



## Full wwPDB EM Validation Report ⓘ

Dec 16, 2025 – 02:00 PM EST

PDB ID : 9BV2 / pdb\_00009bv2  
EMDB ID : EMD-44929  
Title : M2B Midnolin-Proteasome (translocating)  
Authors : Gao, J.; Yip, M.C.J.; Shao, S.  
Deposited on : 2024-05-19  
Resolution : 3.40 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

---

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

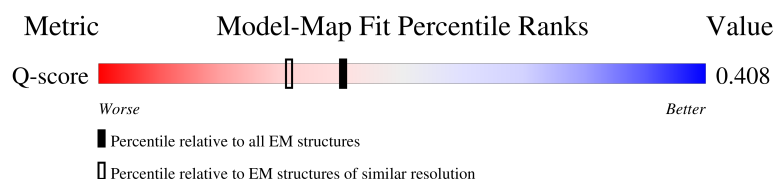
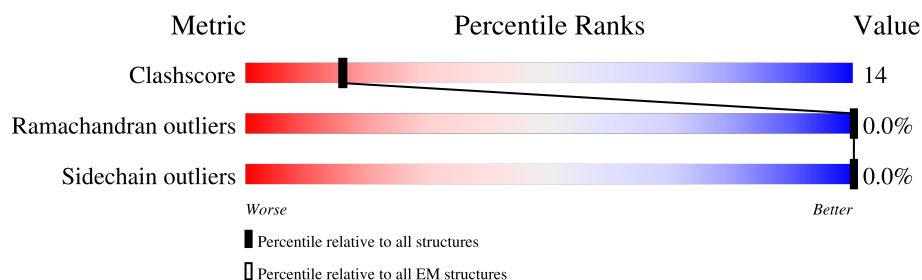
EMDB validation analysis : 0.0.1.dev129  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.47

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.40 Å.

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



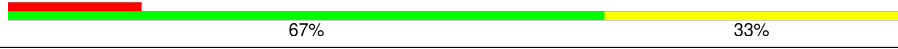
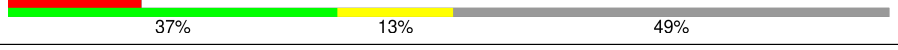
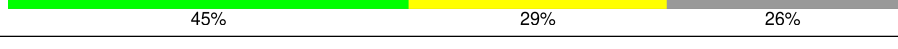
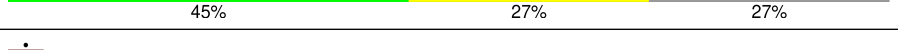
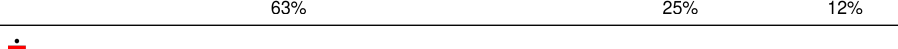
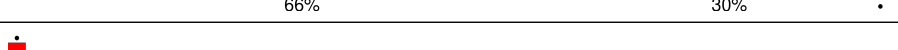
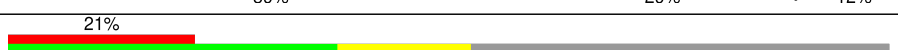
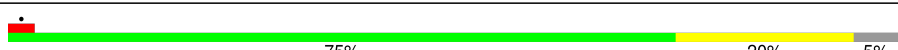
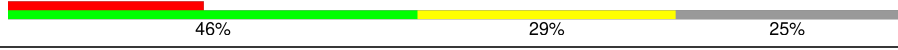
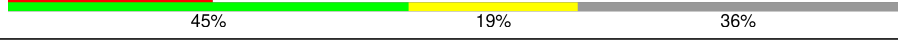
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 210492                      | 15764                       | -                                                        |
| Ramachandran outliers | 207382                      | 16835                       | -                                                        |
| Sidechain outliers    | 206894                      | 16415                       | -                                                        |
| Q-score               | -                           | 25397                       | 14717 ( 2.90 - 3.90 )                                    |

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

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | U     | 953    |                  |
| 2   | V     | 534    |                  |
| 3   | W     | 456    |                  |
| 4   | X     | 422    |                  |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 5   | Y     | 389    |    |
| 6   | Z     | 324    |    |
| 7   | a     | 376    |    |
| 8   | b     | 377    |    |
| 9   | c     | 310    |    |
| 10  | d     | 350    |    |
| 11  | e     | 70     |    |
| 12  | A     | 433    |    |
| 13  | B     | 440    |    |
| 14  | C     | 406    |    |
| 15  | D     | 418    |    |
| 16  | E     | 389    |  |
| 17  | F     | 439    |  |
| 18  | G     | 246    |  |
| 19  | H     | 234    |  |
| 20  | I     | 261    |  |
| 21  | J     | 248    |  |
| 22  | K     | 241    |  |
| 23  | L     | 263    |  |
| 24  | M     | 255    |  |
| 25  | N     | 239    |  |
| 25  | n     | 239    |  |
| 26  | O     | 277    |  |
| 26  | o     | 277    |  |
| 27  | P     | 205    |  |

Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 27  | p     | 205    |                  |
| 28  | Q     | 201    |                  |
| 28  | q     | 201    |                  |
| 29  | R     | 263    |                  |
| 29  | r     | 263    |                  |
| 30  | S     | 241    |                  |
| 30  | s     | 241    |                  |
| 31  | T     | 264    |                  |
| 31  | t     | 264    |                  |
| 32  | f     | 908    |                  |
| 33  | y     | 505    |                  |

## 2 Entry composition

There are 36 unique types of molecules in this entry. The entry contains 88606 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 26S proteasome non-ATPase regulatory subunit 1.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| 1   | U     | 852      | Total | C    | N    | O    | S  | 0       | 0     |
|     |       |          | 6640  | 4215 | 1128 | 1252 | 45 |         |       |

- Molecule 2 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 2   | V     | 421      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3434  | 2192 | 613 | 617 | 12 |         |       |

- Molecule 3 is a protein called 26S proteasome non-ATPase regulatory subunit 12.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 3   | W     | 430      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3510  | 2224 | 601 | 662 | 23 |         |       |

- Molecule 4 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 4   | X     | 421      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3327  | 2111 | 566 | 638 | 12 |         |       |

- Molecule 5 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 5   | Y     | 379      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3123  | 1993 | 534 | 579 | 17 |         |       |

- Molecule 6 is a protein called 26S proteasome non-ATPase regulatory subunit 7.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 6   | Z     | 287      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2290  | 1462 | 394 | 429 | 5 |         |       |

- Molecule 7 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 7   | a     | 375      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3012  | 1921 | 513 | 563 | 15 |         |       |

- Molecule 8 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 8   | b     | 191      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1459  | 910 | 261 | 281 | 7 |         |       |

- Molecule 9 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 9   | c     | 277      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2184  | 1382 | 375 | 408 | 19 |         |       |

- Molecule 10 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | d     | 258      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2099  | 1362 | 341 | 387 | 9 |         |       |

- Molecule 11 is a protein called 26S proteasome complex subunit SEM1.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 11  | e     | 36       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 314   | 193 | 50 | 71 |         |       |

- Molecule 12 is a protein called 26S proteasome regulatory subunit 7.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 12  | A     | 316      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2518  | 1598 | 440 | 467 | 13 |         |       |

- Molecule 13 is a protein called 26S proteasome regulatory subunit 4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 13  | B     | 386      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3037  | 1916 | 514 | 592 | 15 |         |       |

- Molecule 14 is a protein called 26S protease regulatory subunit 8.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 14  | C     | 389      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3071  | 1932 | 550 | 571 | 18 |         |       |

- Molecule 15 is a protein called 26S proteasome regulatory subunit 6B.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 15  | D     | 380      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3040  | 1923 | 524 | 580 | 13 |         |       |

- Molecule 16 is a protein called 26S protease regulatory subunit 10B.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 16  | E     | 341      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2706  | 1699 | 484 | 507 | 16 |         |       |

- Molecule 17 is a protein called 26S proteasome regulatory subunit 6A.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 17  | F     | 231      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1812  | 1152 | 311 | 337 | 12 |         |       |

- Molecule 18 is a protein called Proteasome subunit alpha type-6.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 18  | G     | 241      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1885  | 1196 | 314 | 362 | 13 |         |       |

- Molecule 19 is a protein called Proteasome subunit alpha type-2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 19  | H     | 233      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1818  | 1161 | 308 | 343 | 6 |         |       |

- Molecule 20 is a protein called Proteasome subunit alpha type-4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 20  | I     | 249      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1963  | 1242 | 336 | 375 | 10 |         |       |

- Molecule 21 is a protein called Proteasome subunit alpha type-7.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 21  | J     | 239      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1887  | 1183 | 334 | 365 | 5 |         |       |

- Molecule 22 is a protein called Proteasome subunit alpha type-5.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 22  | K     | 235      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1804  | 1132 | 299 | 362 | 11 |         |       |

- Molecule 23 is a protein called Proteasome subunit alpha type-1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 23  | L     | 237      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1868  | 1168 | 338 | 351 | 11 |         |       |

- Molecule 24 is a protein called Proteasome subunit alpha type-3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 24  | M     | 244      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1916  | 1212 | 325 | 368 | 11 |         |       |

- Molecule 25 is a protein called Proteasome subunit beta type-6.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 25  | N     | 198      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1487  | 931 | 254 | 290 | 12 |         |       |
| 25  | n     | 179      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1336  | 836 | 230 | 258 | 12 |         |       |

- Molecule 26 is a protein called Proteasome subunit beta type-7.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 26  | O     | 221      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1667  | 1050 | 284 | 321 | 12 |         |       |
| 26  | o     | 176      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1315  | 823  | 228 | 253 | 11 |         |       |

- Molecule 27 is a protein called Proteasome subunit beta type-3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 27  | P     | 204      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1591  | 1013 | 265 | 294 | 19 |         |       |

*Continued on next page...*



*Continued from previous page...*

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 27  | p     | 164      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1264  | 802 | 210 | 235 | 17 |         |       |

- Molecule 28 is a protein called Proteasome subunit beta type-2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 28  | Q     | 197      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1578  | 1011 | 268 | 290 | 9 |         |       |
| 28  | q     | 173      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1380  | 890  | 234 | 248 | 8 |         |       |

- Molecule 29 is a protein called Proteasome subunit beta type-5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | R     | 199      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1549  | 977 | 272 | 291 | 9 |         |       |
| 29  | r     | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1432  | 904 | 248 | 271 | 9 |         |       |

- Molecule 30 is a protein called Proteasome subunit beta type-1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 30  | S     | 212      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1643  | 1041 | 280 | 312 | 10 |         |       |
| 30  | s     | 206      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1597  | 1015 | 269 | 303 | 10 |         |       |

- Molecule 31 is a protein called Proteasome subunit beta type-4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 31  | T     | 213      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1665  | 1050 | 288 | 316 | 11 |         |       |
| 31  | t     | 206      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1609  | 1016 | 279 | 302 | 12 |         |       |

- Molecule 32 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| 32  | f     | 819      | Total | C    | N    | O    | S  | 0       | 0     |
|     |       |          | 6351  | 4019 | 1073 | 1215 | 44 |         |       |

- Molecule 33 is a protein called Midnolin.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 33  | y     | 31       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 273   | 164 | 66 | 42 | 1 |         |       |

There are 38 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment               | Reference  |
|-------|---------|----------|--------|-----------------------|------------|
| y     | -36     | MET      | -      | initiating methionine | UNP Q504T8 |
| y     | -35     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -34     | TYR      | -      | expression tag        | UNP Q504T8 |
| y     | -33     | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -32     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -31     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -30     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -29     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -28     | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -27     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -26     | TYR      | -      | expression tag        | UNP Q504T8 |
| y     | -25     | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -24     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -23     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -22     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -21     | ASP      | -      | expression tag        | UNP Q504T8 |
| y     | -20     | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -19     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -18     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -17     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -16     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -15     | SER      | -      | expression tag        | UNP Q504T8 |
| y     | -14     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -13     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -12     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -11     | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | -10     | PHE      | -      | expression tag        | UNP Q504T8 |
| y     | -9      | GLU      | -      | expression tag        | UNP Q504T8 |
| y     | -8      | THR      | -      | expression tag        | UNP Q504T8 |
| y     | -7      | SER      | -      | expression tag        | UNP Q504T8 |
| y     | -6      | LEU      | -      | expression tag        | UNP Q504T8 |
| y     | -5      | TYR      | -      | expression tag        | UNP Q504T8 |
| y     | -4      | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -3      | LYS      | -      | expression tag        | UNP Q504T8 |
| y     | -2      | ALA      | -      | expression tag        | UNP Q504T8 |
| y     | -1      | GLY      | -      | expression tag        | UNP Q504T8 |
| y     | 0       | THR      | -      | expression tag        | UNP Q504T8 |

*Continued on next page...*

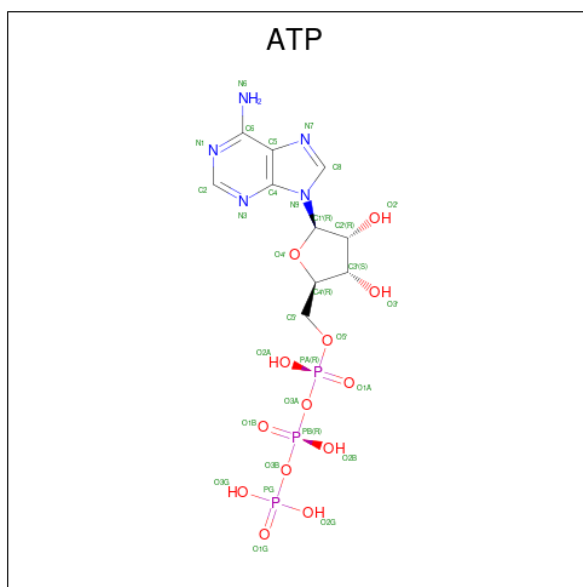
Continued from previous page...

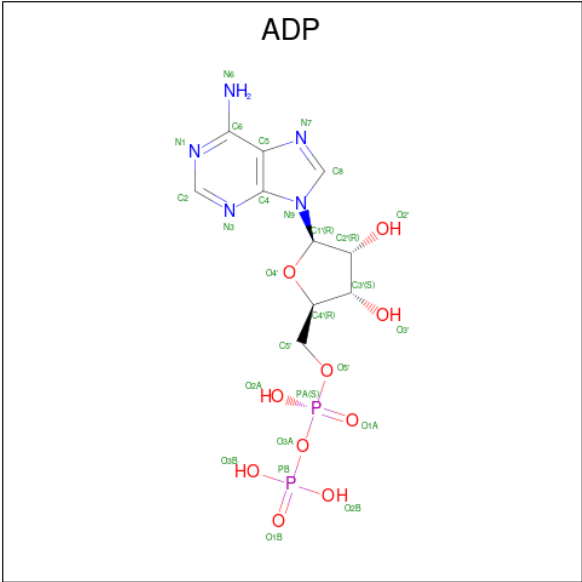
| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| y     | 457     | ALA      | VAL    | conflict | UNP Q504T8 |

- Molecule 34 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 34  | c     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

- Molecule 35 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>13</sub>P<sub>3</sub>).



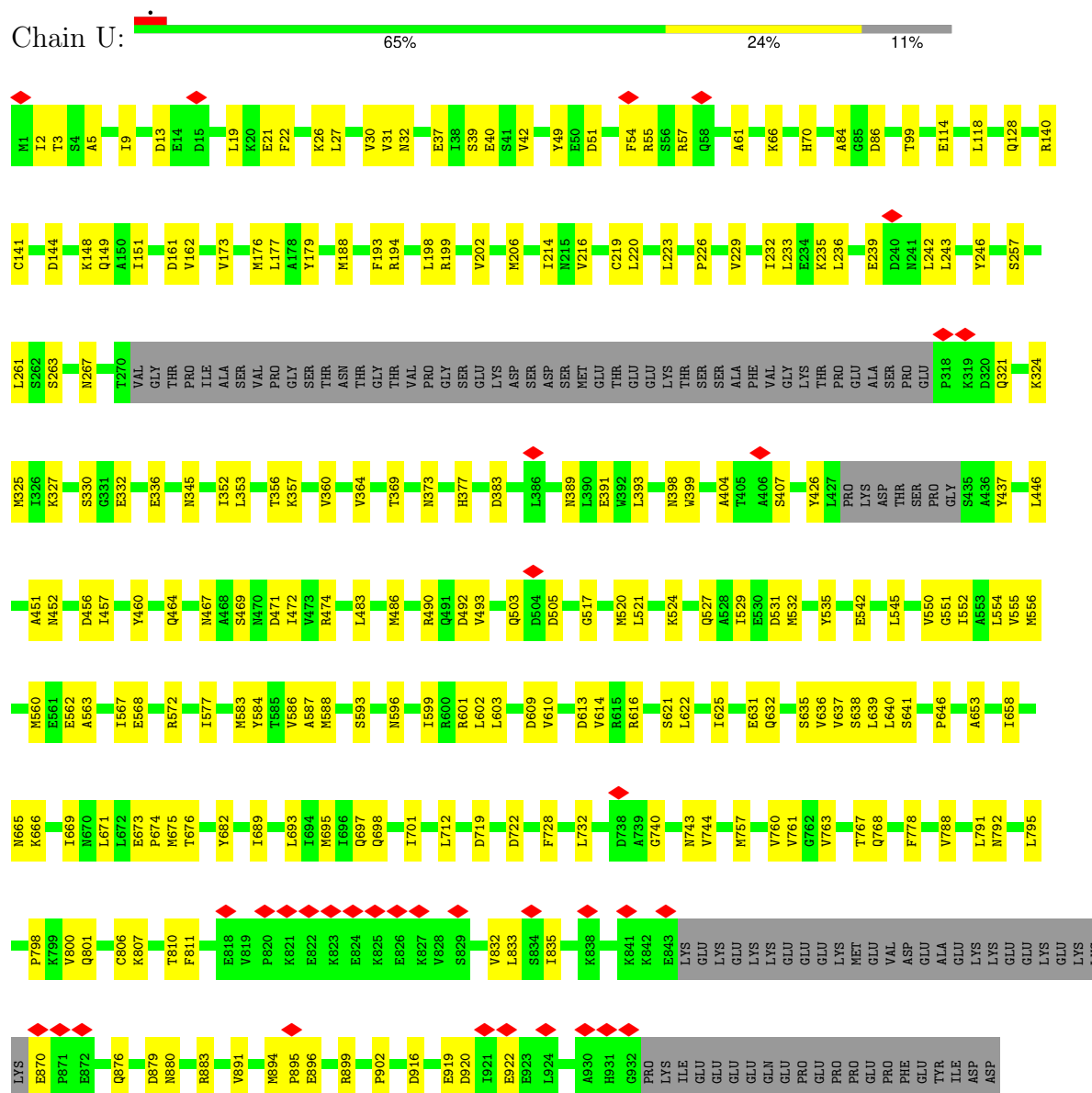


| Mol | Chain | Residues | Atoms |    |   |    |   | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| 36  | E     | 1        | Total | C  | N | O  | P | 0       |
|     |       |          | 27    | 10 | 5 | 10 | 2 |         |

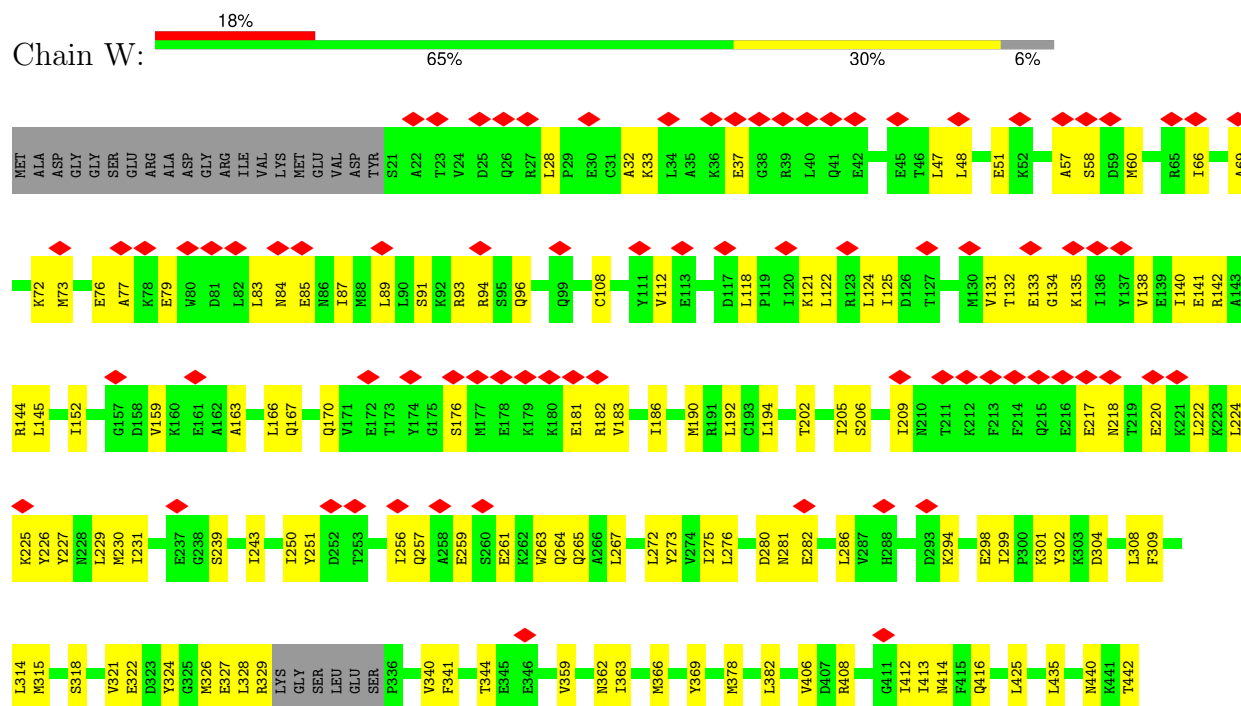
### 3 Residue-property plots

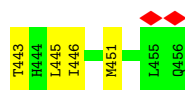
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 26S proteasome non-ATPase regulatory subunit 1

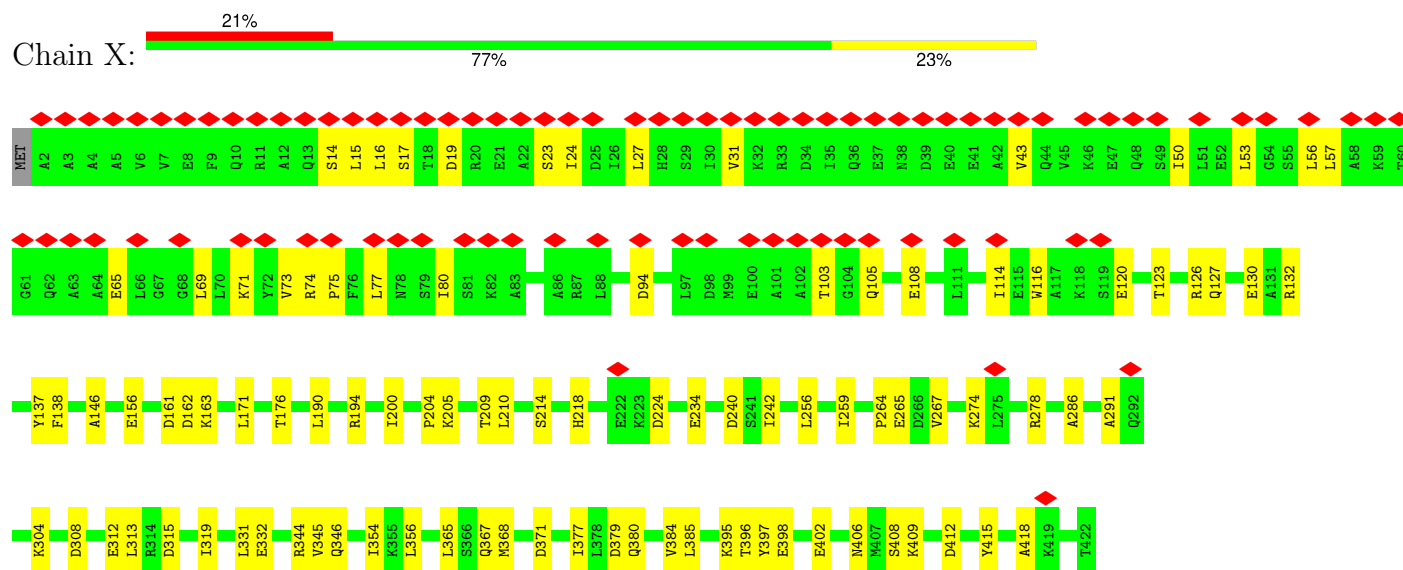


- Molecule 2: 26S proteasome non-ATPase regulatory subunit 3

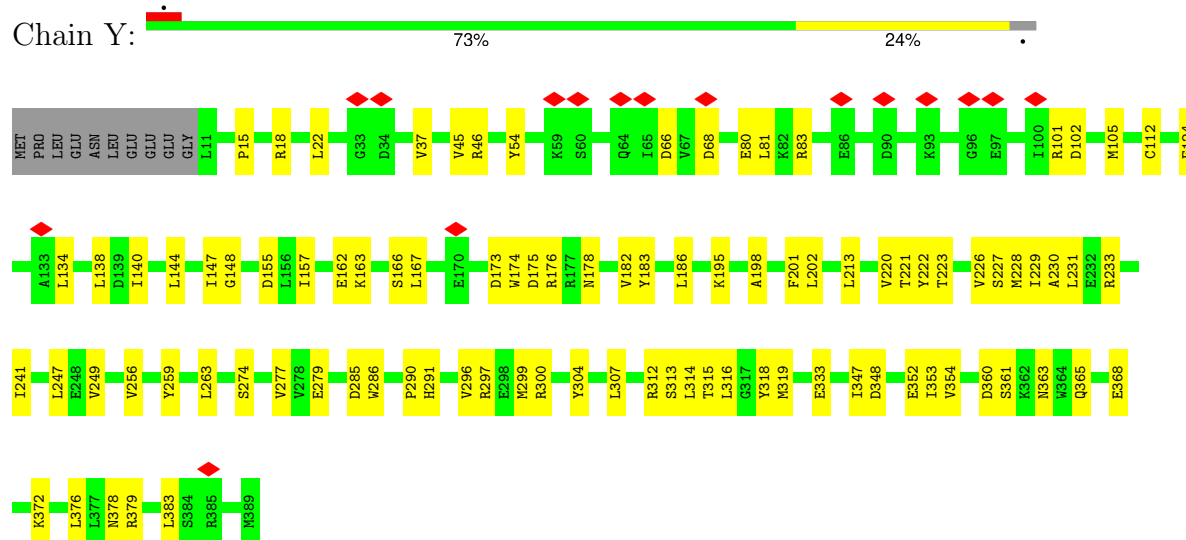




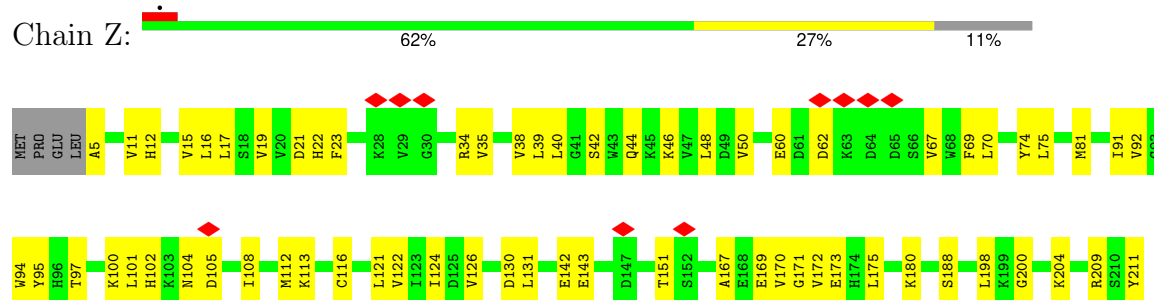
- Molecule 4: 26S proteasome non-ATPase regulatory subunit 11

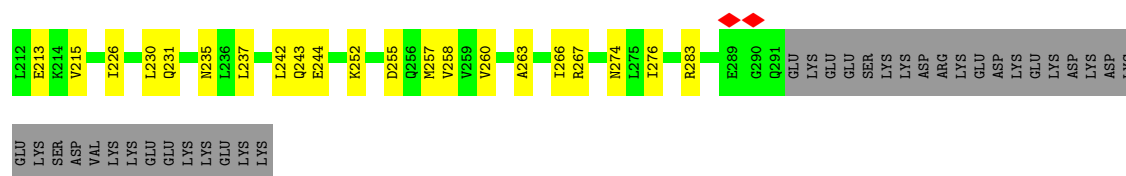


- Molecule 5: 26S proteasome non-ATPase regulatory subunit 6

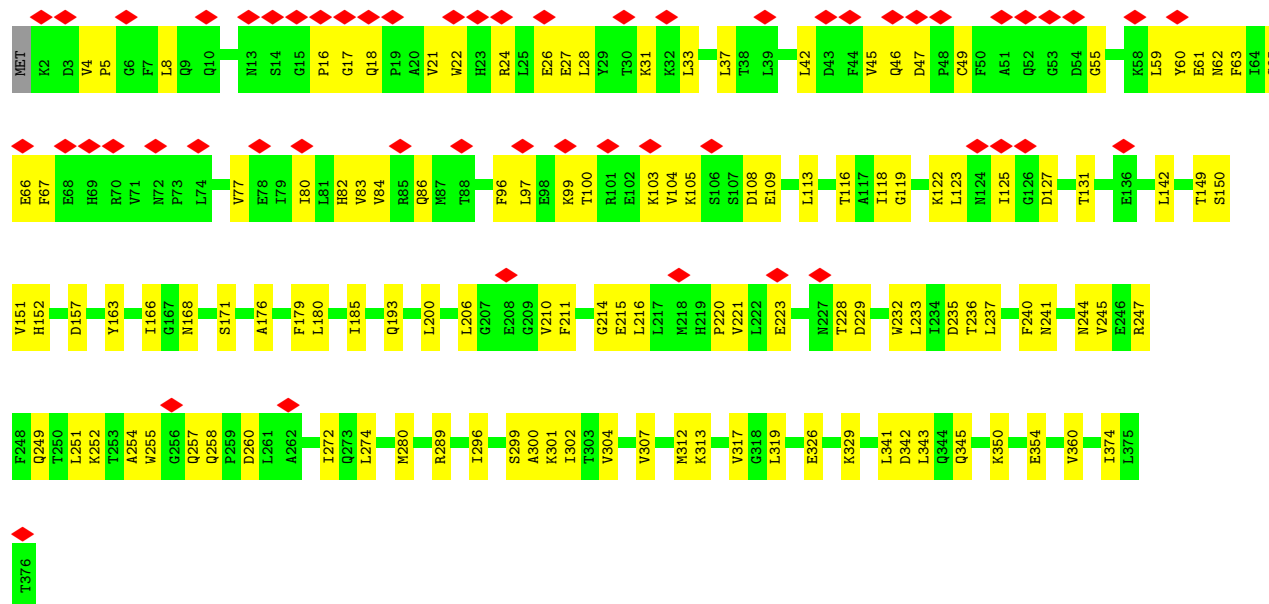


- Molecule 6: 26S proteasome non-ATPase regulatory subunit 7

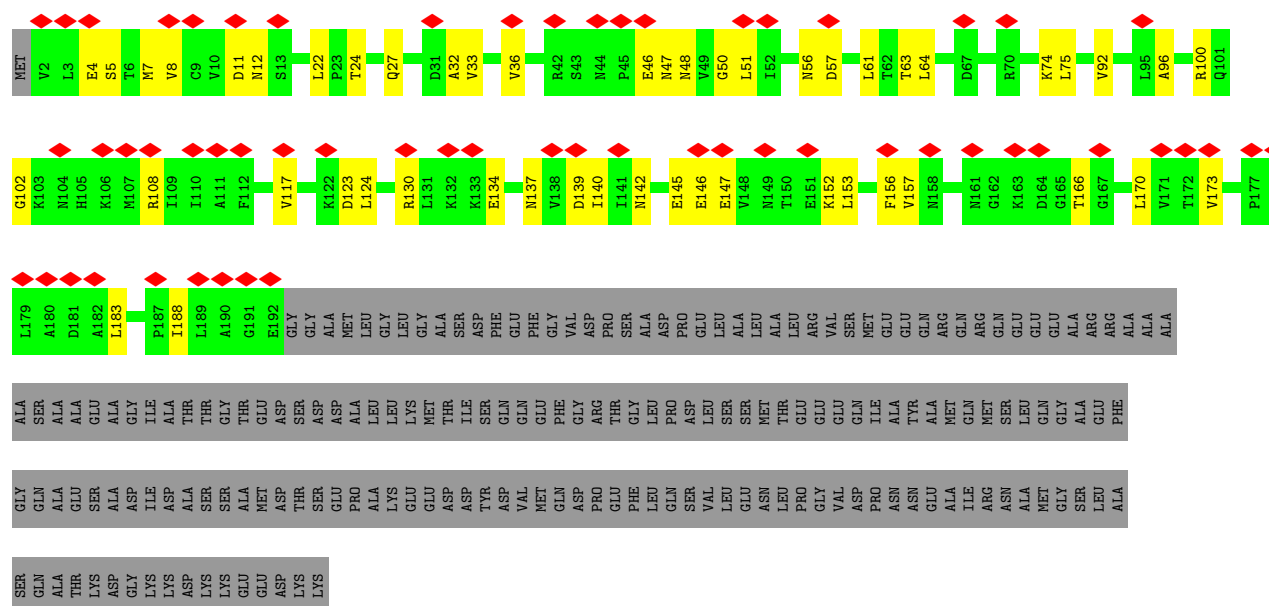
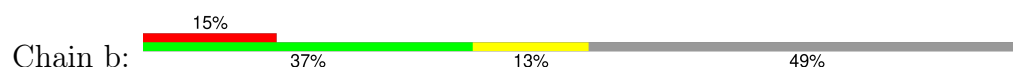




• Molecule 7: 26S proteasome non-ATPase regulatory subunit 13

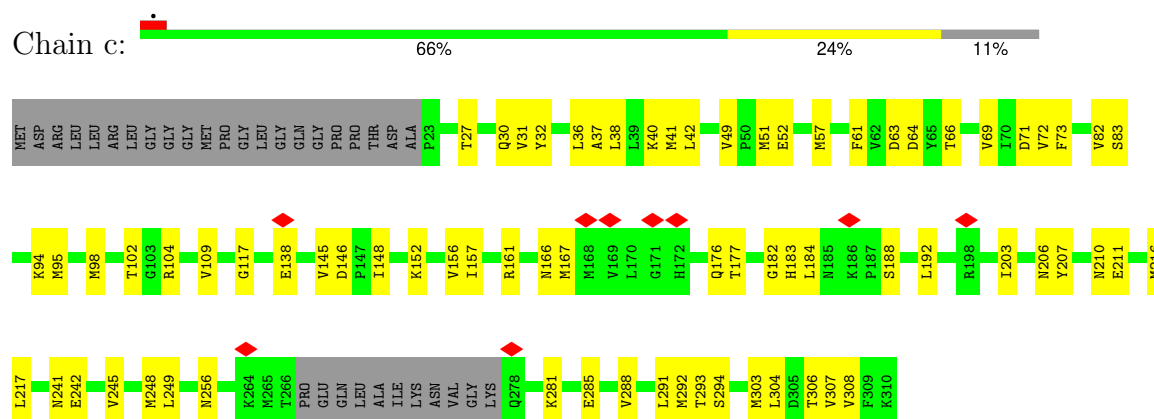


• Molecule 8: 26S proteasome non-ATPase regulatory subunit 4

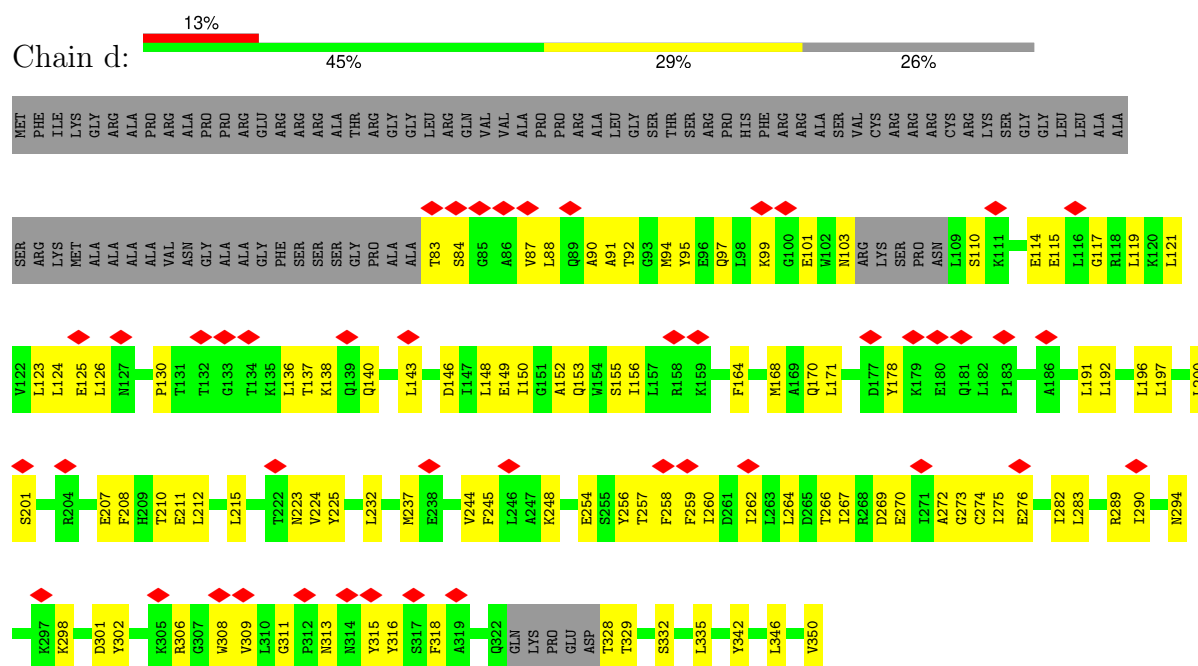




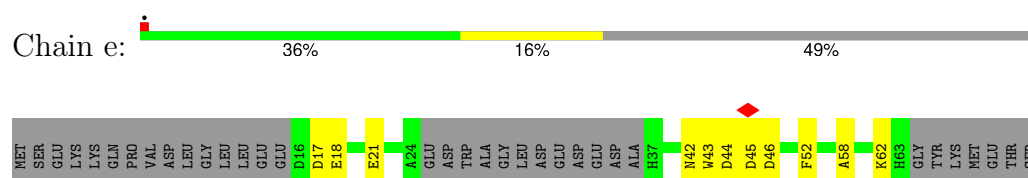
- Molecule 9: 26S proteasome non-ATPase regulatory subunit 14



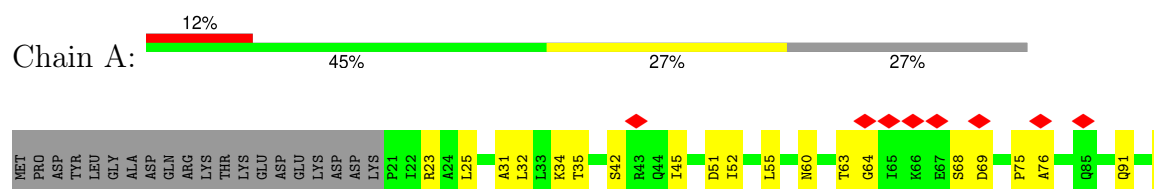
- Molecule 10: 26S proteasome non-ATPase regulatory subunit 8

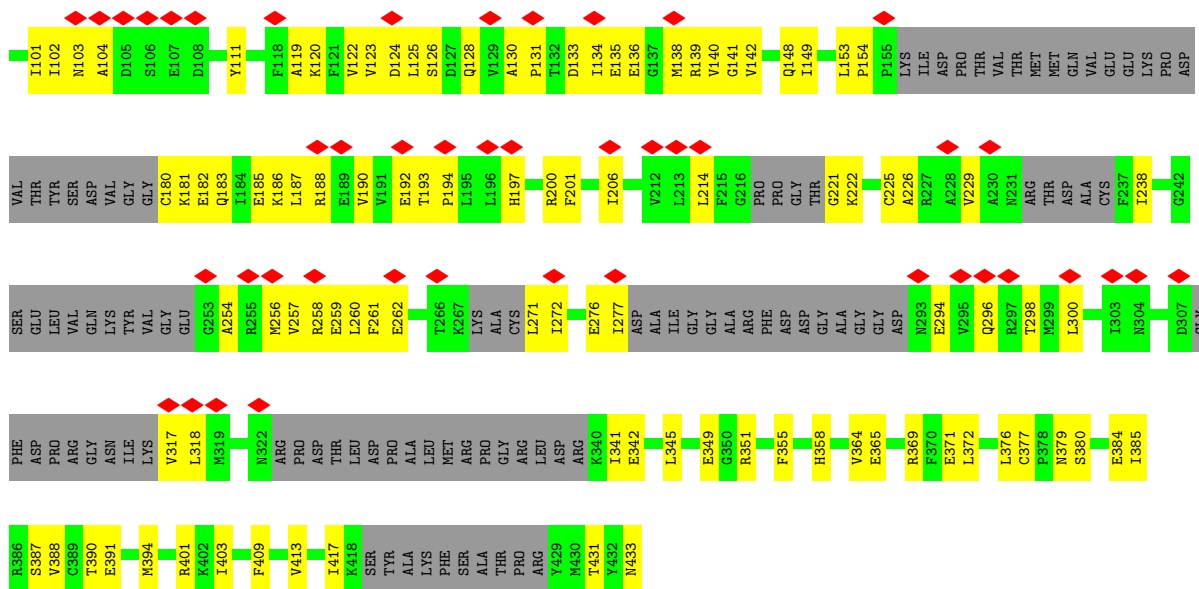


- Molecule 11: 26S proteasome complex subunit SEM1

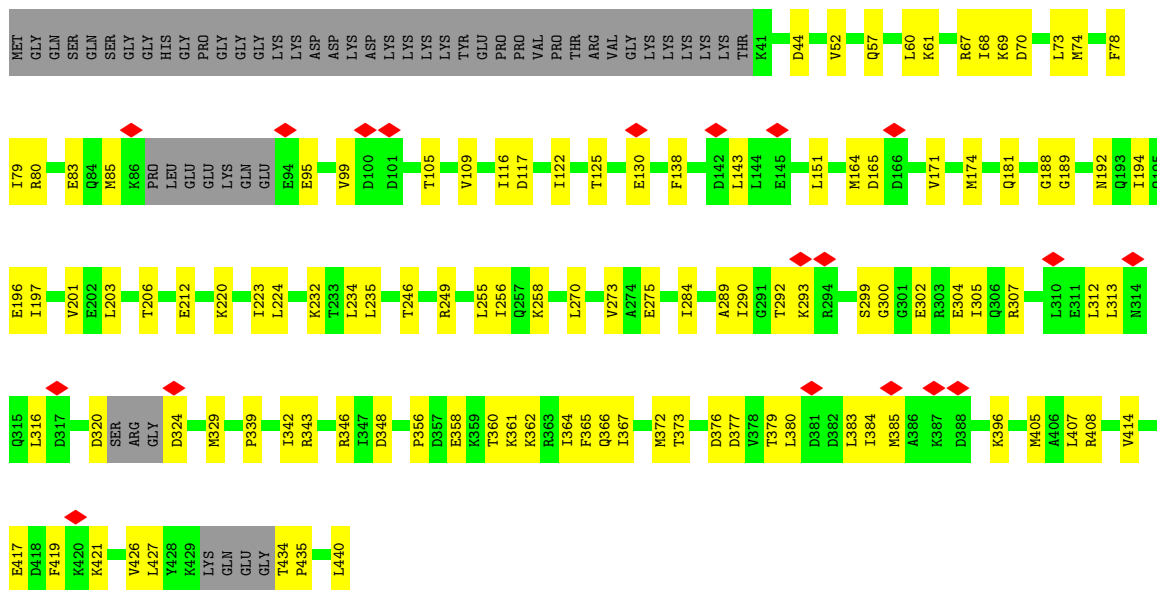


- Molecule 12: 26S proteasome regulatory subunit 7

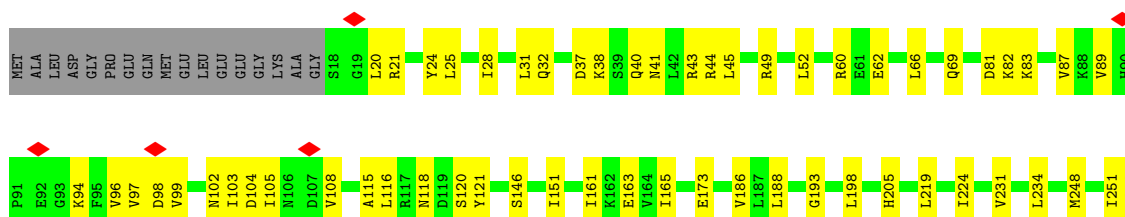


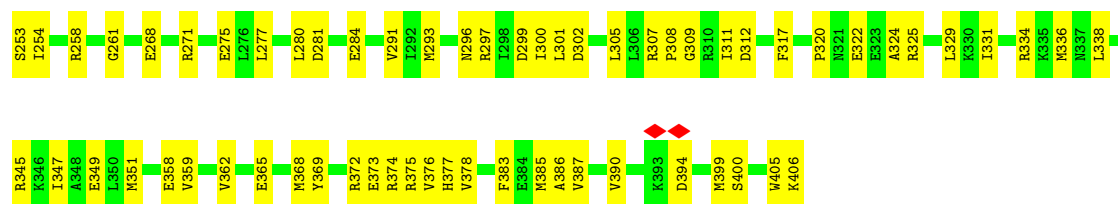


• Molecule 13: 26S proteasome regulatory subunit 4

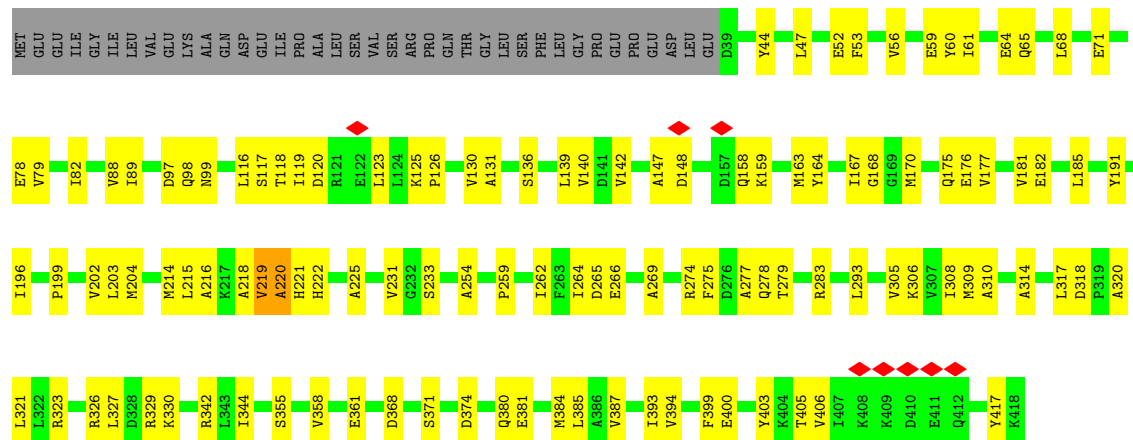


• Molecule 14: 26S protease regulatory subunit 8

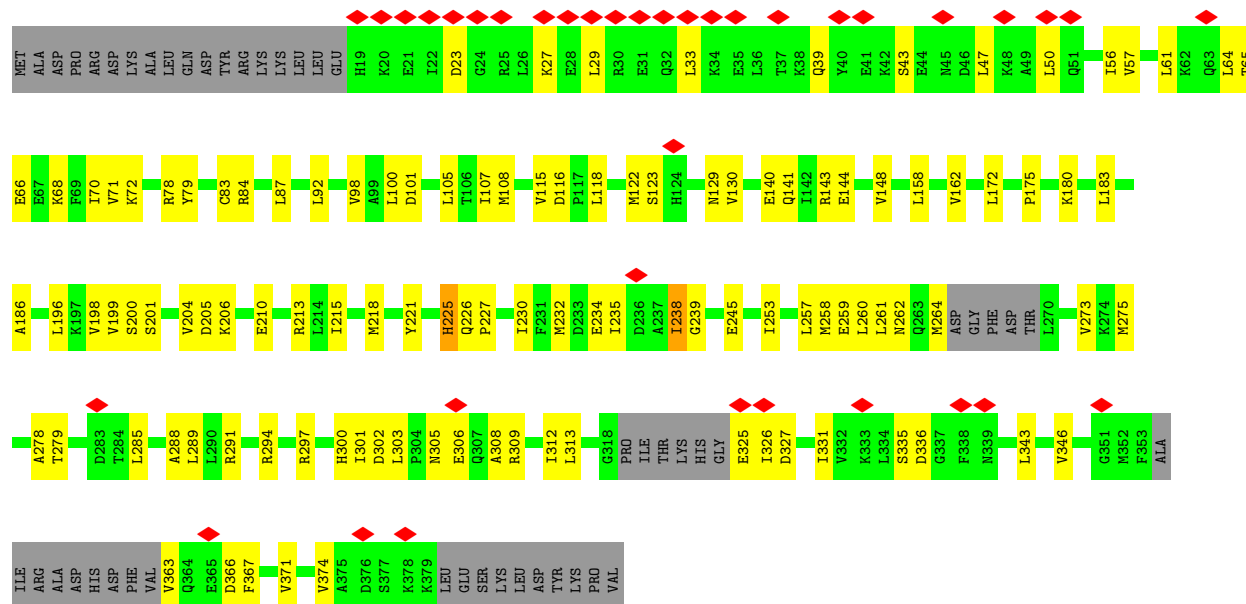




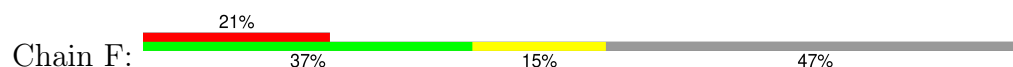
• Molecule 15: 26S proteasome regulatory subunit 6B



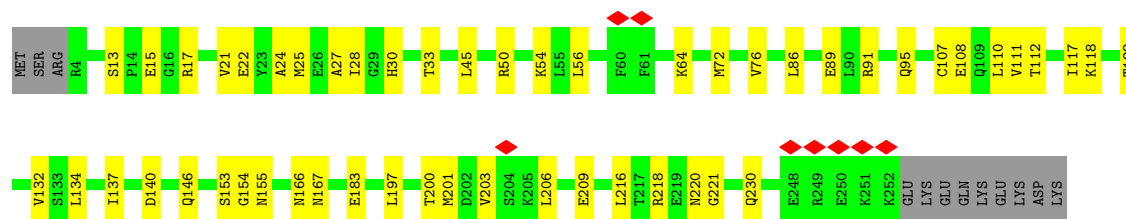
• Molecule 16: 26S protease regulatory subunit 10B



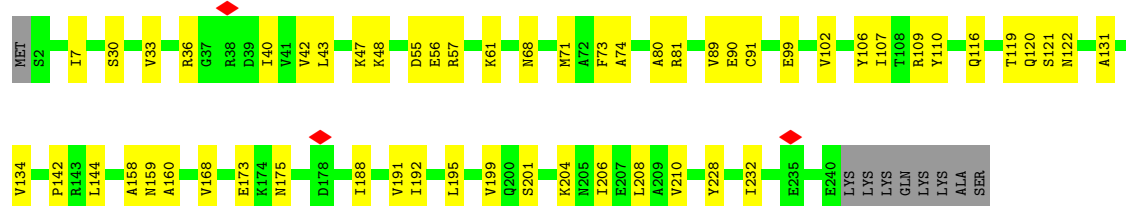
• Molecule 17: 26S proteasome regulatory subunit 6A



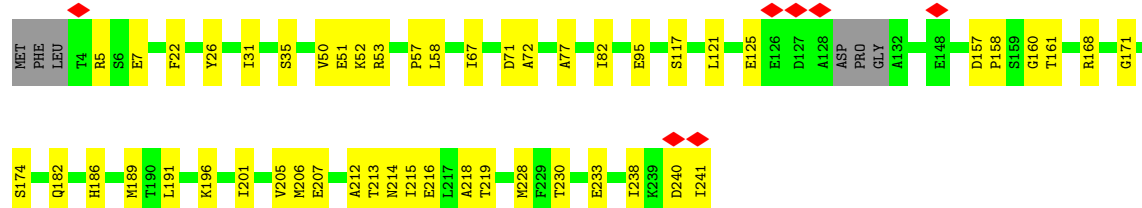
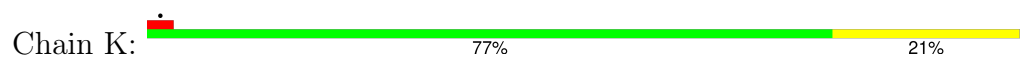




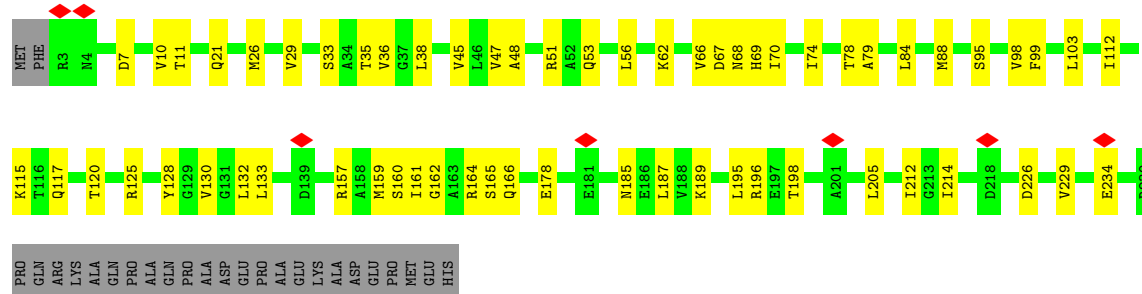
• Molecule 21: Proteasome subunit alpha type-7



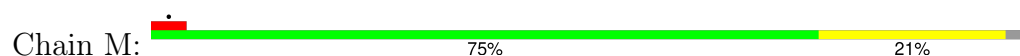
• Molecule 22: Proteasome subunit alpha type-5

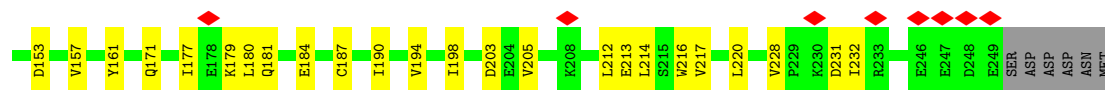


• Molecule 23: Proteasome subunit alpha type-1

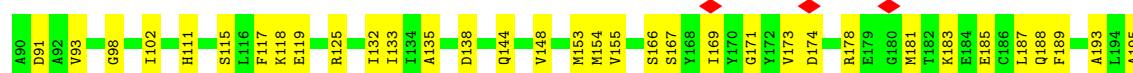
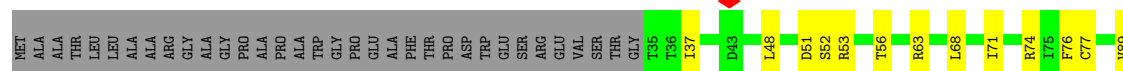


• Molecule 24: Proteasome subunit alpha type-3

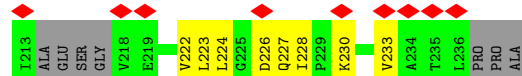
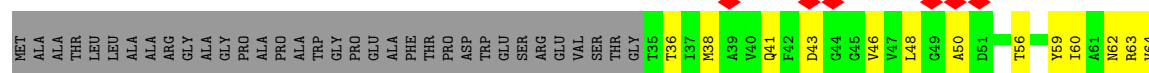




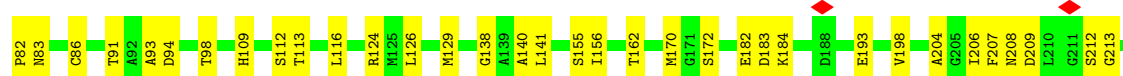
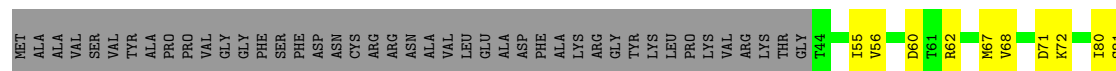
• Molecule 25: Proteasome subunit beta type-6

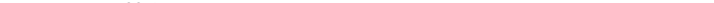


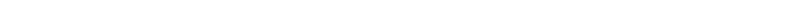
• Molecule 25: Proteasome subunit beta type-6

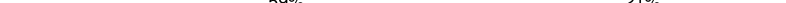


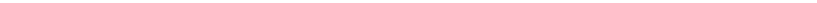
• Molecule 26: Proteasome subunit beta type-7

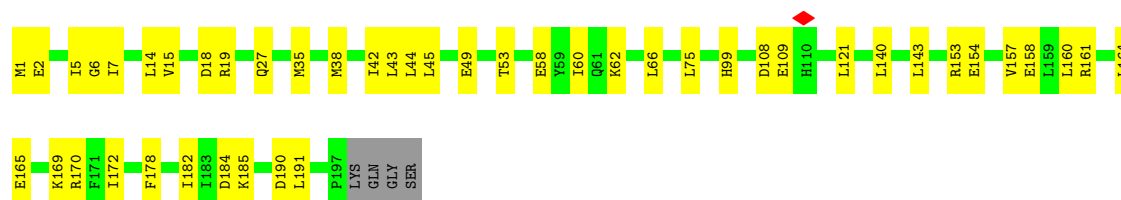


Chain o: 

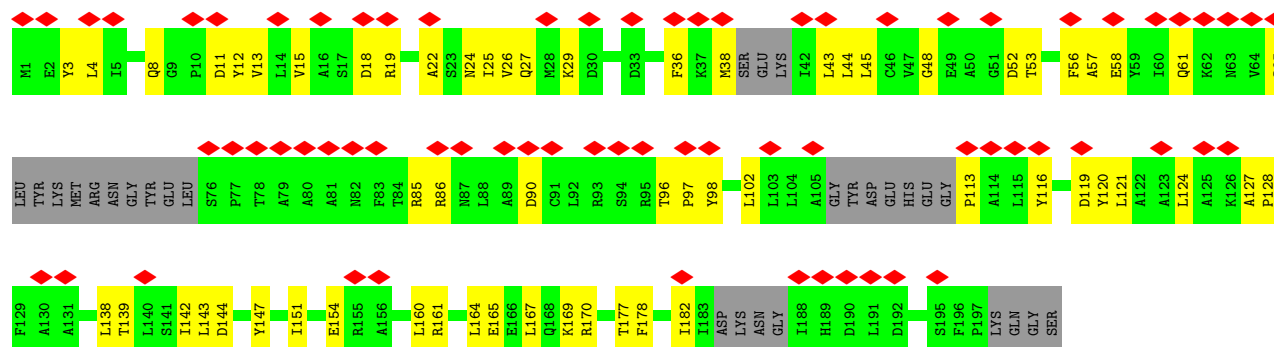
Chain P:  67% 32%

Chain p: 

Chain Q:  75% 23%



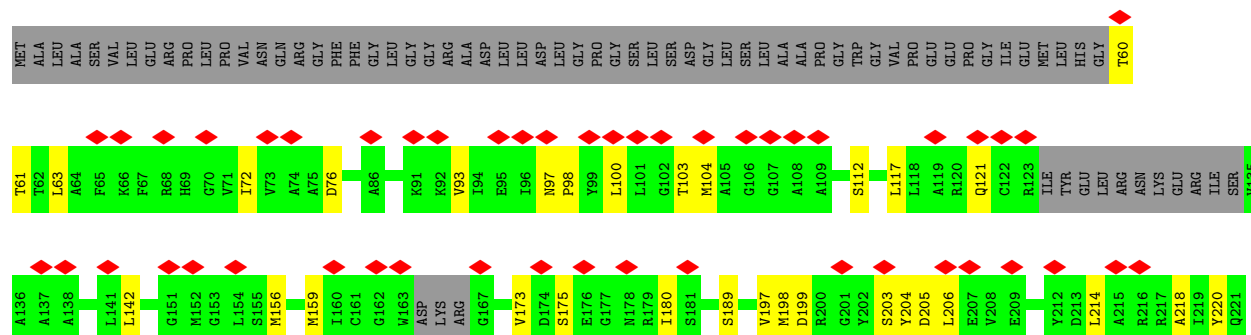
• Molecule 28: Proteasome subunit beta type-2



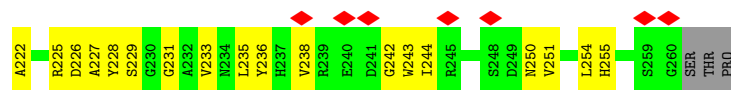
• Molecule 29: Proteasome subunit beta type-5



• Molecule 29: Proteasome subunit beta type-5

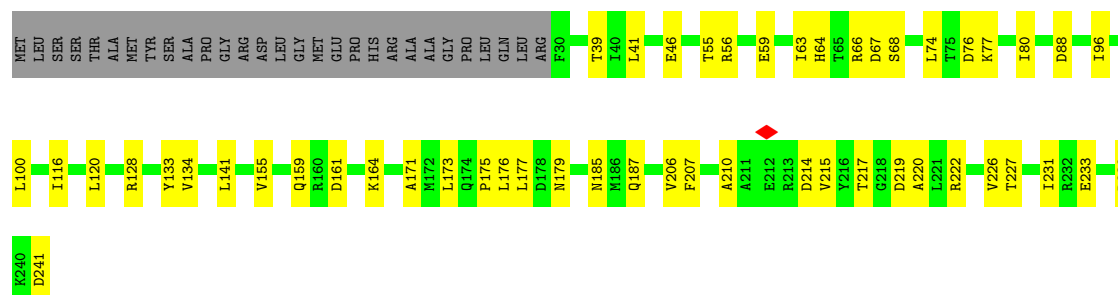






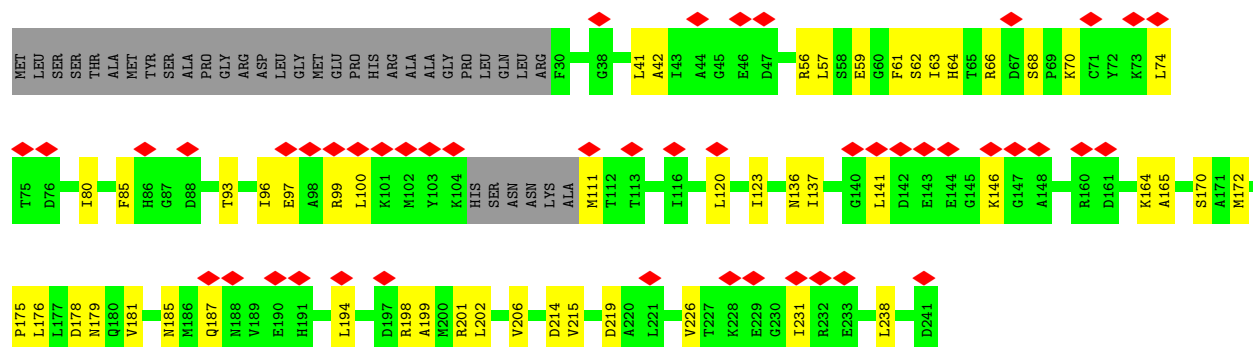
• Molecule 30: Proteasome subunit beta type-1

Chain S:



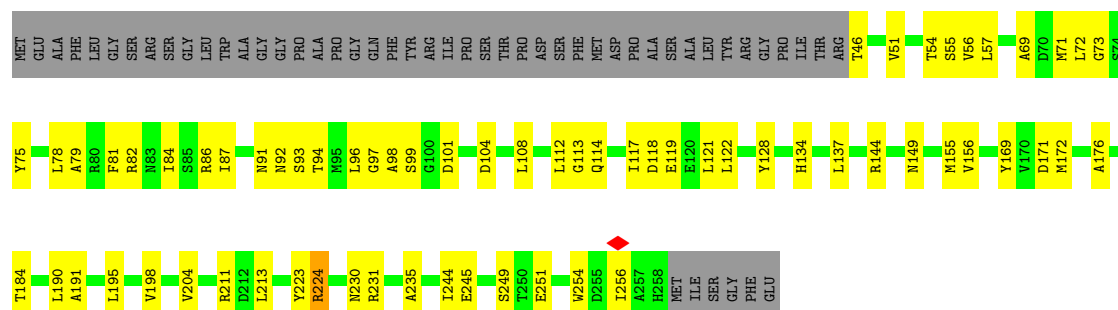
• Molecule 30: Proteasome subunit beta type-1

Chain s:



• Molecule 31: Proteasome subunit beta type-4

Chain T:



• Molecule 31: Proteasome subunit beta type-4

Chain t:





## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 87326                                   | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TITAN KRIOS                         | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 53                                      | Depositor |
| Minimum defocus (nm)                 | 800                                     | Depositor |
| Maximum defocus (nm)                 | 2200                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 BIOQUANTUM (6k x 4k)           | Depositor |
| Maximum map value                    | 1.528                                   | Depositor |
| Minimum map value                    | -0.907                                  | Depositor |
| Average map value                    | 0.002                                   | Depositor |
| Map value standard deviation         | 0.063                                   | Depositor |
| Recommended contour level            | 0.25                                    | Depositor |
| Map size (Å)                         | 363.0, 363.0, 363.0                     | wwPDB     |
| Map dimensions                       | 440, 440, 440                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 0.825, 0.825, 0.825                     | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

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

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   | U     | 0.13         | 0/6755      | 0.29        | 0/9135        |
| 2   | V     | 0.14         | 0/3499      | 0.33        | 0/4722        |
| 3   | W     | 0.17         | 0/3556      | 0.38        | 0/4781        |
| 4   | X     | 0.11         | 0/3373      | 0.27        | 0/4548        |
| 5   | Y     | 0.13         | 0/3181      | 0.29        | 0/4285        |
| 6   | Z     | 0.13         | 0/2333      | 0.30        | 0/3162        |
| 7   | a     | 0.14         | 0/3070      | 0.34        | 0/4155        |
| 8   | b     | 0.11         | 0/1479      | 0.30        | 0/2003        |
| 9   | c     | 0.14         | 0/2225      | 0.33        | 0/3005        |
| 10  | d     | 0.17         | 0/2141      | 0.40        | 0/2891        |
| 11  | e     | 0.10         | 0/322       | 0.25        | 0/436         |
| 12  | A     | 0.12         | 0/2548      | 0.33        | 0/3423        |
| 13  | B     | 0.13         | 0/3080      | 0.32        | 0/4153        |
| 14  | C     | 0.14         | 0/3112      | 0.32        | 0/4182        |
| 15  | D     | 0.20         | 0/3090      | 0.42        | 1/4168 (0.0%) |
| 16  | E     | 0.17         | 0/2742      | 0.37        | 0/3685        |
| 17  | F     | 0.12         | 0/1823      | 0.34        | 0/2433        |
| 18  | G     | 0.13         | 0/1919      | 0.29        | 0/2593        |
| 19  | H     | 0.14         | 0/1857      | 0.27        | 0/2514        |
| 20  | I     | 0.13         | 0/1993      | 0.29        | 0/2683        |
| 21  | J     | 0.14         | 0/1913      | 0.29        | 0/2581        |
| 22  | K     | 0.12         | 0/1830      | 0.30        | 0/2468        |
| 23  | L     | 0.12         | 0/1902      | 0.29        | 0/2569        |
| 24  | M     | 0.12         | 0/1951      | 0.29        | 0/2627        |
| 25  | N     | 0.14         | 0/1513      | 0.32        | 0/2047        |
| 25  | n     | 0.13         | 0/1352      | 0.31        | 0/1822        |
| 26  | O     | 0.13         | 0/1694      | 0.30        | 0/2293        |
| 26  | o     | 0.14         | 0/1331      | 0.35        | 0/1791        |
| 27  | P     | 0.14         | 0/1620      | 0.32        | 0/2184        |
| 27  | p     | 0.15         | 0/1282      | 0.37        | 0/1722        |
| 28  | Q     | 0.14         | 0/1611      | 0.29        | 0/2180        |
| 28  | q     | 0.16         | 0/1405      | 0.36        | 1/1899 (0.1%) |

| Mol | Chain | Bond lengths |         | Bond angles |                 |
|-----|-------|--------------|---------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5         |
| 29  | R     | 0.12         | 0/1580  | 0.29        | 0/2134          |
| 29  | r     | 0.12         | 0/1460  | 0.32        | 0/1972          |
| 30  | S     | 0.11         | 0/1673  | 0.27        | 0/2254          |
| 30  | s     | 0.12         | 0/1625  | 0.31        | 0/2188          |
| 31  | T     | 0.12         | 0/1698  | 0.31        | 0/2299          |
| 31  | t     | 0.13         | 0/1639  | 0.34        | 0/2217          |
| 32  | f     | 0.13         | 0/6458  | 0.30        | 0/8743          |
| 33  | y     | 0.11         | 0/272   | 0.28        | 0/357           |
| All | All   | 0.14         | 0/89907 | 0.32        | 2/121304 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 31  | T     | 0                   | 1                   |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 28  | q     | 97  | PRO  | CA-N-CD | -5.77 | 103.93      | 112.00   |
| 15  | D     | 219 | VAL  | N-CA-C  | -5.76 | 101.27      | 109.51   |

There are no chirality outliers.

All (1) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 31  | T     | 224 | ARG  | Sidechain |

## 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   | U     | 6640  | 0        | 6697     | 184     | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2   | V     | 3434  | 0        | 3503     | 114     | 0            |
| 3   | W     | 3510  | 0        | 3633     | 131     | 0            |
| 4   | X     | 3327  | 0        | 3423     | 79      | 0            |
| 5   | Y     | 3123  | 0        | 3130     | 72      | 0            |
| 6   | Z     | 2290  | 0        | 2320     | 92      | 0            |
| 7   | a     | 3012  | 0        | 3029     | 98      | 0            |
| 8   | b     | 1459  | 0        | 1499     | 39      | 0            |
| 9   | c     | 2184  | 0        | 2191     | 88      | 0            |
| 10  | d     | 2099  | 0        | 2127     | 91      | 0            |
| 11  | e     | 314   | 0        | 247      | 10      | 0            |
| 12  | A     | 2518  | 0        | 2588     | 107     | 0            |
| 13  | B     | 3037  | 0        | 3101     | 102     | 0            |
| 14  | C     | 3071  | 0        | 3193     | 105     | 0            |
| 15  | D     | 3040  | 0        | 3076     | 118     | 0            |
| 16  | E     | 2706  | 0        | 2779     | 106     | 0            |
| 17  | F     | 1812  | 0        | 1882     | 67      | 0            |
| 18  | G     | 1885  | 0        | 1889     | 55      | 0            |
| 19  | H     | 1818  | 0        | 1811     | 38      | 0            |
| 20  | I     | 1963  | 0        | 1987     | 41      | 0            |
| 21  | J     | 1887  | 0        | 1905     | 50      | 0            |
| 22  | K     | 1804  | 0        | 1789     | 43      | 0            |
| 23  | L     | 1868  | 0        | 1858     | 58      | 0            |
| 24  | M     | 1916  | 0        | 1890     | 49      | 0            |
| 25  | N     | 1487  | 0        | 1452     | 55      | 0            |
| 25  | n     | 1336  | 0        | 1324     | 64      | 0            |
| 26  | O     | 1667  | 0        | 1689     | 56      | 0            |
| 26  | o     | 1315  | 0        | 1321     | 39      | 0            |
| 27  | P     | 1591  | 0        | 1609     | 61      | 0            |
| 27  | p     | 1264  | 0        | 1255     | 42      | 0            |
| 28  | Q     | 1578  | 0        | 1580     | 43      | 0            |
| 28  | q     | 1380  | 0        | 1399     | 50      | 0            |
| 29  | R     | 1549  | 0        | 1512     | 51      | 0            |
| 29  | r     | 1432  | 0        | 1384     | 45      | 0            |
| 30  | S     | 1643  | 0        | 1640     | 49      | 0            |
| 30  | s     | 1597  | 0        | 1597     | 47      | 0            |
| 31  | T     | 1665  | 0        | 1638     | 63      | 0            |
| 31  | t     | 1609  | 0        | 1597     | 70      | 0            |
| 32  | f     | 6351  | 0        | 6362     | 196     | 0            |
| 33  | y     | 273   | 0        | 309      | 8       | 0            |
| 34  | c     | 1     | 0        | 0        | 0       | 0            |
| 35  | A     | 31    | 0        | 12       | 4       | 0            |
| 35  | B     | 31    | 0        | 12       | 3       | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 35  | C     | 31    | 0        | 12       | 1       | 0            |
| 35  | D     | 31    | 0        | 12       | 2       | 0            |
| 36  | E     | 27    | 0        | 12       | 1       | 0            |
| All | All   | 88606 | 0        | 89275    | 2529    | 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 (2529) 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) |
|-------------------|-------------------|--------------------------|-------------------|
| 28:Q:5:ILE:HD11   | 28:Q:143:LEU:HD11 | 1.44                     | 0.98              |
| 12:A:63:THR:O     | 32:f:681:TYR:OH   | 1.82                     | 0.98              |
| 17:F:438:TYR:OH   | 23:L:62:LYS:NZ    | 1.98                     | 0.97              |
| 6:Z:39:LEU:HD11   | 6:Z:95:TYR:HB3    | 1.50                     | 0.94              |
| 27:p:58:THR:OG1   | 28:q:121:LEU:O    | 1.88                     | 0.91              |
| 3:W:359:VAL:HG13  | 3:W:382:LEU:HD21  | 1.50                     | 0.91              |
| 14:C:60:ARG:NH2   | 15:D:71:GLU:OE2   | 2.03                     | 0.91              |
| 17:F:438:TYR:HH   | 23:L:33:SER:HG    | 1.13                     | 0.90              |
| 28:q:44:LEU:HD11  | 28:q:102:LEU:HD12 | 1.54                     | 0.90              |
| 15:D:274:ARG:NE   | 15:D:318:ASP:OD2  | 2.06                     | 0.89              |
| 26:O:250:GLY:O    | 30:s:187:GLN:NE2  | 2.06                     | 0.88              |
| 25:n:59:TYR:OH    | 26:o:178:MET:SD   | 2.32                     | 0.88              |
| 35:C:501:ATP:O3G  | 15:D:326:ARG:NH2  | 2.06                     | 0.88              |
| 6:Z:235:ASN:OD1   | 7:a:289:ARG:NH1   | 2.07                     | 0.87              |
| 20:I:140:ASP:OD2  | 20:I:146:GLN:NE2  | 2.07                     | 0.86              |
| 27:p:178:ASP:OD2  | 27:p:181:SER:OG   | 1.94                     | 0.86              |
| 29:r:233:VAL:HG21 | 29:r:254:LEU:HD12 | 1.57                     | 0.86              |
| 31:t:160:TYR:OH   | 31:t:237:VAL:O    | 1.93                     | 0.86              |
| 27:P:34:MET:O     | 29:r:225:ARG:NH1  | 2.08                     | 0.85              |
| 14:C:41:ASN:OD1   | 14:C:44:ARG:NH1   | 2.09                     | 0.85              |
| 29:r:60:THR:N     | 29:r:229:SER:HG   | 1.74                     | 0.85              |
| 1:U:609:ASP:OD1   | 1:U:610:VAL:N     | 2.10                     | 0.84              |
| 2:V:440:LYS:NZ    | 10:d:237:MET:O    | 2.09                     | 0.84              |
| 3:W:225:LYS:O     | 3:W:229:LEU:HD12  | 1.77                     | 0.84              |
| 25:n:48:LEU:HD11  | 25:n:135:ALA:HB3  | 1.59                     | 0.84              |
| 32:f:618:GLU:O    | 32:f:650:GLN:NE2  | 2.11                     | 0.84              |
| 23:L:33:SER:OG    | 23:L:62:LYS:NZ    | 2.09                     | 0.84              |
| 32:f:799:VAL:HG21 | 32:f:821:LEU:HD12 | 1.58                     | 0.84              |
| 16:E:245:GLU:OE2  | 19:H:2:ALA:N      | 2.10                     | 0.84              |
| 10:d:207:GLU:O    | 10:d:210:THR:OG1  | 1.96                     | 0.83              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:B:405:MET:SD   | 13:B:408:ARG:NH1  | 2.51                     | 0.83              |
| 27:P:58:THR:OG1   | 28:Q:121:LEU:O    | 1.96                     | 0.83              |
| 15:D:368:ASP:OD2  | 15:D:403:TYR:OH   | 1.97                     | 0.83              |
| 26:O:241:ARG:NH2  | 27:P:152:SER:O    | 2.13                     | 0.82              |
| 25:n:48:LEU:HD11  | 25:n:135:ALA:CB   | 2.10                     | 0.82              |
| 6:Z:188:SER:OG    | 7:a:374:ILE:O     | 1.98                     | 0.82              |
| 7:a:83:VAL:O      | 7:a:86:GLN:NE2    | 2.12                     | 0.82              |
| 1:U:568:GLU:OE2   | 1:U:572:ARG:NH2   | 2.13                     | 0.81              |
| 32:f:573:ILE:HG21 | 32:f:599:ALA:HB2  | 1.59                     | 0.81              |
| 21:J:109:ARG:NH2  | 29:R:129:ASN:OD1  | 2.13                     | 0.81              |
| 10:d:254:GLU:O    | 10:d:257:THR:OG1  | 1.97                     | 0.81              |
| 15:D:176:GLU:OE1  | 15:D:329:ARG:NH2  | 2.14                     | 0.81              |
| 26:O:68:VAL:HG11  | 27:P:144:GLU:OE2  | 1.80                     | 0.81              |
| 29:R:86:ALA:O     | 30:S:164:LYS:NZ   | 2.14                     | 0.81              |
| 31:t:63:GLY:O     | 31:t:238:THR:OG1  | 1.99                     | 0.81              |
| 3:W:451:MET:HE2   | 6:Z:101:LEU:HD12  | 1.63                     | 0.80              |
| 4:X:234:GLU:OE2   | 15:D:342:ARG:NH2  | 2.14                     | 0.80              |
| 32:f:505:MET:HE2  | 32:f:541:THR:HG21 | 1.64                     | 0.80              |
| 4:X:398:GLU:OE2   | 5:Y:365:GLN:NE2   | 2.14                     | 0.80              |
| 1:U:27:LEU:O      | 1:U:31:VAL:HG23   | 1.82                     | 0.80              |
| 29:R:60:THR:N     | 29:R:228:TYR:O    | 2.14                     | 0.80              |
| 12:A:64:GLY:O     | 32:f:680:ARG:NH2  | 2.15                     | 0.80              |
| 17:F:128:THR:OG1  | 17:F:130:GLN:OE1  | 1.99                     | 0.80              |
| 27:P:67:LEU:HD11  | 27:P:91:VAL:HG22  | 1.63                     | 0.80              |
| 3:W:280:ASP:OD1   | 3:W:281:ASN:N     | 2.15                     | 0.80              |
| 22:K:117:SER:OG   | 22:K:160:GLY:O    | 1.99                     | 0.79              |
| 25:n:38:MET:HE3   | 25:n:190:THR:HG23 | 1.64                     | 0.79              |
| 2:V:345:ARG:NH2   | 11:e:46:ASP:OD2   | 2.15                     | 0.79              |
| 14:C:373:GLU:OE1  | 14:C:375:ARG:NH1  | 2.16                     | 0.79              |
| 14:C:293:MET:CE   | 14:C:311:ILE:HD11 | 2.12                     | 0.79              |
| 32:f:77:GLU:OE2   | 32:f:80:ARG:NH2   | 2.16                     | 0.79              |
| 12:A:390:THR:HG22 | 12:A:394:MET:HE1  | 1.64                     | 0.79              |
| 9:c:292:MET:HE2   | 10:d:346:LEU:HD11 | 1.64                     | 0.79              |
| 29:R:225:ARG:NE   | 28:q:144:ASP:OD2  | 2.16                     | 0.79              |
| 12:A:187:LEU:HD23 | 12:A:229:VAL:HG21 | 1.65                     | 0.79              |
| 14:C:362:VAL:HG22 | 14:C:390:VAL:HG21 | 1.64                     | 0.79              |
| 6:Z:21:ASP:OD2    | 9:c:104:ARG:NH2   | 2.15                     | 0.78              |
| 31:T:230:ASN:OD1  | 31:T:249:SER:OG   | 2.00                     | 0.78              |
| 3:W:304:ASP:OD2   | 3:W:324:TYR:OH    | 2.00                     | 0.78              |
| 31:T:171:ASP:OD1  | 31:T:172:MET:N    | 2.15                     | 0.78              |
| 4:X:379:ASP:OD1   | 5:Y:313:SER:OG    | 2.02                     | 0.78              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:b:4:GLU:N       | 8:b:47:ASN:OD1    | 2.17                     | 0.78              |
| 5:Y:22:LEU:HD12   | 5:Y:37:VAL:HG23   | 1.64                     | 0.78              |
| 13:B:320:ASP:OD1  | 13:B:324:ASP:N    | 2.16                     | 0.78              |
| 3:W:408:ARG:NH1   | 4:X:346:GLN:OE1   | 2.17                     | 0.78              |
| 7:a:317:VAL:HG13  | 7:a:319:LEU:HD13  | 1.64                     | 0.78              |
| 32:f:237:VAL:O    | 32:f:245:ASN:ND2  | 2.17                     | 0.78              |
| 11:e:42:ASN:OD1   | 11:e:43:TRP:N     | 2.17                     | 0.78              |
| 15:D:148:ASP:OD2  | 16:E:78:ARG:NE    | 2.17                     | 0.78              |
| 32:f:79:ARG:HG3   | 32:f:125:ILE:HD11 | 1.66                     | 0.78              |
| 32:f:573:ILE:HD13 | 32:f:599:ALA:CB   | 2.14                     | 0.77              |
| 19:H:175:GLU:OE1  | 20:I:54:LYS:NZ    | 2.15                     | 0.77              |
| 31:t:95:MET:HE2   | 31:t:237:VAL:HG12 | 1.67                     | 0.77              |
| 32:f:175:ASP:OD1  | 32:f:178:LYS:NZ   | 2.17                     | 0.77              |
| 32:f:573:ILE:HD13 | 32:f:599:ALA:HB3  | 1.65                     | 0.77              |
| 10:d:223:ASN:OD1  | 10:d:224:VAL:N    | 2.17                     | 0.77              |
| 1:U:70:HIS:O      | 2:V:236:ARG:NH1   | 2.17                     | 0.77              |
| 3:W:51:GLU:OE1    | 3:W:93:ARG:NH1    | 2.18                     | 0.77              |
| 4:X:16:LEU:HD12   | 4:X:56:LEU:HG     | 1.67                     | 0.77              |
| 22:K:196:LYS:NZ   | 22:K:240:ASP:O    | 2.18                     | 0.77              |
| 15:D:277:ALA:O    | 15:D:279:THR:HG22 | 1.85                     | 0.77              |
| 5:Y:46:ARG:NH2    | 5:Y:66:ASP:OD2    | 2.18                     | 0.77              |
| 22:K:125:GLU:OE2  | 23:L:125:ARG:NH1  | 2.18                     | 0.77              |
| 32:f:888:LEU:HB3  | 32:f:901:ARG:HB2  | 1.65                     | 0.77              |
| 1:U:21:GLU:OE1    | 1:U:21:GLU:N      | 2.18                     | 0.77              |
| 21:J:73:PHE:CZ    | 21:J:80:ALA:HB2   | 2.19                     | 0.77              |
| 13:B:68:ILE:HG23  | 32:f:670:MET:CE   | 2.16                     | 0.76              |
| 25:N:199:GLU:OE2  | 31:t:82:ARG:NH1   | 2.17                     | 0.76              |
| 15:D:321:LEU:HD23 | 15:D:321:LEU:O    | 1.85                     | 0.76              |
| 1:U:140:ARG:NH1   | 1:U:144:ASP:OD2   | 2.19                     | 0.76              |
| 1:U:40:GLU:OE2    | 2:V:269:LYS:NZ    | 2.15                     | 0.76              |
| 4:X:94:ASP:OD1    | 4:X:132:ARG:NH2   | 2.19                     | 0.76              |
| 26:O:67:MET:HE1   | 30:s:61:PHE:HE1   | 1.51                     | 0.76              |
| 1:U:246:TYR:OH    | 1:U:324:LYS:NZ    | 2.17                     | 0.76              |
| 12:A:377:CYS:SG   | 12:A:380:SER:OG   | 2.41                     | 0.76              |
| 29:R:87:SER:HG    | 30:S:164:LYS:HZ1  | 1.32                     | 0.75              |
| 12:A:52:ILE:HD12  | 13:B:68:ILE:HG22  | 1.67                     | 0.75              |
| 14:C:281:ASP:OD2  | 14:C:307:ARG:NH2  | 2.19                     | 0.75              |
| 31:T:55:SER:OG    | 31:T:184:THR:O    | 2.03                     | 0.75              |
| 4:X:367:GLN:NE2   | 4:X:371:ASP:OD2   | 2.19                     | 0.75              |
| 32:f:458:GLU:OE2  | 33:y:402:LYS:NZ   | 2.19                     | 0.75              |
| 12:A:181:LYS:NZ   | 12:A:349:GLU:OE2  | 2.17                     | 0.75              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 21:J:228:TYR:O    | 21:J:232:ILE:HD12 | 1.86                     | 0.75              |
| 26:O:98:THR:HG23  | 26:O:129:MET:CE   | 2.16                     | 0.75              |
| 26:O:224:ASN:OD1  | 26:O:225:LYS:N    | 2.19                     | 0.75              |
| 1:U:490:ARG:NH2   | 1:U:492:ASP:OD2   | 2.20                     | 0.75              |
| 1:U:560:MET:SD    | 1:U:593:SER:OG    | 2.42                     | 0.75              |
| 2:V:213:TYR:O     | 2:V:217:VAL:HG13  | 1.86                     | 0.75              |
| 17:F:438:TYR:HH   | 23:L:62:LYS:NZ    | 1.85                     | 0.75              |
| 18:G:158:GLY:O    | 19:H:84:ARG:NH2   | 2.20                     | 0.75              |
| 1:U:404:ALA:O     | 1:U:407:SER:OG    | 2.04                     | 0.74              |
| 6:Z:38:VAL:HG11   | 6:Z:91:ILE:HD12   | 1.69                     | 0.74              |
| 6:Z:274:ASN:OD1   | 9:c:281:LYS:NZ    | 2.19                     | 0.74              |
| 17:F:251:LEU:HD13 | 17:F:271:ALA:HB2  | 1.67                     | 0.74              |
| 23:L:164:ARG:O    | 23:L:198:THR:OG1  | 2.06                     | 0.74              |
| 3:W:72:LYS:NZ     | 3:W:76:GLU:OE2    | 2.16                     | 0.74              |
| 4:X:218:HIS:ND1   | 4:X:224:ASP:OD2   | 2.20                     | 0.74              |
| 30:s:85:PHE:CZ    | 31:t:173:LEU:HD21 | 2.22                     | 0.74              |
| 29:R:103:THR:O    | 29:R:158:THR:OG1  | 2.02                     | 0.74              |
| 1:U:321:GLN:OE1   | 1:U:324:LYS:NZ    | 2.19                     | 0.74              |
| 27:P:2:SER:N      | 27:P:5:SER:HG     | 1.86                     | 0.74              |
| 30:S:41:LEU:HD11  | 30:S:177:LEU:HD11 | 1.68                     | 0.74              |
| 5:Y:174:TRP:O     | 5:Y:178:ASN:ND2   | 2.21                     | 0.74              |
| 2:V:368:ARG:NH2   | 11:e:46:ASP:OD1   | 2.21                     | 0.74              |
| 10:d:201:SER:HB3  | 10:d:262:ILE:HG23 | 1.70                     | 0.74              |
| 10:d:146:ASP:O    | 10:d:150:ILE:HD12 | 1.88                     | 0.73              |
| 14:C:406:LYS:OXT  | 20:I:64:LYS:NZ    | 2.18                     | 0.73              |
| 29:R:87:SER:OG    | 30:S:164:LYS:NZ   | 2.17                     | 0.73              |
| 29:R:94:ILE:HD11  | 29:R:104:MET:HE3  | 1.70                     | 0.73              |
| 3:W:294:LYS:NZ    | 3:W:298:GLU:OE2   | 2.19                     | 0.73              |
| 1:U:596:ASN:ND2   | 15:D:52:GLU:OE1   | 2.19                     | 0.73              |
| 2:V:465:ASP:OD1   | 5:Y:363:ASN:ND2   | 2.22                     | 0.73              |
| 21:J:159:ASN:OD1  | 21:J:160:ALA:N    | 2.21                     | 0.73              |
| 1:U:437:TYR:HD1   | 1:U:472:ILE:HG21  | 1.53                     | 0.73              |
| 7:a:185:ILE:O     | 7:a:193:GLN:NE2   | 2.21                     | 0.73              |
| 29:r:220:TYR:OH   | 29:r:255:HIS:ND1  | 2.22                     | 0.73              |
| 2:V:311:ASN:OD1   | 2:V:314:ARG:NH2   | 2.21                     | 0.73              |
| 19:H:74:LEU:HD21  | 19:H:134:LEU:HD22 | 1.70                     | 0.73              |
| 9:c:71:ASP:OD1    | 9:c:72:VAL:N      | 2.20                     | 0.73              |
| 16:E:196:LEU:HD21 | 16:E:218:MET:HG3  | 1.70                     | 0.73              |
| 3:W:445:LEU:HD22  | 6:Z:226:ILE:HD11  | 1.70                     | 0.72              |
| 23:L:88:MET:HE2   | 23:L:112:ILE:HD13 | 1.71                     | 0.72              |
| 1:U:19:LEU:HD13   | 10:d:124:LEU:HD13 | 1.71                     | 0.72              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:153:LEU:HD23 | 12:A:154:PRO:O    | 1.89                     | 0.72              |
| 18:G:113:MET:HE3  | 26:O:113:THR:HG22 | 1.72                     | 0.72              |
| 31:T:57:LEU:HD11  | 31:T:191:ALA:HB1  | 1.72                     | 0.72              |
| 16:E:366:ASP:OD1  | 16:E:367:PHE:N    | 2.22                     | 0.72              |
| 18:G:205:VAL:HG13 | 18:G:206:LEU:HD12 | 1.71                     | 0.72              |
| 16:E:196:LEU:HD23 | 16:E:230:ILE:HD12 | 1.72                     | 0.72              |
| 16:E:302:ASP:OD1  | 16:E:303:LEU:N    | 2.22                     | 0.72              |
| 8:b:24:THR:OG1    | 8:b:27:GLN:OE1    | 2.07                     | 0.72              |
| 2:V:121:PHE:O     | 2:V:128:ARG:NH1   | 2.22                     | 0.72              |
| 15:D:130:VAL:HG12 | 15:D:142:VAL:HG12 | 1.72                     | 0.72              |
| 31:t:50:MET:O     | 31:t:52:THR:HG23  | 1.88                     | 0.72              |
| 13:B:289:ALA:O    | 14:C:271:ARG:NH1  | 2.23                     | 0.72              |
| 18:G:50:ILE:HG23  | 18:G:141:ILE:HD13 | 1.70                     | 0.72              |
| 2:V:334:VAL:O     | 2:V:338:LEU:HD23  | 1.90                     | 0.72              |
| 13:B:197:ILE:O    | 13:B:201:VAL:HG22 | 1.90                     | 0.72              |
| 31:T:223:TYR:O    | 25:n:60:ILE:HD11  | 1.90                     | 0.71              |
| 24:M:137:MET:HE2  | 24:M:149:LEU:HD11 | 1.72                     | 0.71              |
| 28:q:61:GLN:NE2   | 28:q:65:GLN:OE1   | 2.23                     | 0.71              |
| 1:U:206:MET:HE1   | 1:U:232:ILE:HD11  | 1.71                     | 0.71              |
| 29:R:87:SER:HG    | 30:S:164:LYS:NZ   | 1.87                     | 0.71              |
| 6:Z:172:VAL:HG23  | 9:c:217:LEU:HD13  | 1.73                     | 0.71              |
| 25:n:125:ARG:NH1  | 25:n:151:GLY:O    | 2.24                     | 0.71              |
| 22:K:218:ALA:HB2  | 22:K:228:MET:HE1  | 1.73                     | 0.71              |
| 18:G:217:VAL:HG21 | 18:G:235:ILE:HD13 | 1.73                     | 0.71              |
| 23:L:196:ARG:HG2  | 23:L:205:LEU:HD13 | 1.72                     | 0.71              |
| 1:U:631:GLU:N     | 1:U:631:GLU:OE1   | 2.22                     | 0.71              |
| 14:C:293:MET:HE3  | 14:C:311:ILE:HD11 | 1.71                     | 0.71              |
| 25:N:51:ASP:OD1   | 25:N:52:SER:N     | 2.22                     | 0.71              |
| 27:p:135:ASP:OD1  | 27:p:136:PHE:N    | 2.24                     | 0.70              |
| 32:f:479:LEU:HD23 | 32:f:816:TYR:OH   | 1.91                     | 0.70              |
| 30:S:46:GLU:OE1   | 30:S:46:GLU:N     | 2.24                     | 0.70              |
| 1:U:811:PHE:O     | 1:U:883:ARG:NH1   | 2.23                     | 0.70              |
| 24:M:40:ILE:HD13  | 24:M:194:VAL:HG22 | 1.73                     | 0.70              |
| 3:W:340:VAL:HG12  | 3:W:340:VAL:O     | 1.91                     | 0.70              |
| 9:c:27:THR:HG22   | 9:c:177:THR:HA    | 1.74                     | 0.70              |
| 2:V:309:MET:HE3   | 2:V:331:LEU:HG    | 1.71                     | 0.70              |
| 4:X:397:TYR:CE1   | 6:Z:258:VAL:HG11  | 2.26                     | 0.70              |
| 14:C:37:ASP:OD1   | 14:C:38:LYS:N     | 2.24                     | 0.70              |
| 7:a:214:GLY:N     | 7:a:241:ASN:OD1   | 2.25                     | 0.70              |
| 15:D:202:VAL:HG23 | 15:D:329:ARG:HB2  | 1.73                     | 0.70              |
| 26:o:204:ALA:O    | 26:o:208:ASN:ND2  | 2.24                     | 0.70              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:c:303:MET:HE3   | 10:d:335:LEU:HD22 | 1.72                     | 0.70              |
| 7:a:360:VAL:HG22  | 9:c:308:VAL:HG13  | 1.72                     | 0.70              |
| 16:E:200:SER:OG   | 16:E:234:GLU:O    | 2.09                     | 0.70              |
| 22:K:31:ILE:HD11  | 22:K:158:PRO:CG   | 2.22                     | 0.70              |
| 15:D:119:ILE:O    | 15:D:119:ILE:HG22 | 1.92                     | 0.70              |
| 23:L:164:ARG:NH1  | 23:L:198:THR:O    | 2.24                     | 0.70              |
| 32:f:409:SER:OG   | 32:f:815:HIS:NE2  | 2.25                     | 0.69              |
| 7:a:326:GLU:O     | 7:a:329:LYS:NZ    | 2.24                     | 0.69              |
| 32:f:378:ASN:OD1  | 32:f:382:ASN:ND2  | 2.24                     | 0.69              |
| 29:r:226:ASP:O    | 29:r:229:SER:N    | 2.24                     | 0.69              |
| 4:X:240:ASP:OD1   | 4:X:278:ARG:NH2   | 2.24                     | 0.69              |
| 6:Z:74:TYR:OH     | 9:c:102:THR:OG1   | 2.10                     | 0.69              |
| 13:B:383:LEU:HD11 | 13:B:419:PHE:HB3  | 1.74                     | 0.69              |
| 18:G:186:LYS:O    | 18:G:189:TRP:NE1  | 2.26                     | 0.69              |
| 28:Q:18:ASP:OD1   | 28:Q:19:ARG:N     | 2.26                     | 0.69              |
| 31:T:224:ARG:CZ   | 26:o:178:MET:HE2  | 2.23                     | 0.69              |
| 3:W:206:SER:OG    | 3:W:230:MET:SD    | 2.45                     | 0.69              |
| 15:D:185:LEU:HD23 | 15:D:225:ALA:HB2  | 1.73                     | 0.69              |
| 7:a:96:PHE:O      | 7:a:100:THR:HG23  | 1.93                     | 0.69              |
| 16:E:313:LEU:CD1  | 16:E:343:LEU:HD13 | 2.23                     | 0.69              |
| 24:M:216:TRP:CZ3  | 24:M:228:VAL:HG22 | 2.27                     | 0.69              |
| 3:W:186:ILE:HG21  | 3:W:209:ILE:HD11  | 1.75                     | 0.69              |
| 27:P:178:ASP:OD2  | 27:P:181:SER:OG   | 2.05                     | 0.68              |
| 12:A:254:ALA:HA   | 12:A:298:THR:HG22 | 1.75                     | 0.68              |
| 32:f:783:SER:HB2  | 32:f:787:LEU:HD12 | 1.73                     | 0.68              |
| 2:V:94:VAL:HG21   | 2:V:205:LEU:HD13  | 1.75                     | 0.68              |
| 3:W:414:ASN:OD1   | 3:W:416:GLN:N     | 2.26                     | 0.68              |
| 21:J:33:VAL:HG22  | 21:J:160:ALA:HB2  | 1.75                     | 0.68              |
| 21:J:188:ILE:O    | 21:J:192:ILE:HD12 | 1.94                     | 0.68              |
| 33:y:403:ARG:HH12 | 33:y:404:LEU:HD23 | 1.58                     | 0.68              |
| 12:A:222:LYS:N    | 35:A:501:ATP:O1B  | 2.26                     | 0.68              |
| 26:O:183:ASP:OD2  | 26:O:184:LYS:NZ   | 2.26                     | 0.68              |
| 3:W:446:ILE:HD11  | 6:Z:211:TYR:CE1   | 2.29                     | 0.68              |
| 27:p:155:GLU:OE1  | 27:p:155:GLU:N    | 2.27                     | 0.68              |
| 5:Y:285:ASP:OD1   | 5:Y:286:TRP:N     | 2.25                     | 0.68              |
| 16:E:239:GLY:HA2  | 16:E:257:LEU:HD13 | 1.74                     | 0.68              |
| 28:Q:58:GLU:OE1   | 28:Q:62:LYS:NZ    | 2.21                     | 0.68              |
| 5:Y:316:LEU:HD12  | 5:Y:352:GLU:OE1   | 1.94                     | 0.68              |
| 30:S:187:GLN:NE2  | 26:o:251:THR:O    | 2.27                     | 0.68              |
| 30:s:226:VAL:HG22 | 30:s:231:ILE:CD1  | 2.24                     | 0.68              |
| 15:D:97:ASP:OD1   | 15:D:98:GLN:N     | 2.26                     | 0.68              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 26:o:129:MET:SD   | 26:o:132:ARG:NH2  | 2.67                     | 0.68              |
| 28:q:24:ASN:OD1   | 28:q:25:ILE:N     | 2.25                     | 0.68              |
| 2:V:168:GLN:HG3   | 2:V:191:LEU:HD21  | 1.76                     | 0.68              |
| 2:V:113:LEU:HD21  | 2:V:171:VAL:HA    | 1.76                     | 0.68              |
| 3:W:132:THR:O     | 3:W:142:ARG:NH1   | 2.27                     | 0.68              |
| 23:L:195:LEU:HD22 | 23:L:205:LEU:HD21 | 1.75                     | 0.68              |
| 28:Q:169:LYS:O    | 28:q:27:GLN:NE2   | 2.27                     | 0.68              |
| 29:R:239:ARG:NH2  | 29:R:241:ASP:OD2  | 2.27                     | 0.68              |
| 20:I:209:GLU:OE1  | 20:I:230:GLN:NE2  | 2.27                     | 0.67              |
| 26:O:71:ASP:OD1   | 26:O:72:LYS:N     | 2.26                     | 0.67              |
| 3:W:446:ILE:HD11  | 6:Z:211:TYR:CZ    | 2.29                     | 0.67              |
| 12:A:101:ILE:HD11 | 12:A:136:GLU:HA   | 1.77                     | 0.67              |
| 8:b:145:GLU:OE1   | 8:b:145:GLU:N     | 2.28                     | 0.67              |
| 21:J:191:VAL:HG11 | 21:J:208:LEU:HD21 | 1.76                     | 0.67              |
| 25:N:173:VAL:HG23 | 25:N:189:PHE:HZ   | 1.59                     | 0.67              |
| 27:P:24:ALA:HB2   | 27:P:42:ILE:HD11  | 1.75                     | 0.67              |
| 4:X:65:GLU:OE1    | 4:X:65:GLU:N      | 2.28                     | 0.67              |
| 9:c:166:ASN:OD1   | 9:c:167:MET:N     | 2.27                     | 0.67              |
| 22:K:31:ILE:HD11  | 22:K:158:PRO:HG3  | 1.77                     | 0.67              |
| 7:a:16:PRO:O      | 7:a:18:GLN:OE1    | 2.12                     | 0.67              |
| 14:C:399:MET:CE   | 20:I:56:LEU:HD11  | 2.25                     | 0.67              |
| 1:U:2:ILE:O       | 1:U:3:THR:OG1     | 2.12                     | 0.67              |
| 2:V:243:ASP:OD1   | 2:V:244:ALA:N     | 2.27                     | 0.67              |
| 4:X:332:GLU:HG3   | 4:X:368:MET:HE3   | 1.76                     | 0.67              |
| 12:A:34:LYS:NZ    | 14:C:173:GLU:OE1  | 2.26                     | 0.67              |
| 7:a:142:LEU:HD21  | 7:a:152:HIS:CD2   | 2.29                     | 0.67              |
| 9:c:307:VAL:HG21  | 10:d:332:SER:HB2  | 1.75                     | 0.67              |
| 16:E:309:ARG:NH1  | 16:E:335:SER:O    | 2.27                     | 0.67              |
| 26:O:109:HIS:O    | 26:O:113:THR:HG23 | 1.95                     | 0.67              |
| 31:T:119:GLU:OE2  | 31:T:128:TYR:N    | 2.28                     | 0.67              |
| 25:n:71:ILE:HD11  | 25:n:77:CYS:HB3   | 1.77                     | 0.67              |
| 6:Z:243:GLN:OE1   | 10:d:328:THR:OG1  | 2.12                     | 0.67              |
| 12:A:153:LEU:HD11 | 13:B:122:ILE:HD11 | 1.76                     | 0.67              |
| 26:O:206:ILE:HD12 | 26:O:213:GLY:O    | 1.94                     | 0.67              |
| 27:P:59:ASP:OD2   | 27:P:104:TYR:N    | 2.25                     | 0.67              |
| 32:f:463:LEU:HD22 | 32:f:494:ARG:HH21 | 1.59                     | 0.67              |
| 4:X:137:TYR:HB3   | 4:X:146:ALA:HB2   | 1.77                     | 0.67              |
| 5:Y:183:TYR:CE1   | 5:Y:213:LEU:HD11  | 2.29                     | 0.67              |
| 16:E:158:LEU:O    | 16:E:162:VAL:HG23 | 1.94                     | 0.67              |
| 9:c:307:VAL:O     | 9:c:307:VAL:HG12  | 1.94                     | 0.67              |
| 10:d:197:LEU:HD22 | 10:d:256:TYR:HD2  | 1.58                     | 0.67              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:C:347:ILE:HG22 | 14:C:351:MET:HE2  | 1.77                     | 0.67              |
| 31:T:117:ILE:O    | 31:T:121:LEU:HD23 | 1.95                     | 0.67              |
| 17:F:222:GLY:O    | 17:F:349:ASP:N    | 2.28                     | 0.66              |
| 25:N:185:GLU:OE1  | 25:N:188:GLN:NE2  | 2.28                     | 0.66              |
| 18:G:113:MET:CE   | 26:O:113:THR:HG22 | 2.25                     | 0.66              |
| 27:p:178:ASP:OD1  | 27:p:179:ALA:N    | 2.28                     | 0.66              |
| 31:t:108:LEU:HD21 | 31:t:151:LEU:HD13 | 1.77                     | 0.66              |
| 2:V:168:GLN:HE22  | 2:V:187:ILE:HD11  | 1.59                     | 0.66              |
| 12:A:135:GLU:OE2  | 12:A:138:MET:N    | 2.27                     | 0.66              |
| 12:A:139:ARG:HB3  | 12:A:153:LEU:HD22 | 1.77                     | 0.66              |
| 12:A:238:ILE:HD13 | 12:A:271:LEU:O    | 1.95                     | 0.66              |
| 30:s:219:ASP:O    | 30:s:238:LEU:N    | 2.29                     | 0.66              |
| 24:M:9:ASP:O      | 24:M:23:GLN:NE2   | 2.28                     | 0.66              |
| 31:t:171:ASP:OD1  | 31:t:174:GLY:N    | 2.28                     | 0.66              |
| 32:f:409:SER:O    | 32:f:819:TYR:OH   | 2.12                     | 0.66              |
| 2:V:259:LEU:HD21  | 2:V:295:ILE:HD11  | 1.76                     | 0.66              |
| 30:s:56:ARG:NE    | 30:s:219:ASP:OD2  | 2.27                     | 0.66              |
| 1:U:391:GLU:OE1   | 1:U:391:GLU:N     | 2.29                     | 0.66              |
| 12:A:206:ILE:HD12 | 17:F:404:GLY:HA3  | 1.77                     | 0.66              |
| 12:A:372:LEU:HD11 | 22:K:207:GLU:OE1  | 1.94                     | 0.66              |
| 16:E:71:VAL:HG21  | 16:E:100:LEU:HD11 | 1.77                     | 0.66              |
| 16:E:205:ASP:OD1  | 16:E:206:LYS:N    | 2.29                     | 0.66              |
| 16:E:264:MET:HE3  | 16:E:294:ARG:HB3  | 1.76                     | 0.66              |
| 8:b:123:ASP:OD1   | 8:b:124:LEU:N     | 2.29                     | 0.66              |
| 12:A:413:VAL:HG13 | 12:A:417:ILE:HD13 | 1.77                     | 0.66              |
| 18:G:51:VAL:HG13  | 18:G:202:LEU:HD11 | 1.78                     | 0.66              |
| 1:U:446:LEU:HD21  | 1:U:457:ILE:HD11  | 1.76                     | 0.66              |
| 3:W:108:CYS:O     | 3:W:112:VAL:HG23  | 1.95                     | 0.66              |
| 3:W:133:GLU:OE1   | 3:W:133:GLU:N     | 2.28                     | 0.66              |
| 9:c:292:MET:CE    | 10:d:346:LEU:HD11 | 2.25                     | 0.66              |
| 26:O:172:SER:OG   | 26:O:209:ASP:OD1  | 2.10                     | 0.66              |
| 31:T:54:THR:O     | 31:T:99:SER:OG    | 2.10                     | 0.66              |
| 21:J:55:ASP:OD1   | 21:J:56:GLU:N     | 2.28                     | 0.66              |
| 30:s:164:LYS:NZ   | 30:s:165:ALA:O    | 2.29                     | 0.66              |
| 17:F:75:GLU:OE2   | 17:F:76:ASN:ND2   | 2.28                     | 0.66              |
| 32:f:447:ALA:O    | 32:f:451:VAL:HG23 | 1.94                     | 0.66              |
| 1:U:456:ASP:OD1   | 1:U:457:ILE:N     | 2.28                     | 0.65              |
| 6:Z:175:LEU:HD11  | 9:c:38:LEU:HD23   | 1.79                     | 0.65              |
| 7:a:109:GLU:HB3   | 7:a:151:VAL:HG11  | 1.77                     | 0.65              |
| 14:C:81:ASP:OD1   | 14:C:82:LYS:N     | 2.29                     | 0.65              |
| 22:K:238:ILE:HA   | 22:K:241:ILE:HG23 | 1.79                     | 0.65              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 25:n:46:VAL:HG11  | 25:n:135:ALA:HB1  | 1.78                     | 0.65              |
| 29:r:142:LEU:HD22 | 29:r:173:VAL:HG21 | 1.78                     | 0.65              |
| 32:f:287:ASP:OD2  | 32:f:901:ARG:NH2  | 2.29                     | 0.65              |
| 19:H:229:TYR:O    | 19:H:233:ILE:HD12 | 1.95                     | 0.65              |
| 10:d:171:LEU:HD13 | 10:d:191:LEU:HD21 | 1.79                     | 0.65              |
| 24:M:153:ASP:OD1  | 24:M:157:VAL:HG22 | 1.96                     | 0.65              |
| 29:R:66:LYS:O     | 29:R:202:TYR:OH   | 2.11                     | 0.65              |
| 31:t:69:ALA:HB3   | 31:t:87:ILE:HD11  | 1.77                     | 0.65              |
| 6:Z:255:ASP:O     | 6:Z:258:VAL:HG12  | 1.95                     | 0.65              |
| 9:c:145:VAL:HG12  | 9:c:157:ILE:HG12  | 1.78                     | 0.65              |
| 6:Z:35:VAL:HG22   | 6:Z:97:THR:OG1    | 1.96                     | 0.65              |
| 1:U:613:ASP:OD1   | 1:U:616:ARG:NH2   | 2.29                     | 0.65              |
| 3:W:435:LEU:HD11  | 6:Z:237:LEU:HD23  | 1.79                     | 0.65              |
| 16:E:215:ILE:HD13 | 16:E:260:LEU:HB2  | 1.78                     | 0.65              |
| 25:N:148:VAL:HG23 | 25:N:148:VAL:O    | 1.96                     | 0.65              |
| 26:O:242:LEU:O    | 30:s:201:ARG:NH2  | 2.29                     | 0.65              |
| 28:Q:108:ASP:OD1  | 28:Q:109:GLU:N    | 2.30                     | 0.65              |
| 30:S:100:LEU:HD11 | 30:S:116:ILE:HD11 | 1.78                     | 0.65              |
| 32:f:264:GLU:OE1  | 32:f:264:GLU:N    | 2.30                     | 0.65              |
| 3:W:326:MET:SD    | 3:W:327:GLU:N     | 2.70                     | 0.65              |
| 13:B:356:PRO:O    | 13:B:361:LYS:NZ   | 2.22                     | 0.65              |
| 7:a:236:THR:HG22  | 7:a:251:LEU:HD13  | 1.77                     | 0.65              |
| 12:A:371:GLU:N    | 12:A:371:GLU:OE1  | 2.28                     | 0.65              |
| 16:E:238:ILE:HG22 | 16:E:238:ILE:O    | 1.97                     | 0.65              |
| 18:G:114:LEU:HD22 | 18:G:140:LEU:HD21 | 1.78                     | 0.65              |
| 18:G:138:MET:CE   | 18:G:140:LEU:HD11 | 2.27                     | 0.65              |
| 32:f:386:GLY:HA2  | 32:f:418:LEU:HD23 | 1.77                     | 0.65              |
| 1:U:798:PRO:O     | 1:U:880:ASN:ND2   | 2.30                     | 0.65              |
| 1:U:697:GLN:O     | 1:U:698:GLN:NE2   | 2.30                     | 0.64              |
| 9:c:177:THR:HG23  | 9:c:177:THR:O     | 1.96                     | 0.64              |
| 21:J:89:VAL:HG22  | 28:Q:66:LEU:HD21  | 1.79                     | 0.64              |
| 32:f:479:LEU:HD21 | 32:f:513:GLU:HB3  | 1.78                     | 0.64              |
| 2:V:343:PRO:O     | 11:e:43:TRP:NE1   | 2.30                     | 0.64              |
| 5:Y:228:MET:HE1   | 5:Y:259:TYR:CZ    | 2.33                     | 0.64              |
| 6:Z:74:TYR:OH     | 9:c:98:MET:O      | 2.13                     | 0.64              |
| 13:B:78:PHE:HB2   | 32:f:613:LEU:HD21 | 1.78                     | 0.64              |
| 14:C:362:VAL:CG2  | 14:C:390:VAL:HG21 | 2.28                     | 0.64              |
| 32:f:535:THR:O    | 32:f:539:LEU:HD23 | 1.97                     | 0.64              |
| 1:U:437:TYR:CD1   | 1:U:472:ILE:HG21  | 2.32                     | 0.64              |
| 1:U:603:LEU:HB3   | 15:D:60:TYR:CD1   | 2.32                     | 0.64              |
| 9:c:57:MET:HE3    | 9:c:69:VAL:HG21   | 1.79                     | 0.64              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:477:HIS:ND1   | 10:d:342:TYR:OH   | 2.29                     | 0.64              |
| 12:A:55:LEU:CD2   | 13:B:73:LEU:HD22  | 2.27                     | 0.64              |
| 16:E:325:GLU:OE1  | 16:E:325:GLU:N    | 2.30                     | 0.64              |
| 31:T:78:LEU:HD13  | 25:n:168:TYR:CZ   | 2.32                     | 0.64              |
| 28:q:119:ASP:OD1  | 28:q:120:TYR:N    | 2.30                     | 0.64              |
| 9:c:117:GLY:N     | 9:c:146:ASP:OD1   | 2.31                     | 0.64              |
| 16:E:148:VAL:HG21 | 16:E:297:ARG:HG3  | 1.79                     | 0.64              |
| 25:N:169:ILE:HG21 | 25:N:197:ALA:HB2  | 1.78                     | 0.64              |
| 12:A:201:PHE:HZ   | 17:F:408:LEU:HD22 | 1.63                     | 0.64              |
| 14:C:161:ILE:CD1  | 14:C:186:VAL:HG11 | 2.28                     | 0.64              |
| 30:S:59:GLU:OE2   | 30:S:64:HIS:ND1   | 2.30                     | 0.64              |
| 31:t:95:MET:HE1   | 31:t:235:ALA:O    | 1.98                     | 0.64              |
| 3:W:112:VAL:HG22  | 3:W:124:LEU:CD2   | 2.28                     | 0.64              |
| 6:Z:104:ASN:O     | 6:Z:108:ILE:HD12  | 1.98                     | 0.64              |
| 12:A:433:ASN:H    | 22:K:82:ILE:HD11  | 1.62                     | 0.64              |
| 13:B:249:ARG:NH1  | 14:C:284:GLU:OE2  | 2.30                     | 0.64              |
| 29:r:60:THR:N     | 29:r:229:SER:OG   | 2.31                     | 0.64              |
| 2:V:458:VAL:HG23  | 2:V:458:VAL:O     | 1.98                     | 0.64              |
| 9:c:303:MET:CE    | 10:d:335:LEU:HD22 | 2.28                     | 0.63              |
| 14:C:254:ILE:O    | 14:C:254:ILE:HG23 | 1.98                     | 0.63              |
| 28:Q:170:ARG:NE   | 29:r:199:ASP:OD2  | 2.25                     | 0.63              |
| 32:f:463:LEU:HD22 | 32:f:494:ARG:NH2  | 2.13                     | 0.63              |
| 1:U:532:MET:HE1   | 1:U:555:VAL:HG21  | 1.78                     | 0.63              |
| 4:X:43:VAL:HG21   | 4:X:77:LEU:HD12   | 1.80                     | 0.63              |
| 12:A:180:CYS:SG   | 35:A:501:ATP:N6   | 2.71                     | 0.63              |
| 27:P:37:THR:HG22  | 27:P:37:THR:O     | 1.97                     | 0.63              |
| 1:U:161:ASP:OD1   | 1:U:162:VAL:N     | 2.30                     | 0.63              |
| 25:N:169:ILE:CG2  | 25:N:197:ALA:HB2  | 2.27                     | 0.63              |
| 14:C:280:LEU:HD21 | 14:C:291:VAL:HG21 | 1.79                     | 0.63              |
| 25:n:117:PHE:CD2  | 25:n:134:ILE:HD11 | 2.32                     | 0.63              |
| 17:F:86:LEU:O     | 17:F:88:TYR:N     | 2.31                     | 0.63              |
| 13:B:95:GLU:O     | 13:B:99:VAL:HG23  | 1.98                     | 0.63              |
| 1:U:49:TYR:CE1    | 1:U:61:ALA:HB2    | 2.33                     | 0.63              |
| 3:W:440:ASN:O     | 3:W:443:THR:HG22  | 1.98                     | 0.63              |
| 14:C:372:ARG:NH1  | 15:D:175:GLN:OE1  | 2.32                     | 0.63              |
| 21:J:199:VAL:HG21 | 21:J:206:ILE:HD11 | 1.80                     | 0.63              |
| 30:S:179:ASN:ND2  | 27:p:173:ASN:OD1  | 2.31                     | 0.63              |
| 1:U:563:ALA:O     | 1:U:567:ILE:HD12  | 1.99                     | 0.63              |
| 3:W:451:MET:HE2   | 6:Z:101:LEU:CD1   | 2.29                     | 0.63              |
| 6:Z:67:VAL:HG23   | 8:b:92:VAL:HG23   | 1.81                     | 0.63              |
| 22:K:230:THR:OG1  | 22:K:233:GLU:OE1  | 2.07                     | 0.63              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:s:194:LEU:HD21 | 30:s:199:ALA:HB2  | 1.81                     | 0.63              |
| 29:R:63:LEU:HD13  | 29:R:198:MET:SD   | 2.39                     | 0.62              |
| 31:T:137:LEU:HD11 | 31:T:155:MET:HE1  | 1.80                     | 0.62              |
| 31:t:245:GLU:OE1  | 31:t:245:GLU:N    | 2.32                     | 0.62              |
| 32:f:208:LEU:HD13 | 32:f:217:LEU:HB2  | 1.80                     | 0.62              |
| 16:E:50:LEU:HD22  | 17:F:79:LYS:HE3   | 1.80                     | 0.62              |
| 17:F:392:ASN:N    | 17:F:395:GLN:OE1  | 2.32                     | 0.62              |
| 1:U:517:GLY:HA2   | 1:U:555:VAL:HG23  | 1.79                     | 0.62              |
| 1:U:641:SER:OG    | 1:U:675:MET:SD    | 2.45                     | 0.62              |
| 5:Y:22:LEU:CD1    | 5:Y:37:VAL:HG23   | 2.29                     | 0.62              |
| 6:Z:142:GLU:OE2   | 6:Z:143:GLU:N     | 2.32                     | 0.62              |
| 10:d:272:ALA:O    | 10:d:276:GLU:OE1  | 2.18                     | 0.62              |
| 24:M:190:ILE:O    | 24:M:194:VAL:HG23 | 1.99                     | 0.62              |
| 30:S:96:ILE:O     | 30:S:100:LEU:HD23 | 1.99                     | 0.62              |
| 7:a:77:VAL:HG12   | 7:a:113:LEU:HD22  | 1.81                     | 0.62              |
| 15:D:219:VAL:O    | 15:D:220:ALA:HB3  | 2.00                     | 0.62              |
| 31:T:91:ASN:OD1   | 31:T:94:THR:N     | 2.32                     | 0.62              |
| 27:P:12:MET:HG3   | 27:P:138:VAL:HG12 | 1.82                     | 0.62              |
| 30:S:67:ASP:O     | 30:S:68:SER:OG    | 2.15                     | 0.62              |
| 31:T:224:ARG:NH2  | 26:o:178:MET:HE2  | 2.15                     | 0.62              |
| 32:f:333:LEU:O    | 32:f:333:LEU:HD23 | 1.99                     | 0.62              |
| 10:d:272:ALA:O    | 10:d:275:ILE:N    | 2.33                     | 0.62              |
| 12:A:125:LEU:N    | 12:A:148:GLN:OE1  | 2.33                     | 0.62              |
| 25:N:117:PHE:CE1  | 25:N:132:ILE:HD13 | 2.35                     | 0.62              |
| 25:N:155:VAL:HG21 | 31:T:81:PHE:CD2   | 2.35                     | 0.62              |
| 2:V:90:GLU:O      | 2:V:92:ARG:N      | 2.33                     | 0.62              |
| 14:C:161:ILE:HD11 | 14:C:186:VAL:HG11 | 1.82                     | 0.62              |
| 32:f:520:LEU:HD23 | 32:f:560:LEU:HD22 | 1.82                     | 0.62              |
| 4:X:105:GLN:NE2   | 4:X:108:GLU:OE2   | 2.32                     | 0.62              |
| 9:c:51:MET:HE1    | 17:F:156:ASP:OD2  | 2.00                     | 0.62              |
| 28:Q:172:ILE:HD11 | 28:q:22:ALA:HB2   | 1.81                     | 0.62              |
| 32:f:520:LEU:CD2  | 32:f:560:LEU:HD22 | 2.30                     | 0.62              |
| 2:V:256:ARG:NH2   | 11:e:21:GLU:OE2   | 2.33                     | 0.61              |
| 7:a:232:TRP:CZ2   | 7:a:254:ALA:HB3   | 2.34                     | 0.61              |
| 22:K:58:LEU:HD23  | 22:K:58:LEU:O     | 2.00                     | 0.61              |
| 26:O:60:ASP:HB2   | 26:O:206:ILE:HD11 | 1.82                     | 0.61              |
| 1:U:357:LYS:NZ    | 1:U:389:ASN:OD1   | 2.24                     | 0.61              |
| 11:e:17:ASP:OD1   | 11:e:18:GLU:N     | 2.33                     | 0.61              |
| 30:s:93:THR:O     | 30:s:97:GLU:OE1   | 2.17                     | 0.61              |
| 4:X:371:ASP:OD1   | 5:Y:233:ARG:NH1   | 2.34                     | 0.61              |
| 17:F:395:GLN:O    | 17:F:399:VAL:HG23 | 2.00                     | 0.61              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 25:n:117:PHE:HD2  | 25:n:134:ILE:HD11 | 1.65                     | 0.61              |
| 8:b:51:LEU:HD11   | 8:b:75:LEU:HD12   | 1.81                     | 0.61              |
| 27:P:176:ASP:OD2  | 30:s:185:ASN:ND2  | 2.33                     | 0.61              |
| 5:Y:105:MET:HE3   | 5:Y:105:MET:O     | 2.00                     | 0.61              |
| 29:R:200:ARG:HG3  | 28:q:142:ILE:HD12 | 1.82                     | 0.61              |
| 32:f:234:THR:O    | 32:f:237:VAL:HG12 | 2.00                     | 0.61              |
| 12:A:130:ALA:HB3  | 12:A:133:ASP:CG   | 2.26                     | 0.61              |
| 18:G:40:VAL:HG23  | 18:G:202:LEU:HD21 | 1.83                     | 0.61              |
| 21:J:73:PHE:CE2   | 21:J:80:ALA:HB2   | 2.35                     | 0.61              |
| 23:L:26:MET:O     | 23:L:29:VAL:HG12  | 2.01                     | 0.61              |
| 29:R:219:ILE:O    | 29:R:223:THR:HG23 | 2.00                     | 0.61              |
| 6:Z:121:LEU:HD23  | 6:Z:122:VAL:N     | 2.16                     | 0.61              |
| 6:Z:173:GLU:OE2   | 6:Z:180:LYS:NZ    | 2.34                     | 0.61              |
| 12:A:23:ARG:NH2   | 32:f:44:GLU:O     | 2.33                     | 0.61              |
| 15:D:314:ALA:HA   | 15:D:317:LEU:HD13 | 1.81                     | 0.61              |
| 22:K:171:GLY:O    | 22:K:174:SER:OG   | 2.14                     | 0.61              |
| 3:W:163:ALA:HA    | 3:W:192:LEU:HD23  | 1.82                     | 0.61              |
| 7:a:258:GLN:OE1   | 7:a:260:ASP:N     | 2.33                     | 0.61              |
| 24:M:10:LEU:O     | 24:M:11:SER:OG    | 2.15                     | 0.61              |
| 5:Y:360:ASP:OD1   | 5:Y:361:SER:N     | 2.32                     | 0.61              |
| 6:Z:40:LEU:CD2    | 6:Z:91:ILE:HD13   | 2.30                     | 0.61              |
| 7:a:84:VAL:HG21   | 7:a:97:LEU:HD11   | 1.83                     | 0.61              |
| 12:A:221:GLY:N    | 35:A:501:ATP:O2B  | 2.34                     | 0.61              |
| 1:U:5:ALA:O       | 1:U:9:ILE:HD12    | 1.99                     | 0.61              |
| 10:d:148:LEU:HD21 | 10:d:170:GLN:HB2  | 1.83                     | 0.61              |
| 13:B:305:ILE:HG13 | 14:C:224:ILE:HD11 | 1.82                     | 0.61              |
| 31:T:251:GLU:OE1  | 31:T:251:GLU:N    | 2.33                     | 0.61              |
| 25:n:38:MET:HE1   | 25:n:193:ALA:HB3  | 1.82                     | 0.61              |
| 18:G:80:MET:HE1   | 18:G:138:MET:HB2  | 1.83                     | 0.60              |
| 26:O:262:LEU:HD23 | 27:P:195:ILE:HD12 | 1.82                     | 0.60              |
| 4:X:69:LEU:O      | 4:X:73:VAL:HG22   | 2.00                     | 0.60              |
| 6:Z:17:LEU:HD21   | 9:c:217:LEU:CD2   | 2.31                     | 0.60              |
| 25:N:155:VAL:HG21 | 31:T:81:PHE:CE2   | 2.36                     | 0.60              |
| 32:f:502:LEU:HD22 | 32:f:537:THR:HG21 | 1.83                     | 0.60              |
| 15:D:380:GLN:HG2  | 15:D:384:MET:HE2  | 1.83                     | 0.60              |
| 29:r:189:SER:OG   | 29:r:226:ASP:OD2  | 2.11                     | 0.60              |
| 32:f:648:ALA:O    | 32:f:652:VAL:HG23 | 2.02                     | 0.60              |
| 7:a:180:LEU:HD13  | 7:a:221:VAL:HG21  | 1.83                     | 0.60              |
| 5:Y:134:LEU:O     | 5:Y:138:LEU:HD23  | 2.02                     | 0.60              |
| 32:f:543:MET:HE1  | 32:f:583:VAL:HG22 | 1.83                     | 0.60              |
| 32:f:656:GLY:O    | 32:f:660:ILE:HD12 | 2.00                     | 0.60              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:363:LEU:HD21  | 2:V:398:LEU:CD2   | 2.31                     | 0.60              |
| 13:B:68:ILE:HG23  | 32:f:670:MET:HE3  | 1.84                     | 0.60              |
| 29:r:203:SER:H    | 29:r:206:LEU:HD11 | 1.65                     | 0.60              |
| 31:t:252:THR:OG1  | 31:t:254:TRP:NE1  | 2.31                     | 0.60              |
| 32:f:65:GLU:OE1   | 32:f:67:ASP:N     | 2.34                     | 0.60              |
| 2:V:251:LEU:HD11  | 2:V:270:LEU:HD21  | 1.82                     | 0.60              |
| 2:V:466:ILE:O     | 2:V:466:ILE:HG23  | 2.00                     | 0.60              |
| 3:W:328:LEU:HD22  | 3:W:328:LEU:N     | 2.16                     | 0.60              |
| 29:r:103:THR:OG1  | 29:r:159:MET:N    | 2.35                     | 0.60              |
| 3:W:298:GLU:OE1   | 3:W:298:GLU:N     | 2.34                     | 0.60              |
| 6:Z:23:PHE:CE2    | 6:Z:126:VAL:HG21  | 2.35                     | 0.60              |
| 7:a:42:LEU:O      | 7:a:45:VAL:HG12   | 2.01                     | 0.60              |
| 14:C:21:ARG:O     | 14:C:25:LEU:HD23  | 2.02                     | 0.60              |
| 18:G:10:ASP:OD2   | 18:G:27:TYR:OH    | 2.13                     | 0.60              |
| 18:G:134:LEU:O    | 18:G:134:LEU:HD12 | 2.02                     | 0.60              |
| 5:Y:297:ARG:NH1   | 11:e:45:ASP:OD1   | 2.35                     | 0.60              |
| 8:b:117:VAL:O     | 8:b:152:LYS:NZ    | 2.32                     | 0.60              |
| 12:A:294:GLU:O    | 12:A:298:THR:HG23 | 2.02                     | 0.60              |
| 28:q:12:TYR:HB2   | 28:q:182:ILE:HD11 | 1.83                     | 0.60              |
| 4:X:265:GLU:N     | 4:X:265:GLU:OE1   | 2.34                     | 0.60              |
| 15:D:381:GLU:HA   | 15:D:384:MET:HE3  | 1.82                     | 0.60              |
| 10:d:171:LEU:HD13 | 10:d:191:LEU:CD2  | 2.32                     | 0.59              |
| 16:E:172:LEU:HD11 | 16:E:183:LEU:HD23 | 1.84                     | 0.59              |
| 16:E:180:LYS:CG   | 16:E:301:ILE:HD11 | 2.32                     | 0.59              |
| 18:G:189:TRP:CH2  | 18:G:197:THR:HG21 | 2.36                     | 0.59              |
| 31:T:87:ILE:HG21  | 31:T:235:ALA:HB2  | 1.84                     | 0.59              |
| 27:p:67:LEU:HD21  | 27:p:87:LEU:HD21  | 1.82                     | 0.59              |
| 32:f:344:VAL:O    | 32:f:348:ILE:HD12 | 2.02                     | 0.59              |
| 22:K:7:GLU:N      | 22:K:7:GLU:OE1    | 2.35                     | 0.59              |
| 1:U:550:VAL:O     | 1:U:554:LEU:HD23  | 2.02                     | 0.59              |
| 2:V:65:ARG:O      | 2:V:69:THR:HG23   | 2.02                     | 0.59              |
| 9:c:27:THR:N      | 9:c:176:GLN:O     | 2.34                     | 0.59              |
| 2:V:314:ARG:NE    | 5:Y:378:ASN:OD1   | 2.36                     | 0.59              |
| 10:d:121:LEU:O    | 10:d:125:GLU:OE1  | 2.21                     | 0.59              |
| 6:Z:213:GLU:OE1   | 7:a:350:LYS:NZ    | 2.35                     | 0.59              |
| 8:b:32:ALA:HB1    | 8:b:183:LEU:CD1   | 2.32                     | 0.59              |
| 14:C:62:GLU:OE2   | 15:D:117:SER:N    | 2.35                     | 0.59              |
| 10:d:192:LEU:HD13 | 10:d:215:LEU:HD21 | 1.85                     | 0.59              |
| 25:N:37:ILE:CD1   | 25:N:133:ILE:HD12 | 2.32                     | 0.59              |
| 25:n:161:ILE:HD11 | 25:n:170:TYR:CD1  | 2.37                     | 0.59              |
| 29:r:63:LEU:HD11  | 29:r:198:MET:HB3  | 1.85                     | 0.59              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:s:176:LEU:HD23 | 30:s:206:VAL:HG12 | 1.84                     | 0.59              |
| 32:f:378:ASN:O    | 32:f:382:ASN:ND2  | 2.36                     | 0.59              |
| 10:d:148:LEU:HD21 | 10:d:170:GLN:CB   | 2.33                     | 0.59              |
| 20:I:17:ARG:NH2   | 20:I:22:GLU:OE1   | 2.36                     | 0.59              |
| 28:Q:170:ARG:NH1  | 28:q:27:GLN:O     | 2.36                     | 0.59              |
| 4:X:256:LEU:HD22  | 4:X:319:ILE:HG13  | 1.85                     | 0.59              |
| 15:D:387:VAL:CG2  | 16:E:162:VAL:HG21 | 2.33                     | 0.59              |
| 29:r:233:VAL:HG21 | 29:r:254:LEU:CD1  | 2.31                     | 0.59              |
| 3:W:33:LYS:O      | 3:W:37:GLU:OE1    | 2.21                     | 0.59              |
| 32:f:466:LEU:HD11 | 32:f:481:SER:HA   | 1.85                     | 0.59              |
| 19:H:189:HIS:ND1  | 19:H:233:ILE:HD11 | 2.18                     | 0.59              |
| 28:Q:35:MET:HE1   | 28:Q:45:LEU:HD11  | 1.85                     | 0.59              |
| 1:U:263:SER:O     | 1:U:267:ASN:ND2   | 2.36                     | 0.58              |
| 3:W:328:LEU:CD2   | 3:W:341:PHE:HA    | 2.33                     | 0.58              |
| 7:a:142:LEU:HD21  | 7:a:152:HIS:HD2   | 1.67                     | 0.58              |
| 15:D:225:ALA:HB1  | 15:D:259:PRO:O    | 2.03                     | 0.58              |
| 25:N:98:GLY:O     | 25:N:102:ILE:HD12 | 2.03                     | 0.58              |
| 28:Q:190:ASP:OD1  | 28:Q:191:LEU:N    | 2.36                     | 0.58              |
| 29:r:250:ASN:OD1  | 29:r:251:VAL:N    | 2.36                     | 0.58              |
| 6:Z:39:LEU:HD23   | 6:Z:50:VAL:HG11   | 1.85                     | 0.58              |
| 30:S:56:ARG:NH1   | 30:S:215:VAL:O    | 2.33                     | 0.58              |
| 26:o:165:LEU:HD12 | 26:o:168:VAL:HG12 | 1.86                     | 0.58              |
| 30:s:178:ASP:OD1  | 30:s:179:ASN:N    | 2.36                     | 0.58              |
| 15:D:202:VAL:HG13 | 15:D:308:ILE:HG23 | 1.85                     | 0.58              |
| 21:J:40:ILE:HD11  | 21:J:210:VAL:CG1  | 2.34                     | 0.58              |
| 25:n:228:ILE:O    | 25:n:230:LYS:NZ   | 2.36                     | 0.58              |
| 13:B:313:LEU:O    | 13:B:346:ARG:NH1  | 2.36                     | 0.58              |
| 24:M:102:ASN:HA   | 25:N:119:GLU:OE2  | 2.04                     | 0.58              |
| 2:V:192:MET:HE2   | 2:V:230:PHE:HE2   | 1.68                     | 0.58              |
| 16:E:140:GLU:O    | 16:E:144:GLU:OE1  | 2.21                     | 0.58              |
| 32:f:174:ASP:O    | 32:f:181:ARG:NH2  | 2.36                     | 0.58              |
| 32:f:882:LEU:HD11 | 32:f:900:LEU:HD21 | 1.84                     | 0.58              |
| 6:Z:23:PHE:CD2    | 6:Z:126:VAL:HG21  | 2.38                     | 0.58              |
| 13:B:220:LYS:N    | 13:B:348:ASP:OD2  | 2.36                     | 0.58              |
| 14:C:104:ASP:OD1  | 14:C:105:ILE:N    | 2.36                     | 0.58              |
| 25:N:222:VAL:HG23 | 25:N:224:LEU:HD21 | 1.86                     | 0.58              |
| 31:t:106:GLN:O    | 31:t:110:GLN:OE1  | 2.20                     | 0.58              |
| 4:X:259:ILE:HD11  | 4:X:291:ALA:HB2   | 1.84                     | 0.58              |
| 28:q:56:PHE:HZ    | 28:q:98:TYR:HB3   | 1.69                     | 0.58              |
| 1:U:520:MET:CB    | 1:U:555:VAL:HG22  | 2.33                     | 0.58              |
| 14:C:251:ILE:HG23 | 14:C:301:LEU:HD11 | 1.86                     | 0.58              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 21:J:192:ILE:HD11 | 21:J:208:LEU:HD11 | 1.85                     | 0.58              |
| 29:r:61:THR:N     | 29:r:76:ASP:OD2   | 2.36                     | 0.58              |
| 3:W:220:GLU:O     | 3:W:224:LEU:HD13  | 2.04                     | 0.58              |
| 7:a:103:LYS:O     | 7:a:105:LYS:NZ    | 2.36                     | 0.58              |
| 26:O:206:ILE:HD13 | 26:O:212:SER:HB3  | 1.86                     | 0.58              |
| 27:P:194:LYS:HE2  | 27:P:194:LYS:HA   | 1.86                     | 0.58              |
| 29:r:156:MET:N    | 29:r:175:SER:OG   | 2.36                     | 0.58              |
| 5:Y:105:MET:HE1   | 5:Y:124:PHE:HE1   | 1.67                     | 0.57              |
| 5:Y:222:TYR:OH    | 5:Y:285:ASP:OD2   | 2.15                     | 0.57              |
| 16:E:180:LYS:HG3  | 16:E:301:ILE:HD11 | 1.84                     | 0.57              |
| 18:G:93:ARG:NH1   | 18:G:97:GLU:OE2   | 2.37                     | 0.57              |
| 20:I:153:SER:OG   | 20:I:155:ASN:OD1  | 2.21                     | 0.57              |
| 28:q:8:GLN:NE2    | 28:q:113:PRO:O    | 2.37                     | 0.57              |
| 31:t:101:ASP:N    | 31:t:153:ASN:OD1  | 2.36                     | 0.57              |
| 32:f:698:SER:O    | 32:f:732:VAL:HG23 | 2.03                     | 0.57              |
| 15:D:219:VAL:O    | 15:D:220:ALA:CB   | 2.53                     | 0.57              |
| 15:D:64:GLU:O     | 15:D:68:LEU:HD23  | 2.04                     | 0.57              |
| 15:D:326:ARG:C    | 15:D:327:LEU:HD22 | 2.29                     | 0.57              |
| 17:F:363:ALA:O    | 17:F:367:GLN:OE1  | 2.22                     | 0.57              |
| 22:K:218:ALA:HB2  | 22:K:228:MET:CE   | 2.34                     | 0.57              |
| 30:s:96:ILE:O     | 30:s:100:LEU:HD23 | 2.04                     | 0.57              |
| 14:C:386:ALA:O    | 14:C:390:VAL:HG22 | 2.05                     | 0.57              |
| 18:G:50:ILE:HG23  | 18:G:141:ILE:HG21 | 1.87                     | 0.57              |
| 28:Q:44:LEU:HD23  | 28:Q:45:LEU:N     | 2.19                     | 0.57              |
| 31:t:71:MET:SD    | 31:t:231:ARG:HB3  | 2.45                     | 0.57              |
| 1:U:658:ILE:HG23  | 1:U:763:VAL:HG11  | 1.85                     | 0.57              |
| 5:Y:182:VAL:O     | 5:Y:186:LEU:HD23  | 2.05                     | 0.57              |
| 8:b:61:LEU:O      | 8:b:74:LYS:NZ     | 2.24                     | 0.57              |
| 9:c:156:VAL:HG13  | 9:c:156:VAL:O     | 2.05                     | 0.57              |
| 14:C:376:VAL:O    | 14:C:376:VAL:HG12 | 2.04                     | 0.57              |
| 14:C:399:MET:HE1  | 20:I:56:LEU:HD11  | 1.87                     | 0.57              |
| 21:J:36:ARG:NE    | 21:J:142:PRO:O    | 2.38                     | 0.57              |
| 31:T:96:LEU:HD11  | 31:T:155:MET:SD   | 2.44                     | 0.57              |
| 32:f:48:GLU:OE1   | 32:f:48:GLU:N     | 2.38                     | 0.57              |
| 32:f:554:TYR:OH   | 32:f:814:SER:OG   | 2.03                     | 0.57              |
| 3:W:231:ILE:HG23  | 3:W:243:ILE:HG23  | 1.86                     | 0.57              |
| 16:E:98:VAL:HG13  | 16:E:107:ILE:HG23 | 1.85                     | 0.57              |
| 30:S:239:ARG:NH2  | 30:S:241:ASP:OD1  | 2.37                     | 0.57              |
| 2:V:176:MET:SD    | 2:V:217:VAL:HG12  | 2.44                     | 0.57              |
| 14:C:188:LEU:HD22 | 14:C:317:PHE:HE2  | 1.70                     | 0.57              |
| 15:D:309:MET:HE1  | 15:D:321:LEU:HD21 | 1.87                     | 0.57              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:M:179:LYS:C    | 24:M:180:LEU:HD12 | 2.29                     | 0.57              |
| 7:a:28:LEU:HD22   | 7:a:37:LEU:HB3    | 1.86                     | 0.57              |
| 18:G:116:LYS:NZ   | 26:O:112:SER:OG   | 2.35                     | 0.57              |
| 29:r:117:LEU:O    | 29:r:121:GLN:OE1  | 2.22                     | 0.57              |
| 32:f:309:GLU:OE1  | 32:f:309:GLU:N    | 2.37                     | 0.57              |
| 2:V:211:TYR:OH    | 2:V:234:ARG:NE    | 2.38                     | 0.57              |
| 3:W:57:ALA:O      | 3:W:58:SER:OG     | 2.19                     | 0.57              |
| 3:W:445:LEU:HD22  | 6:Z:226:ILE:CD1   | 2.33                     | 0.57              |
| 5:Y:315:THR:HG23  | 5:Y:318:TYR:H     | 1.69                     | 0.57              |
| 9:c:167:MET:HA    | 9:c:167:MET:HE3   | 1.86                     | 0.57              |
| 12:A:131:PRO:HA   | 12:A:134:ILE:HD12 | 1.86                     | 0.57              |
| 13:B:342:ILE:O    | 13:B:342:ILE:HG22 | 2.03                     | 0.57              |
| 31:T:137:LEU:HD21 | 31:T:155:MET:HE3  | 1.85                     | 0.57              |
| 13:B:69:LYS:O     | 13:B:73:LEU:HD23  | 2.04                     | 0.57              |
| 27:p:12:MET:HB2   | 27:p:138:VAL:HG12 | 1.86                     | 0.57              |
| 10:d:207:GLU:O    | 10:d:211:GLU:OE1  | 2.23                     | 0.56              |
| 29:R:100:LEU:C    | 29:R:101:LEU:HD12 | 2.30                     | 0.56              |
| 2:V:469:THR:HG22  | 2:V:470:ARG:H     | 1.69                     | 0.56              |
| 6:Z:22:HIS:ND1    | 6:Z:95:TYR:OH     | 2.33                     | 0.56              |
| 13:B:192:ASN:O    | 13:B:196:GLU:OE1  | 2.23                     | 0.56              |
| 13:B:302:GLU:OE1  | 13:B:302:GLU:N    | 2.38                     | 0.56              |
| 19:H:4:ARG:O      | 19:H:7:SER:OG     | 2.14                     | 0.56              |
| 28:Q:99:HIS:ND1   | 28:Q:99:HIS:O     | 2.38                     | 0.56              |
| 30:S:96:ILE:HD11  | 30:S:120:LEU:HD11 | 1.88                     | 0.56              |
| 1:U:19:LEU:CD1    | 10:d:124:LEU:HD13 | 2.34                     | 0.56              |
| 1:U:32:ASN:O      | 2:V:232:HIS:ND1   | 2.38                     | 0.56              |
| 1:U:899:ARG:NH1   | 1:U:920:ASP:OD2   | 2.38                     | 0.56              |
| 4:X:312:GLU:OE1   | 4:X:312:GLU:N     | 2.38                     | 0.56              |
| 7:a:37:LEU:HD21   | 7:a:67:PHE:CZ     | 2.40                     | 0.56              |
| 7:a:108:ASP:OD1   | 7:a:109:GLU:N     | 2.38                     | 0.56              |
| 7:a:210:VAL:HG23  | 7:a:210:VAL:O     | 2.06                     | 0.56              |
| 9:c:210:ASN:OD1   | 9:c:211:GLU:N     | 2.38                     | 0.56              |
| 17:F:425:LEU:HD21 | 23:L:166:GLN:NE2  | 2.20                     | 0.56              |
| 21:J:195:LEU:O    | 21:J:199:VAL:HG22 | 2.05                     | 0.56              |
| 21:J:201:SER:OG   | 21:J:204:LYS:N    | 2.37                     | 0.56              |
| 25:N:138:ASP:OD2  | 25:N:144:GLN:NE2  | 2.38                     | 0.56              |
| 25:n:41:GLN:OE1   | 25:n:156:ARG:NH2  | 2.38                     | 0.56              |
| 27:p:36:THR:HG21  | 28:q:127:ALA:HB2  | 1.88                     | 0.56              |
| 30:s:57:LEU:HD13  | 30:s:68:SER:OG    | 2.05                     | 0.56              |
| 32:f:490:ALA:HB2  | 32:f:524:MET:HE1  | 1.86                     | 0.56              |
| 32:f:530:CYS:SG   | 32:f:566:HIS:ND1  | 2.75                     | 0.56              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:367:VAL:HG23  | 2:V:402:VAL:HG22  | 1.86                     | 0.56              |
| 3:W:443:THR:HG21  | 6:Z:204:LYS:HD2   | 1.86                     | 0.56              |
| 17:F:272:PHE:CE1  | 17:F:328:VAL:HG12 | 2.41                     | 0.56              |
| 23:L:35:THR:HG22  | 23:L:48:ALA:HB1   | 1.87                     | 0.56              |
| 27:P:138:VAL:HG11 | 27:P:146:MET:HB3  | 1.87                     | 0.56              |
| 28:q:25:ILE:HG23  | 28:q:26:VAL:HG23  | 1.87                     | 0.56              |
| 1:U:151:ILE:HD11  | 1:U:179:TYR:HD1   | 1.71                     | 0.56              |
| 1:U:568:GLU:OE1   | 1:U:601:ARG:NH2   | 2.38                     | 0.56              |
| 1:U:894:MET:N     | 1:U:894:MET:SD    | 2.78                     | 0.56              |
| 2:V:281:ASN:OD1   | 2:V:282:ASN:N     | 2.39                     | 0.56              |
| 19:H:182:LEU:HD11 | 19:H:186:ASP:OD2  | 2.05                     | 0.56              |
| 12:A:388:VAL:HG21 | 12:A:417:ILE:HD11 | 1.88                     | 0.56              |
| 15:D:309:MET:HE2  | 15:D:327:LEU:HD11 | 1.86                     | 0.56              |
| 16:E:306:GLU:OE2  | 16:E:309:ARG:NH2  | 2.39                     | 0.56              |
| 20:I:89:GLU:OE2   | 20:I:117:ILE:HG21 | 2.06                     | 0.56              |
| 32:f:573:ILE:HA   | 32:f:576:ILE:HG22 | 1.86                     | 0.56              |
| 1:U:891:VAL:O     | 1:U:891:VAL:HG13  | 2.05                     | 0.56              |
| 3:W:272:LEU:HD22  | 3:W:340:VAL:HG21  | 1.86                     | 0.56              |
| 4:X:53:LEU:HD22   | 4:X:69:LEU:HD21   | 1.86                     | 0.56              |
| 13:B:292:THR:HG21 | 14:C:261:GLY:HA3  | 1.87                     | 0.56              |
| 27:P:149:MET:HE2  | 30:s:175:PRO:HB2  | 1.88                     | 0.56              |
| 12:A:238:ILE:HG21 | 12:A:272:ILE:HG23 | 1.86                     | 0.56              |
| 15:D:358:VAL:HG21 | 15:D:399:PHE:CE2  | 2.41                     | 0.56              |
| 19:H:69:THR:HG22  | 19:H:70:LYS:H     | 1.70                     | 0.56              |
| 23:L:178:GLU:OE1  | 23:L:178:GLU:N    | 2.39                     | 0.56              |
| 24:M:70:VAL:HG23  | 24:M:70:VAL:O     | 2.05                     | 0.56              |
| 28:q:161:ARG:NE   | 28:q:165:GLU:OE2  | 2.39                     | 0.56              |
| 29:r:103:THR:HG21 | 29:r:159:MET:HE3  | 1.88                     | 0.56              |
| 3:W:60:MET:HE2    | 16:E:326:ILE:HG23 | 1.88                     | 0.56              |
| 3:W:301:LYS:HE3   | 3:W:324:TYR:CD1   | 2.41                     | 0.56              |
| 3:W:369:TYR:CD2   | 7:a:312:MET:HE1   | 2.41                     | 0.56              |
| 13:B:44:ASP:N     | 13:B:246:THR:OG1  | 2.38                     | 0.56              |
| 18:G:73:THR:OG1   | 18:G:108:GLU:OE2  | 2.14                     | 0.56              |
| 20:I:118:LYS:O    | 20:I:122:THR:HG23 | 2.05                     | 0.56              |
| 29:R:250:ASN:OD1  | 29:R:251:VAL:N    | 2.39                     | 0.56              |
| 30:s:214:ASP:OD1  | 30:s:215:VAL:N    | 2.39                     | 0.56              |
| 3:W:28:LEU:CD2    | 3:W:47:LEU:HD11   | 2.36                     | 0.56              |
| 4:X:114:ILE:HD13  | 4:X:130:GLU:OE1   | 2.06                     | 0.56              |
| 7:a:149:THR:HG22  | 7:a:150:SER:N     | 2.21                     | 0.56              |
| 15:D:326:ARG:O    | 15:D:327:LEU:HD22 | 2.06                     | 0.56              |
| 20:I:167:ASN:ND2  | 20:I:200:THR:O    | 2.37                     | 0.56              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 21:J:99:GLU:OE1   | 29:R:179:ARG:NH2  | 2.36                     | 0.56              |
| 30:s:41:LEU:HD12  | 30:s:42:ALA:H     | 1.69                     | 0.56              |
| 32:f:327:ASN:OD1  | 32:f:328:SER:N    | 2.39                     | 0.56              |
| 2:V:113:LEU:HD23  | 2:V:135:LEU:HD21  | 1.88                     | 0.55              |
| 6:Z:167:ALA:HB1   | 9:c:42:LEU:HD23   | 1.87                     | 0.55              |
| 7:a:211:PHE:CD2   | 7:a:319:LEU:HD21  | 2.41                     | 0.55              |
| 7:a:214:GLY:O     | 7:a:215:GLU:HB3   | 2.05                     | 0.55              |
| 16:E:61:LEU:HD11  | 16:E:72:LYS:HB2   | 1.86                     | 0.55              |
| 20:I:95:GLN:HG3   | 27:P:73:LEU:HD22  | 1.87                     | 0.55              |
| 28:Q:154:GLU:O    | 28:Q:158:GLU:OE1  | 2.24                     | 0.55              |
| 31:T:51:VAL:HG22  | 31:T:75:TYR:HB2   | 1.88                     | 0.55              |
| 31:t:50:MET:HA    | 31:t:50:MET:HE3   | 1.87                     | 0.55              |
| 15:D:231:VAL:HG11 | 16:E:259:GLU:OE1  | 2.06                     | 0.55              |
| 28:Q:154:GLU:OE1  | 28:Q:154:GLU:N    | 2.40                     | 0.55              |
| 26:o:245:TYR:O    | 26:o:249:LYS:NZ   | 2.28                     | 0.55              |
| 1:U:588:MET:HE2   | 1:U:588:MET:HA    | 1.87                     | 0.55              |
| 1:U:658:ILE:HD11  | 1:U:767:THR:HG21  | 1.87                     | 0.55              |
| 10:d:335:LEU:HD23 | 10:d:335:LEU:C    | 2.31                     | 0.55              |
| 16:E:141:GLN:OE1  | 16:E:141:GLN:N    | 2.37                     | 0.55              |
| 22:K:35:SER:OG    | 22:K:51:GLU:O     | 2.08                     | 0.55              |
| 25:n:170:TYR:OH   | 31:t:80:ARG:NE    | 2.39                     | 0.55              |
| 28:q:161:ARG:O    | 28:q:165:GLU:OE1  | 2.24                     | 0.55              |
| 2:V:278:GLU:OE1   | 2:V:278:GLU:N     | 2.39                     | 0.55              |
| 2:V:391:THR:O     | 2:V:395:ILE:N     | 2.38                     | 0.55              |
| 16:E:98:VAL:CG1   | 16:E:107:ILE:HG23 | 2.35                     | 0.55              |
| 31:T:69:ALA:HB3   | 31:T:87:ILE:HD11  | 1.88                     | 0.55              |
| 31:t:87:ILE:HG21  | 31:t:235:ALA:CB   | 2.36                     | 0.55              |
| 3:W:118:LEU:HD12  | 3:W:152:ILE:CG2   | 2.36                     | 0.55              |
| 7:a:163:TYR:HA    | 7:a:166:ILE:HG22  | 1.88                     | 0.55              |
| 32:f:761:MET:HA   | 32:f:761:MET:HE3  | 1.87                     | 0.55              |
| 1:U:37:GLU:HA     | 2:V:269:LYS:HZ3   | 1.71                     | 0.55              |
| 22:K:5:ARG:NH1    | 22:K:26:TYR:OH    | 2.39                     | 0.55              |
| 23:L:84:LEU:HD12  | 23:L:130:VAL:HG21 | 1.89                     | 0.55              |
| 28:q:38:MET:HE2   | 28:q:38:MET:HA    | 1.89                     | 0.55              |
| 4:X:398:GLU:O     | 4:X:402:GLU:OE1   | 2.24                     | 0.55              |
| 8:b:140:ILE:HG21  | 8:b:153:LEU:HG    | 1.88                     | 0.55              |
| 10:d:232:LEU:HD13 | 10:d:244:VAL:HG23 | 1.89                     | 0.55              |
| 24:M:214:LEU:HB2  | 24:M:228:VAL:HG21 | 1.89                     | 0.55              |
| 25:n:71:ILE:HD12  | 25:n:75:ILE:HG22  | 1.89                     | 0.55              |
| 27:p:155:GLU:HG3  | 27:p:158:MET:HE3  | 1.89                     | 0.55              |
| 16:E:122:MET:SD   | 16:E:198:VAL:HG22 | 2.47                     | 0.55              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 28:Q:38:MET:HE1   | 28:Q:60:ILE:HG22  | 1.87                     | 0.55              |
| 29:R:233:VAL:HG21 | 29:R:254:LEU:HD12 | 1.87                     | 0.55              |
| 31:T:114:GLN:O    | 31:T:118:ASP:OD1  | 2.25                     | 0.55              |
| 31:T:169:TYR:CG   | 31:T:169:TYR:O    | 2.59                     | 0.55              |
| 1:U:327:LYS:O     | 1:U:330:SER:OG    | 2.24                     | 0.55              |
| 3:W:94:ARG:O      | 3:W:96:GLN:N      | 2.39                     | 0.55              |
| 3:W:451:MET:HE3   | 6:Z:100:LYS:HA    | 1.88                     | 0.55              |
| 7:a:296:ILE:HG21  | 7:a:307:VAL:HG13  | 1.87                     | 0.55              |
| 9:c:38:LEU:HD22   | 9:c:207:TYR:HE2   | 1.71                     | 0.55              |
| 26:O:261:PRO:HA   | 27:P:194:LYS:HZ1  | 1.72                     | 0.55              |
| 29:R:170:LEU:HD22 | 29:R:185:PHE:HD2  | 1.72                     | 0.55              |
| 2:V:176:MET:CG    | 2:V:217:VAL:HG12  | 2.37                     | 0.55              |
| 3:W:190:MET:HE1   | 3:W:206:SER:HA    | 1.89                     | 0.55              |
| 6:Z:143:GLU:O     | 6:Z:151:THR:OG1   | 2.25                     | 0.55              |
| 7:a:119:GLY:O     | 7:a:123:LEU:HD23  | 2.06                     | 0.55              |
| 13:B:396:LYS:NZ   | 35:B:501:ATP:O3'  | 2.38                     | 0.55              |
| 17:F:93:VAL:O     | 17:F:93:VAL:HG12  | 2.06                     | 0.55              |
| 23:L:88:MET:CE    | 23:L:132:LEU:HD13 | 2.37                     | 0.55              |
| 25:n:38:MET:HE2   | 25:n:194:LEU:HG   | 1.89                     | 0.55              |
| 25:n:157:GLN:NE2  | 25:n:160:ALA:HB2  | 2.22                     | 0.55              |
| 26:o:59:ALA:HB3   | 26:o:77:ILE:HD11  | 1.87                     | 0.55              |
| 2:V:164:GLU:OE1   | 2:V:164:GLU:N     | 2.40                     | 0.54              |
| 18:G:138:MET:HE2  | 18:G:140:LEU:HD11 | 1.89                     | 0.54              |
| 23:L:33:SER:HG    | 23:L:62:LYS:NZ    | 2.03                     | 0.54              |
| 25:n:93:VAL:HG11  | 25:n:117:PHE:CE1  | 2.42                     | 0.54              |
| 1:U:632:GLN:O     | 1:U:635:SER:OG    | 2.24                     | 0.54              |
| 1:U:740:GLY:O     | 1:U:743:ASN:ND2   | 2.40                     | 0.54              |
| 2:V:484:LEU:HD23  | 6:Z:267:ARG:HH21  | 1.71                     | 0.54              |
| 13:B:143:LEU:O    | 13:B:143:LEU:HD23 | 2.07                     | 0.54              |
| 14:C:105:ILE:HA   | 14:C:108:VAL:HG22 | 1.88                     | 0.54              |
| 16:E:92:LEU:HD11  | 16:E:107:ILE:HG21 | 1.89                     | 0.54              |
| 23:L:162:GLY:O    | 23:L:165:SER:OG   | 2.20                     | 0.54              |
| 32:f:244:GLU:O    | 32:f:248:LEU:HD23 | 2.08                     | 0.54              |
| 32:f:388:ASP:OD1  | 32:f:389:LYS:N    | 2.40                     | 0.54              |
| 10:d:123:LEU:O    | 10:d:126:LEU:C    | 2.50                     | 0.54              |
| 16:E:210:GLU:OE2  | 16:E:213:ARG:NE   | 2.37                     | 0.54              |
| 30:s:57:LEU:HD11  | 30:s:70:LYS:NZ    | 2.22                     | 0.54              |
| 7:a:280:MET:HE2   | 7:a:280:MET:N     | 2.22                     | 0.54              |
| 12:A:130:ALA:HB3  | 12:A:133:ASP:OD1  | 2.08                     | 0.54              |
| 26:o:246:ARG:HD3  | 27:p:158:MET:HE1  | 1.90                     | 0.54              |
| 16:E:39:GLN:NE2   | 17:F:76:ASN:OD1   | 2.39                     | 0.54              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:E:363:VAL:N    | 16:E:366:ASP:OD2  | 2.40                     | 0.54              |
| 25:N:37:ILE:HD12  | 25:N:133:ILE:HD12 | 1.89                     | 0.54              |
| 27:P:67:LEU:CD1   | 27:P:91:VAL:HG22  | 2.35                     | 0.54              |
| 32:f:472:HIS:CE1  | 32:f:514:VAL:HG11 | 2.42                     | 0.54              |
| 5:Y:105:MET:HE1   | 5:Y:124:PHE:CE1   | 2.42                     | 0.54              |
| 10:d:201:SER:CB   | 10:d:262:ILE:HG23 | 2.36                     | 0.54              |
| 18:G:50:ILE:CG2   | 18:G:141:ILE:HG21 | 2.38                     | 0.54              |
| 20:I:203:VAL:HG13 | 20:I:203:VAL:O    | 2.08                     | 0.54              |
| 28:Q:164:LEU:HD12 | 28:Q:178:PHE:CE1  | 2.43                     | 0.54              |
| 25:n:129:MET:HE1  | 25:n:150:MET:HE2  | 1.89                     | 0.54              |
| 26:o:206:ILE:HG22 | 26:o:207:PHE:HD1  | 1.72                     | 0.54              |
| 27:p:13:ALA:HB2   | 27:p:22:ILE:CD1   | 2.38                     | 0.54              |
| 2:V:259:LEU:HD21  | 2:V:295:ILE:CD1   | 2.37                     | 0.54              |
| 4:X:163:LYS:HB2   | 4:X:200:ILE:HD13  | 1.90                     | 0.54              |
| 12:A:140:VAL:HB   | 12:A:149:ILE:HG21 | 1.90                     | 0.54              |
| 22:K:50:VAL:CG1   | 22:K:67:ILE:HD11  | 2.37                     | 0.54              |
| 22:K:50:VAL:HG13  | 22:K:67:ILE:HD11  | 1.90                     | 0.54              |
| 24:M:50:VAL:CG2   | 24:M:67:LEU:HD11  | 2.38                     | 0.54              |
| 28:q:138:LEU:H    | 28:q:138:LEU:HD12 | 1.73                     | 0.54              |
| 29:r:142:LEU:HD22 | 29:r:173:VAL:CG2  | 2.37                     | 0.54              |
| 31:t:173:LEU:O    | 31:t:173:LEU:HD23 | 2.07                     | 0.54              |
| 32:f:327:ASN:O    | 32:f:331:LEU:HD23 | 2.08                     | 0.54              |
| 9:c:183:HIS:O     | 9:c:184:LEU:HB2   | 2.07                     | 0.54              |
| 29:R:94:ILE:HD13  | 29:R:115:GLU:OE1  | 2.07                     | 0.54              |
| 7:a:235:ASP:OD2   | 7:a:251:LEU:HD11  | 2.08                     | 0.54              |
| 10:d:164:PHE:CG   | 10:d:168:MET:HE1  | 2.42                     | 0.54              |
| 13:B:405:MET:HE2  | 13:B:421:LYS:HG2  | 1.90                     | 0.54              |
| 1:U:835:ILE:HG21  | 32:f:241:PRO:HG3  | 1.89                     | 0.54              |
| 3:W:84:ASN:OD1    | 3:W:85:GLU:N      | 2.41                     | 0.54              |
| 14:C:24:TYR:O     | 14:C:28:ILE:HG12  | 2.07                     | 0.54              |
| 14:C:115:ALA:C    | 14:C:116:LEU:HD12 | 2.33                     | 0.54              |
| 14:C:365:GLU:OE2  | 15:D:329:ARG:NH1  | 2.41                     | 0.54              |
| 15:D:181:VAL:HG21 | 15:D:308:ILE:HD11 | 1.90                     | 0.54              |
| 16:E:71:VAL:CG2   | 16:E:100:LEU:HD11 | 2.37                     | 0.54              |
| 18:G:180:GLU:HA   | 18:G:183:VAL:HG12 | 1.90                     | 0.54              |
| 18:G:72:ILE:HD11  | 18:G:78:CYS:SG    | 2.49                     | 0.53              |
| 31:T:144:ARG:NH2  | 31:T:149:ASN:OD1  | 2.41                     | 0.53              |
| 32:f:716:ASP:OD1  | 32:f:717:ALA:N    | 2.41                     | 0.53              |
| 1:U:527:GLN:NE2   | 1:U:531:ASP:OD2   | 2.41                     | 0.53              |
| 3:W:170:GLN:OE1   | 3:W:170:GLN:HA    | 2.08                     | 0.53              |
| 4:X:385:LEU:HD23  | 4:X:385:LEU:O     | 2.07                     | 0.53              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 25:n:161:ILE:HD11 | 25:n:170:TYR:CE1  | 2.43                     | 0.53              |
| 1:U:503:GLN:O     | 1:U:535:TYR:OH    | 2.27                     | 0.53              |
| 3:W:118:LEU:HD13  | 3:W:121:LYS:HE2   | 1.89                     | 0.53              |
| 4:X:365:LEU:HD22  | 4:X:385:LEU:HD11  | 1.90                     | 0.53              |
| 6:Z:263:ALA:HB1   | 9:c:288:VAL:HG23  | 1.91                     | 0.53              |
| 13:B:361:LYS:HB2  | 13:B:384:ILE:HG23 | 1.91                     | 0.53              |
| 18:G:43:ARG:NH1   | 18:G:163:PHE:O    | 2.41                     | 0.53              |
| 27:P:24:ALA:CB    | 27:P:42:ILE:HD11  | 2.38                     | 0.53              |
| 28:q:147:TYR:CE1  | 28:q:151:ILE:HG21 | 2.44                     | 0.53              |
| 1:U:524:LYS:O     | 1:U:524:LYS:HG2   | 2.08                     | 0.53              |
| 3:W:259:GLU:OE1   | 3:W:261:GLU:N     | 2.42                     | 0.53              |
| 4:X:24:ILE:HG13   | 4:X:56:LEU:HD13   | 1.90                     | 0.53              |
| 5:Y:112:CYS:SG    | 5:Y:147:ILE:HD11  | 2.48                     | 0.53              |
| 13:B:255:LEU:HD12 | 13:B:290:ILE:HD11 | 1.91                     | 0.53              |
| 14:C:40:GLN:HA    | 14:C:40:GLN:OE1   | 2.09                     | 0.53              |
| 15:D:293:LEU:HD21 | 15:D:320:ALA:HB3  | 1.90                     | 0.53              |
| 16:E:309:ARG:HG3  | 16:E:343:LEU:HD11 | 1.91                     | 0.53              |
| 22:K:191:LEU:HD21 | 22:K:219:THR:OG1  | 2.07                     | 0.53              |
| 30:s:226:VAL:HG22 | 30:s:231:ILE:HD13 | 1.89                     | 0.53              |
| 1:U:141:CYS:SG    | 14:C:20:LEU:HD12  | 2.49                     | 0.53              |
| 1:U:151:ILE:HD11  | 1:U:179:TYR:CD1   | 2.43                     | 0.53              |
| 1:U:330:SER:OG    | 1:U:332:GLU:OE1   | 2.23                     | 0.53              |
| 5:Y:162:GLU:OE2   | 5:Y:166:SER:OG    | 2.25                     | 0.53              |
| 5:Y:221:THR:HG22  | 5:Y:256:VAL:HG21  | 1.91                     | 0.53              |
| 10:d:91:ALA:HA    | 10:d:94:MET:SD    | 2.48                     | 0.53              |
| 13:B:79:ILE:O     | 13:B:83:GLU:OE1   | 2.26                     | 0.53              |
| 17:F:198:LEU:HD21 | 17:F:202:ILE:HD12 | 1.91                     | 0.53              |
| 25:N:48:LEU:HD21  | 25:N:135:ALA:HB3  | 1.91                     | 0.53              |
| 30:S:66:ARG:NH2   | 26:o:207:PHE:O    | 2.42                     | 0.53              |
| 29:r:104:MET:HE1  | 29:r:112:SER:OG   | 2.09                     | 0.53              |
| 3:W:118:LEU:HD12  | 3:W:152:ILE:HG23  | 1.89                     | 0.53              |
| 4:X:380:GLN:HG2   | 5:Y:314:LEU:HD12  | 1.90                     | 0.53              |
| 7:a:180:LEU:HD12  | 7:a:200:LEU:HD11  | 1.91                     | 0.53              |
| 12:A:95:VAL:HG11  | 13:B:122:ILE:HD12 | 1.91                     | 0.53              |
| 25:N:174:ASP:CG   | 25:n:200:ARG:HE   | 2.17                     | 0.53              |
| 2:V:184:ALA:O     | 2:V:187:ILE:HG22  | 2.09                     | 0.53              |
| 2:V:443:ARG:HH12  | 10:d:274:CYS:HA   | 1.74                     | 0.53              |
| 6:Z:231:GLN:NE2   | 7:a:341:LEU:HD11  | 2.23                     | 0.53              |
| 12:A:101:ILE:O    | 12:A:101:ILE:HG22 | 2.07                     | 0.53              |
| 15:D:88:VAL:HG22  | 16:E:79:TYR:CD1   | 2.43                     | 0.53              |
| 17:F:362:ARG:NE   | 17:F:391:PHE:O    | 2.41                     | 0.53              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 19:H:179:ASN:OD1  | 19:H:182:LEU:HD13 | 2.08                     | 0.53              |
| 24:M:216:TRP:HE1  | 24:M:220:LEU:HD11 | 1.73                     | 0.53              |
| 26:o:209:ASP:OD1  | 26:o:210:LEU:N    | 2.42                     | 0.53              |
| 2:V:469:THR:HG22  | 2:V:470:ARG:N     | 2.24                     | 0.53              |
| 3:W:183:VAL:HG11  | 3:W:222:LEU:HD21  | 1.89                     | 0.53              |
| 10:d:87:VAL:HG12  | 10:d:126:LEU:HD11 | 1.91                     | 0.53              |
| 15:D:305:VAL:O    | 15:D:305:VAL:HG12 | 2.09                     | 0.53              |
| 16:E:331:ILE:HD11 | 16:E:367:PHE:HB3  | 1.90                     | 0.53              |
| 19:H:50:LYS:NZ    | 19:H:209:GLU:OE2  | 2.23                     | 0.53              |
| 28:q:8:GLN:O      | 28:q:147:TYR:OH   | 2.25                     | 0.53              |
| 1:U:99:THR:HG21   | 2:V:240:LEU:HD12  | 1.91                     | 0.53              |
| 2:V:352:SER:C     | 2:V:353:LEU:HD12  | 2.34                     | 0.53              |
| 5:Y:227:SER:HB3   | 5:Y:231:LEU:HD12  | 1.91                     | 0.53              |
| 12:A:125:LEU:CD1  | 12:A:134:ILE:HG21 | 2.39                     | 0.53              |
| 16:E:312:ILE:HG21 | 16:E:343:LEU:HD12 | 1.91                     | 0.53              |
| 17:F:93:VAL:HG23  | 17:F:149:ASP:O    | 2.09                     | 0.53              |
| 20:I:108:GLU:OE1  | 21:J:57:ARG:NH2   | 2.42                     | 0.53              |
| 29:R:223:THR:HG22 | 29:R:229:SER:O    | 2.09                     | 0.53              |
| 25:n:112:THR:O    | 25:n:116:LEU:HD23 | 2.09                     | 0.53              |
| 1:U:640:LEU:HD21  | 15:D:60:TYR:OH    | 2.09                     | 0.53              |
| 3:W:83:LEU:HD11   | 3:W:87:ILE:HD11   | 1.90                     | 0.53              |
| 5:Y:15:PRO:HG3    | 5:Y:147:ILE:HD13  | 1.91                     | 0.53              |
| 12:A:258:ARG:O    | 12:A:262:GLU:OE1  | 2.27                     | 0.53              |
| 23:L:117:GLN:O    | 23:L:120:THR:OG1  | 2.20                     | 0.53              |
| 29:R:199:ASP:OD1  | 28:q:169:LYS:NZ   | 2.42                     | 0.53              |
| 1:U:321:GLN:CD    | 1:U:324:LYS:HZ1   | 2.14                     | 0.52              |
| 4:X:395:LYS:HB2   | 9:c:242:GLU:OE2   | 2.09                     | 0.52              |
| 7:a:4:VAL:HB      | 7:a:5:PRO:HD3     | 1.91                     | 0.52              |
| 9:c:41:MET:HG3    | 9:c:72:VAL:HG11   | 1.90                     | 0.52              |
| 9:c:41:MET:SD     | 9:c:72:VAL:HG11   | 2.50                     | 0.52              |
| 12:A:51:ASP:O     | 12:A:55:LEU:HD13  | 2.10                     | 0.52              |
| 15:D:269:ALA:HB2  | 16:E:258:MET:HE3  | 1.91                     | 0.52              |
| 17:F:388:THR:HG23 | 17:F:389:ASP:N    | 2.25                     | 0.52              |
| 19:H:44:VAL:CG1   | 19:H:146:LEU:HD12 | 2.40                     | 0.52              |
| 30:s:85:PHE:CE1   | 31:t:173:LEU:HD11 | 2.44                     | 0.52              |
| 31:t:68:ALA:HB1   | 31:t:218:MET:HE2  | 1.91                     | 0.52              |
| 3:W:275:ILE:HG23  | 3:W:309:PHE:CE2   | 2.43                     | 0.52              |
| 8:b:100:ARG:NH1   | 8:b:102:GLY:O     | 2.42                     | 0.52              |
| 8:b:166:THR:HG22  | 8:b:166:THR:O     | 2.10                     | 0.52              |
| 9:c:38:LEU:HD22   | 9:c:207:TYR:CE2   | 2.44                     | 0.52              |
| 12:A:125:LEU:HD23 | 12:A:126:SER:O    | 2.10                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 19:H:86:LEU:HD12  | 19:H:132:VAL:HG21 | 1.91                     | 0.52              |
| 24:M:187:CYS:HA   | 24:M:190:ILE:HG22 | 1.90                     | 0.52              |
| 25:n:36:THR:HG21  | 25:n:197:ALA:CB   | 2.38                     | 0.52              |
| 28:q:45:LEU:O     | 28:q:102:LEU:HD13 | 2.09                     | 0.52              |
| 32:f:560:LEU:HD11 | 32:f:798:THR:HA   | 1.91                     | 0.52              |
| 4:X:15:LEU:O      | 4:X:19:ASP:C      | 2.51                     | 0.52              |
| 17:F:225:MET:HE1  | 17:F:236:LEU:HD23 | 1.89                     | 0.52              |
| 25:n:194:LEU:HD13 | 25:n:208:ILE:HG23 | 1.91                     | 0.52              |
| 27:p:180:VAL:HG23 | 27:p:180:VAL:O    | 2.09                     | 0.52              |
| 31:t:95:MET:HE2   | 31:t:237:VAL:CG1  | 2.38                     | 0.52              |
| 1:U:188:MET:HE1   | 1:U:194:ARG:N     | 2.24                     | 0.52              |
| 3:W:443:THR:HG21  | 6:Z:204:LYS:CD    | 2.39                     | 0.52              |
| 6:Z:209:ARG:HD2   | 7:a:354:GLU:OE1   | 2.10                     | 0.52              |
| 12:A:124:ASP:HB2  | 17:F:86:LEU:HD13  | 1.91                     | 0.52              |
| 14:C:400:SER:OG   | 19:H:150:ASP:OD2  | 2.14                     | 0.52              |
| 15:D:381:GLU:OE2  | 15:D:405:THR:OG1  | 2.21                     | 0.52              |
| 18:G:192:GLU:OE1  | 18:G:192:GLU:N    | 2.41                     | 0.52              |
| 28:Q:153:ARG:NH2  | 28:Q:184:ASP:OD2  | 2.42                     | 0.52              |
| 30:S:176:LEU:HD23 | 30:S:206:VAL:HG12 | 1.92                     | 0.52              |
| 31:T:118:ASP:O    | 31:T:122:LEU:HD23 | 2.09                     | 0.52              |
| 1:U:352:ILE:O     | 1:U:356:THR:HG23  | 2.09                     | 0.52              |
| 4:X:402:GLU:HB2   | 9:c:249:LEU:HD11  | 1.92                     | 0.52              |
| 8:b:46:GLU:OE1    | 8:b:46:GLU:N      | 2.42                     | 0.52              |
| 8:b:63:THR:HG22   | 8:b:64:LEU:N      | 2.24                     | 0.52              |
| 12:A:257:VAL:HG22 | 12:A:261:PHE:CZ   | 2.45                     | 0.52              |
| 26:O:94:ASP:OD1   | 27:P:99:ARG:NE    | 2.37                     | 0.52              |
| 27:P:67:LEU:HD11  | 27:P:91:VAL:CG2   | 2.34                     | 0.52              |
| 30:S:141:LEU:HD11 | 30:S:227:THR:CA   | 2.39                     | 0.52              |
| 32:f:874:LEU:HD12 | 32:f:874:LEU:O    | 2.09                     | 0.52              |
| 18:G:50:ILE:CG2   | 18:G:141:ILE:HD13 | 2.37                     | 0.52              |
| 21:J:71:MET:HE3   | 21:J:131:ALA:CB   | 2.40                     | 0.52              |
| 31:T:169:TYR:CD1  | 31:T:184:THR:HG22 | 2.43                     | 0.52              |
| 31:t:52:THR:O     | 31:t:74:SER:N     | 2.39                     | 0.52              |
| 32:f:331:LEU:O    | 32:f:335:ARG:HG3  | 2.09                     | 0.52              |
| 2:V:168:GLN:NE2   | 2:V:187:ILE:HD11  | 2.25                     | 0.52              |
| 4:X:27:LEU:HD12   | 4:X:56:LEU:HD12   | 1.91                     | 0.52              |
| 4:X:138:PHE:HD2   | 4:X:176:THR:HG22  | 1.73                     | 0.52              |
| 9:c:303:MET:HA    | 9:c:306:THR:HG22  | 1.91                     | 0.52              |
| 12:A:355:PHE:CE1  | 12:A:385:ILE:HG23 | 2.45                     | 0.52              |
| 23:L:115:LYS:NZ   | 23:L:128:TYR:OH   | 2.35                     | 0.52              |
| 28:Q:35:MET:SD    | 28:Q:43:LEU:HD21  | 2.50                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:f:888:LEU:N    | 32:f:901:ARG:O    | 2.43                     | 0.52              |
| 1:U:176:MET:HE2   | 1:U:176:MET:HA    | 1.92                     | 0.52              |
| 3:W:366:MET:HE1   | 3:W:378:MET:HG3   | 1.92                     | 0.52              |
| 4:X:103:THR:HG23  | 4:X:105:GLN:H     | 1.73                     | 0.52              |
| 4:X:286:ALA:HB1   | 4:X:313:LEU:HD21  | 1.92                     | 0.52              |
| 7:a:304:VAL:HG23  | 7:a:304:VAL:O     | 2.09                     | 0.52              |
| 14:C:345:ARG:O    | 14:C:349:GLU:OE1  | 2.27                     | 0.52              |
| 16:E:226:GLN:HA   | 16:E:227:PRO:C    | 2.34                     | 0.52              |
| 16:E:235:ILE:HG22 | 16:E:279:THR:HB   | 1.91                     | 0.52              |
| 26:O:80:ILE:HD11  | 26:O:86:CYS:SG    | 2.49                     | 0.52              |
| 26:O:229:LEU:HD22 | 26:O:232:TYR:CD1  | 2.45                     | 0.52              |
| 29:r:243:TRP:O    | 29:r:244:ILE:HG23 | 2.09                     | 0.52              |
| 32:f:803:PHE:O    | 32:f:806:VAL:HG23 | 2.09                     | 0.52              |
| 2:V:466:ILE:HD11  | 2:V:471:GLU:OE1   | 2.09                     | 0.52              |
| 12:A:193:THR:HB   | 12:A:194:PRO:HD3  | 1.92                     | 0.52              |
| 17:F:419:ASP:OD1  | 17:F:420:TYR:N    | 2.43                     | 0.52              |
| 20:I:91:ARG:HG2   | 27:P:76:LEU:HD23  | 1.92                     | 0.52              |
| 26:O:83:ASN:HD22  | 26:O:116:LEU:HD12 | 1.75                     | 0.52              |
| 30:s:99:ARG:CD    | 30:s:123:ILE:HD11 | 2.39                     | 0.52              |
| 31:t:238:THR:HG22 | 31:t:240:LYS:NZ   | 2.25                     | 0.52              |
| 10:d:115:GLU:O    | 10:d:119:LEU:HD23 | 2.10                     | 0.52              |
| 15:D:216:ALA:O    | 15:D:219:VAL:O    | 2.26                     | 0.52              |
| 23:L:66:VAL:HG12  | 23:L:67:ASP:H     | 1.74                     | 0.52              |
| 30:s:85:PHE:CZ    | 31:t:173:LEU:HD11 | 2.45                     | 0.52              |
| 32:f:367:SER:N    | 32:f:370:MET:SD   | 2.83                     | 0.52              |
| 1:U:583:MET:N     | 1:U:583:MET:HE2   | 2.25                     | 0.51              |
| 3:W:140:ILE:HD11  | 3:W:144:ARG:NH2   | 2.25                     | 0.51              |
| 5:Y:304:TYR:OH    | 5:Y:333:GLU:OE1   | 2.19                     | 0.51              |
| 7:a:342:ASP:OD1   | 7:a:343:LEU:N     | 2.41                     | 0.51              |
| 12:A:317:VAL:C    | 12:A:318:LEU:HD12 | 2.35                     | 0.51              |
| 12:A:351:ARG:NE   | 12:A:377:CYS:O    | 2.43                     | 0.51              |
| 18:G:141:ILE:HG22 | 18:G:151:VAL:HG22 | 1.92                     | 0.51              |
| 20:I:201:MET:HB3  | 20:I:203:VAL:HG12 | 1.91                     | 0.51              |
| 6:Z:130:ASP:N     | 6:Z:130:ASP:OD1   | 2.43                     | 0.51              |
| 6:Z:169:GLU:OE2   | 9:c:152:LYS:NZ    | 2.41                     | 0.51              |
| 10:d:318:PHE:CG   | 10:d:318:PHE:O    | 2.62                     | 0.51              |
| 14:C:40:GLN:OE1   | 14:C:43:ARG:NH2   | 2.44                     | 0.51              |
| 20:I:112:THR:HG23 | 21:J:81:ARG:HD2   | 1.92                     | 0.51              |
| 21:J:116:GLN:O    | 21:J:120:GLN:HG3  | 2.10                     | 0.51              |
| 21:J:158:ALA:O    | 22:K:58:LEU:HD21  | 2.10                     | 0.51              |
| 1:U:364:VAL:CG2   | 9:c:177:THR:HG21  | 2.40                     | 0.51              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:U:399:TRP:CH2   | 1:U:472:ILE:HG23  | 2.45                     | 0.51              |
| 1:U:532:MET:CB    | 1:U:552:ILE:HD11  | 2.40                     | 0.51              |
| 2:V:363:LEU:HD21  | 2:V:398:LEU:HD21  | 1.91                     | 0.51              |
| 3:W:144:ARG:NE    | 3:W:181:GLU:OE2   | 2.42                     | 0.51              |
| 4:X:380:GLN:OE1   | 5:Y:315:THR:HG22  | 2.10                     | 0.51              |
| 5:Y:229:ILE:HA    | 5:Y:299:MET:HE1   | 1.92                     | 0.51              |
| 12:A:358:HIS:NE2  | 35:A:501:ATP:O2'  | 2.32                     | 0.51              |
| 15:D:266:GLU:OE2  | 16:E:258:MET:O    | 2.29                     | 0.51              |
| 16:E:264:MET:HE1  | 16:E:289:LEU:HD12 | 1.92                     | 0.51              |
| 30:s:100:LEU:HD13 | 30:s:111:MET:HE3  | 1.92                     | 0.51              |
| 1:U:792:ASN:ND2   | 1:U:922:GLU:OE2   | 2.44                     | 0.51              |
| 9:c:32:TYR:CD1    | 9:c:66:THR:HG23   | 2.46                     | 0.51              |
| 9:c:37:ALA:HB1    | 9:c:72:VAL:HG13   | 1.91                     | 0.51              |
| 27:P:12:MET:CG    | 27:P:138:VAL:HG12 | 2.41                     | 0.51              |
| 26:o:86:CYS:SG    | 26:o:87:CYS:N     | 2.83                     | 0.51              |
| 32:f:573:ILE:HG21 | 32:f:599:ALA:CB   | 2.37                     | 0.51              |
| 32:f:600:TYR:HD2  | 32:f:608:LYS:HD2  | 1.74                     | 0.51              |
| 2:V:233:ALA:O     | 2:V:237:THR:HG23  | 2.11                     | 0.51              |
| 3:W:412:ILE:HG22  | 3:W:412:ILE:O     | 2.10                     | 0.51              |
| 13:B:130:GLU:N    | 13:B:130:GLU:OE1  | 2.43                     | 0.51              |
| 26:O:229:LEU:HD22 | 26:O:232:TYR:HD1  | 1.75                     | 0.51              |
| 28:q:44:LEU:CD1   | 28:q:102:LEU:HD12 | 2.35                     | 0.51              |
| 31:t:88:MET:HG3   | 31:t:109:LYS:HD3  | 1.92                     | 0.51              |
| 1:U:833:LEU:HD22  | 13:B:70:ASP:OD1   | 2.11                     | 0.51              |
| 4:X:194:ARG:HG2   | 4:X:210:LEU:HD21  | 1.93                     | 0.51              |
| 12:A:91:GLN:HG3   | 12:A:91:GLN:O     | 2.11                     | 0.51              |
| 30:S:88:ASP:OD2   | 30:S:133:TYR:N    | 2.41                     | 0.51              |
| 28:q:29:LYS:HE2   | 29:r:180:ILE:HD11 | 1.92                     | 0.51              |
| 32:f:429:ILE:HD11 | 32:f:444:ALA:HA   | 1.93                     | 0.51              |
| 3:W:328:LEU:HG    | 3:W:341:PHE:CG    | 2.45                     | 0.51              |
| 5:Y:290:PRO:O     | 5:Y:291:HIS:ND1   | 2.44                     | 0.51              |
| 7:a:123:LEU:HD22  | 7:a:131:THR:CG2   | 2.41                     | 0.51              |
| 10:d:97:GLN:NE2   | 10:d:101:GLU:OE2  | 2.43                     | 0.51              |
| 10:d:266:THR:O    | 10:d:270:GLU:OE1  | 2.29                     | 0.51              |
| 12:A:372:LEU:O    | 12:A:376:LEU:HD23 | 2.11                     | 0.51              |
| 22:K:121:LEU:HD22 | 23:L:79:ALA:HA    | 1.93                     | 0.51              |
| 1:U:469:SER:O     | 1:U:474:ARG:NH1   | 2.43                     | 0.51              |
| 1:U:788:VAL:HG13  | 1:U:788:VAL:O     | 2.11                     | 0.51              |
| 9:c:109:VAL:HG23  | 9:c:109:VAL:O     | 2.11                     | 0.51              |
| 12:A:433:ASN:O    | 22:K:53:ARG:NH2   | 2.40                     | 0.51              |
| 29:r:231:GLY:O    | 29:r:251:VAL:HG23 | 2.10                     | 0.51              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:68:ASP:O      | 2:V:72:LEU:HD23   | 2.11                     | 0.51              |
| 3:W:60:MET:HE2    | 16:E:326:ILE:CG2  | 2.41                     | 0.51              |
| 3:W:60:MET:N      | 3:W:60:MET:SD     | 2.82                     | 0.51              |
| 16:E:47:LEU:HD22  | 17:F:79:LYS:NZ    | 2.26                     | 0.51              |
| 25:N:56:THR:O     | 25:N:56:THR:HG22  | 2.11                     | 0.51              |
| 25:N:155:VAL:HG23 | 25:N:155:VAL:O    | 2.10                     | 0.51              |
| 32:f:597:VAL:HG11 | 32:f:656:GLY:HA3  | 1.91                     | 0.51              |
| 2:V:113:LEU:HD11  | 2:V:171:VAL:HG22  | 1.93                     | 0.51              |
| 15:D:117:SER:O    | 15:D:118:THR:OG1  | 2.25                     | 0.51              |
| 16:E:221:TYR:CE1  | 16:E:225:HIS:NE2  | 2.78                     | 0.51              |
| 16:E:264:MET:HG3  | 16:E:275:MET:SD   | 2.50                     | 0.51              |
| 22:K:67:ILE:HD13  | 22:K:77:ALA:HA    | 1.93                     | 0.51              |
| 25:N:91:ASP:OD2   | 26:O:124:ARG:NH2  | 2.44                     | 0.51              |
| 31:t:62:GLU:N     | 31:t:62:GLU:OE1   | 2.43                     | 0.51              |
| 33:y:389:ARG:NH1  | 33:y:389:ARG:HB2  | 2.26                     | 0.51              |
| 1:U:114:GLU:O     | 1:U:118:LEU:HD13  | 2.10                     | 0.50              |
| 2:V:108:LEU:HD13  | 2:V:174:PHE:HB2   | 1.94                     | 0.50              |
| 7:a:60:TYR:O      | 7:a:61:GLU:C      | 2.54                     | 0.50              |
| 25:N:71:ILE:HD11  | 25:N:77:CYS:SG    | 2.52                     | 0.50              |
| 26:o:196:ASN:O    | 26:o:200:GLU:OE1  | 2.28                     | 0.50              |
| 1:U:332:GLU:OE1   | 1:U:332:GLU:N     | 2.40                     | 0.50              |
| 2:V:79:VAL:O      | 2:V:83:GLU:OE1    | 2.30                     | 0.50              |
| 5:Y:155:ASP:OD1   | 5:Y:155:ASP:N     | 2.43                     | 0.50              |
| 9:c:161:ARG:NH1   | 9:c:203:ILE:HD11  | 2.25                     | 0.50              |
| 12:A:401:ARG:NH1  | 12:A:403:ILE:O    | 2.43                     | 0.50              |
| 15:D:164:TYR:OH   | 15:D:182:GLU:OE1  | 2.18                     | 0.50              |
| 16:E:273:VAL:HG13 | 16:E:273:VAL:O    | 2.11                     | 0.50              |
| 22:K:230:THR:N    | 22:K:233:GLU:OE1  | 2.44                     | 0.50              |
| 28:q:160:LEU:O    | 28:q:164:LEU:HD13 | 2.11                     | 0.50              |
| 32:f:240:VAL:O    | 32:f:245:ASN:ND2  | 2.45                     | 0.50              |
| 32:f:430:ASP:OD1  | 32:f:431:LYS:N    | 2.43                     | 0.50              |
| 1:U:622:LEU:C     | 1:U:622:LEU:HD23  | 2.36                     | 0.50              |
| 2:V:467:TYR:OH    | 4:X:397:TYR:OH    | 2.12                     | 0.50              |
| 3:W:243:ILE:HG21  | 3:W:273:TYR:CE1   | 2.46                     | 0.50              |
| 9:c:306:THR:HG23  | 9:c:307:VAL:HG23  | 1.93                     | 0.50              |
| 10:d:110:SER:O    | 10:d:114:GLU:OE1  | 2.30                     | 0.50              |
| 13:B:212:GLU:OE1  | 13:B:212:GLU:N    | 2.44                     | 0.50              |
| 14:C:28:ILE:HD11  | 15:D:44:TYR:HB2   | 1.93                     | 0.50              |
| 15:D:221:HIS:O    | 15:D:222:HIS:CG   | 2.65                     | 0.50              |
| 19:H:74:LEU:HD22  | 19:H:83:TYR:HE1   | 1.76                     | 0.50              |
| 19:H:109:GLN:NE2  | 27:P:78:GLU:OE1   | 2.44                     | 0.50              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:290:TYR:OH    | 2:V:294:ARG:NH1   | 2.44                     | 0.50              |
| 3:W:89:LEU:O      | 3:W:93:ARG:HG3    | 2.12                     | 0.50              |
| 6:Z:167:ALA:HB1   | 9:c:42:LEU:CD2    | 2.41                     | 0.50              |
| 8:b:56:ASN:OD1    | 8:b:57:ASP:N      | 2.44                     | 0.50              |
| 13:B:74:MET:CE    | 32:f:609:VAL:HG13 | 2.42                     | 0.50              |
| 15:D:279:THR:O    | 15:D:283:ARG:HG3  | 2.12                     | 0.50              |
| 30:S:173:LEU:HD21 | 30:S:210:ALA:HB2  | 1.94                     | 0.50              |
| 29:r:97:ASN:OD1   | 29:r:98:PRO:HD2   | 2.10                     | 0.50              |
| 1:U:832:VAL:C     | 1:U:833:LEU:HD23  | 2.37                     | 0.50              |
| 3:W:186:ILE:HD13  | 3:W:209:ILE:HD11  | 1.93                     | 0.50              |
| 4:X:23:SER:OG     | 4:X:56:LEU:HD11   | 2.11                     | 0.50              |
| 7:a:118:ILE:HB    | 7:a:122:LYS:HZ3   | 1.76                     | 0.50              |
| 10:d:136:LEU:HD12 | 10:d:138:LYS:HD2  | 1.92                     | 0.50              |
| 10:d:245:PHE:O    | 10:d:248:LYS:NZ   | 2.40                     | 0.50              |
| 14:C:331:ILE:O    | 14:C:334:ARG:NH1  | 2.40                     | 0.50              |
| 16:E:29:LEU:O     | 16:E:33:LEU:HD23  | 2.11                     | 0.50              |
| 17:F:438:TYR:HH   | 23:L:62:LYS:HZ1   | 1.60                     | 0.50              |
| 25:N:153:MET:HE1  | 31:T:51:VAL:CG1   | 2.41                     | 0.50              |
| 5:Y:220:VAL:HG21  | 5:Y:249:VAL:HG21  | 1.93                     | 0.50              |
| 10:d:311:GLY:O    | 10:d:313:ASN:N    | 2.44                     | 0.50              |
| 15:D:167:ILE:HD11 | 15:D:170:MET:SD   | 2.52                     | 0.50              |
| 28:Q:5:ILE:HD11   | 28:Q:143:LEU:CD1  | 2.30                     | 0.50              |
| 31:t:61:PHE:O     | 31:t:64:GLY:N     | 2.45                     | 0.50              |
| 1:U:345:ASN:O     | 1:U:743:ASN:ND2   | 2.44                     | 0.50              |
| 3:W:326:MET:O     | 3:W:329:ARG:N     | 2.45                     | 0.50              |
| 4:X:264:PRO:O     | 4:X:267:VAL:HG12  | 2.12                     | 0.50              |
| 7:a:122:LYS:HA    | 7:a:125:ILE:HG22  | 1.94                     | 0.50              |
| 7:a:228:THR:HG22  | 7:a:229:ASP:N     | 2.27                     | 0.50              |
| 8:b:108:ARG:NH2   | 8:b:139:ASP:OD2   | 2.44                     | 0.50              |
| 17:F:409:ARG:O    | 17:F:410:ARG:HB2  | 2.11                     | 0.50              |
| 29:R:89:THR:OG1   | 30:S:161:ASP:OD1  | 2.29                     | 0.50              |
| 25:n:66:ASP:O     | 25:n:79:ARG:NH2   | 2.45                     | 0.50              |
| 27:p:187:VAL:O    | 27:p:198:ARG:N    | 2.44                     | 0.50              |
| 32:f:764:LEU:O    | 32:f:768:LEU:HD23 | 2.12                     | 0.50              |
| 7:a:236:THR:CG2   | 7:a:251:LEU:HD13  | 2.42                     | 0.50              |
| 9:c:307:VAL:O     | 9:c:307:VAL:CG1   | 2.60                     | 0.50              |
| 13:B:292:THR:HG22 | 13:B:293:LYS:N    | 2.27                     | 0.50              |
| 13:B:434:THR:HG23 | 20:I:17:ARG:NH1   | 2.27                     | 0.50              |
| 16:E:129:ASN:O    | 16:E:129:ASN:OD1  | 2.30                     | 0.50              |
| 18:G:174:GLU:OE1  | 18:G:174:GLU:N    | 2.41                     | 0.50              |
| 27:P:133:THR:HG21 | 27:P:137:VAL:HG13 | 1.94                     | 0.50              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 28:Q:153:ARG:O    | 28:Q:157:VAL:HG23 | 2.12                     | 0.50              |
| 31:T:96:LEU:HD11  | 31:T:155:MET:CG   | 2.42                     | 0.50              |
| 32:f:425:GLY:O    | 32:f:429:ILE:HG22 | 2.11                     | 0.50              |
| 32:f:793:VAL:O    | 32:f:797:LEU:HD23 | 2.12                     | 0.50              |
| 3:W:48:LEU:HD11   | 3:W:93:ARG:NE     | 2.27                     | 0.50              |
| 6:Z:17:LEU:HD21   | 9:c:217:LEU:HD21  | 1.92                     | 0.50              |
| 7:a:274:LEU:HD21  | 7:a:319:LEU:CD2   | 2.42                     | 0.50              |
| 12:A:192:GLU:N    | 12:A:192:GLU:OE1  | 2.44                     | 0.50              |
| 15:D:266:GLU:OE2  | 16:E:258:MET:HG2  | 2.12                     | 0.50              |
| 16:E:264:MET:HE1  | 16:E:289:LEU:CD1  | 2.41                     | 0.50              |
| 20:I:45:LEU:HD11  | 20:I:137:ILE:CG2  | 2.42                     | 0.50              |
| 21:J:40:ILE:HD11  | 21:J:210:VAL:HG13 | 1.94                     | 0.50              |
| 30:S:173:LEU:HD13 | 30:S:207:PHE:HE1  | 1.76                     | 0.50              |
| 29:r:238:VAL:HG23 | 29:r:238:VAL:O    | 2.12                     | 0.50              |
| 32:f:266:LEU:HD22 | 32:f:297:MET:HE3  | 1.94                     | 0.50              |
| 9:c:63:ASP:OD1    | 9:c:63:ASP:N      | 2.45                     | 0.49              |
| 10:d:164:PHE:CD1  | 10:d:168:MET:HE1  | 2.47                     | 0.49              |
| 10:d:350:VAL:O    | 10:d:350:VAL:HG13 | 2.11                     | 0.49              |
| 15:D:381:GLU:O    | 15:D:385:LEU:HD13 | 2.12                     | 0.49              |
| 16:E:199:VAL:HG23 | 16:E:199:VAL:O    | 2.11                     | 0.49              |
| 23:L:10:VAL:HG22  | 23:L:10:VAL:O     | 2.12                     | 0.49              |
| 28:Q:161:ARG:O    | 28:Q:165:GLU:OE1  | 2.29                     | 0.49              |
| 29:R:60:THR:HG23  | 29:R:92:LYS:NZ    | 2.27                     | 0.49              |
| 32:f:217:LEU:O    | 32:f:221:ILE:HG13 | 2.11                     | 0.49              |
| 32:f:521:ALA:O    | 32:f:525:ILE:HG12 | 2.12                     | 0.49              |
| 3:W:239:SER:O     | 3:W:243:ILE:HD12  | 2.11                     | 0.49              |
| 3:W:294:LYS:NZ    | 3:W:294:LYS:O     | 2.21                     | 0.49              |
| 4:X:43:VAL:HG22   | 4:X:80:ILE:HD11   | 1.94                     | 0.49              |
| 5:Y:228:MET:HE1   | 5:Y:259:TYR:CE2   | 2.47                     | 0.49              |
| 9:c:248:MET:HE1   | 9:c:291:LEU:HD12  | 1.93                     | 0.49              |
| 10:d:313:ASN:O    | 10:d:315:TYR:N    | 2.41                     | 0.49              |
| 15:D:98:GLN:O     | 15:D:99:ASN:OD1   | 2.30                     | 0.49              |
| 18:G:72:ILE:HG21  | 18:G:114:LEU:HD11 | 1.93                     | 0.49              |
| 24:M:140:SER:HA   | 24:M:217:VAL:HG11 | 1.93                     | 0.49              |
| 25:N:222:VAL:HG23 | 25:N:224:LEU:CD2  | 2.42                     | 0.49              |
| 28:Q:172:ILE:HD11 | 28:q:22:ALA:CB    | 2.42                     | 0.49              |
| 30:s:165:ALA:O    | 30:s:170:SER:OG   | 2.28                     | 0.49              |
| 1:U:653:ALA:HB2   | 1:U:675:MET:CE    | 2.42                     | 0.49              |
| 3:W:176:SER:O     | 3:W:182:ARG:NH1   | 2.45                     | 0.49              |
| 13:B:362:LYS:O    | 13:B:366:GLN:OE1  | 2.30                     | 0.49              |
| 26:O:182:GLU:HA   | 26:O:182:GLU:OE2  | 2.11                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 29:R:240:GLU:HA   | 29:R:240:GLU:OE2  | 2.12                     | 0.49              |
| 27:p:34:MET:HE2   | 27:p:183:MET:HE2  | 1.92                     | 0.49              |
| 29:r:72:ILE:CG1   | 29:r:235:LEU:HD11 | 2.42                     | 0.49              |
| 4:X:315:ASP:C     | 4:X:315:ASP:OD1   | 2.55                     | 0.49              |
| 7:a:313:LYS:O     | 7:a:317:VAL:HG12  | 2.12                     | 0.49              |
| 8:b:130:ARG:O     | 8:b:134:GLU:OE1   | 2.31                     | 0.49              |
| 10:d:223:ASN:OD1  | 10:d:225:TYR:N    | 2.44                     | 0.49              |
| 15:D:88:VAL:HG22  | 16:E:79:TYR:HD1   | 1.76                     | 0.49              |
| 16:E:201:SER:O    | 16:E:204:VAL:HG22 | 2.12                     | 0.49              |
| 18:G:80:MET:HE2   | 18:G:91:VAL:HG23  | 1.94                     | 0.49              |
| 20:I:197:LEU:HA   | 20:I:200:THR:HG22 | 1.94                     | 0.49              |
| 20:I:220:ASN:CG   | 20:I:220:ASN:O    | 2.54                     | 0.49              |
| 28:Q:140:LEU:HD21 | 29:r:225:ARG:CZ   | 2.42                     | 0.49              |
| 30:S:159:GLN:NE2  | 30:S:161:ASP:OD2  | 2.45                     | 0.49              |
| 31:t:261:SER:O    | 31:t:261:SER:OG   | 2.30                     | 0.49              |
| 32:f:225:ALA:O    | 32:f:229:VAL:HG22 | 2.13                     | 0.49              |
| 32:f:744:MET:O    | 32:f:748:LEU:HD23 | 2.12                     | 0.49              |
| 32:f:893:ILE:O    | 32:f:893:ILE:HG22 | 2.11                     | 0.49              |
| 1:U:529:ILE:HD11  | 1:U:555:VAL:HG11  | 1.94                     | 0.49              |
| 1:U:701:ILE:HG21  | 1:U:810:THR:HG22  | 1.93                     | 0.49              |
| 7:a:42:LEU:O      | 7:a:46:GLN:OE1    | 2.30                     | 0.49              |
| 7:a:245:VAL:O     | 7:a:249:GLN:OE1   | 2.29                     | 0.49              |
| 10:d:196:LEU:HB3  | 10:d:208:PHE:HE1  | 1.78                     | 0.49              |
| 17:F:72:LYS:O     | 17:F:75:GLU:HG3   | 2.12                     | 0.49              |
| 25:N:48:LEU:HD11  | 25:N:213:ILE:HD12 | 1.93                     | 0.49              |
| 32:f:463:LEU:HD13 | 32:f:494:ARG:HH22 | 1.77                     | 0.49              |
| 4:X:205:LYS:N     | 4:X:242:ILE:HD11  | 2.26                     | 0.49              |
| 7:a:77:VAL:CG1    | 7:a:113:LEU:HD22  | 2.43                     | 0.49              |
| 16:E:123:SER:HB3  | 16:E:196:LEU:HD13 | 1.93                     | 0.49              |
| 19:H:66:GLU:OE2   | 19:H:83:TYR:OH    | 2.30                     | 0.49              |
| 25:N:173:VAL:HG23 | 25:N:189:PHE:CZ   | 2.44                     | 0.49              |
| 25:N:200:ARG:NH1  | 31:t:79:ALA:O     | 2.41                     | 0.49              |
| 26:O:225:LYS:C    | 26:O:226:LEU:HD12 | 2.37                     | 0.49              |
| 27:P:69:PHE:O     | 27:P:73:LEU:HD23  | 2.12                     | 0.49              |
| 10:d:335:LEU:HD23 | 10:d:335:LEU:O    | 2.12                     | 0.49              |
| 25:N:63:ARG:HE    | 31:t:256:ILE:HD11 | 1.77                     | 0.49              |
| 25:N:118:LYS:HB2  | 25:N:154:MET:HE3  | 1.94                     | 0.49              |
| 29:R:129:ASN:O    | 29:R:131:GLU:N    | 2.43                     | 0.49              |
| 32:f:840:LEU:HD13 | 32:f:887:PHE:CE2  | 2.47                     | 0.49              |
| 5:Y:279:GLU:HG3   | 5:Y:296:VAL:HG21  | 1.94                     | 0.49              |
| 7:a:206:LEU:O     | 7:a:206:LEU:HD23  | 2.12                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:139:ARG:CB   | 12:A:153:LEU:HD22 | 2.41                     | 0.49              |
| 15:D:79:VAL:O     | 15:D:82:ILE:HG22  | 2.13                     | 0.49              |
| 15:D:116:LEU:HB3  | 15:D:119:ILE:HD11 | 1.95                     | 0.49              |
| 19:H:86:LEU:HD13  | 19:H:134:LEU:HD11 | 1.95                     | 0.49              |
| 25:N:68:LEU:HD12  | 25:N:76:PHE:HD2   | 1.77                     | 0.49              |
| 32:f:835:GLU:OE2  | 32:f:901:ARG:NH1  | 2.45                     | 0.49              |
| 1:U:460:TYR:O     | 1:U:464:GLN:OE1   | 2.31                     | 0.49              |
| 1:U:584:TYR:HH    | 1:U:768:GLN:CD    | 2.14                     | 0.49              |
| 1:U:832:VAL:O     | 1:U:833:LEU:HD23  | 2.13                     | 0.49              |
| 2:V:386:PHE:CE2   | 2:V:395:ILE:HD12  | 2.48                     | 0.49              |
| 4:X:418:ALA:HB2   | 6:Z:276:ILE:HD12  | 1.94                     | 0.49              |
| 7:a:104:VAL:O     | 7:a:104:VAL:HG13  | 2.12                     | 0.49              |
| 14:C:258:ARG:NE   | 14:C:302:ASP:OD2  | 2.38                     | 0.49              |
| 15:D:265:ASP:OD1  | 15:D:266:GLU:N    | 2.46                     | 0.49              |
| 16:E:346:VAL:HG22 | 16:E:374:VAL:HG11 | 1.95                     | 0.49              |
| 25:N:227:GLN:N    | 25:N:227:GLN:OE1  | 2.46                     | 0.49              |
| 1:U:216:VAL:O     | 1:U:220:LEU:HD23  | 2.13                     | 0.49              |
| 7:a:244:ASN:O     | 7:a:247:ARG:N     | 2.45                     | 0.49              |
| 7:a:274:LEU:HD21  | 7:a:319:LEU:HD23  | 1.95                     | 0.49              |
| 10:d:208:PHE:O    | 10:d:212:LEU:HD13 | 2.13                     | 0.49              |
| 22:K:168:ARG:NH2  | 23:L:53:GLN:OE1   | 2.43                     | 0.49              |
| 29:R:226:ASP:OD1  | 29:R:228:TYR:N    | 2.46                     | 0.49              |
| 31:T:86:ARG:NH1   | 31:T:98:ALA:O     | 2.46                     | 0.49              |
| 28:q:154:GLU:OE2  | 28:q:154:GLU:HA   | 2.12                     | 0.49              |
| 29:r:93:VAL:HG21  | 29:r:236:TYR:CE2  | 2.48                     | 0.49              |
| 29:r:204:TYR:O    | 29:r:206:LEU:HD12 | 2.12                     | 0.49              |
| 32:f:446:LEU:HD21 | 32:f:480:GLY:HA2  | 1.95                     | 0.49              |
| 3:W:112:VAL:HG22  | 3:W:124:LEU:HD21  | 1.93                     | 0.48              |
| 10:d:282:ILE:HG22 | 10:d:318:PHE:HB2  | 1.95                     | 0.48              |
| 15:D:130:VAL:HG11 | 15:D:139:LEU:HD11 | 1.95                     | 0.48              |
| 15:D:309:MET:CE   | 15:D:327:LEU:HD21 | 2.43                     | 0.48              |
| 23:L:45:VAL:HG22  | 23:L:214:ILE:HG13 | 1.95                     | 0.48              |
| 23:L:66:VAL:HG12  | 23:L:67:ASP:N     | 2.27                     | 0.48              |
| 30:S:214:ASP:OD1  | 30:S:215:VAL:N    | 2.45                     | 0.48              |
| 31:T:169:TYR:CE1  | 31:T:184:THR:HG22 | 2.48                     | 0.48              |
| 1:U:669:ILE:HD11  | 1:U:695:MET:CG    | 2.42                     | 0.48              |
| 7:a:45:VAL:HG21   | 7:a:82:HIS:HB3    | 1.95                     | 0.48              |
| 16:E:122:MET:HG2  | 16:E:196:LEU:HD12 | 1.95                     | 0.48              |
| 16:E:130:VAL:HG23 | 16:E:186:ALA:HA   | 1.95                     | 0.48              |
| 17:F:438:TYR:OH   | 23:L:33:SER:OG    | 2.02                     | 0.48              |
| 32:f:271:MET:HE1  | 32:f:786:GLN:O    | 2.13                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:U:226:PRO:HA    | 1:U:229:VAL:HG12  | 1.95                     | 0.48              |
| 1:U:233:LEU:HD22  | 1:U:325:MET:HE1   | 1.94                     | 0.48              |
| 7:a:299:SER:O     | 7:a:300:ALA:C     | 2.55                     | 0.48              |
| 7:a:312:MET:HA    | 7:a:312:MET:HE3   | 1.95                     | 0.48              |
| 8:b:157:VAL:HG21  | 8:b:170:LEU:HB3   | 1.96                     | 0.48              |
| 9:c:242:GLU:HA    | 9:c:242:GLU:OE1   | 2.14                     | 0.48              |
| 10:d:302:TYR:HB3  | 10:d:306:ARG:NH2  | 2.28                     | 0.48              |
| 16:E:300:HIS:CG   | 16:E:300:HIS:O    | 2.65                     | 0.48              |
| 18:G:138:MET:HE3  | 18:G:140:LEU:HD11 | 1.93                     | 0.48              |
| 22:K:125:GLU:OE1  | 22:K:125:GLU:N    | 2.44                     | 0.48              |
| 32:f:783:SER:CB   | 32:f:787:LEU:HD12 | 2.42                     | 0.48              |
| 1:U:148:LYS:O     | 1:U:149:GLN:HB3   | 2.12                     | 0.48              |
| 12:A:201:PHE:CZ   | 17:F:408:LEU:HD22 | 2.45                     | 0.48              |
| 14:C:252:ASP:OD2  | 14:C:297:ARG:NH1  | 2.46                     | 0.48              |
| 15:D:266:GLU:N    | 15:D:310:ALA:O    | 2.46                     | 0.48              |
| 26:O:155:SER:OG   | 26:O:170:MET:SD   | 2.71                     | 0.48              |
| 1:U:609:ASP:OD2   | 1:U:614:VAL:HG11  | 2.13                     | 0.48              |
| 6:Z:42:SER:OG     | 6:Z:44:GLN:NE2    | 2.46                     | 0.48              |
| 7:a:62:ASN:O      | 7:a:66:GLU:OE1    | 2.30                     | 0.48              |
| 9:c:31:VAL:HG23   | 9:c:31:VAL:O      | 2.14                     | 0.48              |
| 9:c:82:VAL:O      | 9:c:83:SER:OG     | 2.29                     | 0.48              |
| 13:B:44:ASP:H     | 13:B:246:THR:HG1  | 1.59                     | 0.48              |
| 13:B:52:VAL:O     | 13:B:52:VAL:HG23  | 2.14                     | 0.48              |
| 13:B:385:MET:HE1  | 21:J:199:VAL:O    | 2.12                     | 0.48              |
| 16:E:261:LEU:HD11 | 16:E:288:ALA:CB   | 2.43                     | 0.48              |
| 19:H:65:VAL:HG22  | 19:H:75:VAL:HB    | 1.96                     | 0.48              |
| 20:I:13:SER:OG    | 20:I:15:GLU:OE1   | 2.25                     | 0.48              |
| 24:M:198:ILE:HG21 | 24:M:212:LEU:CD1  | 2.43                     | 0.48              |
| 25:n:198:MET:HE1  | 25:n:205:GLY:C    | 2.38                     | 0.48              |
| 1:U:356:THR:O     | 1:U:360:VAL:HG23  | 2.13                     | 0.48              |
| 3:W:326:MET:O     | 3:W:327:GLU:C     | 2.57                     | 0.48              |
| 15:D:309:MET:HE1  | 15:D:327:LEU:HD21 | 1.95                     | 0.48              |
| 16:E:312:ILE:CG2  | 16:E:343:LEU:HD12 | 2.43                     | 0.48              |
| 18:G:113:MET:HE2  | 26:O:113:THR:HA   | 1.94                     | 0.48              |
| 18:G:173:THR:OG1  | 18:G:174:GLU:OE1  | 2.30                     | 0.48              |
| 23:L:66:VAL:O     | 23:L:67:ASP:C     | 2.56                     | 0.48              |
| 25:n:93:VAL:HG21  | 25:n:117:PHE:HE1  | 1.79                     | 0.48              |
| 28:q:139:THR:O    | 28:q:143:LEU:HD13 | 2.14                     | 0.48              |
| 32:f:166:VAL:HG21 | 32:f:187:LEU:HD11 | 1.95                     | 0.48              |
| 2:V:285:TRP:O     | 2:V:289:LEU:HD13  | 2.14                     | 0.48              |
| 7:a:216:LEU:HD23  | 7:a:237:LEU:HD21  | 1.96                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:b:123:ASP:OD1   | 8:b:123:ASP:C     | 2.56                     | 0.48              |
| 10:d:328:THR:HG23 | 10:d:329:THR:HG23 | 1.95                     | 0.48              |
| 14:C:151:ILE:HG12 | 14:C:198:LEU:HD22 | 1.95                     | 0.48              |
| 15:D:327:LEU:O    | 15:D:330:LYS:NZ   | 2.45                     | 0.48              |
| 28:Q:164:LEU:HD12 | 28:Q:178:PHE:CZ   | 2.49                     | 0.48              |
| 31:T:256:ILE:HD11 | 26:o:185:PHE:O    | 2.14                     | 0.48              |
| 3:W:340:VAL:O     | 3:W:340:VAL:CG1   | 2.62                     | 0.48              |
| 5:Y:101:ARG:NH1   | 5:Y:102:ASP:OD1   | 2.46                     | 0.48              |
| 10:d:84:SER:O     | 10:d:88:LEU:HD13  | 2.12                     | 0.48              |
| 14:C:296:ASN:C    | 14:C:296:ASN:HD22 | 2.19                     | 0.48              |
| 15:D:371:SER:N    | 15:D:374:ASP:OD2  | 2.41                     | 0.48              |
| 18:G:61:LEU:HD23  | 24:M:161:TYR:CE1  | 2.48                     | 0.48              |
| 23:L:84:LEU:HD12  | 23:L:130:VAL:CG2  | 2.43                     | 0.48              |
| 27:P:144:GLU:OE1  | 30:s:172:MET:SD   | 2.72                     | 0.48              |
| 31:T:198:VAL:HG11 | 31:T:213:LEU:HD22 | 1.95                     | 0.48              |
| 32:f:658:ALA:HB2  | 32:f:693:ALA:HB1  | 1.94                     | 0.48              |
| 32:f:887:PHE:CB   | 32:f:900:LEU:HD22 | 2.44                     | 0.48              |
| 1:U:235:LYS:O     | 1:U:239:GLU:OE1   | 2.32                     | 0.48              |
| 1:U:520:MET:HB2   | 1:U:555:VAL:HG22  | 1.95                     | 0.48              |
| 7:a:342:ASP:N     | 7:a:345:GLN:OE1   | 2.43                     | 0.48              |
| 12:A:391:GLU:HA   | 12:A:394:MET:HE2  | 1.95                     | 0.48              |
| 14:C:96:VAL:HG23  | 14:C:96:VAL:O     | 2.13                     | 0.48              |
| 14:C:102:ASN:O    | 14:C:103:ILE:HD13 | 2.13                     | 0.48              |
| 14:C:336:MET:HE1  | 15:D:196:ILE:HD11 | 1.95                     | 0.48              |
| 15:D:167:ILE:HG23 | 15:D:167:ILE:O    | 2.14                     | 0.48              |
| 20:I:76:VAL:HA    | 20:I:134:LEU:HD23 | 1.94                     | 0.48              |
| 20:I:86:LEU:HD12  | 20:I:132:VAL:CG2  | 2.44                     | 0.48              |
| 20:I:107:CYS:O    | 20:I:111:VAL:HG23 | 2.14                     | 0.48              |
| 22:K:214:ASN:OD1  | 22:K:215:ILE:HG23 | 2.14                     | 0.48              |
| 25:N:154:MET:HE2  | 25:N:154:MET:HA   | 1.94                     | 0.48              |
| 27:P:147:TYR:O    | 27:P:151:GLU:HG3  | 2.13                     | 0.48              |
| 31:T:108:LEU:O    | 31:T:112:LEU:HD23 | 2.14                     | 0.48              |
| 26:o:118:ARG:N    | 26:o:121:THR:HG1  | 2.12                     | 0.48              |
| 1:U:899:ARG:NH2   | 1:U:916:ASP:OD2   | 2.47                     | 0.48              |
| 5:Y:45:VAL:HG11   | 5:Y:54:TYR:HD2    | 1.79                     | 0.48              |
| 6:Z:34:ARG:NH2    | 6:Z:60:GLU:OE2    | 2.43                     | 0.48              |
| 9:c:241:ASN:O     | 9:c:245:VAL:HG23  | 2.14                     | 0.48              |
| 13:B:372:MET:SD   | 13:B:414:VAL:HG11 | 2.54                     | 0.48              |
| 20:I:33:THR:OG1   | 20:I:166:ASN:O    | 2.32                     | 0.48              |
| 21:J:40:ILE:HD11  | 21:J:210:VAL:HG11 | 1.95                     | 0.48              |
| 25:N:91:ASP:C     | 25:N:91:ASP:OD1   | 2.57                     | 0.48              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 26:O:262:LEU:HD13 | 27:P:48:ARG:NH1   | 2.28                     | 0.48              |
| 28:Q:140:LEU:HD21 | 29:r:225:ARG:NE   | 2.29                     | 0.48              |
| 27:p:149:MET:HE3  | 27:p:173:ASN:CB   | 2.43                     | 0.48              |
| 31:t:104:ASP:O    | 31:t:108:LEU:HD23 | 2.13                     | 0.48              |
| 32:f:326:LEU:C    | 32:f:326:LEU:HD23 | 2.39                     | 0.48              |
| 3:W:159:VAL:O     | 3:W:159:VAL:HG22  | 2.14                     | 0.47              |
| 4:X:116:TRP:NE1   | 4:X:120:GLU:OE1   | 2.47                     | 0.47              |
| 4:X:409:LYS:HG3   | 9:c:256:ASN:ND2   | 2.29                     | 0.47              |
| 10:d:258:PHE:O    | 10:d:262:ILE:HG22 | 2.13                     | 0.47              |
| 17:F:379:VAL:HG11 | 17:F:420:TYR:CE2  | 2.49                     | 0.47              |
| 18:G:165:ALA:O    | 19:H:56:LEU:HD23  | 2.15                     | 0.47              |
| 24:M:38:ILE:HD13  | 24:M:198:ILE:HD13 | 1.95                     | 0.47              |
| 24:M:179:LYS:O    | 24:M:180:LEU:HD12 | 2.14                     | 0.47              |
| 24:M:216:TRP:CZ3  | 24:M:228:VAL:HG13 | 2.49                     | 0.47              |
| 31:t:71:MET:HE3   | 31:t:233:GLN:CD   | 2.39                     | 0.47              |
| 31:t:237:VAL:HB   | 31:t:242:VAL:HG23 | 1.96                     | 0.47              |
| 32:f:296:PHE:CD1  | 32:f:320:ILE:HG23 | 2.48                     | 0.47              |
| 2:V:450:SER:OG    | 2:V:451:ILE:N     | 2.48                     | 0.47              |
| 4:X:204:PRO:C     | 4:X:242:ILE:HD11  | 2.39                     | 0.47              |
| 7:a:18:GLN:HB3    | 7:a:21:VAL:HB     | 1.96                     | 0.47              |
| 13:B:361:LYS:CB   | 13:B:384:ILE:HG23 | 2.44                     | 0.47              |
| 18:G:176:THR:HG23 | 19:H:56:LEU:HD22  | 1.96                     | 0.47              |
| 22:K:95:GLU:OE1   | 22:K:95:GLU:HA    | 2.13                     | 0.47              |
| 23:L:196:ARG:CG   | 23:L:205:LEU:HD13 | 2.42                     | 0.47              |
| 32:f:347:ASP:O    | 32:f:350:LYS:NZ   | 2.44                     | 0.47              |
| 1:U:532:MET:HB2   | 1:U:552:ILE:HD11  | 1.95                     | 0.47              |
| 3:W:69:ALA:O      | 3:W:73:MET:HG3    | 2.14                     | 0.47              |
| 6:Z:283:ARG:HH11  | 6:Z:283:ARG:HG3   | 1.79                     | 0.47              |
| 7:a:232:TRP:CE2   | 7:a:254:ALA:HB3   | 2.48                     | 0.47              |
| 12:A:141:GLY:O    | 12:A:149:ILE:HG23 | 2.14                     | 0.47              |
| 13:B:365:PHE:HB3  | 13:B:380:LEU:HD13 | 1.95                     | 0.47              |
| 16:E:101:ASP:O    | 16:E:105:LEU:HD23 | 2.15                     | 0.47              |
| 23:L:36:VAL:HG12  | 23:L:160:SER:CB   | 2.44                     | 0.47              |
| 28:Q:1:MET:SD     | 28:Q:2:GLU:N      | 2.87                     | 0.47              |
| 29:R:109:ALA:CB   | 30:S:155:VAL:HG23 | 2.44                     | 0.47              |
| 30:s:56:ARG:O     | 30:s:57:LEU:HD12  | 2.14                     | 0.47              |
| 32:f:520:LEU:O    | 32:f:524:MET:HG3  | 2.14                     | 0.47              |
| 7:a:157:ASP:HB2   | 7:a:179:PHE:CE1   | 2.50                     | 0.47              |
| 9:c:27:THR:HG23   | 9:c:27:THR:O      | 2.13                     | 0.47              |
| 9:c:138:GLU:OE1   | 9:c:138:GLU:O     | 2.33                     | 0.47              |
| 12:A:214:LEU:HD12 | 12:A:341:ILE:HD11 | 1.95                     | 0.47              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:225:CYS:O    | 12:A:229:VAL:HG23 | 2.14                     | 0.47              |
| 13:B:234:LEU:HD11 | 35:B:501:ATP:H2'  | 1.96                     | 0.47              |
| 15:D:266:GLU:OE2  | 16:E:258:MET:CG   | 2.61                     | 0.47              |
| 35:D:501:ATP:O3G  | 16:E:291:ARG:NH2  | 2.44                     | 0.47              |
| 18:G:217:VAL:HG11 | 18:G:230:LEU:HD12 | 1.95                     | 0.47              |
| 19:H:65:VAL:HG22  | 19:H:75:VAL:CG2   | 2.43                     | 0.47              |
| 20:I:21:VAL:O     | 20:I:25:MET:HG3   | 2.14                     | 0.47              |
| 25:N:174:ASP:OD1  | 25:n:200:ARG:NH2  | 2.39                     | 0.47              |
| 27:P:133:THR:OG1  | 27:P:135:ASP:OD1  | 2.31                     | 0.47              |
| 32:f:581:GLU:O    | 32:f:588:ARG:NH1  | 2.47                     | 0.47              |
| 2:V:255:LEU:HD21  | 2:V:271:VAL:CG1   | 2.45                     | 0.47              |
| 3:W:122:LEU:HA    | 3:W:125:ILE:HD12  | 1.96                     | 0.47              |
| 4:X:14:SER:O      | 4:X:17:SER:OG     | 2.28                     | 0.47              |
| 10:d:208:PHE:CZ   | 10:d:212:LEU:HD11 | 2.49                     | 0.47              |
| 14:C:219:LEU:HD13 | 14:C:231:VAL:CG2  | 2.44                     | 0.47              |
| 15:D:125:LYS:NZ   | 15:D:126:PRO:O    | 2.47                     | 0.47              |
| 20:I:154:GLY:O    | 21:J:81:ARG:NH2   | 2.47                     | 0.47              |
| 24:M:231:ASP:OD1  | 24:M:232:ILE:N    | 2.47                     | 0.47              |
| 25:n:112:THR:O    | 25:n:115:SER:OG   | 2.28                     | 0.47              |
| 27:p:132:VAL:O    | 27:p:132:VAL:HG13 | 2.14                     | 0.47              |
| 1:U:520:MET:HB3   | 1:U:555:VAL:HG22  | 1.96                     | 0.47              |
| 5:Y:202:LEU:HD11  | 5:Y:231:LEU:HD11  | 1.95                     | 0.47              |
| 6:Z:198:LEU:HD21  | 9:c:308:VAL:HG21  | 1.96                     | 0.47              |
| 12:A:417:ILE:HD12 | 12:A:417:ILE:H    | 1.79                     | 0.47              |
| 14:C:118:ASN:OD1  | 14:C:118:ASN:O    | 2.33                     | 0.47              |
| 14:C:277:LEU:CD2  | 14:C:305:LEU:HD23 | 2.44                     | 0.47              |
| 15:D:56:VAL:O     | 15:D:59:GLU:HG3   | 2.15                     | 0.47              |
| 17:F:143:GLU:OE1  | 17:F:143:GLU:N    | 2.46                     | 0.47              |
| 21:J:73:PHE:CD1   | 21:J:74:ALA:N     | 2.83                     | 0.47              |
| 22:K:71:ASP:OD1   | 22:K:72:ALA:N     | 2.41                     | 0.47              |
| 22:K:214:ASN:OD1  | 22:K:214:ASN:C    | 2.57                     | 0.47              |
| 26:O:193:GLU:HA   | 26:O:193:GLU:OE1  | 2.15                     | 0.47              |
| 28:Q:38:MET:HE1   | 28:Q:60:ILE:CG2   | 2.45                     | 0.47              |
| 29:R:62:THR:OG1   | 29:R:103:THR:HG21 | 2.15                     | 0.47              |
| 30:s:74:LEU:HD11  | 30:s:80:ILE:HD13  | 1.97                     | 0.47              |
| 1:U:26:LYS:O      | 1:U:30:VAL:HG22   | 2.14                     | 0.47              |
| 1:U:242:LEU:HD13  | 1:U:246:TYR:HE2   | 1.80                     | 0.47              |
| 1:U:586:VAL:HG11  | 1:U:602:LEU:HD21  | 1.97                     | 0.47              |
| 4:X:190:LEU:HD21  | 4:X:214:SER:HA    | 1.97                     | 0.47              |
| 7:a:47:ASP:O      | 7:a:49:CYS:N      | 2.46                     | 0.47              |
| 14:C:52:LEU:HD11  | 15:D:65:GLN:HE21  | 1.80                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:C:62:GLU:O     | 14:C:66:LEU:HD13  | 2.14                     | 0.47              |
| 16:E:65:THR:O     | 16:E:68:LYS:N     | 2.45                     | 0.47              |
| 16:E:371:VAL:HA   | 16:E:374:VAL:HG12 | 1.97                     | 0.47              |
| 18:G:159:TYR:CZ   | 18:G:161:CYS:HB2  | 2.50                     | 0.47              |
| 23:L:133:LEU:HD11 | 23:L:161:ILE:HG22 | 1.96                     | 0.47              |
| 24:M:24:VAL:HG22  | 24:M:124:THR:OG1  | 2.14                     | 0.47              |
| 26:O:140:ALA:HB1  | 26:O:170:MET:CE   | 2.45                     | 0.47              |
| 29:R:212:TYR:CZ   | 29:R:246:VAL:HG21 | 2.49                     | 0.47              |
| 32:f:784:ASP:CG   | 32:f:784:ASP:O    | 2.58                     | 0.47              |
| 1:U:219:CYS:O     | 1:U:223:LEU:HD13  | 2.15                     | 0.47              |
| 1:U:383:ASP:OD1   | 1:U:383:ASP:N     | 2.44                     | 0.47              |
| 1:U:451:ALA:O     | 1:U:452:ASN:C     | 2.57                     | 0.47              |
| 1:U:483:LEU:HD21  | 1:U:778:PHE:CZ    | 2.50                     | 0.47              |
| 8:b:63:THR:HG22   | 8:b:64:LEU:H      | 1.80                     | 0.47              |
| 13:B:380:LEU:O    | 13:B:384:ILE:HD12 | 2.15                     | 0.47              |
| 16:E:56:ILE:HG12  | 17:F:132:TYR:CE1  | 2.50                     | 0.47              |
| 25:N:178:ARG:O    | 25:N:181:MET:HG3  | 2.15                     | 0.47              |
| 26:O:262:LEU:HD23 | 27:P:195:ILE:CD1  | 2.45                     | 0.47              |
| 27:P:141:THR:HG22 | 27:P:142:CYS:N    | 2.29                     | 0.47              |
| 27:P:173:ASN:ND2  | 30:s:179:ASN:HB2  | 2.30                     | 0.47              |
| 26:o:246:ARG:HD3  | 27:p:158:MET:CE   | 2.45                     | 0.47              |
| 2:V:443:ARG:HA    | 2:V:443:ARG:HE    | 1.80                     | 0.47              |
| 3:W:166:LEU:HD23  | 3:W:192:LEU:HD22  | 1.97                     | 0.47              |
| 3:W:328:LEU:HD11  | 3:W:341:PHE:CE1   | 2.49                     | 0.47              |
| 3:W:412:ILE:O     | 3:W:413:ILE:C     | 2.58                     | 0.47              |
| 7:a:80:ILE:O      | 7:a:84:VAL:HG23   | 2.15                     | 0.47              |
| 13:B:358:GLU:OE1  | 13:B:358:GLU:N    | 2.48                     | 0.47              |
| 13:B:373:THR:HG23 | 13:B:373:THR:O    | 2.14                     | 0.47              |
| 14:C:320:PRO:CB   | 14:C:324:ALA:HB3  | 2.45                     | 0.47              |
| 23:L:67:ASP:OD1   | 23:L:68:ASN:N     | 2.48                     | 0.47              |
| 25:N:219:GLU:OE1  | 25:N:219:GLU:N    | 2.48                     | 0.47              |
| 29:R:101:LEU:HD11 | 29:R:243:TRP:CG   | 2.49                     | 0.47              |
| 3:W:141:GLU:O     | 3:W:145:LEU:HD23  | 2.15                     | 0.47              |
| 3:W:451:MET:CE    | 6:Z:101:LEU:HD12  | 2.41                     | 0.47              |
| 13:B:125:THR:O    | 13:B:125:THR:HG22 | 2.14                     | 0.47              |
| 13:B:312:LEU:HD23 | 13:B:316:LEU:HD13 | 1.97                     | 0.47              |
| 14:C:161:ILE:HG13 | 14:C:165:ILE:HD13 | 1.97                     | 0.47              |
| 17:F:268:VAL:HG13 | 17:F:272:PHE:HE2  | 1.80                     | 0.47              |
| 21:J:121:SER:OG   | 21:J:122:ASN:N    | 2.48                     | 0.47              |
| 25:N:53:ARG:NE    | 25:N:205:GLY:O    | 2.46                     | 0.47              |
| 25:N:183:LYS:O    | 25:N:187:LEU:HD13 | 2.15                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 29:R:196:GLY:C    | 28:q:142:ILE:HD11 | 2.39                     | 0.47              |
| 28:q:36:PHE:HD2   | 28:q:57:ALA:HB1   | 1.80                     | 0.47              |
| 28:q:52:ASP:O     | 28:q:56:PHE:CD2   | 2.68                     | 0.47              |
| 31:t:52:THR:HG22  | 31:t:100:GLY:C    | 2.40                     | 0.47              |
| 1:U:529:ILE:HD11  | 1:U:555:VAL:CG1   | 2.45                     | 0.46              |
| 4:X:408:SER:HA    | 5:Y:376:LEU:HD13  | 1.97                     | 0.46              |
| 5:Y:307:LEU:HD23  | 5:Y:319:MET:SD    | 2.55                     | 0.46              |
| 6:Z:70:LEU:HD13   | 6:Z:108:ILE:HG23  | 1.95                     | 0.46              |
| 6:Z:102:HIS:N     | 6:Z:105:ASP:OD2   | 2.39                     | 0.46              |
| 12:A:409:PHE:O    | 12:A:413:VAL:HG23 | 2.14                     | 0.46              |
| 13:B:270:LEU:O    | 13:B:273:VAL:HG12 | 2.15                     | 0.46              |
| 17:F:89:LEU:HD23  | 17:F:90:VAL:N     | 2.30                     | 0.46              |
| 17:F:438:TYR:HB2  | 23:L:78:THR:HG23  | 1.98                     | 0.46              |
| 21:J:191:VAL:CG1  | 21:J:208:LEU:HD21 | 2.44                     | 0.46              |
| 22:K:22:PHE:O     | 22:K:26:TYR:HD2   | 1.98                     | 0.46              |
| 30:S:219:ASP:O    | 30:S:220:ALA:HB3  | 2.14                     | 0.46              |
| 31:T:69:ALA:CB    | 31:T:87:ILE:HD11  | 2.45                     | 0.46              |
| 31:t:109:LYS:HE2  | 31:t:109:LYS:HA   | 1.96                     | 0.46              |
| 32:f:337:LEU:O    | 32:f:339:ILE:HG23 | 2.14                     | 0.46              |
| 1:U:198:LEU:HB3   | 1:U:223:LEU:HD11  | 1.97                     | 0.46              |
| 1:U:492:ASP:OD1   | 1:U:493:VAL:N     | 2.46                     | 0.46              |
| 6:Z:19:VAL:HG21   | 6:Z:124:ILE:CD1   | 2.45                     | 0.46              |
| 8:b:8:VAL:O       | 8:b:8:VAL:HG13    | 2.15                     | 0.46              |
| 12:A:42:SER:N     | 13:B:57:GLN:OE1   | 2.49                     | 0.46              |
| 14:C:277:LEU:HD23 | 14:C:305:LEU:HD23 | 1.97                     | 0.46              |
| 14:C:320:PRO:HB3  | 14:C:324:ALA:HB3  | 1.97                     | 0.46              |
| 16:E:235:ILE:O    | 16:E:239:GLY:HA3  | 2.16                     | 0.46              |
| 30:S:226:VAL:HG22 | 30:S:231:ILE:CD1  | 2.45                     | 0.46              |
| 26:o:129:MET:HG2  | 26:o:132:ARG:HH21 | 1.79                     | 0.46              |
| 3:W:121:LYS:HG2   | 3:W:125:ILE:HD11  | 1.97                     | 0.46              |
| 3:W:301:LYS:HE2   | 3:W:326:MET:HG2   | 1.97                     | 0.46              |
| 4:X:57:LEU:HD22   | 4:X:65:GLU:OE2    | 2.15                     | 0.46              |
| 4:X:210:LEU:C     | 4:X:210:LEU:HD23  | 2.41                     | 0.46              |
| 5:Y:241:ILE:O     | 5:Y:247:LEU:HD11  | 2.15                     | 0.46              |
| 10:d:272:ALA:C    | 10:d:276:GLU:OE1  | 2.58                     | 0.46              |
| 12:A:130:ALA:O    | 12:A:134:ILE:HG13 | 2.16                     | 0.46              |
| 12:A:345:LEU:HD22 | 12:A:379:ASN:HA   | 1.97                     | 0.46              |
| 13:B:426:VAL:HG13 | 13:B:427:LEU:N    | 2.31                     | 0.46              |
| 14:C:369:TYR:HE2  | 14:C:385:MET:HB3  | 1.80                     | 0.46              |
| 18:G:10:ASP:O     | 18:G:24:GLN:NE2   | 2.44                     | 0.46              |
| 18:G:73:THR:HG23  | 18:G:75:ASN:H     | 1.79                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 26:O:60:ASP:CB    | 26:O:206:ILE:HD11 | 2.46                     | 0.46              |
| 28:Q:42:ILE:HD11  | 28:Q:75:LEU:O     | 2.15                     | 0.46              |
| 29:R:170:LEU:HD23 | 29:R:171:TYR:N    | 2.31                     | 0.46              |
| 31:T:96:LEU:HD12  | 31:T:156:VAL:O    | 2.15                     | 0.46              |
| 25:n:83:ALA:O     | 25:n:87:GLN:HG2   | 2.15                     | 0.46              |
| 25:n:194:LEU:CD1  | 25:n:208:ILE:HG23 | 2.45                     | 0.46              |
| 30:s:96:ILE:HD11  | 30:s:120:LEU:HD13 | 1.97                     | 0.46              |
| 2:V:254:LEU:HD21  | 2:V:258:TYR:CE2   | 2.50                     | 0.46              |
| 13:B:85:MET:HA    | 13:B:85:MET:HE2   | 1.97                     | 0.46              |
| 15:D:163:MET:CE   | 15:D:221:HIS:CE1  | 2.98                     | 0.46              |
| 21:J:43:LEU:HD11  | 21:J:134:VAL:HG22 | 1.97                     | 0.46              |
| 23:L:212:ILE:HG22 | 23:L:214:ILE:HD11 | 1.97                     | 0.46              |
| 25:n:56:THR:O     | 25:n:56:THR:HG23  | 2.15                     | 0.46              |
| 1:U:39:SER:O      | 1:U:42:VAL:HG12   | 2.16                     | 0.46              |
| 1:U:383:ASP:OD2   | 1:U:426:TYR:OH    | 2.25                     | 0.46              |
| 2:V:435:GLU:OE2   | 2:V:453:HIS:ND1   | 2.49                     | 0.46              |
| 3:W:275:ILE:HG23  | 3:W:309:PHE:CD2   | 2.50                     | 0.46              |
| 5:Y:198:ALA:HB2   | 5:Y:226:VAL:HG12  | 1.97                     | 0.46              |
| 15:D:78:GLU:HA    | 15:D:78:GLU:OE2   | 2.16                     | 0.46              |
| 18:G:189:TRP:CZ3  | 18:G:197:THR:HG21 | 2.50                     | 0.46              |
| 21:J:33:VAL:CG2   | 21:J:168:VAL:HG11 | 2.45                     | 0.46              |
| 31:T:71:MET:HE1   | 31:T:231:ARG:HG2  | 1.98                     | 0.46              |
| 26:o:50:VAL:HG13  | 26:o:151:PRO:HB2  | 1.97                     | 0.46              |
| 32:f:289:VAL:HG21 | 32:f:835:GLU:CD   | 2.40                     | 0.46              |
| 1:U:206:MET:HE1   | 1:U:232:ILE:CD1   | 2.43                     | 0.46              |
| 3:W:77:ALA:O      | 3:W:79:GLU:OE1    | 2.33                     | 0.46              |
| 13:B:79:ILE:O     | 13:B:80:ARG:C     | 2.58                     | 0.46              |
| 21:J:42:VAL:CG2   | 21:J:208:LEU:HD22 | 2.46                     | 0.46              |
| 23:L:157:ARG:N    | 24:M:60:GLU:OE1   | 2.48                     | 0.46              |
| 24:M:198:ILE:HG21 | 24:M:212:LEU:HD13 | 1.97                     | 0.46              |
| 26:O:98:THR:HG23  | 26:O:129:MET:HE3  | 1.95                     | 0.46              |
| 31:T:82:ARG:NH2   | 25:n:233:VAL:HG13 | 2.31                     | 0.46              |
| 31:t:64:GLY:HA2   | 31:t:160:TYR:OH   | 2.15                     | 0.46              |
| 32:f:550:LEU:HD13 | 32:f:587:PHE:HB2  | 1.97                     | 0.46              |
| 1:U:876:GLN:OE1   | 1:U:876:GLN:HA    | 2.15                     | 0.46              |
| 2:V:67:LEU:O      | 2:V:71:THR:HG23   | 2.16                     | 0.46              |
| 2:V:302:TYR:OH    | 2:V:397:ARG:NE    | 2.48                     | 0.46              |
| 4:X:161:ASP:CG    | 4:X:162:ASP:H     | 2.24                     | 0.46              |
| 13:B:197:ILE:HG21 | 13:B:235:LEU:HD11 | 1.97                     | 0.46              |
| 16:E:262:ASN:C    | 16:E:262:ASN:HD22 | 2.23                     | 0.46              |
| 17:F:432:LYS:O    | 17:F:433:ALA:C    | 2.59                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:M:184:GLU:OE1  | 24:M:184:GLU:N    | 2.48                     | 0.46              |
| 31:T:51:VAL:HG22  | 31:T:75:TYR:CB    | 2.46                     | 0.46              |
| 31:T:137:LEU:HD21 | 31:T:155:MET:CE   | 2.45                     | 0.46              |
| 32:f:278:VAL:HG13 | 32:f:279:GLU:N    | 2.31                     | 0.46              |
| 1:U:486:MET:HE3   | 1:U:757:MET:HE1   | 1.97                     | 0.46              |
| 1:U:728:PHE:CE1   | 1:U:732:LEU:HD12  | 2.50                     | 0.46              |
| 2:V:236:ARG:O     | 2:V:240:LEU:HD23  | 2.16                     | 0.46              |
| 6:Z:67:VAL:HG23   | 8:b:92:VAL:CG2    | 2.45                     | 0.46              |
| 8:b:4:GLU:OE2     | 8:b:108:ARG:HB2   | 2.16                     | 0.46              |
| 8:b:108:ARG:HG2   | 8:b:137:ASN:HB2   | 1.98                     | 0.46              |
| 12:A:101:ILE:HG23 | 12:A:111:TYR:CD1  | 2.50                     | 0.46              |
| 14:C:45:LEU:HB3   | 15:D:61:ILE:HG21  | 1.98                     | 0.46              |
| 14:C:146:SER:O    | 14:C:205:HIS:ND1  | 2.45                     | 0.46              |
| 14:C:405:TRP:CH2  | 20:I:27:ALA:HB1   | 2.51                     | 0.46              |
| 15:D:203:LEU:HB2  | 15:D:327:LEU:HD12 | 1.98                     | 0.46              |
| 15:D:394:VAL:HG21 | 15:D:399:PHE:CE1  | 2.51                     | 0.46              |
| 27:P:11:VAL:HG21  | 27:P:52:GLY:HA3   | 1.98                     | 0.46              |
| 31:T:57:LEU:HD11  | 31:T:191:ALA:CB   | 2.44                     | 0.46              |
| 9:c:249:LEU:HD23  | 9:c:249:LEU:C     | 2.41                     | 0.46              |
| 12:A:125:LEU:HD11 | 12:A:134:ILE:HG21 | 1.96                     | 0.46              |
| 12:A:142:VAL:HG12 | 12:A:149:ILE:HG12 | 1.98                     | 0.46              |
| 12:A:183:GLN:NE2  | 12:A:342:GLU:OE1  | 2.49                     | 0.46              |
| 15:D:318:ASP:OD1  | 15:D:320:ALA:N    | 2.35                     | 0.46              |
| 19:H:79:MET:H     | 19:H:132:VAL:HG12 | 1.80                     | 0.46              |
| 23:L:95:SER:HB2   | 23:L:103:LEU:HD13 | 1.97                     | 0.46              |
| 24:M:21:VAL:HG23  | 24:M:24:VAL:HB    | 1.98                     | 0.46              |
| 28:q:58:GLU:HA    | 28:q:58:GLU:OE2   | 2.15                     | 0.46              |
| 32:f:472:HIS:HE1  | 32:f:514:VAL:HG11 | 1.81                     | 0.46              |
| 32:f:888:LEU:O    | 32:f:901:ARG:HB2  | 2.15                     | 0.46              |
| 1:U:542:GLU:OE1   | 1:U:542:GLU:N     | 2.37                     | 0.46              |
| 1:U:586:VAL:CG1   | 1:U:602:LEU:HD21  | 2.46                     | 0.46              |
| 3:W:135:LYS:HB2   | 3:W:138:VAL:HG22  | 1.98                     | 0.46              |
| 4:X:224:ASP:OD1   | 4:X:224:ASP:N     | 2.43                     | 0.46              |
| 4:X:365:LEU:HD22  | 4:X:385:LEU:CD1   | 2.46                     | 0.46              |
| 12:A:25:LEU:HD11  | 13:B:407:LEU:HD21 | 1.97                     | 0.46              |
| 14:C:251:ILE:O    | 14:C:254:ILE:C    | 2.59                     | 0.46              |
| 15:D:119:ILE:O    | 15:D:119:ILE:CG2  | 2.63                     | 0.46              |
| 27:P:158:MET:HE3  | 27:P:162:HIS:HB2  | 1.97                     | 0.46              |
| 28:Q:14:LEU:HD21  | 28:Q:160:LEU:HD13 | 1.97                     | 0.46              |
| 29:R:233:VAL:O    | 29:R:233:VAL:HG12 | 2.16                     | 0.46              |
| 30:S:141:LEU:HD11 | 30:S:227:THR:HA   | 1.97                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 29:r:226:ASP:O    | 29:r:228:TYR:N    | 2.48                     | 0.46              |
| 3:W:186:ILE:HG21  | 3:W:209:ILE:CD1   | 2.44                     | 0.45              |
| 3:W:425:LEU:HD12  | 6:Z:252:LYS:HG3   | 1.98                     | 0.45              |
| 6:Z:5:ALA:O       | 6:Z:46:LYS:NZ     | 2.34                     | 0.45              |
| 6:Z:81:MET:HE2    | 9:c:95:MET:SD     | 2.56                     | 0.45              |
| 7:a:180:LEU:CD1   | 7:a:200:LEU:HD11  | 2.46                     | 0.45              |
| 8:b:33:VAL:HG11   | 8:b:75:LEU:HD13   | 1.97                     | 0.45              |
| 12:A:75:PRO:O     | 12:A:76:ALA:HB3   | 2.16                     | 0.45              |
| 13:B:304:GLU:OE1  | 13:B:307:ARG:NH1  | 2.49                     | 0.45              |
| 15:D:131:ALA:O    | 15:D:140:VAL:HG22 | 2.16                     | 0.45              |
| 15:D:394:VAL:HG21 | 15:D:399:PHE:CZ   | 2.51                     | 0.45              |
| 19:H:140:ASN:OD1  | 19:H:141:GLU:N    | 2.49                     | 0.45              |
| 20:I:183:GLU:OE1  | 20:I:183:GLU:N    | 2.49                     | 0.45              |
| 26:O:91:THR:N     | 26:O:138:GLY:O    | 2.45                     | 0.45              |
| 27:p:15:LYS:NZ    | 27:p:134:ASP:O    | 2.32                     | 0.45              |
| 27:p:153:LEU:HB3  | 27:p:166:THR:HG23 | 1.99                     | 0.45              |
| 29:r:197:VAL:HG11 | 29:r:218:ALA:HA   | 1.98                     | 0.45              |
| 32:f:52:LEU:O     | 32:f:56:LEU:HD23  | 2.15                     | 0.45              |
| 32:f:426:LEU:HD22 | 33:y:395:LEU:CD1  | 2.46                     | 0.45              |
| 32:f:679:LEU:HD12 | 32:f:687:ARG:HG2  | 1.98                     | 0.45              |
| 1:U:517:GLY:HA3   | 1:U:551:GLY:HA2   | 1.97                     | 0.45              |
| 1:U:554:LEU:HD11  | 1:U:761:VAL:HG13  | 1.98                     | 0.45              |
| 2:V:203:LEU:O     | 2:V:203:LEU:HD23  | 2.17                     | 0.45              |
| 6:Z:39:LEU:HD13   | 6:Z:94:TRP:C      | 2.41                     | 0.45              |
| 6:Z:75:LEU:HD23   | 6:Z:75:LEU:C      | 2.40                     | 0.45              |
| 6:Z:171:GLY:O     | 6:Z:175:LEU:HD13  | 2.16                     | 0.45              |
| 9:c:51:MET:N      | 9:c:51:MET:SD     | 2.90                     | 0.45              |
| 12:A:101:ILE:O    | 12:A:102:ILE:HG22 | 2.16                     | 0.45              |
| 13:B:68:ILE:HG23  | 32:f:670:MET:HE1  | 1.97                     | 0.45              |
| 17:F:86:LEU:O     | 17:F:86:LEU:HD23  | 2.16                     | 0.45              |
| 22:K:182:GLN:HG2  | 23:L:56:LEU:HD23  | 1.99                     | 0.45              |
| 30:S:39:THR:CG2   | 30:S:173:LEU:HD11 | 2.46                     | 0.45              |
| 27:p:28:PHE:CE1   | 27:p:39:PHE:CE1   | 3.05                     | 0.45              |
| 27:p:87:LEU:HD23  | 27:p:87:LEU:O     | 2.15                     | 0.45              |
| 29:r:97:ASN:HB3   | 29:r:100:LEU:HG   | 1.97                     | 0.45              |
| 32:f:267:ARG:HG3  | 32:f:297:MET:HE1  | 1.98                     | 0.45              |
| 32:f:606:VAL:HG23 | 32:f:607:LEU:HD22 | 1.98                     | 0.45              |
| 2:V:435:GLU:O     | 2:V:438:VAL:HG12  | 2.16                     | 0.45              |
| 2:V:451:ILE:HD12  | 2:V:458:VAL:HG12  | 1.97                     | 0.45              |
| 6:Z:70:LEU:HD11   | 6:Z:112:MET:HE1   | 1.98                     | 0.45              |
| 11:e:44:ASP:OD1   | 11:e:44:ASP:O     | 2.35                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:125:LEU:HD21 | 12:A:128:GLN:CG   | 2.47                     | 0.45              |
| 15:D:164:TYR:O    | 15:D:167:ILE:HG22 | 2.16                     | 0.45              |
| 15:D:254:ALA:CB   | 15:D:262:ILE:HD11 | 2.47                     | 0.45              |
| 16:E:198:VAL:HB   | 16:E:232:MET:HG2  | 1.98                     | 0.45              |
| 17:F:385:ALA:O    | 17:F:388:THR:HG22 | 2.16                     | 0.45              |
| 23:L:67:ASP:O     | 23:L:69:HIS:N     | 2.50                     | 0.45              |
| 24:M:181:GLN:OE1  | 24:M:181:GLN:N    | 2.50                     | 0.45              |
| 27:P:149:MET:HE1  | 30:s:176:LEU:HA   | 1.98                     | 0.45              |
| 29:R:60:THR:HG23  | 29:R:92:LYS:HZ3   | 1.81                     | 0.45              |
| 26:o:61:THR:OG1   | 26:o:215:ASN:HB3  | 2.17                     | 0.45              |
| 32:f:140:LEU:HD21 | 32:f:162:LEU:HD12 | 1.97                     | 0.45              |
| 32:f:423:ASP:OD1  | 32:f:424:GLY:N    | 2.46                     | 0.45              |
| 2:V:125:ASN:O     | 2:V:128:ARG:NH1   | 2.49                     | 0.45              |
| 4:X:396:THR:OG1   | 9:c:242:GLU:OE1   | 2.29                     | 0.45              |
| 6:Z:39:LEU:HD11   | 6:Z:95:TYR:CB     | 2.36                     | 0.45              |
| 9:c:188:SER:O     | 9:c:192:LEU:HD23  | 2.16                     | 0.45              |
| 21:J:91:CYS:SG    | 21:J:107:ILE:HD13 | 2.56                     | 0.45              |
| 25:N:171:GLY:O    | 25:n:196:LEU:HD23 | 2.17                     | 0.45              |
| 28:q:86:ARG:HD3   | 28:q:90:ASP:OD2   | 2.17                     | 0.45              |
| 1:U:545:LEU:HB3   | 1:U:577:ILE:HG21  | 1.97                     | 0.45              |
| 3:W:32:ALA:HB2    | 3:W:73:MET:HE2    | 1.98                     | 0.45              |
| 4:X:331:LEU:HD13  | 4:X:356:LEU:HD11  | 1.97                     | 0.45              |
| 5:Y:80:GLU:OE1    | 5:Y:83:ARG:NH2    | 2.49                     | 0.45              |
| 14:C:234:LEU:HD23 | 14:C:234:LEU:C    | 2.41                     | 0.45              |
| 15:D:277:ALA:O    | 15:D:279:THR:N    | 2.49                     | 0.45              |
| 16:E:305:ASN:O    | 16:E:306:GLU:C    | 2.60                     | 0.45              |
| 19:H:100:VAL:HG12 | 19:H:101:TYR:CE1  | 2.51                     | 0.45              |
| 22:K:157:ASP:OD1  | 22:K:161:THR:O    | 2.34                     | 0.45              |
| 23:L:11:THR:HG22  | 23:L:11:THR:O     | 2.17                     | 0.45              |
| 26:O:262:LEU:C    | 26:O:262:LEU:HD12 | 2.41                     | 0.45              |
| 31:T:254:TRP:CZ2  | 25:n:206:GLY:HA2  | 2.52                     | 0.45              |
| 25:n:38:MET:HA    | 25:n:133:ILE:HD13 | 1.98                     | 0.45              |
| 1:U:471:ASP:OD1   | 1:U:472:ILE:N     | 2.49                     | 0.45              |
| 2:V:214:HIS:O     | 2:V:217:VAL:HG22  | 2.16                     | 0.45              |
| 2:V:398:LEU:O     | 2:V:401:ASN:N     | 2.50                     | 0.45              |
| 3:W:445:LEU:CD2   | 6:Z:226:ILE:HD11  | 2.43                     | 0.45              |
| 4:X:126:ARG:NH2   | 4:X:156:GLU:OE2   | 2.41                     | 0.45              |
| 5:Y:174:TRP:CD1   | 5:Y:178:ASN:HD21  | 2.34                     | 0.45              |
| 8:b:124:LEU:HG    | 8:b:156:PHE:HE1   | 1.82                     | 0.45              |
| 24:M:203:ASP:OD1  | 24:M:205:VAL:HG22 | 2.16                     | 0.45              |
| 31:T:224:ARG:NH1  | 25:n:63:ARG:HE    | 2.15                     | 0.45              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 26:o:123:ASN:HD21 | 26:o:162:THR:HG23 | 1.81                     | 0.45              |
| 31:t:70:ASP:OD1   | 31:t:70:ASP:N     | 2.50                     | 0.45              |
| 1:U:173:VAL:O     | 1:U:177:LEU:HD23  | 2.17                     | 0.45              |
| 1:U:257:SER:O     | 1:U:261:LEU:HD23  | 2.17                     | 0.45              |
| 1:U:588:MET:HE2   | 1:U:588:MET:CA    | 2.46                     | 0.45              |
| 1:U:879:ASP:OD1   | 1:U:879:ASP:N     | 2.48                     | 0.45              |
| 3:W:359:VAL:O     | 3:W:363:ILE:HG12  | 2.16                     | 0.45              |
| 10:d:260:ILE:O    | 10:d:264:LEU:HD13 | 2.17                     | 0.45              |
| 10:d:283:LEU:HD13 | 10:d:315:TYR:CD1  | 2.52                     | 0.45              |
| 12:A:123:VAL:HG13 | 12:A:148:GLN:HA   | 1.98                     | 0.45              |
| 12:A:225:CYS:SG   | 12:A:226:ALA:N    | 2.90                     | 0.45              |
| 13:B:116:ILE:HG22 | 13:B:117:ASP:N    | 2.31                     | 0.45              |
| 14:C:299:ASP:OD1  | 14:C:300:ILE:HG23 | 2.17                     | 0.45              |
| 15:D:381:GLU:OE2  | 15:D:406:VAL:HG23 | 2.17                     | 0.45              |
| 16:E:43:SER:O     | 16:E:47:LEU:HD23  | 2.16                     | 0.45              |
| 16:E:83:CYS:SG    | 16:E:87:LEU:HD12  | 2.57                     | 0.45              |
| 16:E:98:VAL:HG11  | 16:E:107:ILE:HG12 | 1.99                     | 0.45              |
| 25:N:222:VAL:CG2  | 25:N:224:LEU:HD21 | 2.47                     | 0.45              |
| 30:S:176:LEU:HA   | 27:p:149:MET:HE1  | 1.98                     | 0.45              |
| 31:T:87:ILE:HG21  | 31:T:235:ALA:CB   | 2.46                     | 0.45              |
| 25:n:62:ASN:OD1   | 26:o:165:LEU:HD21 | 2.17                     | 0.45              |
| 25:n:181:MET:HB3  | 25:n:186:CYS:SG   | 2.57                     | 0.45              |
| 26:o:89:ALA:HB3   | 26:o:170:MET:CE   | 2.47                     | 0.45              |
| 26:o:181:PHE:O    | 26:o:185:PHE:HB3  | 2.16                     | 0.45              |
| 29:r:98:PRO:HA    | 29:r:243:TRP:CZ2  | 2.52                     | 0.45              |
| 32:f:59:LEU:O     | 32:f:63:LEU:HD23  | 2.16                     | 0.45              |
| 32:f:278:VAL:CG2  | 32:f:298:LEU:HD21 | 2.46                     | 0.45              |
| 2:V:386:PHE:HE2   | 2:V:395:ILE:HD12  | 1.82                     | 0.45              |
| 5:Y:174:TRP:CH2   | 14:C:377:HIS:CD2  | 3.04                     | 0.45              |
| 6:Z:16:LEU:HB3    | 9:c:216:MET:HE3   | 1.98                     | 0.45              |
| 7:a:113:LEU:O     | 7:a:116:THR:OG1   | 2.27                     | 0.45              |
| 13:B:223:ILE:HG23 | 13:B:223:ILE:O    | 2.17                     | 0.45              |
| 13:B:232:LYS:NZ   | 35:B:501:ATP:O1B  | 2.36                     | 0.45              |
| 14:C:394:ASP:O    | 14:C:394:ASP:OD1  | 2.35                     | 0.45              |
| 31:T:230:ASN:OD1  | 31:T:230:ASN:O    | 2.35                     | 0.45              |
| 28:q:11:ASP:N     | 28:q:11:ASP:OD1   | 2.50                     | 0.45              |
| 30:s:62:SER:HG    | 31:t:189:TYR:HE1  | 1.65                     | 0.45              |
| 1:U:22:PHE:HB3    | 10:d:124:LEU:HD11 | 1.99                     | 0.45              |
| 1:U:637:VAL:O     | 1:U:637:VAL:HG12  | 2.17                     | 0.45              |
| 3:W:328:LEU:HG    | 3:W:341:PHE:HA    | 1.99                     | 0.45              |
| 4:X:69:LEU:O      | 4:X:73:VAL:HG13   | 2.17                     | 0.45              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:X:412:ASP:OD1   | 5:Y:379:ARG:NH2   | 2.49                     | 0.45              |
| 5:Y:18:ARG:O      | 5:Y:22:LEU:HD23   | 2.17                     | 0.45              |
| 5:Y:173:ASP:OD1   | 5:Y:176:ARG:HD3   | 2.17                     | 0.45              |
| 5:Y:175:ASP:HA    | 5:Y:178:ASN:HD22  | 1.82                     | 0.45              |
| 7:a:240:PHE:HA    | 7:a:272:ILE:HD13  | 1.98                     | 0.45              |
| 14:C:268:GLU:O    | 14:C:271:ARG:HG2  | 2.16                     | 0.45              |
| 16:E:204:VAL:HG12 | 16:E:253:ILE:CD1  | 2.47                     | 0.45              |
| 16:E:285:LEU:HD13 | 16:E:289:LEU:HD23 | 1.99                     | 0.45              |
| 24:M:171:GLN:OE1  | 24:M:171:GLN:HA   | 2.16                     | 0.45              |
| 25:N:48:LEU:CD1   | 25:N:213:ILE:HD12 | 2.47                     | 0.45              |
| 27:P:3:ILE:H      | 27:P:3:ILE:HD12   | 1.82                     | 0.45              |
| 28:Q:14:LEU:HD11  | 28:Q:157:VAL:HG22 | 1.98                     | 0.45              |
| 30:s:64:HIS:O     | 31:t:196:ARG:NH2  | 2.49                     | 0.45              |
| 1:U:665:ASN:OD1   | 1:U:666:LYS:N     | 2.50                     | 0.45              |
| 2:V:439:ALA:HB1   | 10:d:274:CYS:SG   | 2.57                     | 0.45              |
| 4:X:53:LEU:CD2    | 4:X:69:LEU:HD21   | 2.47                     | 0.45              |
| 4:X:304:LYS:NZ    | 4:X:308:ASP:OD2   | 2.50                     | 0.45              |
| 9:c:49:VAL:HG21   | 9:c:148:ILE:HD11  | 1.99                     | 0.45              |
| 17:F:268:VAL:HG13 | 17:F:272:PHE:CE2  | 2.52                     | 0.45              |
| 18:G:209:ASP:OD1  | 18:G:210:PHE:N    | 2.45                     | 0.45              |
| 27:P:12:MET:HB3   | 27:P:171:MET:HE1  | 1.99                     | 0.45              |
| 29:R:96:ILE:HG23  | 29:R:119:ALA:HB2  | 1.99                     | 0.45              |
| 27:p:142:CYS:C    | 27:p:146:MET:HE3  | 2.42                     | 0.45              |
| 1:U:214:ILE:H     | 1:U:214:ILE:HD12  | 1.82                     | 0.44              |
| 1:U:791:LEU:HD11  | 1:U:795:LEU:C     | 2.42                     | 0.44              |
| 4:X:71:LYS:HA     | 4:X:74:ARG:HE     | 1.82                     | 0.44              |
| 4:X:377:ILE:HG21  | 5:Y:312:ARG:HB2   | 1.98                     | 0.44              |
| 7:a:168:ASN:OD1   | 7:a:171:SER:OG    | 2.34                     | 0.44              |
| 10:d:149:GLU:O    | 10:d:153:GLN:NE2  | 2.49                     | 0.44              |
| 17:F:407:ALA:HA   | 17:F:412:ALA:HB3  | 1.99                     | 0.44              |
| 23:L:48:ALA:HB3   | 23:L:62:LYS:HG2   | 1.99                     | 0.44              |
| 25:N:115:SER:O    | 25:N:119:GLU:HG3  | 2.17                     | 0.44              |
| 31:T:224:ARG:CZ   | 26:o:182:GLU:OE2  | 2.65                     | 0.44              |
| 30:s:57:LEU:HD11  | 30:s:70:LYS:HZ3   | 1.82                     | 0.44              |
| 1:U:31:VAL:HG11   | 1:U:66:LYS:HB3    | 2.00                     | 0.44              |
| 2:V:267:ALA:O     | 2:V:271:VAL:HG13  | 2.18                     | 0.44              |
| 2:V:458:VAL:O     | 2:V:458:VAL:CG2   | 2.63                     | 0.44              |
| 2:V:497:PRO:N     | 2:V:498:PRO:CD    | 2.80                     | 0.44              |
| 6:Z:113:LYS:HA    | 6:Z:116:CYS:O     | 2.17                     | 0.44              |
| 8:b:8:VAL:HG21    | 8:b:33:VAL:HG23   | 1.98                     | 0.44              |
| 8:b:157:VAL:HG21  | 8:b:170:LEU:CB    | 2.47                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:c:304:LEU:O     | 9:c:308:VAL:HG23  | 2.18                     | 0.44              |
| 10:d:117:GLY:O    | 10:d:121:LEU:HD23 | 2.16                     | 0.44              |
| 10:d:232:LEU:HD13 | 10:d:244:VAL:CG2  | 2.47                     | 0.44              |
| 10:d:273:GLY:CA   | 10:d:276:GLU:OE1  | 2.64                     | 0.44              |
| 12:A:68:SER:OG    | 13:B:165:ASP:OD2  | 2.35                     | 0.44              |
| 12:A:384:GLU:O    | 12:A:387:SER:OG   | 2.29                     | 0.44              |
| 13:B:379:THR:HG23 | 13:B:379:THR:O    | 2.18                     | 0.44              |
| 14:C:83:LYS:O     | 14:C:99:VAL:HG12  | 2.17                     | 0.44              |
| 15:D:53:PHE:O     | 15:D:56:VAL:HG12  | 2.18                     | 0.44              |
| 17:F:156:ASP:OD1  | 17:F:157:SER:N    | 2.46                     | 0.44              |
| 21:J:7:ILE:H      | 21:J:7:ILE:HD12   | 1.83                     | 0.44              |
| 21:J:134:VAL:HG12 | 21:J:144:LEU:HD12 | 1.99                     | 0.44              |
| 23:L:84:LEU:HD13  | 23:L:132:LEU:HD11 | 2.00                     | 0.44              |
| 24:M:212:LEU:HG   | 24:M:214:LEU:CD1  | 2.47                     | 0.44              |
| 25:N:148:VAL:O    | 25:N:148:VAL:CG2  | 2.64                     | 0.44              |
| 26:O:93:ALA:HB3   | 27:P:127:ILE:HD12 | 1.98                     | 0.44              |
| 31:T:96:LEU:HD12  | 31:T:97:GLY:H     | 1.82                     | 0.44              |
| 28:q:3:TYR:N      | 28:q:18:ASP:OD1   | 2.48                     | 0.44              |
| 30:s:99:ARG:HD3   | 30:s:123:ILE:HD11 | 2.00                     | 0.44              |
| 32:f:616:CYS:SG   | 32:f:653:ALA:HB3  | 2.57                     | 0.44              |
| 1:U:583:MET:HE2   | 1:U:583:MET:CA    | 2.48                     | 0.44              |
| 2:V:92:ARG:O      | 2:V:93:PHE:HB2    | 2.17                     | 0.44              |
| 3:W:282:GLU:O     | 3:W:286:LEU:HD23  | 2.17                     | 0.44              |
| 9:c:73:PHE:HE1    | 9:c:95:MET:HG2    | 1.83                     | 0.44              |
| 12:A:32:LEU:C     | 12:A:32:LEU:HD23  | 2.42                     | 0.44              |
| 13:B:299:SER:OG   | 13:B:300:GLY:N    | 2.50                     | 0.44              |
| 14:C:37:ASP:OD1   | 14:C:37:ASP:C     | 2.60                     | 0.44              |
| 14:C:253:SER:OG   | 14:C:254:ILE:N    | 2.48                     | 0.44              |
| 16:E:234:GLU:N    | 16:E:278:ALA:O    | 2.51                     | 0.44              |
| 19:H:75:VAL:HG22  | 19:H:76:TYR:N     | 2.32                     | 0.44              |
| 24:M:214:LEU:CB   | 24:M:228:VAL:HG21 | 2.47                     | 0.44              |
| 25:n:128:LEU:HD21 | 25:n:130:ALA:HB3  | 2.00                     | 0.44              |
| 32:f:137:ARG:NE   | 32:f:169:GLU:OE2  | 2.50                     | 0.44              |
| 32:f:221:ILE:HG23 | 32:f:225:ALA:HB3  | 1.99                     | 0.44              |
| 32:f:688:ARG:O    | 32:f:724:ASN:ND2  | 2.50                     | 0.44              |
| 32:f:838:ARG:NH1  | 32:f:839:PRO:O    | 2.51                     | 0.44              |
| 1:U:398:ASN:HA    | 1:U:437:TYR:CE2   | 2.52                     | 0.44              |
| 1:U:639:LEU:O     | 14:C:49:ARG:NH2   | 2.50                     | 0.44              |
| 2:V:337:LEU:HD22  | 2:V:367:VAL:HG11  | 2.00                     | 0.44              |
| 10:d:192:LEU:O    | 10:d:196:LEU:HG   | 2.18                     | 0.44              |
| 10:d:200:LEU:CD2  | 10:d:208:PHE:CE1  | 3.01                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 10:d:273:GLY:HA2  | 10:d:276:GLU:OE1  | 2.18                     | 0.44              |
| 14:C:69:GLN:HB2   | 14:C:118:ASN:ND2  | 2.33                     | 0.44              |
| 14:C:336:MET:HG2  | 14:C:338:LEU:HD22 | 2.00                     | 0.44              |
| 14:C:358:GLU:O    | 14:C:362:VAL:HG23 | 2.17                     | 0.44              |
| 23:L:38:LEU:HD11  | 23:L:187:LEU:HG   | 2.00                     | 0.44              |
| 23:L:98:VAL:HG13  | 23:L:99:PHE:N     | 2.32                     | 0.44              |
| 25:N:221:GLN:OE1  | 25:N:221:GLN:N    | 2.50                     | 0.44              |
| 26:O:156:ILE:HG12 | 26:O:162:THR:HG22 | 1.98                     | 0.44              |
| 26:O:248:GLU:OE1  | 26:O:248:GLU:N    | 2.50                     | 0.44              |
| 29:R:142:LEU:HD23 | 29:R:173:VAL:HG21 | 2.00                     | 0.44              |
| 31:T:54:THR:OG1   | 31:T:55:SER:N     | 2.51                     | 0.44              |
| 25:n:222:VAL:HB   | 25:n:224:LEU:HD11 | 1.98                     | 0.44              |
| 32:f:370:MET:SD   | 32:f:370:MET:N    | 2.90                     | 0.44              |
| 1:U:639:LEU:HD12  | 14:C:49:ARG:HH21  | 1.82                     | 0.44              |
| 3:W:308:LEU:O     | 3:W:315:MET:HE1   | 2.18                     | 0.44              |
| 4:X:396:THR:HA    | 9:c:242:GLU:OE1   | 2.18                     | 0.44              |
| 7:a:17:GLY:O      | 7:a:22:TRP:CZ3    | 2.71                     | 0.44              |
| 7:a:228:THR:HG22  | 7:a:229:ASP:OD1   | 2.16                     | 0.44              |
| 8:b:7:MET:SD      | 8:b:50:GLY:C      | 3.00                     | 0.44              |
| 10:d:309:VAL:HG22 | 10:d:309:VAL:O    | 2.17                     | 0.44              |
| 13:B:74:MET:HE1   | 32:f:609:VAL:HG13 | 1.99                     | 0.44              |
| 13:B:434:THR:N    | 13:B:435:PRO:HD2  | 2.33                     | 0.44              |
| 18:G:115:CYS:SG   | 18:G:160:TYR:HB2  | 2.58                     | 0.44              |
| 19:H:75:VAL:HG22  | 19:H:76:TYR:H     | 1.82                     | 0.44              |
| 26:O:126:LEU:HD22 | 26:O:141:LEU:CD1  | 2.47                     | 0.44              |
| 28:Q:6:GLY:O      | 28:Q:7:ILE:HD13   | 2.18                     | 0.44              |
| 29:R:170:LEU:HD22 | 29:R:185:PHE:CD2  | 2.53                     | 0.44              |
| 29:r:60:THR:O     | 29:r:60:THR:HG22  | 2.18                     | 0.44              |
| 29:r:206:LEU:CD2  | 29:r:214:LEU:HD12 | 2.46                     | 0.44              |
| 2:V:94:VAL:CG2    | 2:V:205:LEU:HD13  | 2.45                     | 0.44              |
| 3:W:406:VAL:HG22  | 3:W:413:ILE:HG12  | 2.00                     | 0.44              |
| 8:b:11:ASP:OD1    | 8:b:12:ASN:N      | 2.50                     | 0.44              |
| 10:d:95:TYR:HD2   | 10:d:143:LEU:HD11 | 1.83                     | 0.44              |
| 12:A:120:LYS:HB2  | 17:F:90:VAL:CG2   | 2.48                     | 0.44              |
| 12:A:431:THR:O    | 12:A:431:THR:HG22 | 2.18                     | 0.44              |
| 14:C:368:MET:HE3  | 15:D:199:PRO:HG3  | 2.00                     | 0.44              |
| 15:D:231:VAL:HG12 | 15:D:233:SER:H    | 1.82                     | 0.44              |
| 15:D:277:ALA:O    | 15:D:278:GLN:C    | 2.60                     | 0.44              |
| 16:E:327:ASP:N    | 16:E:327:ASP:OD1  | 2.49                     | 0.44              |
| 18:G:113:MET:CE   | 26:O:113:THR:HA   | 2.47                     | 0.44              |
| 19:H:195:LEU:CD1  | 19:H:208:ILE:HD11 | 2.47                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:I:30:HIS:O     | 20:I:50:ARG:NH1   | 2.51                     | 0.44              |
| 21:J:173:GLU:OE2  | 22:K:57:PRO:HD2   | 2.18                     | 0.44              |
| 22:K:212:ALA:H    | 22:K:238:ILE:HD13 | 1.83                     | 0.44              |
| 24:M:38:ILE:HD13  | 24:M:198:ILE:CD1  | 2.47                     | 0.44              |
| 24:M:121:HIS:HA   | 24:M:124:THR:HG22 | 1.99                     | 0.44              |
| 27:P:12:MET:HE3   | 27:P:14:MET:HE2   | 1.99                     | 0.44              |
| 26:o:60:ASP:OD2   | 26:o:206:ILE:HG13 | 2.18                     | 0.44              |
| 26:o:157:TYR:HB3  | 26:o:158:PRO:HD2  | 1.99                     | 0.44              |
| 31:t:114:GLN:NE2  | 31:t:118:ASP:OD1  | 2.51                     | 0.44              |
| 32:f:290:VAL:HA   | 32:f:890:VAL:HG11 | 2.00                     | 0.44              |
| 32:f:582:VAL:HG22 | 32:f:582:VAL:O    | 2.18                     | 0.44              |
| 32:f:659:LEU:HD13 | 32:f:797:LEU:HD21 | 2.00                     | 0.44              |
| 1:U:242:LEU:HD13  | 1:U:246:TYR:CE2   | 2.53                     | 0.44              |
| 1:U:682:TYR:CD2   | 9:c:184:LEU:CD2   | 3.01                     | 0.44              |
| 1:U:806:CYS:SG    | 1:U:807:LYS:N     | 2.91                     | 0.44              |
| 2:V:398:LEU:O     | 2:V:399:ARG:C     | 2.59                     | 0.44              |
| 7:a:220:PRO:HA    | 7:a:223:GLU:OE1   | 2.18                     | 0.44              |
| 15:D:158:GLN:O    | 15:D:159:LYS:C    | 2.60                     | 0.44              |
| 16:E:64:LEU:O     | 16:E:65:THR:C     | 2.61                     | 0.44              |
| 16:E:66:GLU:OE1   | 16:E:66:GLU:N     | 2.49                     | 0.44              |
| 16:E:115:VAL:O    | 16:E:115:VAL:HG13 | 2.18                     | 0.44              |
| 17:F:200:GLU:HG2  | 17:F:204:LEU:HD12 | 1.99                     | 0.44              |
| 17:F:402:GLU:OE2  | 17:F:409:ARG:NH2  | 2.51                     | 0.44              |
| 23:L:74:ILE:HG22  | 23:L:132:LEU:CD2  | 2.48                     | 0.44              |
| 26:O:233:THR:HG22 | 26:O:234:VAL:N    | 2.32                     | 0.44              |
| 30:S:74:LEU:HD21  | 30:S:80:ILE:CG2   | 2.47                     | 0.44              |
| 25:n:36:THR:HG21  | 25:n:197:ALA:HB3  | 1.98                     | 0.44              |
| 1:U:360:VAL:HG21  | 1:U:369:THR:HG21  | 2.00                     | 0.44              |
| 2:V:400:HIS:O     | 2:V:403:ILE:HG22  | 2.17                     | 0.44              |
| 5:Y:201:PHE:HB3   | 5:Y:223:THR:HG23  | 2.00                     | 0.44              |
| 7:a:176:ALA:HB3   | 7:a:200:LEU:HD21  | 1.99                     | 0.44              |
| 13:B:256:ILE:O    | 13:B:256:ILE:HG13 | 2.17                     | 0.44              |
| 15:D:266:GLU:OE1  | 16:E:262:ASN:HB2  | 2.17                     | 0.44              |
| 16:E:57:VAL:HG22  | 17:F:131:THR:O    | 2.17                     | 0.44              |
| 23:L:67:ASP:O     | 23:L:70:ILE:N     | 2.46                     | 0.44              |
| 24:M:216:TRP:NE1  | 24:M:220:LEU:HD11 | 2.32                     | 0.44              |
| 27:P:94:LEU:CD2   | 27:P:95:LEU:HD22  | 2.48                     | 0.44              |
| 31:T:92:ASN:OD1   | 31:T:93:SER:N     | 2.51                     | 0.44              |
| 27:p:13:ALA:HB2   | 27:p:22:ILE:HD12  | 1.98                     | 0.44              |
| 27:p:149:MET:HE3  | 27:p:173:ASN:HB2  | 2.00                     | 0.44              |
| 29:r:226:ASP:O    | 29:r:227:ALA:C    | 2.60                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:f:311:VAL:HG22 | 32:f:312:GLU:N    | 2.33                     | 0.44              |
| 1:U:393:LEU:HD23  | 1:U:393:LEU:C     | 2.43                     | 0.44              |
| 6:Z:69:PHE:CD2    | 6:Z:69:PHE:O      | 2.71                     | 0.44              |
| 7:a:59:LEU:O      | 7:a:63:PHE:CD2    | 2.71                     | 0.44              |
| 8:b:173:VAL:HG23  | 8:b:173:VAL:O     | 2.18                     | 0.44              |
| 10:d:269:ASP:O    | 10:d:272:ALA:HB3  | 2.18                     | 0.44              |
| 14:C:336:MET:CE   | 15:D:196:ILE:HD11 | 2.48                     | 0.44              |
| 17:F:72:LYS:HA    | 17:F:75:GLU:HG3   | 1.99                     | 0.44              |
| 19:H:210:VAL:CG1  | 19:H:221:LEU:HD12 | 2.48                     | 0.44              |
| 24:M:37:ALA:C     | 24:M:38:ILE:HD12  | 2.43                     | 0.44              |
| 29:R:110:ASP:OD2  | 30:S:128:ARG:NH2  | 2.49                     | 0.44              |
| 31:T:211:ARG:NH2  | 31:T:245:GLU:OE1  | 2.51                     | 0.44              |
| 1:U:13:ASP:C      | 1:U:13:ASP:OD1    | 2.61                     | 0.43              |
| 7:a:127:ASP:O     | 7:a:131:THR:HG23  | 2.17                     | 0.43              |
| 7:a:149:THR:HG22  | 7:a:150:SER:H     | 1.83                     | 0.43              |
| 12:A:355:PHE:CD1  | 12:A:385:ILE:HG23 | 2.53                     | 0.43              |
| 13:B:224:LEU:N    | 13:B:224:LEU:HD12 | 2.33                     | 0.43              |
| 13:B:417:GLU:OE1  | 13:B:417:GLU:N    | 2.41                     | 0.43              |
| 14:C:322:GLU:HA   | 14:C:325:ARG:HB2  | 1.99                     | 0.43              |
| 15:D:177:VAL:O    | 15:D:181:VAL:HG22 | 2.18                     | 0.43              |
| 16:E:175:PRO:O    | 16:E:180:LYS:NZ   | 2.51                     | 0.43              |
| 16:E:313:LEU:HD12 | 16:E:343:LEU:HD13 | 1.97                     | 0.43              |
| 17:F:86:LEU:HD23  | 17:F:86:LEU:C     | 2.43                     | 0.43              |
| 19:H:69:THR:HG22  | 19:H:70:LYS:N     | 2.32                     | 0.43              |
| 21:J:116:GLN:HA   | 21:J:119:THR:HG22 | 2.00                     | 0.43              |
| 21:J:175:ASN:OD1  | 21:J:175:ASN:O    | 2.35                     | 0.43              |
| 24:M:38:ILE:HG21  | 24:M:177:ILE:HD11 | 2.00                     | 0.43              |
| 25:N:74:ARG:O     | 25:N:213:ILE:HD13 | 2.17                     | 0.43              |
| 27:P:182:GLY:O    | 27:P:183:MET:HE2  | 2.18                     | 0.43              |
| 30:S:39:THR:HG21  | 30:S:173:LEU:HD11 | 1.99                     | 0.43              |
| 30:s:178:ASP:OD1  | 30:s:178:ASP:C    | 2.60                     | 0.43              |
| 31:t:68:ALA:CB    | 31:t:218:MET:HE2  | 2.48                     | 0.43              |
| 32:f:251:CYS:O    | 32:f:255:VAL:HG23 | 2.18                     | 0.43              |
| 1:U:86:ASP:N      | 1:U:86:ASP:OD1    | 2.51                     | 0.43              |
| 2:V:218:TYR:HD2   | 2:V:227:VAL:HG13  | 1.83                     | 0.43              |
| 2:V:473:GLN:HG2   | 6:Z:257:MET:HE2   | 2.00                     | 0.43              |
| 3:W:435:LEU:HD23  | 3:W:435:LEU:C     | 2.43                     | 0.43              |
| 3:W:442:THR:HG21  | 6:Z:230:LEU:HD21  | 2.00                     | 0.43              |
| 5:Y:81:LEU:HD23   | 5:Y:81:LEU:C      | 2.43                     | 0.43              |
| 6:Z:17:LEU:HD21   | 9:c:217:LEU:HD23  | 1.98                     | 0.43              |
| 12:A:122:VAL:HG23 | 17:F:86:LEU:HD23  | 2.01                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:153:LEU:HD11 | 13:B:122:ILE:CD1  | 2.46                     | 0.43              |
| 13:B:188:GLY:CA   | 13:B:367:ILE:HD12 | 2.48                     | 0.43              |
| 13:B:290:ILE:O    | 13:B:290:ILE:HG13 | 2.17                     | 0.43              |
| 17:F:137:ILE:O    | 17:F:160:ILE:N    | 2.50                     | 0.43              |
| 20:I:45:LEU:CD1   | 20:I:137:ILE:HD13 | 2.48                     | 0.43              |
| 30:S:56:ARG:NH2   | 30:S:217:THR:O    | 2.50                     | 0.43              |
| 28:q:13:VAL:O     | 28:q:15:VAL:HG13  | 2.18                     | 0.43              |
| 32:f:558:LEU:HB2  | 32:f:559:PRO:HD3  | 2.01                     | 0.43              |
| 32:f:850:VAL:O    | 32:f:850:VAL:HG12 | 2.18                     | 0.43              |
| 1:U:364:VAL:HG23  | 9:c:177:THR:HG21  | 1.99                     | 0.43              |
| 2:V:251:LEU:CD1   | 2:V:270:LEU:HD21  | 2.48                     | 0.43              |
| 3:W:446:ILE:HD11  | 6:Z:211:TYR:CD1   | 2.53                     | 0.43              |
| 5:Y:140:ILE:O     | 5:Y:144:LEU:HD23  | 2.18                     | 0.43              |
| 7:a:142:LEU:HD23  | 7:a:142:LEU:O     | 2.18                     | 0.43              |
| 7:a:301:LYS:O     | 7:a:302:ILE:HG23  | 2.18                     | 0.43              |
| 8:b:33:VAL:HA     | 8:b:36:VAL:HG12   | 1.99                     | 0.43              |
| 9:c:30:GLN:NE2    | 9:c:206:ASN:HB2   | 2.33                     | 0.43              |
| 9:c:64:ASP:OD1    | 9:c:64:ASP:N      | 2.51                     | 0.43              |
| 13:B:275:GLU:HA   | 13:B:275:GLU:OE2  | 2.18                     | 0.43              |
| 15:D:168:GLY:HA3  | 15:D:344:ILE:HD13 | 1.99                     | 0.43              |
| 15:D:266:GLU:CG   | 16:E:258:MET:HG2  | 2.48                     | 0.43              |
| 23:L:47:VAL:HG12  | 23:L:212:ILE:HD12 | 1.99                     | 0.43              |
| 23:L:195:LEU:O    | 23:L:198:THR:HG22 | 2.18                     | 0.43              |
| 27:p:28:PHE:O     | 27:p:28:PHE:CD2   | 2.71                     | 0.43              |
| 32:f:426:LEU:HD11 | 33:y:392:VAL:HG13 | 1.99                     | 0.43              |
| 32:f:543:MET:CE   | 32:f:583:VAL:HG22 | 2.47                     | 0.43              |
| 32:f:759:LEU:O    | 32:f:763:ARG:HG2  | 2.17                     | 0.43              |
| 1:U:22:PHE:CG     | 10:d:124:LEU:HD11 | 2.53                     | 0.43              |
| 1:U:919:GLU:OE1   | 1:U:919:GLU:N     | 2.51                     | 0.43              |
| 3:W:227:TYR:O     | 3:W:231:ILE:HG13  | 2.18                     | 0.43              |
| 3:W:328:LEU:HD23  | 3:W:341:PHE:HA    | 1.99                     | 0.43              |
| 5:Y:148:GLY:O     | 5:Y:157:ILE:HD11  | 2.17                     | 0.43              |
| 6:Z:242:LEU:HD23  | 6:Z:244:GLU:OE2   | 2.18                     | 0.43              |
| 14:C:373:GLU:O    | 14:C:374:ARG:C    | 2.62                     | 0.43              |
| 16:E:257:LEU:HD11 | 16:E:289:LEU:HD22 | 2.01                     | 0.43              |
| 16:E:366:ASP:OD1  | 16:E:366:ASP:C    | 2.61                     | 0.43              |
| 17:F:144:LYS:HD2  | 17:F:144:LYS:O    | 2.18                     | 0.43              |
| 18:G:201:CYS:O    | 18:G:205:VAL:HG12 | 2.17                     | 0.43              |
| 19:H:119:GLN:HA   | 19:H:122:THR:HG22 | 2.01                     | 0.43              |
| 29:R:63:LEU:HD12  | 29:R:63:LEU:C     | 2.44                     | 0.43              |
| 25:n:153:MET:SD   | 31:t:102:TYR:HB3  | 2.58                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 25:n:226:ASP:OD1  | 25:n:227:GLN:N    | 2.52                     | 0.43              |
| 31:t:175:VAL:HG23 | 31:t:175:VAL:O    | 2.18                     | 0.43              |
| 32:f:315:GLU:OE1  | 32:f:315:GLU:N    | 2.42                     | 0.43              |
| 32:f:656:GLY:O    | 32:f:657:ILE:C    | 2.61                     | 0.43              |
| 32:f:660:ILE:HD12 | 32:f:660:ILE:H    | 1.84                     | 0.43              |
| 32:f:819:TYR:O    | 32:f:822:VAL:HG13 | 2.17                     | 0.43              |
| 2:V:109:ASN:OD1   | 2:V:110:HIS:N     | 2.50                     | 0.43              |
| 2:V:192:MET:HE2   | 2:V:230:PHE:CE2   | 2.50                     | 0.43              |
| 2:V:470:ARG:O     | 2:V:470:ARG:HG2   | 2.18                     | 0.43              |
| 5:Y:368:GLU:OE2   | 5:Y:372:LYS:NZ    | 2.41                     | 0.43              |
| 6:Z:170:VAL:HG23  | 9:c:152:LYS:HA    | 2.00                     | 0.43              |
| 7:a:55:GLY:O      | 7:a:59:LEU:HD13   | 2.17                     | 0.43              |
| 12:A:187:LEU:HA   | 12:A:190:VAL:HG12 | 2.00                     | 0.43              |
| 12:A:256:MET:O    | 12:A:260:LEU:HD23 | 2.18                     | 0.43              |
| 13:B:60:LEU:HD21  | 32:f:235:SER:HB2  | 2.00                     | 0.43              |
| 13:B:440:LEU:CD2  | 21:J:73:PHE:CE2   | 3.02                     | 0.43              |
| 13:B:440:LEU:HD12 | 21:J:30:SER:H     | 1.82                     | 0.43              |
| 24:M:104:GLY:O    | 25:N:111:HIS:NE2  | 2.52                     | 0.43              |
| 24:M:213:GLU:C    | 24:M:214:LEU:HD12 | 2.44                     | 0.43              |
| 29:R:61:THR:HG1   | 29:R:229:SER:CB   | 2.29                     | 0.43              |
| 25:n:90:ALA:O     | 25:n:93:VAL:HG22  | 2.19                     | 0.43              |
| 26:o:140:ALA:HB1  | 26:o:170:MET:SD   | 2.58                     | 0.43              |
| 27:p:105:THR:HG23 | 27:p:105:THR:O    | 2.18                     | 0.43              |
| 32:f:887:PHE:CD2  | 32:f:900:LEU:HB3  | 2.53                     | 0.43              |
| 1:U:689:ILE:O     | 1:U:693:LEU:HD23  | 2.18                     | 0.43              |
| 2:V:265:ASP:O     | 2:V:269:LYS:HG2   | 2.19                     | 0.43              |
| 2:V:291:TYR:O     | 2:V:295:ILE:HG12  | 2.17                     | 0.43              |
| 3:W:341:PHE:CD2   | 3:W:344:THR:HG21  | 2.53                     | 0.43              |
| 6:Z:11:VAL:HG12   | 6:Z:12:HIS:N      | 2.33                     | 0.43              |
| 6:Z:266:ILE:HD12  | 9:c:248:MET:HE3   | 2.01                     | 0.43              |
| 8:b:142:ASN:ND2   | 8:b:146:GLU:OE1   | 2.52                     | 0.43              |
| 8:b:147:GLU:OE1   | 8:b:147:GLU:N     | 2.42                     | 0.43              |
| 10:d:164:PHE:CD2  | 10:d:168:MET:HE1  | 2.54                     | 0.43              |
| 10:d:259:PHE:HA   | 10:d:262:ILE:HG22 | 2.00                     | 0.43              |
| 12:A:69:ASP:N     | 12:A:69:ASP:OD1   | 2.50                     | 0.43              |
| 12:A:197:HIS:CE1  | 12:A:200:ARG:HB3  | 2.53                     | 0.43              |
| 13:B:360:THR:O    | 13:B:364:ILE:HG12 | 2.19                     | 0.43              |
| 13:B:434:THR:N    | 13:B:435:PRO:CD   | 2.81                     | 0.43              |
| 14:C:368:MET:HE3  | 15:D:199:PRO:CG   | 2.48                     | 0.43              |
| 17:F:406:ILE:O    | 17:F:409:ARG:O    | 2.36                     | 0.43              |
| 28:Q:38:MET:HE3   | 28:Q:44:LEU:HD13  | 2.01                     | 0.43              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 31:T:57:LEU:HD12  | 31:T:195:LEU:HD11 | 2.01                     | 0.43              |
| 29:r:93:VAL:HG21  | 29:r:236:TYR:CZ   | 2.53                     | 0.43              |
| 31:t:65:VAL:N     | 31:t:160:TYR:OH   | 2.51                     | 0.43              |
| 32:f:426:LEU:HD22 | 33:y:395:LEU:HD11 | 2.01                     | 0.43              |
| 32:f:479:LEU:HD12 | 32:f:514:VAL:HG22 | 2.00                     | 0.43              |
| 1:U:99:THR:HG21   | 2:V:240:LEU:CD1   | 2.48                     | 0.43              |
| 2:V:223:LYS:O     | 2:V:261:TYR:OH    | 2.36                     | 0.43              |
| 5:Y:183:TYR:CD1   | 5:Y:213:LEU:HD11  | 2.54                     | 0.43              |
| 8:b:153:LEU:HB3   | 8:b:170:LEU:HD22  | 2.01                     | 0.43              |
| 10:d:245:PHE:CE1  | 10:d:267:ILE:HG21 | 2.54                     | 0.43              |
| 15:D:214:MET:HE1  | 35:D:501:ATP:C4   | 2.53                     | 0.43              |
| 19:H:203:MET:SD   | 19:H:230:LEU:HD21 | 2.58                     | 0.43              |
| 27:P:49:LEU:CD2   | 27:P:87:LEU:HD22  | 2.48                     | 0.43              |
| 28:Q:27:GLN:O     | 28:q:170:ARG:NH1  | 2.43                     | 0.43              |
| 29:R:78:ARG:CZ    | 29:R:230:GLY:HA3  | 2.49                     | 0.43              |
| 29:R:146:VAL:HG21 | 29:R:156:MET:SD   | 2.58                     | 0.43              |
| 31:T:101:ASP:HB3  | 31:T:104:ASP:OD2  | 2.18                     | 0.43              |
| 27:p:142:CYS:O    | 27:p:146:MET:HE3  | 2.18                     | 0.43              |
| 27:p:171:MET:O    | 27:p:175:VAL:HG13 | 2.18                     | 0.43              |
| 28:q:19:ARG:HE    | 28:q:177:THR:HB   | 1.84                     | 0.43              |
| 28:q:167:LEU:HD23 | 28:q:178:PHE:CZ   | 2.54                     | 0.43              |
| 31:t:89:ARG:O     | 31:t:90:VAL:C     | 2.62                     | 0.43              |
| 32:f:505:MET:HE2  | 32:f:541:THR:CG2  | 2.41                     | 0.43              |
| 32:f:655:LEU:HD21 | 32:f:800:LEU:HB3  | 2.00                     | 0.43              |
| 32:f:760:PHE:O    | 32:f:764:LEU:HD23 | 2.19                     | 0.43              |
| 1:U:638:SER:HB3   | 1:U:671:LEU:HD11  | 1.99                     | 0.43              |
| 4:X:16:LEU:HD12   | 4:X:56:LEU:CG     | 2.44                     | 0.43              |
| 4:X:345:VAL:HG12  | 4:X:346:GLN:N     | 2.34                     | 0.43              |
| 12:A:32:LEU:HD22  | 32:f:92:VAL:HA    | 2.01                     | 0.43              |
| 12:A:364:VAL:HG22 | 12:A:365:GLU:N    | 2.34                     | 0.43              |
| 12:A:369:ARG:NH2  | 22:K:206:MET:O    | 2.49                     | 0.43              |
| 14:C:307:ARG:HD2  | 14:C:308:PRO:O    | 2.19                     | 0.43              |
| 16:E:180:LYS:N    | 36:E:401:ADP:O2B  | 2.41                     | 0.43              |
| 23:L:195:LEU:HD22 | 23:L:205:LEU:CD2  | 2.44                     | 0.43              |
| 25:N:173:VAL:O    | 25:N:174:ASP:C    | 2.62                     | 0.43              |
| 27:P:123:SER:C    | 27:P:124:LEU:HD12 | 2.44                     | 0.43              |
| 31:t:195:LEU:O    | 31:t:199:LEU:HD23 | 2.19                     | 0.43              |
| 32:f:473:ASN:OD1  | 33:y:381:ARG:NH2  | 2.46                     | 0.43              |
| 32:f:656:GLY:O    | 32:f:659:LEU:N    | 2.51                     | 0.43              |
| 2:V:167:LEU:O     | 2:V:171:VAL:HG23  | 2.19                     | 0.43              |
| 13:B:164:MET:SD   | 13:B:164:MET:N    | 2.92                     | 0.43              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:C:296:ASN:O    | 14:C:296:ASN:ND2  | 2.51                     | 0.43              |
| 16:E:140:GLU:O    | 16:E:143:ARG:HB3  | 2.18                     | 0.43              |
| 18:G:42:VAL:HG22  | 18:G:165:ALA:HB1  | 2.01                     | 0.43              |
| 18:G:111:VAL:HG21 | 18:G:142:GLY:HA3  | 2.00                     | 0.43              |
| 23:L:7:ASP:O      | 23:L:21:GLN:NE2   | 2.46                     | 0.43              |
| 23:L:84:LEU:O     | 23:L:88:MET:HG3   | 2.19                     | 0.43              |
| 26:O:91:THR:HG21  | 26:O:94:ASP:OD2   | 2.19                     | 0.43              |
| 28:q:96:THR:O     | 28:q:98:TYR:CD2   | 2.72                     | 0.43              |
| 29:r:204:TYR:O    | 29:r:205:ASP:OD1  | 2.36                     | 0.43              |
| 29:r:233:VAL:O    | 29:r:233:VAL:HG12 | 2.18                     | 0.43              |
| 31:t:87:ILE:O     | 31:t:88:MET:HE2   | 2.19                     | 0.43              |
| 31:t:160:TYR:HH   | 31:t:237:VAL:C    | 2.10                     | 0.43              |
| 1:U:54:PHE:O      | 1:U:55:ARG:HB2    | 2.17                     | 0.43              |
| 1:U:353:LEU:HD21  | 1:U:373:ASN:HB2   | 2.01                     | 0.43              |
| 1:U:682:TYR:CE2   | 9:c:184:LEU:HD22  | 2.54                     | 0.43              |
| 6:Z:94:TRP:CZ3    | 6:Z:108:ILE:HG21  | 2.54                     | 0.43              |
| 10:d:136:LEU:O    | 10:d:137:THR:OG1  | 2.27                     | 0.43              |
| 12:A:206:ILE:HD12 | 17:F:404:GLY:CA   | 2.46                     | 0.43              |
| 14:C:275:GLU:OE1  | 14:C:275:GLU:HA   | 2.19                     | 0.43              |
| 15:D:89:ILE:CD1   | 16:E:70:ILE:HG23  | 2.49                     | 0.43              |
| 15:D:355:SER:HA   | 15:D:393:ILE:HD11 | 2.00                     | 0.43              |
| 17:F:75:GLU:O     | 17:F:78:GLU:HG3   | 2.19                     | 0.43              |
| 21:J:102:VAL:HG23 | 21:J:106:TYR:CD1  | 2.53                     | 0.43              |
| 22:K:57:PRO:O     | 22:K:58:LEU:HB3   | 2.19                     | 0.43              |
| 31:T:73:GLY:HA3   | 31:T:84:ILE:HD11  | 2.00                     | 0.43              |
| 25:n:125:ARG:NE   | 31:t:46:THR:OG1   | 2.52                     | 0.43              |
| 30:s:181:VAL:CG1  | 30:s:194:LEU:HD22 | 2.49                     | 0.43              |
| 31:t:87:ILE:HG21  | 31:t:235:ALA:HB2  | 2.01                     | 0.43              |
| 32:f:372:LEU:O    | 32:f:375:SER:OG   | 2.33                     | 0.43              |
| 1:U:621:SER:O     | 1:U:625:ILE:HG12  | 2.19                     | 0.42              |
| 2:V:395:ILE:O     | 2:V:398:LEU:HB3   | 2.19                     | 0.42              |
| 3:W:47:LEU:HD12   | 3:W:66:ILE:HG13   | 2.01                     | 0.42              |
| 3:W:91:SER:CB     | 3:W:131:VAL:HG23  | 2.49                     | 0.42              |
| 3:W:134:GLY:O     | 3:W:135:LYS:HG3   | 2.19                     | 0.42              |
| 3:W:326:MET:SD    | 3:W:326:MET:C     | 3.02                     | 0.42              |
| 5:Y:300:ARG:NH1   | 5:Y:333:GLU:OE2   | 2.43                     | 0.42              |
| 6:Z:15:VAL:O      | 6:Z:19:VAL:HG23   | 2.19                     | 0.42              |
| 6:Z:131:LEU:HD22  | 6:Z:200:GLY:HA2   | 2.00                     | 0.42              |
| 12:A:125:LEU:HD22 | 12:A:134:ILE:HD13 | 2.00                     | 0.42              |
| 12:A:197:HIS:ND1  | 12:A:200:ARG:HB3  | 2.34                     | 0.42              |
| 15:D:275:PHE:CE2  | 15:D:277:ALA:HA   | 2.54                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:F:431:LYS:O    | 17:F:432:LYS:HG2  | 2.19                     | 0.42              |
| 18:G:94:ALA:HB1   | 18:G:114:LEU:HD21 | 2.01                     | 0.42              |
| 25:N:63:ARG:NE    | 31:t:256:ILE:HD11 | 2.34                     | 0.42              |
| 31:T:190:LEU:HD11 | 26:o:175:LEU:HD12 | 2.01                     | 0.42              |
| 25:n:153:MET:HE1  | 31:t:81:PHE:CE2   | 2.54                     | 0.42              |
| 32:f:544:GLU:O    | 32:f:544:GLU:CD   | 2.62                     | 0.42              |
| 3:W:318:SER:O     | 3:W:322:GLU:HG2   | 2.19                     | 0.42              |
| 7:a:254:ALA:O     | 7:a:257:GLN:HG2   | 2.19                     | 0.42              |
| 8:b:7:MET:HE3     | 8:b:96:ALA:CB     | 2.49                     | 0.42              |
| 10:d:83:THR:OG1   | 10:d:84:SER:N     | 2.52                     | 0.42              |
| 10:d:289:ARG:HH12 | 10:d:290:ILE:HD11 | 1.84                     | 0.42              |
| 14:C:248:MET:HB3  | 14:C:293:MET:HG2  | 2.01                     | 0.42              |
| 14:C:377:HIS:O    | 14:C:378:VAL:HG23 | 2.18                     | 0.42              |
| 17:F:123:VAL:HG22 | 17:F:133:PHE:HD1  | 1.82                     | 0.42              |
| 20:I:45:LEU:HD11  | 20:I:137:ILE:HG23 | 2.00                     | 0.42              |
| 21:J:33:VAL:HG21  | 21:J:168:VAL:HG11 | 2.00                     | 0.42              |
| 28:q:56:PHE:CZ    | 28:q:98:TYR:HB3   | 2.50                     | 0.42              |
| 1:U:870:GLU:OE1   | 1:U:870:GLU:N     | 2.52                     | 0.42              |
| 2:V:353:LEU:HD12  | 2:V:353:LEU:N     | 2.34                     | 0.42              |
| 2:V:440:LYS:O     | 2:V:443:ARG:HB2   | 2.19                     | 0.42              |
| 3:W:261:GLU:HA    | 3:W:264:GLN:HG2   | 2.00                     | 0.42              |
| 3:W:318:SER:O     | 3:W:321:VAL:HG22  | 2.19                     | 0.42              |
| 3:W:341:PHE:HD2   | 3:W:344:THR:HB    | 1.85                     | 0.42              |
| 4:X:74:ARG:N      | 4:X:75:PRO:CD     | 2.83                     | 0.42              |
| 4:X:274:LYS:CD    | 4:X:274:LYS:N     | 2.83                     | 0.42              |
| 5:Y:347:ILE:HG22  | 5:Y:348:ASP:N     | 2.33                     | 0.42              |
| 7:a:28:LEU:HG     | 7:a:33:LEU:HD12   | 2.00                     | 0.42              |
| 7:a:63:PHE:O      | 7:a:67:PHE:HB3    | 2.19                     | 0.42              |
| 9:c:61:PHE:CZ     | 9:c:109:VAL:HG12  | 2.55                     | 0.42              |
| 13:B:181:GLN:HG2  | 13:B:181:GLN:O    | 2.20                     | 0.42              |
| 14:C:309:GLY:N    | 14:C:312:ASP:OD1  | 2.52                     | 0.42              |
| 16:E:23:ASP:O     | 16:E:27:LYS:HG2   | 2.20                     | 0.42              |
| 21:J:33:VAL:HG22  | 21:J:160:ALA:CB   | 2.46                     | 0.42              |
| 23:L:159:MET:SD   | 23:L:160:SER:N    | 2.91                     | 0.42              |
| 28:q:13:VAL:O     | 28:q:13:VAL:HG12  | 2.19                     | 0.42              |
| 31:t:238:THR:HG22 | 31:t:240:LYS:HZ2  | 1.84                     | 0.42              |
| 32:f:209:MET:CE   | 32:f:233:LEU:HD23 | 2.49                     | 0.42              |
| 32:f:585:GLU:HG3  | 32:f:586:PRO:HD3  | 2.01                     | 0.42              |
| 32:f:905:ASN:OD1  | 32:f:906:TYR:N    | 2.52                     | 0.42              |
| 1:U:199:ARG:CZ    | 1:U:223:LEU:HD23  | 2.50                     | 0.42              |
| 1:U:505:ASP:N     | 1:U:505:ASP:OD1   | 2.52                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:X:409:LYS:HE3   | 9:c:256:ASN:HD22  | 1.84                     | 0.42              |
| 7:a:99:LYS:O      | 7:a:103:LYS:HG3   | 2.19                     | 0.42              |
| 9:c:36:LEU:HD11   | 9:c:40:LYS:HE3    | 2.02                     | 0.42              |
| 13:B:408:ARG:NH2  | 14:C:163:GLU:OE1  | 2.52                     | 0.42              |
| 15:D:202:VAL:HG23 | 15:D:329:ARG:CB   | 2.44                     | 0.42              |
| 15:D:399:PHE:O    | 15:D:400:GLU:C    | 2.61                     | 0.42              |
| 15:D:417:TYR:OH   | 18:G:22:LEU:N     | 2.48                     | 0.42              |
| 17:F:406:ILE:HG21 | 17:F:419:ASP:HB2  | 2.00                     | 0.42              |
| 19:H:79:MET:N     | 19:H:132:VAL:HG12 | 2.33                     | 0.42              |
| 20:I:72:MET:HE2   | 20:I:107:CYS:HB2  | 2.01                     | 0.42              |
| 26:O:67:MET:HE1   | 30:s:61:PHE:CE1   | 2.41                     | 0.42              |
| 27:P:70:ARG:HH22  | 27:P:94:LEU:HA    | 1.85                     | 0.42              |
| 27:P:136:PHE:CB   | 27:P:150:CYS:HG   | 2.31                     | 0.42              |
| 30:S:215:VAL:HG21 | 26:o:67:MET:HE3   | 2.00                     | 0.42              |
| 25:n:64:VAL:HG23  | 25:n:64:VAL:O     | 2.19                     | 0.42              |
| 26:o:233:THR:HG22 | 26:o:234:VAL:N    | 2.35                     | 0.42              |
| 32:f:131:MET:SD   | 32:f:158:TYR:HA   | 2.59                     | 0.42              |
| 32:f:287:ASP:OD1  | 32:f:288:VAL:N    | 2.53                     | 0.42              |
| 32:f:597:VAL:HG11 | 32:f:656:GLY:CA   | 2.49                     | 0.42              |
| 1:U:336:GLU:OE1   | 1:U:336:GLU:HA    | 2.18                     | 0.42              |
| 1:U:740:GLY:HA3   | 1:U:744:VAL:HG22  | 2.00                     | 0.42              |
| 3:W:186:ILE:HG23  | 3:W:205:ILE:CG2   | 2.50                     | 0.42              |
| 3:W:257:GLN:HE22  | 3:W:263:TRP:CD1   | 2.37                     | 0.42              |
| 3:W:257:GLN:HE22  | 3:W:263:TRP:CG    | 2.35                     | 0.42              |
| 4:X:344:ARG:HG2   | 4:X:384:VAL:HG13  | 2.01                     | 0.42              |
| 8:b:22:LEU:HD12   | 8:b:22:LEU:O      | 2.19                     | 0.42              |
| 9:c:52:GLU:HB2    | 9:c:82:VAL:HG13   | 2.01                     | 0.42              |
| 9:c:206:ASN:OD1   | 9:c:207:TYR:N     | 2.53                     | 0.42              |
| 13:B:188:GLY:HA3  | 13:B:367:ILE:HD12 | 2.00                     | 0.42              |
| 18:G:56:VAL:O     | 18:G:58:ASP:N     | 2.48                     | 0.42              |
| 21:J:47:LYS:O     | 21:J:48:LYS:HB3   | 2.20                     | 0.42              |
| 25:N:169:ILE:HG21 | 25:N:193:ALA:O    | 2.20                     | 0.42              |
| 28:Q:49:GLU:O     | 28:Q:53:THR:HG23  | 2.19                     | 0.42              |
| 30:S:134:VAL:HG13 | 30:S:134:VAL:O    | 2.19                     | 0.42              |
| 30:s:194:LEU:CD2  | 30:s:199:ALA:HB2  | 2.49                     | 0.42              |
| 31:t:70:ASP:O     | 31:t:86:ARG:NH1   | 2.53                     | 0.42              |
| 32:f:293:GLN:HG2  | 32:f:890:VAL:HB   | 2.02                     | 0.42              |
| 1:U:603:LEU:HG    | 1:U:622:LEU:HD12  | 2.01                     | 0.42              |
| 1:U:800:VAL:HG12  | 1:U:801:GLN:N     | 2.35                     | 0.42              |
| 2:V:384:GLU:HA    | 2:V:387:GLN:OE1   | 2.20                     | 0.42              |
| 2:V:443:ARG:HA    | 2:V:443:ARG:NE    | 2.33                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:W:299:ILE:HG23  | 3:W:302:TYR:H     | 1.84                     | 0.42              |
| 9:c:49:VAL:CG2    | 9:c:148:ILE:HD11  | 2.49                     | 0.42              |
| 10:d:156:ILE:HG22 | 10:d:164:PHE:CE1  | 2.54                     | 0.42              |
| 12:A:276:GLU:O    | 12:A:277:ILE:C    | 2.62                     | 0.42              |
| 13:B:109:VAL:HG22 | 13:B:151:LEU:HD23 | 2.02                     | 0.42              |
| 14:C:87:VAL:HG21  | 14:C:116:LEU:HD21 | 2.01                     | 0.42              |
| 15:D:139:LEU:HD23 | 15:D:139:LEU:O    | 2.20                     | 0.42              |
| 16:E:238:ILE:O    | 16:E:238:ILE:CG2  | 2.67                     | 0.42              |
| 19:H:84:ARG:HA    | 19:H:87:VAL:HG12  | 2.02                     | 0.42              |
| 20:I:72:MET:SD    | 20:I:110:LEU:HD23 | 2.59                     | 0.42              |
| 22:K:186:HIS:O    | 22:K:189:MET:HE3  | 2.20                     | 0.42              |
| 24:M:51:GLU:O     | 24:M:51:GLU:CD    | 2.62                     | 0.42              |
| 24:M:101:SER:O    | 25:N:119:GLU:OE2  | 2.37                     | 0.42              |
| 29:R:85:ILE:HD12  | 27:p:177:ARG:O    | 2.20                     | 0.42              |
| 29:r:205:ASP:OD1  | 29:r:205:ASP:C    | 2.62                     | 0.42              |
| 1:U:583:MET:HE2   | 1:U:583:MET:HA    | 2.01                     | 0.42              |
| 2:V:71:THR:HG22   | 2:V:107:ARG:NE    | 2.35                     | 0.42              |
| 3:W:79:GLU:HB2    | 3:W:83:LEU:HB2    | 2.00                     | 0.42              |
| 3:W:167:GLN:HG3   | 3:W:167:GLN:O     | 2.20                     | 0.42              |
| 3:W:250:ILE:O     | 3:W:256:ILE:HG21  | 2.19                     | 0.42              |
| 4:X:171:LEU:HD21  | 4:X:209:THR:HG22  | 2.00                     | 0.42              |
| 4:X:415:TYR:HE1   | 5:Y:383:LEU:HB2   | 1.85                     | 0.42              |
| 5:Y:353:ILE:HG22  | 5:Y:354:VAL:N     | 2.35                     | 0.42              |
| 9:c:293:THR:HG23  | 9:c:294:SER:N     | 2.35                     | 0.42              |
| 13:B:105:THR:HG23 | 14:C:98:ASP:OD2   | 2.20                     | 0.42              |
| 26:O:98:THR:HG23  | 26:O:129:MET:HE1  | 2.00                     | 0.42              |
| 27:P:141:THR:HG22 | 27:P:142:CYS:H    | 1.84                     | 0.42              |
| 29:R:103:THR:HG22 | 29:R:104:MET:N    | 2.34                     | 0.42              |
| 30:S:171:ALA:O    | 27:p:145:GLN:NE2  | 2.52                     | 0.42              |
| 31:T:134:HIS:NE2  | 31:T:176:ALA:HB1  | 2.35                     | 0.42              |
| 29:r:238:VAL:HG12 | 29:r:242:GLY:O    | 2.19                     | 0.42              |
| 30:s:198:ARG:O    | 30:s:202:LEU:HD13 | 2.20                     | 0.42              |
| 31:t:142:TYR:HA   | 31:t:145:ARG:HG2  | 2.02                     | 0.42              |
| 32:f:781:TYR:HB3  | 32:f:785:ARG:HA   | 2.02                     | 0.42              |
| 1:U:521:LEU:C     | 1:U:521:LEU:HD23  | 2.45                     | 0.42              |
| 2:V:332:LEU:HA    | 2:V:335:VAL:HG12  | 2.01                     | 0.42              |
| 4:X:31:VAL:HG22   | 4:X:50:ILE:HG13   | 2.01                     | 0.42              |
| 5:Y:68:ASP:N      | 5:Y:68:ASP:OD1    | 2.51                     | 0.42              |
| 7:a:27:GLU:OE1    | 7:a:31:LYS:NZ     | 2.43                     | 0.42              |
| 10:d:99:LYS:O     | 10:d:103:ASN:N    | 2.53                     | 0.42              |
| 10:d:294:ASN:HB2  | 10:d:298:LYS:HD2  | 2.02                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:D:393:ILE:O    | 15:D:393:ILE:HG23 | 2.19                     | 0.42              |
| 17:F:65:GLU:OE1   | 17:F:65:GLU:N     | 2.53                     | 0.42              |
| 22:K:52:LYS:NZ    | 22:K:216:GLU:OE2  | 2.42                     | 0.42              |
| 24:M:194:VAL:O    | 24:M:198:ILE:HG12 | 2.19                     | 0.42              |
| 28:Q:184:ASP:OD1  | 28:Q:185:LYS:N    | 2.49                     | 0.42              |
| 29:R:77:SER:OG    | 29:R:232:ALA:N    | 2.53                     | 0.42              |
| 1:U:599:ILE:HG22  | 1:U:603:LEU:HD12  | 2.01                     | 0.42              |
| 2:V:79:VAL:HG13   | 2:V:163:VAL:HG22  | 2.01                     | 0.42              |
| 7:a:17:GLY:O      | 7:a:22:TRP:HZ3    | 2.03                     | 0.42              |
| 10:d:316:TYR:O    | 10:d:318:PHE:N    | 2.53                     | 0.42              |
| 12:A:124:ASP:O    | 12:A:125:LEU:HB3  | 2.19                     | 0.42              |
| 13:B:67:ARG:NH1   | 32:f:664:GLU:OE1  | 2.53                     | 0.42              |
| 14:C:118:ASN:C    | 14:C:120:SER:H    | 2.27                     | 0.42              |
| 14:C:296:ASN:C    | 14:C:296:ASN:ND2  | 2.77                     | 0.42              |
| 14:C:375:ARG:HE   | 14:C:377:HIS:HB2  | 1.84                     | 0.42              |
| 19:H:29:VAL:HG11  | 19:H:133:SER:OG   | 2.20                     | 0.42              |
| 26:O:204:ALA:O    | 26:O:208:ASN:ND2  | 2.35                     | 0.42              |
| 27:P:45:MET:HB3   | 27:P:71:LEU:HD13  | 2.01                     | 0.42              |
| 25:n:43:ASP:N     | 25:n:43:ASP:OD1   | 2.53                     | 0.42              |
| 25:n:184:GLU:HA   | 25:n:184:GLU:OE2  | 2.20                     | 0.42              |
| 31:t:88:MET:CG    | 31:t:109:LYS:HZ2  | 2.33                     | 0.42              |
| 32:f:139:CYS:HB3  | 32:f:165:GLU:OE1  | 2.20                     | 0.42              |
| 1:U:524:LYS:HE3   | 1:U:562:GLU:HB3   | 2.01                     | 0.42              |
| 2:V:163:VAL:O     | 2:V:167:LEU:HD23  | 2.20                     | 0.42              |
| 2:V:169:LEU:HA    | 2:V:172:VAL:HG12  | 2.01                     | 0.42              |
| 5:Y:228:MET:SD    | 5:Y:263:LEU:HD23  | 2.60                     | 0.42              |
| 10:d:88:LEU:HD23  | 10:d:140:GLN:HG3  | 2.01                     | 0.42              |
| 16:E:116:ASP:OD1  | 16:E:118:LEU:N    | 2.47                     | 0.42              |
| 17:F:94:ILE:O     | 17:F:123:VAL:O    | 2.38                     | 0.42              |
| 21:J:71:MET:HE3   | 21:J:131:ALA:HB1  | 2.01                     | 0.42              |
| 30:S:63:ILE:HG23  | 30:S:64:HIS:N     | 2.35                     | 0.42              |
| 30:S:185:ASN:OD1  | 27:p:173:ASN:ND2  | 2.52                     | 0.42              |
| 31:T:204:VAL:HG13 | 31:T:204:VAL:O    | 2.20                     | 0.42              |
| 32:f:675:PHE:HB3  | 32:f:690:VAL:HG13 | 2.02                     | 0.42              |
| 1:U:128:GLN:OE1   | 1:U:128:GLN:N     | 2.50                     | 0.41              |
| 1:U:232:ILE:O     | 1:U:236:LEU:HD23  | 2.20                     | 0.41              |
| 1:U:373:ASN:OD1   | 1:U:377:HIS:ND1   | 2.43                     | 0.41              |
| 1:U:673:GLU:HB2   | 1:U:674:PRO:HD3   | 2.01                     | 0.41              |
| 3:W:261:GLU:O     | 3:W:265:GLN:HG2   | 2.20                     | 0.41              |
| 4:X:123:THR:O     | 4:X:127:GLN:HG2   | 2.20                     | 0.41              |
| 5:Y:274:SER:HA    | 5:Y:277:VAL:HG22  | 2.02                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:a:28:LEU:HD23   | 7:a:28:LEU:C      | 2.45                     | 0.41              |
| 11:e:58:ALA:O     | 11:e:62:LYS:HE2   | 2.20                     | 0.41              |
| 12:A:186:LYS:O    | 12:A:186:LYS:HD3  | 2.20                     | 0.41              |
| 13:B:85:MET:HE2   | 13:B:85:MET:CA    | 2.50                     | 0.41              |
| 13:B:171:VAL:HA   | 13:B:174:MET:HG2  | 2.02                     | 0.41              |
| 15:D:147:ALA:O    | 15:D:148:ASP:HB3  | 2.20                     | 0.41              |
| 21:J:68:ASN:OD1   | 21:J:68:ASN:N     | 2.53                     | 0.41              |
| 25:N:89:VAL:O     | 25:N:93:VAL:HG23  | 2.20                     | 0.41              |
| 26:O:56:VAL:HG13  | 26:O:198:VAL:HG21 | 2.02                     | 0.41              |
| 27:P:28:PHE:O     | 27:P:28:PHE:CG    | 2.72                     | 0.41              |
| 27:P:159:ASP:OD1  | 27:P:159:ASP:N    | 2.53                     | 0.41              |
| 30:S:222:ARG:NH1  | 30:S:233:GLU:OE2  | 2.53                     | 0.41              |
| 28:q:116:TYR:HB3  | 28:q:124:LEU:HD11 | 2.02                     | 0.41              |
| 29:r:222:ALA:O    | 29:r:226:ASP:HB3  | 2.19                     | 0.41              |
| 32:f:145:VAL:HG13 | 32:f:145:VAL:O    | 2.19                     | 0.41              |
| 32:f:237:VAL:HG21 | 32:f:249:LEU:HG   | 2.01                     | 0.41              |
| 1:U:532:MET:HB3   | 1:U:552:ILE:HD11  | 2.01                     | 0.41              |
| 3:W:366:MET:HE1   | 3:W:378:MET:CG    | 2.50                     | 0.41              |
| 4:X:354:ILE:HG23  | 4:X:356:LEU:HG    | 2.02                     | 0.41              |
| 6:Z:44:GLN:OE1    | 6:Z:44:GLN:N      | 2.53                     | 0.41              |
| 6:Z:211:TYR:CZ    | 6:Z:215:VAL:HG21  | 2.55                     | 0.41              |
| 7:a:149:THR:CG2   | 7:a:150:SER:N     | 2.83                     | 0.41              |
| 14:C:31:LEU:HB3   | 15:D:47:LEU:CD2   | 2.49                     | 0.41              |
| 18:G:50:ILE:HD12  | 18:G:79:VAL:HB    | 2.02                     | 0.41              |
| 20:I:72:MET:HE3   | 20:I:72:MET:HB2   | 1.88                     | 0.41              |
| 24:M:41:ARG:NE    | 24:M:147:ALA:O    | 2.53                     | 0.41              |
| 26:O:62:ARG:CB    | 26:O:213:GLY:HA2  | 2.50                     | 0.41              |
| 27:P:12:MET:HE1   | 27:P:170:ALA:HB3  | 2.02                     | 0.41              |
| 28:Q:160:LEU:C    | 28:Q:160:LEU:HD23 | 2.45                     | 0.41              |
| 25:n:226:ASP:O    | 25:n:230:LYS:NZ   | 2.51                     | 0.41              |
| 26:o:183:ASP:C    | 26:o:184:LYS:HD3  | 2.45                     | 0.41              |
| 27:p:186:ILE:O    | 27:p:186:ILE:HG23 | 2.20                     | 0.41              |
| 28:q:8:GLN:HB3    | 28:q:128:PRO:HA   | 2.02                     | 0.41              |
| 29:r:142:LEU:HD23 | 29:r:142:LEU:C    | 2.45                     | 0.41              |
| 31:t:167:LEU:HG   | 31:t:182:LEU:HD12 | 2.02                     | 0.41              |
| 32:f:538:ILE:HB   | 32:f:562:LEU:HD21 | 2.01                     | 0.41              |
| 1:U:464:GLN:HA    | 1:U:467:ASN:OD1   | 2.20                     | 0.41              |
| 6:Z:40:LEU:HD22   | 6:Z:91:ILE:HD13   | 2.01                     | 0.41              |
| 6:Z:81:MET:CE     | 9:c:94:LYS:HZ1    | 2.32                     | 0.41              |
| 10:d:276:GLU:OE2  | 10:d:308:TRP:CZ2  | 2.74                     | 0.41              |
| 12:A:384:GLU:O    | 12:A:388:VAL:HG23 | 2.20                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:B:339:PRO:O    | 13:B:343:ARG:N    | 2.53                     | 0.41              |
| 13:B:376:ASP:OD1  | 13:B:377:ASP:N    | 2.53                     | 0.41              |
| 14:C:32:GLN:OE1   | 15:D:47:LEU:HD11  | 2.19                     | 0.41              |
| 21:J:175:ASN:O    | 21:J:175:ASN:CG   | 2.64                     | 0.41              |
| 26:O:140:ALA:HB1  | 26:O:170:MET:HE3  | 2.01                     | 0.41              |
| 30:S:175:PRO:CB   | 27:p:149:MET:HE2  | 2.51                     | 0.41              |
| 25:n:93:VAL:HG11  | 25:n:117:PHE:HE1  | 1.83                     | 0.41              |
| 28:q:15:VAL:HG21  | 28:q:43:LEU:HD23  | 2.03                     | 0.41              |
| 32:f:137:ARG:CZ   | 32:f:140:LEU:HB2  | 2.51                     | 0.41              |
| 1:U:202:VAL:HG23  | 1:U:216:VAL:HG13  | 2.01                     | 0.41              |
| 1:U:596:ASN:OD1   | 15:D:56:VAL:HG11  | 2.20                     | 0.41              |
| 3:W:276:LEU:HD11  | 3:W:340:VAL:HG22  | 2.02                     | 0.41              |
| 5:Y:300:ARG:O     | 5:Y:304:TYR:CD2   | 2.73                     | 0.41              |
| 6:Z:175:LEU:HD22  | 9:c:217:LEU:HD11  | 2.02                     | 0.41              |
| 7:a:233:LEU:O     | 7:a:236:THR:OG1   | 2.32                     | 0.41              |
| 9:c:27:THR:O      | 9:c:182:GLY:HA3   | 2.20                     | 0.41              |
| 12:A:119:ALA:HB2  | 17:F:128:THR:HG22 | 2.02                     | 0.41              |
| 15:D:120:ASP:O    | 15:D:123:LEU:N    | 2.52                     | 0.41              |
| 17:F:433:ALA:O    | 17:F:434:ASN:C    | 2.61                     | 0.41              |
| 18:G:202:LEU:O    | 18:G:206:LEU:HD13 | 2.19                     | 0.41              |
| 20:I:218:ARG:NH1  | 20:I:221:GLY:O    | 2.53                     | 0.41              |
| 24:M:24:VAL:O     | 24:M:28:MET:HG3   | 2.20                     | 0.41              |
| 26:O:207:PHE:O    | 30:s:66:ARG:NH2   | 2.53                     | 0.41              |
| 27:P:177:ARG:HG2  | 30:s:175:PRO:HG3  | 2.02                     | 0.41              |
| 29:R:176:GLU:OE1  | 29:R:176:GLU:N    | 2.52                     | 0.41              |
| 25:n:179:GLU:OE1  | 25:n:179:GLU:HA   | 2.20                     | 0.41              |
| 32:f:126:ILE:HG21 | 32:f:142:TYR:CD2  | 2.55                     | 0.41              |
| 32:f:550:LEU:C    | 32:f:550:LEU:HD12 | 2.46                     | 0.41              |
| 1:U:636:VAL:CG2   | 15:D:53:PHE:HZ    | 2.34                     | 0.41              |
| 2:V:443:ARG:HH12  | 10:d:274:CYS:CA   | 2.33                     | 0.41              |
| 2:V:461:LYS:C     | 2:V:461:LYS:HD3   | 2.45                     | 0.41              |
| 7:a:63:PHE:O      | 7:a:67:PHE:CB     | 2.68                     | 0.41              |
| 12:A:182:GLU:HA   | 12:A:185:GLU:HB2  | 2.02                     | 0.41              |
| 14:C:368:MET:HE1  | 15:D:191:TYR:CE1  | 2.55                     | 0.41              |
| 16:E:336:ASP:O    | 16:E:336:ASP:CG   | 2.64                     | 0.41              |
| 27:P:11:VAL:HG23  | 27:P:24:ALA:HB2   | 2.02                     | 0.41              |
| 28:Q:182:ILE:HG12 | 28:Q:191:LEU:HD13 | 2.02                     | 0.41              |
| 30:S:74:LEU:HD21  | 30:S:80:ILE:HG21  | 2.02                     | 0.41              |
| 31:T:56:VAL:HG23  | 31:T:99:SER:HB2   | 2.02                     | 0.41              |
| 31:T:78:LEU:HD13  | 25:n:168:TYR:CE1  | 2.55                     | 0.41              |
| 25:n:82:SER:OG    | 25:n:85:ASP:HB2   | 2.20                     | 0.41              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 26:o:123:ASN:OD1  | 26:o:156:ILE:HD11 | 2.20                     | 0.41              |
| 27:p:6:TYR:O      | 27:p:7:ASN:ND2    | 2.53                     | 0.41              |
| 32:f:266:LEU:HD22 | 32:f:297:MET:CE   | 2.50                     | 0.41              |
| 32:f:514:VAL:O    | 32:f:518:THR:HG22 | 2.20                     | 0.41              |
| 32:f:887:PHE:HB3  | 32:f:900:LEU:HD22 | 2.01                     | 0.41              |
| 1:U:51:ASP:O      | 1:U:57:ARG:NH2    | 2.54                     | 0.41              |
| 1:U:646:PRO:HB2   | 1:U:682:TYR:CE1   | 2.56                     | 0.41              |
| 2:V:104:THR:O     | 2:V:108:LEU:HG    | 2.20                     | 0.41              |
| 3:W:112:VAL:HG22  | 3:W:124:LEU:HD23  | 1.98                     | 0.41              |
| 3:W:259:GLU:O     | 3:W:263:TRP:CD1   | 2.74                     | 0.41              |
| 3:W:304:ASP:CG    | 3:W:324:TYR:OH    | 2.63                     | 0.41              |
| 6:Z:48:LEU:HD11   | 6:Z:92:VAL:HG11   | 2.03                     | 0.41              |
| 7:a:8:LEU:HD22    | 7:a:26:GLU:HB3    | 2.03                     | 0.41              |
| 7:a:61:GLU:O      | 7:a:65:SER:CB     | 2.69                     | 0.41              |
| 10:d:301:ASP:O    | 10:d:302:TYR:HB2  | 2.21                     | 0.41              |
| 12:A:60:ASN:HA    | 12:A:63:THR:HG23  | 2.02                     | 0.41              |
| 13:B:189:GLY:HA3  | 13:B:360:THR:HG23 | 2.02                     | 0.41              |
| 14:C:329:LEU:CD2  | 14:C:359:VAL:HG13 | 2.51                     | 0.41              |
| 14:C:383:PHE:O    | 14:C:387:VAL:HG23 | 2.21                     | 0.41              |
| 15:D:305:VAL:O    | 15:D:306:LYS:C    | 2.64                     | 0.41              |
| 16:E:235:ILE:HG23 | 16:E:285:LEU:HD21 | 2.02                     | 0.41              |
| 24:M:148:GLN:HE21 | 24:M:148:GLN:HB2  | 1.57                     | 0.41              |
| 27:P:199:THR:O    | 27:P:200:LEU:C    | 2.64                     | 0.41              |
| 29:R:78:ARG:HD3   | 29:R:85:ILE:HG12  | 2.03                     | 0.41              |
| 29:R:115:GLU:OE2  | 29:R:158:THR:OG1  | 2.39                     | 0.41              |
| 30:S:171:ALA:HB3  | 27:p:144:GLU:OE1  | 2.21                     | 0.41              |
| 25:n:50:ALA:CB    | 25:n:68:LEU:HD21  | 2.50                     | 0.41              |
| 25:n:192:ASN:O    | 25:n:196:LEU:HD13 | 2.21                     | 0.41              |
| 26:o:189:MET:HE2  | 26:o:189:MET:HB2  | 1.98                     | 0.41              |
| 30:s:63:ILE:HG23  | 30:s:63:ILE:O     | 2.20                     | 0.41              |
| 31:t:52:THR:HG22  | 31:t:101:ASP:N    | 2.34                     | 0.41              |
| 31:t:65:VAL:HG12  | 31:t:237:VAL:HG13 | 2.03                     | 0.41              |
| 31:t:214:VAL:O    | 31:t:218:MET:HG2  | 2.21                     | 0.41              |
| 32:f:233:LEU:HD22 | 32:f:248:LEU:HD12 | 2.03                     | 0.41              |
| 32:f:315:GLU:HG2  | 32:f:316:ASP:N    | 2.36                     | 0.41              |
| 32:f:580:LEU:O    | 32:f:583:VAL:HG23 | 2.20                     | 0.41              |
| 32:f:686:LEU:H    | 32:f:686:LEU:HD23 | 1.85                     | 0.41              |
| 1:U:32:ASN:OD1    | 1:U:32:ASN:N      | 2.53                     | 0.41              |
| 3:W:446:ILE:HD11  | 6:Z:211:TYR:CE2   | 2.55                     | 0.41              |
| 5:Y:138:LEU:HD22  | 5:Y:167:LEU:HD23  | 2.03                     | 0.41              |
| 6:Z:62:ASP:OD1    | 6:Z:62:ASP:N      | 2.53                     | 0.41              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:A:31:ALA:O     | 12:A:35:THR:HG23  | 2.20                     | 0.41              |
| 13:B:68:ILE:HD11  | 32:f:666:ILE:HD11 | 2.02                     | 0.41              |
| 15:D:262:ILE:HG22 | 15:D:264:ILE:HG13 | 2.02                     | 0.41              |
| 19:H:86:LEU:CD1   | 19:H:118:MET:HE2  | 2.51                     | 0.41              |
| 20:I:45:LEU:HD12  | 20:I:137:ILE:HD13 | 2.02                     | 0.41              |
| 24:M:38:ILE:CG2   | 24:M:177:ILE:HD11 | 2.50                     | 0.41              |
| 24:M:115:ARG:O    | 24:M:118:MET:HB2  | 2.21                     | 0.41              |
| 25:N:125:ARG:NH2  | 31:T:46:THR:HG23  | 2.36                     | 0.41              |
| 26:O:206:ILE:HD12 | 26:O:213:GLY:C    | 2.44                     | 0.41              |
| 31:T:72:LEU:HD11  | 31:T:79:ALA:HA    | 2.01                     | 0.41              |
| 31:T:244:ILE:O    | 31:T:244:ILE:HG13 | 2.20                     | 0.41              |
| 31:t:87:ILE:HG21  | 31:t:235:ALA:HB3  | 2.02                     | 0.41              |
| 31:t:160:TYR:CZ   | 31:t:238:THR:HA   | 2.56                     | 0.41              |
| 31:t:179:ALA:HB1  | 31:t:180:PRO:CD   | 2.51                     | 0.41              |
| 32:f:472:HIS:NE2  | 32:f:510:SER:OG   | 2.44                     | 0.41              |
| 1:U:586:VAL:HG11  | 1:U:602:LEU:CD2   | 2.51                     | 0.41              |
| 1:U:895:PRO:C     | 1:U:896:GLU:HG3   | 2.46                     | 0.41              |
| 5:Y:163:LYS:O     | 5:Y:167:LEU:HD13  | 2.20                     | 0.41              |
| 9:c:183:HIS:O     | 9:c:184:LEU:CB    | 2.69                     | 0.41              |
| 12:A:103:ASN:O    | 12:A:104:ALA:HB3  | 2.21                     | 0.41              |
| 12:A:130:ALA:O    | 12:A:133:ASP:OD1  | 2.39                     | 0.41              |
| 12:A:188:ARG:HA   | 12:A:192:GLU:OE1  | 2.21                     | 0.41              |
| 13:B:203:LEU:HA   | 13:B:206:THR:HG22 | 2.03                     | 0.41              |
| 16:E:180:LYS:HG2  | 16:E:301:ILE:HD11 | 2.01                     | 0.41              |
| 16:E:300:HIS:O    | 16:E:300:HIS:ND1  | 2.54                     | 0.41              |
| 19:H:62:VAL:O     | 19:H:62:VAL:HG13  | 2.20                     | 0.41              |
| 25:N:166:SER:O    | 25:N:167:SER:C    | 2.63                     | 0.41              |
| 26:O:262:LEU:HD21 | 27:P:193:ASP:HA   | 2.02                     | 0.41              |
| 30:S:76:ASP:OD1   | 30:S:77:LYS:N     | 2.53                     | 0.41              |
| 30:S:226:VAL:HG13 | 30:S:231:ILE:CD1  | 2.51                     | 0.41              |
| 25:n:183:LYS:O    | 25:n:187:LEU:HD13 | 2.20                     | 0.41              |
| 25:n:223:LEU:C    | 25:n:224:LEU:HD12 | 2.46                     | 0.41              |
| 26:o:97:MET:SD    | 27:p:96:TYR:CD1   | 3.14                     | 0.41              |
| 28:q:48:GLY:N     | 28:q:53:THR:HG21  | 2.36                     | 0.41              |
| 29:r:222:ALA:O    | 29:r:226:ASP:CB   | 2.69                     | 0.41              |
| 31:t:160:TYR:HE1  | 31:t:237:VAL:HG13 | 1.86                     | 0.41              |
| 31:t:162:ASP:OD1  | 31:t:162:ASP:N    | 2.53                     | 0.41              |
| 32:f:570:GLY:HA2  | 32:f:600:TYR:CE1  | 2.56                     | 0.41              |
| 1:U:188:MET:HE2   | 1:U:193:PHE:CD2   | 2.56                     | 0.41              |
| 1:U:757:MET:HA    | 1:U:760:VAL:HG12  | 2.01                     | 0.41              |
| 2:V:477:HIS:HD1   | 10:d:342:TYR:HH   | 1.51                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:W:186:ILE:CD1   | 3:W:209:ILE:HD11  | 2.51                     | 0.41              |
| 3:W:194:LEU:HD21  | 3:W:202:THR:HG21  | 2.03                     | 0.41              |
| 3:W:314:LEU:HD12  | 3:W:314:LEU:O     | 2.20                     | 0.41              |
| 3:W:359:VAL:CG1   | 3:W:382:LEU:HD21  | 2.36                     | 0.41              |
| 4:X:406:ASN:HA    | 4:X:409:LYS:HE2   | 2.03                     | 0.41              |
| 5:Y:195:LYS:HE2   | 5:Y:195:LYS:HB2   | 1.91                     | 0.41              |
| 6:Z:260:VAL:HG13  | 9:c:292:MET:HE3   | 2.02                     | 0.41              |
| 7:a:24:ARG:O      | 7:a:27:GLU:HG3    | 2.21                     | 0.41              |
| 10:d:207:GLU:O    | 10:d:208:PHE:C    | 2.64                     | 0.41              |
| 12:A:45:ILE:HD12  | 13:B:61:LYS:NZ    | 2.36                     | 0.41              |
| 12:A:296:GLN:O    | 12:A:300:LEU:HD13 | 2.20                     | 0.41              |
| 13:B:74:MET:HE1   | 32:f:610:GLN:N    | 2.36                     | 0.41              |
| 13:B:109:VAL:HB   | 14:C:94:LYS:HG3   | 2.03                     | 0.41              |
| 13:B:224:LEU:HD21 | 13:B:235:LEU:HD23 | 2.01                     | 0.41              |
| 14:C:66:LEU:O     | 15:D:136:SER:OG   | 2.25                     | 0.41              |
| 14:C:97:VAL:HB    | 14:C:121:TYR:O    | 2.21                     | 0.41              |
| 14:C:193:GLY:CA   | 15:D:323:ARG:HD2  | 2.51                     | 0.41              |
| 14:C:198:LEU:C    | 14:C:198:LEU:HD23 | 2.46                     | 0.41              |
| 15:D:204:MET:HE2  | 15:D:308:ILE:HG22 | 2.03                     | 0.41              |
| 15:D:309:MET:CE   | 15:D:327:LEU:HD11 | 2.50                     | 0.41              |
| 16:E:327:ASP:O    | 16:E:331:ILE:HD12 | 2.20                     | 0.41              |
| 20:I:24:ALA:O     | 20:I:28:ILE:HG12  | 2.20                     | 0.41              |
| 20:I:206:LEU:O    | 20:I:206:LEU:HD23 | 2.21                     | 0.41              |
| 20:I:216:LEU:C    | 20:I:216:LEU:HD23 | 2.46                     | 0.41              |
| 21:J:61:LYS:NZ    | 21:J:73:PHE:O     | 2.51                     | 0.41              |
| 23:L:33:SER:HB3   | 23:L:51:ARG:HE    | 1.85                     | 0.41              |
| 26:O:55:ILE:HG22  | 26:O:56:VAL:N     | 2.36                     | 0.41              |
| 28:Q:15:VAL:HG21  | 28:Q:45:LEU:HD12  | 2.03                     | 0.41              |
| 28:Q:154:GLU:O    | 28:Q:157:VAL:N    | 2.54                     | 0.41              |
| 30:S:55:THR:O     | 30:S:55:THR:HG22  | 2.21                     | 0.41              |
| 30:S:175:PRO:HB2  | 27:p:149:MET:HE2  | 2.03                     | 0.41              |
| 31:T:113:GLY:O    | 31:T:117:ILE:HG13 | 2.19                     | 0.41              |
| 25:n:208:ILE:HD12 | 25:n:228:ILE:HG12 | 2.03                     | 0.41              |
| 27:p:27:ARG:NH1   | 27:p:180:VAL:HB   | 2.36                     | 0.41              |
| 30:s:141:LEU:HD23 | 30:s:146:LYS:O    | 2.21                     | 0.41              |
| 32:f:226:TYR:OH   | 32:f:259:PHE:HD2  | 2.04                     | 0.41              |
| 32:f:803:PHE:HZ   | 32:f:818:LEU:HD11 | 1.86                     | 0.41              |
| 32:f:830:LEU:HD11 | 32:f:894:LEU:CD2  | 2.50                     | 0.41              |
| 1:U:556:MET:SD    | 1:U:563:ALA:HB2   | 2.60                     | 0.41              |
| 2:V:254:LEU:CD2   | 2:V:270:LEU:HD13  | 2.51                     | 0.41              |
| 2:V:275:VAL:O     | 2:V:275:VAL:HG13  | 2.21                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:V:364:THR:HA    | 2:V:367:VAL:HG12  | 2.02                     | 0.41              |
| 3:W:226:TYR:OH    | 3:W:230:MET:HE2   | 2.21                     | 0.41              |
| 7:a:252:LYS:HA    | 7:a:255:TRP:NE1   | 2.36                     | 0.41              |
| 7:a:312:MET:HE3   | 7:a:312:MET:CA    | 2.51                     | 0.41              |
| 8:b:5:SER:HA      | 8:b:48:ASN:OD1    | 2.20                     | 0.41              |
| 10:d:90:ALA:O     | 10:d:94:MET:CE    | 2.69                     | 0.41              |
| 12:A:125:LEU:HD13 | 12:A:134:ILE:HG21 | 2.03                     | 0.41              |
| 15:D:116:LEU:O    | 15:D:119:ILE:HD13 | 2.20                     | 0.41              |
| 16:E:308:ALA:O    | 16:E:312:ILE:HG13 | 2.21                     | 0.41              |
| 17:F:89:LEU:HD23  | 17:F:90:VAL:O     | 2.20                     | 0.41              |
| 25:N:181:MET:CE   | 25:N:185:GLU:HG3  | 2.51                     | 0.41              |
| 26:O:182:GLU:OE1  | 31:t:224:ARG:NH1  | 2.54                     | 0.41              |
| 27:P:111:GLY:C    | 27:P:112:LEU:HD22 | 2.46                     | 0.41              |
| 25:n:93:VAL:HG11  | 25:n:117:PHE:CD1  | 2.56                     | 0.41              |
| 26:o:51:TYR:CE1   | 26:o:56:VAL:HG23  | 2.56                     | 0.41              |
| 30:s:59:GLU:O     | 30:s:59:GLU:HG2   | 2.20                     | 0.41              |
| 32:f:418:LEU:HD13 | 32:f:425:GLY:HA2  | 2.03                     | 0.41              |
| 32:f:505:MET:HG3  | 32:f:518:THR:HG23 | 2.03                     | 0.41              |
| 3:W:217:GLU:OE1   | 3:W:217:GLU:N     | 2.37                     | 0.40              |
| 3:W:251:TYR:CE1   | 3:W:267:LEU:HD13  | 2.56                     | 0.40              |
| 5:Y:279:GLU:OE1   | 11:e:52:PHE:HB3   | 2.22                     | 0.40              |
| 6:Z:142:GLU:OE2   | 6:Z:151:THR:OG1   | 2.39                     | 0.40              |
| 7:a:185:ILE:H     | 7:a:185:ILE:HD12  | 1.86                     | 0.40              |
| 9:c:41:MET:CG     | 9:c:72:VAL:HG11   | 2.51                     | 0.40              |
| 10:d:152:ALA:O    | 10:d:155:SER:OG   | 2.31                     | 0.40              |
| 13:B:99:VAL:HG13  | 13:B:138:PHE:CE1  | 2.56                     | 0.40              |
| 13:B:284:ILE:HD12 | 13:B:329:MET:SD   | 2.61                     | 0.40              |
| 13:B:342:ILE:O    | 13:B:342:ILE:CG2  | 2.69                     | 0.40              |
| 16:E:366:ASP:OD1  | 16:E:367:PHE:CD1  | 2.74                     | 0.40              |
| 17:F:69:MET:O     | 17:F:73:ILE:HG12  | 2.21                     | 0.40              |
| 21:J:90:GLU:HG3   | 21:J:110:TYR:CE1  | 2.57                     | 0.40              |
| 22:K:213:THR:O    | 22:K:214:ASN:CG   | 2.65                     | 0.40              |
| 25:N:195:ALA:HB2  | 25:N:228:ILE:HG13 | 2.04                     | 0.40              |
| 27:P:3:ILE:HG21   | 27:P:104:TYR:CD2  | 2.56                     | 0.40              |
| 28:Q:35:MET:CE    | 28:Q:45:LEU:HD21  | 2.50                     | 0.40              |
| 30:S:141:LEU:HD11 | 30:S:227:THR:C    | 2.46                     | 0.40              |
| 25:n:125:ARG:HE   | 31:t:46:THR:HG23  | 1.87                     | 0.40              |
| 26:o:102:ILE:HG13 | 26:o:126:LEU:HD23 | 2.03                     | 0.40              |
| 28:q:85:ARG:HD3   | 28:q:124:LEU:HB2  | 2.02                     | 0.40              |
| 32:f:570:GLY:O    | 32:f:573:ILE:HG12 | 2.21                     | 0.40              |
| 32:f:674:THR:O    | 32:f:678:LEU:HD13 | 2.20                     | 0.40              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:U:61:ALA:HB3    | 1:U:84:ALA:HA     | 2.04                     | 0.40              |
| 1:U:242:LEU:HD12  | 1:U:243:LEU:N     | 2.35                     | 0.40              |
| 1:U:587:ALA:HB2   | 1:U:621:SER:CB    | 2.51                     | 0.40              |
| 1:U:676:THR:HG21  | 1:U:712:LEU:HD21  | 2.02                     | 0.40              |
| 1:U:719:ASP:HB3   | 1:U:722:ASP:HB2   | 2.03                     | 0.40              |
| 5:Y:259:TYR:HB2   | 5:Y:274:SER:HB3   | 2.02                     | 0.40              |
| 8:b:188:ILE:H     | 8:b:188:ILE:HD12  | 1.86                     | 0.40              |
| 13:B:99:VAL:HG13  | 13:B:138:PHE:CD1  | 2.56                     | 0.40              |
| 13:B:258:LYS:HA   | 14:C:224:ILE:HG23 | 2.03                     | 0.40              |
| 15:D:342:ARG:NH1  | 15:D:361:GLU:OE1  | 2.54                     | 0.40              |
| 16:E:84:ARG:NE    | 16:E:108:MET:O    | 2.54                     | 0.40              |
| 19:H:36:VAL:HG13  | 19:H:174:LEU:HD11 | 2.02                     | 0.40              |
| 23:L:185:ASN:O    | 23:L:189:LYS:HG2  | 2.21                     | 0.40              |
| 23:L:234:GLU:HA   | 23:L:234:GLU:OE1  | 2.21                     | 0.40              |
| 24:M:87:SER:O     | 24:M:91:ILE:HG12  | 2.21                     | 0.40              |
| 26:O:81:SER:O     | 26:O:82:PRO:C     | 2.64                     | 0.40              |
| 27:P:158:MET:HE3  | 27:P:159:ASP:OD1  | 2.21                     | 0.40              |
| 28:Q:140:LEU:HD23 | 28:Q:140:LEU:O    | 2.21                     | 0.40              |
| 30:S:171:ALA:HB1  | 27:p:145:GLN:HE21 | 1.86                     | 0.40              |
| 32:f:396:ASN:N    | 32:f:432:TYR:OH   | 2.54                     | 0.40              |
| 32:f:539:LEU:O    | 32:f:543:MET:HG2  | 2.22                     | 0.40              |
| 2:V:175:MET:SD    | 2:V:187:ILE:HD13  | 2.61                     | 0.40              |
| 5:Y:195:LYS:HA    | 5:Y:230:ALA:HB1   | 2.03                     | 0.40              |
| 9:c:285:GLU:O     | 9:c:288:VAL:HG12  | 2.21                     | 0.40              |
| 10:d:92:THR:HG23  | 10:d:140:GLN:HE22 | 1.86                     | 0.40              |
| 10:d:130:PRO:HG2  | 10:d:178:TYR:CZ   | 2.57                     | 0.40              |
| 14:C:89:VAL:O     | 14:C:89:VAL:HG23  | 2.21                     | 0.40              |
| 17:F:268:VAL:O    | 17:F:272:PHE:HD2  | 2.04                     | 0.40              |
| 18:G:92:GLN:HG3   | 24:M:118:MET:CE   | 2.52                     | 0.40              |
| 18:G:217:VAL:CG1  | 18:G:230:LEU:HD12 | 2.51                     | 0.40              |
| 23:L:226:ASP:O    | 23:L:229:VAL:HG22 | 2.21                     | 0.40              |
| 24:M:216:TRP:CE3  | 24:M:228:VAL:HG22 | 2.57                     | 0.40              |
| 26:o:254:VAL:HG22 | 27:p:164:PHE:HZ   | 1.86                     | 0.40              |
| 32:f:702:PRO:HA   | 32:f:732:VAL:HG22 | 2.03                     | 0.40              |
| 1:U:894:MET:HE2   | 1:U:902:PRO:HD3   | 2.03                     | 0.40              |
| 2:V:188:SER:HG    | 2:V:214:HIS:CE1   | 2.39                     | 0.40              |
| 3:W:362:ASN:O     | 3:W:366:MET:HG3   | 2.21                     | 0.40              |
| 6:Z:121:LEU:HD23  | 6:Z:121:LEU:C     | 2.46                     | 0.40              |
| 10:d:272:ALA:O    | 10:d:273:GLY:C    | 2.64                     | 0.40              |
| 13:B:194:ILE:HA   | 13:B:197:ILE:HG22 | 2.03                     | 0.40              |
| 15:D:64:GLU:HG2   | 15:D:68:LEU:HD23  | 2.03                     | 0.40              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:D:215:LEU:O    | 15:D:218:ALA:HB3  | 2.22                     | 0.40              |
| 18:G:177:SER:O    | 18:G:180:GLU:HG2  | 2.21                     | 0.40              |
| 22:K:201:ILE:O    | 22:K:205:VAL:HG22 | 2.21                     | 0.40              |
| 29:R:94:ILE:HD12  | 29:R:94:ILE:H     | 1.86                     | 0.40              |
| 31:T:55:SER:HA    | 31:T:184:THR:O    | 2.21                     | 0.40              |
| 31:T:223:TYR:HB3  | 31:T:224:ARG:HD2  | 2.04                     | 0.40              |
| 28:q:4:LEU:HD13   | 28:q:45:LEU:HB3   | 2.03                     | 0.40              |
| 30:s:136:ASN:O    | 30:s:137:ILE:HD13 | 2.21                     | 0.40              |
| 31:t:148:MET:N    | 31:t:148:MET:SD   | 2.94                     | 0.40              |
| 32:f:252:ALA:HB3  | 32:f:268:LEU:HD13 | 2.02                     | 0.40              |
| 32:f:271:MET:HE1  | 32:f:786:GLN:C    | 2.46                     | 0.40              |
| 32:f:468:ASP:OD2  | 33:y:391:LYS:NZ   | 2.43                     | 0.40              |
| 32:f:601:ALA:HB2  | 32:f:659:LEU:HD21 | 2.03                     | 0.40              |
| 32:f:828:ARG:HG3  | 32:f:828:ARG:O    | 2.21                     | 0.40              |
| 32:f:884:THR:HG22 | 32:f:885:GLU:N    | 2.37                     | 0.40              |
| 1:U:140:ARG:NH2   | 1:U:141:CYS:SG    | 2.94                     | 0.40              |
| 2:V:396:ILE:C     | 2:V:398:LEU:N     | 2.79                     | 0.40              |
| 3:W:217:GLU:HG2   | 3:W:218:ASN:N     | 2.36                     | 0.40              |
| 3:W:220:GLU:O     | 3:W:224:LEU:CD1   | 2.69                     | 0.40              |
| 3:W:243:ILE:HG21  | 3:W:273:TYR:CZ    | 2.57                     | 0.40              |
| 4:X:204:PRO:HB2   | 4:X:242:ILE:HD11  | 2.03                     | 0.40              |
| 5:Y:226:VAL:HA    | 5:Y:229:ILE:HG22  | 2.03                     | 0.40              |
| 6:Z:19:VAL:HG13   | 6:Z:95:TYR:CE2    | 2.56                     | 0.40              |
| 6:Z:22:HIS:CE1    | 6:Z:35:VAL:HB     | 2.56                     | 0.40              |
| 7:a:100:THR:O     | 7:a:104:VAL:HG12  | 2.21                     | 0.40              |
| 12:A:123:VAL:HG12 | 12:A:125:LEU:N    | 2.37                     | 0.40              |
| 12:A:259:GLU:HA   | 12:A:262:GLU:OE1  | 2.22                     | 0.40              |
| 17:F:434:ASN:ND2  | 23:L:51:ARG:NH1   | 2.70                     | 0.40              |
| 21:J:158:ALA:H    | 22:K:58:LEU:HD21  | 1.86                     | 0.40              |
| 22:K:71:ASP:CG    | 22:K:72:ALA:H     | 2.29                     | 0.40              |
| 27:P:149:MET:CE   | 30:s:175:PRO:HB2  | 2.52                     | 0.40              |
| 27:P:183:MET:HE2  | 27:P:183:MET:HA   | 2.04                     | 0.40              |
| 29:R:195:TYR:HE2  | 28:q:170:ARG:NE   | 2.20                     | 0.40              |
| 31:t:234:ILE:HG22 | 31:t:235:ALA:N    | 2.37                     | 0.40              |
| 32:f:57:GLU:HA    | 32:f:60:VAL:HG12  | 2.04                     | 0.40              |
| 32:f:375:SER:HB3  | 32:f:398:TRP:HE1  | 1.87                     | 0.40              |
| 32:f:414:LEU:HD23 | 32:f:429:ILE:HD13 | 2.03                     | 0.40              |
| 32:f:737:ASN:OD1  | 32:f:770:HIS:ND1  | 2.54                     | 0.40              |
| 32:f:795:GLY:O    | 32:f:798:THR:HG22 | 2.21                     | 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   | U     | 844/953 (89%) | 781 (92%) | 63 (8%)  | 0        | 100         | 100 |
| 2   | V     | 417/534 (78%) | 389 (93%) | 28 (7%)  | 0        | 100         | 100 |
| 3   | W     | 426/456 (93%) | 392 (92%) | 34 (8%)  | 0        | 100         | 100 |
| 4   | X     | 419/422 (99%) | 391 (93%) | 28 (7%)  | 0        | 100         | 100 |
| 5   | Y     | 377/389 (97%) | 361 (96%) | 16 (4%)  | 0        | 100         | 100 |
| 6   | Z     | 285/324 (88%) | 274 (96%) | 11 (4%)  | 0        | 100         | 100 |
| 7   | a     | 373/376 (99%) | 343 (92%) | 30 (8%)  | 0        | 100         | 100 |
| 8   | b     | 189/377 (50%) | 172 (91%) | 17 (9%)  | 0        | 100         | 100 |
| 9   | c     | 273/310 (88%) | 253 (93%) | 20 (7%)  | 0        | 100         | 100 |
| 10  | d     | 252/350 (72%) | 215 (85%) | 37 (15%) | 0        | 100         | 100 |
| 11  | e     | 32/70 (46%)   | 31 (97%)  | 1 (3%)   | 0        | 100         | 100 |
| 12  | A     | 296/433 (68%) | 258 (87%) | 38 (13%) | 0        | 100         | 100 |
| 13  | B     | 378/440 (86%) | 346 (92%) | 32 (8%)  | 0        | 100         | 100 |
| 14  | C     | 387/406 (95%) | 354 (92%) | 33 (8%)  | 0        | 100         | 100 |
| 15  | D     | 378/418 (90%) | 336 (89%) | 41 (11%) | 1 (0%)   | 37          | 66  |
| 16  | E     | 333/389 (86%) | 303 (91%) | 29 (9%)  | 1 (0%)   | 37          | 66  |
| 17  | F     | 207/439 (47%) | 183 (88%) | 24 (12%) | 0        | 100         | 100 |
| 18  | G     | 239/246 (97%) | 226 (95%) | 13 (5%)  | 0        | 100         | 100 |
| 19  | H     | 231/234 (99%) | 218 (94%) | 13 (6%)  | 0        | 100         | 100 |
| 20  | I     | 247/261 (95%) | 240 (97%) | 7 (3%)   | 0        | 100         | 100 |
| 21  | J     | 237/248 (96%) | 223 (94%) | 14 (6%)  | 0        | 100         | 100 |
| 22  | K     | 231/241 (96%) | 213 (92%) | 18 (8%)  | 0        | 100         | 100 |
| 23  | L     | 235/263 (89%) | 220 (94%) | 15 (6%)  | 0        | 100         | 100 |
| 24  | M     | 242/255 (95%) | 234 (97%) | 8 (3%)   | 0        | 100         | 100 |
| 25  | N     | 196/239 (82%) | 180 (92%) | 16 (8%)  | 0        | 100         | 100 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 25  | n     | 171/239 (72%)     | 164 (96%)   | 7 (4%)   | 0        | 100         | 100 |
| 26  | O     | 219/277 (79%)     | 210 (96%)   | 9 (4%)   | 0        | 100         | 100 |
| 26  | o     | 166/277 (60%)     | 155 (93%)   | 11 (7%)  | 0        | 100         | 100 |
| 27  | P     | 202/205 (98%)     | 186 (92%)   | 16 (8%)  | 0        | 100         | 100 |
| 27  | p     | 152/205 (74%)     | 139 (91%)   | 13 (9%)  | 0        | 100         | 100 |
| 28  | Q     | 195/201 (97%)     | 186 (95%)   | 9 (5%)   | 0        | 100         | 100 |
| 28  | q     | 163/201 (81%)     | 152 (93%)   | 11 (7%)  | 0        | 100         | 100 |
| 29  | R     | 197/263 (75%)     | 187 (95%)   | 10 (5%)  | 0        | 100         | 100 |
| 29  | r     | 181/263 (69%)     | 165 (91%)   | 16 (9%)  | 0        | 100         | 100 |
| 30  | S     | 210/241 (87%)     | 198 (94%)   | 12 (6%)  | 0        | 100         | 100 |
| 30  | s     | 202/241 (84%)     | 191 (95%)   | 11 (5%)  | 0        | 100         | 100 |
| 31  | T     | 211/264 (80%)     | 200 (95%)   | 11 (5%)  | 0        | 100         | 100 |
| 31  | t     | 202/264 (76%)     | 183 (91%)   | 19 (9%)  | 0        | 100         | 100 |
| 32  | f     | 811/908 (89%)     | 746 (92%)   | 65 (8%)  | 0        | 100         | 100 |
| 33  | y     | 29/505 (6%)       | 29 (100%)   | 0        | 0        | 100         | 100 |
| All | All   | 11035/13627 (81%) | 10227 (93%) | 806 (7%) | 2 (0%)   | 100         | 100 |

All (2) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15  | D     | 220 | ALA  |
| 16  | E     | 238 | ILE  |

### 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   | U     | 725/816 (89%) | 725 (100%) | 0        | 100         | 100 |
| 2   | V     | 371/460 (81%) | 371 (100%) | 0        | 100         | 100 |
| 3   | W     | 396/416 (95%) | 396 (100%) | 0        | 100         | 100 |

Continued on next page...



*Continued from previous page...*

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 4   | X     | 361/362 (100%) | 361 (100%) | 0        | 100         | 100 |
| 5   | Y     | 335/344 (97%)  | 335 (100%) | 0        | 100         | 100 |
| 6   | Z     | 258/295 (88%)  | 258 (100%) | 0        | 100         | 100 |
| 7   | a     | 335/336 (100%) | 335 (100%) | 0        | 100         | 100 |
| 8   | b     | 167/312 (54%)  | 167 (100%) | 0        | 100         | 100 |
| 9   | c     | 244/268 (91%)  | 244 (100%) | 0        | 100         | 100 |
| 10  | d     | 227/294 (77%)  | 227 (100%) | 0        | 100         | 100 |
| 11  | e     | 34/63 (54%)    | 34 (100%)  | 0        | 100         | 100 |
| 12  | A     | 277/372 (74%)  | 277 (100%) | 0        | 100         | 100 |
| 13  | B     | 341/385 (89%)  | 341 (100%) | 0        | 100         | 100 |
| 14  | C     | 340/352 (97%)  | 340 (100%) | 0        | 100         | 100 |
| 15  | D     | 333/366 (91%)  | 333 (100%) | 0        | 100         | 100 |
| 16  | E     | 299/341 (88%)  | 298 (100%) | 1 (0%)   | 91          | 95  |
| 17  | F     | 196/379 (52%)  | 196 (100%) | 0        | 100         | 100 |
| 18  | G     | 206/210 (98%)  | 206 (100%) | 0        | 100         | 100 |
| 19  | H     | 190/191 (100%) | 190 (100%) | 0        | 100         | 100 |
| 20  | I     | 209/221 (95%)  | 209 (100%) | 0        | 100         | 100 |
| 21  | J     | 203/211 (96%)  | 203 (100%) | 0        | 100         | 100 |
| 22  | K     | 198/203 (98%)  | 198 (100%) | 0        | 100         | 100 |
| 23  | L     | 203/224 (91%)  | 203 (100%) | 0        | 100         | 100 |
| 24  | M     | 202/212 (95%)  | 201 (100%) | 1 (0%)   | 86          | 91  |
| 25  | N     | 154/181 (85%)  | 154 (100%) | 0        | 100         | 100 |
| 25  | n     | 138/181 (76%)  | 138 (100%) | 0        | 100         | 100 |
| 26  | O     | 182/228 (80%)  | 182 (100%) | 0        | 100         | 100 |
| 26  | o     | 139/228 (61%)  | 139 (100%) | 0        | 100         | 100 |
| 27  | P     | 173/174 (99%)  | 173 (100%) | 0        | 100         | 100 |
| 27  | p     | 136/174 (78%)  | 136 (100%) | 0        | 100         | 100 |
| 28  | Q     | 168/171 (98%)  | 168 (100%) | 0        | 100         | 100 |
| 28  | q     | 148/171 (86%)  | 148 (100%) | 0        | 100         | 100 |
| 29  | R     | 155/202 (77%)  | 155 (100%) | 0        | 100         | 100 |
| 29  | r     | 142/202 (70%)  | 142 (100%) | 0        | 100         | 100 |

*Continued on next page...*



*Continued from previous page...*

| Mol | Chain | Analysed         | Rotameric   | Outliers | Percentiles |     |
|-----|-------|------------------|-------------|----------|-------------|-----|
| 30  | S     | 177/199 (89%)    | 177 (100%)  | 0        | 100         | 100 |
| 30  | s     | 172/199 (86%)    | 172 (100%)  | 0        | 100         | 100 |
| 31  | T     | 176/215 (82%)    | 176 (100%)  | 0        | 100         | 100 |
| 31  | t     | 171/215 (80%)    | 171 (100%)  | 0        | 100         | 100 |
| 32  | f     | 693/763 (91%)    | 693 (100%)  | 0        | 100         | 100 |
| 33  | y     | 29/403 (7%)      | 29 (100%)   | 0        | 100         | 100 |
| All | All   | 9603/11539 (83%) | 9601 (100%) | 2 (0%)   | 100         | 100 |

All (2) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | E     | 225 | HIS  |
| 24  | M     | 148 | GLN  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (56) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | U     | 259 | GLN  |
| 1   | U     | 345 | ASN  |
| 1   | U     | 384 | GLN  |
| 1   | U     | 452 | ASN  |
| 1   | U     | 596 | ASN  |
| 2   | V     | 168 | GLN  |
| 2   | V     | 350 | GLN  |
| 2   | V     | 376 | ASN  |
| 3   | W     | 99  | GLN  |
| 3   | W     | 246 | HIS  |
| 3   | W     | 380 | GLN  |
| 3   | W     | 416 | GLN  |
| 4   | X     | 78  | ASN  |
| 4   | X     | 207 | GLN  |
| 4   | X     | 333 | GLN  |
| 5   | Y     | 178 | ASN  |
| 7   | a     | 18  | GLN  |
| 7   | a     | 72  | ASN  |
| 9   | c     | 131 | GLN  |
| 9   | c     | 240 | HIS  |
| 9   | c     | 256 | ASN  |
| 12  | A     | 150 | HIS  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13  | B     | 82  | GLN  |
| 14  | C     | 46  | GLN  |
| 14  | C     | 118 | ASN  |
| 14  | C     | 124 | HIS  |
| 14  | C     | 377 | HIS  |
| 15  | D     | 173 | GLN  |
| 15  | D     | 294 | ASN  |
| 15  | D     | 302 | ASN  |
| 15  | D     | 312 | ASN  |
| 15  | D     | 376 | ASN  |
| 16  | E     | 190 | GLN  |
| 16  | E     | 262 | ASN  |
| 17  | F     | 196 | GLN  |
| 18  | G     | 12  | HIS  |
| 19  | H     | 102 | GLN  |
| 19  | H     | 109 | GLN  |
| 20  | I     | 84  | ASN  |
| 21  | J     | 154 | HIS  |
| 24  | M     | 148 | GLN  |
| 26  | O     | 78  | HIS  |
| 27  | P     | 33  | GLN  |
| 28  | Q     | 55  | GLN  |
| 29  | R     | 210 | GLN  |
| 30  | S     | 105 | HIS  |
| 31  | T     | 153 | ASN  |
| 31  | T     | 192 | GLN  |
| 31  | T     | 253 | ASN  |
| 26  | o     | 123 | ASN  |
| 26  | o     | 196 | ASN  |
| 28  | q     | 101 | ASN  |
| 29  | r     | 88  | GLN  |
| 30  | s     | 191 | HIS  |
| 32  | f     | 291 | GLN  |
| 32  | f     | 876 | HIS  |

### 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 6 ligands modelled in this entry, 1 is monoatomic - leaving 5 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|-----|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |     |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 35  | ATP  | B     | 501 | -    | 28,33,33     | 0.73 | 0           | 34,52,52    | 0.96 | 1 (2%)      |
| 35  | ATP  | C     | 501 | -    | 28,33,33     | 0.71 | 0           | 34,52,52    | 0.95 | 1 (2%)      |
| 35  | ATP  | A     | 501 | -    | 28,33,33     | 0.63 | 0           | 34,52,52    | 0.92 | 2 (5%)      |
| 35  | ATP  | D     | 501 | -    | 28,33,33     | 0.69 | 0           | 34,52,52    | 0.94 | 1 (2%)      |
| 36  | ADP  | E     | 401 | -    | 24,29,29     | 0.89 | 0           | 29,45,45    | 1.26 | 2 (6%)      |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|-----|------|---------|------------|---------|
| 35  | ATP  | B     | 501 | -    | -       | 1/18/38/38 | 0/3/3/3 |
| 35  | ATP  | C     | 501 | -    | -       | 7/18/38/38 | 0/3/3/3 |
| 35  | ATP  | A     | 501 | -    | -       | 4/18/38/38 | 0/3/3/3 |
| 35  | ATP  | D     | 501 | -    | -       | 5/18/38/38 | 0/3/3/3 |
| 36  | ADP  | E     | 401 | -    | -       | 2/12/32/32 | 0/3/3/3 |

There are no bond length outliers.

All (7) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 36  | E     | 401 | ADP  | N3-C2-N1 | -4.10 | 123.10      | 128.67   |
| 36  | E     | 401 | ADP  | C4-C5-N7 | -2.59 | 106.60      | 109.34   |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 35  | D     | 501 | ATP  | C5-C6-N6    | 2.33  | 123.86      | 120.31   |
| 35  | C     | 501 | ATP  | C5-C6-N6    | 2.31  | 123.83      | 120.31   |
| 35  | A     | 501 | ATP  | C5-C6-N6    | 2.31  | 123.83      | 120.31   |
| 35  | B     | 501 | ATP  | C5-C6-N6    | 2.29  | 123.80      | 120.31   |
| 35  | A     | 501 | ATP  | O3'-C3'-C4' | -2.02 | 105.29      | 111.08   |

There are no chirality outliers.

All (19) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms          |
|-----|-------|-----|------|----------------|
| 35  | A     | 501 | ATP  | PB-O3B-PG-O2G  |
| 35  | A     | 501 | ATP  | PB-O3B-PG-O3G  |
| 35  | A     | 501 | ATP  | C5'-O5'-PA-O2A |
| 35  | A     | 501 | ATP  | C5'-O5'-PA-O3A |
| 35  | C     | 501 | ATP  | C5'-O5'-PA-O2A |
| 35  | D     | 501 | ATP  | C5'-O5'-PA-O2A |
| 36  | E     | 401 | ADP  | PB-O3A-PA-O1A  |
| 35  | C     | 501 | ATP  | C5'-O5'-PA-O1A |
| 35  | C     | 501 | ATP  | C5'-O5'-PA-O3A |
| 35  | D     | 501 | ATP  | C5'-O5'-PA-O1A |
| 35  | D     | 501 | ATP  | C5'-O5'-PA-O3A |
| 35  | B     | 501 | ATP  | PA-O3A-PB-O2B  |
| 35  | C     | 501 | ATP  | PA-O3A-PB-O2B  |
| 35  | C     | 501 | ATP  | PA-O3A-PB-O1B  |
| 35  | D     | 501 | ATP  | PA-O3A-PB-O1B  |
| 36  | E     | 401 | ADP  | PB-O3A-PA-O2A  |
| 35  | C     | 501 | ATP  | PG-O3B-PB-O1B  |
| 35  | D     | 501 | ATP  | PA-O3A-PB-O2B  |
| 35  | C     | 501 | ATP  | PG-O3B-PB-O2B  |

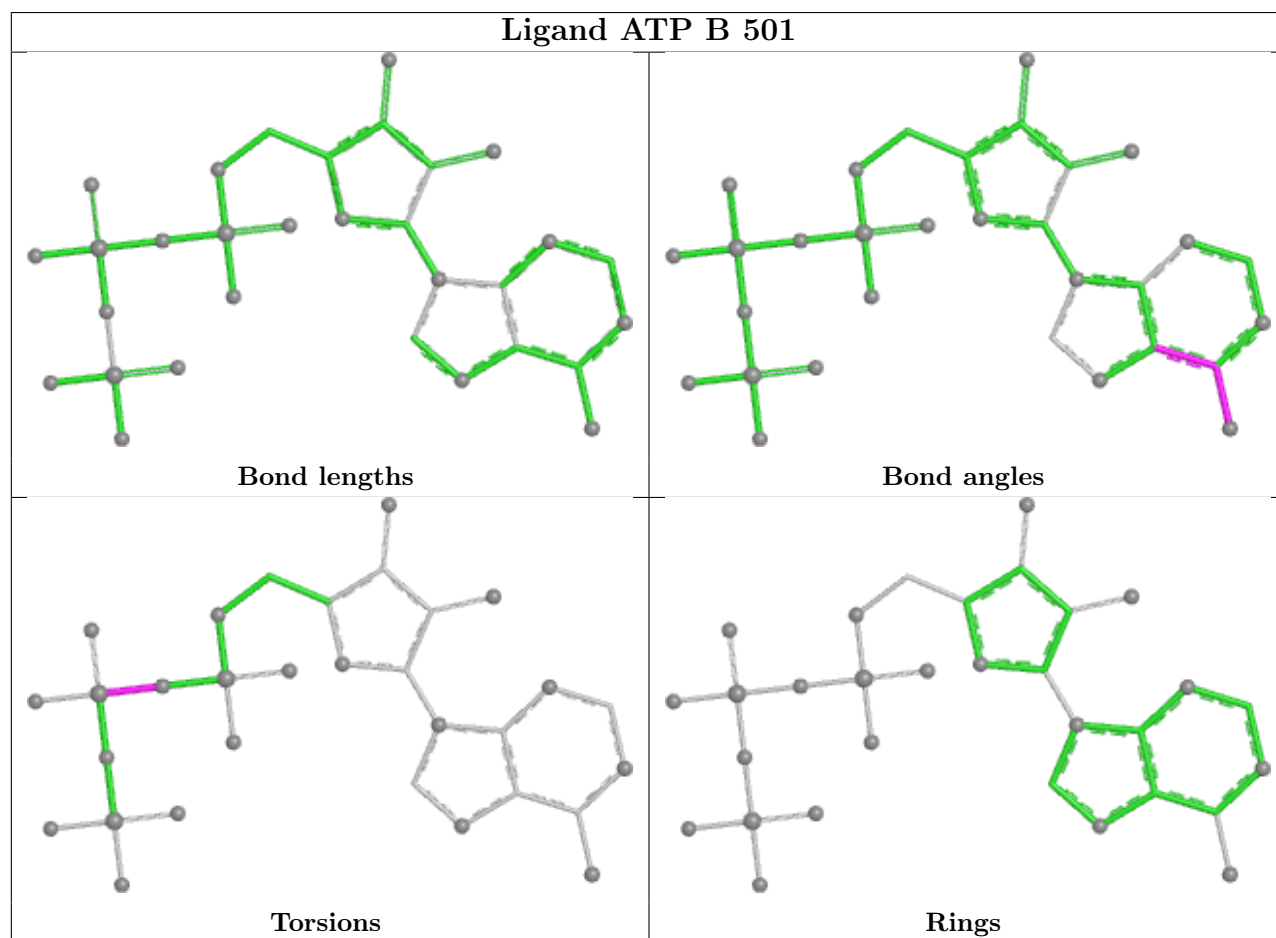
There are no ring outliers.

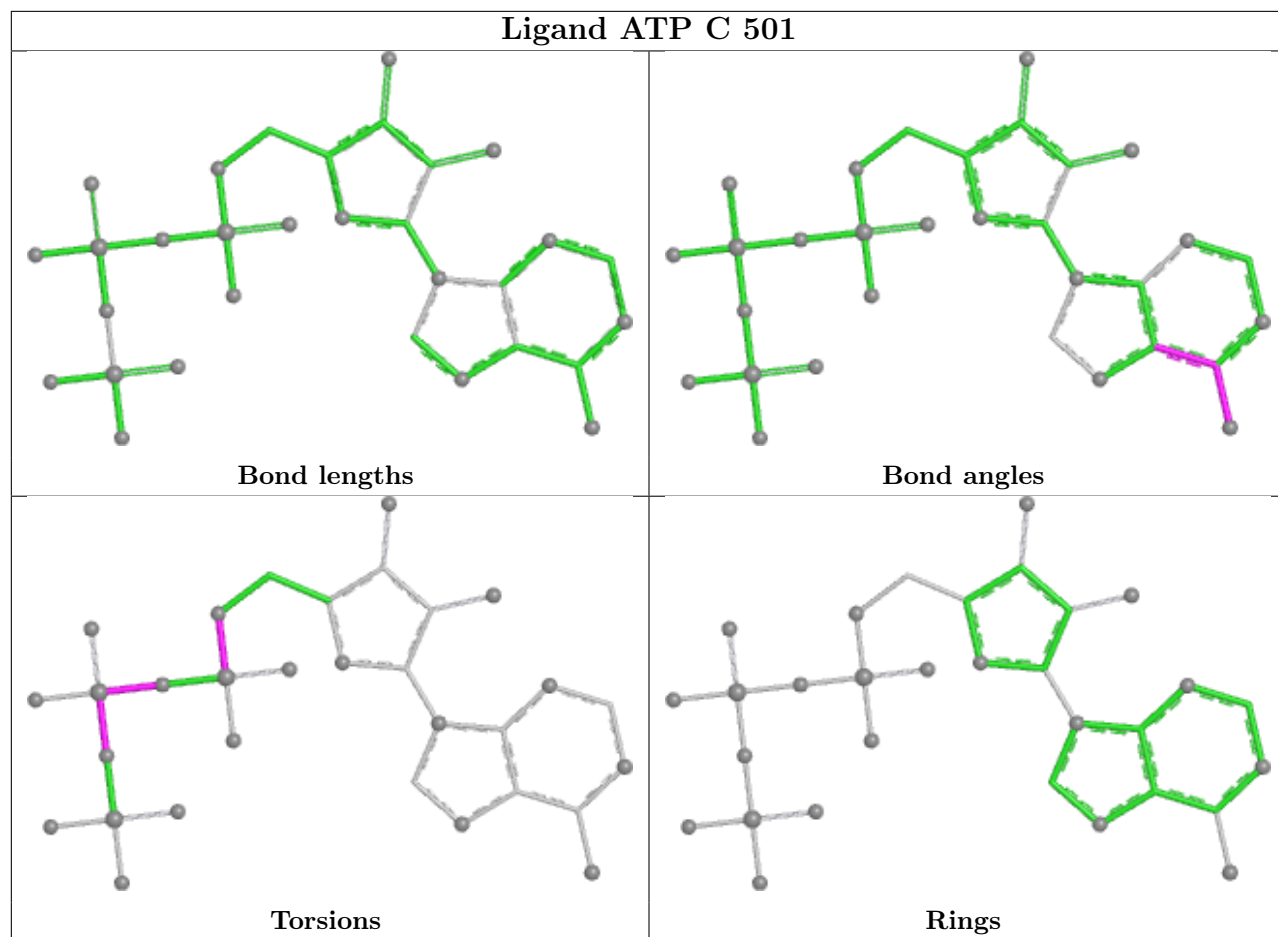
5 monomers are involved in 11 short contacts:

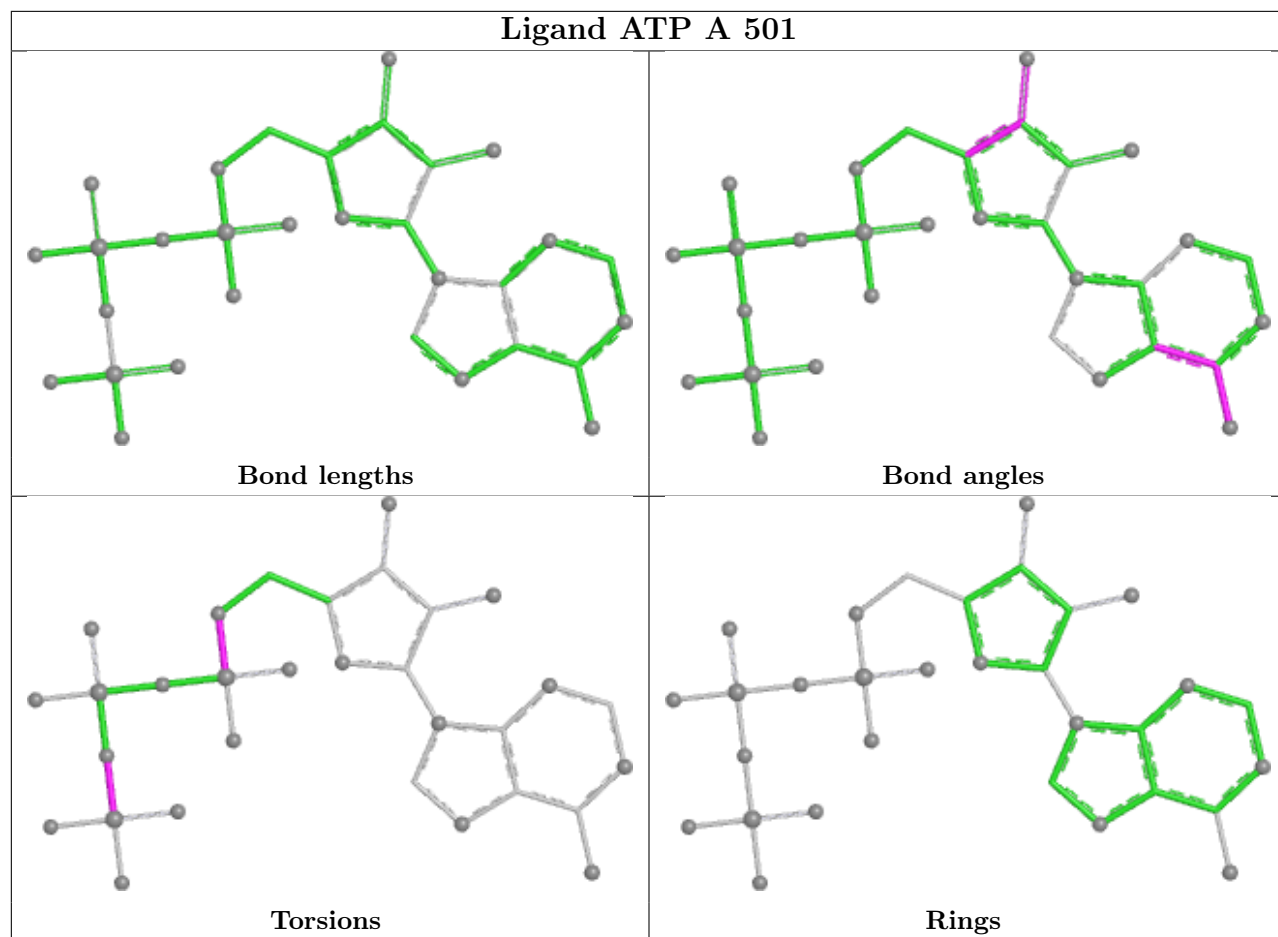
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 35  | B     | 501 | ATP  | 3       | 0            |
| 35  | C     | 501 | ATP  | 1       | 0            |
| 35  | A     | 501 | ATP  | 4       | 0            |
| 35  | D     | 501 | ATP  | 2       | 0            |
| 36  | E     | 401 | ADP  | 1       | 0            |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

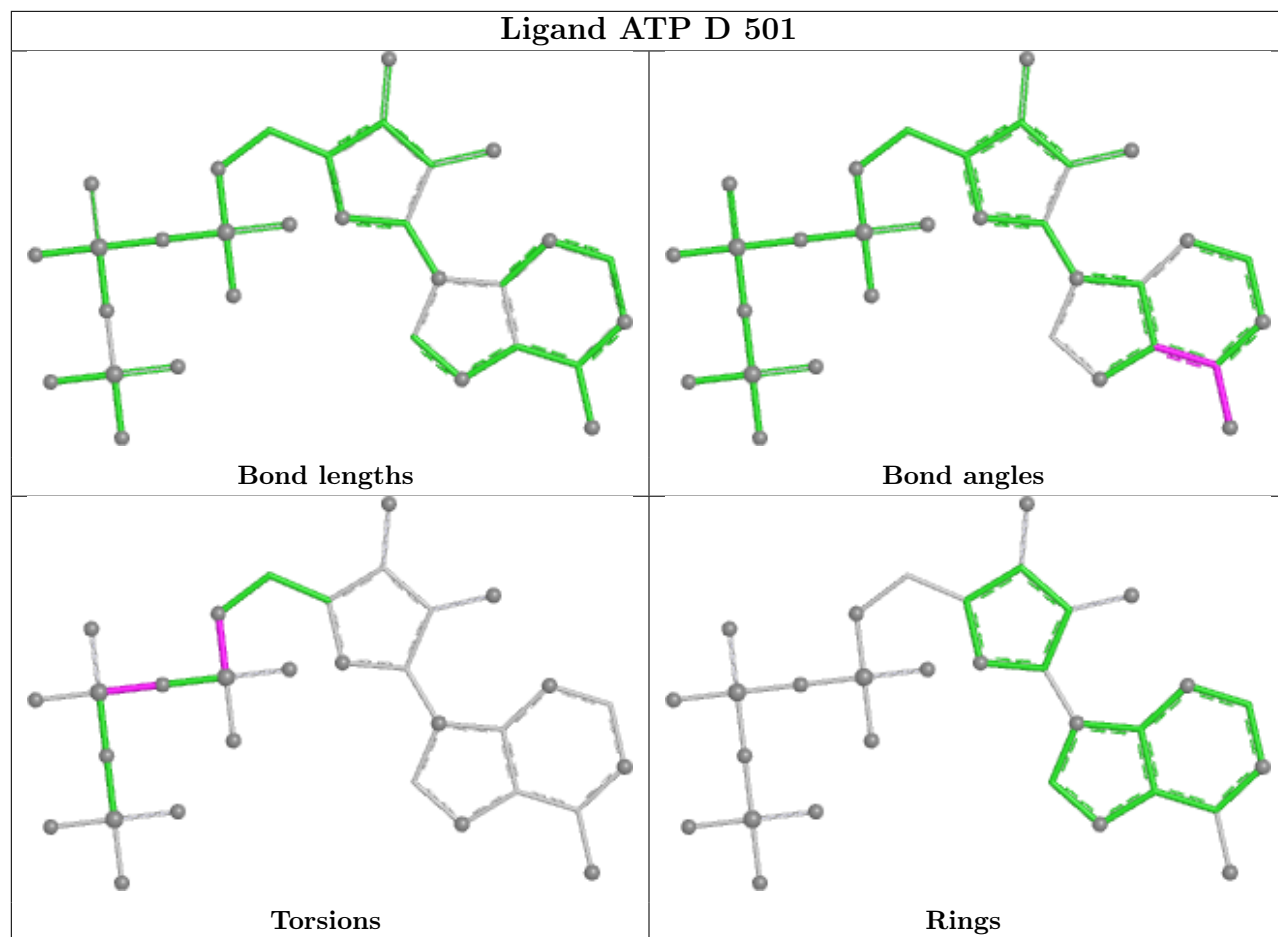
bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



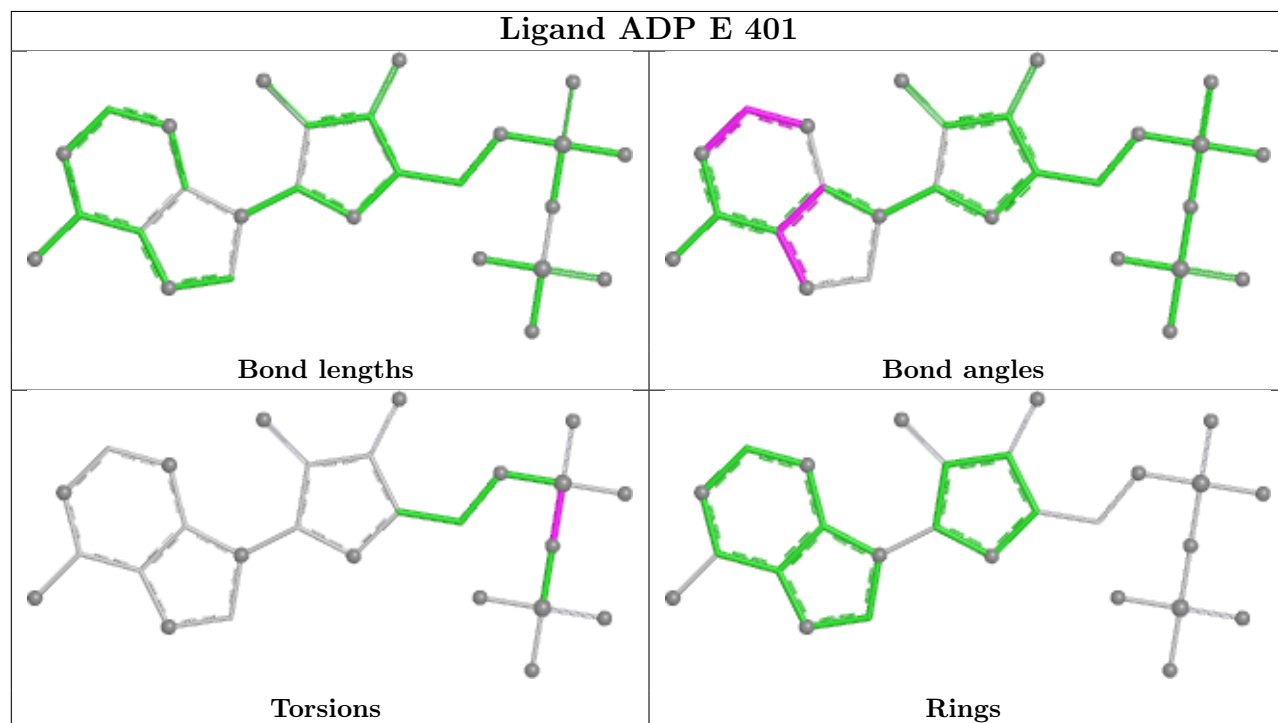




## Ligand ATP D 501



## Ligand ADP E 401





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

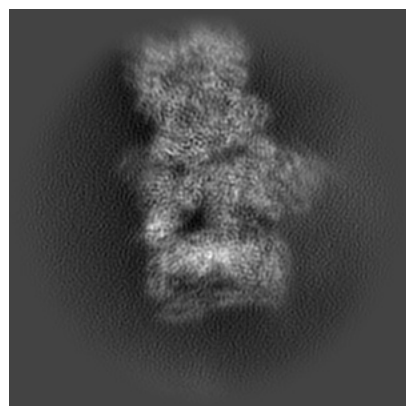
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-44929. These allow visual inspection of the internal detail of the map and identification of artifacts.

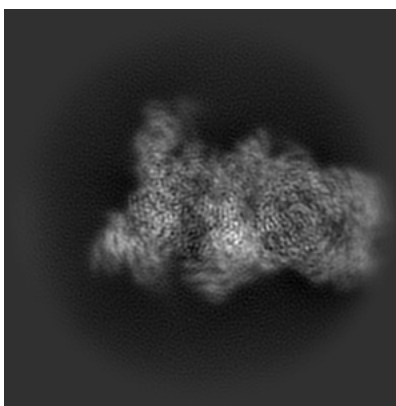
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

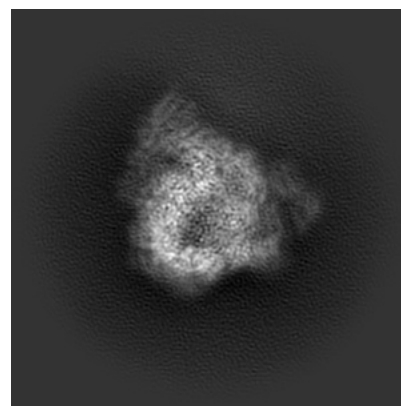
#### 6.1.1 Primary map



X

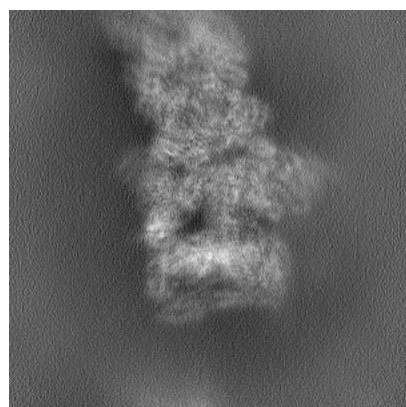


Y

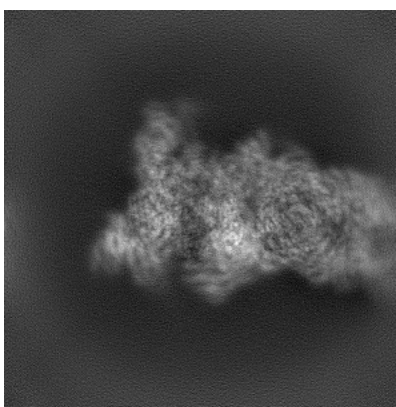


Z

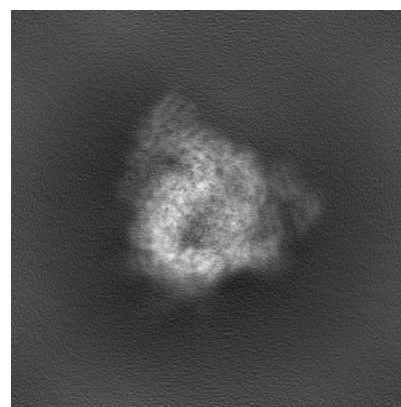
#### 6.1.2 Raw map



X



Y

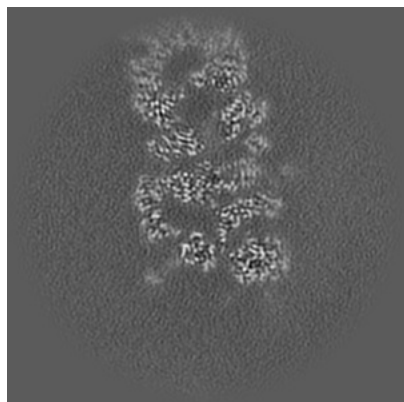


Z

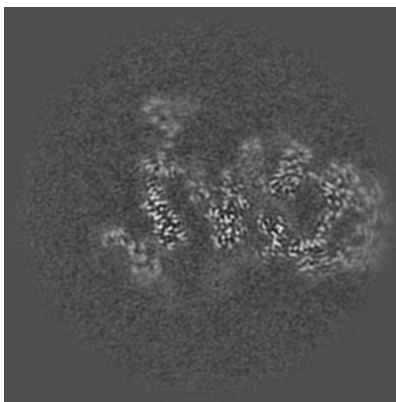
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

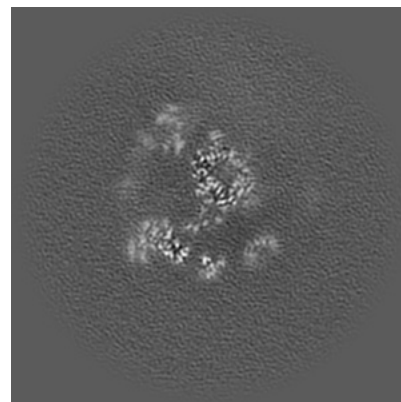
### 6.2.1 Primary map



X Index: 220

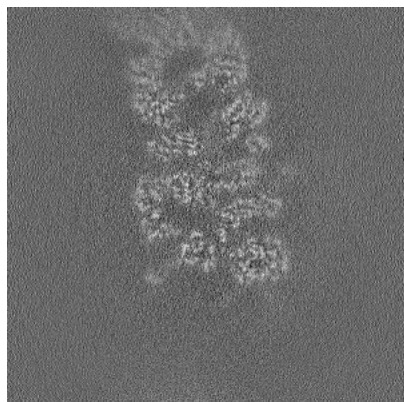


Y Index: 220

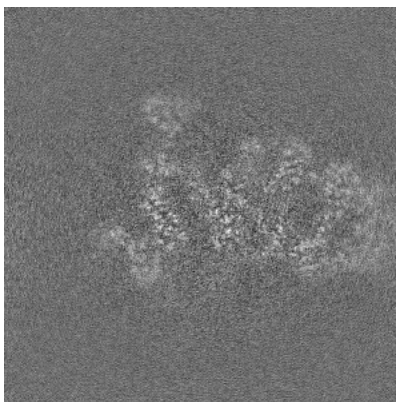


Z Index: 220

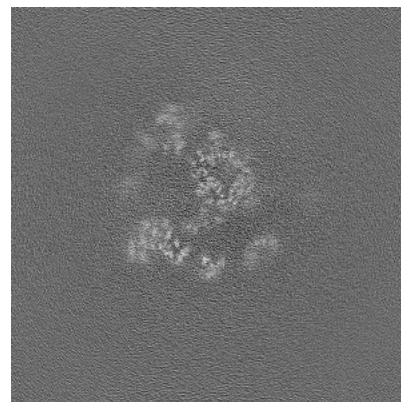
### 6.2.2 Raw map



X Index: 220



Y Index: 220

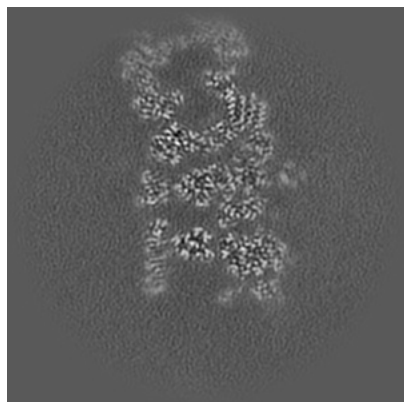


Z Index: 220

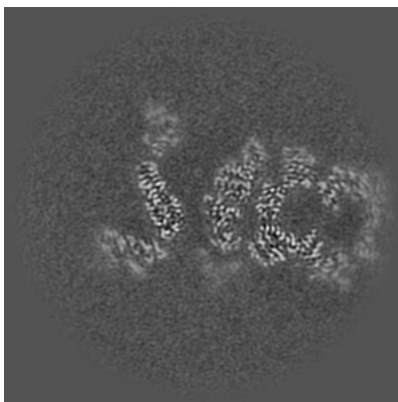
The images above show central slices of the map in three orthogonal directions.

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

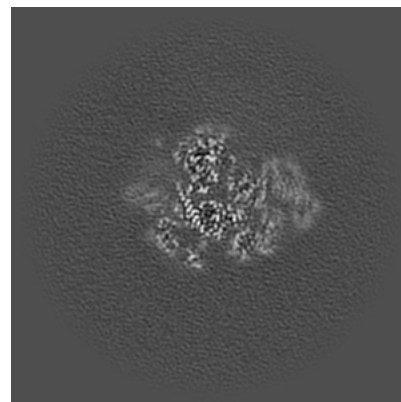
### 6.3.1 Primary map



X Index: 209

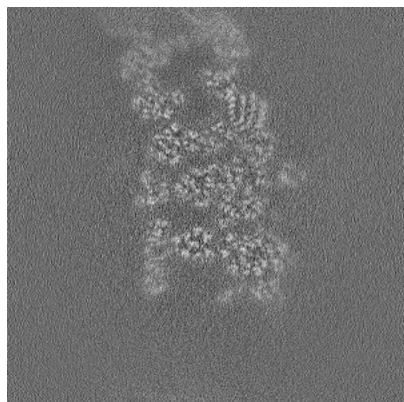


Y Index: 205

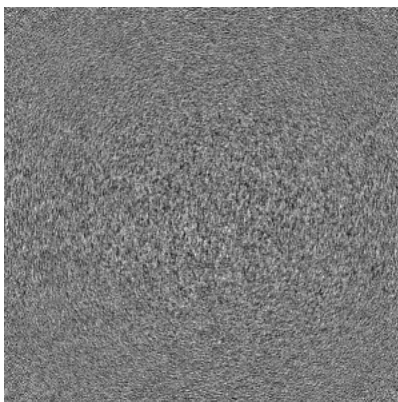


Z Index: 170

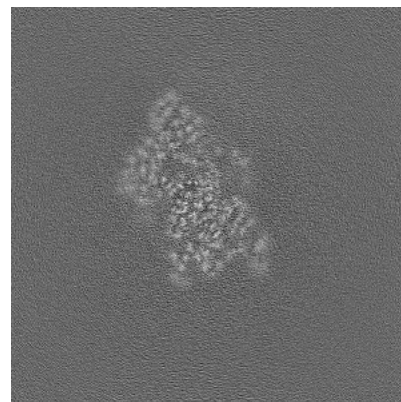
### 6.3.2 Raw map



X Index: 209



Y Index: 0



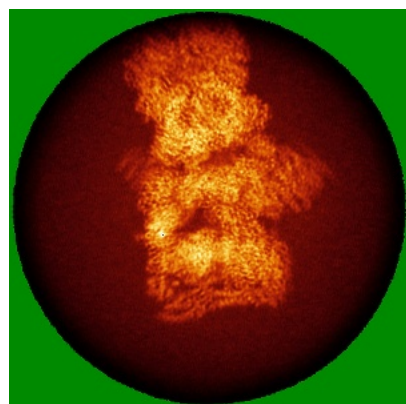
Z Index: 243

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

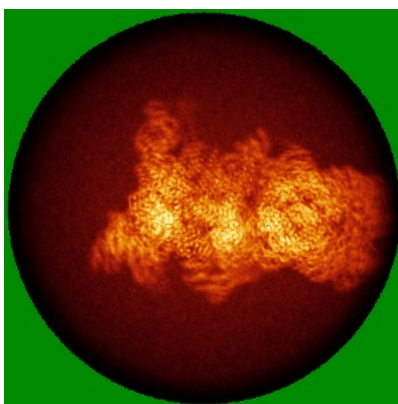


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

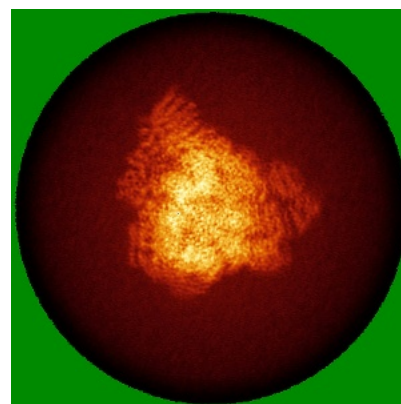
### 6.4.1 Primary map



X

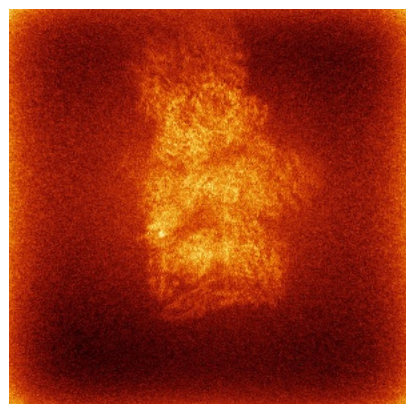


Y

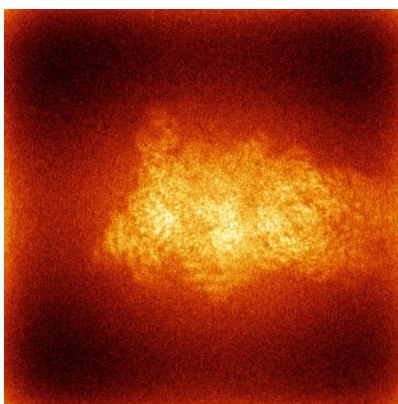


Z

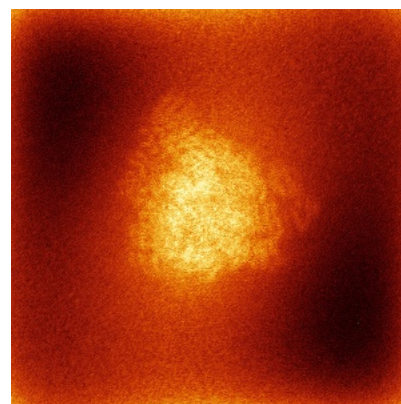
### 6.4.2 Raw map



X



Y

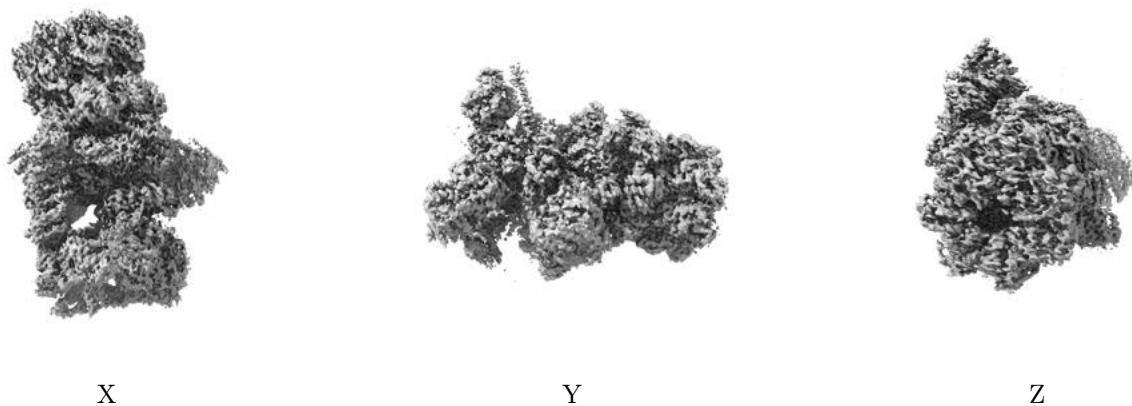


Z

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.

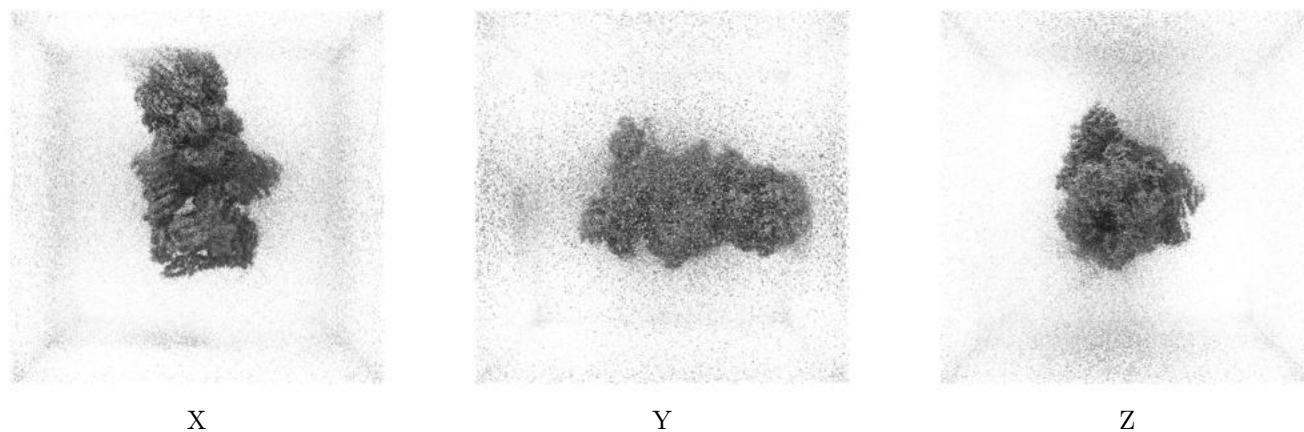
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.25. 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



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.

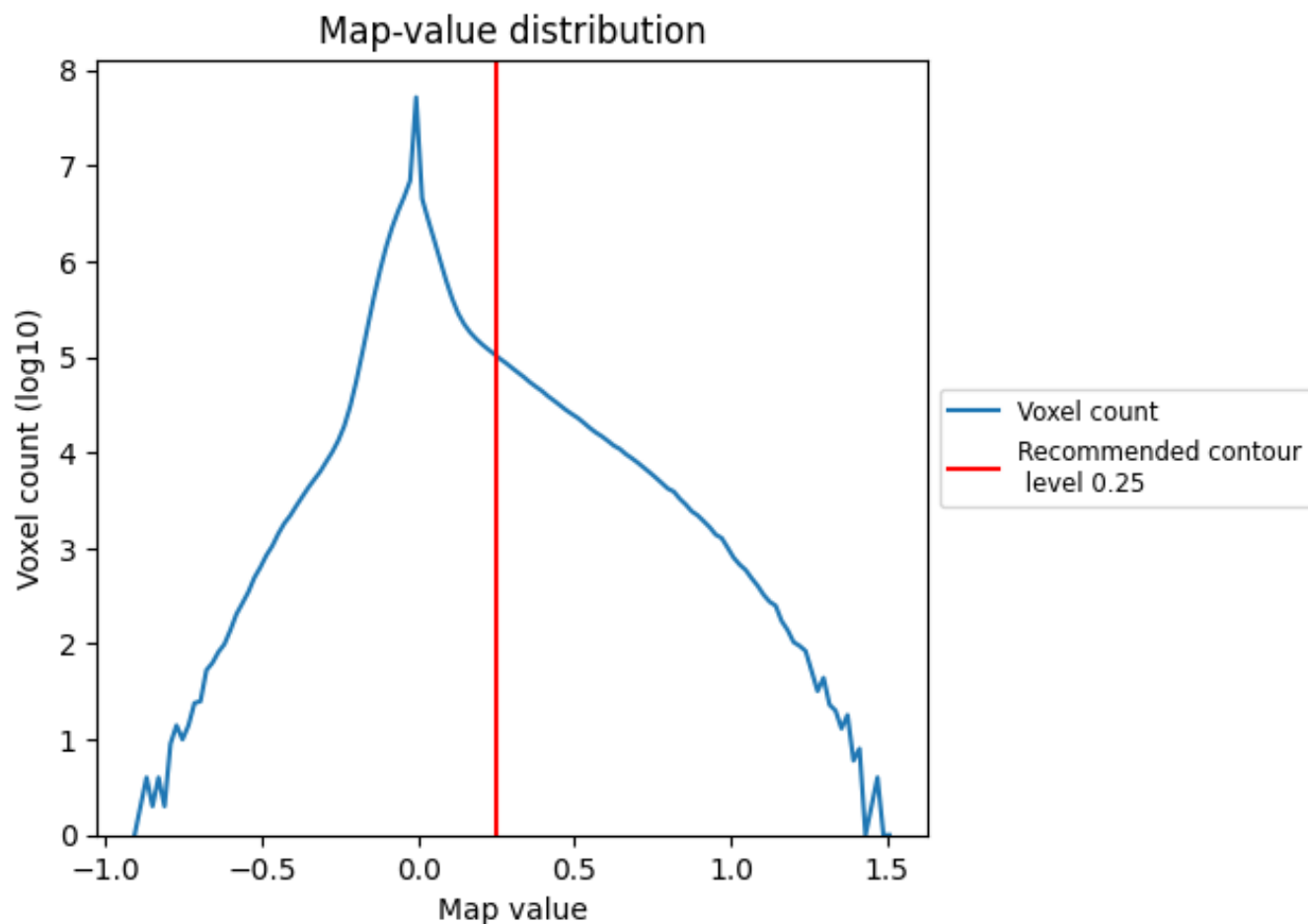
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

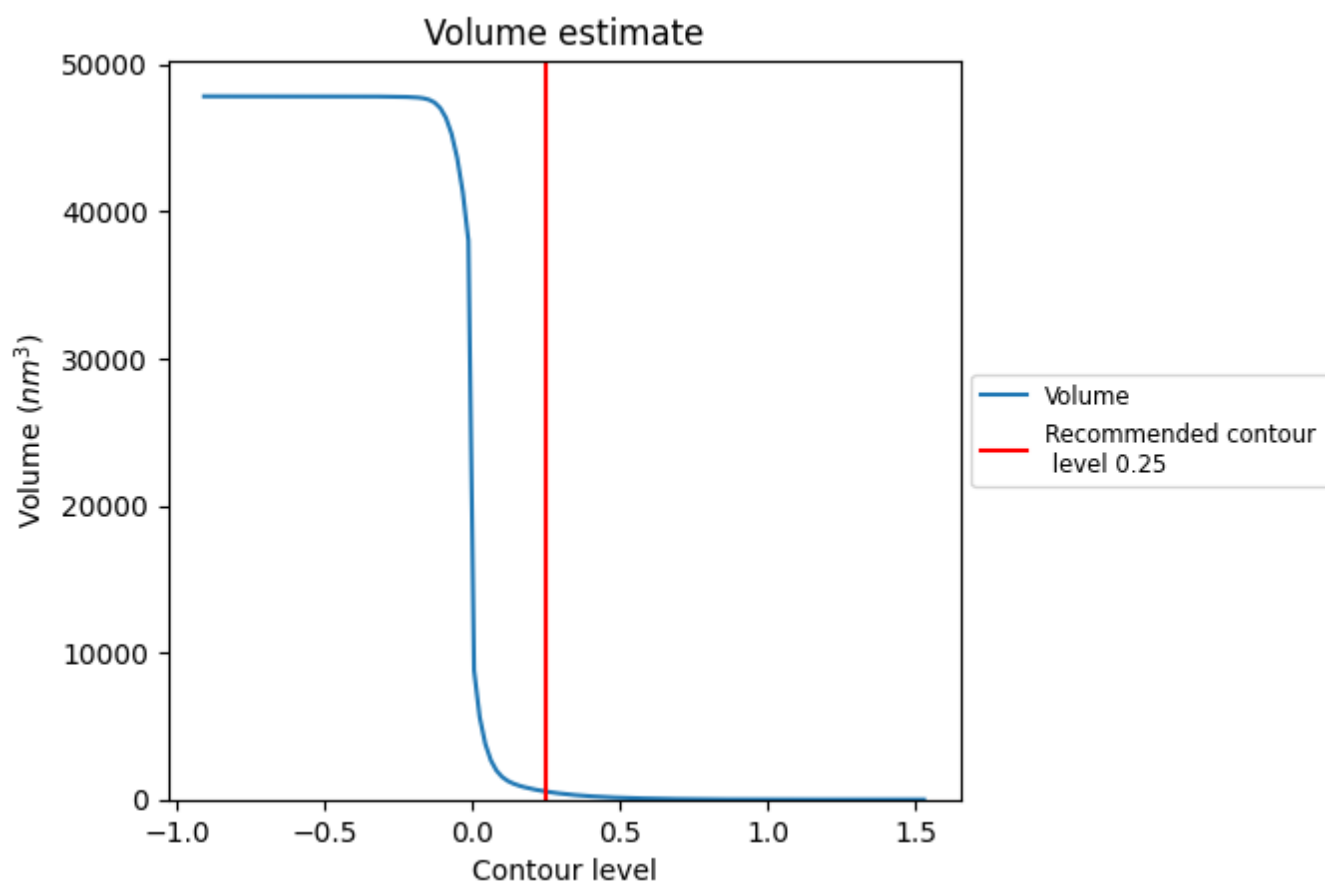
This section contains the results of statistical analysis of the map.

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



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

## 7.2 Volume estimate [i](#)

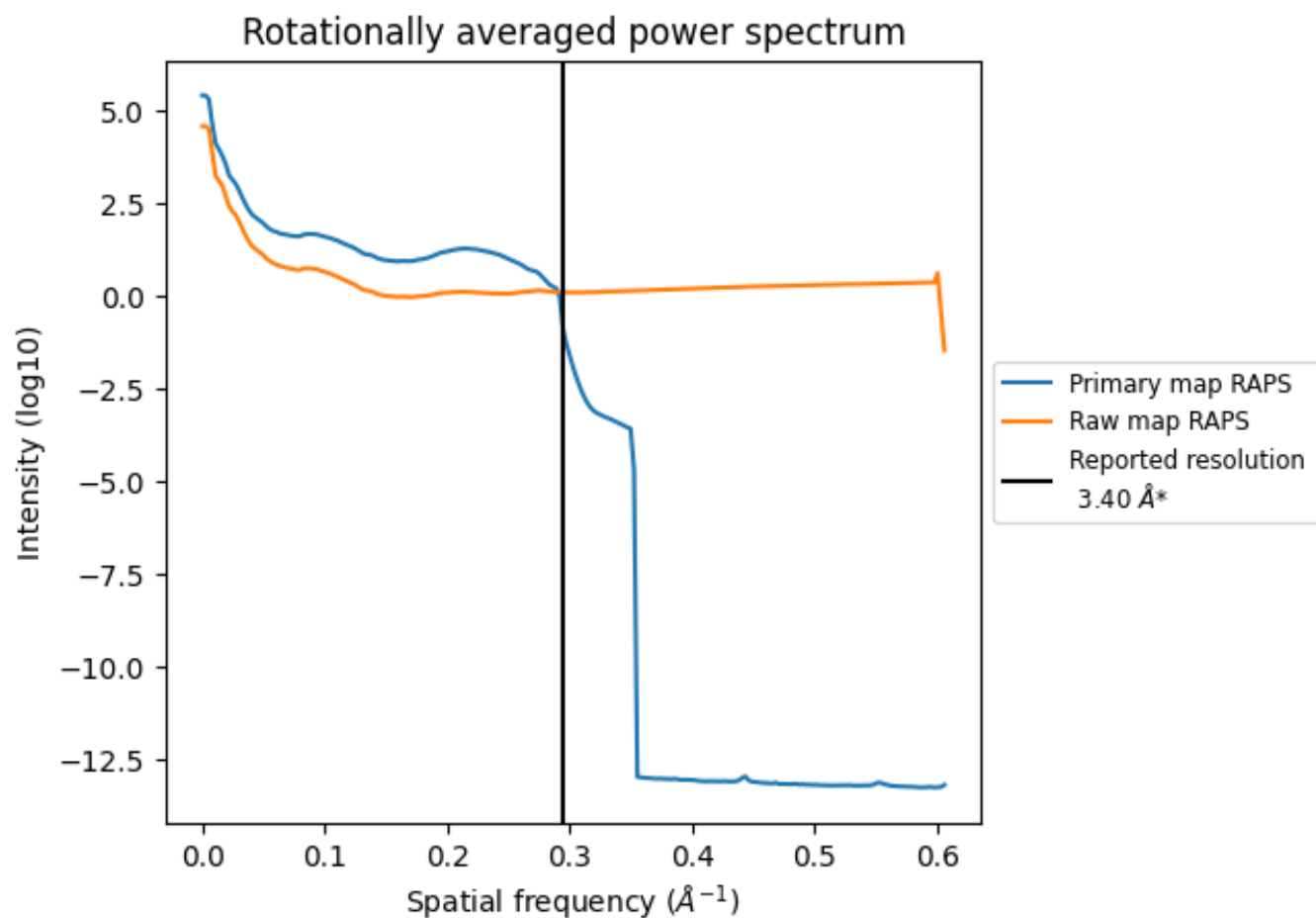


The volume at the recommended contour level is 545 nm<sup>3</sup>; this corresponds to an approximate mass of 492 kDa.

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 ⓘ

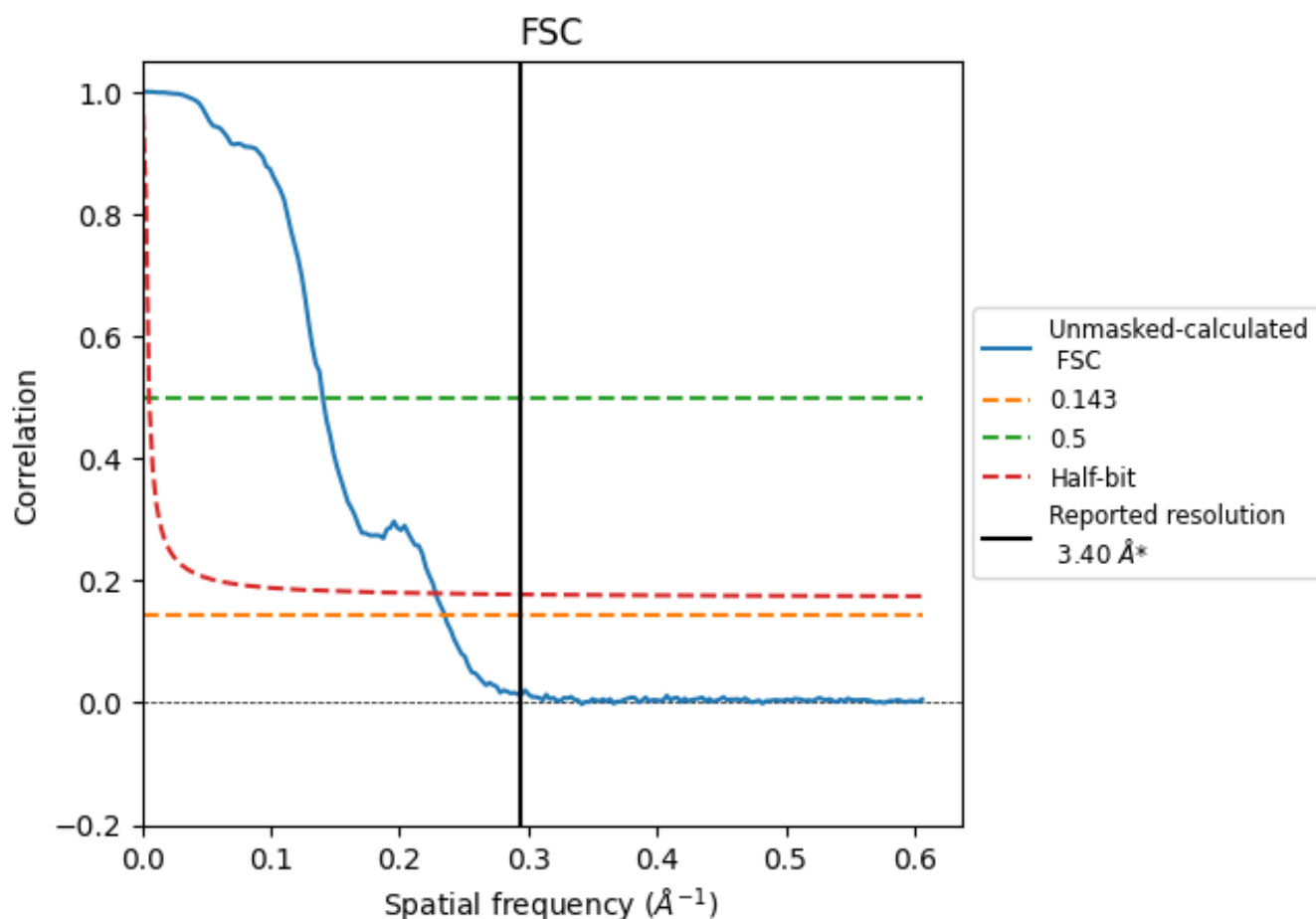


\*Reported resolution corresponds to spatial frequency of 0.294 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

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 [i](#)



\*Reported resolution corresponds to spatial frequency of 0.294  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

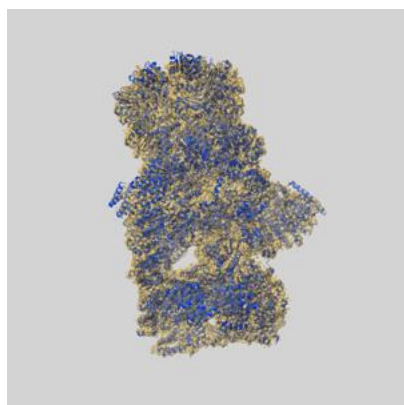
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.40                               | -    | -        |
| Author-provided FSC curve | -                                  | -    | -        |
| Unmasked-calculated*      | 4.26                               | 7.13 | 4.39     |

\*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 4.26 differs from the reported value 3.4 by more than 10 %

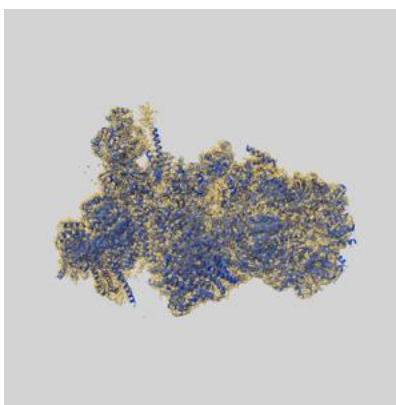
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-44929 and PDB model 9BV2. Per-residue inclusion information can be found in [section 3](#) on [page 13](#).

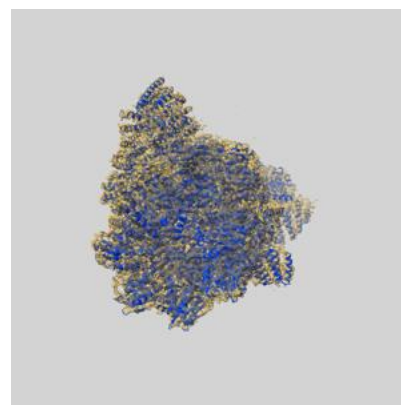
### 9.1 Map-model overlay [i](#)



X



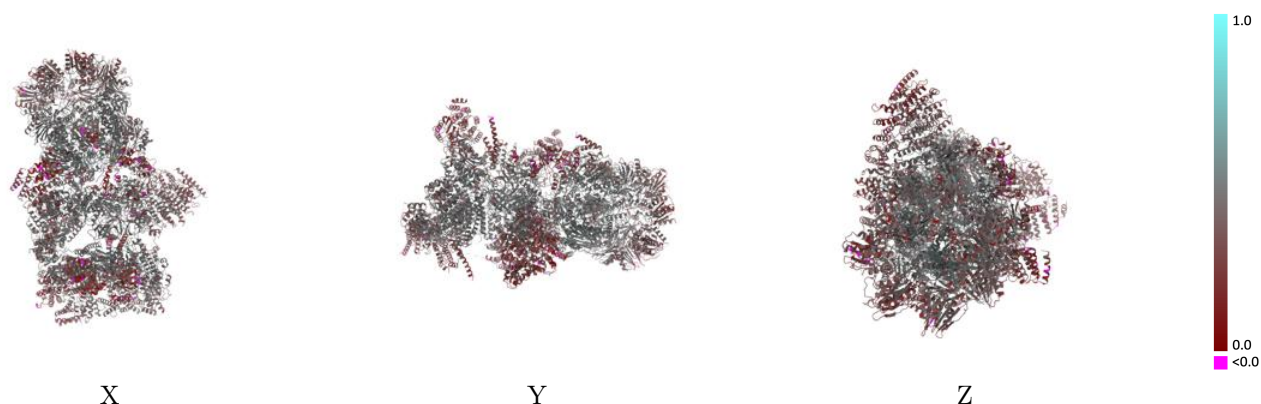
Y



Z

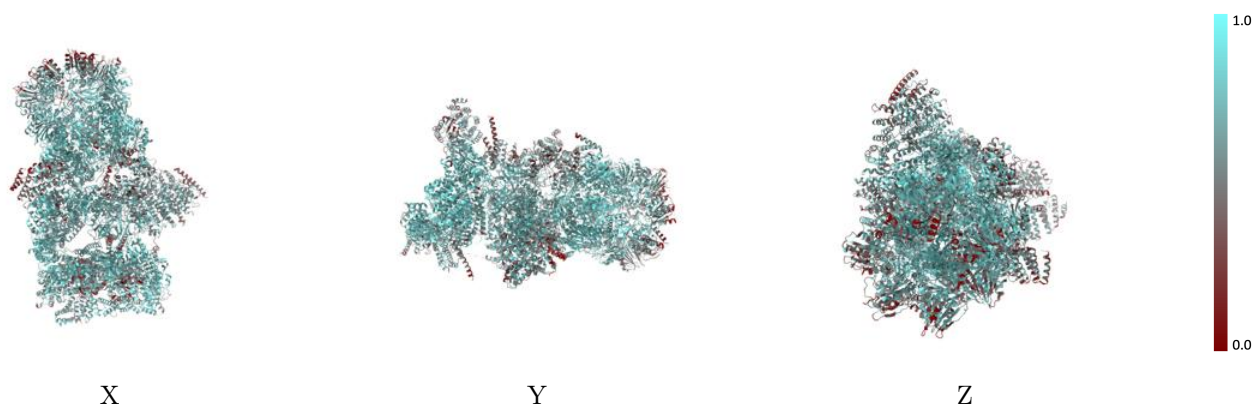
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



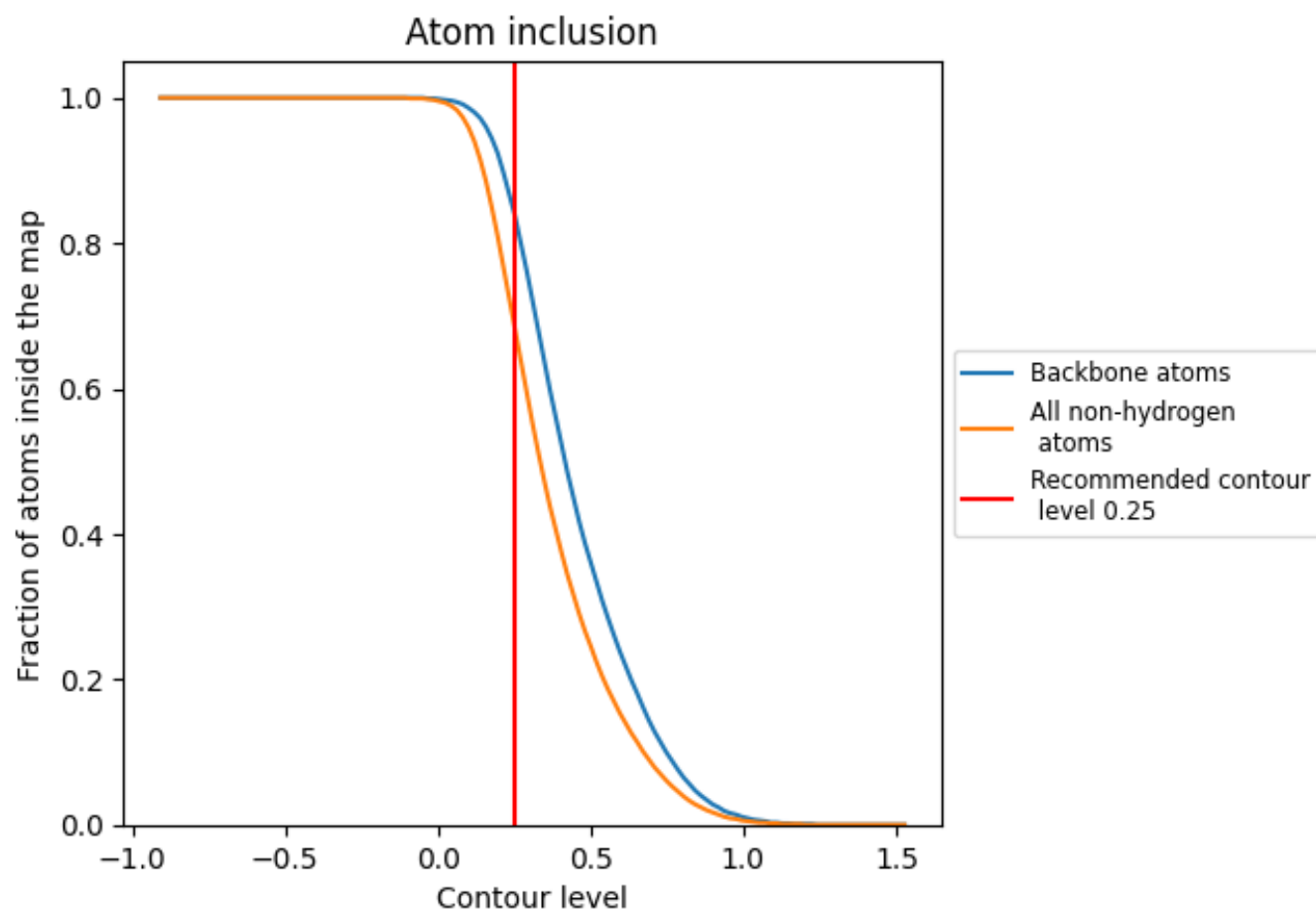
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 84% of all backbone atoms, 69% 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 (0.25) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.6890   |  0.4080   |
| A     |  0.6130   |  0.3640   |
| B     |  0.7170   |  0.4540   |
| C     |  0.7870   |  0.4860   |
| D     |  0.7800   |  0.4890   |
| E     |  0.6910   |  0.4240   |
| F     |  0.4740   |  0.2760   |
| G     |  0.7480   |  0.4510   |
| H     |  0.8170   |  0.5000   |
| I     |  0.7880   |  0.4940   |
| J     |  0.7860   |  0.4840   |
| K     |  0.7720   |  0.4780   |
| L     |  0.7890   |  0.4490   |
| M     |  0.7300   |  0.4230   |
| N     |  0.7700  |  0.4530  |
| O     |  0.7620 |  0.4740 |
| P     |  0.7850 |  0.4750 |
| Q     |  0.7670 |  0.4670 |
| R     |  0.8100 |  0.4590 |
| S     |  0.7790 |  0.4550 |
| T     |  0.7730 |  0.4340 |
| U     |  0.7630 |  0.4310 |
| V     |  0.7040 |  0.3890 |
| W     |  0.6160 |  0.3470 |
| X     |  0.6430 |  0.3880 |
| Y     |  0.7790 |  0.4300 |
| Z     |  0.7620 |  0.4550 |
| a     |  0.6470 |  0.3340 |
| b     |  0.5130 |  0.2890 |
| c     |  0.7530 |  0.4680 |
| d     |  0.6200 |  0.3010 |
| e     |  0.7610 |  0.4480 |
| f     |  0.5860 |  0.3090 |
| n     |  0.5370 |  0.3750 |
| o     |  0.4950 |  0.3490 |



*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| p     |  0.4610 |  0.3570 |
| q     |  0.4730 |  0.3400 |
| r     |  0.5150 |  0.3360 |
| s     |  0.5570 |  0.3610 |
| t     |  0.5790 |  0.3830 |
| y     |  0.2470 |  0.2550 |