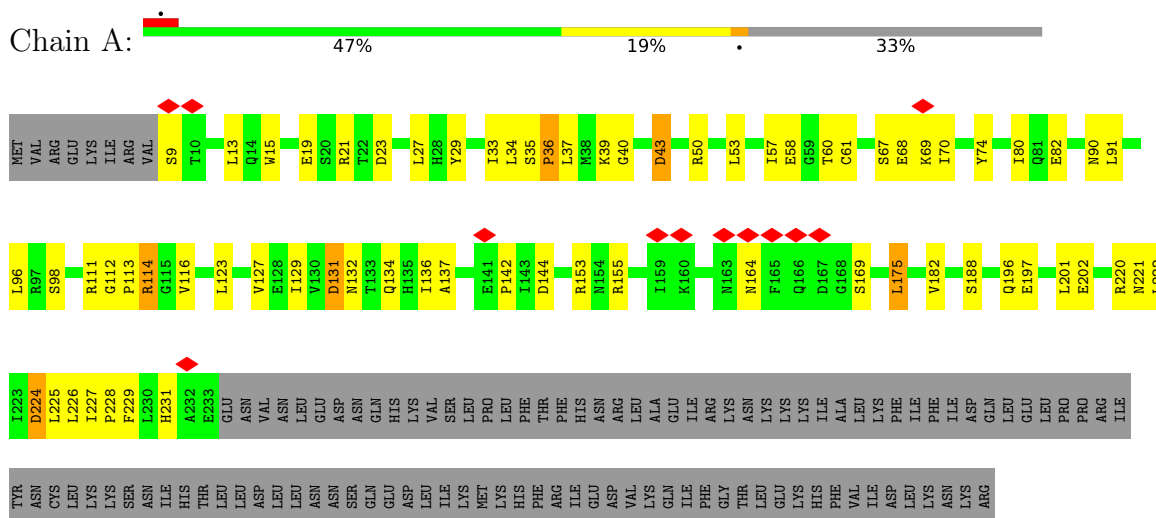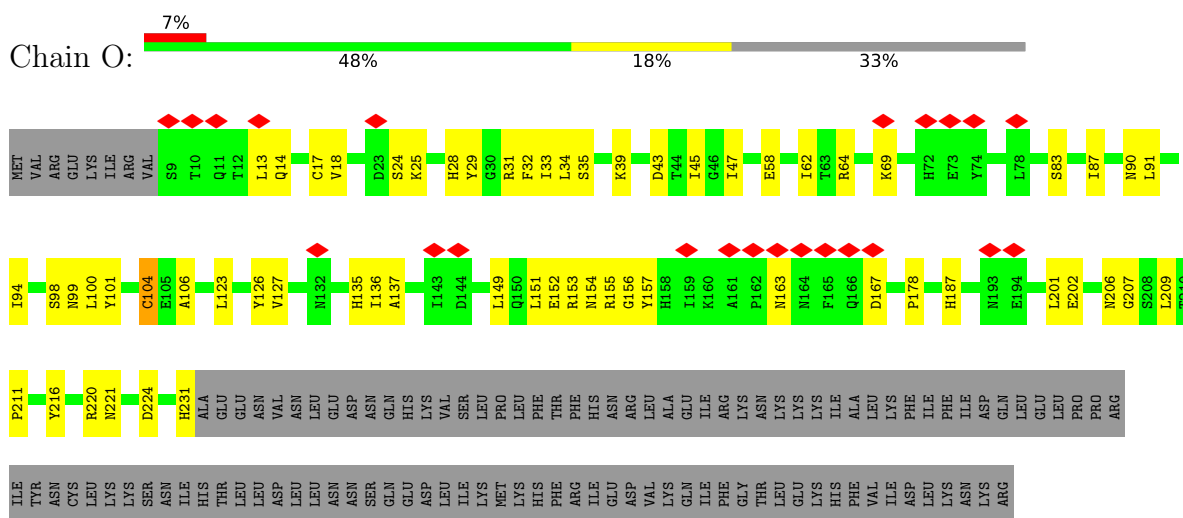
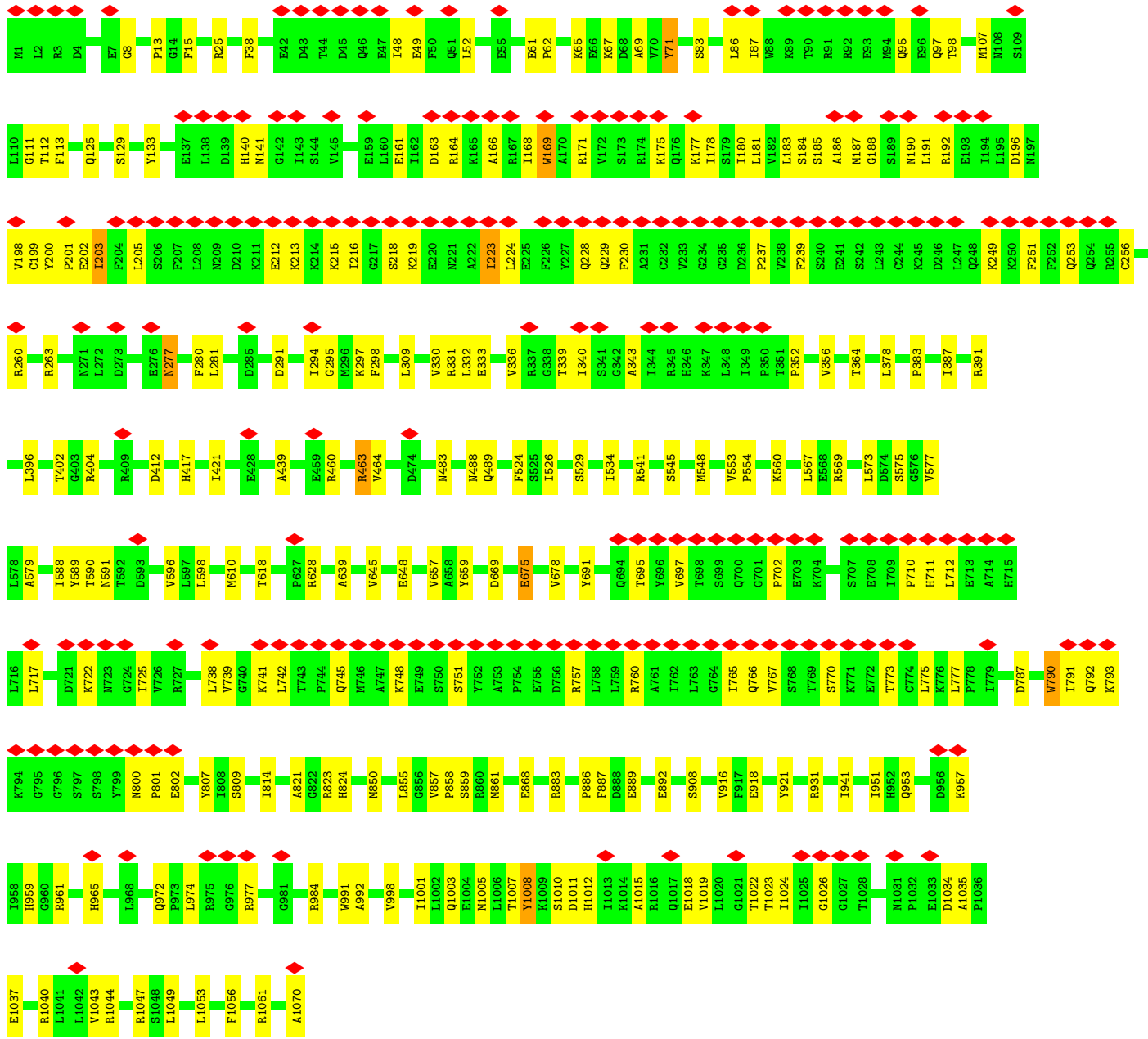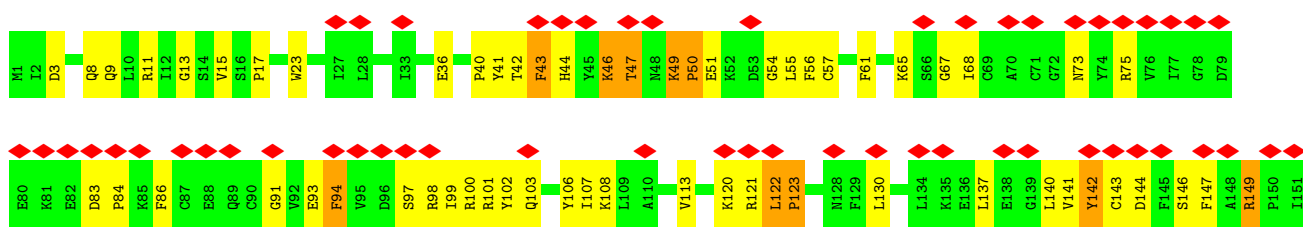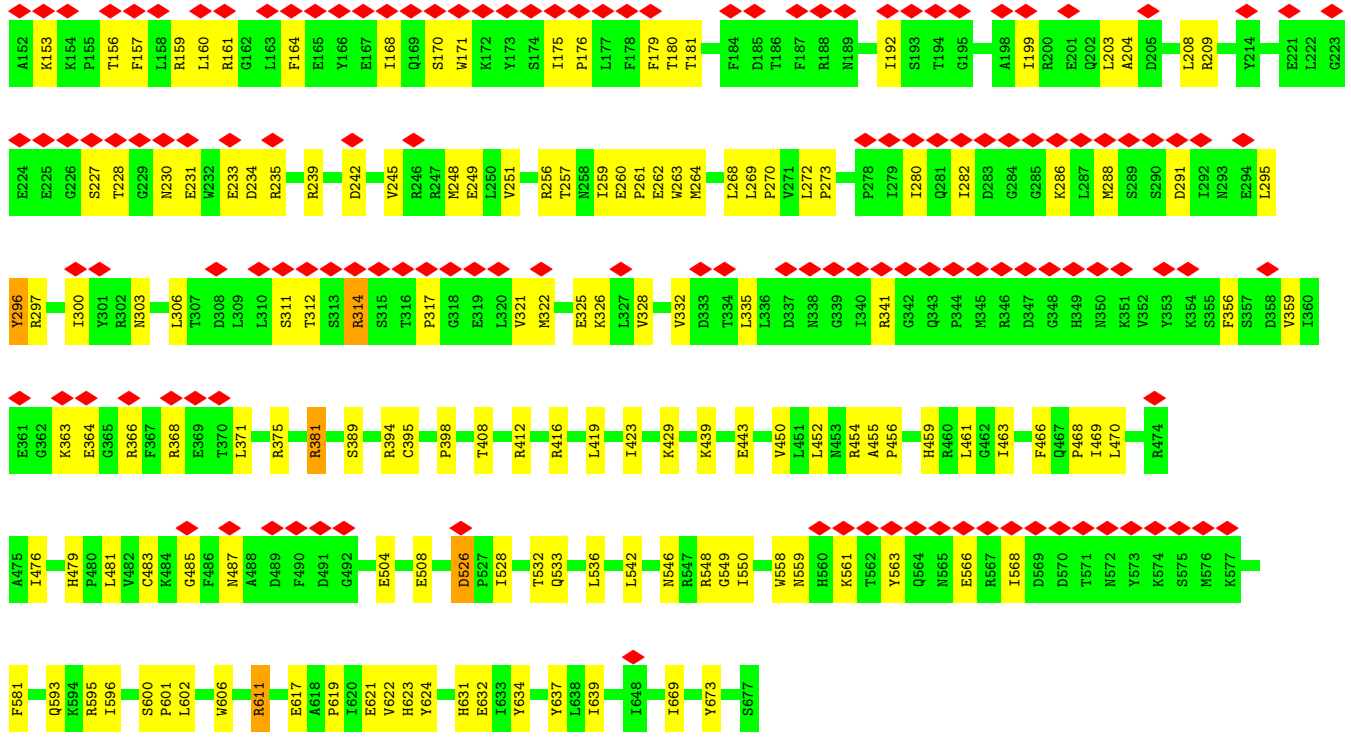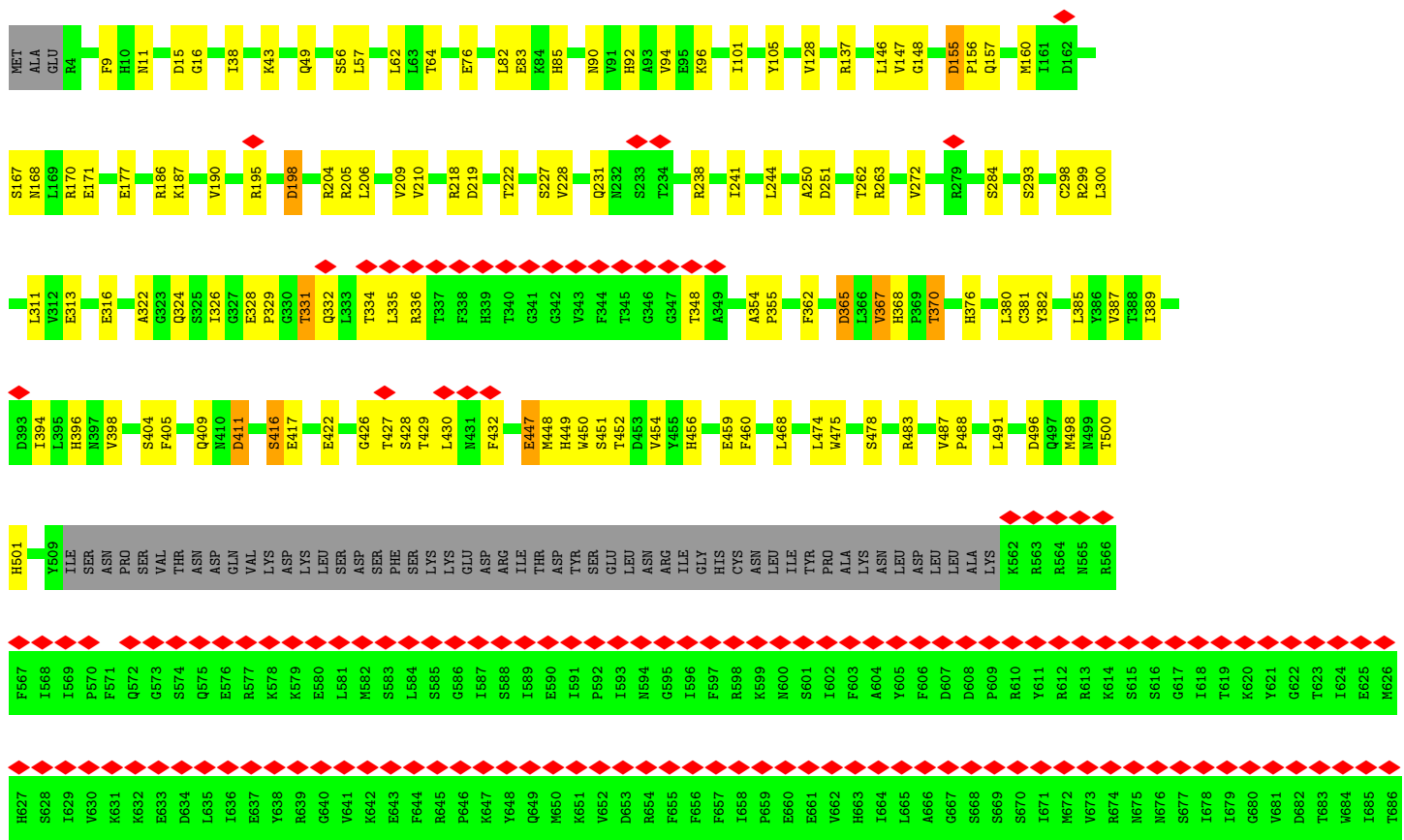• Molecule 2: DNA-directed RNA polymerase subunit beta

Chain B:

• Molecule 3: DNA-directed RNA polymerase subunit beta'
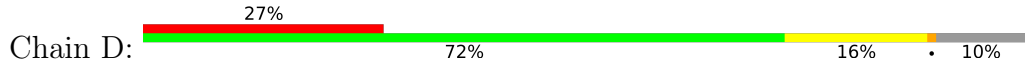
• Molecule 4: DNA-directed RNA polymerase subunit beta"



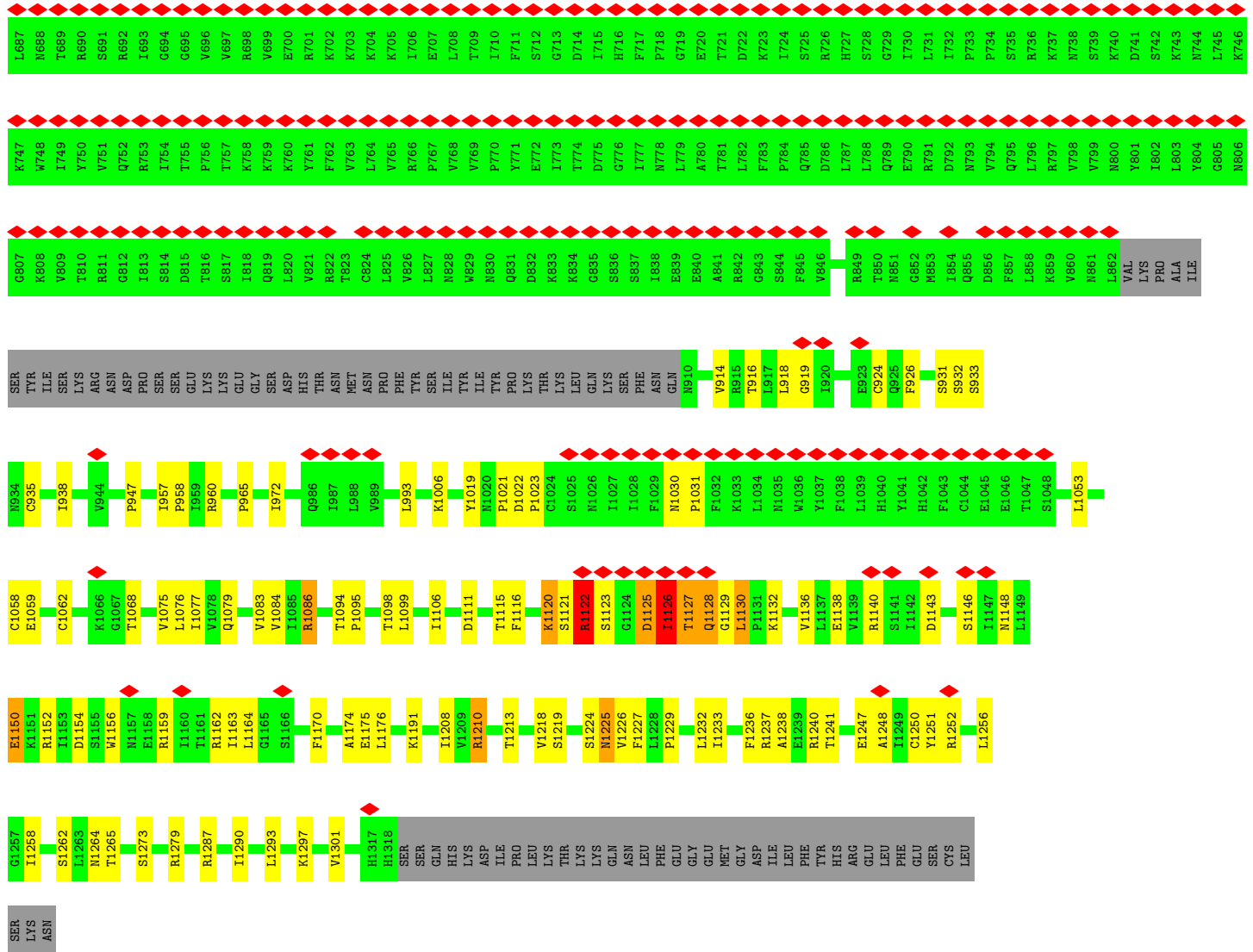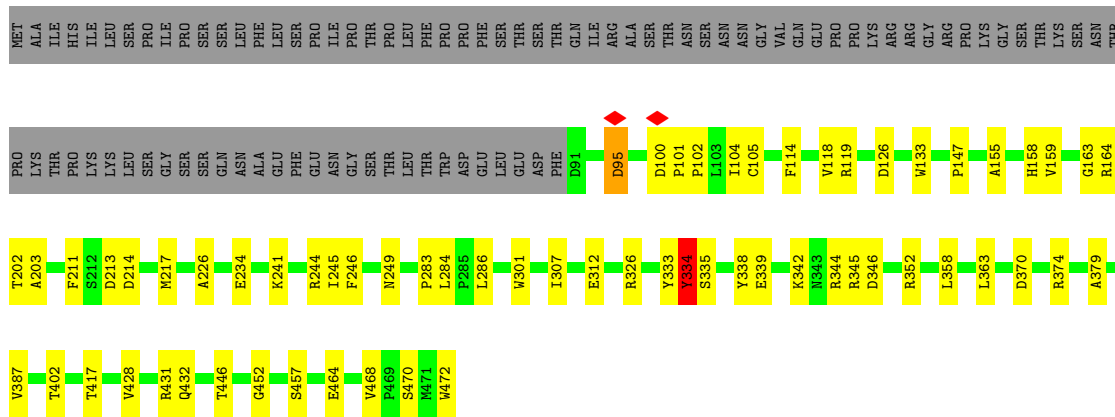Chain D:

L687 N688 T689 R690 S691 R692 I693 G694 G695 V696 V697 R698 V699 E700 R701 K702 K703 K704 K705 I706 E707 L708 T709 I710 F711 S712 G713 D714 I715 H716 F717 P718 G719 E720 T721 D722 K723 I724 S725 R726 H727 S728 G729 G729 T730 L731 I732 P733 P734 S735 R736 K737 N738 S739 K740 D741 S742 K743 N744 L745 K746

K747 W748 I749 Y750 V751 Q752 R753 I754 T755 P756 T757 K758 K759 K760 Y761 F762 V763 L764 V765 R766 P767 V768 V769 P770 Y771 E772 I773 T774 D775 G776 I777 N778 L779 A780 T781 L782 F783 P784 Q785 D786 L787 L788 Q789 E790 R791 D792 N793 V794 Q795 L796 R797 V798 V799 N800 Y801 I802 L803 Y804 G805 N806

G807 K808 V809 T810 R811 G812 I813 S814 D815 T816 S817 I818 Q819 L820 V821 R822 T823 C824 L825 V826 L827 N828 W829 N830 Q831 D832 K833 K834 G835 S836 S837 I838 E839 E840 A841 R842 G843 S844 F845 V846 R849 T850 N851 G852 M853 I854 Q855 D856 F857 L858 K859 V860 N861 L862 VAL LYS PRO ALA ILE

SER TYR ILE SER LYS ARG ASN ASP PRO SER SER GLU LYS GLU SER ASP GLY SER ASP HIS THR ASN MET ASN PRO PHE TYR SER ILE TYR PRO LYS THR LYS LEU GLN LYS SER PHE ASN GLN N910 V914 R915 T916 L917 L918 G919 I920 E923 C924 Q925 F926 S931 S932 S933

N934 C935 I938 V944 P947 I957 P958 I959 R960 P965 I972 Q986 I987 L988 V989 L993 K1006 Y1019 N1020 I1021 D1022 P1023 C1024 S1025 N1026 I1027 I1028 F1029 N1030 P1031 F1032 K1033 L1034 N1035 W1036 Y1037 F1038 L1039 H1040 Y1041 H1042 F1043 C1044 E1045 E1046 T1047 S1048 L1053

C1058 E1059 C1062 K1066 G1067 T1068 V1075 L1076 I1077 V1078 Q1079 V1083 V1084 I1085 R1086 T1094 P1095 T1098 L1099 I1106 D1111 T1115 F1116 K1120 S1121 R1122 S1123 G1124 D1125 I1126 T1127 Q1128 G1129 L1130 P1131 K1132 V1136 L1137 E1138 V1139 R1140 S1141 I1142 D1143 S1146 I1147 N1148 L1149

E1150 K1151 R1152 I1153 D1154 S1155 W1156 N1157 E1158 R1159 I1160 T1161 R1162 I1163 L1164 G1165 S1166 F1170 A1174 E1175 L1176 K1191 I1208 V1209 R1210 T1213 V1218 S1219 S1224 N1225 V1226 F1227 L1228 P1229 L1232 I1233 F1236 R1237 A1238 E1239 T1240 T1241 E1247 A1248 I1249 C1250 Y1251 R1252 L1256

G1257 I1258 S1262 L1263 N1264 T1265 S1273 R1279 R1287 I1290 L1293 K1297 V1301 H1317 H1318 SER GLN HIS LYS ASP ILE PRO LEU LYS THR LYS LYS GLN ASN LEU PHE GLU GLY GLU MET GLY ASP ILE LEU PHE TYR HIS ARG GLU LEU PHE GLU SER CYS LEU

SER LYS ASN

• Molecule 5: Fructokinase-like 1, chloroplastic

Chain E: 67% 13% 19%

MET ALA ILE HIS ILE LEU LEU SER PRO ILE PRO SER SER LEU PHE LEU SER PRO ILE THR PRO LEU PHE PRO PHE SER THR SER THR GLN ILE ARG ALA SER ASN SER ASN GLY VAL GLN GLU PRO PRO LYS ARG ARG GLY PRO LYS GLY SER THR LYS SER ASN THR

PRO LYS THR PRO LYS LYS LEU SER GLY SER SER GLN ASN ALA GLU PHE GLU ASN GLY SER THR LEU THR TRP ASP GLU LEU GLU ASP PHE D91 D95 D100 P101 P102 L103 I104 C105 F114 V118 R119 D126 W133 P147 A155 H158 V159 G163 R164

T202 A203 F211 S212 D213 D214 M217 A226 E234 K241 R244 I245 F246 N249 P283 L284 P285 L286 W301 I307 E312 R326 Y333 Y334 S335 Y338 E339 K342 N343 R344 R345 D346 R352 L358 L363 D370 R374 A379

V387 T402 T417 V428 R431 Q432 T446 G452 S457 E464 V468 P469 S470 M471 W472

• Molecule 6: Thioredoxin-like protein CITRX, chloroplastic

Chain F:

49%      15%      36%

MET GLN ILE PRO THR ALA PRO ARG SER ILE SER SER ALA ALA SER ASN LEU PHE LEU TYR PHE PRO PRO PHE HIS LEU ASN SER SER LEU ILE LYS PRO THR THR LEU ASN HIS ASN LEU PRO THR SER ILE SER ILE PRO THR LEU ILE PRO THR LYS LYS LEU LEU

CYS LYS PRO PRO SER A66 K67 H68 V69 L74 A80 T84 V87 R91 N92 V93 P94 L95 C104 I108 L114 E115 Q143 G146 L147 L150 Y151 F152 I153 D156 D160 A161 I162 R163 T164 N179 D180 M181

• **Molecule 6: Thioredoxin-like protein CITRX, chloroplastic**
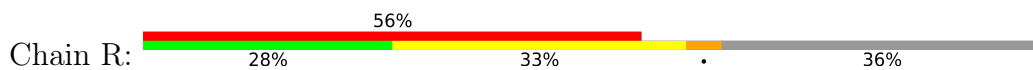
Chain R:

56%
28%      33%    •    36%

MET GLN ILE PRO THR ALA PRO ARG SER ILE SER SER ALA ALA SER ASN LEU PHE LEU TYR PHE PRO PRO HIS LEU ASN SER SER LEU ILE LYS PRO THR THR LEU ASN PHE PRO LEU ASN HIS ASN LEU PRO THR SER ILE SER ILE PRO THR LEU ILE PRO THR LYS LYS LEU LEU

CYS LYS PRO PRO SER A66 K67 H68 V69 R70 E71 D72 Y73 L74 V75 K76 K77 L78 S79 A80 N81 E82 I83 T84 E85 L86 V87 R88 G89 E90 R91 N92 V93 P94 L95 I96 I97 D98 F99 Y100 A101 T102 W103 C104 C107 I108 L109 M110 A111 Q112 E113 L114 E115 M116 L117 A118 V119 E120 Y121

E122 K123 N124 A125 M126 I127 V128 K129 V130 D131 T132 D133 D134 E135 Y136 E137 F138 A139 R140 D141 M142 Q143 V144 R145 G146 L147 L150 Y151 F152 I153 S154 P155 D156 P157 N158 K159 D160 A161 I162 R163 T164 E165 G166 L167 I168 P169 I170 Q171 M172 M173 R174 D175 I176 L177 D178 N179 D180 M181

• **Molecule 7: Protein PLASTID TRANSCRIPTIONALLY ACTIVE 12**

Chain G:

33%      13%      54%

MET ALA ASN SER LEU SER THR ASN TRP VAL PHE GLN ASP GLY ARG GLY LEU ARG CYS MET ILE PRO CYS GLY SER ASP GLY SER PHE PHE LYS ALA SER SER ASN MET LEU LEU ASN ARG GLY LEU ARG CYS PRO LEU PRO ALA ARG SER ARG LEU HIS ILE LYS CYS GLN GLN GLU GLU GLU

ALA PHE GLU GLU VAL SER VAL GLU ARG ALA ALA PRO TYR TYR SER ASP SER SER GLY ARG ILE GLU PRO ALA SER GLY ALA ALA ILE PRO GLY GLN ASP TYR TRP PRO GLY GLY THR ALA ASP ARG VAL ALA ALA ALA PRO GLU LYS GLY GLU SER THR

SER ASP SER PHE GLY LYS ARG PRO GLY SER ARG ARG LYS ASN TYR LYS GLY SER SER VAL ALA ALA VAL ALA GLY SER GLN GLU LEU SER PRO VAL LEU SER ASP GLU LEU THR GLU THR SER ASP ILE GLY GLU ASP PRO ILE ASP SER SER GLU TYR VAL VAL TYR GLN

ALA ASP LEU GLU SER GLU E187 L188 S189 E190 K193 D194 R199 F203 V204 D205 P206 K207 V208 K209 I212 T217 S218 E219 E220 L221 W222 W223 N224 W225 R226 K227 P228 D229 K230 E231 S234 R235 R238 D242 V243 E244 T245 V257 Y260 T269 I294

M297 A298 W303 V304 K308 I316 Q317 K318 E322 E325 D326 E327 M334 L335 D340 R341 E342 D350 I351 R352 R355 D356 E364 K368 D374 I380 Y392 R393 D396 F397 K409 K413 R417 E421 K422 L423 LEU ALA LYS GLU LYS

THR GLU GLU HIS GLU LEU ALA GLU VAL VAL ASP ASP ALA MET ARG ALA ILE ASP GLY GLU ASN GLY ASP ASP GLU GLU ASP SER ASP SER ASP GLY ASN ASP GLU ALA GLU GLU LYS ILE ASN ARG ASN TRP SER VAL HIS LYS SER ASN PRO GLN LEU ARG LYS SER LYS ASP LYS

PRO LYS LYS LYS ASP SER LEU SER LEU ASP ASP GLU ALA VAL ASP ASP SER GLU ASN LEU THR ASP PHE LEU LEU ASP GLU ASP

• **Molecule 8: pTAC3**

Chain H:

18%
46%      18%    •    33%

MET ALA HIS ILE LEU SER SER LYS PHE LEU PRO PHE ASN PRO THR LEU HIS PRO SER PRO HIS PHE LEU SER PRO PRO LEU LYS PRO PRO ASN SER VAL ILE VAL SER ALA VAL SER THR THR GLU ARG LYS SER ARG ARG ARG GLN PRO LYS GLY ASP ASP THR SER VAL ALA

GLY SER S63 A64 A65 E66 K67 G68 L69 R70 L71 V72 F73 M74 E75 E76 L77 M78 S79 K80 A81 R82 N83 R84 D85 A86 I87 G88 V89 S90 D91 V92 I93 Y94 D95 M96 I97 V98 A99 G100 L101 T102 P103 G104 P105 R106 S107 Y108 H109 G110 L111 V112 V113 A114 H115 V116 L117 N118 E122

G123 A124 M125 K126 S127 L128 R129 R130 E131 L132 S133 V134 G135 L136 V137 P138 T142 L146 L149 F150 R155 R158 E161 A164 E167 K168 D172 R173 R174 V181 V185 D192 K199 L205 R206 E218 K221 S222 H225 T230 E236

R240 T244 L250 V253 Q254 C257 P260 D280 T281 E282 N285 Q289 R293 A294 R299 V300 Q301 D302 E305 L306 L307 G308 L309 D313 H314 K315 R316 P319 N320 M321 R322 V328 F331 V336 I337 E338 E339 A340 I341 R342 R345 A346

L347 K348 L357 H358 S359 R376 E377 G378 R379 E382 A386 T389 Q395 P396 L404 S405 ARG LYS TYR ARG THR LEU ILE SER TRP ILE GLU PRO LEU GLN GLU GLU ALA GLU LEU G426 Y427 E428 V429 D430 Y431 M432 A433 R434 Y435 I436 S437 E438 G439 T442 G443

E444 R445 K446 R447 R451 R452 G453 K454 T455 D458 P459 G463 F464 I465 Y466 V470 E471 T472 S473 F474 K475 Q476 R477 C478 L479 E480 E481 W482 K483 I484 R485 H486 R487 K488 L489 L490 R491 H492 L493 R494 N495 P498 A499 G502 Y510 I511 R512 V513 E514 E515 R516 K519

I520 I521 K522 G523 R524 E525 K526 N527 P531 E544 GLU LEU GLU GLU ALA GLN ASP LEU PRO ILE ASP GLY GLY THR ARG ASN VAL LEU TYR GLN ARG VAL GLN LYS ALA ARG ARG ILE ASN ILE SER ARG GLY ARG PRO LEU TRP VAL PRO VAL LEU GLU GLU GLU GLU VAL ASP GLU

GLU LEU ASP GLU LEU ILE SER ARG ILE LYS LEU GLU GLU GLY ASN THR GLU PHE TRP LYS ARG ASN VAL LEU TYR ASP ASN MET LYS PRO MET ASP GLY GLN GLU GLU ARG VAL ILE ILE ASN ILE SER ARG GLY ARG PRO LEU TRP VAL PRO VAL LEU ASP GLU ASP GLY THR LYS GLU VAL

GLU GLU ASP GLU ALA ASP GLU GLU GLU GLU ALA GLU VAL GLU VAL GLU GLN THR GLU GLY GLN ASP LEU VAL ASP ARG VAL LYS ASP LYS GLU VAL ALA LYS LYS PRO LEU MET ILE GLY VAL GLN LEU LEU LEU LYS ASP GLY GLN PRO THR THR SER LYS

LYS SER ARG ARG ALA ARG R721 A722 A723 E724 N725 D726 D727 D728 W731 F732 D735 F740 E741 E742 M743 R744 K745 R746 V751 E752 N753 M754 Y755 T756 L757 A758 D759 A760 W761 G762 W763 T764 W765 E766 R767 E768 L769 K770 N771 R772 P773 P774 R775 R776 W777 S778 Q779 E780 W781

E782 V783 E784 L785 A786 I787 K788 I789 M790 S791 K792 V793 I794 E795 L796 G797 G798 I799 P800 T801 I802 G803 D804 C805 A806 I807 I808 L809 R810 A811 A812 I813 K814 A815 S819 A820 F821 I824 L825 Q826 T827 T828 H829 S830 L831 G832 Y833 R834 F835 G836 S837 P838 L839 Y840 D841 E842 I843 I844

T845 L846 C847 L848 D849 E852 L853 ASP ALA ALA VAL ALA ILE LEU VAL ALA ASP LEU GLU THR SER GLY ILE LEU THR VAL PRO ASP GLU GLU THR LEU ASP ASP LYS VAL ILE ALA ALA ARG GLN ILE PHE ASP SER PRO ALA ASP GLU GLU ALA SER

• Molecule 9: Protein PLASTID TRANSCRIPTIONALLY ACTIVE 14 isoform X2

Chain I:

MET THR SER HIS SER ILE SER MET ALA SER THR ILE LEU LEU HIS HIS SER PRO HIS ARG PHE LEU SER ASN PHE GLN LEU CYS SER PHE ASN ASN GLY PHE THR ALA ARG LYS PRO ASN SER THR VAL SER THR SER GLU ASN THR LEU ARG PRO VAL LYS SER LEU VAL GLU THR

SER SER PHE PRO LEU PHE GLU GLN PRO GLN ILE VAL GLU THR THR SER GLU M78 N79 L80 A81 I88 R92 R95 V99 E100 F101 R102 E103 G104 F108 G109 V110 F111 K114 D115 I116 I125 L130 L134 L140 P141 W142 M143 F144 P164 K165 D169

• Molecule 10: pTAC6

Chain K:

46%    18%    34%

• Molecule 11: superoxide dismutase

Chain L:

54%    24%    21%

• Molecule 12: superoxide dismutase

Chain M:

59%    20%    21%

MET LEU LEU THR SER LYS GLY VAL GLY LYS SER GLU MET GLY SER LEU THR ALA THR ASN PRO VAL SER SER PRO LEU HIS ALA ASN GLN LYS SER SER ARG ILE LYS CYS PRO THR PHE PHE ASN GLN LYS ARG ARG ASP GLU GLY SER LYS ARG ARG PRO GLY VAL VAL ALA Y59

L62 K63 K64 W85 Q88 L93 R102 S103 D104 M111 Y119 N120 N123 P124 L125 P126 E127 F128 F139 F140 W141 G149 E150 S151 G155 Q158 F164 G165 S166 F167 P168 N169 F170 A178 L181 V187 W188 L189 V190 K196 V201 K202 T203

P209 I215 P216 I217 I218 C219 L220 D221 L222 H225 Y228 K232 N233 D234 R235 F242 L246 V247 S248 W249 A252 A259 N264 L265 A273

• Molecule 13: Protein PLASTID TRANSCRIPTIONALLY ACTIVE 10

Chain N:

MET GLN ILE LEU GLN THR SER HIS PHE LEU PRO LEU SER LEU LEU PRO LYS THR PRO LEU LYS PRO PRO ILE PRO ILE PHE HIS ASN PRO ASN PHE HIS PRO ASN PHE SER LEU LEU SER SER SER LEU LEU PRO ILE PRO PRO LYS SER TYR ALA SER ASP GLU PHE PRO VAL

ASP GLU THR PHE LEU GLU GLN PHE GLY PRO LYS ASP THR E74 A79 W92 E93 E94 K105 S106 L107 E111 A123 M136 G140 E143 D144 D152 D159 P160 L161 W165 L169 V170 V171 R172 H173 V174 A175 P176 P180 W184 R188 L191

H198 M201 R204 V205 D206 M207 V213 I214 R215 E216 W235 V236 E237 F238 N239 K240 D251 H255 P256 G257 R258 Y265 E271 L272 Y276 I280 C281 L282 G283 K284 L288 V298 Y302 N311 I316 V326 M327 V328 K333 R338

F341 L345 R346 F347 I352 D353 L356 F357 Q358 E370 D371 L374 L377 R378 R383 K394 V395 E396 L401 S402 D403 H404 P405 Y406 K409 E417 L421 D422 D423 M424 E425 A426 N427 P428 D429 K430 Y431 K432 G433 K434 K435 L436 S437 E438 L439 T440 D441 E442

E443 E444 F445 D446 H449 E452 Y453 T454 K455 V456 Q457 Y458 K459 K460 S461 L462 L463 T466 I467 L468 K469 V472 K473 E474 L475 A480 F481 A482 E483 R484 Q485 L486 H487 N488 Q491 K492 E493 A494 E495 E496 R497 G498 E499 D500 Y501 K502 V503 D504 K505 L506 R507 R508 Y515

H519 W520 D533 E546 P547 G648 ARG TYR VAL ASP PRO SER ILE LEU GLY LYS ASP GLN GLN TYR ASP PRO ASN THR HIS PRO LEU TYR ARG ASP TYR ASP GLU ALA GLU SER ASP ASP ASP SER ASP ASP ASP PHE ASP TYR SER ILE LEU SER ASP LEU SER ALA ASP PHE ALA SER GLN

ASN VAL TRP TYR GLU MET SER TYR GLU ASP ALA VAL GLU GLU MET LYS TYR ARG GLU GLU SER HIS PRO LYS ASP PRO LYS ASP ASN THR GLU ARG GLU GLU THR ASP GLU GLU ALA GLU SER ASP ASP ASP SER ASP ASP ASP PHE ASP TYR SER ILE LEU SER ASP LEU SER ALA ASP PHE ALA SER GLN

PRO HIS VAL ASN GLY THR GLU SER PRO SER ILE SER ASP GLU GLY MET PHE GLU GLU

• Molecule 14: Protein PLASTID TRANSCRIPTIONALLY ACTIVE 7

Chain P:

MET SER LEU SER LEU SER LEU PRO PHE ASN SER LEU LEU PRO LEU SER SER THR LYS PHE GLU ALA GLY PRO ILE ILE LEU ARG PRO LEU GLY PHE SER ILE ARG SER GLN ALA LYS PRO LYS SER ARG ARG SER PRO VAL GLN ASN GLY ARG GLN VAL TRP ARG ARG ARG LYS LEU

SER LYS K63 D64 V65 F66 M67 E68 A69 K70 P75 F76 R82 K83 V84 N85 E86 D96 K100 S101 R105 A113 Y119 N122 N123 R124 D125 E126 Y127 G128 H129 K130 K131 H134 R148 Y152 P162 L165 K166 E167 ASN PHE TYR

• Molecule 15: pTAC18

Chain Q:

50%    22%    27%

MET ALA SER VAL ILE TRP SER PRO THR PHE HIS SER SER VAL ILE ARG THR ASN LYS SER GLU LEU LYS ARG CYS ASP HIS ASN VAL SER ARG GLY ILE LYS ALA MET R35 I36 P39 E42 R50 S53 L57 N58 G61 V62 W65 W68 K69 T70

G71 K72 C73 W79 D82 Q83 Y86 I87 E88 E89 V92 R112 K115 W116 D120 L121 W122 Y127 Y131 S132 F133 R134 D138 ASP

• Molecule 16: Fructokinase-like 2, chloroplastic isoform X2

Chain S:

42%

21%    33%    41%

MET ALA SER LEU SER PHE THR GLN PHE ARG SER ILE PRO ARG TRP ASN TYR LYS ALA PRO VAL ALA THR LEU ALA VAL GLU PHE MET LEU VAL THR ASP HIS ARG LEU GLN ASN ARG CYS VAL LEU GLU THR SER LYS LYS ALA VAL ILE VAL ALA SER VAL VAL VAL GLN ASP GLY PRO ASN

GLU PRO GLU GLY GLY THR LYS LYS THR ARG THR ARG ARG THR THR THR ARG GLY ARG LYS LYS ALA THR THR GLU LEU GLN LEU GLN LEU ASP SER GLU LEU GLU SER ALA SER ALA SER GLU GLU GLN ILE SER GLU ASP PRO GLU ALA SER ILE SER GLY SER SER GLU GLU LYS PRO LYS ARG ARG THR

ARG LYS LYS VAL LEU HIS THR GLU MET LYS LEU PHE SER ALA VAL SER ALA ILE LEU SER THR ARG GLY ARG LYS LYS ALA THR THR GLU LEU GLN LEU LYS VAL LYS THR GLU LYS LYS PRO ARG GLY ARG LYS ARG LYS GLU THR SER LYS VAL ASP ASP ILE SER GLU GLY THR GLU PHE ILE ASN LEU GLU GLU VAL VAL TYR LEU ALA

ASP GLU GLU ASN GLU ASP ASP ASN ILE LEU ASP LEU ASN LEU GLU LYS CYS ASN GLY ASP ILE PHE ASP THR TYR G196 W197 P198 P199 L200 V201 C202 C203 F204 G205 A206 A207 Q208 H209 A210 F211 V212 P213 S214 G215 R216 P217 A218 N219 R220 L221 I222 D223 H224 Q225 I226 H227 E228 A229 L230

K231 E232 A233 L234 W235 A236 P237 D238 K239 F240 I241 R242 A243 P244 S247 A248 G249 G250 V251 A252 I253 A254 L255 A256 S257 R261 V262 A263 F264 M265 G266 K267 L268 G269 N270 D271 D272 Y273 G274 Q275 T276 M277 L278 Y279 Y280 L281 N282 V283 K284 S285 V286 Q287 T288 R289 S290 V291 C292 V293

D294 D295 K296 R297 W298 T299 A300 M301 S302 Q303 M304 K305 I306 A307 K308 R309 G310 A311 L312 R313 A314 T315 T316 V317 K318 P319 C320 A321 E322 D323 S324 L325 S326 K327 S328 E329 I330 N331 I332 D333 V334 L335 K336 E337 A338 K339 M340 F341 Y342 L343 N344 T345 S346 S347 L348 V349 D350 A351 N352 M353

R354 K355 T356 T357 M358 R359 A360 L361 K362 I363 S364 K365 K366 L367 G368 S369 V370 T371 F372 Y373 D374 L375 N376 L377 P378 L379 P380 L381 W382 L383 S384 G385 E386 E387 T388 K389 S390 L391 I392 Q393 Q394 V395 W396 S397 L398 A399 D400 V401 I402 A403 V404 T405 K406 Q407 E408 L409 E410 F411 L412 C413

G414 M415 N416 P417 P418 E419 E420 F421 D422 T423 K424 K425 N426 Q427 R428 F429 K430 F431 E432 H433 Y434 E435 A436 D437 I438 I439 A440 P441 L442 W443 H444 E445 N446 L447 L450 F451 V452 T453 N454 G455 T456 S457 K458 I459 H460 Y461 Y462 T463 K464 E465 H466 V470 L471 E474 D475 A476 P477

M478 S479 P480 F481 T482 Q483 D484 M485 S486 A487 S488 G489 D490 G491 L492 A495 L496 M497 R498 M499 L500 V502 Q503 P504 H505 L506 I507 T508 D509 K510 E511 Y512 L513 E514 R515 C523 I526 E527 Q528 W529 I530 V531 T532 R533 Q534 Q535 G536 Y537 P538 P539 LYS VAL GLY ILE GLU GLU

ASP GLU GLU GLU THR ILE PRO ASP PRO SER GLY ILE ARG SER THR THR GLU ARG GLU PHE ARG THR ARG MET PRO VAL LEU CYS

• Molecule 17: MurE

Chain J:

66%

46%    24%    29%

MET PHE LEU GLN PRO PHE LEU THR LEU PRO SER THR ILE SER SER PRO THR ASN SER SER SER SER LEU HIS PHE THR LYS PRO PHE LEU LEU ARG PRO SER ILE LEU SER LEU LEU ARG ARG LYS THR PRO SER ALA ALA GLY ASN TYR TYR PRO ASN PRO SER ASP ASP ASP

PRO PRO GLU ALA PRO GLU ASP ASP SER SER HIS GLY VAL SER LYS PHE GLY GLN ILE ILE GLN ARG GLN ALA ALA ARG ALA ARG LYS LEU GLU GLU GLU ASP PHE GLU LYS ASN ARG SER VAL PHE LEU ASP ALA ILE LYS ASP VAL GLU ASP ALA PRO GLU ASN GLU ASP TYR SER THR GLY VAL

SER GLY SER GLY ASP ASP GLY LEU PHE GLY ASP ILE ASP ASP LYS ALA ILE ALA GLN ILE LYS ARG LYS GLU PHE VAL LYS LYS GLY LEU LEU GLY PRO ASN GLY SER SER SER SER LEU PHE ASP ALA SER PHE ILE ASP PHE ASP SER LEU

GLN GLY LEU ARG VAL VAL LEU ASP VAL SER GLU GLY LYS GLU GLU PHE ASP ASP ASP ILE ASP VAL GLU VAL SER GLU LEU GLY LYS ASN GLY SER SER SER LEU PHE ASP ALA SER PHE ASP ASP SER LEU **G229 N230 N231 S232 S233 N234 K235 V236 R237 I238 V239 E240**

P241 S242 F243 K244 M245 T246 L247 A248 E249 L250 L251 D252 E253 C254 K255 V256 V257 P258 I259 S260 V261 Y262 G263 D264 L265 E266 V267 E268 I269 T270 G271 I272 E273 H274 D275 S276 R277 L278 V279 N280 S281 G282 D283 L284 F285 V286 C287 C288 V289 D290 G291 N292 L293 C294 L295 I296 E297 A298 D299 K300

R301 G302 A303 V304 A305 V306 V307 A308 S309 K310 E311 I312 D313 I314 E315 E316 T317 L318 G319 C320 K321 A322 L323 V324 I325 V326 E327 D328 T329 N330 A331 A332 P334 A335 L336 A337 A338 A339 F340 F341 R342 Y343 P344 T345 K346 S347 M348 S349 V350 I351 G352 I353 T354 G355 T356 H357 G358 K359 T360

T361 A362 A363 H364 L365 I366 K367 T368 M369 Y370 E371 A372 M373 G374 L375 R376 T377 G378 M379 M380 S381 S382 V383 A384 Y385 Y386 V387 H388 G389 D390 N391 K392 L393 D394 F395 P396 E397 A398 N399 P400 D401 A402 V403 L404 V405 Q406 K407 L408 M409 A410 K411 M412 L413 H414 N415 G416 T417 E418 A419 V420

V421 M422 E423 A424 S425 S426 N427 E428 L429 T430 H431 T432 R433 C434 E435 E436 I437 D438 F439 D440 I441 A442 V443 F444 T445 N446 L447 S448 R449 D450 N451 S452 H453 F454 Q455 G456 N457 E458 E459 E460 F461 R462 V463 A464 Q465 A466 K467 L468 F469 S470 R471 M472 V473 D474 P475 D476 R477 H478 R479 K480

I481 V482 N483 V484 D485 D486 P487 N488 A489 P490 F491 F492 I493 A494 Q495 G496 N497 P498 N499 V500 P501 V502 L503 T504 F505 A506 L507 E508 N509 K510 D511 A512 D513 V514 H515 P516 L517 K518 F519 E520 L521 S522 L523 F524 E525 T526 T527 V528 L529 V530 N531 T532 P533 Q534 G535 I536 L537 E538 I539 S540

S541 G542 L543 L544 G545 R546 H547 N548 I549 Y550 N551 I552 L553 A554 A555 V556 T557 V558 G559 V560 A561 V562 G563 A564 P565 L566 E567 D568 I569 V570 R571 G572 I573 E574 E575 V576 D577 A578 V579 P580 G581 R582 C583 E584 V585 I586 D587 E588 E589 Q590 A591 F592 G593 V594 I595 V596 D597 H598 A599 R600

T601 P602 D603 A604 L605 S606 R607 L608 L609 D610 S611 V612 R613 E614 L615 Q616 P617 R618 R619 I620 I621 T622 V623 I624 G625 S626 C627 G628 E629 K630 E631 R632 G633 K634 R635 P636 M637 L638 A639 K640 V641 A642 T643 D644 K645 S646 D647 V648 T649 M650 L651 T652 S653 D654 N655 Q656 G667 G657 E659

L662 D663 I664 L665 D666 D667 M668 L669 A670 G671 I672 G673 W674 T675 M676 Q677 D678 Y679 L680 K681 H682 G683 E684 N685 D686 Y687 **Y688** P689 **P690 L691 P692** N693 G694 **H695** R696 L697 F698 L699 H700 D701 I702 R703 R704 V707 R708 C709 A710 V711 A712 M713 G714 E715 E716 G717 D718 M719 V720 V721 V722

A723 G724 K725 G726 H727 E728 A729 Y730 Q731 V732 D733 G734 D735 K736 K737 E738 F739 F740 D741 D742 R743 E744 E745 C746 R747 E748 A749 L750 L751 Q752 Y753 D754 E755 L756 H757 Q758 A759 G760 I761 D762 T763 S764 E765 F766 P767 W768 R769 L770 P771 E772 S773 H774

# 4 Experimental information (i)

| Property | Value | Source |
| --- | --- | --- |
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 180924 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING ONLY | Depositor |
| Microscope | TFS KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose $(e^-/\text{Å}^2)$ | 50.0 | Depositor |
| Minimum defocus (nm) | 800 | Depositor |
| Maximum defocus (nm) | 2000 | Depositor |
| Magnification | Not provided | |
| Image detector | GATAN K3 (6k x 4k) | Depositor |
| Maximum map value | 1.697 | Depositor |
| Minimum map value | -1.051 | Depositor |
| Average map value | -0.000 | Depositor |
| Map value standard deviation | 0.043 | Depositor |
| Recommended contour level | 0.23 | Depositor |
| Map size (Å) | 563.2, 563.2, 563.2 | wwPDB |
| Map dimensions | 512, 512, 512 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.1, 1.1, 1.1 | Depositor |

# 5 Model quality ⓘ

## 5.1 Standard geometry ⓘ

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

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 | 0.26 | 0/1810 | 0.54 | 0/2454 |
| 1 | O | 0.25 | 0/1796 | 0.52 | 0/2435 |
| 2 | B | 0.25 | 0/8691 | 0.52 | 0/11741 |
| 3 | C | 0.26 | 0/5636 | 0.52 | 0/7617 |
| 4 | D | 0.28 | 0/8497 | 0.53 | 0/11580 |
| 5 | E | 0.26 | 0/3154 | 0.49 | 0/4268 |
| 6 | F | 0.25 | 0/956 | 0.50 | 0/1292 |
| 6 | R | 0.27 | 0/956 | 0.58 | 0/1292 |
| 7 | G | 0.25 | 0/2062 | 0.51 | 0/2781 |
| 8 | H | 0.29 | 0/4745 | 0.57 | 0/6417 |
| 9 | I | 0.25 | 0/3456 | 0.52 | 0/4675 |
| 10 | K | 0.26 | 0/1849 | 0.54 | 0/2507 |
| 11 | L | 0.30 | 0/1877 | 0.50 | 0/2558 |
| 12 | M | 0.25 | 0/1820 | 0.44 | 0/2478 |
| 13 | N | 0.25 | 0/4139 | 0.48 | 0/5582 |
| 14 | P | 0.27 | 0/857 | 0.52 | 0/1152 |
| 15 | Q | 0.27 | 0/932 | 0.54 | 0/1261 |
| 16 | S | 0.31 | 0/2756 | 0.66 | 0/3731 |
| 17 | J | 0.25 | 0/4293 | 0.53 | 0/5820 |
| All | All | 0.26 | 0/60282 | 0.53 | 0/81641 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 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 | 1775 | 0 | 1783 | 60 | 0 |
| 1 | O | 1761 | 0 | 1772 | 43 | 0 |
| 2 | B | 8517 | 0 | 8571 | 168 | 0 |
| 3 | C | 5507 | 0 | 5546 | 156 | 0 |
| 4 | D | 8374 | 0 | 7240 | 196 | 0 |
| 5 | E | 3079 | 0 | 2992 | 42 | 0 |
| 6 | F | 940 | 0 | 934 | 22 | 0 |
| 6 | R | 940 | 0 | 934 | 92 | 0 |
| 7 | G | 2009 | 0 | 1967 | 56 | 0 |
| 8 | H | 4653 | 0 | 4517 | 148 | 0 |
| 9 | I | 3373 | 0 | 3321 | 92 | 0 |
| 10 | K | 1803 | 0 | 1752 | 53 | 0 |
| 11 | L | 1817 | 0 | 1720 | 53 | 0 |
| 12 | M | 1763 | 0 | 1698 | 34 | 0 |
| 13 | N | 4032 | 0 | 3891 | 87 | 0 |
| 14 | P | 840 | 0 | 804 | 26 | 0 |
| 15 | Q | 902 | 0 | 870 | 22 | 0 |
| 16 | S | 2695 | 0 | 2712 | 280 | 0 |
| 17 | J | 4218 | 0 | 4148 | 153 | 0 |
| 18 | L | 1 | 0 | 0 | 0 | 0 |
| All | All | 58999 | 0 | 57172 | 1572 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 14.

All (1572) 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) |
|--------|--------|--------------------------|-------------------|
| 8:H:96:MET:HB2 | 8:H:101:LEU:HB2 | 1.33 | 1.05 |
| 6:R:160:ASP:HA | 16:S:305:LYS:HB3 | 1.42 | 1.00 |
| 16:S:270:ASN:O | 16:S:275:GLN:HG3 | 1.63 | 0.98 |
| 16:S:304:MET:HE2 | 16:S:316:THR:HA | 1.48 | 0.93 |
| 16:S:421:PHE:HB2 | 16:S:433:HIS:HB3 | 1.52 | 0.91 |
| 9:I:445:GLN:HG2 | 9:I:449:ILE:HB | 1.55 | 0.89 |
| 3:C:17:PRO:HB3 | 3:C:268:LEU:HD23 | 1.56 | 0.87 |

*Continued on next page...*

*Continued from previous page...*

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:70:ARG:HH22 | 8:H:104:GLY:H | 1.23 | 0.86 |
| 6:R:103:TRP:CE2 | 16:S:241:ILE:HG13 | 2.11 | 0.86 |
| 16:S:304:MET:CE | 16:S:316:THR:HA | 2.06 | 0.85 |
| 8:H:430:ASP:HB3 | 17:J:673:GLY:H | 1.41 | 0.84 |
| 6:R:143:GLN:CG | 16:S:315:THR:HA | 2.08 | 0.82 |
| 8:H:70:ARG:NH2 | 8:H:104:GLY:H | 1.76 | 0.82 |
| 5:E:446:THR:HG21 | 5:E:452:GLY:HA3 | 1.61 | 0.82 |
| 6:R:142:MET:HE3 | 16:S:314:ALA:HB3 | 1.61 | 0.82 |
| 4:D:432:PHE:HB2 | 4:D:1123:SER:HB3 | 1.60 | 0.81 |
| 8:H:404:LEU:HD13 | 8:H:803:GLY:HA3 | 1.59 | 0.81 |
| 6:R:142:MET:CE | 16:S:314:ALA:HB3 | 2.09 | 0.80 |
| 16:S:268:LEU:HA | 16:S:277:MET:HE2 | 1.61 | 0.79 |
| 16:S:385:GLY:HA2 | 16:S:412:LEU:HD23 | 1.64 | 0.79 |
| 1:A:60:THR:HG21 | 1:A:98:SER:HB3 | 1.64 | 0.79 |
| 16:S:317:VAL:HG22 | 16:S:318:LYS:HG3 | 1.65 | 0.79 |
| 8:H:74:MET:HG3 | 9:I:489:LEU:HD22 | 1.66 | 0.78 |
| 3:C:54:GLY:H | 3:C:57:CYS:HB2 | 1.47 | 0.78 |
| 16:S:270:ASN:H | 16:S:274:GLY:HA3 | 1.49 | 0.78 |
| 16:S:199:PRO:HB3 | 16:S:339:LYS:CG | 2.14 | 0.77 |
| 6:R:143:GLN:HG2 | 16:S:315:THR:HA | 1.65 | 0.77 |
| 2:B:859:SER:HB3 | 4:D:137:ARG:HD3 | 1.66 | 0.77 |
| 8:H:758:ALA:HA | 8:H:763:TRP:HB3 | 1.67 | 0.77 |
| 16:S:251:VAL:HG22 | 16:S:490:ASP:HA | 1.65 | 0.76 |
| 4:D:449:HIS:HE1 | 13:N:92:TRP:HD1 | 1.33 | 0.76 |
| 2:B:589:TYR:HB3 | 2:B:596:VAL:HB | 1.67 | 0.75 |
| 3:C:389:SER:HB2 | 14:P:167:GLU:OE2 | 1.86 | 0.75 |
| 11:L:141:LYS:HB2 | 11:L:259:SER:HB3 | 1.67 | 0.75 |
| 17:J:640:LYS:HB2 | 17:J:672:ILE:HG21 | 1.68 | 0.75 |
| 6:R:88:ARG:NH1 | 6:R:157:PRO:O | 2.20 | 0.75 |
| 2:B:941:ILE:HG22 | 4:D:56:SER:HB3 | 1.69 | 0.74 |
| 12:M:242:PHE:HA | 12:M:246:LEU:HB2 | 1.68 | 0.74 |
| 16:S:389:LYS:HG2 | 16:S:396:TRP:CZ2 | 2.22 | 0.74 |
| 13:N:452:GLU:HG3 | 13:N:468:LEU:HA | 1.70 | 0.74 |
| 17:J:306:VAL:HG11 | 17:J:318:LEU:HD12 | 1.69 | 0.74 |
| 8:H:155:ARG:HB3 | 8:H:158:ARG:HB2 | 1.69 | 0.74 |
| 16:S:317:VAL:HG13 | 16:S:318:LYS:H | 1.53 | 0.73 |
| 9:I:445:GLN:HG3 | 9:I:446:ASP:H | 1.53 | 0.73 |
| 16:S:345:THR:HG22 | 16:S:378:PRO:HD2 | 1.68 | 0.73 |
| 3:C:161:ARG:HH12 | 17:J:684:GLU:HG2 | 1.53 | 0.73 |
| 7:G:257:VAL:HG13 | 10:K:323:TRP:HE1 | 1.53 | 0.73 |
| 3:C:50:PRO:HB3 | 3:C:56:PHE:HB2 | 1.72 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:O:62:ILE:HG21 | 1:O:149:LEU:HD12 | 1.72 | 0.72 |
| 16:S:308:LYS:HE2 | 16:S:312:LEU:HA | 1.71 | 0.72 |
| 3:C:669:ILE:HD11 | 4:D:38:ILE:HD11 | 1.70 | 0.72 |
| 16:S:270:ASN:ND2 | 16:S:294:ASP:O | 2.21 | 0.72 |
| 17:J:596:VAL:HG23 | 17:J:723:ALA:HA | 1.72 | 0.72 |
| 11:L:196:ASN:HB3 | 11:L:199:ASN:ND2 | 2.04 | 0.71 |
| 1:A:39:LYS:O | 1:O:155:ARG:NH2 | 2.23 | 0.71 |
| 9:I:334:GLN:OE1 | 9:I:335:GLN:N | 2.22 | 0.71 |
| 1:A:68:GLU:HG2 | 1:A:69:LYS:HG2 | 1.72 | 0.71 |
| 16:S:340:MET:HE1 | 16:S:370:VAL:HG12 | 1.73 | 0.70 |
| 3:C:40:PRO:HB2 | 3:C:297:ARG:HG3 | 1.71 | 0.70 |
| 1:A:228:PRO:HG3 | 1:O:13:LEU:HB3 | 1.74 | 0.70 |
| 3:C:108:LYS:O | 3:C:303:ASN:ND2 | 2.25 | 0.70 |
| 15:Q:70:THR:OG1 | 15:Q:73:CYS:SG | 2.50 | 0.70 |
| 1:A:220:ARG:HE | 16:S:477:PRO:HD2 | 1.56 | 0.70 |
| 17:J:329:THR:O | 17:J:333:LEU:HB2 | 1.91 | 0.70 |
| 2:B:760:ARG:HA | 2:B:765:ILE:HB | 1.73 | 0.70 |
| 16:S:199:PRO:HB3 | 16:S:339:LYS:HG3 | 1.71 | 0.70 |
| 4:D:1152:ARG:NH1 | 8:H:732:PHE:O | 2.25 | 0.70 |
| 9:I:114:LYS:HG2 | 9:I:115:ASP:H | 1.55 | 0.70 |
| 7:G:188:LEU:HB3 | 7:G:193:LYS:HG2 | 1.73 | 0.70 |
| 17:J:411:LYS:O | 17:J:415:ASN:HB2 | 1.90 | 0.70 |
| 8:H:743:MET:HB3 | 8:H:746:ARG:HE | 1.56 | 0.69 |
| 2:B:751:SER:HB2 | 3:C:65:LYS:HE2 | 1.74 | 0.69 |
| 1:A:112:GLY:HA3 | 1:A:142:PRO:HA | 1.74 | 0.69 |
| 17:J:481:ILE:HD11 | 17:J:561:ALA:HB2 | 1.74 | 0.69 |
| 11:L:177:GLN:O | 11:L:246:ARG:NH1 | 2.23 | 0.69 |
| 8:H:113:VAL:HG11 | 9:I:416:ILE:HA | 1.75 | 0.68 |
| 2:B:161:GLU:HB3 | 2:B:169:TRP:HE1 | 1.57 | 0.68 |
| 3:C:459:HIS:NE2 | 3:C:485:GLY:O | 2.26 | 0.68 |
| 6:R:154:SER:H | 6:R:181:MET:HE3 | 1.59 | 0.68 |
| 1:A:123:LEU:HD11 | 1:A:129:ILE:HG23 | 1.76 | 0.68 |
| 13:N:506:LEU:HD12 | 13:N:508:ARG:H | 1.58 | 0.68 |
| 3:C:43:PHE:HA | 3:C:50:PRO:HA | 1.77 | 0.67 |
| 3:C:86:PHE:HB3 | 3:C:91:GLY:HA2 | 1.77 | 0.67 |
| 3:C:261:PRO:O | 3:C:264:MET:HG3 | 1.94 | 0.67 |
| 8:H:801:THR:HA | 8:H:805:CYS:HB3 | 1.77 | 0.67 |
| 16:S:341:PHE:HB3 | 16:S:371:ILE:HG23 | 1.74 | 0.67 |
| 16:S:370:VAL:HG13 | 16:S:400:ASP:HB2 | 1.77 | 0.67 |
| 2:B:1023:THR:O | 3:C:412:ARG:NH2 | 2.21 | 0.67 |
| 5:E:104:ILE:HD11 | 5:E:417:THR:HG21 | 1.77 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:191:LEU:O | 2:B:192:ARG:NH1 | 2.27 | 0.67 |
| 4:D:62:LEU:HB2 | 4:D:170:ARG:HD3 | 1.77 | 0.67 |
| 16:S:297:ARG:HG3 | 16:S:318:LYS:HE3 | 1.77 | 0.67 |
| 8:H:756:THR:HA | 8:H:759:ASP:HB3 | 1.75 | 0.67 |
| 2:B:554:PRO:HD2 | 2:B:618:THR:HG21 | 1.76 | 0.66 |
| 3:C:416:ARG:HH12 | 14:P:128:GLY:HA3 | 1.60 | 0.66 |
| 4:D:387:VAL:HG23 | 4:D:398:VAL:HB | 1.77 | 0.66 |
| 7:G:217:THR:HG23 | 7:G:220:GLU:OE1 | 1.96 | 0.66 |
| 1:O:14:GLN:H | 1:O:35:SER:HB3 | 1.60 | 0.66 |
| 11:L:197:ALA:HB3 | 13:N:520:TRP:CD1 | 2.31 | 0.66 |
| 16:S:343:LEU:HD12 | 16:S:373:TYR:HE1 | 1.60 | 0.66 |
| 3:C:209:ARG:HB3 | 8:H:470:VAL:HB | 1.76 | 0.66 |
| 10:K:275:ARG:HB2 | 10:K:280:SER:HB3 | 1.77 | 0.66 |
| 17:J:307:VAL:HG22 | 17:J:325:ILE:HG12 | 1.77 | 0.66 |
| 5:E:213:ASP:OD1 | 5:E:214:ASP:N | 2.28 | 0.66 |
| 3:C:593:GLN:NE2 | 1:O:156:GLY:O | 2.27 | 0.66 |
| 5:E:339:GLU:OE1 | 5:E:344:ARG:NH1 | 2.28 | 0.66 |
| 13:N:455:LYS:HD2 | 13:N:462:LEU:HD23 | 1.78 | 0.66 |
| 4:D:332:GLN:C | 4:D:334:THR:N | 2.48 | 0.66 |
| 11:L:197:ALA:C | 11:L:199:ASN:H | 1.99 | 0.66 |
| 17:J:380:MET:HB3 | 17:J:422:MET:HG2 | 1.78 | 0.66 |
| 4:D:241:ILE:HG12 | 4:D:272:VAL:HG11 | 1.79 | 0.65 |
| 6:R:100:TYR:HB2 | 6:R:104:CYS:SG | 2.36 | 0.65 |
| 17:J:669:LEU:HD21 | 17:J:674:TRP:HB3 | 1.78 | 0.65 |
| 17:J:516:PRO:HA | 17:J:530:VAL:HA | 1.78 | 0.65 |
| 2:B:1026:GLY:HA3 | 14:P:124:ARG:CZ | 2.27 | 0.65 |
| 4:D:474:LEU:HG | 4:D:1099:LEU:HD21 | 1.78 | 0.65 |
| 4:D:1224:SER:OG | 4:D:1225:ASN:N | 2.28 | 0.65 |
| 16:S:374:ASP:HA | 16:S:403:GLU:HB2 | 1.79 | 0.65 |
| 1:O:106:ALA:HB3 | 1:O:149:LEU:HB2 | 1.79 | 0.65 |
| 2:B:402:THR:HG23 | 2:B:404:ARG:H | 1.62 | 0.65 |
| 3:C:412:ARG:HH11 | 14:P:124:ARG:HH22 | 1.45 | 0.65 |
| 4:D:478:SER:O | 4:D:1086:ARG:NH1 | 2.29 | 0.65 |
| 6:R:143:GLN:HG3 | 16:S:315:THR:HA | 1.77 | 0.64 |
| 16:S:239:LYS:HA | 16:S:242:ARG:CB | 2.27 | 0.64 |
| 2:B:553:VAL:HG22 | 2:B:951:ILE:HD12 | 1.79 | 0.64 |
| 8:H:314:HIS:CG | 8:H:756:THR:HG21 | 2.32 | 0.64 |
| 8:H:430:ASP:HB3 | 17:J:673:GLY:N | 2.13 | 0.64 |
| 9:I:329:ASN:ND2 | 9:I:332:SER:OG | 2.30 | 0.64 |
| 13:N:493:GLU:O | 13:N:497:ARG:NH2 | 2.31 | 0.64 |
| 1:A:220:ARG:NH2 | 16:S:478:MET:SD | 2.71 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:394:ARG:NH1 | 14:P:86:GLU:O | 2.26 | 0.64 |
| 6:R:78:LEU:HD13 | 6:R:128:VAL:HG11 | 1.79 | 0.64 |
| 2:B:331:ARG:NH1 | 2:B:364:THR:OG1 | 2.30 | 0.64 |
| 4:D:57:LEU:HD11 | 4:D:128:VAL:HG22 | 1.80 | 0.64 |
| 6:R:95:LEU:HG | 6:R:153:ILE:HB | 1.78 | 0.64 |
| 2:B:15:PHE:HB2 | 2:B:387:ILE:HD12 | 1.78 | 0.64 |
| 2:B:332:LEU:O | 2:B:336:VAL:HG23 | 1.98 | 0.64 |
| 11:L:85:HIS:NE2 | 12:M:233:ASN:OD1 | 2.27 | 0.64 |
| 3:C:416:ARG:NH2 | 14:P:127:TYR:O | 2.31 | 0.64 |
| 4:D:355:PRO:HD2 | 4:D:389:ILE:HD12 | 1.78 | 0.64 |
| 8:H:345:ARG:O | 8:H:348:LYS:HB3 | 1.97 | 0.64 |
| 16:S:273:TYR:HB2 | 16:S:299:THR:HB | 1.79 | 0.64 |
| 2:B:417:HIS:HB3 | 2:B:421:ILE:HB | 1.79 | 0.64 |
| 4:D:148:GLY:N | 4:D:168:ASN:OD1 | 2.31 | 0.64 |
| 16:S:394:GLN:O | 16:S:398:LEU:HB2 | 1.98 | 0.64 |
| 2:B:725:ILE:HG23 | 2:B:739:VAL:HG22 | 1.79 | 0.64 |
| 1:A:227:ILE:HD11 | 16:S:529:TRP:CH2 | 2.34 | 0.63 |
| 11:L:59:LEU:HD22 | 11:L:87:ARG:HE | 1.64 | 0.63 |
| 11:L:186:VAL:HG12 | 11:L:227:PRO:HA | 1.79 | 0.63 |
| 1:O:43:ASP:O | 1:O:47:ILE:HG13 | 1.99 | 0.63 |
| 6:R:88:ARG:HH22 | 16:S:306:ILE:HG21 | 1.62 | 0.63 |
| 6:R:141:ASP:O | 16:S:313:ARG:HA | 1.97 | 0.63 |
| 4:D:432:PHE:HB2 | 4:D:1123:SER:CB | 2.26 | 0.63 |
| 16:S:302:SER:O | 16:S:319:PRO:HA | 1.98 | 0.63 |
| 17:J:640:LYS:HD3 | 17:J:672:ILE:HD12 | 1.81 | 0.63 |
| 2:B:48:ILE:HG21 | 2:B:340:ILE:HD11 | 1.81 | 0.63 |
| 3:C:533:GLN:OE1 | 4:D:137:ARG:NH2 | 2.27 | 0.63 |
| 16:S:370:VAL:HG13 | 16:S:400:ASP:CG | 2.19 | 0.63 |
| 11:L:196:ASN:HB3 | 11:L:199:ASN:CG | 2.18 | 0.63 |
| 16:S:440:ALA:HA | 16:S:443:TRP:CD1 | 2.34 | 0.63 |
| 17:J:518:LYS:HB3 | 17:J:529:LEU:HB2 | 1.80 | 0.63 |
| 4:D:168:ASN:HB2 | 4:D:171:GLU:HG3 | 1.80 | 0.63 |
| 6:R:143:GLN:HG2 | 16:S:314:ALA:O | 1.99 | 0.63 |
| 6:R:163:ARG:HD2 | 16:S:304:MET:HB2 | 1.79 | 0.63 |
| 17:J:369:MET:HA | 17:J:572:GLY:HA3 | 1.80 | 0.62 |
| 7:G:194:ASP:OD1 | 7:G:199:ARG:NH1 | 2.32 | 0.62 |
| 10:K:148:ASP:OD2 | 10:K:152:ASP:N | 2.28 | 0.62 |
| 10:K:131:PHE:HD2 | 10:K:142:PHE:HB3 | 1.64 | 0.62 |
| 2:B:260:ARG:HH12 | 2:B:277:ASN:HA | 1.64 | 0.62 |
| 8:H:758:ALA:CA | 8:H:763:TRP:HB3 | 2.30 | 0.62 |
| 16:S:203:CYS:HB3 | 16:S:248:ALA:HB1 | 1.80 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:532:THR:HG22 | 3:C:533:GLN:H | 1.64 | 0.62 |
| 4:D:82:LEU:HD21 | 4:D:96:LYS:HA | 1.82 | 0.62 |
| 8:H:63:SER:OG | 8:H:64:ALA:N | 2.32 | 0.62 |
| 8:H:319:PRO:HG2 | 8:H:761:TRP:HD1 | 1.65 | 0.62 |
| 13:N:175:ALA:O | 13:N:198:HIS:NE2 | 2.31 | 0.62 |
| 13:N:180:PRO:HD3 | 13:N:191:LEU:HD21 | 1.81 | 0.62 |
| 1:A:82:GLU:OE1 | 1:A:90:ASN:ND2 | 2.32 | 0.62 |
| 8:H:843:ILE:O | 8:H:844:ILE:C | 2.38 | 0.62 |
| 6:R:163:ARG:H | 16:S:303:GLN:HA | 1.64 | 0.62 |
| 16:S:402:ILE:HG22 | 16:S:450:LEU:HB2 | 1.81 | 0.62 |
| 1:A:220:ARG:HG2 | 16:S:477:PRO:HG2 | 1.82 | 0.62 |
| 3:C:296:TYR:O | 3:C:300:ILE:HG13 | 1.99 | 0.62 |
| 3:C:257:THR:HG23 | 3:C:259:ILE:H | 1.63 | 0.62 |
| 7:G:208:VAL:HG23 | 7:G:209:LYS:H | 1.64 | 0.62 |
| 1:O:58:GLU:HA | 1:O:154:ASN:O | 2.00 | 0.62 |
| 6:R:146:GLY:HA3 | 16:S:211:PHE:CZ | 2.35 | 0.62 |
| 16:S:239:LYS:HA | 16:S:242:ARG:HB2 | 1.82 | 0.62 |
| 16:S:200:LEU:H | 16:S:338:ALA:HA | 1.65 | 0.62 |
| 8:H:483:LYS:O | 8:H:487:ARG:NH1 | 2.32 | 0.62 |
| 2:B:1026:GLY:HA3 | 14:P:124:ARG:NH2 | 2.15 | 0.61 |
| 6:R:160:ASP:HA | 16:S:305:LYS:CB | 2.25 | 0.61 |
| 17:J:516:PRO:HB3 | 17:J:528:VAL:HG13 | 1.82 | 0.61 |
| 2:B:972:GLN:NE2 | 2:B:1011:ASP:OD1 | 2.33 | 0.61 |
| 3:C:621:GLU:OE1 | 10:K:275:ARG:NH1 | 2.32 | 0.61 |
| 4:D:205:ARG:NH1 | 4:D:1138:GLU:OE2 | 2.33 | 0.61 |
| 8:H:376:ARG:HD2 | 8:H:471:GLU:HG3 | 1.82 | 0.61 |
| 13:N:105:LYS:HE3 | 13:N:123:ALA:HB2 | 1.83 | 0.61 |
| 4:D:328:GLU:HB3 | 4:D:329:PRO:HD3 | 1.82 | 0.61 |
| 8:H:758:ALA:CB | 8:H:763:TRP:HB3 | 2.30 | 0.61 |
| 16:S:360:ALA:O | 16:S:364:SER:N | 2.33 | 0.61 |
| 2:B:488:ASN:OD1 | 2:B:489:GLN:N | 2.32 | 0.61 |
| 16:S:392:ILE:O | 16:S:394:GLN:N | 2.34 | 0.61 |
| 16:S:487:ALA:HB1 | 16:S:490:ASP:HB2 | 1.83 | 0.61 |
| 17:J:719:MET:SD | 17:J:721:VAL:HG23 | 2.40 | 0.61 |
| 4:D:432:PHE:CB | 4:D:1123:SER:HB3 | 2.31 | 0.61 |
| 8:H:785:LEU:HA | 8:H:788:LYS:HB3 | 1.82 | 0.61 |
| 12:M:104:ASP:OD2 | 13:N:188:ARG:NH2 | 2.32 | 0.61 |
| 13:N:417:GLU:HG3 | 13:N:475:LEU:HD11 | 1.83 | 0.61 |
| 3:C:168:ILE:HG22 | 3:C:170:SER:H | 1.65 | 0.61 |
| 4:D:474:LEU:HD11 | 4:D:1099:LEU:HD11 | 1.81 | 0.61 |
| 2:B:959:HIS:CD2 | 2:B:977:ARG:HG2 | 2.35 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------|--------|--------------------------|-------------------|
| 16:S:298:TRP:CB | 16:S:301:MET:HG3 | 2.30 | 0.60 |
| 6:F:104:CYS:HB2 | 6:F:147:LEU:HD13 | 1.82 | 0.60 |
| 8:H:282:GLU:HA | 8:H:285:ASN:HD22 | 1.66 | 0.60 |
| 6:R:103:TRP:HZ3 | 6:R:147:LEU:HD11 | 1.66 | 0.60 |
| 3:C:282:ILE:HD11 | 3:C:288:MET:HG3 | 1.84 | 0.60 |
| 3:C:673:TYR:OH | 9:I:95:ARG:NH1 | 2.35 | 0.60 |
| 4:D:426:GLY:O | 4:D:427:THR:OG1 | 2.15 | 0.60 |
| 17:J:526:THR:HB | 17:J:541:SER:O | 2.02 | 0.60 |
| 4:D:1126:ILE:HG23 | 4:D:1127:THR:H | 1.65 | 0.60 |
| 8:H:430:ASP:OD2 | 17:J:671:GLY:N | 2.34 | 0.60 |
| 17:J:273:GLU:HA | 17:J:403:VAL:HG11 | 1.84 | 0.60 |
| 17:J:646:SER:O | 17:J:695:HIS:ND1 | 2.35 | 0.60 |
| 2:B:931:ARG:O | 1:O:47:ILE:HD13 | 2.01 | 0.60 |
| 5:E:464:GLU:OE1 | 7:G:238:ARG:NH1 | 2.33 | 0.60 |
| 4:D:64:THR:OG1 | 4:D:170:ARG:NH2 | 2.34 | 0.60 |
| 16:S:254:ALA:HA | 16:S:537:TYR:HB3 | 1.83 | 0.60 |
| 3:C:122:LEU:HB2 | 3:C:123:PRO:HD2 | 1.84 | 0.60 |
| 9:I:363:ILE:O | 9:I:409:TRP:N | 2.33 | 0.60 |
| 17:J:635:ARG:HG2 | 17:J:636:PRO:HD3 | 1.82 | 0.60 |
| 3:C:256:ARG:NH2 | 8:H:294:ALA:O | 2.35 | 0.60 |
| 3:C:282:ILE:HB | 3:C:286:LYS:HB2 | 1.81 | 0.60 |
| 4:D:329:PRO:O | 4:D:332:GLN:HG2 | 2.01 | 0.60 |
| 4:D:1143:ASP:HA | 4:D:1146:SER:HB2 | 1.84 | 0.60 |
| 13:N:404:HIS:HD2 | 13:N:519:HIS:HB2 | 1.66 | 0.60 |
| 5:E:431:ARG:NH2 | 5:E:470:SER:O | 2.34 | 0.60 |
| 2:B:787:ASP:HB3 | 2:B:807:TYR:HD2 | 1.66 | 0.59 |
| 3:C:99:ILE:HD11 | 3:C:103:GLN:HG2 | 1.84 | 0.59 |
| 5:E:470:SER:OG | 7:G:231:GLU:OE1 | 2.20 | 0.59 |
| 4:D:405:PHE:HB2 | 4:D:422:GLU:HB3 | 1.83 | 0.59 |
| 6:F:94:PRO:HB3 | 6:F:181:MET:HG2 | 1.83 | 0.59 |
| 11:L:252:ILE:HA | 11:L:255:GLU:HB2 | 1.83 | 0.59 |
| 16:S:466:HIS:HD2 | 16:S:510:LYS:HD3 | 1.67 | 0.59 |
| 8:H:485:ARG:HD3 | 8:H:485:ARG:C | 2.22 | 0.59 |
| 16:S:276:THR:HA | 16:S:279:TYR:HD2 | 1.68 | 0.59 |
| 2:B:163:ASP:H | 2:B:166:ALA:HB3 | 1.68 | 0.59 |
| 2:B:742:LEU:HD22 | 2:B:770:SER:HB2 | 1.85 | 0.59 |
| 3:C:381:ARG:HH12 | 3:C:455:ALA:HB2 | 1.66 | 0.59 |
| 4:D:316:GLU:OE2 | 14:P:105:ARG:NH2 | 2.35 | 0.59 |
| 13:N:424:MET:HG3 | 13:N:434:LYS:HG3 | 1.84 | 0.59 |
| 16:S:364:SER:OG | 16:S:365:LYS:NZ | 2.30 | 0.59 |
| 3:C:311:SER:O | 3:C:314:ARG:NH1 | 2.36 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:427:GLU:HA | 9:I:430:GLU:HB2 | 1.84 | 0.59 |
| 16:S:204:PHE:HB3 | 16:S:343:LEU:HD21 | 1.85 | 0.59 |
| 3:C:306:LEU:HD22 | 3:C:328:VAL:HG21 | 1.84 | 0.59 |
| 6:R:143:GLN:HE21 | 16:S:314:ALA:C | 2.06 | 0.59 |
| 17:J:267:VAL:HG23 | 17:J:321:LYS:HE3 | 1.84 | 0.59 |
| 2:B:790:TRP:HE1 | 2:B:802:GLU:HG2 | 1.68 | 0.59 |
| 3:C:398:PRO:HD3 | 3:C:476:ILE:HG12 | 1.85 | 0.59 |
| 4:D:449:HIS:CD2 | 4:D:451:SER:HB2 | 2.38 | 0.59 |
| 5:E:345:ARG:NH2 | 5:E:370:ASP:OD2 | 2.35 | 0.59 |
| 10:K:122:VAL:HG12 | 10:K:124:TYR:H | 1.67 | 0.59 |
| 2:B:1043:VAL:HG23 | 2:B:1053:LEU:HB3 | 1.85 | 0.58 |
| 3:C:419:LEU:O | 3:C:429:LYS:NZ | 2.36 | 0.58 |
| 3:C:504:GLU:HG3 | 14:P:113:ALA:HB1 | 1.85 | 0.58 |
| 4:D:459:GLU:N | 4:D:459:GLU:OE1 | 2.35 | 0.58 |
| 16:S:305:LYS:HE2 | 16:S:306:ILE:O | 2.03 | 0.58 |
| 16:S:348:LEU:HD13 | 16:S:392:ILE:HG21 | 1.85 | 0.58 |
| 1:A:129:ILE:HD12 | 1:A:131:ASP:O | 2.02 | 0.58 |
| 4:D:483:ARG:NH2 | 4:D:924:CYS:SG | 2.76 | 0.58 |
| 16:S:370:VAL:HG13 | 16:S:400:ASP:CB | 2.33 | 0.58 |
| 2:B:792:GLN:HB2 | 2:B:800:ASN:HB3 | 1.85 | 0.58 |
| 7:G:396:ASP:OD1 | 7:G:396:ASP:N | 2.36 | 0.58 |
| 15:Q:62:VAL:HG11 | 15:Q:86:TYR:HD2 | 1.67 | 0.58 |
| 17:J:690:PRO:HB2 | 17:J:694:GLY:HA2 | 1.84 | 0.58 |
| 2:B:1061:ARG:HH12 | 8:H:230:THR:HG23 | 1.68 | 0.58 |
| 4:D:92:HIS:CE1 | 4:D:94:VAL:HB | 2.39 | 0.58 |
| 16:S:298:TRP:HB2 | 16:S:301:MET:HG3 | 1.85 | 0.58 |
| 4:D:227:SER:HA | 4:D:284:SER:HA | 1.83 | 0.58 |
| 13:N:457:GLN:HG3 | 13:N:459:LYS:H | 1.69 | 0.58 |
| 2:B:657:VAL:HG22 | 2:B:850:MET:HB3 | 1.86 | 0.58 |
| 4:D:449:HIS:CE1 | 13:N:92:TRP:HD1 | 2.17 | 0.58 |
| 5:E:95:ASP:OD1 | 5:E:95:ASP:N | 2.36 | 0.58 |
| 8:H:769:LEU:HA | 8:H:772:ARG:HE | 1.69 | 0.58 |
| 9:I:337:ASN:ND2 | 9:I:353:ASP:OD2 | 2.37 | 0.58 |
| 6:R:150:LEU:HD12 | 6:R:164:THR:HG22 | 1.86 | 0.58 |
| 3:C:175:ILE:O | 3:C:179:PHE:N | 2.31 | 0.58 |
| 7:G:189:SER:OG | 7:G:190:GLU:N | 2.37 | 0.58 |
| 13:N:452:GLU:OE2 | 13:N:469:LYS:NZ | 2.34 | 0.58 |
| 1:O:123:LEU:HB3 | 1:O:127:VAL:HG23 | 1.86 | 0.58 |
| 17:J:691:LEU:HD13 | 17:J:692:PRO:HD2 | 1.85 | 0.58 |
| 3:C:280:ILE:HB | 3:C:288:MET:HB2 | 1.86 | 0.58 |
| 3:C:306:LEU:HD21 | 3:C:325:GLU:HG3 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:164:PRO:O | 9:I:165:LYS:HG3 | 2.04 | 0.58 |
| 12:M:155:GLY:H | 12:M:158:GLN:HE22 | 1.51 | 0.58 |
| 14:P:86:GLU:N | 14:P:86:GLU:OE1 | 2.36 | 0.58 |
| 3:C:65:LYS:HB3 | 3:C:68:ILE:HB | 1.84 | 0.58 |
| 16:S:335:LEU:HB2 | 16:S:363:ILE:HG22 | 1.85 | 0.58 |
| 17:J:302:GLY:HA2 | 17:J:320:CYS:HB2 | 1.85 | 0.58 |
| 11:L:151:GLU:HG3 | 11:L:267:TYR:HE2 | 1.68 | 0.57 |
| 11:L:244:ASN:ND2 | 12:M:88:GLN:OE1 | 2.37 | 0.57 |
| 17:J:338:ALA:O | 17:J:343:TYR:N | 2.34 | 0.57 |
| 8:H:801:THR:HG22 | 8:H:802:ILE:H | 1.69 | 0.57 |
| 16:S:345:THR:HG21 | 16:S:377:LEU:HD22 | 1.86 | 0.57 |
| 1:A:21:ARG:NH1 | 1:A:23:ASP:OD1 | 2.38 | 0.57 |
| 3:C:593:GLN:OE1 | 3:C:595:ARG:NE | 2.27 | 0.57 |
| 16:S:199:PRO:HB3 | 16:S:339:LYS:HD2 | 1.87 | 0.57 |
| 16:S:341:PHE:H | 16:S:372:PHE:HB2 | 1.70 | 0.57 |
| 3:C:504:GLU:O | 3:C:508:GLU:HG2 | 2.04 | 0.57 |
| 9:I:116:ILE:HG12 | 9:I:320:ILE:HB | 1.85 | 0.57 |
| 9:I:210:ASP:OD2 | 9:I:457:ARG:NH1 | 2.37 | 0.57 |
| 2:B:892:GLU:O | 7:G:235:ARG:NH2 | 2.36 | 0.57 |
| 16:S:422:ASP:OD1 | 16:S:423:THR:N | 2.36 | 0.57 |
| 2:B:198:VAL:HG21 | 2:B:291:ASP:HB2 | 1.87 | 0.57 |
| 3:C:230:ASN:HB3 | 3:C:233:GLU:HG2 | 1.87 | 0.57 |
| 9:I:81:ALA:HA | 9:I:103:GLU:HB2 | 1.85 | 0.57 |
| 6:R:66:ALA:N | 6:R:69:VAL:O | 2.38 | 0.57 |
| 6:R:160:ASP:CA | 16:S:305:LYS:HB3 | 2.26 | 0.57 |
| 16:S:343:LEU:HD12 | 16:S:373:TYR:CE1 | 2.40 | 0.57 |
| 16:S:500:LEU:HA | 16:S:506:LEU:HD22 | 1.87 | 0.57 |
| 17:J:608:LEU:HD21 | 17:J:721:VAL:HG21 | 1.85 | 0.57 |
| 5:E:119:ARG:NH1 | 5:E:312:GLU:OE1 | 2.32 | 0.57 |
| 16:S:325:LEU:HB3 | 16:S:356:THR:HG21 | 1.86 | 0.57 |
| 16:S:396:TRP:HZ3 | 16:S:412:LEU:HD13 | 1.69 | 0.57 |
| 16:S:435:GLU:HG3 | 16:S:436:ALA:H | 1.69 | 0.57 |
| 17:J:654:ASP:OD1 | 17:J:703:ARG:NE | 2.37 | 0.57 |
| 1:A:29:TYR:HE1 | 1:A:202:GLU:HG2 | 1.70 | 0.57 |
| 2:B:908:SER:HB2 | 2:B:916:VAL:HB | 1.87 | 0.57 |
| 2:B:1047:ARG:NH2 | 2:B:1070:ALA:O | 2.38 | 0.57 |
| 16:S:205:GLY:HA2 | 16:S:347:SER:HB3 | 1.87 | 0.57 |
| 16:S:405:THR:HA | 16:S:454:ASN:H | 1.68 | 0.57 |
| 17:J:272:ILE:HD13 | 17:J:341:PHE:HE2 | 1.70 | 0.57 |
| 2:B:256:CYS:HB3 | 2:B:281:LEU:HB2 | 1.86 | 0.57 |
| 16:S:345:THR:CG2 | 16:S:378:PRO:HD2 | 2.35 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:332:GLN:C | 4:D:334:THR:H | 2.06 | 0.56 |
| 16:S:200:LEU:HD21 | 16:S:263:ALA:N | 2.19 | 0.56 |
| 16:S:387:GLU:O | 16:S:391:LEU:HB3 | 2.05 | 0.56 |
| 1:A:227:ILE:HD11 | 16:S:529:TRP:HH2 | 1.69 | 0.56 |
| 3:C:566:GLU:HG3 | 3:C:568:ILE:H | 1.71 | 0.56 |
| 3:C:8:GLN:HB3 | 4:D:1293:LEU:HD12 | 1.85 | 0.56 |
| 4:D:1156:TRP:HA | 4:D:1159:ARG:HG2 | 1.87 | 0.56 |
| 5:E:217:MET:HG3 | 6:F:84:THR:HG22 | 1.87 | 0.56 |
| 13:N:437:SER:OG | 13:N:438:GLU:OE1 | 2.23 | 0.56 |
| 16:S:255:LEU:HD13 | 16:S:498:ARG:HB2 | 1.88 | 0.56 |
| 17:J:314:ILE:HG22 | 17:J:323:LEU:HD23 | 1.87 | 0.56 |
| 17:J:519:PHE:HE1 | 17:J:549:ILE:HG13 | 1.69 | 0.56 |
| 17:J:586:ILE:O | 17:J:590:GLN:NE2 | 2.34 | 0.56 |
| 1:A:224:ASP:CG | 16:S:478:MET:HB3 | 2.26 | 0.56 |
| 13:N:346:ARG:NH2 | 13:N:353:ASP:OD2 | 2.37 | 0.56 |
| 6:R:175:ASP:O | 6:R:179:ASN:N | 2.38 | 0.56 |
| 3:C:181:THR:HB | 17:J:769:ARG:HH22 | 1.70 | 0.56 |
| 4:D:1170:PHE:HE2 | 4:D:1251:TYR:CD2 | 2.23 | 0.56 |
| 11:L:81:HIS:HE1 | 11:L:232:ASP:OD2 | 1.87 | 0.56 |
| 3:C:140:LEU:HA | 3:C:146:SER:HB2 | 1.88 | 0.56 |
| 4:D:105:TYR:HE1 | 4:D:348:THR:HG22 | 1.71 | 0.56 |
| 10:K:174:VAL:HG13 | 10:K:178:MET:HE2 | 1.86 | 0.56 |
| 13:N:316:ILE:HD13 | 13:N:352:ILE:HD12 | 1.87 | 0.56 |
| 6:R:104:CYS:HB3 | 6:R:108:ILE:HG12 | 1.87 | 0.56 |
| 6:R:136:TYR:OH | 16:S:383:LYS:NZ | 2.27 | 0.56 |
| 16:S:242:ARG:HH21 | 16:S:474:GLU:HG3 | 1.71 | 0.56 |
| 5:E:118:VAL:HB | 5:E:284:LEU:HD12 | 1.88 | 0.56 |
| 10:K:136:LEU:HD23 | 10:K:245:SER:HB2 | 1.86 | 0.56 |
| 2:B:67:LYS:O | 2:B:71:TYR:HB2 | 2.05 | 0.56 |
| 2:B:697:VAL:HA | 2:B:702:PRO:HA | 1.87 | 0.56 |
| 5:E:147:PRO:HG2 | 5:E:402:THR:HA | 1.87 | 0.56 |
| 11:L:132:ASN:ND2 | 11:L:219:ASN:OD1 | 2.35 | 0.56 |
| 16:S:531:VAL:HG12 | 16:S:532:THR:HG23 | 1.88 | 0.56 |
| 2:B:391:ARG:NH2 | 2:B:439:ALA:O | 2.39 | 0.56 |
| 3:C:159:ARG:HA | 17:J:767:PRO:HG2 | 1.87 | 0.56 |
| 3:C:363:LYS:HA | 3:C:368:ARG:HG3 | 1.88 | 0.56 |
| 3:C:546:ASN:OD1 | 3:C:548:ARG:NH2 | 2.38 | 0.56 |
| 1:O:28:HIS:HB3 | 1:O:211:PRO:HG3 | 1.88 | 0.56 |
| 4:D:1163:ILE:HG13 | 4:D:1164:LEU:HD12 | 1.88 | 0.56 |
| 8:H:451:ARG:HG2 | 17:J:680:LEU:HD12 | 1.87 | 0.56 |
| 9:I:215:GLN:HG3 | 9:I:444:LYS:HZ3 | 1.71 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 15:Q:120:ASP:O | 15:Q:122:TRP:HD1 | 1.88 | 0.56 |
| 16:S:276:THR:HA | 16:S:279:TYR:CD2 | 2.41 | 0.56 |
| 16:S:458:LYS:HA | 16:S:471:LEU:HA | 1.87 | 0.56 |
| 2:B:169:TRP:CD2 | 2:B:178:ILE:HD11 | 2.41 | 0.55 |
| 4:D:935:CYS:HG | 5:E:334:TYR:HD1 | 1.54 | 0.55 |
| 4:D:1170:PHE:CZ | 4:D:1174:ALA:HB2 | 2.42 | 0.55 |
| 8:H:487:ARG:HH11 | 8:H:487:ARG:HG2 | 1.71 | 0.55 |
| 9:I:88:ILE:O | 9:I:92:ARG:NH1 | 2.38 | 0.55 |
| 9:I:111:PHE:HE1 | 9:I:325:GLU:HG3 | 1.70 | 0.55 |
| 6:R:83:ILE:HA | 6:R:86:LEU:HD22 | 1.88 | 0.55 |
| 17:J:691:LEU:O | 17:J:692:PRO:C | 2.45 | 0.55 |
| 2:B:961:ARG:NH2 | 2:B:965:HIS:O | 2.38 | 0.55 |
| 2:B:1037:GLU:OE2 | 3:C:102:TYR:OH | 2.23 | 0.55 |
| 4:D:195:ARG:HD2 | 4:D:334:THR:HG23 | 1.89 | 0.55 |
| 16:S:526:ILE:HA | 16:S:529:TRP:CZ2 | 2.42 | 0.55 |
| 3:C:269:LEU:HD12 | 3:C:270:PRO:HD2 | 1.87 | 0.55 |
| 4:D:409:GLN:HG3 | 7:G:222:TRP:CZ2 | 2.42 | 0.55 |
| 4:D:416:SER:OG | 4:D:417:GLU:N | 2.39 | 0.55 |
| 7:G:316:ILE:HG21 | 7:G:327:GLU:HG3 | 1.87 | 0.55 |
| 8:H:79:SER:HA | 8:H:82:ARG:HB2 | 1.89 | 0.55 |
| 9:I:304:ARG:NH1 | 9:I:307:ASP:OD1 | 2.40 | 0.55 |
| 16:S:406:LYS:O | 16:S:410:GLU:N | 2.39 | 0.55 |
| 16:S:478:MET:HE1 | 16:S:529:TRP:CG | 2.42 | 0.55 |
| 17:J:247:LEU:HB3 | 17:J:265:LEU:HB3 | 1.89 | 0.55 |
| 2:B:223:ILE:HB | 2:B:228:GLN:HG3 | 1.88 | 0.55 |
| 3:C:291:ASP:O | 3:C:295:LEU:HD12 | 2.07 | 0.55 |
| 7:G:350:ASP:OD1 | 7:G:351:ILE:N | 2.39 | 0.55 |
| 11:L:273:PHE:O | 11:L:277:ARG:HG3 | 2.05 | 0.55 |
| 12:M:264:ASN:ND2 | 13:N:356:LEU:O | 2.34 | 0.55 |
| 6:R:91:ARG:NH2 | 6:R:93:VAL:O | 2.39 | 0.55 |
| 16:S:361:LEU:HD13 | 16:S:398:LEU:HD22 | 1.88 | 0.55 |
| 2:B:198:VAL:HG23 | 2:B:199:CYS:H | 1.72 | 0.55 |
| 2:B:712:LEU:HD23 | 2:B:717:LEU:HD11 | 1.89 | 0.55 |
| 4:D:313:GLU:OE1 | 14:P:105:ARG:NE | 2.39 | 0.55 |
| 8:H:805:CYS:SG | 8:H:806:ALA:N | 2.79 | 0.55 |
| 9:I:362:ARG:HB3 | 9:I:409:TRP:HB3 | 1.89 | 0.55 |
| 16:S:199:PRO:HB3 | 16:S:339:LYS:CD | 2.37 | 0.55 |
| 3:C:159:ARG:HD2 | 17:J:762:ASP:HB3 | 1.89 | 0.55 |
| 4:D:1075:VAL:HG13 | 4:D:1083:VAL:HG13 | 1.88 | 0.55 |
| 12:M:209:PRO:HG2 | 12:M:216:PRO:HG3 | 1.89 | 0.55 |
| 6:R:143:GLN:HE22 | 16:S:313:ARG:HE | 1.55 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:S:406:LYS:HB3 | 16:S:454:ASN:CG | 2.27 | 0.55 |
| 9:I:169:ASP:OD2 | 9:I:264:GLN:NE2 | 2.34 | 0.55 |
| 2:B:889:GLU:O | 7:G:235:ARG:NH2 | 2.41 | 0.54 |
| 2:B:1044:ARG:NH2 | 2:B:1070:ALA:OXT | 2.41 | 0.54 |
| 3:C:245:VAL:HG21 | 4:D:1229:PRO:HD2 | 1.88 | 0.54 |
| 6:F:95:LEU:HB3 | 6:F:153:ILE:HB | 1.89 | 0.54 |
| 8:H:71:LEU:HA | 8:H:74:MET:HB2 | 1.89 | 0.54 |
| 16:S:240:PHE:HD1 | 16:S:240:PHE:H | 1.55 | 0.54 |
| 16:S:488:SER:OG | 16:S:528:GLN:NE2 | 2.35 | 0.54 |
| 2:B:181:LEU:HG | 2:B:183:LEU:H | 1.73 | 0.54 |
| 2:B:185:SER:HB3 | 2:B:251:PHE:HZ | 1.73 | 0.54 |
| 4:D:1132:LYS:O | 4:D:1136:VAL:HG12 | 2.07 | 0.54 |
| 10:K:184:ARG:HH12 | 10:K:227:ARG:HH11 | 1.54 | 0.54 |
| 6:R:142:MET:HE1 | 16:S:314:ALA:HB3 | 1.86 | 0.54 |
| 16:S:239:LYS:HE2 | 16:S:242:ARG:HH22 | 1.72 | 0.54 |
| 16:S:466:HIS:CD2 | 16:S:510:LYS:HD3 | 2.42 | 0.54 |
| 11:L:242:PHE:O | 11:L:245:ARG:HG2 | 2.08 | 0.54 |
| 16:S:327:LYS:HA | 16:S:330:ILE:HD12 | 1.89 | 0.54 |
| 3:C:121:ARG:HH21 | 4:D:1279:ARG:HB2 | 1.72 | 0.54 |
| 3:C:204:ALA:HB2 | 3:C:262:GLU:HG2 | 1.89 | 0.54 |
| 3:C:454:ARG:HG2 | 3:C:456:PRO:HD2 | 1.88 | 0.54 |
| 8:H:451:ARG:HH22 | 17:J:679:TYR:HD2 | 1.54 | 0.54 |
| 11:L:274:ALA:HA | 11:L:277:ARG:HD2 | 1.88 | 0.54 |
| 16:S:268:LEU:HD22 | 16:S:277:MET:HG2 | 1.88 | 0.54 |
| 17:J:690:PRO:HA | 17:J:695:HIS:O | 2.07 | 0.54 |
| 1:A:9:SER:N | 16:S:511:GLU:OE1 | 2.39 | 0.54 |
| 2:B:590:THR:HG22 | 2:B:628:ARG:HE | 1.71 | 0.54 |
| 3:C:42:THR:HA | 3:C:55:LEU:HB2 | 1.89 | 0.54 |
| 6:F:92:ASN:N | 6:F:92:ASN:OD1 | 2.41 | 0.54 |
| 7:G:304:VAL:HG11 | 7:G:334:MET:HG3 | 1.88 | 0.54 |
| 7:G:350:ASP:OD2 | 7:G:352:ARG:NH1 | 2.41 | 0.54 |
| 8:H:313:ASP:OD2 | 8:H:316:ARG:NH2 | 2.41 | 0.54 |
| 15:Q:62:VAL:HG11 | 15:Q:86:TYR:CD2 | 2.42 | 0.54 |
| 17:J:534:GLN:NE2 | 17:J:564:ALA:O | 2.40 | 0.54 |
| 2:B:383:PRO:HG3 | 2:B:577:VAL:HG21 | 1.89 | 0.54 |
| 3:C:159:ARG:HB2 | 17:J:770:LEU:H | 1.71 | 0.54 |
| 3:C:249:GLU:OE2 | 4:D:1287:ARG:NH1 | 2.41 | 0.54 |
| 3:C:317:PRO:HG2 | 3:C:321:VAL:HG23 | 1.90 | 0.54 |
| 5:E:374:ARG:HE | 5:E:387:VAL:HG22 | 1.72 | 0.54 |
| 8:H:451:ARG:NH2 | 17:J:666:ASP:OD1 | 2.37 | 0.54 |
| 6:R:146:GLY:HA3 | 16:S:211:PHE:CE1 | 2.42 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:S:278:LEU:O | 16:S:282:ASN:ND2 | 2.35 | 0.54 |
| 1:A:229:PHE:CE1 | 1:O:34:LEU:HD21 | 2.43 | 0.54 |
| 2:B:112:THR:HG21 | 2:B:378:LEU:HD22 | 1.89 | 0.54 |
| 11:L:198:VAL:O | 11:L:201:LYS:N | 2.28 | 0.54 |
| 6:R:76:LYS:HG2 | 6:R:78:LEU:HD12 | 1.90 | 0.54 |
| 6:R:87:VAL:HG11 | 16:S:308:LYS:HZ3 | 1.73 | 0.54 |
| 16:S:239:LYS:H | 16:S:242:ARG:HB2 | 1.71 | 0.54 |
| 3:C:312:THR:HG22 | 3:C:312:THR:O | 2.08 | 0.54 |
| 4:D:1224:SER:HB2 | 4:D:1247:GLU:HG2 | 1.90 | 0.54 |
| 8:H:727:ASP:O | 8:H:728:ASP:C | 2.45 | 0.54 |
| 2:B:184:SER:HB3 | 2:B:188:GLY:HA3 | 1.89 | 0.54 |
| 16:S:362:LYS:H | 16:S:362:LYS:HD2 | 1.70 | 0.54 |
| 16:S:371:ILE:HG21 | 16:S:373:TYR:CZ | 2.43 | 0.54 |
| 6:R:83:ILE:HD11 | 6:R:97:ILE:HD13 | 1.89 | 0.54 |
| 6:R:154:SER:H | 6:R:181:MET:CE | 2.20 | 0.54 |
| 16:S:303:GLN:NE2 | 16:S:318:LYS:O | 2.41 | 0.54 |
| 16:S:377:LEU:HB3 | 16:S:381:LEU:HB2 | 1.89 | 0.54 |
| 17:J:586:ILE:HD11 | 17:J:743:ARG:HD3 | 1.89 | 0.54 |
| 3:C:542:LEU:HD13 | 4:D:49:GLN:HG2 | 1.90 | 0.53 |
| 7:G:364:GLU:OE2 | 7:G:368:LYS:NZ | 2.41 | 0.53 |
| 9:I:427:GLU:O | 9:I:431:GLN:N | 2.37 | 0.53 |
| 13:N:431:TYR:O | 13:N:433:GLY:N | 2.40 | 0.53 |
| 1:O:28:HIS:HD2 | 1:O:207:GLY:HA2 | 1.73 | 0.53 |
| 1:O:83:SER:O | 1:O:87:ILE:HG13 | 2.08 | 0.53 |
| 15:Q:134:ARG:NH1 | 15:Q:138:ASP:OD1 | 2.40 | 0.53 |
| 16:S:271:ASP:CG | 16:S:272:ASP:H | 2.11 | 0.53 |
| 16:S:420:GLU:HA | 16:S:432:GLU:HA | 1.90 | 0.53 |
| 3:C:322:MET:O | 3:C:326:LYS:HG2 | 2.09 | 0.53 |
| 8:H:174:ARG:NH2 | 9:I:380:GLU:OE2 | 2.42 | 0.53 |
| 16:S:239:LYS:HE2 | 16:S:242:ARG:NH2 | 2.23 | 0.53 |
| 3:C:208:LEU:HB3 | 3:C:251:VAL:HG13 | 1.91 | 0.53 |
| 3:C:312:THR:HA | 3:C:314:ARG:HH11 | 1.73 | 0.53 |
| 4:D:209:VAL:HG12 | 4:D:210:VAL:HG13 | 1.89 | 0.53 |
| 6:R:82:GLU:O | 6:R:86:LEU:HD13 | 2.08 | 0.53 |
| 16:S:227:HIS:HB3 | 16:S:230:LEU:HB2 | 1.89 | 0.53 |
| 16:S:402:ILE:HG12 | 16:S:403:GLU:N | 2.24 | 0.53 |
| 16:S:463:THR:OG1 | 16:S:466:HIS:ND1 | 2.39 | 0.53 |
| 4:D:155:ASP:OD1 | 4:D:156:PRO:HD2 | 2.09 | 0.53 |
| 8:H:481:GLU:HA | 8:H:484:ILE:HB | 1.90 | 0.53 |
| 8:H:785:LEU:O | 8:H:789:ILE:HG22 | 2.08 | 0.53 |
| 9:I:406:LEU:HG | 9:I:408:THR:HG23 | 1.90 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 10:K:305:ARG:NH2 | 10:K:324:ILE:O | 2.41 | 0.53 |
| 8:H:431:TYR:O | 8:H:432:MET:HB3 | 2.08 | 0.53 |
| 16:S:201:VAL:HG12 | 16:S:340:MET:HB3 | 1.89 | 0.53 |
| 16:S:400:ASP:OD1 | 16:S:400:ASP:N | 2.42 | 0.53 |
| 16:S:450:LEU:HG | 16:S:462:TYR:HB2 | 1.91 | 0.53 |
| 2:B:196:ASP:HB3 | 2:B:201:PRO:HG3 | 1.91 | 0.53 |
| 7:G:206:PRO:HA | 7:G:209:LYS:HD2 | 1.90 | 0.53 |
| 11:L:201:LYS:O | 11:L:203:SER:N | 2.41 | 0.53 |
| 13:N:403:ASP:O | 13:N:519:HIS:ND1 | 2.42 | 0.53 |
| 2:B:1056:PHE:HB2 | 3:C:9:GLN:HB3 | 1.90 | 0.53 |
| 4:D:450:TRP:CD1 | 4:D:454:VAL:HB | 2.44 | 0.53 |
| 8:H:82:ARG:HH12 | 9:I:418:PRO:HB3 | 1.74 | 0.53 |
| 10:K:148:ASP:OD2 | 10:K:153:VAL:HG22 | 2.09 | 0.53 |
| 1:O:28:HIS:CD2 | 1:O:207:GLY:HA2 | 2.43 | 0.53 |
| 16:S:200:LEU:HD23 | 16:S:201:VAL:N | 2.24 | 0.53 |
| 16:S:326:SER:H | 16:S:329:GLU:HB3 | 1.74 | 0.53 |
| 17:J:276:SER:HB3 | 17:J:294:CYS:HB3 | 1.89 | 0.53 |
| 17:J:722:VAL:HG21 | 17:J:746:CYS:SG | 2.49 | 0.53 |
| 1:A:19:GLU:HG2 | 1:A:29:TYR:HE2 | 1.72 | 0.53 |
| 4:D:1152:ARG:HH12 | 8:H:731:TRP:HB3 | 1.73 | 0.53 |
| 12:M:190:VAL:HG12 | 12:M:216:PRO:HA | 1.90 | 0.53 |
| 16:S:241:ILE:O | 16:S:244:PRO:HD3 | 2.09 | 0.53 |
| 16:S:298:TRP:HB3 | 16:S:301:MET:SD | 2.48 | 0.53 |
| 4:D:64:THR:HA | 4:D:147:VAL:HG13 | 1.90 | 0.53 |
| 4:D:1232:LEU:HD22 | 4:D:1264:ASN:HD22 | 1.74 | 0.53 |
| 8:H:495:ASN:HB3 | 8:H:498:PRO:HD2 | 1.90 | 0.53 |
| 8:H:376:ARG:NH2 | 8:H:472:THR:OG1 | 2.42 | 0.52 |
| 10:K:228:LEU:HD12 | 10:K:233:PHE:HE2 | 1.73 | 0.52 |
| 6:R:162:ILE:HG22 | 16:S:301:MET:HB2 | 1.91 | 0.52 |
| 17:J:362:ALA:N | 17:J:551:ASN:HD21 | 2.06 | 0.52 |
| 3:C:141:VAL:O | 3:C:143:CYS:N | 2.42 | 0.52 |
| 4:D:1094:THR:HG22 | 13:N:107:LEU:HD13 | 1.91 | 0.52 |
| 1:O:98:SER:HB2 | 1:O:127:VAL:HG12 | 1.90 | 0.52 |
| 17:J:651:LEU:HD13 | 17:J:665:LEU:HD22 | 1.91 | 0.52 |
| 17:J:653:SER:O | 17:J:731:GLN:NE2 | 2.40 | 0.52 |
| 3:C:180:THR:OG1 | 3:C:181:THR:N | 2.41 | 0.52 |
| 2:B:1024:ILE:HG21 | 3:C:423:ILE:HD11 | 1.90 | 0.52 |
| 6:F:87:VAL:O | 6:F:91:ARG:NH1 | 2.43 | 0.52 |
| 13:N:504:ASP:N | 13:N:504:ASP:OD1 | 2.42 | 0.52 |
| 12:M:188:TRP:HB2 | 12:M:201:VAL:HG12 | 1.92 | 0.52 |
| 12:M:196:LYS:HB3 | 12:M:265:LEU:HD23 | 1.92 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------|--------|--------------------------|-------------------|
| 17:J:285:PHE:CD2 | 17:J:306:VAL:HG23 | 2.45 | 0.52 |
| 1:A:222:LEU:O | 1:A:226:LEU:HG | 2.10 | 0.52 |
| 3:C:175:ILE:HG13 | 3:C:176:PRO:HD3 | 1.90 | 0.52 |
| 4:D:491:LEU:O | 13:N:383:ARG:NH1 | 2.43 | 0.52 |
| 8:H:775:ARG:NH2 | 8:H:778:SER:O | 2.43 | 0.52 |
| 11:L:110:VAL:O | 11:L:112:ARG:N | 2.43 | 0.52 |
| 11:L:197:ALA:O | 11:L:199:ASN:N | 2.41 | 0.52 |
| 12:M:166:SER:HB3 | 12:M:168:PRO:HD2 | 1.91 | 0.52 |
| 6:R:96:ILE:HD11 | 6:R:152:PHE:CE1 | 2.45 | 0.52 |
| 17:J:669:LEU:HD23 | 17:J:674:TRP:HE3 | 1.75 | 0.52 |
| 4:D:1053:LEU:HD11 | 13:N:288:LEU:HB3 | 1.91 | 0.52 |
| 5:E:105:CYS:HB3 | 5:E:246:PHE:HA | 1.91 | 0.52 |
| 8:H:109:HIS:CE1 | 8:H:142:THR:HA | 2.45 | 0.52 |
| 10:K:180:ASP:OD1 | 10:K:180:ASP:N | 2.36 | 0.52 |
| 6:R:139:ALA:O | 6:R:144:VAL:HB | 2.10 | 0.52 |
| 16:S:200:LEU:HD21 | 16:S:263:ALA:H | 1.74 | 0.52 |
| 2:B:610:MET:HE3 | 2:B:610:MET:HA | 1.92 | 0.52 |
| 4:D:1156:TRP:HE3 | 4:D:1159:ARG:HD3 | 1.73 | 0.52 |
| 9:I:445:GLN:HG3 | 9:I:446:ASP:N | 2.24 | 0.52 |
| 13:N:421:LEU:HD23 | 13:N:484:ARG:HH11 | 1.73 | 0.52 |
| 2:B:1012:HIS:HB3 | 2:B:1015:ALA:HB3 | 1.92 | 0.52 |
| 2:B:1015:ALA:O | 2:B:1019:VAL:HG12 | 2.10 | 0.52 |
| 3:C:44:HIS:CD2 | 3:C:46:LYS:H | 2.28 | 0.52 |
| 4:D:428:SER:O | 4:D:428:SER:OG | 2.28 | 0.52 |
| 4:D:454:VAL:HG22 | 4:D:468:LEU:HG | 1.91 | 0.52 |
| 8:H:802:ILE:HG13 | 8:H:803:GLY:H | 1.75 | 0.52 |
| 11:L:104:GLY:O | 11:L:105:LEU:HD23 | 2.10 | 0.52 |
| 12:M:119:TYR:HB2 | 12:M:128:PHE:CD1 | 2.45 | 0.52 |
| 16:S:463:THR:HG1 | 16:S:466:HIS:HD1 | 1.55 | 0.52 |
| 17:J:703:ARG:O | 17:J:707:VAL:HG22 | 2.09 | 0.52 |
| 6:F:114:LEU:HD11 | 6:F:150:LEU:HD21 | 1.92 | 0.51 |
| 10:K:152:ASP:HB3 | 10:K:184:ARG:HG3 | 1.91 | 0.51 |
| 12:M:149:GLY:HA2 | 12:M:247:VAL:HG12 | 1.93 | 0.51 |
| 16:S:385:GLY:HA2 | 16:S:412:LEU:HA | 1.92 | 0.51 |
| 16:S:440:ALA:HA | 16:S:443:TRP:HD1 | 1.75 | 0.51 |
| 2:B:463:ARG:HG3 | 2:B:464:VAL:HG23 | 1.92 | 0.51 |
| 4:D:187:LYS:O | 4:D:187:LYS:HG3 | 2.09 | 0.51 |
| 4:D:262:THR:OG1 | 4:D:263:ARG:N | 2.43 | 0.51 |
| 8:H:281:THR:O | 8:H:285:ASN:ND2 | 2.43 | 0.51 |
| 13:N:434:LYS:HG2 | 13:N:436:LEU:HG | 1.93 | 0.51 |
| 6:R:103:TRP:CG | 16:S:241:ILE:HG21 | 2.45 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:161:GLU:HB3 | 2:B:169:TRP:NE1 | 2.24 | 0.51 |
| 2:B:648:GLU:OE1 | 2:B:883:ARG:NH2 | 2.39 | 0.51 |
| 7:G:318:LYS:NZ | 7:G:322:GLU:OE2 | 2.43 | 0.51 |
| 8:H:328:VAL:HG11 | 8:H:357:LEU:HD11 | 1.92 | 0.51 |
| 8:H:395:GLN:HB3 | 8:H:396:PRO:HD3 | 1.92 | 0.51 |
| 8:H:396:PRO:HG3 | 8:H:797:GLY:H | 1.75 | 0.51 |
| 12:M:164:PHE:HD2 | 12:M:170:PHE:HB2 | 1.75 | 0.51 |
| 13:N:457:GLN:OE1 | 13:N:460:LYS:N | 2.44 | 0.51 |
| 16:S:299:THR:O | 16:S:301:MET:HG2 | 2.09 | 0.51 |
| 16:S:334:VAL:HG12 | 16:S:335:LEU:HG | 1.93 | 0.51 |
| 3:C:526:ASP:OD1 | 3:C:526:ASP:N | 2.40 | 0.51 |
| 10:K:276:ASP:N | 10:K:276:ASP:OD1 | 2.43 | 0.51 |
| 17:J:665:LEU:HA | 17:J:668:MET:HG3 | 1.92 | 0.51 |
| 4:D:1175:GLU:OE2 | 8:H:746:ARG:HD3 | 2.10 | 0.51 |
| 10:K:130:GLU:OE2 | 10:K:144:ARG:NH2 | 2.39 | 0.51 |
| 13:N:213:VAL:HG12 | 13:N:215:ARG:HB2 | 1.93 | 0.51 |
| 13:N:424:MET:HB3 | 13:N:434:LYS:HE3 | 1.92 | 0.51 |
| 1:O:135:HIS:NE2 | 1:O:137:ALA:O | 2.44 | 0.51 |
| 17:J:351:ILE:HG12 | 17:J:441:ILE:HB | 1.92 | 0.51 |
| 1:A:144:ASP:N | 1:A:144:ASP:OD1 | 2.42 | 0.51 |
| 4:D:76:GLU:OE1 | 7:G:234:SER:OG | 2.29 | 0.51 |
| 4:D:167:SER:OG | 4:D:177:GLU:OE1 | 2.29 | 0.51 |
| 4:D:362:PHE:HB3 | 4:D:387:VAL:HG12 | 1.92 | 0.51 |
| 16:S:358:MET:HA | 16:S:361:LEU:HG | 1.92 | 0.51 |
| 8:H:725:ASN:O | 8:H:727:ASP:N | 2.44 | 0.51 |
| 8:H:791:SER:O | 8:H:795:GLU:HG2 | 2.11 | 0.51 |
| 9:I:293:HIS:CD2 | 9:I:330:TYR:H | 2.29 | 0.51 |
| 14:P:131:LYS:O | 14:P:134:HIS:N | 2.43 | 0.51 |
| 16:S:453:THR:HG22 | 16:S:455:GLY:H | 1.76 | 0.51 |
| 17:J:429:LEU:HD23 | 17:J:467:LYS:HB3 | 1.92 | 0.51 |
| 2:B:125:GLN:NE2 | 2:B:396:LEU:O | 2.38 | 0.51 |
| 3:C:581:PHE:HD2 | 3:C:602:LEU:HD13 | 1.75 | 0.51 |
| 5:E:102:PRO:HB3 | 5:E:244:ARG:HG3 | 1.93 | 0.51 |
| 13:N:172:ARG:HG3 | 13:N:173:HIS:H | 1.75 | 0.51 |
| 6:R:103:TRP:CZ3 | 6:R:147:LEU:HD11 | 2.45 | 0.51 |
| 16:S:308:LYS:HB3 | 16:S:313:ARG:O | 2.11 | 0.51 |
| 8:H:435:TYR:HA | 8:H:438:GLU:OE1 | 2.11 | 0.51 |
| 13:N:255:HIS:CD2 | 13:N:256:PRO:HD2 | 2.45 | 0.51 |
| 16:S:304:MET:HE1 | 16:S:316:THR:HA | 1.92 | 0.51 |
| 1:A:15:TRP:HA | 1:A:33:ILE:O | 2.11 | 0.51 |
| 4:D:228:VAL:HG21 | 4:D:244:LEU:HD21 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:1111:ASP:OD1 | 4:D:1111:ASP:N | 2.43 | 0.51 |
| 6:R:117:LEU:HD21 | 6:R:174:ARG:NE | 2.27 | 0.51 |
| 6:R:142:MET:HB2 | 6:R:144:VAL:HG23 | 1.92 | 0.51 |
| 16:S:291:VAL:CG2 | 16:S:293:VAL:HG13 | 2.41 | 0.51 |
| 17:J:521:LEU:HD21 | 17:J:545:GLY:H | 1.76 | 0.51 |
| 17:J:687:TYR:C | 17:J:689:PRO:HD3 | 2.31 | 0.51 |
| 7:G:257:VAL:HG22 | 10:K:323:TRP:HZ2 | 1.75 | 0.50 |
| 8:H:225:HIS:HB2 | 8:H:253:VAL:HG21 | 1.94 | 0.50 |
| 16:S:345:THR:HG21 | 16:S:377:LEU:CD2 | 2.41 | 0.50 |
| 1:A:112:GLY:O | 1:A:114:ARG:N | 2.44 | 0.50 |
| 4:D:222:THR:O | 4:D:263:ARG:NH2 | 2.43 | 0.50 |
| 4:D:916:THR:HG22 | 4:D:918:LEU:HB2 | 1.94 | 0.50 |
| 13:N:425:GLU:OE2 | 13:N:484:ARG:HG2 | 2.11 | 0.50 |
| 13:N:425:GLU:OE1 | 13:N:485:GLN:NE2 | 2.44 | 0.50 |
| 15:Q:62:VAL:HA | 15:Q:65:TRP:CE2 | 2.46 | 0.50 |
| 16:S:244:PRO:HD2 | 16:S:485:MET:O | 2.11 | 0.50 |
| 16:S:431:PHE:O | 16:S:432:GLU:HG2 | 2.11 | 0.50 |
| 17:J:584:GLU:O | 17:J:743:ARG:NH1 | 2.44 | 0.50 |
| 3:C:144:ASP:CG | 3:C:326:LYS:HG3 | 2.32 | 0.50 |
| 11:L:93:LEU:O | 11:L:97:ILE:HG12 | 2.12 | 0.50 |
| 11:L:199:ASN:HA | 13:N:520:TRP:CZ2 | 2.46 | 0.50 |
| 15:Q:57:LEU:O | 15:Q:61:GLY:N | 2.44 | 0.50 |
| 15:Q:68:TRP:HB2 | 15:Q:131:TYR:HE2 | 1.76 | 0.50 |
| 16:S:201:VAL:HG11 | 16:S:342:TYR:CE1 | 2.47 | 0.50 |
| 16:S:238:ASP:HB2 | 16:S:240:PHE:CE1 | 2.47 | 0.50 |
| 16:S:485:MET:HG3 | 16:S:528:GLN:HG2 | 1.92 | 0.50 |
| 17:J:545:GLY:O | 17:J:549:ILE:HG12 | 2.11 | 0.50 |
| 2:B:738:LEU:HD11 | 2:B:777:LEU:HD13 | 1.94 | 0.50 |
| 4:D:926:PHE:HB2 | 4:D:1106:ILE:HG13 | 1.93 | 0.50 |
| 9:I:140:LEU:HD13 | 9:I:141:PRO:HA | 1.93 | 0.50 |
| 13:N:546:GLU:HB3 | 15:Q:116:TRP:CD2 | 2.46 | 0.50 |
| 6:R:87:VAL:HG11 | 16:S:308:LYS:NZ | 2.26 | 0.50 |
| 16:S:267:LYS:HD2 | 16:S:292:CYS:H | 1.77 | 0.50 |
| 2:B:1001:ILE:O | 2:B:1005:MET:HG3 | 2.12 | 0.50 |
| 8:H:827:THR:OG1 | 8:H:828:THR:N | 2.43 | 0.50 |
| 13:N:338:ARG:NH2 | 13:N:371:ASP:OD2 | 2.33 | 0.50 |
| 1:O:100:LEU:HD13 | 1:O:126:TYR:CE2 | 2.46 | 0.50 |
| 17:J:354:THR:OG1 | 17:J:465:GLN:OE1 | 2.29 | 0.50 |
| 5:E:352:ARG:NH1 | 5:E:379:ALA:O | 2.45 | 0.50 |
| 8:H:218:GLU:HA | 8:H:221:LYS:HE2 | 1.94 | 0.50 |
| 9:I:252:ASP:N | 9:I:252:ASP:OD1 | 2.43 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:L:100:THR:OG1 | 11:L:101:GLU:N | 2.45 | 0.50 |
| 16:S:253:ILE:HD11 | 16:S:284:LYS:HD3 | 1.94 | 0.50 |
| 17:J:516:PRO:HD3 | 17:J:553:LEU:HD11 | 1.93 | 0.50 |
| 2:B:169:TRP:HB3 | 2:B:180:ILE:HD13 | 1.93 | 0.50 |
| 2:B:228:GLN:NE2 | 2:B:229:GLN:OE1 | 2.45 | 0.50 |
| 2:B:787:ASP:HB3 | 2:B:807:TYR:CD2 | 2.46 | 0.50 |
| 4:D:1233:ILE:HB | 4:D:1237:ARG:HG2 | 1.93 | 0.50 |
| 4:D:1247:GLU:N | 4:D:1247:GLU:OE1 | 2.45 | 0.50 |
| 2:B:249:LYS:HA | 2:B:253:GLN:HB3 | 1.93 | 0.50 |
| 2:B:984:ARG:HB2 | 3:C:375:ARG:HD2 | 1.93 | 0.50 |
| 3:C:73:ASN:OD1 | 3:C:73:ASN:N | 2.45 | 0.50 |
| 4:D:1077:ILE:HG22 | 4:D:1079:GLN:HG3 | 1.93 | 0.50 |
| 8:H:379:ARG:NH1 | 8:H:481:GLU:OE2 | 2.44 | 0.50 |
| 13:N:255:HIS:CE1 | 13:N:341:PHE:HE1 | 2.30 | 0.50 |
| 1:A:164:ASN:O | 1:A:169:SER:OG | 2.23 | 0.50 |
| 2:B:529:SER:HB2 | 2:B:567:LEU:HD22 | 1.94 | 0.50 |
| 8:H:395:GLN:OE1 | 8:H:396:PRO:HD3 | 2.11 | 0.50 |
| 10:K:317:ASP:O | 10:K:321:SER:OG | 2.29 | 0.50 |
| 11:L:180:SER:OG | 11:L:235:GLU:OE1 | 2.29 | 0.50 |
| 13:N:255:HIS:HE1 | 13:N:341:PHE:HE1 | 1.59 | 0.50 |
| 1:A:227:ILE:HG22 | 1:A:228:PRO:HD3 | 1.94 | 0.49 |
| 2:B:824:HIS:NE2 | 2:B:868:GLU:OE1 | 2.38 | 0.49 |
| 4:D:1191:LYS:HE2 | 4:D:1191:LYS:HA | 1.93 | 0.49 |
| 5:E:468:VAL:HG11 | 7:G:231:GLU:HB3 | 1.94 | 0.49 |
| 8:H:838:PRO:C | 8:H:840:TYR:H | 2.14 | 0.49 |
| 9:I:134:LEU:HD12 | 9:I:175:LEU:HB3 | 1.93 | 0.49 |
| 11:L:108:GLU:HB3 | 11:L:112:ARG:HH12 | 1.77 | 0.49 |
| 16:S:239:LYS:HA | 16:S:242:ARG:HB3 | 1.93 | 0.49 |
| 1:A:35:SER:HB2 | 1:A:36:PRO:HD2 | 1.94 | 0.49 |
| 8:H:463:GLY:HA3 | 8:H:466:TYR:CE1 | 2.46 | 0.49 |
| 8:H:764:THR:HA | 8:H:767:ARG:HB2 | 1.93 | 0.49 |
| 16:S:305:LYS:HG2 | 16:S:317:VAL:HB | 1.94 | 0.49 |
| 16:S:403:GLU:HA | 16:S:451:PHE:O | 2.12 | 0.49 |
| 17:J:376:ARG:HE | 17:J:388:HIS:HB2 | 1.78 | 0.49 |
| 1:A:98:SER:HB2 | 1:A:127:VAL:HG22 | 1.94 | 0.49 |
| 1:A:116:VAL:HG12 | 1:A:136:ILE:HG23 | 1.93 | 0.49 |
| 2:B:332:LEU:HD11 | 2:B:356:VAL:HG13 | 1.94 | 0.49 |
| 4:D:1148:ASN:O | 4:D:1152:ARG:HG2 | 2.13 | 0.49 |
| 9:I:365:LEU:HG | 9:I:408:THR:HB | 1.93 | 0.49 |
| 12:M:187:VAL:HG12 | 12:M:220:LEU:HB3 | 1.94 | 0.49 |
| 16:S:377:LEU:HG | 16:S:408:GLU:HG2 | 1.93 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------|--------|--------------------------|-------------------|
| 4:D:1240:ARG:HH21 | 8:H:309:LEU:HG | 1.78 | 0.49 |
| 9:I:304:ARG:HD2 | 14:P:100:LYS:HG2 | 1.94 | 0.49 |
| 9:I:426:LYS:O | 9:I:429:GLN:HG2 | 2.11 | 0.49 |
| 10:K:184:ARG:N | 10:K:225:ASN:OD1 | 2.35 | 0.49 |
| 11:L:267:TYR:CZ | 11:L:271:LYS:HD2 | 2.48 | 0.49 |
| 6:R:162:ILE:HG22 | 16:S:301:MET:CB | 2.42 | 0.49 |
| 16:S:201:VAL:HG11 | 16:S:342:TYR:CZ | 2.48 | 0.49 |
| 17:J:505:PHE:HD2 | 17:J:553:LEU:HB3 | 1.77 | 0.49 |
| 4:D:430:LEU:CD1 | 4:D:1122:ARG:HD3 | 2.42 | 0.49 |
| 9:I:267:CYS:SG | 9:I:282:ASN:HB3 | 2.52 | 0.49 |
| 10:K:211:GLU:N | 10:K:211:GLU:OE1 | 2.46 | 0.49 |
| 17:J:687:TYR:HB2 | 17:J:688:TYR:CZ | 2.48 | 0.49 |
| 7:G:245:THR:HG22 | 7:G:269:THR:HG21 | 1.93 | 0.49 |
| 7:G:297:MET:HG2 | 7:G:316:ILE:HD11 | 1.94 | 0.49 |
| 8:H:386:ALA:O | 8:H:389:THR:OG1 | 2.28 | 0.49 |
| 8:H:474:PHE:CE2 | 8:H:477:ARG:HA | 2.47 | 0.49 |
| 10:K:184:ARG:HD2 | 10:K:226:ARG:O | 2.13 | 0.49 |
| 1:O:13:LEU:HA | 1:O:35:SER:OG | 2.12 | 0.49 |
| 17:J:272:ILE:HG12 | 17:J:403:VAL:HG13 | 1.95 | 0.49 |
| 3:C:389:SER:OG | 14:P:167:GLU:OE1 | 2.30 | 0.49 |
| 8:H:485:ARG:NH2 | 8:H:773:PRO:HA | 2.27 | 0.49 |
| 9:I:412:ARG:O | 9:I:412:ARG:NH1 | 2.41 | 0.49 |
| 6:R:141:ASP:OD1 | 16:S:313:ARG:HA | 2.12 | 0.49 |
| 6:R:163:ARG:HD3 | 16:S:302:SER:HB3 | 1.94 | 0.49 |
| 2:B:129:SER:O | 2:B:133:TYR:OH | 2.25 | 0.49 |
| 4:D:1213:THR:O | 4:D:1213:THR:OG1 | 2.30 | 0.49 |
| 4:D:1226:VAL:HG13 | 8:H:300:VAL:HG13 | 1.94 | 0.49 |
| 8:H:451:ARG:HD2 | 17:J:680:LEU:HB2 | 1.94 | 0.49 |
| 12:M:120:ASN:HB2 | 12:M:123:ASN:O | 2.12 | 0.49 |
| 16:S:204:PHE:HD2 | 16:S:357:THR:HG23 | 1.78 | 0.49 |
| 16:S:453:THR:HG22 | 16:S:455:GLY:N | 2.28 | 0.49 |
| 16:S:478:MET:HE1 | 16:S:529:TRP:CD2 | 2.48 | 0.49 |
| 2:B:330:VAL:O | 2:B:333:GLU:HG3 | 2.12 | 0.49 |
| 11:L:107:LEU:HD23 | 11:L:108:GLU:H | 1.78 | 0.49 |
| 1:O:100:LEU:HD12 | 1:O:101:TYR:H | 1.78 | 0.49 |
| 3:C:3:ASP:OD1 | 3:C:3:ASP:N | 2.37 | 0.49 |
| 3:C:122:LEU:HD21 | 4:D:1279:ARG:HD3 | 1.94 | 0.49 |
| 8:H:314:HIS:NE2 | 8:H:753:ASN:HA | 2.27 | 0.49 |
| 8:H:427:TYR:HA | 8:H:834:ARG:CZ | 2.43 | 0.49 |
| 8:H:808:ILE:HG21 | 8:H:824:ILE:HD13 | 1.94 | 0.49 |
| 15:Q:79:TRP:NE1 | 15:Q:83:GLN:OE1 | 2.40 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:R:91:ARG:HD2 | 6:R:126:MET:HE1 | 1.94 | 0.49 |
| 16:S:370:VAL:HG11 | 16:S:401:VAL:HG23 | 1.93 | 0.49 |
| 17:J:306:VAL:HG13 | 17:J:306:VAL:O | 2.13 | 0.49 |
| 1:A:74:TYR:HE2 | 2:B:809:SER:HG | 1.60 | 0.48 |
| 3:C:153:LYS:HZ1 | 8:H:454:LYS:H | 1.61 | 0.48 |
| 3:C:160:LEU:H | 17:J:767:PRO:HG2 | 1.78 | 0.48 |
| 4:D:932:SER:O | 5:E:335:SER:OG | 2.27 | 0.48 |
| 7:G:356:ASP:OD1 | 7:G:356:ASP:N | 2.44 | 0.48 |
| 8:H:493:LEU:HB3 | 8:H:514:GLU:HB2 | 1.95 | 0.48 |
| 2:B:263:ARG:NH2 | 2:B:280:PHE:O | 2.46 | 0.48 |
| 4:D:370:THR:HG21 | 4:D:380:LEU:HD12 | 1.95 | 0.48 |
| 4:D:1227:PHE:CZ | 4:D:1241:THR:HG21 | 2.49 | 0.48 |
| 16:S:202:CYS:O | 16:S:342:TYR:N | 2.44 | 0.48 |
| 16:S:202:CYS:HB3 | 16:S:265:MET:CG | 2.43 | 0.48 |
| 16:S:450:LEU:HD11 | 16:S:462:TYR:HD2 | 1.78 | 0.48 |
| 1:A:91:LEU:HD12 | 1:A:136:ILE:HD11 | 1.93 | 0.48 |
| 2:B:861:MET:HG2 | 4:D:146:LEU:HD21 | 1.95 | 0.48 |
| 3:C:479:HIS:HE1 | 4:D:43:LYS:HE2 | 1.77 | 0.48 |
| 4:D:298:CYS:SG | 4:D:299:ARG:N | 2.86 | 0.48 |
| 6:F:143:GLN:O | 6:F:163:ARG:NH1 | 2.39 | 0.48 |
| 4:D:299:ARG:HH21 | 4:D:311:LEU:HB3 | 1.78 | 0.48 |
| 4:D:429:THR:O | 4:D:430:LEU:HG | 2.14 | 0.48 |
| 4:D:1058:CYS:SG | 4:D:1059:GLU:N | 2.86 | 0.48 |
| 4:D:1262:SER:O | 4:D:1265:THR:OG1 | 2.25 | 0.48 |
| 9:I:446:ASP:O | 9:I:449:ILE:HG22 | 2.13 | 0.48 |
| 6:R:103:TRP:CZ2 | 16:S:215:GLY:HA2 | 2.47 | 0.48 |
| 16:S:207:ALA:HB2 | 16:S:264:PHE:CZ | 2.49 | 0.48 |
| 16:S:239:LYS:CA | 16:S:242:ARG:HB2 | 2.42 | 0.48 |
| 16:S:327:LYS:HE3 | 16:S:355:LYS:HB3 | 1.95 | 0.48 |
| 16:S:345:THR:HG23 | 16:S:381:LEU:HD23 | 1.96 | 0.48 |
| 17:J:364:HIS:HA | 17:J:367:LYS:HE2 | 1.94 | 0.48 |
| 17:J:552:ILE:O | 17:J:556:VAL:HG12 | 2.14 | 0.48 |
| 4:D:1237:ARG:NH1 | 8:H:305:GLU:OE2 | 2.30 | 0.48 |
| 13:N:251:ASP:OD2 | 13:N:258:ARG:NH1 | 2.38 | 0.48 |
| 2:B:229:GLN:HG3 | 2:B:239:PHE:HA | 1.96 | 0.48 |
| 4:D:157:GLN:O | 4:D:157:GLN:HG2 | 2.13 | 0.48 |
| 16:S:363:ILE:HA | 16:S:366:LYS:HG2 | 1.96 | 0.48 |
| 17:J:282:GLY:H | 17:J:303:ALA:HA | 1.77 | 0.48 |
| 3:C:239:ARG:HG3 | 3:C:239:ARG:HH11 | 1.79 | 0.48 |
| 4:D:231:GLN:HA | 4:D:231:GLN:NE2 | 2.29 | 0.48 |
| 7:G:257:VAL:HG22 | 10:K:323:TRP:CZ2 | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 12:M:181:LEU:HB2 | 12:M:202:LYS:HD3 | 1.95 | 0.48 |
| 16:S:274:GLY:O | 16:S:277:MET:HB3 | 2.12 | 0.48 |
| 17:J:643:THR:O | 17:J:695:HIS:ND1 | 2.47 | 0.48 |
| 1:A:188:SER:HB2 | 7:G:351:ILE:HD13 | 1.96 | 0.48 |
| 2:B:823:ARG:NH2 | 2:B:868:GLU:OE2 | 2.36 | 0.48 |
| 2:B:998:VAL:HG12 | 3:C:508:GLU:HB3 | 1.96 | 0.48 |
| 3:C:107:ILE:HG12 | 3:C:269:LEU:HB3 | 1.95 | 0.48 |
| 9:I:347:SER:HB3 | 9:I:350:ASN:HB3 | 1.96 | 0.48 |
| 16:S:224:HIS:HA | 16:S:227:HIS:HE1 | 1.79 | 0.48 |
| 16:S:475:ASP:OD1 | 16:S:477:PRO:HD3 | 2.13 | 0.48 |
| 3:C:230:ASN:O | 3:C:234:ASP:N | 2.44 | 0.48 |
| 11:L:197:ALA:C | 11:L:199:ASN:N | 2.64 | 0.48 |
| 6:R:142:MET:HE3 | 16:S:314:ALA:CB | 2.38 | 0.48 |
| 17:J:480:LYS:HZ2 | 17:J:500:VAL:HB | 1.78 | 0.48 |
| 1:A:220:ARG:HA | 1:A:220:ARG:HD2 | 1.61 | 0.48 |
| 2:B:184:SER:HB3 | 2:B:188:GLY:CA | 2.44 | 0.48 |
| 3:C:67:GLY:HA2 | 3:C:94:PHE:HB3 | 1.95 | 0.48 |
| 4:D:92:HIS:HE1 | 4:D:94:VAL:HB | 1.77 | 0.48 |
| 9:I:431:GLN:O | 9:I:435:ILE:N | 2.43 | 0.48 |
| 10:K:252:ARG:NH1 | 10:K:253:ALA:O | 2.47 | 0.48 |
| 13:N:159:ASP:OD1 | 13:N:159:ASP:N | 2.46 | 0.48 |
| 13:N:404:HIS:CD2 | 13:N:519:HIS:HB2 | 2.49 | 0.48 |
| 14:P:126:GLU:OE2 | 14:P:130:LYS:NZ | 2.46 | 0.48 |
| 17:J:744:GLU:O | 17:J:747:ARG:HG3 | 2.14 | 0.48 |
| 2:B:560:LYS:HG3 | 2:B:645:VAL:HG13 | 1.96 | 0.47 |
| 3:C:483:CYS:O | 3:C:487:ASN:N | 2.47 | 0.47 |
| 4:D:322:ALA:O | 4:D:326:ILE:HG13 | 2.14 | 0.47 |
| 4:D:1098:THR:O | 4:D:1098:THR:OG1 | 2.32 | 0.47 |
| 8:H:113:VAL:HA | 8:H:116:VAL:HG12 | 1.96 | 0.47 |
| 16:S:263:ALA:HB1 | 16:S:287:GLN:HB3 | 1.96 | 0.47 |
| 16:S:400:ASP:O | 16:S:402:ILE:N | 2.46 | 0.47 |
| 16:S:227:HIS:ND1 | 16:S:230:LEU:HD22 | 2.29 | 0.47 |
| 17:J:400:PRO:HB2 | 17:J:404:LEU:HD13 | 1.96 | 0.47 |
| 3:C:637:TYR:HE2 | 3:C:639:ILE:HD11 | 1.79 | 0.47 |
| 4:D:85:HIS:ND1 | 4:D:90:ASN:OD1 | 2.47 | 0.47 |
| 8:H:342:ARG:HH21 | 8:H:770:LYS:NZ | 2.12 | 0.47 |
| 9:I:421:GLU:HA | 9:I:425:ALA:HB3 | 1.96 | 0.47 |
| 10:K:228:LEU:HD12 | 10:K:233:PHE:CE2 | 2.49 | 0.47 |
| 13:N:311:ASN:OD1 | 13:N:358:GLN:NE2 | 2.48 | 0.47 |
| 16:S:318:LYS:HE3 | 16:S:318:LYS:HB2 | 1.26 | 0.47 |
| 16:S:478:MET:N | 16:S:483:GLN:HE22 | 2.12 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:364:HIS:O | 17:J:367:LYS:HG2 | 2.14 | 0.47 |
| 17:J:583:CYS:N | 17:J:596:VAL:O | 2.46 | 0.47 |
| 1:A:224:ASP:OD1 | 16:S:478:MET:HB3 | 2.14 | 0.47 |
| 1:A:227:ILE:HD12 | 1:A:227:ILE:HA | 1.67 | 0.47 |
| 3:C:549:GLY:HA3 | 10:K:304:THR:HG21 | 1.94 | 0.47 |
| 8:H:150:PHE:HB3 | 8:H:155:ARG:HB2 | 1.97 | 0.47 |
| 9:I:99:VAL:HG12 | 9:I:326:MET:HE1 | 1.96 | 0.47 |
| 13:N:136:MET:O | 13:N:140:GLY:N | 2.46 | 0.47 |
| 6:R:138:PHE:CE2 | 16:S:312:LEU:HD11 | 2.50 | 0.47 |
| 1:A:40:GLY:HA3 | 1:O:157:TYR:HD2 | 1.79 | 0.47 |
| 2:B:297:LYS:HG2 | 2:B:298:PHE:HD1 | 1.79 | 0.47 |
| 2:B:711:HIS:CE1 | 2:B:765:ILE:HG23 | 2.50 | 0.47 |
| 3:C:623:HIS:N | 3:C:631:HIS:O | 2.47 | 0.47 |
| 4:D:487:VAL:HG23 | 4:D:488:PRO:HD3 | 1.96 | 0.47 |
| 7:G:393:ARG:O | 7:G:397:PHE:HB2 | 2.14 | 0.47 |
| 9:I:101:PHE:HD1 | 9:I:110:VAL:HG22 | 1.80 | 0.47 |
| 6:R:96:ILE:HA | 6:R:151:TYR:O | 2.14 | 0.47 |
| 6:R:99:PHE:CZ | 6:R:142:MET:HG2 | 2.49 | 0.47 |
| 6:R:103:TRP:HB3 | 16:S:233:ALA:HB3 | 1.95 | 0.47 |
| 16:S:308:LYS:CE | 16:S:312:LEU:HA | 2.44 | 0.47 |
| 16:S:478:MET:HE2 | 16:S:483:GLN:HE21 | 1.80 | 0.47 |
| 4:D:381:CYS:SG | 4:D:404:SER:HB2 | 2.54 | 0.47 |
| 4:D:1094:THR:HB | 4:D:1095:PRO:HD2 | 1.97 | 0.47 |
| 4:D:1218:VAL:HA | 4:D:1251:TYR:HA | 1.96 | 0.47 |
| 5:E:133:TRP:HE3 | 6:F:108:ILE:HG13 | 1.80 | 0.47 |
| 6:F:160:ASP:OD1 | 6:F:160:ASP:N | 2.46 | 0.47 |
| 13:N:453:TYR:CE2 | 13:N:455:LYS:HG2 | 2.49 | 0.47 |
| 14:P:75:PRO:HB2 | 14:P:76:PHE:CD1 | 2.49 | 0.47 |
| 6:R:96:ILE:HB | 6:R:127:ILE:HG12 | 1.96 | 0.47 |
| 16:S:291:VAL:HG22 | 16:S:293:VAL:HG13 | 1.96 | 0.47 |
| 1:A:155:ARG:NH2 | 1:O:39:LYS:O | 2.42 | 0.47 |
| 2:B:185:SER:HB3 | 2:B:251:PHE:CZ | 2.49 | 0.47 |
| 3:C:75:ARG:NH2 | 3:C:83:ASP:OD1 | 2.43 | 0.47 |
| 3:C:371:LEU:HD22 | 4:D:1301:VAL:HG13 | 1.97 | 0.47 |
| 3:C:479:HIS:CD2 | 3:C:481:LEU:HB2 | 2.49 | 0.47 |
| 4:D:311:LEU:HD12 | 9:I:273:ARG:HH22 | 1.79 | 0.47 |
| 4:D:376:HIS:CD2 | 7:G:224:ASN:HB3 | 2.50 | 0.47 |
| 4:D:1232:LEU:HD21 | 4:D:1256:LEU:HD21 | 1.97 | 0.47 |
| 8:H:435:TYR:HB3 | 17:J:632:ARG:NH2 | 2.30 | 0.47 |
| 8:H:837:SER:N | 8:H:838:PRO:HD2 | 2.29 | 0.47 |
| 10:K:198:PRO:HG3 | 10:K:209:LYS:HG3 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:N:272:LEU:HD22 | 13:N:333:LYS:HE3 | 1.97 | 0.47 |
| 1:O:31:ARG:HA | 1:O:201:LEU:O | 2.14 | 0.47 |
| 16:S:216:ARG:HG2 | 16:S:217:PRO:HD3 | 1.95 | 0.47 |
| 16:S:343:LEU:HB2 | 16:S:373:TYR:HD1 | 1.80 | 0.47 |
| 17:J:578:ALA:HB1 | 17:J:584:GLU:HG3 | 1.96 | 0.47 |
| 1:A:60:THR:HG22 | 1:A:153:ARG:HB2 | 1.97 | 0.47 |
| 9:I:485:GLN:HA | 9:I:488:ILE:HD11 | 1.96 | 0.47 |
| 10:K:148:ASP:N | 10:K:148:ASP:OD1 | 2.46 | 0.47 |
| 13:N:515:TYR:HE1 | 15:Q:69:LYS:HE2 | 1.80 | 0.47 |
| 14:P:100:LYS:HE3 | 14:P:100:LYS:HB2 | 1.60 | 0.47 |
| 6:R:176:ILE:HG13 | 16:S:273:TYR:CE2 | 2.50 | 0.47 |
| 16:S:408:GLU:N | 16:S:408:GLU:OE1 | 2.48 | 0.47 |
| 16:S:416:ASN:HB3 | 16:S:417:PRO:HD3 | 1.97 | 0.47 |
| 17:J:275:ASP:O | 17:J:279:VAL:HG23 | 2.14 | 0.47 |
| 1:A:23:ASP:HB2 | 1:A:27:LEU:HD23 | 1.96 | 0.47 |
| 3:C:245:VAL:HA | 3:C:248:MET:CE | 2.45 | 0.47 |
| 4:D:186:ARG:O | 4:D:190:VAL:HG23 | 2.15 | 0.47 |
| 17:J:371:GLU:HA | 17:J:375:LEU:O | 2.15 | 0.47 |
| 17:J:518:LYS:HD3 | 17:J:529:LEU:HD23 | 1.97 | 0.47 |
| 17:J:609:LEU:O | 17:J:613:ARG:HG2 | 2.15 | 0.47 |
| 2:B:200:TYR:HE2 | 2:B:203:ILE:H | 1.63 | 0.47 |
| 2:B:1019:VAL:HA | 2:B:1022:THR:HG22 | 1.95 | 0.47 |
| 3:C:546:ASN:HD22 | 3:C:601:PRO:HB3 | 1.79 | 0.47 |
| 9:I:420:VAL:HG23 | 9:I:420:VAL:O | 2.15 | 0.47 |
| 13:N:328:VAL:HG21 | 13:N:345:LEU:HD13 | 1.97 | 0.47 |
| 1:O:91:LEU:HD23 | 1:O:94:ILE:HD11 | 1.97 | 0.47 |
| 6:R:85:GLU:HA | 6:R:88:ARG:HB2 | 1.97 | 0.47 |
| 6:R:88:ARG:HA | 6:R:88:ARG:HD3 | 1.73 | 0.47 |
| 6:R:145:ARG:HA | 16:S:380:PRO:HD3 | 1.97 | 0.47 |
| 16:S:363:ILE:HA | 16:S:366:LYS:HD3 | 1.97 | 0.47 |
| 4:D:62:LEU:HD23 | 4:D:128:VAL:HG21 | 1.97 | 0.46 |
| 4:D:332:GLN:O | 4:D:336:ARG:HB2 | 2.14 | 0.46 |
| 4:D:1227:PHE:CE2 | 4:D:1241:THR:HG21 | 2.50 | 0.46 |
| 12:M:178:ALA:O | 12:M:235:ARG:NH1 | 2.33 | 0.46 |
| 16:S:486:SER:O | 16:S:528:GLN:HA | 2.14 | 0.46 |
| 17:J:608:LEU:HD23 | 17:J:609:LEU:HD22 | 1.96 | 0.46 |
| 2:B:991:TRP:HB3 | 4:D:324:GLN:HE21 | 1.80 | 0.46 |
| 3:C:75:ARG:HH21 | 3:C:84:PRO:HD2 | 1.79 | 0.46 |
| 4:D:1170:PHE:HZ | 4:D:1252:ARG:O | 1.97 | 0.46 |
| 9:I:144:PHE:CD1 | 9:I:175:LEU:HD11 | 2.51 | 0.46 |
| 16:S:216:ARG:HH11 | 16:S:217:PRO:HD3 | 1.80 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:285:PHE:HD2 | 17:J:306:VAL:HG23 | 1.80 | 0.46 |
| 5:E:100:ASP:HB3 | 5:E:101:PRO:HD3 | 1.95 | 0.46 |
| 7:G:227:LYS:O | 7:G:229:ASP:N | 2.35 | 0.46 |
| 1:O:178:PRO:O | 1:O:206:ASN:N | 2.41 | 0.46 |
| 6:R:114:LEU:HD11 | 6:R:150:LEU:HD22 | 1.97 | 0.46 |
| 16:S:402:ILE:HG12 | 16:S:403:GLU:H | 1.80 | 0.46 |
| 17:J:609:LEU:HB3 | 17:J:645:LYS:HD2 | 1.96 | 0.46 |
| 2:B:387:ILE:HG12 | 2:B:575:SER:HA | 1.98 | 0.46 |
| 2:B:1034:ASP:OD1 | 2:B:1035:ALA:N | 2.47 | 0.46 |
| 2:B:1040:ARG:O | 2:B:1044:ARG:HG2 | 2.15 | 0.46 |
| 4:D:1219:SER:N | 4:D:1250:CYS:O | 2.49 | 0.46 |
| 8:H:337:ILE:O | 8:H:338:ARG:C | 2.54 | 0.46 |
| 8:H:395:GLN:HB3 | 8:H:396:PRO:CD | 2.44 | 0.46 |
| 9:I:378:ARG:HA | 9:I:381:TYR:CE1 | 2.50 | 0.46 |
| 10:K:229:ASN:O | 10:K:229:ASN:ND2 | 2.44 | 0.46 |
| 16:S:198:PRO:O | 16:S:199:PRO:C | 2.53 | 0.46 |
| 16:S:377:LEU:HD13 | 16:S:381:LEU:HB3 | 1.97 | 0.46 |
| 2:B:213:LYS:NZ | 2:B:218:SER:O | 2.48 | 0.46 |
| 2:B:991:TRP:HH2 | 4:D:204:ARG:HG2 | 1.81 | 0.46 |
| 4:D:250:ALA:O | 4:D:263:ARG:NH1 | 2.38 | 0.46 |
| 8:H:347:LEU:HD23 | 8:H:347:LEU:HA | 1.73 | 0.46 |
| 9:I:130:LEU:HD13 | 9:I:303:TRP:HH2 | 1.81 | 0.46 |
| 9:I:441:THR:OG1 | 9:I:442:THR:N | 2.47 | 0.46 |
| 15:Q:112:ARG:HG3 | 15:Q:112:ARG:O | 2.16 | 0.46 |
| 17:J:719:MET:SD | 17:J:720:VAL:N | 2.89 | 0.46 |
| 1:A:80:ILE:HG22 | 1:A:82:GLU:H | 1.80 | 0.46 |
| 3:C:97:SER:O | 3:C:100:ARG:HB2 | 2.16 | 0.46 |
| 10:K:271:LEU:N | 10:K:284:THR:O | 2.48 | 0.46 |
| 6:R:97:ILE:HG22 | 6:R:128:VAL:HG23 | 1.97 | 0.46 |
| 16:S:361:LEU:O | 16:S:365:LYS:HG2 | 2.15 | 0.46 |
| 16:S:432:GLU:HG3 | 16:S:434:TYR:CE2 | 2.50 | 0.46 |
| 4:D:430:LEU:CB | 4:D:1122:ARG:HA | 2.46 | 0.46 |
| 8:H:129:ARG:HD2 | 8:H:129:ARG:HA | 1.75 | 0.46 |
| 9:I:220:GLU:OE2 | 9:I:224:ARG:NH2 | 2.40 | 0.46 |
| 17:J:507:LEU:HD23 | 17:J:550:TYR:HE1 | 1.81 | 0.46 |
| 2:B:391:ARG:HE | 2:B:526:ILE:HD11 | 1.81 | 0.46 |
| 4:D:449:HIS:NE2 | 4:D:451:SER:HB2 | 2.30 | 0.46 |
| 8:H:83:ASN:ND2 | 8:H:85:ASP:OD2 | 2.49 | 0.46 |
| 8:H:116:VAL:HG23 | 8:H:149:LEU:HD22 | 1.96 | 0.46 |
| 9:I:361:SER:O | 9:I:362:ARG:HG3 | 2.16 | 0.46 |
| 13:N:422:ASP:OD1 | 13:N:484:ARG:NH2 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:36:GLU:OE1 | 3:C:108:LYS:N | 2.49 | 0.46 |
| 3:C:558:TRP:HA | 10:K:298:ARG:HH11 | 1.80 | 0.46 |
| 7:G:242:ASP:OD1 | 7:G:243:VAL:N | 2.49 | 0.46 |
| 8:H:302:ASP:OD1 | 8:H:302:ASP:N | 2.49 | 0.46 |
| 9:I:363:ILE:H | 9:I:407:PRO:HB2 | 1.81 | 0.46 |
| 6:R:110:MET:HE2 | 6:R:167:LEU:HA | 1.98 | 0.46 |
| 16:S:204:PHE:CD2 | 16:S:357:THR:HG23 | 2.51 | 0.46 |
| 17:J:656:GLN:HB2 | 17:J:664:ILE:HG13 | 1.98 | 0.46 |
| 4:D:376:HIS:HD2 | 7:G:224:ASN:HB3 | 1.80 | 0.46 |
| 4:D:935:CYS:SG | 5:E:334:TYR:HD1 | 2.39 | 0.46 |
| 5:E:211:PHE:HZ | 6:F:87:VAL:HG12 | 1.81 | 0.46 |
| 10:K:189:ASP:OD1 | 10:K:189:ASP:N | 2.49 | 0.46 |
| 11:L:81:HIS:CE1 | 11:L:236:HIS:CD2 | 3.04 | 0.46 |
| 12:M:150:GLU:O | 12:M:249:TRP:NE1 | 2.46 | 0.46 |
| 15:Q:87:ILE:HG23 | 15:Q:127:TYR:CE2 | 2.50 | 0.46 |
| 15:Q:132:SER:O | 15:Q:134:ARG:HG3 | 2.15 | 0.46 |
| 16:S:358:MET:HG2 | 16:S:394:GLN:HG2 | 1.98 | 0.46 |
| 17:J:613:ARG:NH1 | 17:J:645:LYS:HB3 | 2.31 | 0.46 |
| 1:A:67:SER:HB2 | 1:A:70:ILE:HD12 | 1.99 | 0.45 |
| 2:B:659:TYR:O | 4:D:56:SER:OG | 2.26 | 0.45 |
| 5:E:114:PHE:CZ | 6:F:146:GLY:HA3 | 2.51 | 0.45 |
| 17:J:718:ASP:OD1 | 17:J:718:ASP:N | 2.44 | 0.45 |
| 1:A:37:LEU:O | 1:A:197:GLU:HG2 | 2.17 | 0.45 |
| 2:B:957:LYS:O | 2:B:977:ARG:NH2 | 2.49 | 0.45 |
| 8:H:111:LEU:HD12 | 8:H:127:SER:HB3 | 1.98 | 0.45 |
| 8:H:244:THR:HG21 | 8:H:280:ASP:HB2 | 1.99 | 0.45 |
| 8:H:474:PHE:HE1 | 8:H:480:GLU:HB2 | 1.81 | 0.45 |
| 9:I:114:LYS:HG2 | 9:I:115:ASP:N | 2.28 | 0.45 |
| 9:I:460:LEU:O | 9:I:461:GLU:HB3 | 2.16 | 0.45 |
| 17:J:623:VAL:HB | 17:J:722:VAL:HA | 1.98 | 0.45 |
| 4:D:328:GLU:O | 4:D:329:PRO:C | 2.53 | 0.45 |
| 4:D:1238:ALA:HB1 | 4:D:1251:TYR:CE1 | 2.51 | 0.45 |
| 11:L:107:LEU:HD23 | 11:L:108:GLU:N | 2.30 | 0.45 |
| 6:R:76:LYS:O | 6:R:77:LYS:HG3 | 2.16 | 0.45 |
| 16:S:198:PRO:HA | 16:S:199:PRO:HD2 | 1.84 | 0.45 |
| 17:J:621:ILE:HA | 17:J:648:VAL:O | 2.16 | 0.45 |
| 1:A:225:LEU:HB3 | 1:O:45:ILE:HD11 | 1.97 | 0.45 |
| 3:C:242:ASP:O | 3:C:245:VAL:HG12 | 2.17 | 0.45 |
| 3:C:470:LEU:HA | 3:C:470:LEU:HD23 | 1.81 | 0.45 |
| 8:H:285:ASN:HD21 | 8:H:320:ASN:HD21 | 1.63 | 0.45 |
| 8:H:775:ARG:NE | 8:H:778:SER:OG | 2.48 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:228:HIS:C | 9:I:230:CYS:H | 2.20 | 0.45 |
| 9:I:381:TYR:HB3 | 9:I:400:ILE:HD11 | 1.98 | 0.45 |
| 10:K:192:TRP:CD1 | 10:K:213:GLU:HB3 | 2.52 | 0.45 |
| 11:L:65:PRO:HG2 | 11:L:68:ALA:HB3 | 1.98 | 0.45 |
| 1:O:216:TYR:CE1 | 16:S:539:PRO:HD2 | 2.51 | 0.45 |
| 16:S:199:PRO:HG3 | 16:S:339:LYS:HD2 | 1.99 | 0.45 |
| 16:S:214:SER:O | 16:S:241:ILE:HD11 | 2.16 | 0.45 |
| 16:S:241:ILE:O | 16:S:241:ILE:HG22 | 2.16 | 0.45 |
| 1:A:39:LYS:HB3 | 1:A:39:LYS:HE3 | 1.68 | 0.45 |
| 3:C:245:VAL:CG2 | 4:D:1229:PRO:HD2 | 2.47 | 0.45 |
| 7:G:334:MET:HG2 | 7:G:335:LEU:HD22 | 1.98 | 0.45 |
| 2:B:541:ARG:O | 2:B:545:SER:OG | 2.27 | 0.45 |
| 5:E:363:LEU:HD23 | 5:E:363:LEU:HA | 1.84 | 0.45 |
| 9:I:195:PRO:O | 9:I:258:TRP:NE1 | 2.46 | 0.45 |
| 10:K:156:PHE:O | 10:K:158:GLU:N | 2.49 | 0.45 |
| 11:L:56:LYS:HA | 11:L:56:LYS:HD2 | 1.37 | 0.45 |
| 1:O:90:ASN:ND2 | 1:O:136:ILE:O | 2.41 | 0.45 |
| 2:B:190:ASN:H | 2:B:215:LYS:HD3 | 1.82 | 0.45 |
| 4:D:1022:ASP:N | 13:N:298:VAL:O | 2.49 | 0.45 |
| 5:E:234:GLU:H | 5:E:234:GLU:HG2 | 1.68 | 0.45 |
| 8:H:378:GLY:HA2 | 8:H:474:PHE:CZ | 2.52 | 0.45 |
| 6:R:103:TRP:CD2 | 16:S:241:ILE:HG13 | 2.52 | 0.45 |
| 16:S:231:LYS:O | 16:S:234:LEU:HG | 2.17 | 0.45 |
| 16:S:396:TRP:CZ3 | 16:S:412:LEU:HD13 | 2.49 | 0.45 |
| 16:S:470:VAL:HG12 | 16:S:471:LEU:H | 1.81 | 0.45 |
| 17:J:247:LEU:HB2 | 17:J:267:VAL:HG13 | 1.98 | 0.45 |
| 17:J:354:THR:HB | 17:J:468:LEU:HD22 | 1.98 | 0.45 |
| 1:A:116:VAL:HB | 1:A:137:ALA:HB3 | 1.98 | 0.45 |
| 1:A:169:SER:OG | 1:A:169:SER:O | 2.34 | 0.45 |
| 2:B:177:LYS:HZ3 | 2:B:230:PHE:HD2 | 1.64 | 0.45 |
| 2:B:183:LEU:HD23 | 2:B:224:LEU:HA | 1.98 | 0.45 |
| 9:I:420:VAL:HG23 | 9:I:424:ALA:H | 1.81 | 0.45 |
| 16:S:360:ALA:HA | 16:S:363:ILE:HB | 1.98 | 0.45 |
| 17:J:588:GLU:N | 17:J:590:GLN:OE1 | 2.48 | 0.45 |
| 17:J:605:LEU:O | 17:J:609:LEU:HD23 | 2.17 | 0.45 |
| 2:B:49:GLU:HB3 | 2:B:87:ILE:HB | 1.98 | 0.45 |
| 2:B:107:MET:HE3 | 2:B:111:GLY:HA2 | 1.99 | 0.45 |
| 3:C:130:LEU:HD11 | 3:C:203:LEU:HD12 | 1.99 | 0.45 |
| 3:C:153:LYS:HZ1 | 8:H:454:LYS:N | 2.15 | 0.45 |
| 8:H:810:ARG:O | 8:H:814:LYS:NZ | 2.49 | 0.45 |
| 12:M:64:LYS:O | 13:N:204:ARG:NH2 | 2.49 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:505:PHE:CD2 | 17:J:553:LEU:HB3 | 2.51 | 0.45 |
| 2:B:548:MET:HE3 | 2:B:821:ALA:HB1 | 1.99 | 0.45 |
| 3:C:11:ARG:HG2 | 4:D:1290:ILE:HG12 | 1.99 | 0.45 |
| 6:R:91:ARG:C | 6:R:155:PRO:HG3 | 2.37 | 0.45 |
| 16:S:406:LYS:HE3 | 16:S:432:GLU:HG2 | 1.98 | 0.45 |
| 16:S:523:CYS:O | 16:S:527:GLU:HG2 | 2.17 | 0.45 |
| 16:S:530:ILE:HD13 | 16:S:536:GLY:HA2 | 1.99 | 0.45 |
| 17:J:521:LEU:HG | 17:J:615:LEU:HD11 | 1.98 | 0.45 |
| 17:J:687:TYR:HB2 | 17:J:688:TYR:CE1 | 2.51 | 0.45 |
| 4:D:918:LEU:HB3 | 4:D:919[A]:GLY:H | 1.62 | 0.44 |
| 4:D:918:LEU:HB3 | 4:D:919[B]:GLY:H | 1.62 | 0.44 |
| 4:D:1219:SER:H | 4:D:1251:TYR:HA | 1.82 | 0.44 |
| 10:K:271:LEU:HD13 | 10:K:289:ARG:HB3 | 2.00 | 0.44 |
| 16:S:492:LEU:O | 16:S:496:LEU:HD12 | 2.16 | 0.44 |
| 17:J:380:MET:HA | 17:J:385:TYR:CE1 | 2.53 | 0.44 |
| 2:B:857:VAL:HB | 2:B:858:PRO:HD3 | 1.99 | 0.44 |
| 4:D:500:THR:O | 4:D:501:HIS:ND1 | 2.51 | 0.44 |
| 11:L:93:LEU:HD22 | 11:L:127:ALA:HA | 1.99 | 0.44 |
| 11:L:95:LYS:HA | 11:L:98:VAL:HG23 | 1.99 | 0.44 |
| 17:J:379:MET:HB3 | 17:J:386:TYR:H | 1.81 | 0.44 |
| 2:B:855:LEU:HD22 | 4:D:137:ARG:HB3 | 1.98 | 0.44 |
| 4:D:1170:PHE:CZ | 4:D:1252:ARG:HA | 2.52 | 0.44 |
| 15:Q:62:VAL:HG13 | 15:Q:65:TRP:CE3 | 2.52 | 0.44 |
| 6:R:95:LEU:HB2 | 6:R:126:MET:HG2 | 1.99 | 0.44 |
| 16:S:268:LEU:HD12 | 16:S:278:LEU:HG | 2.00 | 0.44 |
| 16:S:330:ILE:HG13 | 16:S:356:THR:HG23 | 1.98 | 0.44 |
| 17:J:489:ALA:HB3 | 17:J:490:PRO:HD3 | 2.00 | 0.44 |
| 2:B:97:GLN:HG2 | 2:B:352:PRO:HG2 | 1.99 | 0.44 |
| 3:C:439:LYS:O | 3:C:443:GLU:HB2 | 2.18 | 0.44 |
| 8:H:104:GLY:HA2 | 9:I:490:PHE:CD2 | 2.52 | 0.44 |
| 8:H:427:TYR:HA | 8:H:834:ARG:NH2 | 2.32 | 0.44 |
| 8:H:724:GLU:HB2 | 8:H:726:ASP:OD2 | 2.18 | 0.44 |
| 9:I:414:VAL:O | 9:I:414:VAL:HG13 | 2.18 | 0.44 |
| 10:K:115:GLY:HA3 | 10:K:116:TRP:HA | 1.64 | 0.44 |
| 13:N:427:ASN:HB3 | 13:N:430:LYS:HG2 | 1.99 | 0.44 |
| 6:R:92:ASN:N | 6:R:92:ASN:OD1 | 2.49 | 0.44 |
| 16:S:200:LEU:HD21 | 16:S:263:ALA:HB3 | 2.00 | 0.44 |
| 17:J:333:LEU:HB3 | 17:J:334:PRO:HD3 | 1.99 | 0.44 |
| 17:J:605:LEU:HD22 | 17:J:605:LEU:H | 1.82 | 0.44 |
| 2:B:65:LYS:O | 2:B:69:ALA:N | 2.47 | 0.44 |
| 2:B:83:SER:HA | 2:B:98:THR:HA | 1.99 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:319:PRO:HG2 | 8:H:761:TRP:CD1 | 2.49 | 0.44 |
| 9:I:362:ARG:HA | 9:I:407:PRO:HB3 | 2.00 | 0.44 |
| 16:S:239:LYS:N | 16:S:242:ARG:HB2 | 2.32 | 0.44 |
| 17:J:537:LEU:HD22 | 17:J:566:LEU:HB3 | 1.99 | 0.44 |
| 17:J:600:ARG:HH12 | 17:J:655:ASN:HD22 | 1.65 | 0.44 |
| 4:D:1019:TYR:HA | 13:N:280:ILE:O | 2.17 | 0.44 |
| 4:D:1138:GLU:HB3 | 4:D:1140:ARG:HD3 | 2.00 | 0.44 |
| 5:E:457:SER:OG | 7:G:374:ASP:OD2 | 2.35 | 0.44 |
| 7:G:208:VAL:HG23 | 7:G:209:LYS:N | 2.30 | 0.44 |
| 13:N:446:ASP:HB3 | 13:N:449:HIS:CE1 | 2.53 | 0.44 |
| 13:N:475:LEU:HD12 | 13:N:475:LEU:HA | 1.81 | 0.44 |
| 16:S:402:ILE:HD13 | 16:S:404:VAL:HG13 | 1.99 | 0.44 |
| 2:B:205:LEU:O | 2:B:205:LEU:HD12 | 2.17 | 0.44 |
| 2:B:230:PHE:CE1 | 2:B:237:PRO:HG2 | 2.53 | 0.44 |
| 3:C:461:LEU:HD12 | 3:C:528:ILE:HG12 | 2.00 | 0.44 |
| 6:F:80:ALA:O | 6:F:84:THR:HG23 | 2.16 | 0.44 |
| 9:I:294:SER:HB3 | 9:I:327:THR:HG21 | 1.99 | 0.44 |
| 6:R:143:GLN:HG3 | 16:S:315:THR:CA | 2.45 | 0.44 |
| 3:C:99:ILE:CD1 | 3:C:103:GLN:HG2 | 2.47 | 0.44 |
| 4:D:105:TYR:CE1 | 4:D:348:THR:HG22 | 2.53 | 0.44 |
| 4:D:447:GLU:OE2 | 4:D:1086:ARG:NH2 | 2.51 | 0.44 |
| 8:H:758:ALA:HB1 | 8:H:764:THR:H | 1.83 | 0.44 |
| 9:I:214:LEU:HD21 | 9:I:219:LEU:HD23 | 1.99 | 0.44 |
| 9:I:369:LEU:O | 9:I:374:ILE:N | 2.51 | 0.44 |
| 9:I:383:TYR:CD2 | 9:I:395:VAL:HG21 | 2.52 | 0.44 |
| 13:N:406:TYR:CE1 | 13:N:409:LYS:HE2 | 2.52 | 0.44 |
| 1:O:29:TYR:OH | 1:O:202:GLU:OE2 | 2.26 | 0.44 |
| 16:S:198:PRO:HG2 | 16:S:261:ARG:HB2 | 1.99 | 0.44 |
| 2:B:61:GLU:HG2 | 2:B:62:PRO:HD2 | 2.00 | 0.44 |
| 4:D:365:ASP:OD1 | 4:D:365:ASP:N | 2.51 | 0.44 |
| 5:E:202:THR:HA | 5:E:226:ALA:HB3 | 2.00 | 0.44 |
| 6:F:68:HIS:HB2 | 7:G:409:LYS:NZ | 2.32 | 0.44 |
| 9:I:172:LEU:HD23 | 9:I:263:ALA:HB1 | 1.99 | 0.44 |
| 1:O:104:CYS:SG | 1:O:151:LEU:HB2 | 2.58 | 0.44 |
| 1:A:131:ASP:CG | 1:A:134:GLN:HG3 | 2.39 | 0.43 |
| 2:B:309:LEU:HD23 | 2:B:309:LEU:HA | 1.80 | 0.43 |
| 4:D:394:ILE:HB | 4:D:396:HIS:CE1 | 2.53 | 0.43 |
| 4:D:432:PHE:C | 4:D:1123:SER:HB3 | 2.39 | 0.43 |
| 9:I:383:TYR:CE1 | 9:I:385:SER:HA | 2.53 | 0.43 |
| 11:L:179:GLY:O | 11:L:246:ARG:NH2 | 2.51 | 0.43 |
| 6:R:151:TYR:HA | 6:R:163:ARG:HA | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:S:405:THR:HG22 | 16:S:454:ASN:H | 1.82 | 0.43 |
| 17:J:360:THR:O | 17:J:364:HIS:ND1 | 2.30 | 0.43 |
| 2:B:202:GLU:HG3 | 2:B:205:LEU:HD23 | 2.00 | 0.43 |
| 3:C:394:ARG:HD3 | 3:C:469:ILE:HD13 | 2.00 | 0.43 |
| 9:I:367:THR:HB | 9:I:484:TYR:HE1 | 1.83 | 0.43 |
| 13:N:370:GLU:N | 13:N:370:GLU:OE1 | 2.52 | 0.43 |
| 1:O:17:CYS:HB2 | 1:O:32:PHE:HD1 | 1.82 | 0.43 |
| 16:S:423:THR:HG21 | 16:S:430:LYS:HA | 1.99 | 0.43 |
| 17:J:472:MET:HG3 | 17:J:480:LYS:HE3 | 1.99 | 0.43 |
| 17:J:693:ASN:ND2 | 17:J:693:ASN:H | 2.16 | 0.43 |
| 7:G:308:LYS:HE2 | 7:G:308:LYS:HB2 | 1.73 | 0.43 |
| 8:H:289:GLN:OE1 | 8:H:322:ARG:NH2 | 2.50 | 0.43 |
| 9:I:247:LYS:O | 9:I:248:ARG:HG2 | 2.18 | 0.43 |
| 11:L:94:ASN:O | 11:L:98:VAL:HG23 | 2.18 | 0.43 |
| 6:R:87:VAL:O | 6:R:88:ARG:NH1 | 2.51 | 0.43 |
| 16:S:340:MET:CE | 16:S:401:VAL:HB | 2.48 | 0.43 |
| 17:J:596:VAL:HA | 17:J:723:ALA:HB2 | 1.99 | 0.43 |
| 17:J:602:PRO:HG3 | 17:J:634:LYS:HB2 | 2.00 | 0.43 |
| 3:C:550:ILE:H | 10:K:304:THR:HG21 | 1.83 | 0.43 |
| 7:G:303:TRP:O | 7:G:342:GLU:HB3 | 2.19 | 0.43 |
| 8:H:476:GLN:HG2 | 8:H:810:ARG:NH2 | 2.33 | 0.43 |
| 8:H:487:ARG:O | 8:H:491:ARG:N | 2.50 | 0.43 |
| 9:I:420:VAL:O | 9:I:424:ALA:N | 2.46 | 0.43 |
| 13:N:395:VAL:O | 13:N:395:VAL:HG12 | 2.19 | 0.43 |
| 1:O:202:GLU:OE1 | 14:P:82:ARG:NH2 | 2.52 | 0.43 |
| 6:R:107:CYS:SG | 6:R:147:LEU:HD13 | 2.57 | 0.43 |
| 6:R:136:TYR:HH | 16:S:383:LYS:HZ2 | 1.57 | 0.43 |
| 16:S:202:CYS:HB3 | 16:S:265:MET:HG2 | 2.00 | 0.43 |
| 2:B:742:LEU:HD23 | 2:B:742:LEU:HA | 1.85 | 0.43 |
| 2:B:1044:ARG:HA | 2:B:1044:ARG:HD3 | 1.74 | 0.43 |
| 3:C:44:HIS:CB | 3:C:49:LYS:HD3 | 2.49 | 0.43 |
| 5:E:101:PRO:O | 5:E:164:ARG:NH1 | 2.45 | 0.43 |
| 10:K:257:VAL:HG22 | 10:K:283:ILE:HD12 | 1.99 | 0.43 |
| 13:N:165:TRP:CE3 | 13:N:169:LEU:HD11 | 2.54 | 0.43 |
| 13:N:472:VAL:HA | 13:N:475:LEU:HB2 | 2.01 | 0.43 |
| 16:S:428:ARG:HA | 16:S:428:ARG:NE | 2.32 | 0.43 |
| 16:S:428:ARG:NE | 16:S:429:PHE:H | 2.15 | 0.43 |
| 16:S:428:ARG:HE | 16:S:429:PHE:H | 1.66 | 0.43 |
| 16:S:458:LYS:HG3 | 16:S:470:VAL:O | 2.18 | 0.43 |
| 16:S:476:ALA:HB1 | 16:S:529:TRP:HB3 | 2.00 | 0.43 |
| 1:A:111:ARG:HA | 1:A:111:ARG:HD3 | 1.69 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:230:PHE:CD1 | 2:B:237:PRO:HG2 | 2.54 | 0.43 |
| 3:C:272:LEU:HD12 | 3:C:356:PHE:CE1 | 2.54 | 0.43 |
| 4:D:1146:SER:HA | 4:D:1150:GLU:H | 1.83 | 0.43 |
| 8:H:250:LEU:O | 8:H:254:GLN:HG3 | 2.18 | 0.43 |
| 8:H:307:LEU:HD12 | 8:H:307:LEU:HA | 1.83 | 0.43 |
| 10:K:131:PHE:CD2 | 10:K:142:PHE:HB3 | 2.51 | 0.43 |
| 12:M:215:ILE:HG21 | 12:M:259:ALA:HB2 | 2.00 | 0.43 |
| 13:N:515:TYR:HD1 | 13:N:515:TYR:HA | 1.72 | 0.43 |
| 16:S:303:GLN:O | 16:S:317:VAL:HG12 | 2.19 | 0.43 |
| 16:S:405:THR:HG22 | 16:S:454:ASN:N | 2.33 | 0.43 |
| 2:B:177:LYS:HD2 | 2:B:177:LYS:HA | 1.65 | 0.43 |
| 3:C:227:SER:OG | 3:C:228:THR:N | 2.51 | 0.43 |
| 4:D:293:SER:O | 4:D:1210:ARG:NH2 | 2.52 | 0.43 |
| 4:D:1170:PHE:CE2 | 4:D:1251:TYR:O | 2.72 | 0.43 |
| 8:H:236:GLU:HA | 8:H:240:ARG:O | 2.18 | 0.43 |
| 8:H:768:GLU:O | 8:H:772:ARG:HG3 | 2.19 | 0.43 |
| 13:N:207:MET:SD | 13:N:207:MET:N | 2.88 | 0.43 |
| 16:S:307:ALA:HB3 | 16:S:315:THR:HG22 | 2.01 | 0.43 |
| 17:J:697:LEU:HD23 | 17:J:697:LEU:HA | 1.84 | 0.43 |
| 17:J:708:ARG:HH12 | 17:J:756:LEU:HD21 | 1.83 | 0.43 |
| 2:B:168:ILE:HG13 | 2:B:168:ILE:O | 2.19 | 0.43 |
| 2:B:918:GLU:OE1 | 7:G:355:ARG:NH1 | 2.42 | 0.43 |
| 2:B:1040:ARG:O | 2:B:1043:VAL:HG12 | 2.18 | 0.43 |
| 9:I:402:ALA:O | 9:I:406:LEU:HD22 | 2.19 | 0.43 |
| 9:I:465:LYS:HD2 | 9:I:465:LYS:HA | 1.58 | 0.43 |
| 12:M:158:GLN:OE1 | 12:M:158:GLN:N | 2.30 | 0.43 |
| 13:N:281:CYS:N | 13:N:328:VAL:O | 2.40 | 0.43 |
| 14:P:148:ARG:HD2 | 14:P:152:TYR:HE1 | 1.83 | 0.43 |
| 2:B:793:LYS:HB2 | 2:B:801:PRO:HD2 | 2.01 | 0.43 |
| 2:B:1007:THR:OG1 | 2:B:1008:TYR:N | 2.52 | 0.43 |
| 4:D:198:ASP:N | 4:D:198:ASP:OD1 | 2.51 | 0.43 |
| 4:D:1273:SER:OG | 4:D:1297:LYS:HD3 | 2.19 | 0.43 |
| 7:G:228:PRO:O | 7:G:230:LYS:N | 2.52 | 0.43 |
| 8:H:487:ARG:HA | 8:H:487:ARG:NE | 2.34 | 0.43 |
| 15:Q:39:PRO:HD2 | 15:Q:42:GLU:OE2 | 2.19 | 0.43 |
| 17:J:521:LEU:HG | 17:J:615:LEU:HD21 | 2.01 | 0.43 |
| 17:J:749:ALA:O | 17:J:753:VAL:HG23 | 2.18 | 0.43 |
| 1:A:53:LEU:HD23 | 1:A:57:ILE:HD11 | 2.00 | 0.43 |
| 2:B:777:LEU:HD12 | 2:B:777:LEU:HA | 1.77 | 0.43 |
| 4:D:1129:GLY:O | 4:D:1130:LEU:C | 2.56 | 0.43 |
| 5:E:342:LYS:HA | 5:E:342:LYS:HD2 | 1.91 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:382:GLU:H | 8:H:382:GLU:CD | 2.22 | 0.43 |
| 10:K:156:PHE:CE1 | 10:K:183:ILE:HD11 | 2.54 | 0.43 |
| 11:L:172:THR:O | 11:L:176:THR:HG23 | 2.19 | 0.43 |
| 15:Q:89:GLU:O | 15:Q:127:TYR:HA | 2.18 | 0.43 |
| 6:R:137:GLU:O | 6:R:141:ASP:HB2 | 2.19 | 0.43 |
| 1:A:96:LEU:HD23 | 1:A:129:ILE:HG22 | 1.99 | 0.42 |
| 2:B:309:LEU:HG | 2:B:417:HIS:CE1 | 2.54 | 0.42 |
| 2:B:1049:LEU:HD11 | 3:C:356:PHE:HB3 | 2.00 | 0.42 |
| 4:D:1125:ASP:OD1 | 4:D:1128:GLN:HG2 | 2.18 | 0.42 |
| 4:D:1176:LEU:HD21 | 8:H:742:GLU:HG2 | 2.01 | 0.42 |
| 13:N:533:ASP:OD2 | 15:Q:115:LYS:HE2 | 2.19 | 0.42 |
| 17:J:636:PRO:HG3 | 17:J:670:ALA:HB3 | 2.01 | 0.42 |
| 3:C:619:PRO:HG2 | 10:K:190:TYR:CZ | 2.54 | 0.42 |
| 6:F:152:PHE:HB2 | 6:F:162:ILE:HB | 2.01 | 0.42 |
| 8:H:125:MET:O | 8:H:129:ARG:N | 2.52 | 0.42 |
| 11:L:235:GLU:O | 11:L:239:TYR:HB2 | 2.18 | 0.42 |
| 13:N:434:LYS:HE2 | 13:N:436:LEU:HD11 | 2.00 | 0.42 |
| 1:O:100:LEU:HD13 | 1:O:126:TYR:HE2 | 1.84 | 0.42 |
| 6:R:108:ILE:O | 6:R:112:GLN:HG3 | 2.19 | 0.42 |
| 16:S:271:ASP:O | 16:S:275:GLN:N | 2.41 | 0.42 |
| 16:S:297:ARG:HG3 | 16:S:318:LYS:CE | 2.47 | 0.42 |
| 2:B:675:GLU:O | 2:B:678:VAL:HG22 | 2.19 | 0.42 |
| 2:B:691:TYR:HB3 | 2:B:775:LEU:HD21 | 2.00 | 0.42 |
| 3:C:142:TYR:HE1 | 3:C:341:ARG:HH12 | 1.67 | 0.42 |
| 3:C:147:PHE:H | 3:C:164:PHE:HB2 | 1.84 | 0.42 |
| 4:D:491:LEU:HD21 | 13:N:377:LEU:HD22 | 2.01 | 0.42 |
| 5:E:104:ILE:HD12 | 5:E:245:ILE:HB | 2.01 | 0.42 |
| 8:H:726:ASP:O | 8:H:727:ASP:C | 2.57 | 0.42 |
| 9:I:383:TYR:HD2 | 9:I:395:VAL:HG21 | 1.84 | 0.42 |
| 9:I:479:ASP:O | 9:I:483:ILE:HG12 | 2.20 | 0.42 |
| 16:S:243:ALA:N | 16:S:244:PRO:HD3 | 2.34 | 0.42 |
| 16:S:412:LEU:HD23 | 16:S:412:LEU:HA | 1.84 | 0.42 |
| 17:J:627:CYS:SG | 17:J:631:GLU:HB2 | 2.60 | 0.42 |
| 1:A:225:LEU:CB | 1:O:45:ILE:HD11 | 2.50 | 0.42 |
| 2:B:710:PRO:HD3 | 2:B:742:LEU:HD11 | 2.00 | 0.42 |
| 2:B:741:LYS:HZ2 | 2:B:773:THR:HB | 1.84 | 0.42 |
| 3:C:459:HIS:HB3 | 4:D:328:GLU:HG3 | 2.00 | 0.42 |
| 3:C:558:TRP:CE3 | 10:K:298:ARG:HD3 | 2.54 | 0.42 |
| 4:D:931:SER:HG | 4:D:933:SER:HG | 1.63 | 0.42 |
| 4:D:1077:ILE:HD12 | 4:D:1084:VAL:HG21 | 2.01 | 0.42 |
| 8:H:315:LYS:HE3 | 8:H:315:LYS:HA | 2.02 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:250:ALA:HA | 9:I:255:ILE:HD11 | 2.01 | 0.42 |
| 9:I:307:ASP:O | 10:K:204:ARG:NH2 | 2.53 | 0.42 |
| 11:L:242:PHE:HZ | 11:L:252:ILE:HD11 | 1.85 | 0.42 |
| 1:O:18:VAL:HG22 | 1:O:33:ILE:HD11 | 2.00 | 0.42 |
| 14:P:82:ARG:O | 14:P:85:ASN:N | 2.41 | 0.42 |
| 6:R:78:LEU:HD23 | 6:R:82:GLU:HB3 | 2.02 | 0.42 |
| 6:R:103:TRP:HZ2 | 16:S:215:GLY:HA2 | 1.85 | 0.42 |
| 6:R:159:LYS:HD3 | 6:R:159:LYS:HA | 1.77 | 0.42 |
| 16:S:214:SER:HB2 | 16:S:377:LEU:O | 2.20 | 0.42 |
| 16:S:313:ARG:HA | 16:S:313:ARG:HD2 | 1.64 | 0.42 |
| 16:S:340:MET:HE3 | 16:S:340:MET:HA | 2.02 | 0.42 |
| 16:S:343:LEU:HA | 16:S:343:LEU:HD23 | 1.66 | 0.42 |
| 16:S:502:VAL:HG23 | 16:S:503:GLN:HG2 | 2.01 | 0.42 |
| 17:J:588:GLU:HB2 | 17:J:750:LEU:HD13 | 2.01 | 0.42 |
| 1:A:50:ARG:HA | 1:A:182:VAL:HG11 | 2.01 | 0.42 |
| 2:B:569:ARG:HG2 | 2:B:648:GLU:HG2 | 2.01 | 0.42 |
| 5:E:301:TRP:CZ2 | 5:E:358:LEU:HB3 | 2.54 | 0.42 |
| 9:I:125:ILE:HG23 | 9:I:312:VAL:HB | 2.00 | 0.42 |
| 9:I:354:ALA:HA | 9:I:473:PHE:CZ | 2.54 | 0.42 |
| 9:I:421:GLU:O | 9:I:426:LYS:HB2 | 2.19 | 0.42 |
| 11:L:58:ASP:OD1 | 11:L:58:ASP:N | 2.37 | 0.42 |
| 13:N:152:ASP:OD1 | 13:N:152:ASP:N | 2.52 | 0.42 |
| 13:N:184:TRP:HH2 | 13:N:238:PHE:HD2 | 1.68 | 0.42 |
| 13:N:272:LEU:HG | 13:N:302:TYR:CD2 | 2.54 | 0.42 |
| 16:S:409:LEU:HD13 | 16:S:442:LEU:HD21 | 2.01 | 0.42 |
| 17:J:299:ASP:HB2 | 17:J:318:LEU:HD13 | 2.01 | 0.42 |
| 17:J:659:GLU:HG3 | 17:J:664:ILE:HG12 | 2.02 | 0.42 |
| 1:A:175:LEU:H | 1:A:175:LEU:HD23 | 1.85 | 0.42 |
| 2:B:107:MET:HG3 | 2:B:113:PHE:CE1 | 2.54 | 0.42 |
| 2:B:1015:ALA:O | 2:B:1018:GLU:HG2 | 2.20 | 0.42 |
| 4:D:1152:ARG:NH1 | 8:H:731:TRP:HB3 | 2.33 | 0.42 |
| 5:E:217:MET:SD | 6:F:84:THR:HA | 2.59 | 0.42 |
| 7:G:203:PHE:HD2 | 10:K:321:SER:HB2 | 1.85 | 0.42 |
| 7:G:212:ILE:HD12 | 7:G:212:ILE:HA | 1.94 | 0.42 |
| 8:H:74:MET:CE | 8:H:74:MET:HA | 2.50 | 0.42 |
| 8:H:104:GLY:O | 8:H:107:SER:N | 2.53 | 0.42 |
| 8:H:463:GLY:HA3 | 8:H:466:TYR:HE1 | 1.85 | 0.42 |
| 9:I:79:ASN:O | 9:I:103:GLU:N | 2.48 | 0.42 |
| 9:I:320:ILE:HD13 | 9:I:320:ILE:HA | 1.93 | 0.42 |
| 9:I:437:ALA:HB3 | 9:I:440:PRO:HB3 | 2.02 | 0.42 |
| 11:L:148:PRO:HB2 | 11:L:153:LEU:HG | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:O:220:ARG:NH2 | 1:O:224:ASP:OD2 | 2.52 | 0.42 |
| 6:R:98:ASP:HB2 | 6:R:150:LEU:HD23 | 2.02 | 0.42 |
| 16:S:201:VAL:CG1 | 16:S:340:MET:HB3 | 2.49 | 0.42 |
| 17:J:596:VAL:HB | 17:J:743:ARG:NH2 | 2.35 | 0.42 |
| 2:B:965:HIS:HB3 | 2:B:974:LEU:HD23 | 2.02 | 0.42 |
| 4:D:1077:ILE:HA | 13:N:288:LEU:O | 2.19 | 0.42 |
| 6:F:68:HIS:HB2 | 7:G:409:LYS:HZ1 | 1.85 | 0.42 |
| 7:G:193:LYS:HA | 7:G:193:LYS:HD2 | 1.79 | 0.42 |
| 8:H:376:ARG:NH1 | 8:H:471:GLU:HA | 2.35 | 0.42 |
| 9:I:262:ILE:HD13 | 9:I:262:ILE:HA | 1.86 | 0.42 |
| 10:K:223:TYR:O | 10:K:226:ARG:HG3 | 2.19 | 0.42 |
| 12:M:188:TRP:NE1 | 12:M:203:THR:OG1 | 2.38 | 0.42 |
| 13:N:236:VAL:HG22 | 13:N:271:GLU:HG3 | 2.00 | 0.42 |
| 1:O:24:SER:OG | 1:O:25:LYS:N | 2.52 | 0.42 |
| 16:S:197:TRP:N | 16:S:198:PRO:HD2 | 2.34 | 0.42 |
| 16:S:237:PRO:HG2 | 16:S:242:ARG:HG3 | 2.02 | 0.42 |
| 17:J:273:GLU:O | 17:J:285:PHE:N | 2.53 | 0.42 |
| 1:A:113:PRO:HD3 | 1:A:142:PRO:HA | 2.02 | 0.42 |
| 2:B:8:GLY:HA2 | 2:B:13:PRO:HD3 | 2.00 | 0.42 |
| 2:B:534:ILE:HG22 | 2:B:886:PRO:HB3 | 2.01 | 0.42 |
| 4:D:331:THR:O | 4:D:335:LEU:HG | 2.18 | 0.42 |
| 4:D:448:MET:HA | 4:D:475:TRP:O | 2.19 | 0.42 |
| 5:E:283:PRO:HD2 | 5:E:286:LEU:HD22 | 2.02 | 0.42 |
| 9:I:460:LEU:HD23 | 9:I:460:LEU:HA | 1.87 | 0.42 |
| 11:L:196:ASN:OD1 | 11:L:199:ASN:ND2 | 2.53 | 0.42 |
| 11:L:203:SER:HB3 | 11:L:204:GLU:H | 1.68 | 0.42 |
| 12:M:85:TRP:HD1 | 12:M:141:TRP:NE1 | 2.18 | 0.42 |
| 12:M:218:ILE:HD11 | 12:M:252:ALA:HB2 | 2.02 | 0.42 |
| 13:N:394:LYS:HG3 | 13:N:396:GLU:HB3 | 2.02 | 0.42 |
| 15:Q:70:THR:OG1 | 15:Q:71:GLY:N | 2.52 | 0.42 |
| 6:R:117:LEU:HD23 | 6:R:117:LEU:HA | 1.70 | 0.42 |
| 16:S:298:TRP:HB3 | 16:S:301:MET:HG3 | 2.00 | 0.42 |
| 16:S:306:ILE:HG22 | 16:S:308:LYS:HE3 | 2.02 | 0.42 |
| 16:S:458:LYS:HZ2 | 16:S:460:HIS:CE1 | 2.38 | 0.42 |
| 2:B:25:ARG:NH1 | 2:B:25:ARG:HG2 | 2.34 | 0.42 |
| 2:B:391:ARG:NE | 2:B:526:ILE:HD11 | 2.35 | 0.42 |
| 3:C:622:VAL:HG23 | 3:C:632:GLU:HG2 | 2.02 | 0.42 |
| 4:D:496:ASP:O | 4:D:914:VAL:HG23 | 2.20 | 0.42 |
| 4:D:938:ILE:HG23 | 4:D:1068:THR:HG21 | 2.02 | 0.42 |
| 5:E:203:ALA:O | 6:F:164:THR:HA | 2.20 | 0.42 |
| 7:G:217:THR:OG1 | 7:G:218:SER:N | 2.52 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:106:ARG:HH22 | 9:I:370:SER:HB3 | 1.85 | 0.42 |
| 8:H:181:VAL:O | 8:H:185:VAL:HG23 | 2.20 | 0.42 |
| 11:L:239:TYR:CE2 | 12:M:225:HIS:HA | 2.54 | 0.42 |
| 16:S:242:ARG:HE | 16:S:474:GLU:HG3 | 1.84 | 0.42 |
| 17:J:321:LYS:HD2 | 17:J:321:LYS:HA | 1.94 | 0.42 |
| 17:J:691:LEU:O | 17:J:694:GLY:N | 2.52 | 0.42 |
| 1:A:13:LEU:HD11 | 1:A:34:LEU:HD23 | 2.01 | 0.42 |
| 2:B:181:LEU:HD13 | 2:B:219:LYS:HG3 | 2.02 | 0.42 |
| 2:B:678:VAL:HG12 | 2:B:814:ILE:HG23 | 2.01 | 0.42 |
| 2:B:745:GLN:HG2 | 2:B:748:LYS:HE2 | 2.01 | 0.42 |
| 2:B:760:ARG:HD3 | 2:B:767:VAL:HG22 | 2.02 | 0.42 |
| 3:C:239:ARG:HG3 | 3:C:239:ARG:NH1 | 2.34 | 0.42 |
| 3:C:359:VAL:HG12 | 3:C:366:ARG:HG2 | 2.02 | 0.42 |
| 3:C:536:LEU:HD21 | 4:D:16:GLY:HA2 | 2.02 | 0.42 |
| 3:C:611:ARG:HB3 | 4:D:9:PHE:H | 1.85 | 0.42 |
| 4:D:451:SER:O | 4:D:452:THR:HB | 2.20 | 0.42 |
| 4:D:475:TRP:NE1 | 13:N:94:GLU:OE2 | 2.46 | 0.42 |
| 4:D:1120:LYS:HE2 | 4:D:1122:ARG:NE | 2.35 | 0.42 |
| 12:M:222:LEU:HD13 | 12:M:235:ARG:HH22 | 1.85 | 0.42 |
| 1:O:45:ILE:HD13 | 1:O:45:ILE:HA | 1.73 | 0.42 |
| 2:B:294:ILE:HG13 | 2:B:295:GLY:N | 2.35 | 0.41 |
| 2:B:588:ILE:HD13 | 2:B:598:LEU:HB2 | 2.02 | 0.41 |
| 2:B:712:LEU:HD12 | 2:B:712:LEU:HA | 1.90 | 0.41 |
| 2:B:1012:HIS:CB | 2:B:1015:ALA:HB3 | 2.50 | 0.41 |
| 3:C:61:PHE:HD1 | 3:C:103:GLN:HB3 | 1.85 | 0.41 |
| 3:C:113:VAL:HG11 | 3:C:332:VAL:HG11 | 2.02 | 0.41 |
| 3:C:159:ARG:HA | 17:J:767:PRO:HB2 | 2.01 | 0.41 |
| 3:C:443:GLU:HG2 | 14:P:129:HIS:CD2 | 2.55 | 0.41 |
| 4:D:218:ARG:HG2 | 4:D:219:ASP:H | 1.85 | 0.41 |
| 4:D:298:CYS:SG | 4:D:300:LEU:N | 2.90 | 0.41 |
| 4:D:370:THR:CG2 | 4:D:380:LEU:HD12 | 2.50 | 0.41 |
| 4:D:1236:PHE:HB3 | 4:D:1240:ARG:HH11 | 1.85 | 0.41 |
| 8:H:146:LEU:HD23 | 8:H:146:LEU:HA | 1.89 | 0.41 |
| 8:H:331:PHE:O | 8:H:336:VAL:HG23 | 2.20 | 0.41 |
| 11:L:187:TYR:CZ | 11:L:207:LYS:HG3 | 2.55 | 0.41 |
| 11:L:201:LYS:HE3 | 11:L:201:LYS:HB2 | 1.88 | 0.41 |
| 14:P:165:LEU:HD23 | 14:P:165:LEU:HA | 1.90 | 0.41 |
| 6:R:141:ASP:O | 16:S:313:ARG:HD2 | 2.20 | 0.41 |
| 16:S:396:TRP:O | 16:S:396:TRP:CG | 2.73 | 0.41 |
| 16:S:439:ILE:HG21 | 16:S:462:TYR:CE2 | 2.55 | 0.41 |
| 17:J:272:ILE:HG21 | 17:J:341:PHE:CE2 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:282:GLY:HA2 | 17:J:304:VAL:HG13 | 2.02 | 0.41 |
| 17:J:674:TRP:CH2 | 17:J:697:LEU:HD11 | 2.55 | 0.41 |
| 17:J:709:CYS:HA | 17:J:712:ALA:HB3 | 2.01 | 0.41 |
| 3:C:140:LEU:HD23 | 3:C:199:ILE:HG13 | 2.02 | 0.41 |
| 3:C:260:GLU:HB2 | 3:C:263:TRP:CE2 | 2.55 | 0.41 |
| 6:F:114:LEU:HD23 | 6:F:114:LEU:HA | 1.88 | 0.41 |
| 7:G:187:GLU:HB3 | 7:G:188:LEU:H | 1.75 | 0.41 |
| 7:G:205:ASP:O | 7:G:209:LYS:HG3 | 2.20 | 0.41 |
| 8:H:790:MET:O | 8:H:794:ILE:HG13 | 2.20 | 0.41 |
| 9:I:423:LYS:HB3 | 9:I:423:LYS:HE2 | 1.82 | 0.41 |
| 12:M:64:LYS:HE2 | 12:M:64:LYS:HB2 | 1.89 | 0.41 |
| 15:Q:92:VAL:CG1 | 15:Q:121:LEU:HD22 | 2.50 | 0.41 |
| 6:R:98:ASP:OD1 | 6:R:99:PHE:N | 2.52 | 0.41 |
| 6:R:99:PHE:HE2 | 6:R:138:PHE:CD2 | 2.38 | 0.41 |
| 16:S:200:LEU:HD23 | 16:S:201:VAL:H | 1.85 | 0.41 |
| 16:S:296:LYS:HG3 | 16:S:297:ARG:HH11 | 1.84 | 0.41 |
| 16:S:305:LYS:CG | 16:S:317:VAL:HB | 2.50 | 0.41 |
| 16:S:336:LYS:HA | 16:S:367:LEU:HD12 | 2.02 | 0.41 |
| 2:B:171:ARG:NH1 | 2:B:175:LYS:HA | 2.36 | 0.41 |
| 2:B:524:PHE:HE2 | 2:B:887:PHE:HE2 | 1.67 | 0.41 |
| 3:C:231:GLU:O | 3:C:235:ARG:HG2 | 2.21 | 0.41 |
| 3:C:450:VAL:HG22 | 3:C:468:PRO:HD3 | 2.02 | 0.41 |
| 3:C:452:LEU:HD12 | 3:C:466:PHE:CD2 | 2.54 | 0.41 |
| 4:D:332:GLN:HA | 4:D:335:LEU:HB2 | 2.01 | 0.41 |
| 5:E:326:ARG:NH2 | 5:E:346:ASP:OD2 | 2.48 | 0.41 |
| 8:H:348:LYS:HB2 | 8:H:348:LYS:HE2 | 1.32 | 0.41 |
| 10:K:112:SER:OG | 10:K:113:THR:N | 2.52 | 0.41 |
| 10:K:305:ARG:NH2 | 10:K:324:ILE:HG23 | 2.34 | 0.41 |
| 12:M:62:LEU:HG | 12:M:93:LEU:HD23 | 2.02 | 0.41 |
| 1:O:69:LYS:HE2 | 1:O:69:LYS:HB2 | 1.77 | 0.41 |
| 16:S:530:ILE:HG21 | 16:S:536:GLY:CA | 2.50 | 0.41 |
| 17:J:514:VAL:HG22 | 17:J:533:PRO:HD3 | 2.01 | 0.41 |
| 17:J:725:LYS:NZ | 17:J:742:ASP:HB2 | 2.36 | 0.41 |
| 1:A:221:ASN:O | 1:A:224:ASP:HB2 | 2.20 | 0.41 |
| 3:C:47:THR:O | 3:C:49:LYS:N | 2.53 | 0.41 |
| 3:C:149:ARG:HD2 | 3:C:161:ARG:HB2 | 2.02 | 0.41 |
| 4:D:456:HIS:O | 13:N:79:ALA:HB1 | 2.21 | 0.41 |
| 7:G:380:ILE:HD12 | 7:G:380:ILE:HA | 1.94 | 0.41 |
| 9:I:482:GLU:HA | 9:I:485:GLN:HE21 | 1.85 | 0.41 |
| 16:S:242:ARG:O | 16:S:485:MET:SD | 2.79 | 0.41 |
| 17:J:549:ILE:HG12 | 17:J:549:ILE:H | 1.68 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:609:LEU:HD12 | 17:J:645:LYS:CB | 2.51 | 0.41 |
| 17:J:688:TYR:N | 17:J:689:PRO:HD3 | 2.35 | 0.41 |
| 2:B:695:THR:HG22 | 2:B:741:LYS:HD3 | 2.01 | 0.41 |
| 3:C:98:ARG:O | 3:C:101:ARG:HG2 | 2.20 | 0.41 |
| 3:C:596:ILE:HB | 3:C:600:SER:OG | 2.21 | 0.41 |
| 3:C:606:TRP:HZ2 | 3:C:611:ARG:HD3 | 1.85 | 0.41 |
| 3:C:669:ILE:HD13 | 3:C:669:ILE:HA | 1.84 | 0.41 |
| 8:H:77:LEU:HD12 | 8:H:92:VAL:HG12 | 2.03 | 0.41 |
| 10:K:230:ASP:N | 10:K:230:ASP:OD1 | 2.53 | 0.41 |
| 13:N:240:LYS:HE3 | 13:N:265:TYR:CE2 | 2.55 | 0.41 |
| 13:N:272:LEU:HA | 13:N:272:LEU:HD23 | 1.83 | 0.41 |
| 15:Q:65:TRP:CD2 | 15:Q:132:SER:HB2 | 2.55 | 0.41 |
| 16:S:222:ILE:HD13 | 16:S:232:GLU:HB3 | 2.02 | 0.41 |
| 16:S:339:LYS:HA | 16:S:369:SER:HB2 | 2.01 | 0.41 |
| 16:S:444:HIS:CG | 16:S:445:GLU:N | 2.88 | 0.41 |
| 17:J:443:VAL:HG13 | 17:J:481:ILE:HB | 2.03 | 0.41 |
| 17:J:682:HIS:ND1 | 17:J:686:ASP:HB3 | 2.35 | 0.41 |
| 17:J:693:ASN:C | 17:J:695:HIS:H | 2.24 | 0.41 |
| 17:J:708:ARG:NH1 | 17:J:756:LEU:HD21 | 2.35 | 0.41 |
| 1:A:43:ASP:OD1 | 1:A:43:ASP:N | 2.53 | 0.41 |
| 1:A:231:HIS:NE2 | 16:S:530:ILE:HG23 | 2.35 | 0.41 |
| 2:B:163:ASP:OD1 | 2:B:164:ARG:NH1 | 2.54 | 0.41 |
| 3:C:130:LEU:HD22 | 3:C:137:LEU:HD21 | 2.03 | 0.41 |
| 3:C:295:LEU:HD22 | 3:C:335:LEU:HA | 2.03 | 0.41 |
| 4:D:474:LEU:HD13 | 4:D:474:LEU:HA | 1.95 | 0.41 |
| 6:F:74:LEU:N | 6:F:115:GLU:OE2 | 2.31 | 0.41 |
| 8:H:260:PRO:HG2 | 8:H:299:ARG:CZ | 2.50 | 0.41 |
| 10:K:188:THR:O | 10:K:217:VAL:HG13 | 2.20 | 0.41 |
| 10:K:285:HIS:CE1 | 10:K:287:SER:HB3 | 2.55 | 0.41 |
| 1:O:98:SER:OG | 1:O:99:ASN:N | 2.53 | 0.41 |
| 14:P:119:TYR:HA | 14:P:122:ASN:ND2 | 2.36 | 0.41 |
| 17:J:621:ILE:HG22 | 17:J:720:VAL:HA | 2.02 | 0.41 |
| 2:B:86:LEU:HD23 | 2:B:95:GLN:HE21 | 1.85 | 0.41 |
| 2:B:86:LEU:HD23 | 2:B:95:GLN:NE2 | 2.35 | 0.41 |
| 2:B:579:ALA:HB3 | 2:B:639:ALA:HB3 | 2.03 | 0.41 |
| 4:D:328:GLU:HB3 | 4:D:329:PRO:CD | 2.47 | 0.41 |
| 7:G:223:TRP:HA | 7:G:226:ARG:HG3 | 2.03 | 0.41 |
| 12:M:155:GLY:H | 12:M:158:GLN:NE2 | 2.17 | 0.41 |
| 13:N:170:VAL:HG11 | 13:N:205:VAL:HG11 | 2.02 | 0.41 |
| 1:O:152:GLU:OE1 | 1:O:153:ARG:N | 2.54 | 0.41 |
| 1:A:61:CYS:HA | 1:A:96:LEU:HD12 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:38:PHE:CD2 | 2:B:52:LEU:HD12 | 2.55 | 0.41 |
| 2:B:223:ILE:O | 2:B:228:GLN:HB2 | 2.21 | 0.41 |
| 2:B:339:THR:O | 2:B:343:ALA:N | 2.53 | 0.41 |
| 3:C:50:PRO:CB | 3:C:56:PHE:HB2 | 2.47 | 0.41 |
| 4:D:206:LEU:HA | 4:D:1258:ILE:HD11 | 2.03 | 0.41 |
| 4:D:1115:THR:O | 4:D:1116:PHE:HB2 | 2.20 | 0.41 |
| 5:E:158:HIS:CE1 | 5:E:163:GLY:HA3 | 2.56 | 0.41 |
| 7:G:294:ILE:HG23 | 7:G:298:ALA:HB3 | 2.03 | 0.41 |
| 9:I:234:TRP:O | 9:I:238:TRP:HB2 | 2.20 | 0.41 |
| 9:I:291:LEU:HD11 | 9:I:312:VAL:HG21 | 2.01 | 0.41 |
| 9:I:329:ASN:OD1 | 9:I:330:TYR:N | 2.53 | 0.41 |
| 9:I:383:TYR:HE1 | 9:I:385:SER:HA | 1.86 | 0.41 |
| 16:S:202:CYS:HB2 | 16:S:341:PHE:CG | 2.56 | 0.41 |
| 16:S:330:ILE:HD11 | 16:S:356:THR:HA | 2.03 | 0.41 |
| 16:S:398:LEU:HA | 16:S:444:HIS:CD2 | 2.56 | 0.41 |
| 16:S:486:SER:HB2 | 16:S:533:ARG:NE | 2.36 | 0.41 |
| 17:J:322:ALA:O | 17:J:323:LEU:HD13 | 2.20 | 0.41 |
| 1:A:58:GLU:HG2 | 1:A:155:ARG:HB2 | 2.02 | 0.41 |
| 1:A:220:ARG:NE | 16:S:477:PRO:HD2 | 2.28 | 0.41 |
| 2:B:541:ARG:HA | 2:B:541:ARG:HD2 | 1.78 | 0.41 |
| 3:C:13:GLY:HA3 | 3:C:259:ILE:HD11 | 2.03 | 0.41 |
| 3:C:559:ASN:O | 3:C:561:LYS:HG2 | 2.21 | 0.41 |
| 4:D:15:ASP:OD1 | 4:D:15:ASP:N | 2.46 | 0.41 |
| 4:D:368:HIS:CE1 | 4:D:382:TYR:HD2 | 2.39 | 0.41 |
| 4:D:411:ASP:OD1 | 4:D:411:ASP:N | 2.54 | 0.41 |
| 4:D:1148:ASN:OD1 | 4:D:1152:ARG:NH2 | 2.54 | 0.41 |
| 5:E:307:ILE:HG13 | 5:E:363:LEU:HD21 | 2.03 | 0.41 |
| 5:E:428:VAL:O | 5:E:432:GLN:HG2 | 2.21 | 0.41 |
| 8:H:837:SER:N | 8:H:838:PRO:CD | 2.84 | 0.41 |
| 11:L:256:ASN:OD1 | 11:L:256:ASN:N | 2.52 | 0.41 |
| 12:M:125:LEU:HB3 | 12:M:126:PRO:HD2 | 2.03 | 0.41 |
| 13:N:216:GLU:N | 13:N:216:GLU:OE1 | 2.54 | 0.41 |
| 13:N:284:LYS:HB2 | 13:N:284:LYS:HE2 | 1.79 | 0.41 |
| 13:N:326:VAL:HG21 | 13:N:347:PHE:HE1 | 1.86 | 0.41 |
| 6:R:121:TYR:HD2 | 6:R:125:ALA:HB3 | 1.86 | 0.41 |
| 16:S:199:PRO:HB3 | 16:S:339:LYS:CB | 2.50 | 0.41 |
| 16:S:239:LYS:HB2 | 16:S:407:GLN:NE2 | 2.36 | 0.41 |
| 17:J:507:LEU:HD13 | 17:J:516:PRO:HG2 | 2.03 | 0.41 |
| 17:J:533:PRO:HG2 | 17:J:560:ILE:HG21 | 2.03 | 0.41 |
| 17:J:624:ILE:HG21 | 17:J:638:LEU:HD21 | 2.03 | 0.41 |
| 17:J:635:ARG:HA | 17:J:638:LEU:HB3 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:J:649:THR:HB | 17:J:698:PHE:CD1 | 2.56 | 0.41 |
| 3:C:389:SER:OG | 14:P:167:GLU:CD | 2.58 | 0.41 |
| 4:D:101:ILE:HD12 | 4:D:160:MET:HB2 | 2.02 | 0.41 |
| 4:D:1159:ARG:HH12 | 8:H:735:ASP:CA | 2.34 | 0.41 |
| 4:D:1248:ALA:HB1 | 4:D:1250:CYS:SG | 2.62 | 0.41 |
| 5:E:155:ALA:O | 5:E:159:VAL:HG12 | 2.20 | 0.41 |
| 7:G:351:ILE:HD12 | 7:G:351:ILE:HA | 1.86 | 0.41 |
| 7:G:417:ARG:HD3 | 7:G:421:GLU:HG2 | 2.03 | 0.41 |
| 8:H:74:MET:HE1 | 8:H:107:SER:HB3 | 2.03 | 0.41 |
| 8:H:792:LYS:HA | 8:H:792:LYS:HD2 | 1.87 | 0.41 |
| 13:N:184:TRP:CD2 | 13:N:235:TRP:HD1 | 2.38 | 0.41 |
| 13:N:425:GLU:HB3 | 13:N:434:LYS:HZ2 | 1.85 | 0.41 |
| 16:S:348:LEU:HD11 | 16:S:395:VAL:HB | 2.03 | 0.41 |
| 16:S:444:HIS:CE1 | 16:S:445:GLU:O | 2.74 | 0.41 |
| 17:J:763:THR:HA | 17:J:768:TRP:CZ3 | 2.56 | 0.41 |
| 2:B:460:ARG:NE | 2:B:460:ARG:HA | 2.36 | 0.40 |
| 2:B:1023:THR:HG22 | 3:C:408:THR:HB | 2.03 | 0.40 |
| 4:D:1076:LEU:HG | 4:D:1086:ARG:HB2 | 2.03 | 0.40 |
| 4:D:1159:ARG:O | 4:D:1162:ARG:HG3 | 2.20 | 0.40 |
| 7:G:260:TYR:CE2 | 10:K:320:ILE:HG22 | 2.55 | 0.40 |
| 8:H:452:ARG:HD2 | 8:H:452:ARG:HA | 1.81 | 0.40 |
| 8:H:833:TYR:O | 8:H:834:ARG:HB2 | 2.20 | 0.40 |
| 9:I:304:ARG:HG2 | 14:P:101:SER:HB3 | 2.04 | 0.40 |
| 10:K:179:PRO:HG2 | 10:K:183:ILE:HD13 | 2.02 | 0.40 |
| 10:K:275:ARG:HE | 10:K:275:ARG:HB3 | 1.76 | 0.40 |
| 12:M:232:LYS:HD3 | 12:M:232:LYS:HA | 1.82 | 0.40 |
| 13:N:176:PRO:HB3 | 13:N:276:TYR:HB2 | 2.02 | 0.40 |
| 6:R:96:ILE:HD11 | 6:R:152:PHE:HE1 | 1.85 | 0.40 |
| 6:R:122:GLU:O | 6:R:123:LYS:HD3 | 2.21 | 0.40 |
| 6:R:143:GLN:CG | 16:S:315:THR:CA | 2.91 | 0.40 |
| 6:R:143:GLN:HE22 | 16:S:313:ARG:NE | 2.18 | 0.40 |
| 16:S:507:ILE:HG22 | 16:S:508:THR:H | 1.86 | 0.40 |
| 2:B:140:HIS:NE2 | 2:B:141:ASN:OD1 | 2.54 | 0.40 |
| 2:B:573:LEU:HD12 | 7:G:392:TYR:CD1 | 2.56 | 0.40 |
| 2:B:992:ALA:HB3 | 3:C:463:ILE:HD12 | 2.04 | 0.40 |
| 2:B:1003:GLN:O | 2:B:1007:THR:HG23 | 2.21 | 0.40 |
| 4:D:354:ALA:HB3 | 4:D:416:SER:O | 2.22 | 0.40 |
| 5:E:333:TYR:CD2 | 13:N:255:HIS:HB2 | 2.56 | 0.40 |
| 7:G:325:GLU:H | 7:G:325:GLU:HG2 | 1.62 | 0.40 |
| 8:H:104:GLY:O | 8:H:105:PRO:C | 2.59 | 0.40 |
| 8:H:130:ARG:H | 8:H:130:ARG:HG2 | 1.62 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:432:MET:HB2 | 17:J:671:GLY:CA | 2.52 | 0.40 |
| 12:M:151:SER:HA | 12:M:167:PHE:CE2 | 2.56 | 0.40 |
| 6:R:108:ILE:HA | 6:R:111:ALA:HB3 | 2.02 | 0.40 |
| 17:J:279:VAL:HG13 | 17:J:283:ASP:OD1 | 2.21 | 0.40 |
| 17:J:653:SER:O | 17:J:653:SER:OG | 2.30 | 0.40 |
| 3:C:15:VAL:HG11 | 3:C:23:TRP:CH2 | 2.56 | 0.40 |
| 3:C:272:LEU:HD23 | 3:C:273:PRO:N | 2.36 | 0.40 |
| 3:C:412:ARG:NH1 | 14:P:124:ARG:HH22 | 2.15 | 0.40 |
| 3:C:619:PRO:HB3 | 3:C:634:TYR:CE1 | 2.56 | 0.40 |
| 4:D:367:VAL:HG13 | 4:D:385:LEU:HD11 | 2.02 | 0.40 |
| 4:D:1226:VAL:O | 8:H:301:GLN:NE2 | 2.55 | 0.40 |
| 8:H:124:ALA:HB1 | 8:H:146:LEU:HD21 | 2.02 | 0.40 |
| 8:H:164:ALA:O | 8:H:168:LYS:HG2 | 2.20 | 0.40 |
| 8:H:293:ARG:HE | 8:H:293:ARG:HB3 | 1.77 | 0.40 |
| 15:Q:83:GLN:HB2 | 15:Q:133:PHE:CE1 | 2.57 | 0.40 |
| 16:S:196:GLY:HA2 | 16:S:261:ARG:NH1 | 2.36 | 0.40 |
| 16:S:270:ASN:OD1 | 16:S:293:VAL:HG21 | 2.20 | 0.40 |
| 2:B:791:ILE:O | 2:B:802:GLU:HA | 2.22 | 0.40 |
| 4:D:262:THR:HB | 9:I:143:MET:CE | 2.51 | 0.40 |
| 6:F:69:VAL:HG22 | 7:G:409:LYS:HE2 | 2.03 | 0.40 |
| 8:H:744:ARG:HD2 | 8:H:744:ARG:N | 2.37 | 0.40 |
| 11:L:67:ASP:OD1 | 11:L:67:ASP:N | 2.52 | 0.40 |
| 13:N:374:LEU:HD23 | 13:N:374:LEU:HA | 1.94 | 0.40 |
| 1:O:64:ARG:NH2 | 1:O:163:ASN:O | 2.54 | 0.40 |
| 1:O:167:ASP:OD1 | 1:O:167:ASP:N | 2.35 | 0.40 |
| 6:R:143:GLN:HG3 | 16:S:315:THR:CB | 2.52 | 0.40 |
| 6:R:147:LEU:HD23 | 6:R:147:LEU:HA | 1.95 | 0.40 |
| 16:S:255:LEU:HD22 | 16:S:497:MET:HG3 | 2.03 | 0.40 |
| 17:J:324:VAL:O | 17:J:324:VAL:HG13 | 2.21 | 0.40 |
| 2:B:25:ARG:HG2 | 2:B:25:ARG:HH11 | 1.87 | 0.40 |
| 2:B:183:LEU:CD1 | 2:B:190:ASN:HD21 | 2.35 | 0.40 |
| 2:B:711:HIS:HE1 | 2:B:766:GLN:H | 1.69 | 0.40 |
| 4:D:206:LEU:HD22 | 4:D:1208:ILE:HD13 | 2.02 | 0.40 |
| 4:D:329:PRO:O | 4:D:331:THR:N | 2.55 | 0.40 |
| 4:D:331:THR:C | 4:D:334:THR:H | 2.25 | 0.40 |
| 4:D:428:SER:O | 4:D:429:THR:OG1 | 2.37 | 0.40 |
| 6:F:179:ASN:N | 6:F:179:ASN:OD1 | 2.54 | 0.40 |
| 8:H:205:LEU:HD23 | 8:H:205:LEU:HA | 1.88 | 0.40 |
| 8:H:340:ALA:O | 8:H:341:ILE:C | 2.59 | 0.40 |
| 8:H:807:ILE:O | 8:H:810:ARG:HG2 | 2.21 | 0.40 |
| 10:K:223:TYR:HA | 10:K:236:ASP:HB2 | 2.03 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:L:75:LYS:HB2 | 11:L:75:LYS:HE3 | 1.88 | 0.40 |
| 11:L:140:MET:HE3 | 11:L:140:MET:HB3 | 1.96 | 0.40 |
| 11:L:220:PRO:HB2 | 11:L:227:PRO:HG3 | 2.03 | 0.40 |
| 12:M:139:PHE:CZ | 12:M:216:PRO:HB2 | 2.57 | 0.40 |
| 13:N:188:ARG:HD3 | 13:N:188:ARG:HA | 1.87 | 0.40 |
| 6:R:108:ILE:HA | 6:R:108:ILE:HD13 | 1.80 | 0.40 |
| 16:S:340:MET:HE2 | 16:S:401:VAL:HB | 2.04 | 0.40 |

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 1 | A | 223/335 (67%) | 207 (93%) | 15 (7%) | 1 (0%) | 30 | 61 |
| 1 | O | 221/335 (66%) | 203 (92%) | 18 (8%) | 0 | 100 | 100 |
| 2 | B | 1068/1070 (100%) | 975 (91%) | 86 (8%) | 7 (1%) | 19 | 51 |
| 3 | C | 675/677 (100%) | 605 (90%) | 64 (10%) | 6 (1%) | 14 | 45 |
| 4 | D | 1211/1357 (89%) | 1063 (88%) | 131 (11%) | 17 (1%) | 9 | 36 |
| 5 | E | 380/472 (80%) | 359 (94%) | 18 (5%) | 3 (1%) | 16 | 47 |
| 6 | F | 114/181 (63%) | 109 (96%) | 5 (4%) | 0 | 100 | 100 |
| 6 | R | 114/181 (63%) | 97 (85%) | 16 (14%) | 1 (1%) | 14 | 45 |
| 7 | G | 235/518 (45%) | 205 (87%) | 30 (13%) | 0 | 100 | 100 |
| 8 | H | 589/892 (66%) | 496 (84%) | 87 (15%) | 6 (1%) | 13 | 43 |
| 9 | I | 411/490 (84%) | 328 (80%) | 82 (20%) | 1 (0%) | 44 | 72 |
| 10 | K | 212/324 (65%) | 194 (92%) | 17 (8%) | 1 (0%) | 25 | 57 |
| 11 | L | 222/284 (78%) | 180 (81%) | 38 (17%) | 4 (2%) | 7 | 31 |
| 12 | M | 213/273 (78%) | 198 (93%) | 15 (7%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 13 | N | 473/678 (70%) | 446 (94%) | 25 (5%) | 2 (0%) | 30 | 61 |
| 14 | P | 103/170 (61%) | 89 (86%) | 14 (14%) | 0 | 100 | 100 |
| 15 | Q | 102/143 (71%) | 88 (86%) | 14 (14%) | 0 | 100 | 100 |
| 16 | S | 342/583 (59%) | 249 (73%) | 78 (23%) | 15 (4%) | 2 | 13 |
| 17 | J | 544/774 (70%) | 479 (88%) | 62 (11%) | 3 (1%) | 22 | 54 |
| All | All | 7452/9737 (76%) | 6570 (88%) | 815 (11%) | 67 (1%) | 17 | 45 |

All (67) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 36 | PRO |
| 2 | B | 212 | GLU |
| 3 | C | 123 | PRO |
| 4 | D | 447 | GLU |
| 4 | D | 947 | PRO |
| 4 | D | 958 | PRO |
| 4 | D | 993 | LEU |
| 4 | D | 1021 | PRO |
| 4 | D | 1030 | ASN |
| 4 | D | 1031 | PRO |
| 5 | E | 338 | TYR |
| 8 | H | 531 | PRO |
| 8 | H | 802 | ILE |
| 8 | H | 844 | ILE |
| 10 | K | 157 | ARG |
| 11 | L | 198 | VAL |
| 13 | N | 432 | LYS |
| 16 | S | 213 | PRO |
| 16 | S | 305 | LYS |
| 16 | S | 334 | VAL |
| 16 | S | 393 | GLN |
| 16 | S | 398 | LEU |
| 16 | S | 413 | CYS |
| 16 | S | 423 | THR |
| 16 | S | 507 | ILE |
| 17 | J | 690 | PRO |
| 17 | J | 692 | PRO |
| 2 | B | 186 | ALA |
| 2 | B | 203 | ILE |
| 2 | B | 463 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 50 | PRO |
| 3 | C | 314 | ARG |
| 4 | D | 1121 | SER |
| 4 | D | 1122 | ARG |
| 4 | D | 1126 | ILE |
| 11 | L | 110 | VAL |
| 16 | S | 270 | ASN |
| 2 | B | 216 | ILE |
| 2 | B | 223 | ILE |
| 2 | B | 1010 | SER |
| 3 | C | 46 | LYS |
| 3 | C | 142 | TYR |
| 4 | D | 965 | PRO |
| 8 | H | 726 | ASP |
| 8 | H | 838 | PRO |
| 9 | I | 335 | GLN |
| 16 | S | 307 | ALA |
| 16 | S | 416 | ASN |
| 17 | J | 695 | HIS |
| 4 | D | 1006 | LYS |
| 5 | E | 126 | ASP |
| 8 | H | 520 | ILE |
| 6 | R | 67 | LYS |
| 16 | S | 303 | GLN |
| 4 | D | 960 | ARG |
| 4 | D | 1023 | PRO |
| 5 | E | 334 | TYR |
| 16 | S | 311 | ALA |
| 16 | S | 420 | GLU |
| 4 | D | 416 | SER |
| 11 | L | 205 | ASP |
| 16 | S | 319 | PRO |
| 3 | C | 192 | ILE |
| 4 | D | 972 | ILE |
| 13 | N | 395 | VAL |
| 4 | D | 957 | ILE |
| 11 | L | 202 | PRO |

### 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 PDB entries followed by that with respect to all EM

entries.

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 1 | A | 198/305 (65%) | 190 (96%) | 8 (4%) | 27 | 55 |
| 1 | O | 197/305 (65%) | 192 (98%) | 5 (2%) | 42 | 67 |
| 2 | B | 929/929 (100%) | 914 (98%) | 15 (2%) | 58 | 77 |
| 3 | C | 599/599 (100%) | 576 (96%) | 23 (4%) | 28 | 56 |
| 4 | D | 702/1214 (58%) | 676 (96%) | 26 (4%) | 29 | 57 |
| 5 | E | 336/418 (80%) | 331 (98%) | 5 (2%) | 60 | 78 |
| 6 | F | 104/166 (63%) | 102 (98%) | 2 (2%) | 52 | 73 |
| 6 | R | 104/166 (63%) | 97 (93%) | 7 (7%) | 13 | 39 |
| 7 | G | 217/460 (47%) | 214 (99%) | 3 (1%) | 62 | 80 |
| 8 | H | 470/772 (61%) | 442 (94%) | 28 (6%) | 16 | 43 |
| 9 | I | 363/437 (83%) | 344 (95%) | 19 (5%) | 19 | 47 |
| 10 | K | 203/305 (67%) | 195 (96%) | 8 (4%) | 27 | 55 |
| 11 | L | 189/236 (80%) | 182 (96%) | 7 (4%) | 29 | 57 |
| 12 | M | 186/235 (79%) | 181 (97%) | 5 (3%) | 40 | 65 |
| 13 | N | 433/623 (70%) | 423 (98%) | 10 (2%) | 45 | 69 |
| 14 | P | 87/147 (59%) | 85 (98%) | 2 (2%) | 45 | 69 |
| 15 | Q | 94/130 (72%) | 89 (95%) | 5 (5%) | 19 | 47 |
| 16 | S | 290/508 (57%) | 260 (90%) | 30 (10%) | 6 | 22 |
| 17 | J | 462/666 (69%) | 447 (97%) | 15 (3%) | 34 | 61 |
| All | All | 6163/8621 (72%) | 5940 (96%) | 223 (4%) | 32 | 58 |

All (223) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 43 | ASP |
| 1 | A | 114 | ARG |
| 1 | A | 131 | ASP |
| 1 | A | 132 | ASN |
| 1 | A | 175 | LEU |
| 1 | A | 196 | GLN |
| 1 | A | 201 | LEU |
| 1 | A | 224 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 71 | TYR |
| 2 | B | 169 | TRP |
| 2 | B | 187 | MET |
| 2 | B | 277 | ASN |
| 2 | B | 412 | ASP |
| 2 | B | 483 | ASN |
| 2 | B | 591 | ASN |
| 2 | B | 669 | ASP |
| 2 | B | 675 | GLU |
| 2 | B | 722 | LYS |
| 2 | B | 757 | ARG |
| 2 | B | 790 | TRP |
| 2 | B | 921 | TYR |
| 2 | B | 953 | GLN |
| 2 | B | 1008 | TYR |
| 3 | C | 41 | TYR |
| 3 | C | 43 | PHE |
| 3 | C | 47 | THR |
| 3 | C | 49 | LYS |
| 3 | C | 51 | GLU |
| 3 | C | 93 | GLU |
| 3 | C | 94 | PHE |
| 3 | C | 106 | TYR |
| 3 | C | 120 | LYS |
| 3 | C | 122 | LEU |
| 3 | C | 149 | ARG |
| 3 | C | 156 | THR |
| 3 | C | 157 | PHE |
| 3 | C | 171 | TRP |
| 3 | C | 296 | TYR |
| 3 | C | 364 | GLU |
| 3 | C | 381 | ARG |
| 3 | C | 395 | CYS |
| 3 | C | 526 | ASP |
| 3 | C | 563 | TYR |
| 3 | C | 611 | ARG |
| 3 | C | 617 | GLU |
| 3 | C | 624 | TYR |
| 4 | D | 11 | ASN |
| 4 | D | 83 | GLU |
| 4 | D | 155 | ASP |
| 4 | D | 198 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 238 | ARG |
| 4 | D | 251 | ASP |
| 4 | D | 331 | THR |
| 4 | D | 365 | ASP |
| 4 | D | 367 | VAL |
| 4 | D | 370 | THR |
| 4 | D | 411 | ASP |
| 4 | D | 460 | PHE |
| 4 | D | 498 | MET |
| 4 | D | 1062 | CYS |
| 4 | D | 1086 | ARG |
| 4 | D | 1120 | LYS |
| 4 | D | 1122 | ARG |
| 4 | D | 1125 | ASP |
| 4 | D | 1126 | ILE |
| 4 | D | 1127 | THR |
| 4 | D | 1128 | GLN |
| 4 | D | 1130 | LEU |
| 4 | D | 1150 | GLU |
| 4 | D | 1154 | ASP |
| 4 | D | 1210 | ARG |
| 4 | D | 1225 | ASN |
| 5 | E | 95 | ASP |
| 5 | E | 241 | LYS |
| 5 | E | 249 | ASN |
| 5 | E | 334 | TYR |
| 5 | E | 472 | TRP |
| 6 | F | 156 | ASP |
| 6 | F | 180 | ASP |
| 7 | G | 217 | THR |
| 7 | G | 340 | ASP |
| 7 | G | 413 | LYS |
| 8 | H | 108 | TYR |
| 8 | H | 192 | ASP |
| 8 | H | 222 | SER |
| 8 | H | 257 | CYS |
| 8 | H | 302 | ASP |
| 8 | H | 336 | VAL |
| 8 | H | 338 | ARG |
| 8 | H | 347 | LEU |
| 8 | H | 348 | LYS |
| 8 | H | 376 | ARG |

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | H | 379 | ARG |
| 8 | H | 434 | ARG |
| 8 | H | 466 | TYR |
| 8 | H | 485 | ARG |
| 8 | H | 724 | GLU |
| 8 | H | 728 | ASP |
| 8 | H | 744 | ARG |
| 8 | H | 752 | GLU |
| 8 | H | 761 | TRP |
| 8 | H | 763 | TRP |
| 8 | H | 765 | TRP |
| 8 | H | 775 | ARG |
| 8 | H | 777 | TRP |
| 8 | H | 805 | CYS |
| 8 | H | 833 | TYR |
| 8 | H | 834 | ARG |
| 8 | H | 837 | SER |
| 8 | H | 840 | TYR |
| 9 | I | 78 | MET |
| 9 | I | 101 | PHE |
| 9 | I | 108 | PHE |
| 9 | I | 165 | LYS |
| 9 | I | 183 | GLU |
| 9 | I | 184 | ASP |
| 9 | I | 192 | ASP |
| 9 | I | 280 | ASP |
| 9 | I | 301 | PHE |
| 9 | I | 305 | PHE |
| 9 | I | 307 | ASP |
| 9 | I | 332 | SER |
| 9 | I | 334 | GLN |
| 9 | I | 339 | PHE |
| 9 | I | 362 | ARG |
| 9 | I | 368 | PHE |
| 9 | I | 381 | TYR |
| 9 | I | 427 | GLU |
| 9 | I | 445 | GLN |
| 10 | K | 190 | TYR |
| 10 | K | 229 | ASN |
| 10 | K | 233 | PHE |
| 10 | K | 254 | ARG |
| 10 | K | 287 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | K | 291 | ASP |
| 10 | K | 305 | ARG |
| 10 | K | 323 | TRP |
| 11 | L | 56 | LYS |
| 11 | L | 177 | GLN |
| 11 | L | 198 | VAL |
| 11 | L | 206 | ASP |
| 11 | L | 223 | TRP |
| 11 | L | 226 | TYR |
| 11 | L | 266 | ARG |
| 12 | M | 102 | ARG |
| 12 | M | 111 | MET |
| 12 | M | 219 | CYS |
| 12 | M | 228 | TYR |
| 12 | M | 235 | ARG |
| 13 | N | 143 | GLU |
| 13 | N | 201 | MET |
| 13 | N | 272 | LEU |
| 13 | N | 282 | LEU |
| 13 | N | 378 | ARG |
| 13 | N | 401 | LEU |
| 13 | N | 432 | LYS |
| 13 | N | 449 | HIS |
| 13 | N | 453 | TYR |
| 13 | N | 466 | THR |
| 1 | O | 104 | CYS |
| 1 | O | 187 | HIS |
| 1 | O | 209 | LEU |
| 1 | O | 221 | ASN |
| 1 | O | 231 | HIS |
| 14 | P | 83 | LYS |
| 14 | P | 96 | ASP |
| 15 | Q | 50 | ARG |
| 15 | Q | 53 | SER |
| 15 | Q | 58 | ASN |
| 15 | Q | 82 | ASP |
| 15 | Q | 86 | TYR |
| 6 | R | 77 | LYS |
| 6 | R | 85 | GLU |
| 6 | R | 103 | TRP |
| 6 | R | 137 | GLU |
| 6 | R | 138 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | R | 145 | ARG |
| 6 | R | 159 | LYS |
| 16 | S | 201 | VAL |
| 16 | S | 240 | PHE |
| 16 | S | 257 | SER |
| 16 | S | 261 | ARG |
| 16 | S | 289 | ARG |
| 16 | S | 295 | ASP |
| 16 | S | 301 | MET |
| 16 | S | 305 | LYS |
| 16 | S | 306 | ILE |
| 16 | S | 308 | LYS |
| 16 | S | 309 | ARG |
| 16 | S | 312 | LEU |
| 16 | S | 313 | ARG |
| 16 | S | 316 | THR |
| 16 | S | 318 | LYS |
| 16 | S | 341 | PHE |
| 16 | S | 359 | ARG |
| 16 | S | 372 | PHE |
| 16 | S | 396 | TRP |
| 16 | S | 398 | LEU |
| 16 | S | 400 | ASP |
| 16 | S | 457 | SER |
| 16 | S | 460 | HIS |
| 16 | S | 466 | HIS |
| 16 | S | 475 | ASP |
| 16 | S | 505 | HIS |
| 16 | S | 506 | LEU |
| 16 | S | 507 | ILE |
| 16 | S | 509 | ASP |
| 16 | S | 512 | TYR |
| 17 | J | 262 | TYR |
| 17 | J | 348 | MET |
| 17 | J | 370 | TYR |
| 17 | J | 401 | ASP |
| 17 | J | 412 | MET |
| 17 | J | 497 | ASN |
| 17 | J | 511 | ASP |
| 17 | J | 544 | LEU |
| 17 | J | 546 | ARG |
| 17 | J | 583 | CYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | J | 688 | TYR |
| 17 | J | 691 | LEU |
| 17 | J | 693 | ASN |
| 17 | J | 740 | PHE |
| 17 | J | 752 | TYR |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 6 | ASN |
| 2 | B | 190 | ASN |
| 2 | B | 228 | GLN |
| 2 | B | 229 | GLN |
| 2 | B | 621 | HIS |
| 2 | B | 711 | HIS |
| 3 | C | 44 | HIS |
| 3 | C | 479 | HIS |
| 4 | D | 376 | HIS |
| 4 | D | 449 | HIS |
| 10 | K | 132 | HIS |
| 10 | K | 151 | ASN |
| 11 | L | 132 | ASN |
| 11 | L | 177 | GLN |
| 11 | L | 219 | ASN |
| 12 | M | 137 | HIS |
| 13 | N | 255 | HIS |
| 16 | S | 483 | GLN |
| 16 | S | 528 | GLN |
| 17 | J | 388 | HIS |
| 17 | J | 399 | ASN |
| 17 | J | 551 | ASN |
| 17 | J | 693 | ASN |

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

# 6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-38799. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

## 6.1 Orthogonal projections ⓘ
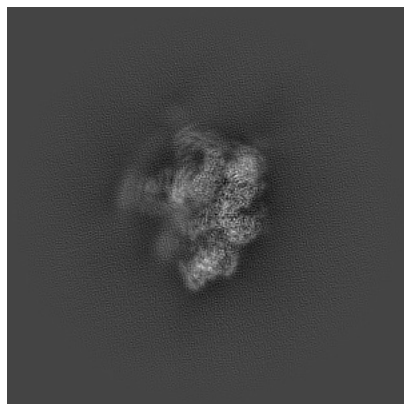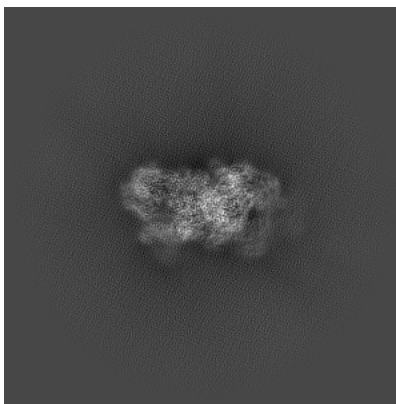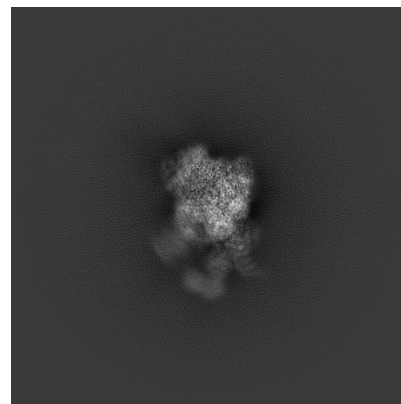
### 6.1.1 Primary map



| X | Y | Z |

### 6.1.2 Raw map



| X | Y | Z |
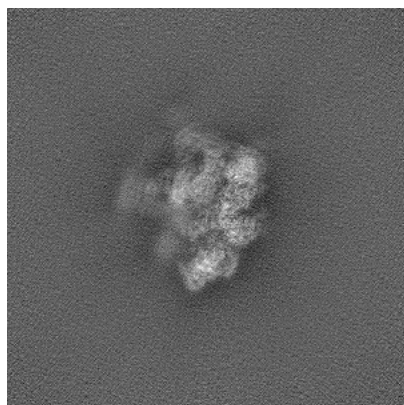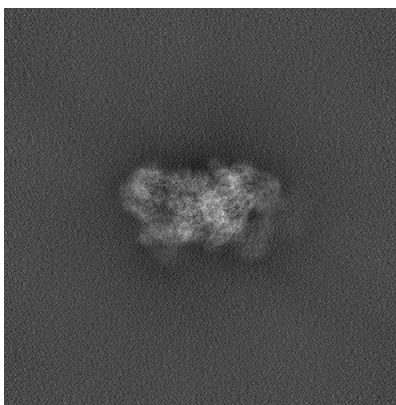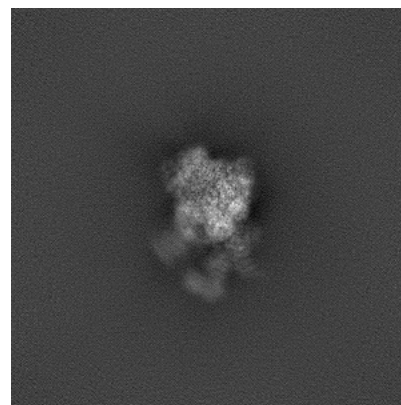
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices ⓘ
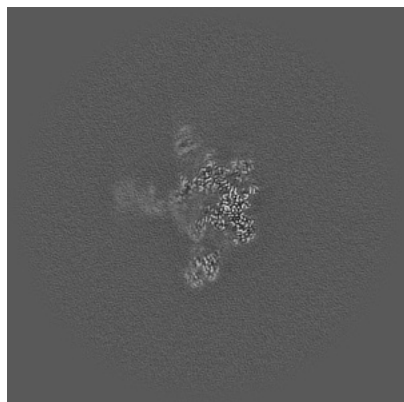
### 6.2.1 Primary map
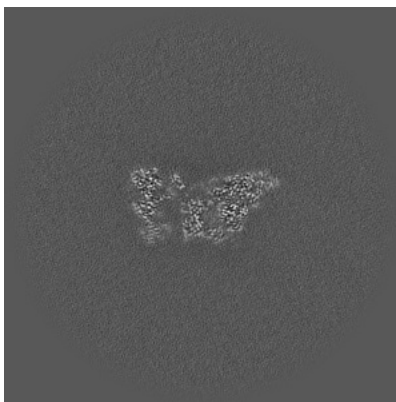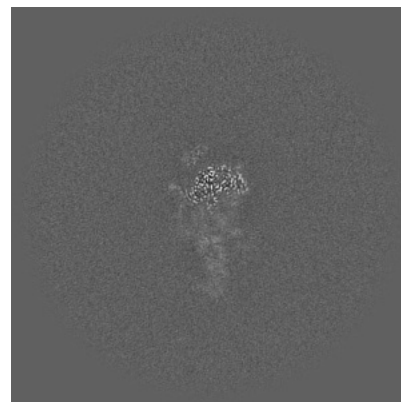


| X Index: 256 | Y Index: 256 | Z Index: 256 |

### 6.2.2 Raw map
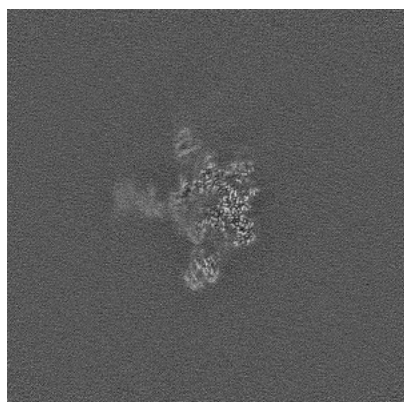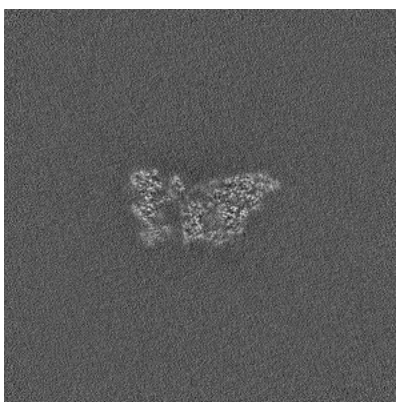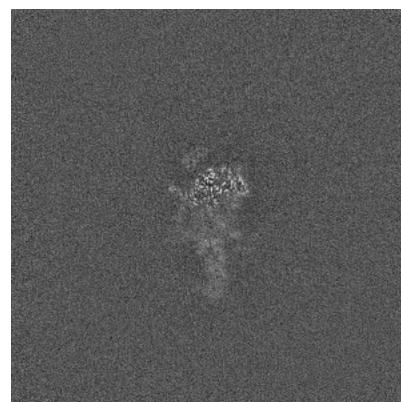


| X Index: 256 | Y Index: 256 | Z Index: 256 |

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

## 6.3 Largest variance slices ⓘ
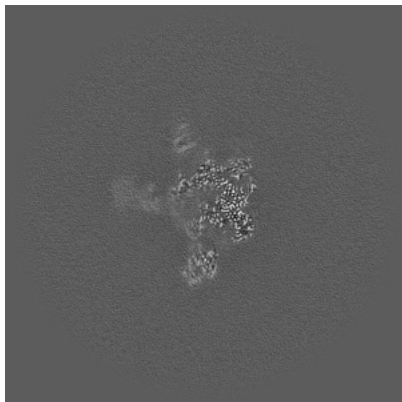
### 6.3.1 Primary map
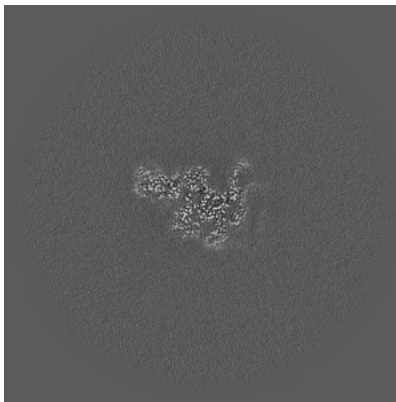


| X Index: 255 | Y Index: 283 | Z Index: 278 |
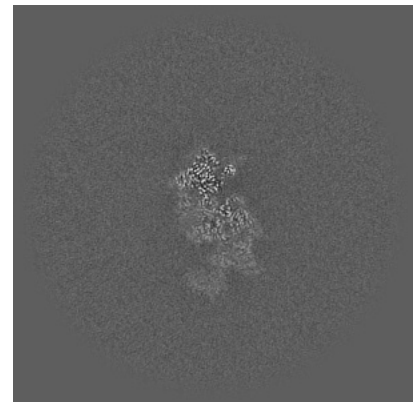
### 6.3.2 Raw map
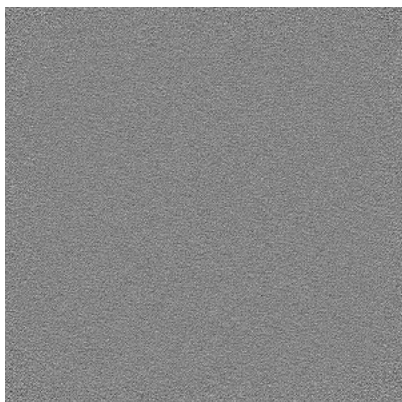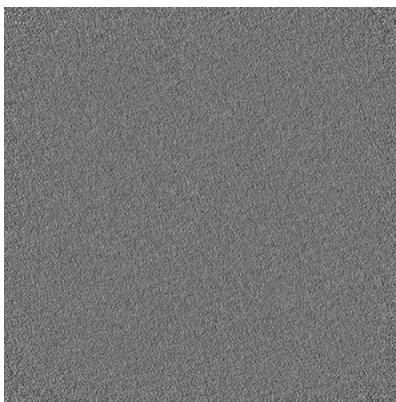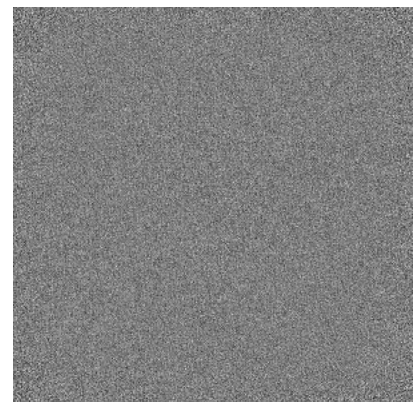


| X Index: 0 | Y Index: 0 | Z Index: 0 |

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

## 6.4 Orthogonal standard-deviation projections (False-color) (i)

### 6.4.1 Primary map



| X | Y | Z |

### 6.4.2 Raw map



| X | Y | Z |
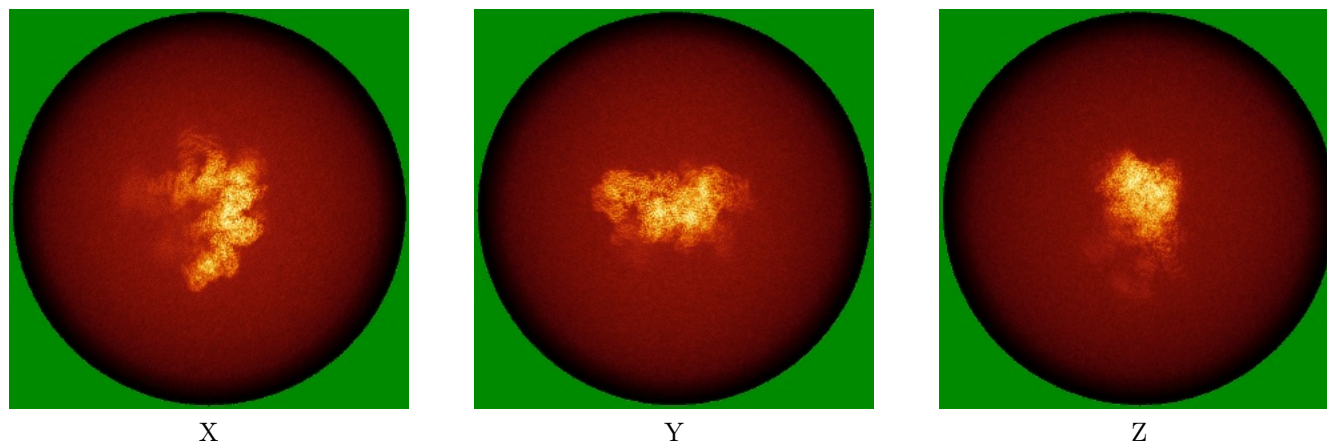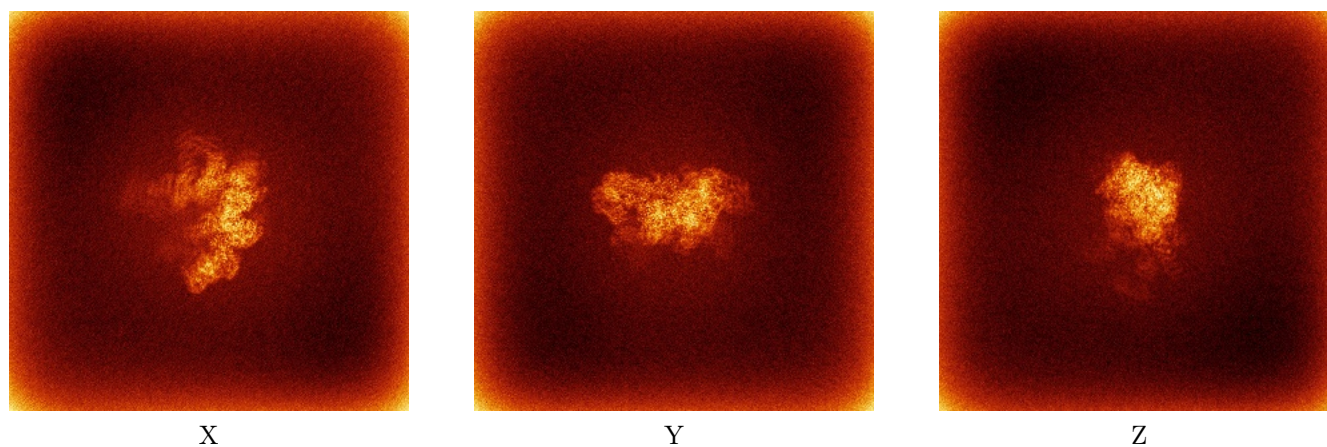
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views (i)

### 6.5.1 Primary map



X

Y

Z
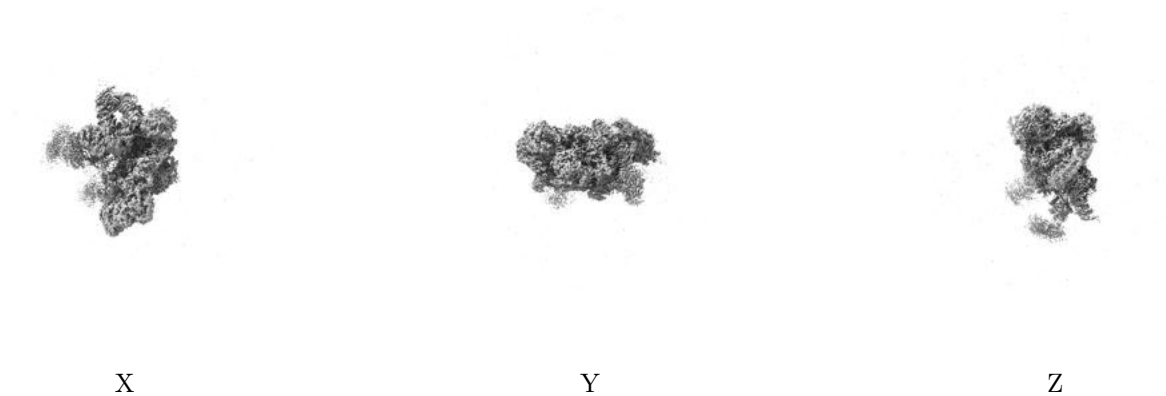
The images above show the 3D surface view of the map at the recommended contour level 0.23. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



X

Y

Z
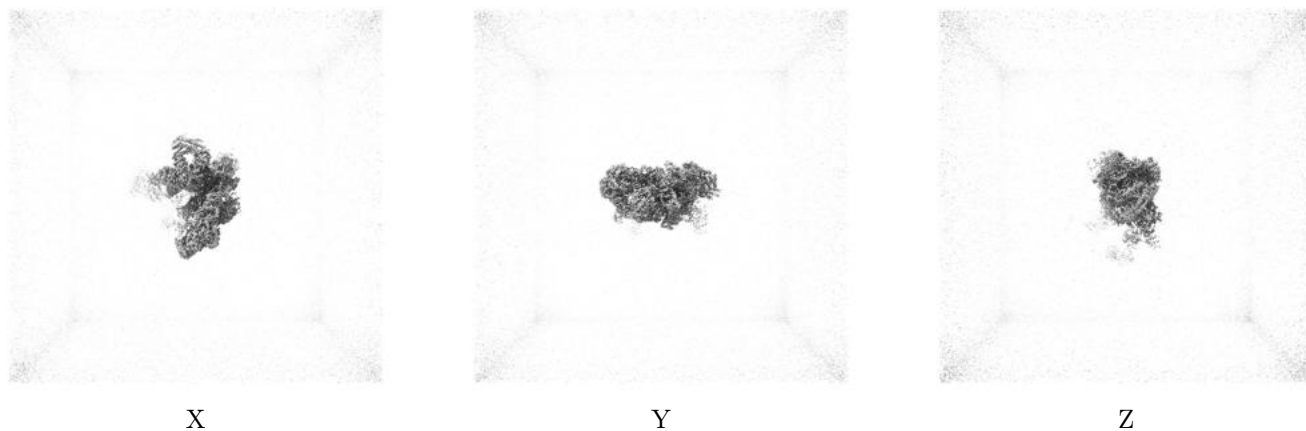
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

## 6.6 Mask visualisation (i)

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

# 7 Map analysis ⓘ

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

## 7.1 Map-value distribution ⓘ
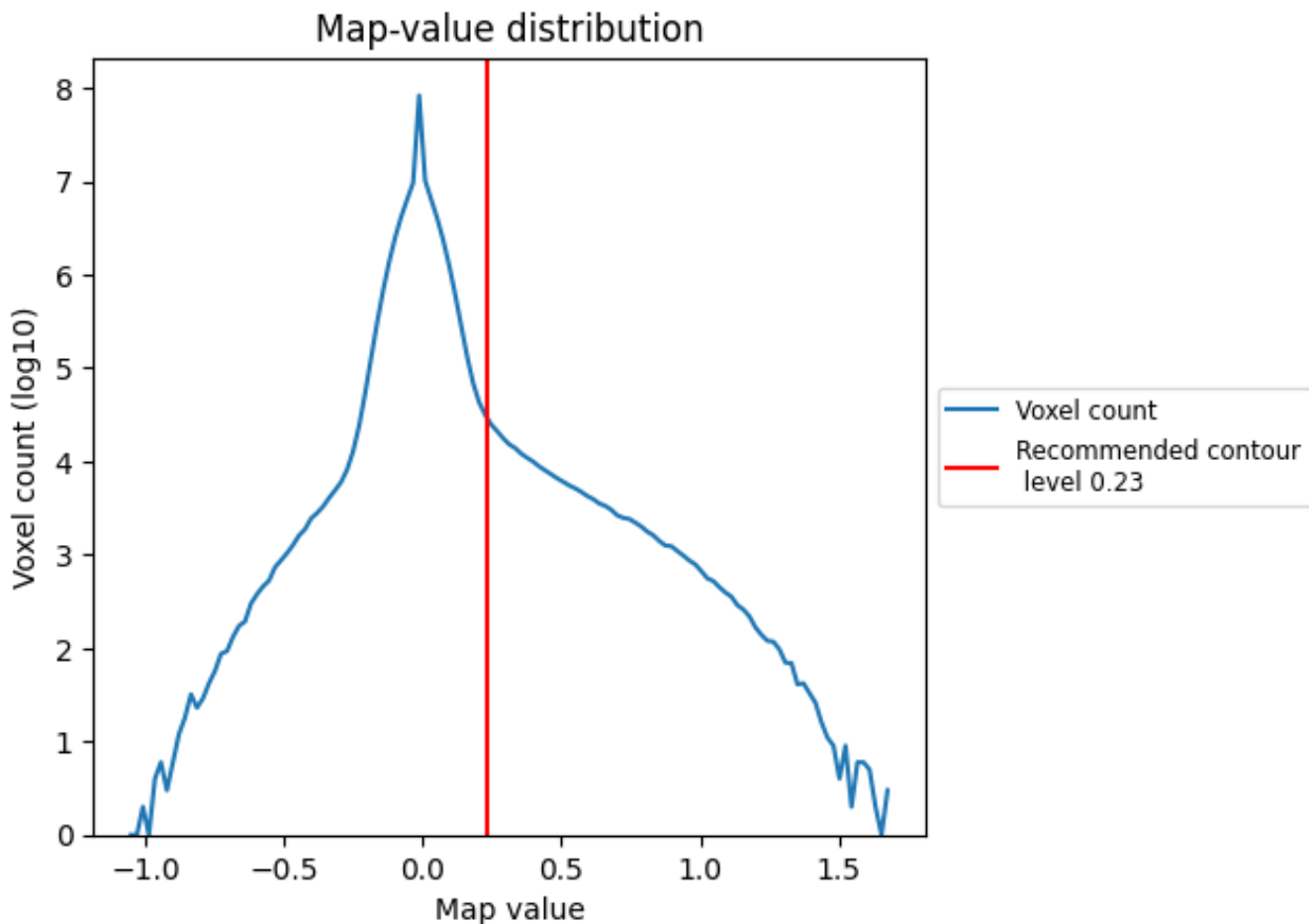


The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

## 7.2　Volume estimate ⓘ
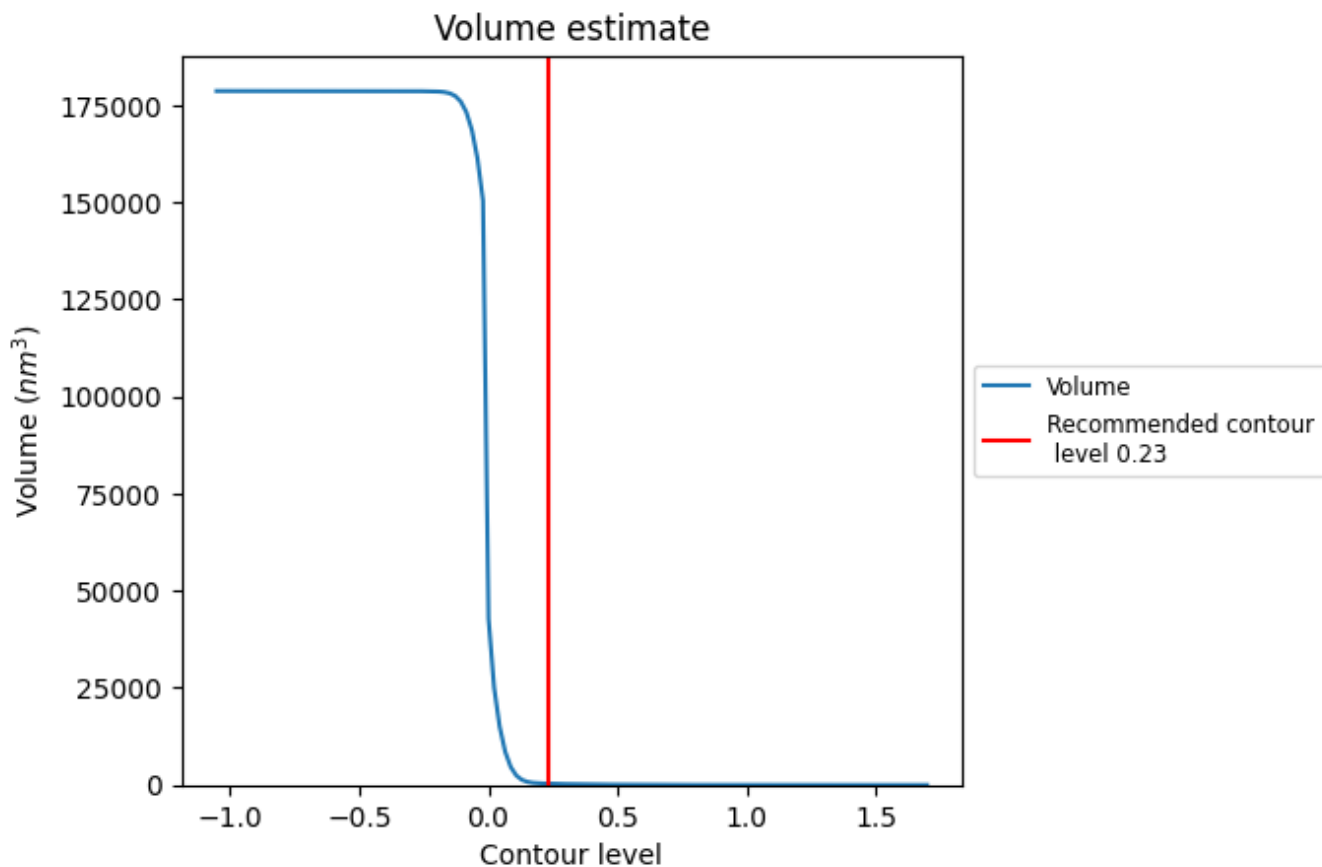


The volume at the recommended contour level is 331 nm$^3$; this corresponds to an approximate mass of 299 kDa.

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

## 7.3 Rotationally averaged power spectrum ⓘ
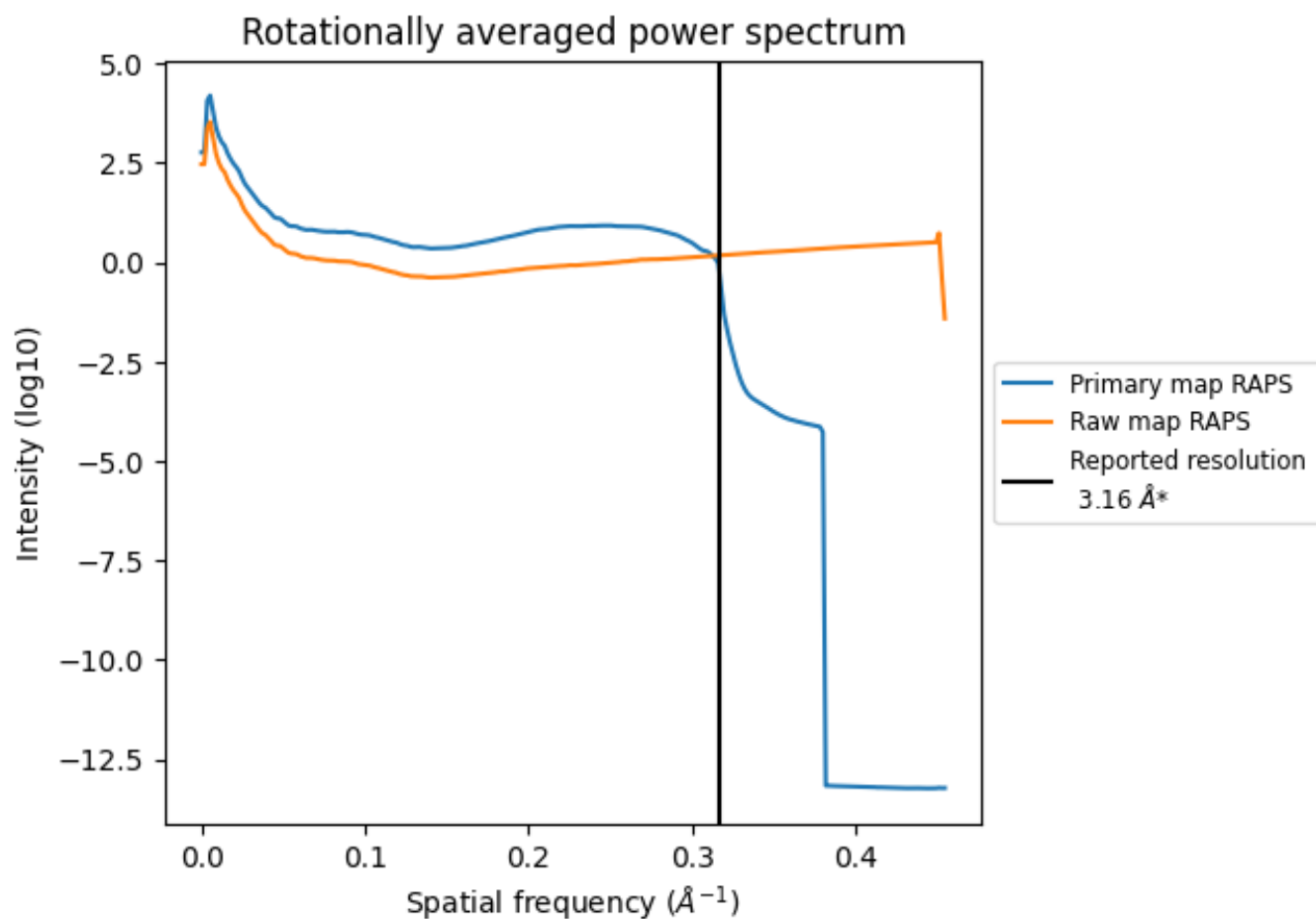


*Reported resolution corresponds to spatial frequency of 0.316 $\text{Å}^{-1}$

# 8 Fourier-Shell correlation ⓘ

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

## 8.1 FSC ⓘ
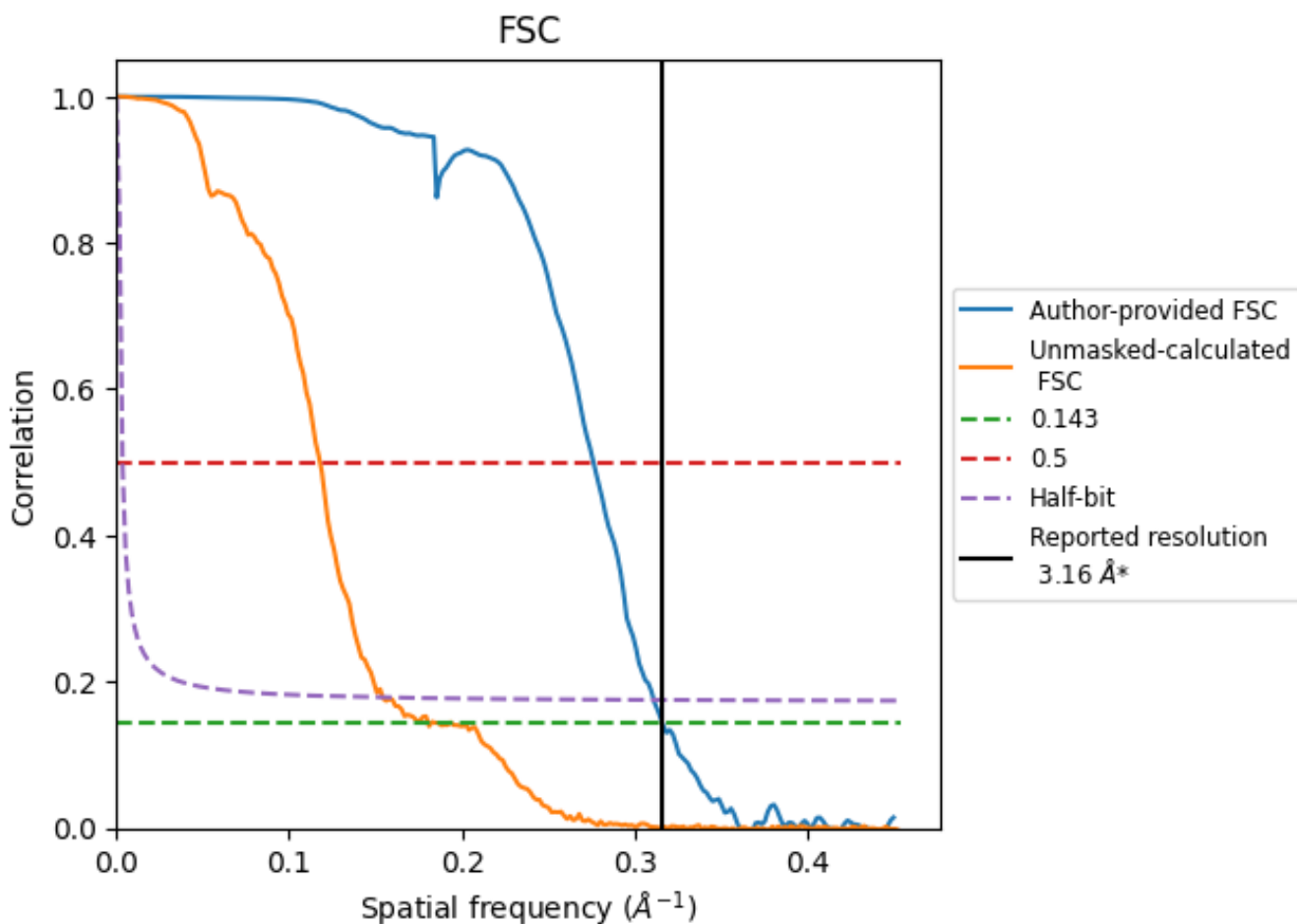


*Reported resolution corresponds to spatial frequency of 0.316 Å$^{-1}$

## 8.2   Resolution estimates ⓘ

| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.16 | - | - |
| Author-provided FSC curve | 3.16 | 3.62 | 3.21 |
| Unmasked-calculated* | 5.54 | 8.48 | 6.48 |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.54 differs from the reported value 3.16 by more than 10 %

# 9　Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-38799 and PDB model 8XZV. Per-residue inclusion information can be found in section 3 on page 8.

## 9.1　Map-model overlay ⓘ



|     X     |     Y     |     Z     |
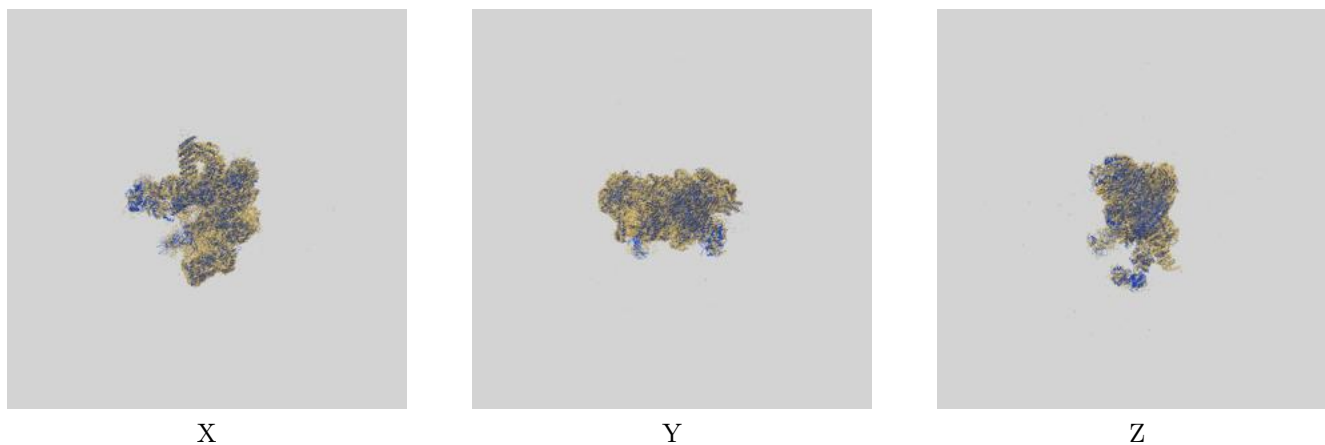
The images above show the 3D surface view of the map at the recommended contour level 0.23 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model ⓘ
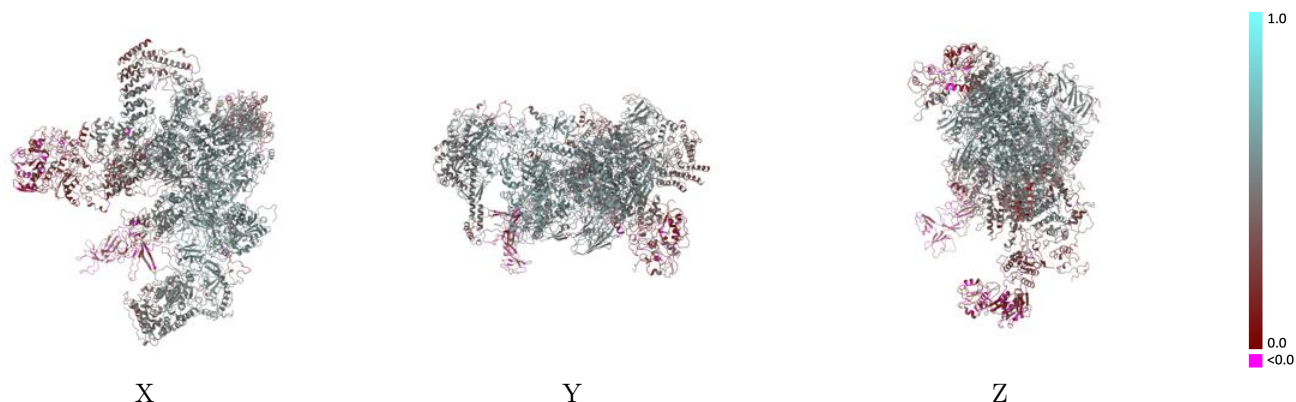


The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

## 9.3 Atom inclusion mapped to coordinate model ⓘ
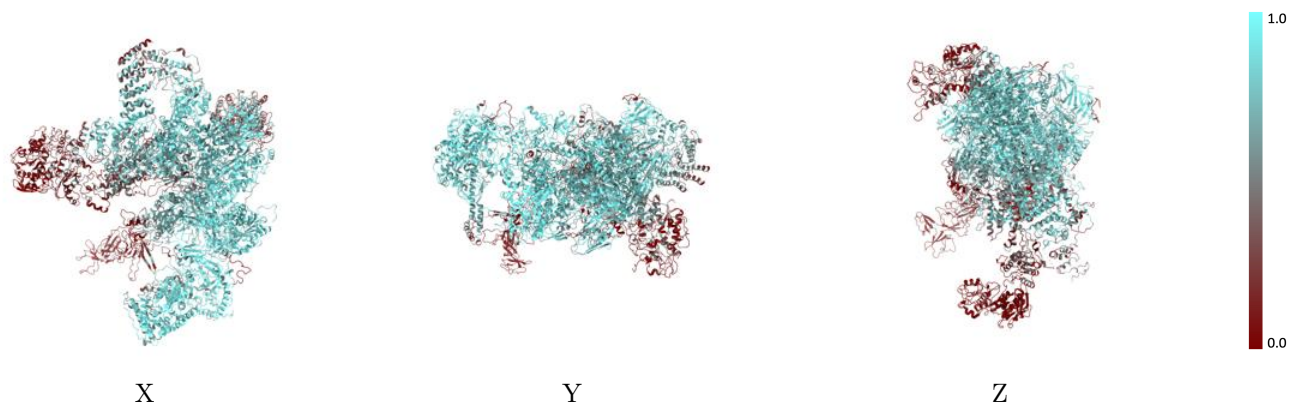


The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.23).

## 9.4 Atom inclusion ⓘ
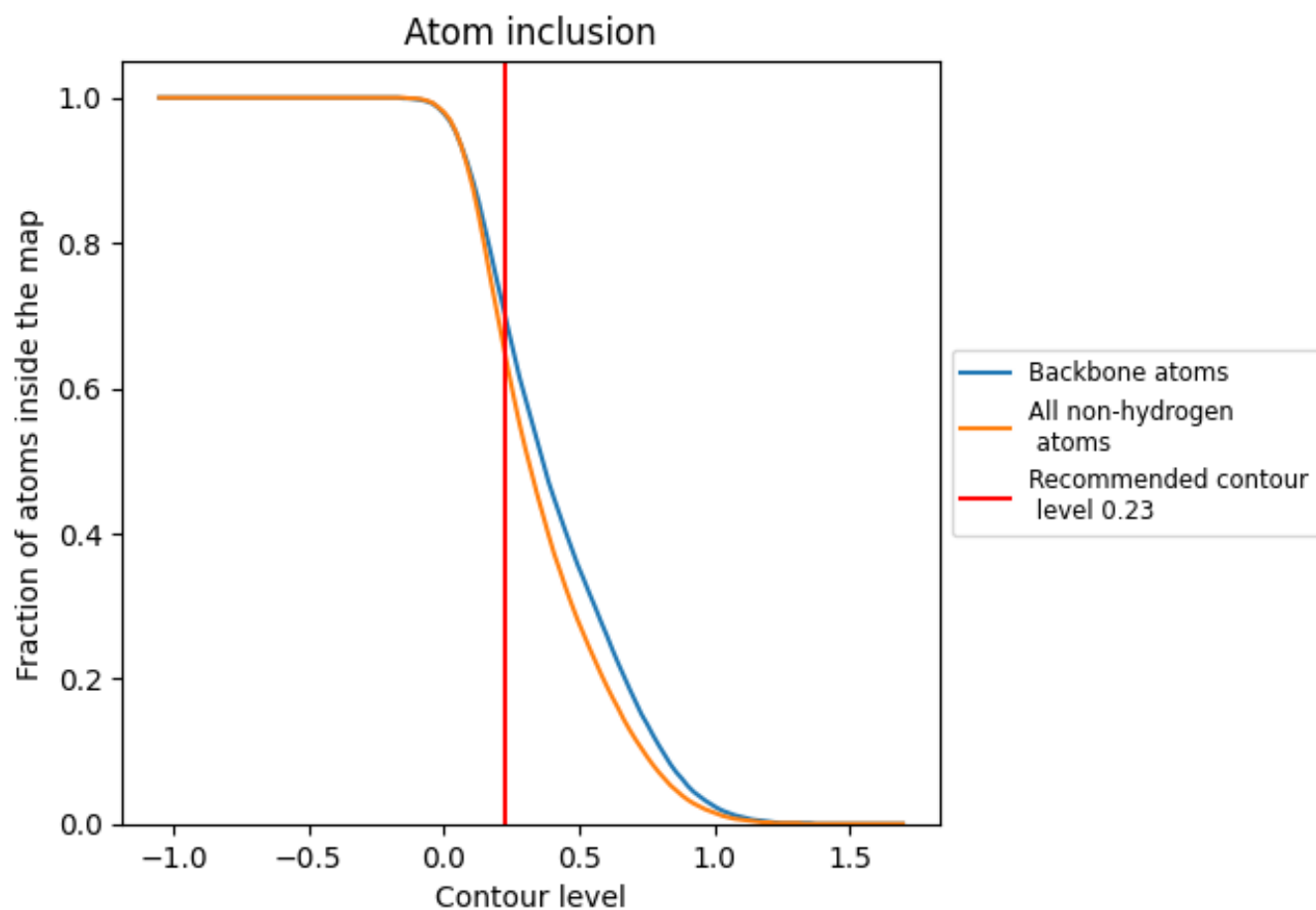


At the recommended contour level, 69% of all backbone atoms, 64% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.23) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|:-----:|:--------------:|:-------:|
| All | 0.6400 | 0.4440 |
| A | 0.7800 | 0.5120 |
| B | 0.6730 | 0.4890 |
| C | 0.5860 | 0.4520 |
| D | 0.6430 | 0.4480 |
| E | 0.8980 | 0.5620 |
| F | 0.8910 | 0.5520 |
| G | 0.8460 | 0.5320 |
| H | 0.6020 | 0.3940 |
| I | 0.7010 | 0.4500 |
| J | 0.1120 | 0.2100 |
| K | 0.7830 | 0.4900 |
| L | 0.8010 | 0.4440 |
| M | 0.8750 | 0.5030 |
| N | 0.7810 | 0.4970 |
| O | 0.7070 | 0.4860 |
| P | 0.7760 | 0.5010 |
| Q | 0.8490 | 0.5150 |
| R | 0.1770 | 0.2940 |
| S | 0.2610 | 0.2770 |

1.0

0.0
<0.0