



Full wwPDB EM Validation Report ⓘ

Jan 31, 2023 – 06:31 PM JST

PDB ID : 7W1Y
EMDB ID : EMD-32258
Title : Human MCM double hexamer bound to natural DNA duplex
(polyAT/polyTA)
Authors : Li, J.; Dong, J.; Dang, S.; Zhai, Y.
Deposited on : 2021-11-21
Resolution : 2.59 Å(reported)
Based on initial model : 3JA8

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ 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:

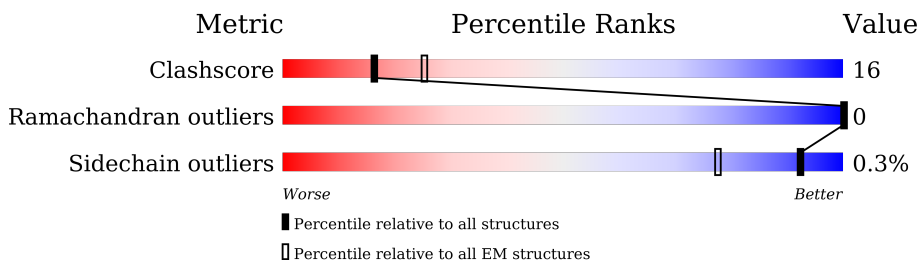
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.32.1

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.59 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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 | 2 | 904 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 53%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 25%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 53% 25% 22%</p> |
| 1 | A | 904 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 53%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 53% 24% 22%</p> |
| 2 | 3 | 853 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 58%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 58% 17% 24%</p> |
| 2 | B | 853 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 59%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 59% 17% 24%</p> |
| 3 | 4 | 863 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 55%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 55% 20% 24%</p> |
| 3 | C | 863 | <div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 57%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 18%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 25%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">5% 57% 18% 25%</p> |
| 4 | 5 | 734 | <div style="display: flex; align-items: center;"> <div style="width: 13%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 73%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">13% 73% 23% .</p> |
| 4 | D | 734 | <div style="display: flex; align-items: center;"> <div style="width: 11%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 73%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">11% 73% 23% .</p> |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|-----------------------|
| 5 | 6 | 821 | <p>5% 62% 25% 13%</p> |
| 5 | E | 821 | <p>64% 22% 13%</p> |
| 6 | 7 | 719 | <p>65% 23% 12%</p> |
| 6 | F | 719 | <p>66% 23% 11%</p> |
| 7 | O | 98 | <p>8% 14% 55% 31%</p> |
| 8 | S | 98 | <p>12% 6% 37% 55%</p> |

2 Entry composition [i](#)

There are 12 unique types of molecules in this entry. The entry contains 68655 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called DNA replication licensing factor MCM2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 1 | 2 | 706 | Total | C | N | O | S | 0 | 0 |
| | | | 5591 | 3517 | 999 | 1043 | 32 | | |
| 1 | A | 702 | Total | C | N | O | S | 0 | 0 |
| | | | 5556 | 3499 | 991 | 1034 | 32 | | |

- Molecule 2 is a protein called Isoform 2 of DNA replication licensing factor MCM3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 2 | 3 | 650 | Total | C | N | O | S | 0 | 0 |
| | | | 5080 | 3174 | 892 | 988 | 26 | | |
| 2 | B | 651 | Total | C | N | O | S | 0 | 0 |
| | | | 5100 | 3189 | 896 | 989 | 26 | | |

- Molecule 3 is a protein called DNA replication licensing factor MCM4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 3 | 4 | 653 | Total | C | N | O | S | 0 | 0 |
| | | | 5187 | 3265 | 925 | 971 | 26 | | |
| 3 | C | 651 | Total | C | N | O | S | 0 | 0 |
| | | | 5184 | 3262 | 924 | 972 | 26 | | |

- Molecule 4 is a protein called DNA replication licensing factor MCM5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 4 | 5 | 710 | Total | C | N | O | S | 0 | 0 |
| | | | 5500 | 3451 | 979 | 1033 | 37 | | |
| 4 | D | 705 | Total | C | N | O | S | 0 | 0 |
| | | | 5474 | 3438 | 974 | 1024 | 38 | | |

- Molecule 5 is a protein called DNA replication licensing factor MCM6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| 5 | 6 | 716 | Total | C | N | O | S | 0 | 0 |
| | | | 5726 | 3593 | 1018 | 1088 | 27 | | |
| 5 | E | 711 | Total | C | N | O | S | 0 | 0 |
| | | | 5694 | 3575 | 1011 | 1081 | 27 | | |

- Molecule 6 is a protein called DNA replication licensing factor MCM7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 6 | 7 | 636 | Total | C | N | O | S | 1 | 0 |
| | | | 5065 | 3170 | 905 | 958 | 32 | | |
| 6 | F | 643 | Total | C | N | O | S | 1 | 0 |
| | | | 5102 | 3189 | 911 | 970 | 32 | | |

- Molecule 7 is a DNA chain called DNA (49-MER).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 7 | O | 49 | Total | C | N | O | P | 49 | 0 |
| | | | 2009 | 980 | 343 | 588 | 98 | | |

- Molecule 8 is a DNA chain called DNA (49-MER).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 8 | S | 49 | Total | C | N | O | P | 49 | 0 |
| | | | 2009 | 980 | 343 | 588 | 98 | | |

- Molecule 9 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 9 | 2 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | 4 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | 5 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | 6 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | 7 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | A | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 9 | C | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |

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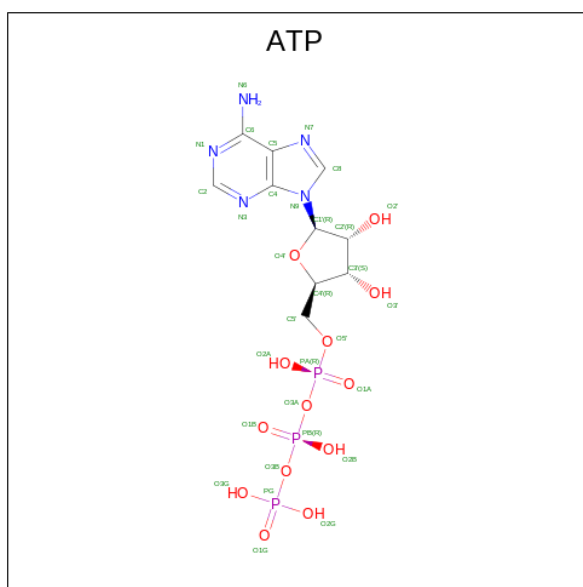
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| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|------------|---------|---------|
| 9 | D | 1 | Total 1 | Zn 1 | 0 |
| 9 | E | 1 | Total 1 | Zn 1 | 0 |
| 9 | F | 1 | Total 1 | Zn 1 | 0 |

- Molecule 10 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

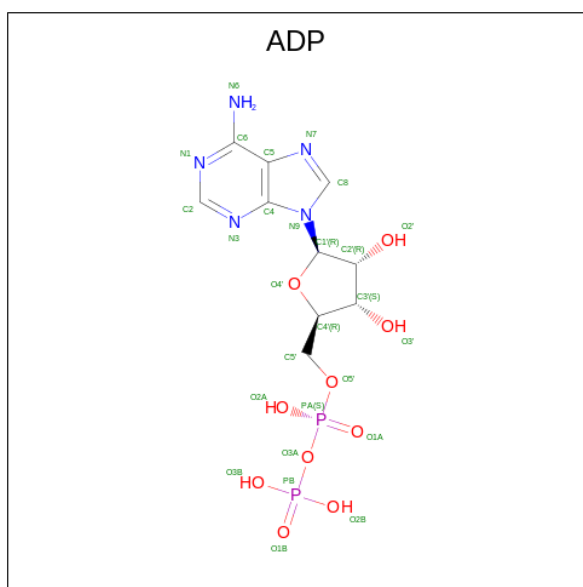
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|------------|---------|---------|
| 10 | 2 | 1 | Total 1 | Mg 1 | 0 |
| 10 | 3 | 1 | Total 1 | Mg 1 | 0 |
| 10 | 4 | 1 | Total 1 | Mg 1 | 0 |
| 10 | 5 | 1 | Total 1 | Mg 1 | 0 |
| 10 | 6 | 1 | Total 1 | Mg 1 | 0 |
| 10 | 7 | 1 | Total 1 | Mg 1 | 0 |
| 10 | A | 1 | Total 1 | Mg 1 | 0 |
| 10 | B | 1 | Total 1 | Mg 1 | 0 |
| 10 | C | 1 | Total 1 | Mg 1 | 0 |
| 10 | D | 1 | Total 1 | Mg 1 | 0 |
| 10 | E | 1 | Total 1 | Mg 1 | 0 |
| 10 | F | 1 | Total 1 | Mg 1 | 0 |

- Molecule 11 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).



| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| | | | Total | C | N | O | P | |
| 11 | 2 | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | 3 | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | 4 | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | 7 | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | A | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | B | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | C | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |
| 11 | F | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 10 | 5 | 13 | 3 | |

- Molecule 12 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).

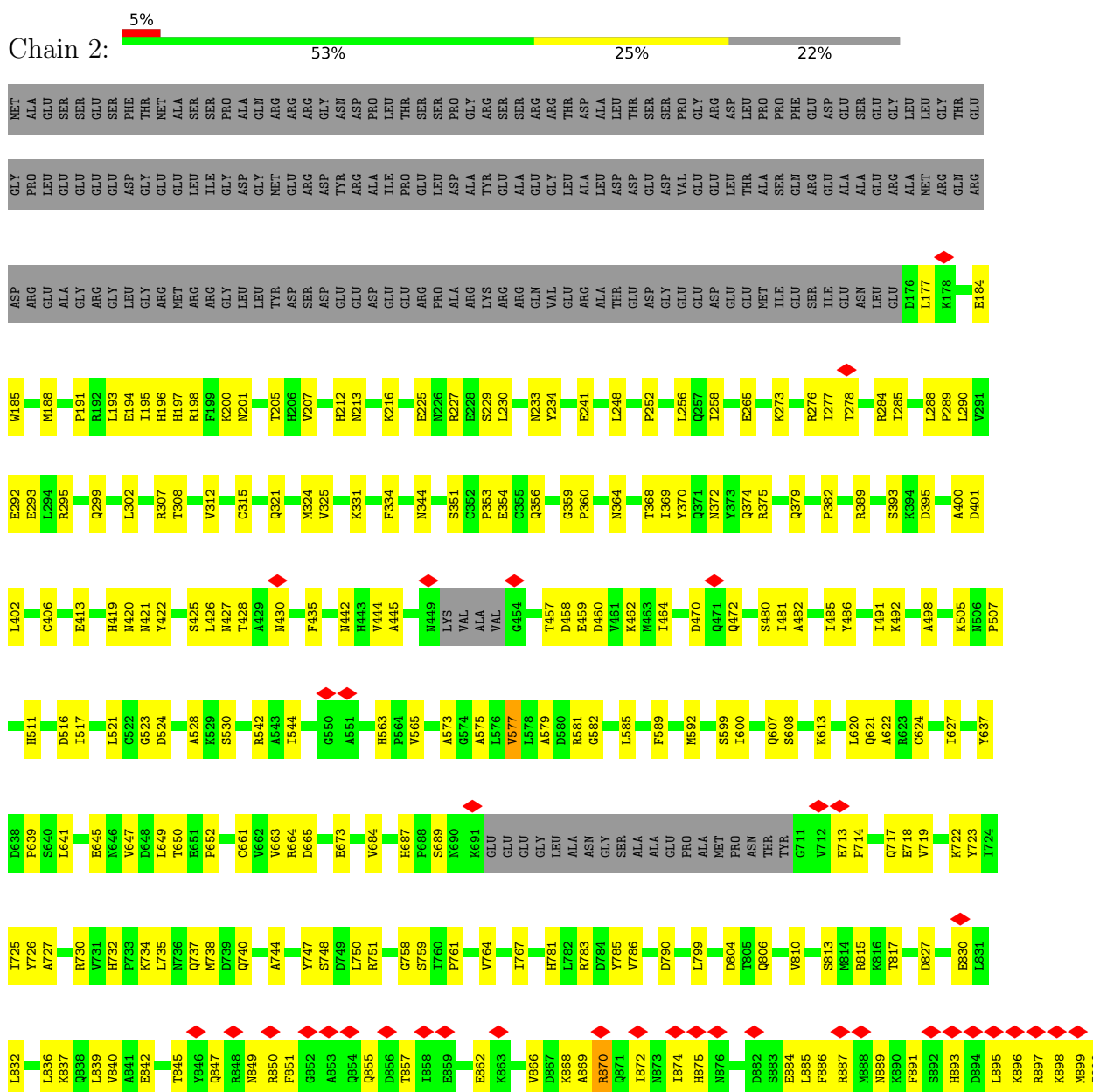


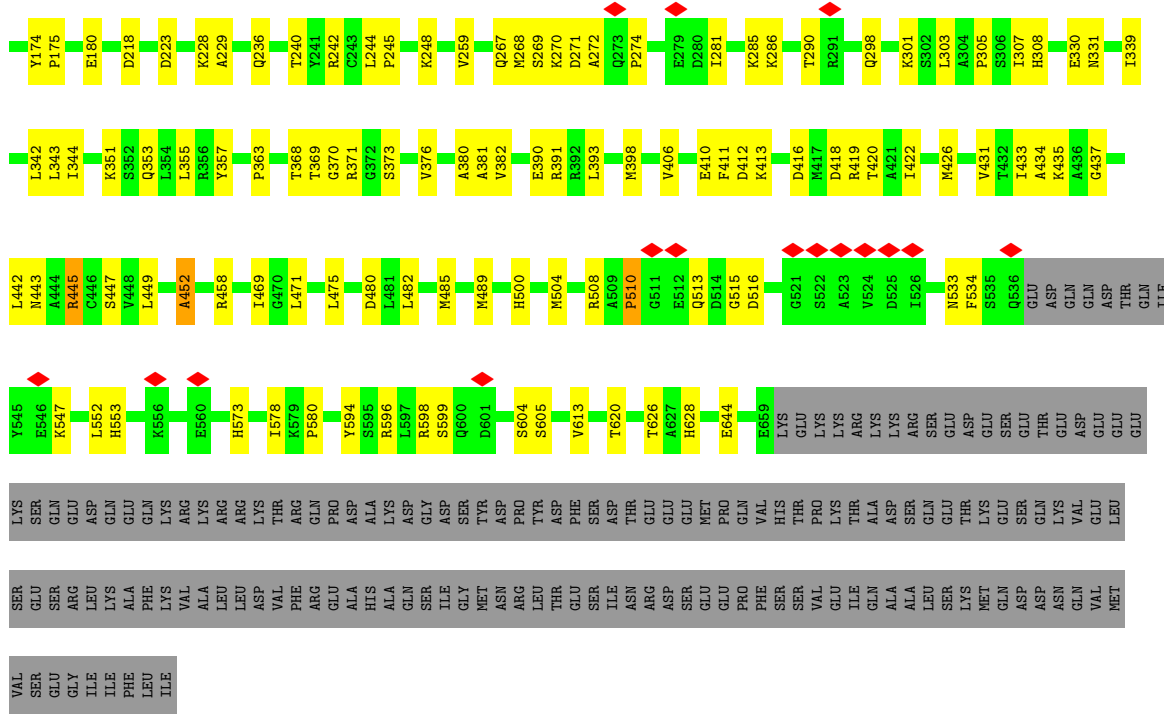
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| | | | Total | C | N | O | P | |
| 12 | 5 | 1 | Total | C | N | O | P | 0 |
| | | | 27 | 10 | 5 | 10 | 2 | |
| 12 | 6 | 1 | Total | C | N | O | P | 0 |
| | | | 27 | 10 | 5 | 10 | 2 | |
| 12 | D | 1 | Total | C | N | O | P | 0 |
| | | | 27 | 10 | 5 | 10 | 2 | |
| 12 | E | 1 | Total | C | N | O | P | 0 |
| | | | 27 | 10 | 5 | 10 | 2 | |

3 Residue-property plots

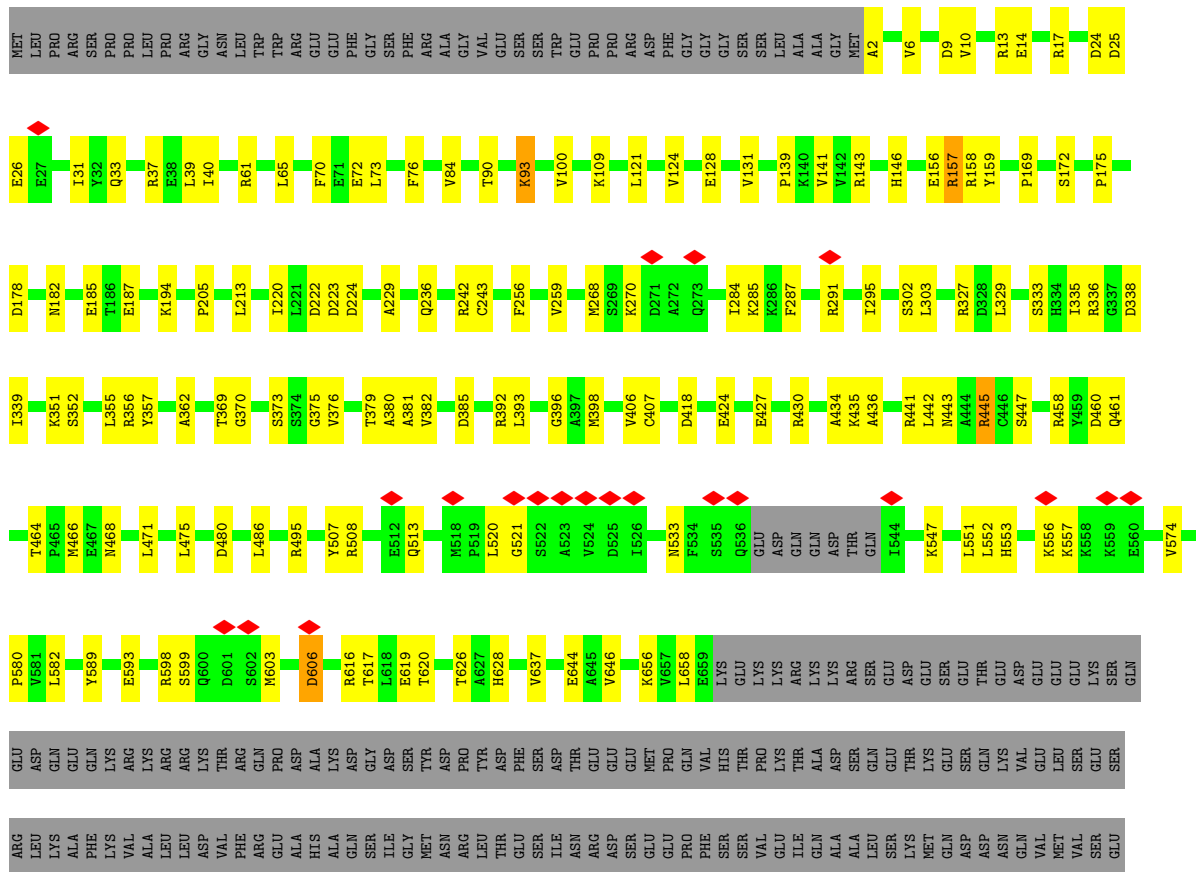
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: DNA replication licensing factor MCM2





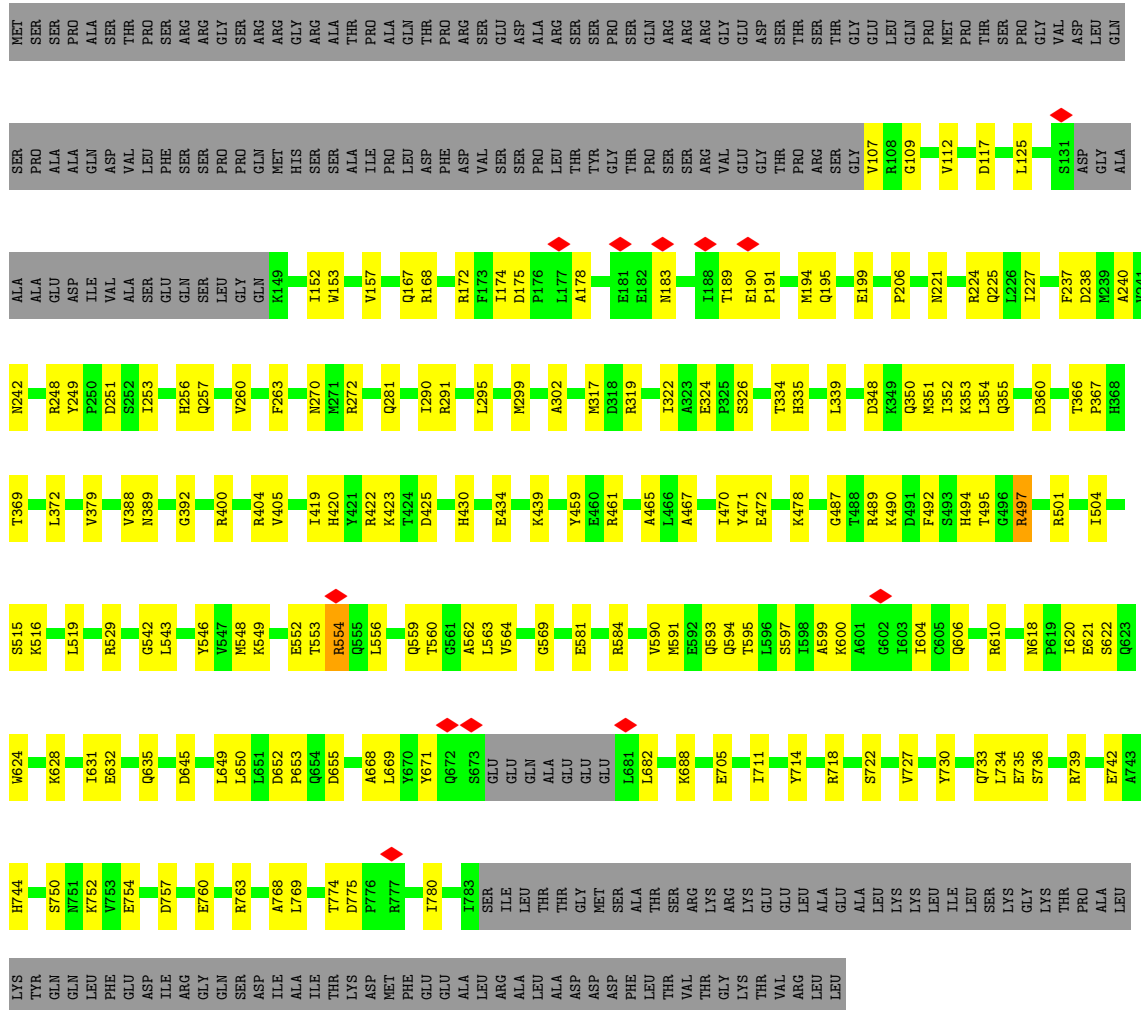
• Molecule 2: Isoform 2 of DNA replication licensing factor MCM3



GLY
ILE
ILE
PHE
LEU
ILE

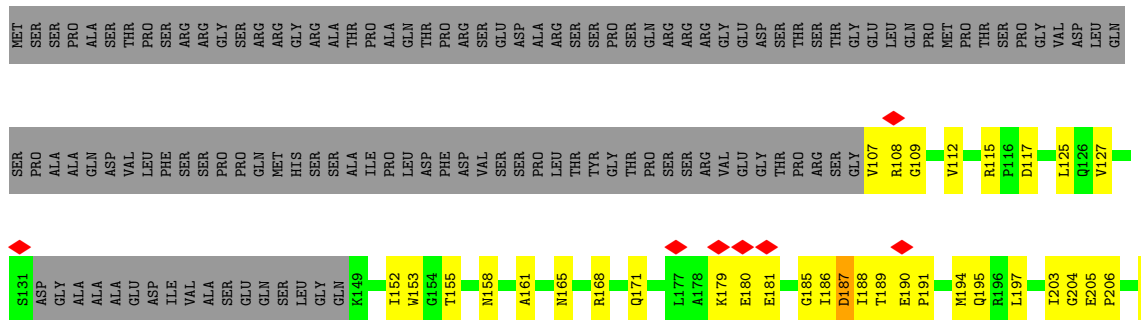
• Molecule 3: DNA replication licensing factor MCM4

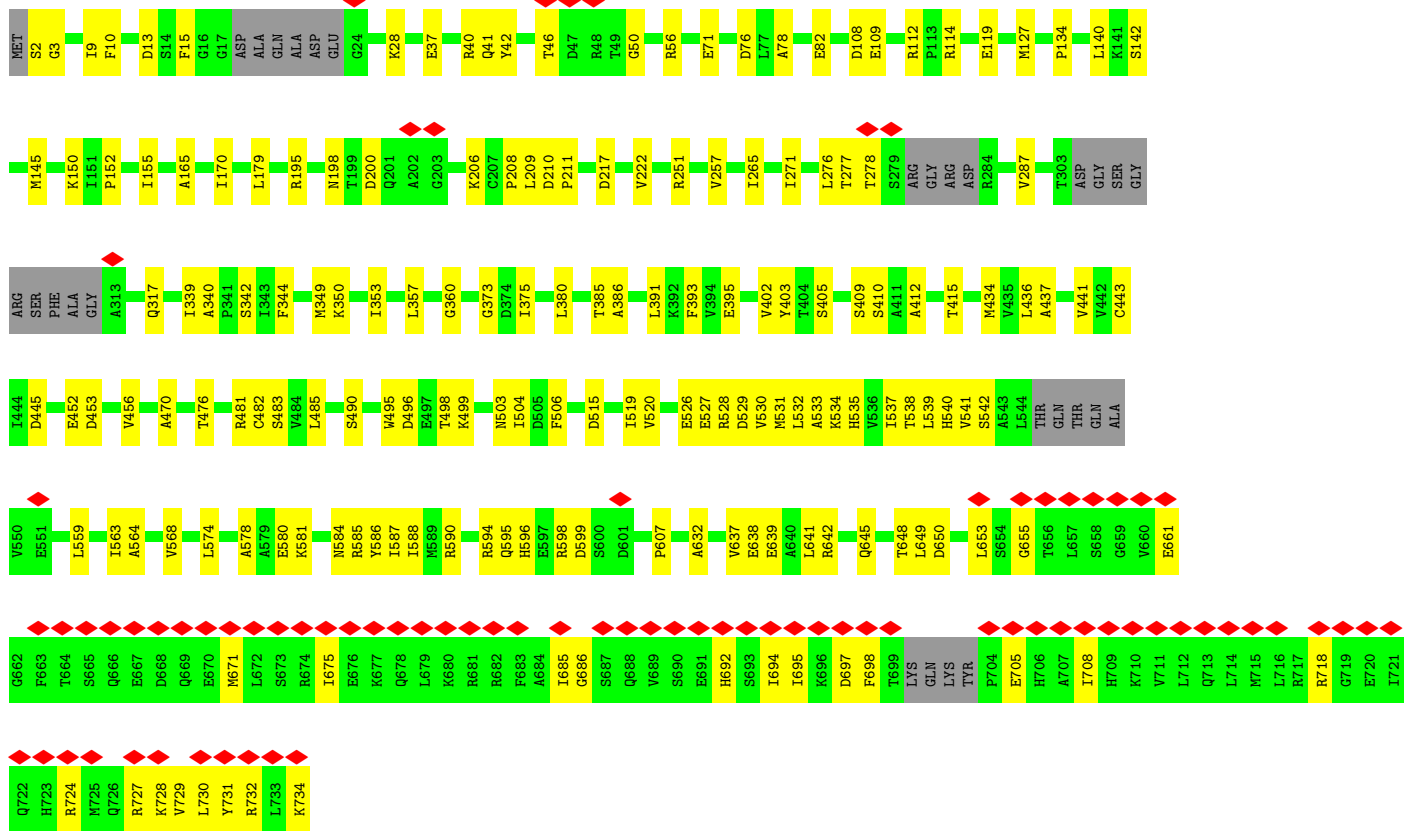
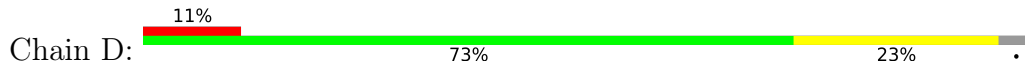
Chain 4:



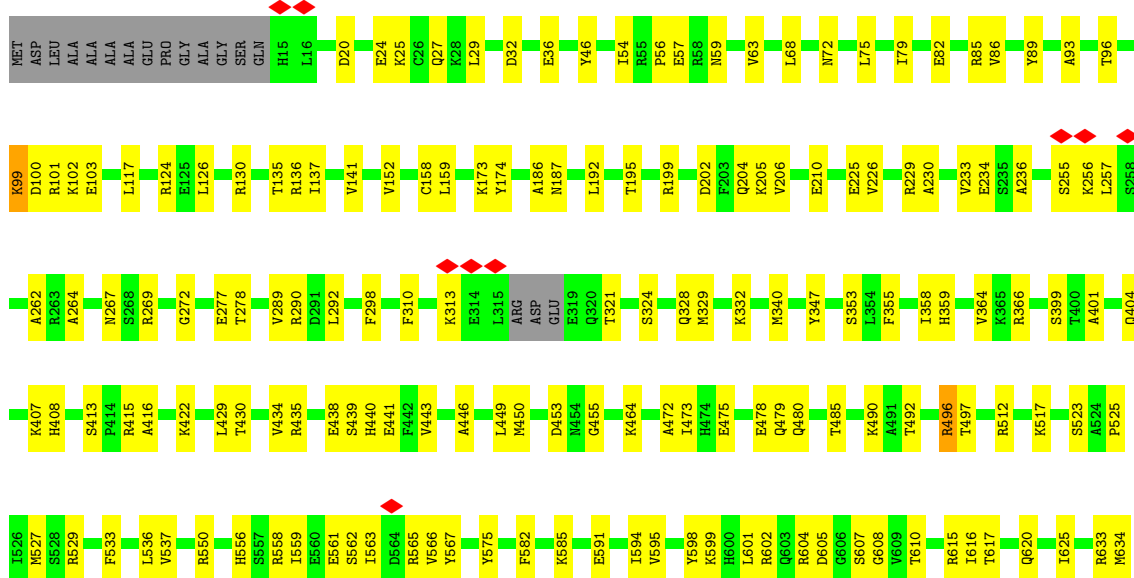
• Molecule 3: DNA replication licensing factor MCM4

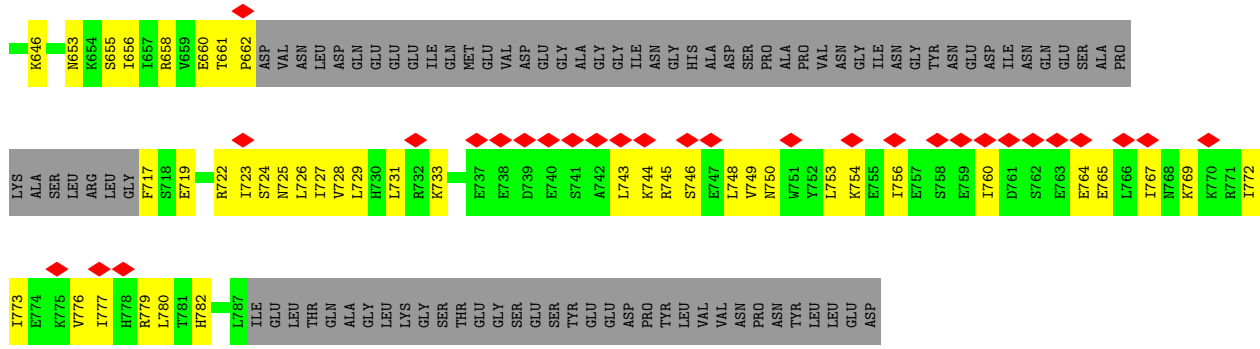
Chain C:



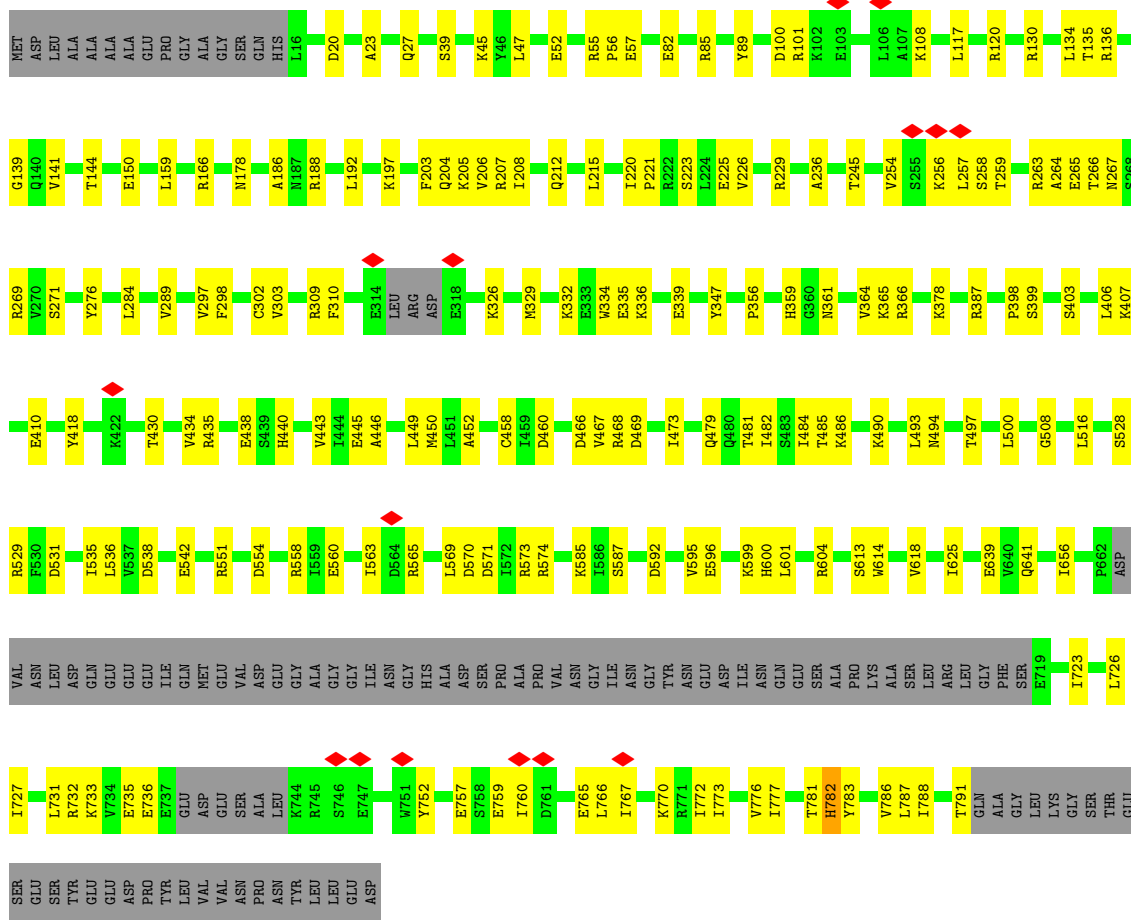


• Molecule 5: DNA replication licensing factor MCM6



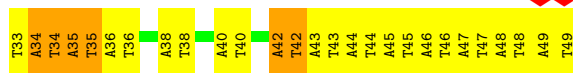
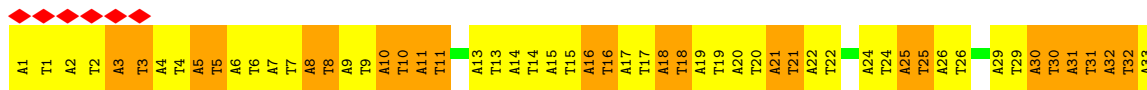


• Molecule 5: DNA replication licensing factor MCM6

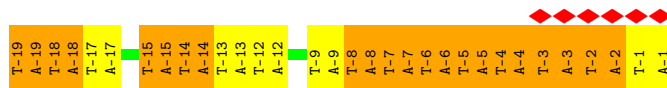
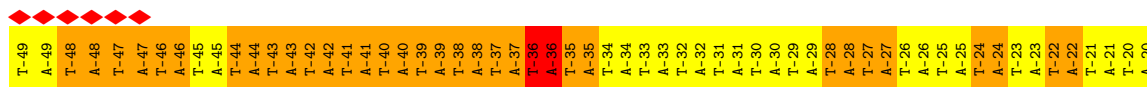


• Molecule 6: DNA replication licensing factor MCM7





• Molecule 8: DNA (49-MER)



4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 329847 | 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 ($e^-/\text{\AA}^2$) | 51.78 | Depositor |
| Minimum defocus (nm) | 1200 | Depositor |
| Maximum defocus (nm) | 2500 | Depositor |
| Magnification | 81000 | Depositor |
| Image detector | GATAN K3 BIOQUANTUM (6k x 4k) | Depositor |
| Maximum map value | 4.638 | Depositor |
| Minimum map value | -2.141 | Depositor |
| Average map value | -0.000 | Depositor |
| Map value standard deviation | 0.115 | Depositor |
| Recommended contour level | 0.5 | Depositor |
| Map size (Å) | 423.99997, 423.99997, 423.99997 | wwPDB |
| Map dimensions | 400, 400, 400 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.06, 1.06, 1.06 | Depositor |

5 Model quality i

5.1 Standard geometry i

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

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 | 2 | 0.57 | 1/5693 (0.0%) | 0.57 | 1/7686 (0.0%) |
| 1 | A | 0.57 | 1/5658 (0.0%) | 0.56 | 1/7640 (0.0%) |
| 2 | 3 | 0.65 | 1/5159 (0.0%) | 0.60 | 2/6970 (0.0%) |
| 2 | B | 0.62 | 0/5179 | 0.58 | 3/6993 (0.0%) |
| 3 | 4 | 0.63 | 0/5278 | 0.58 | 1/7137 (0.0%) |
| 3 | C | 0.61 | 0/5275 | 0.57 | 1/7131 (0.0%) |
| 4 | 5 | 0.60 | 0/5585 | 0.59 | 2/7511 (0.0%) |
| 4 | D | 0.60 | 0/5558 | 0.58 | 1/7472 (0.0%) |
| 5 | 6 | 0.56 | 0/5817 | 0.56 | 0/7845 |
| 5 | E | 0.56 | 0/5783 | 0.56 | 0/7798 |
| 6 | 7 | 0.65 | 2/5145 (0.0%) | 0.61 | 3/6946 (0.0%) |
| 6 | F | 0.64 | 1/5183 (0.0%) | 0.59 | 2/7000 (0.0%) |
| 7 | O | 1.26 | 21/2204 (1.0%) | 0.89 | 5/3279 (0.2%) |
| 8 | S | 1.27 | 35/2204 (1.6%) | 0.89 | 2/3279 (0.1%) |
| All | All | 0.67 | 62/69721 (0.1%) | 0.61 | 24/94687 (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 |
|-----|-------|---------------------|---------------------|
| 2 | 3 | 0 | 1 |
| 4 | D | 0 | 1 |
| 5 | 6 | 0 | 1 |
| 5 | E | 0 | 2 |
| 6 | 7 | 0 | 1 |
| 8 | S | 0 | 1 |
| All | All | 0 | 7 |

All (62) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|--------|--------|-------------|----------|
| 7 | O | 16[B] | DT | O3'-P | -16.28 | 1.41 | 1.61 |
| 8 | S | -12[B] | DA | C1'-N9 | -9.71 | 1.33 | 1.47 |
| 8 | S | -40[B] | DA | O3'-P | -9.12 | 1.50 | 1.61 |
| 7 | O | 42[A] | DA | C1'-N9 | -8.45 | 1.35 | 1.47 |
| 8 | S | -24[B] | DA | C1'-N9 | -8.29 | 1.35 | 1.47 |
| 8 | S | -27[B] | DA | C1'-N9 | -8.28 | 1.35 | 1.47 |
| 8 | S | -28[B] | DA | C1'-N9 | -8.21 | 1.35 | 1.47 |
| 7 | O | 26[A] | DA | C1'-N9 | -7.83 | 1.36 | 1.47 |
| 8 | S | -36[B] | DA | C1'-N9 | -7.68 | 1.36 | 1.47 |
| 7 | O | 40[A] | DA | C1'-N9 | -7.66 | 1.36 | 1.47 |
| 7 | O | 11[A] | DA | C1'-N9 | -7.51 | 1.36 | 1.47 |
| 8 | S | -41[B] | DA | C1'-N9 | -7.50 | 1.36 | 1.47 |
| 8 | S | -19[B] | DA | C1'-N9 | -7.47 | 1.36 | 1.47 |
| 8 | S | -48[B] | DA | C1'-N9 | -7.44 | 1.36 | 1.47 |
| 7 | O | 8[A] | DA | C1'-N9 | -7.29 | 1.37 | 1.47 |
| 8 | S | -23[B] | DA | C1'-N9 | -7.25 | 1.37 | 1.47 |
| 8 | S | -22[B] | DA | C1'-N9 | -7.20 | 1.37 | 1.47 |
| 8 | S | -39[B] | DA | C1'-N9 | -7.17 | 1.37 | 1.47 |
| 8 | S | -13[B] | DA | C1'-N9 | -7.13 | 1.37 | 1.47 |
| 7 | O | 30[A] | DA | C1'-N9 | -7.09 | 1.37 | 1.47 |
| 7 | O | 31[B] | DT | O3'-P | -7.05 | 1.52 | 1.61 |
| 7 | O | 29[A] | DA | C1'-N9 | -7.02 | 1.37 | 1.47 |
| 8 | S | -7[B] | DA | C1'-N9 | -7.01 | 1.37 | 1.47 |
| 7 | O | 25[A] | DA | C1'-N9 | -6.96 | 1.37 | 1.47 |
| 7 | O | 31[A] | DA | C1'-N9 | -6.94 | 1.37 | 1.47 |
| 8 | S | -43[B] | DA | C1'-N9 | -6.82 | 1.37 | 1.47 |
| 8 | S | -6[B] | DA | C1'-N9 | -6.66 | 1.38 | 1.47 |
| 8 | S | -4[B] | DA | C1'-N9 | -6.66 | 1.38 | 1.47 |
| 8 | S | -44[B] | DA | C1'-N9 | -6.63 | 1.38 | 1.47 |
| 7 | O | 20[A] | DA | C1'-N9 | -6.60 | 1.38 | 1.47 |
| 8 | S | -46[B] | DA | C1'-N9 | -6.57 | 1.38 | 1.47 |
| 8 | S | -40[B] | DA | C1'-N9 | -6.55 | 1.38 | 1.47 |
| 7 | O | 35[A] | DA | C1'-N9 | -6.52 | 1.38 | 1.47 |
| 8 | S | -42[B] | DA | C1'-N9 | -6.50 | 1.38 | 1.47 |
| 7 | O | 21[A] | DA | C1'-N9 | -6.50 | 1.38 | 1.47 |
| 8 | S | -37[B] | DA | C1'-N9 | -6.48 | 1.38 | 1.47 |
| 8 | S | -38[B] | DA | C1'-N9 | -6.47 | 1.38 | 1.47 |
| 6 | F | 206 | CYS | CB-SG | -6.45 | 1.71 | 1.82 |
| 8 | S | -3[B] | DA | C1'-N9 | -6.44 | 1.38 | 1.47 |
| 8 | S | -2[B] | DA | C1'-N9 | -6.43 | 1.38 | 1.47 |
| 8 | S | -8[B] | DA | C1'-N9 | -6.36 | 1.38 | 1.47 |
| 8 | S | -14[B] | DA | C1'-N9 | -6.35 | 1.38 | 1.47 |
| 7 | O | 16[A] | DA | C1'-N9 | -6.29 | 1.38 | 1.47 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|--------|-------|-------------|----------|
| 8 | S | -1[B] | DA | C1'-N9 | -6.28 | 1.38 | 1.47 |
| 8 | S | -47[B] | DA | C1'-N9 | -6.27 | 1.38 | 1.47 |
| 8 | S | -18[B] | DA | C1'-N9 | -6.24 | 1.38 | 1.47 |
| 8 | S | -5[B] | DA | C1'-N9 | -6.22 | 1.38 | 1.47 |
| 7 | O | 32[A] | DA | C1'-N9 | -6.04 | 1.38 | 1.47 |
| 6 | 7 | 206 | CYS | CB-SG | -5.98 | 1.72 | 1.81 |
| 1 | 2 | 577 | VAL | CB-CG2 | -5.80 | 1.40 | 1.52 |
| 8 | S | -15[B] | DA | C1'-N9 | -5.72 | 1.39 | 1.47 |
| 1 | A | 389 | ARG | C-N | -5.66 | 1.21 | 1.34 |
| 7 | O | 34[A] | DA | C1'-N9 | -5.59 | 1.39 | 1.47 |
| 8 | S | -17[B] | DA | C1'-N9 | -5.59 | 1.39 | 1.47 |
| 7 | O | 18[B] | DT | P-O5' | -5.57 | 1.54 | 1.59 |
| 8 | S | -35[A] | DT | C1'-N1 | 5.39 | 1.56 | 1.49 |
| 8 | S | -49[B] | DA | C1'-N9 | -5.31 | 1.39 | 1.47 |
| 6 | 7 | 490 | PRO | N-CD | 5.22 | 1.55 | 1.47 |
| 7 | O | 10[B] | DT | C1'-N1 | 5.12 | 1.55 | 1.49 |
| 7 | O | 5[B] | DT | C1'-N1 | 5.10 | 1.55 | 1.49 |
| 7 | O | 3[B] | DT | C1'-N1 | 5.09 | 1.55 | 1.49 |
| 2 | 3 | 452 | ALA | C-N | -5.07 | 1.22 | 1.34 |

All (24) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-------|------|-------------|--------|-------------|----------|
| 2 | 3 | 510 | PRO | CA-N-CD | -10.71 | 96.50 | 111.50 |
| 6 | 7 | 205 | MET | C-N-CA | -8.90 | 99.45 | 121.70 |
| 1 | 2 | 351 | SER | C-N-CA | -8.72 | 99.89 | 121.70 |
| 7 | O | 16[B] | DT | P-O3'-C3' | 8.50 | 129.91 | 119.70 |
| 7 | O | 16[B] | DT | OP1-P-O3' | 6.89 | 120.37 | 105.20 |
| 7 | O | 18[B] | DT | P-O5'-C5' | -6.73 | 110.13 | 120.90 |
| 7 | O | 35[A] | DA | O4'-C4'-C3' | -6.70 | 101.82 | 104.50 |
| 7 | O | 35[B] | DT | O4'-C4'-C3' | -6.70 | 101.82 | 104.50 |
| 4 | D | 276 | LEU | CA-CB-CG | 6.65 | 130.60 | 115.30 |
| 2 | 3 | 510 | PRO | N-CD-CG | -6.35 | 93.68 | 103.20 |
| 4 | 5 | 276 | LEU | CA-CB-CG | 6.31 | 129.81 | 115.30 |
| 6 | F | 40 | LEU | CA-CB-CG | 6.29 | 129.77 | 115.30 |
| 1 | A | 620 | LEU | CA-CB-CG | 6.05 | 129.21 | 115.30 |
| 6 | 7 | 220 | LEU | CB-CG-CD2 | -5.75 | 101.22 | 111.00 |
| 2 | B | 39 | LEU | CA-CB-CG | 5.69 | 128.39 | 115.30 |
| 6 | 7 | 489 | ASN | C-N-CD | 5.67 | 140.31 | 128.40 |
| 6 | F | 205 | MET | C-N-CA | -5.64 | 107.59 | 121.70 |
| 3 | 4 | 624 | TRP | C-N-CA | -5.61 | 107.68 | 121.70 |
| 3 | C | 187 | ASP | CB-CG-OD1 | 5.57 | 123.32 | 118.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-----------|------|-------------|----------|
| 4 | 5 | 128 | LEU | CA-CB-CG | 5.55 | 128.07 | 115.30 |
| 8 | S | -40[B] | DA | P-O3'-C3' | 5.30 | 126.06 | 119.70 |
| 2 | B | 606 | ASP | CB-CG-OD1 | 5.28 | 123.06 | 118.30 |
| 2 | B | 224 | ASP | CB-CG-OD1 | 5.06 | 122.85 | 118.30 |
| 8 | S | -40[B] | DA | OP1-P-O3' | 5.04 | 116.29 | 105.20 |

There are no chirality outliers.

All (7) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|--------|------|-----------|
| 2 | 3 | 76 | PHE | Sidechain |
| 5 | 6 | 229 | ARG | Peptide |
| 6 | 7 | 306 | MET | Peptide |
| 4 | D | 528 | ARG | Peptide |
| 5 | E | 229 | ARG | Peptide |
| 5 | E | 782 | HIS | Peptide |
| 8 | S | -36[A] | DT | 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 | 2 | 5591 | 0 | 5588 | 187 | 0 |
| 1 | A | 5556 | 0 | 5552 | 166 | 0 |
| 2 | 3 | 5080 | 0 | 5086 | 128 | 0 |
| 2 | B | 5100 | 0 | 5129 | 110 | 0 |
| 3 | 4 | 5187 | 0 | 5230 | 136 | 0 |
| 3 | C | 5184 | 0 | 5231 | 129 | 0 |
| 4 | 5 | 5500 | 0 | 5523 | 148 | 0 |
| 4 | D | 5474 | 0 | 5516 | 139 | 0 |
| 5 | 6 | 5726 | 0 | 5748 | 167 | 0 |
| 5 | E | 5694 | 0 | 5726 | 148 | 0 |
| 6 | 7 | 5065 | 0 | 5111 | 132 | 0 |
| 6 | F | 5102 | 0 | 5129 | 126 | 0 |
| 7 | O | 2009 | 0 | 1113 | 112 | 0 |
| 8 | S | 2009 | 0 | 1110 | 176 | 0 |
| 9 | 2 | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 9 | 4 | 1 | 0 | 0 | 0 | 0 |
| 9 | 5 | 1 | 0 | 0 | 0 | 0 |
| 9 | 6 | 1 | 0 | 0 | 0 | 0 |
| 9 | 7 | 1 | 0 | 0 | 0 | 0 |
| 9 | A | 1 | 0 | 0 | 0 | 0 |
| 9 | C | 1 | 0 | 0 | 0 | 0 |
| 9 | D | 1 | 0 | 0 | 0 | 0 |
| 9 | E | 1 | 0 | 0 | 0 | 0 |
| 9 | F | 1 | 0 | 0 | 0 | 0 |
| 10 | 2 | 1 | 0 | 0 | 0 | 0 |
| 10 | 3 | 1 | 0 | 0 | 0 | 0 |
| 10 | 4 | 1 | 0 | 0 | 0 | 0 |
| 10 | 5 | 1 | 0 | 0 | 0 | 0 |
| 10 | 6 | 1 | 0 | 0 | 0 | 0 |
| 10 | 7 | 1 | 0 | 0 | 0 | 0 |
| 10 | A | 1 | 0 | 0 | 0 | 0 |
| 10 | B | 1 | 0 | 0 | 0 | 0 |
| 10 | C | 1 | 0 | 0 | 0 | 0 |
| 10 | D | 1 | 0 | 0 | 0 | 0 |
| 10 | E | 1 | 0 | 0 | 0 | 0 |
| 10 | F | 1 | 0 | 0 | 0 | 0 |
| 11 | 2 | 31 | 0 | 12 | 5 | 0 |
| 11 | 3 | 31 | 0 | 12 | 3 | 0 |
| 11 | 4 | 31 | 0 | 12 | 2 | 0 |
| 11 | 7 | 31 | 0 | 12 | 1 | 0 |
| 11 | A | 31 | 0 | 12 | 1 | 0 |
| 11 | B | 31 | 0 | 12 | 1 | 0 |
| 11 | C | 31 | 0 | 12 | 2 | 0 |
| 11 | F | 31 | 0 | 12 | 0 | 0 |
| 12 | 5 | 27 | 0 | 12 | 3 | 0 |
| 12 | 6 | 27 | 0 | 12 | 3 | 0 |
| 12 | D | 27 | 0 | 12 | 1 | 0 |
| 12 | E | 27 | 0 | 12 | 0 | 0 |
| All | All | 68655 | 0 | 66936 | 1784 | 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 16.

All (1784) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:S:-36[A]:DT:C6 | 8:S:-35[A]:DT:H72 | 1.23 | 1.67 |
| 8:S:-41[A]:DT:H1' | 8:S:-40[A]:DT:C5 | 1.56 | 1.40 |
| 8:S:-48[A]:DT:H72 | 8:S:-47[A]:DT:O4 | 1.18 | 1.30 |
| 8:S:-36[A]:DT:C6 | 8:S:-35[A]:DT:C7 | 2.19 | 1.26 |
| 8:S:-41[A]:DT:H1' | 8:S:-40[A]:DT:C6 | 1.72 | 1.23 |
| 8:S:-27[A]:DT:H2'' | 8:S:-26[A]:DT:C7 | 1.69 | 1.22 |
| 7:O:6[A]:DA:N7 | 7:O:7[A]:DA:N6 | 1.91 | 1.17 |
| 6:7:490:PRO:HB2 | 6:7:504:ASN:O | 1.45 | 1.16 |
| 1:A:735:LEU:HD11 | 1:A:785:TYR:CE1 | 1.81 | 1.16 |
| 8:S:-26[A]:DT:H2'' | 8:S:-25[A]:DT:H5' | 1.26 | 1.12 |
| 8:S:-36[A]:DT:C5 | 8:S:-35[A]:DT:H72 | 1.84 | 1.11 |
| 8:S:-41[A]:DT:C1' | 8:S:-40[A]:DT:C5 | 2.34 | 1.10 |
| 8:S:-6[A]:DT:H2' | 8:S:-5[A]:DT:H72 | 1.17 | 1.10 |
| 8:S:-6[A]:DT:C2' | 8:S:-5[A]:DT:H72 | 1.82 | 1.10 |
| 8:S:-41[A]:DT:H2'' | 8:S:-40[A]:DT:C7 | 1.80 | 1.09 |
| 7:O:5[A]:DA:H2'' | 7:O:6[A]:DA:O5' | 1.26 | 1.08 |
| 8:S:-41[A]:DT:H2'' | 8:S:-40[A]:DT:H71 | 1.31 | 1.06 |
| 8:S:-27[A]:DT:H2'' | 8:S:-26[A]:DT:H71 | 1.10 | 1.05 |
| 7:O:1[A]:DA:H2'' | 7:O:2[A]:DA:C8 | 1.91 | 1.05 |
| 7:O:6[A]:DA:C8 | 7:O:7[A]:DA:N7 | 2.25 | 1.04 |
| 7:O:6[A]:DA:C5 | 7:O:7[A]:DA:N6 | 2.25 | 1.04 |
| 8:S:-48[A]:DT:C7 | 8:S:-47[A]:DT:O4 | 2.05 | 1.04 |
| 8:S:-42[A]:DT:H2'' | 8:S:-41[A]:DT:C6 | 1.93 | 1.04 |
| 7:O:48[A]:DA:C2 | 7:O:49[A]:DA:H2 | 1.75 | 1.03 |
| 7:O:48[A]:DA:N3 | 7:O:49[A]:DA:C2 | 2.28 | 1.02 |
| 7:O:6[A]:DA:C5 | 7:O:7[A]:DA:C6 | 2.47 | 1.02 |
| 8:S:-26[A]:DT:C2' | 8:S:-25[A]:DT:H5' | 1.90 | 1.00 |
| 8:S:-48[A]:DT:H72 | 8:S:-47[A]:DT:C4 | 1.95 | 1.00 |
| 8:S:-22[A]:DT:H2' | 8:S:-21[A]:DT:H71 | 1.43 | 0.99 |
| 7:O:48[A]:DA:C2 | 7:O:49[A]:DA:C2 | 2.49 | 0.99 |
| 5:E:205:LYS:HD2 | 5:E:225:GLU:OE1 | 1.62 | 0.98 |
| 3:4:174:ILE:HD11 | 3:4:190:GLU:HG3 | 1.46 | 0.97 |
| 8:S:-27[A]:DT:C2' | 8:S:-26[A]:DT:H71 | 1.95 | 0.96 |
| 8:S:-46[A]:DT:H1' | 8:S:-45[A]:DT:OP2 | 1.65 | 0.96 |
| 8:S:-44[A]:DT:C6 | 8:S:-43[A]:DT:H72 | 1.99 | 0.96 |
| 7:O:43[A]:DA:C6 | 7:O:44[A]:DA:N6 | 2.34 | 0.95 |
| 1:A:735:LEU:HD11 | 1:A:785:TYR:HE1 | 1.16 | 0.95 |
| 8:S:-26[A]:DT:H2'' | 8:S:-25[A]:DT:C5' | 1.96 | 0.94 |
| 7:O:5[A]:DA:C2' | 7:O:6[A]:DA:O5' | 2.14 | 0.94 |
| 8:S:-6[A]:DT:C2' | 8:S:-5[A]:DT:C7 | 2.45 | 0.94 |
| 8:S:-41[A]:DT:C6 | 8:S:-40[A]:DT:O4 | 2.21 | 0.94 |
| 8:S:-41[A]:DT:N1 | 8:S:-40[A]:DT:C4 | 2.35 | 0.94 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:S:-47[A]:DT:H2' | 8:S:-46[A]:DT:H5' | 1.51 | 0.92 |
| 8:S:-6[A]:DT:H2'' | 8:S:-5[A]:DT:C6 | 2.03 | 0.92 |
| 4:D:531:MET:SD | 4:D:535:HIS:NE2 | 2.43 | 0.91 |
| 8:S:-36[A]:DT:N1 | 8:S:-35[A]:DT:H72 | 1.85 | 0.91 |
| 8:S:-6[A]:DT:H2' | 8:S:-5[A]:DT:C7 | 2.00 | 0.91 |
| 3:C:347:SER:HB2 | 3:C:376:ASN:HD21 | 1.35 | 0.90 |
| 7:O:42[A]:DA:H2 | 8:S:-42[A]:DT:O2 | 1.54 | 0.90 |
| 8:S:-36[A]:DT:H2' | 8:S:-35[A]:DT:H73 | 1.50 | 0.90 |
| 5:E:39:SER:OG | 5:E:45:LYS:HD2 | 1.74 | 0.88 |
| 7:O:1[A]:DA:H2'' | 7:O:2[A]:DA:N7 | 1.88 | 0.88 |
| 3:4:554:ARG:HH22 | 5:6:256:LYS:H | 1.21 | 0.87 |
| 2:3:489:MET:HG2 | 4:5:590:ARG:HH21 | 1.37 | 0.87 |
| 5:E:166:ARG:HH21 | 5:E:197:LYS:HE3 | 1.40 | 0.86 |
| 5:E:410:GLU:HG3 | 5:E:418:TYR:HB2 | 1.57 | 0.85 |
| 3:C:592:GLU:HG3 | 3:C:593:GLN:HG3 | 1.57 | 0.85 |
| 8:S:-36[A]:DT:H2' | 8:S:-35[A]:DT:C7 | 2.05 | 0.85 |
| 8:S:-34[A]:DT:H2'' | 8:S:-33[A]:DT:C7 | 2.07 | 0.85 |
| 8:S:-27[A]:DT:C2' | 8:S:-26[A]:DT:C7 | 2.51 | 0.85 |
| 3:4:516:LYS:HG2 | 3:4:650:LEU:HD22 | 1.59 | 0.85 |
| 8:S:-6[A]:DT:H2'' | 8:S:-5[A]:DT:C5 | 2.12 | 0.84 |
| 8:S:-6[A]:DT:H2'' | 8:S:-5[A]:DT:C7 | 2.08 | 0.84 |
| 4:5:395:GLU:HG2 | 4:5:403:TYR:HB2 | 1.59 | 0.83 |
| 8:S:-34[A]:DT:H2'' | 8:S:-33[A]:DT:C5 | 2.14 | 0.83 |
| 1:2:573:ALA:HB1 | 1:2:577:VAL:HG21 | 1.58 | 0.82 |
| 7:O:7[A]:DA:C2 | 8:S:-7[A]:DT:O2 | 2.31 | 0.82 |
| 7:O:9[A]:DA:H1' | 7:O:10[A]:DA:C8 | 2.15 | 0.82 |
| 5:E:726:LEU:HD11 | 5:E:776:VAL:HG21 | 1.60 | 0.82 |
| 7:O:6[A]:DA:N9 | 7:O:7[A]:DA:N7 | 2.28 | 0.82 |
| 8:S:-41[A]:DT:C2' | 8:S:-40[A]:DT:C7 | 2.57 | 0.82 |
| 1:2:599:SER:HA | 4:5:410:SER:HB2 | 1.62 | 0.81 |
| 1:2:577:VAL:HG12 | 1:2:622:ALA:HB2 | 1.64 | 0.80 |
| 5:E:265:GLU:HB3 | 5:E:289:VAL:HG12 | 1.64 | 0.80 |
| 1:2:719:VAL:H | 1:2:722:LYS:HZ3 | 1.30 | 0.80 |
| 5:6:205:LYS:HD2 | 5:6:225:GLU:OE1 | 1.79 | 0.80 |
| 3:C:556:LEU:HD11 | 8:S:-36[A]:DT:P | 2.20 | 0.80 |
| 8:S:-36[A]:DT:C5 | 8:S:-35[A]:DT:C7 | 2.54 | 0.80 |
| 8:S:-41[A]:DT:C6 | 8:S:-40[A]:DT:C4 | 2.69 | 0.80 |
| 3:C:305:GLN:HG2 | 3:C:312:THR:HG22 | 1.64 | 0.79 |
| 4:5:531:MET:SD | 4:5:535:HIS:NE2 | 2.55 | 0.79 |
| 3:4:554:ARG:HH22 | 5:6:256:LYS:N | 1.80 | 0.79 |
| 2:B:376:VAL:HG13 | 2:B:381:ALA:HB2 | 1.63 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:S:-27[A]:DT:H2'' | 8:S:-26[A]:DT:C5 | 2.18 | 0.79 |
| 3:C:194:MET:HE1 | 3:C:248:ARG:HH12 | 1.49 | 0.78 |
| 3:C:554:ARG:HE | 5:E:257:LEU:HD22 | 1.48 | 0.78 |
| 7:O:7[A]:DA:H2 | 8:S:-7[A]:DT:O2 | 1.66 | 0.78 |
| 6:7:490:PRO:CB | 6:7:504:ASN:O | 2.30 | 0.78 |
| 5:E:269:ARG:HD2 | 6:F:217:GLY:HA3 | 1.65 | 0.78 |
| 7:O:8[A]:DA:C6 | 7:O:9[A]:DA:C6 | 2.71 | 0.78 |
| 6:F:405:THR:HG22 | 6:F:406:GLY:H | 1.48 | 0.78 |
| 7:O:45[A]:DA:H1' | 7:O:46[A]:DA:C8 | 2.19 | 0.77 |
| 1:A:633:ILE:HD11 | 1:A:648:ASP:HB2 | 1.65 | 0.77 |
| 3:C:189:THR:HG22 | 3:C:191:PRO:HD2 | 1.65 | 0.77 |
| 8:S:-38[A]:DT:H2' | 8:S:-37[A]:DT:O4' | 1.85 | 0.77 |
| 6:F:319:LEU:HD11 | 6:F:561:ARG:HE | 1.48 | 0.77 |
| 1:2:734:LYS:NZ | 1:2:786:VAL:HG23 | 1.98 | 0.77 |
| 7:O:45[A]:DA:H2'' | 7:O:46[A]:DA:C8 | 2.20 | 0.77 |
| 3:C:127:VAL:HG21 | 3:C:153:TRP:HE3 | 1.50 | 0.77 |
| 3:C:556:LEU:HD11 | 8:S:-36[A]:DT:OP1 | 1.82 | 0.77 |
| 8:S:-41[A]:DT:C2' | 8:S:-40[A]:DT:H71 | 2.13 | 0.77 |
| 7:O:42[A]:DA:C2 | 8:S:-42[A]:DT:O2 | 2.39 | 0.76 |
| 4:D:339:ILE:HG13 | 4:D:340:ALA:H | 1.50 | 0.76 |
| 1:A:735:LEU:CD1 | 1:A:785:TYR:CE1 | 2.68 | 0.76 |
| 1:A:752:LYS:HE2 | 4:D:526:GLU:HG2 | 1.67 | 0.76 |
| 4:5:649:LEU:HD22 | 4:5:653:LEU:HD22 | 1.67 | 0.76 |
| 6:7:374:ASN:ND2 | 6:7:465:GLN:NE2 | 2.34 | 0.75 |
| 1:A:719:VAL:HG22 | 1:A:722:LYS:HE2 | 1.68 | 0.75 |
| 2:B:556:LYS:HG3 | 2:B:557:LYS:H | 1.50 | 0.75 |
| 2:3:376:VAL:HB | 2:3:381:ALA:HB2 | 1.68 | 0.75 |
| 6:7:372:ARG:HG3 | 6:7:611:ARG:HH22 | 1.52 | 0.75 |
| 1:A:718:GLU:HG3 | 1:A:722:LYS:HE3 | 1.68 | 0.75 |
| 1:2:761:PRO:HG3 | 4:5:494:ARG:HD3 | 1.67 | 0.75 |
| 7:O:6[A]:DA:OP2 | 7:O:6[A]:DA:H3' | 1.86 | 0.75 |
| 1:A:426:LEU:HD11 | 1:A:430:ASN:HB2 | 1.68 | 0.75 |
| 5:6:743:LEU:HA | 5:6:748:LEU:HD11 | 1.68 | 0.75 |
| 8:S:-41[A]:DT:C2 | 8:S:-40[A]:DT:C4 | 2.75 | 0.75 |
| 6:F:206:CYS:HA | 6:F:220:LEU:HD23 | 1.69 | 0.74 |
| 8:S:-34[A]:DT:H2'' | 8:S:-33[A]:DT:H71 | 1.67 | 0.74 |
| 2:B:398:MET:HG2 | 2:B:406:VAL:HG21 | 1.69 | 0.74 |
| 3:C:549:LYS:HD2 | 8:S:-36[A]:DT:OP2 | 1.88 | 0.74 |
| 8:S:-41[A]:DT:H1' | 8:S:-40[A]:DT:C4 | 2.22 | 0.74 |
| 6:F:512:LEU:HD21 | 6:F:599:THR:HB | 1.69 | 0.74 |
| 5:E:449:LEU:HD11 | 5:E:473:ILE:HD13 | 1.70 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:228:GLU:HB3 | 1:A:278:THR:HG21 | 1.70 | 0.73 |
| 1:A:325:VAL:HA | 1:A:368:THR:HG23 | 1.71 | 0.73 |
| 5:E:776:VAL:HG13 | 5:E:781:THR:HB | 1.70 | 0.73 |
| 7:O:6[A]:DA:H1' | 7:O:7[A]:DA:C8 | 2.24 | 0.73 |
| 8:S:-25[A]:DT:H2' | 8:S:-25[A]:DT:OP2 | 1.89 | 0.73 |
| 8:S:-21[A]:DT:H2' | 8:S:-20[A]:DT:H72 | 1.70 | 0.73 |
| 4:D:732:ARG:HH12 | 5:E:787:LEU:HD21 | 1.52 | 0.73 |
| 7:O:43[A]:DA:N6 | 7:O:44[A]:DA:N6 | 2.36 | 0.73 |
| 1:A:564:PRO:HA | 1:A:567:ARG:HH11 | 1.52 | 0.73 |
| 8:S:-42[A]:DT:O3' | 8:S:-41[A]:DT:H2' | 1.88 | 0.73 |
| 1:2:505:LYS:HD2 | 4:5:539:LEU:HG | 1.71 | 0.73 |
| 1:A:732:HIS:ND1 | 1:A:732:HIS:O | 2.21 | 0.73 |
| 6:7:215:ARG:HH12 | 4:D:28:LYS:HG3 | 1.53 | 0.72 |
| 8:S:-9[A]:DT:C5 | 8:S:-8[A]:DT:H73 | 2.23 | 0.72 |
| 7:O:8[A]:DA:H2'' | 7:O:9[A]:DA:H2' | 1.69 | 0.72 |
| 2:3:68:ASN:ND2 | 2:3:71:GLU:OE2 | 2.23 | 0.72 |
| 1:2:354:GLU:OE2 | 3:C:335:HIS:NE2 | 2.23 | 0.72 |
| 3:C:306:CYS:SG | 3:C:336:SER:OG | 2.45 | 0.72 |
| 7:O:6[A]:DA:H2'' | 7:O:7[A]:DA:OP2 | 1.90 | 0.72 |
| 3:4:221:ASN:OD1 | 3:4:224:ARG:NH2 | 2.23 | 0.72 |
| 3:C:516:LYS:HG2 | 3:C:650:LEU:HD22 | 1.72 | 0.72 |
| 1:2:353:PRO:O | 5:E:188:ARG:NH1 | 2.23 | 0.71 |
| 4:5:205:PRO:HB2 | 2:B:169:PRO:HB3 | 1.71 | 0.71 |
| 5:E:723:ILE:O | 5:E:727:ILE:HG12 | 1.91 | 0.71 |
| 5:6:475:GLU:OE2 | 5:6:479:GLN:NE2 | 2.24 | 0.71 |
| 5:6:20:ASP:OD1 | 5:6:85:ARG:NH2 | 2.23 | 0.71 |
| 6:F:203:LEU:HB2 | 6:F:220:LEU:HD11 | 1.73 | 0.71 |
| 2:3:286:LYS:HD3 | 2:3:547:LYS:HE2 | 1.73 | 0.71 |
| 8:S:-41[A]:DT:C5 | 8:S:-40[A]:DT:O4 | 2.43 | 0.71 |
| 5:6:661:THR:HG23 | 5:6:719:GLU:HG2 | 1.73 | 0.71 |
| 2:3:351:LYS:NZ | 11:3:1101:ATP:O1G | 2.20 | 0.71 |
| 3:4:730:TYR:H | 3:4:733:GLN:HG2 | 1.54 | 0.71 |
| 1:2:426:LEU:HD21 | 1:2:430:ASN:HB2 | 1.73 | 0.70 |
| 5:E:159:LEU:HD21 | 5:E:192:LEU:HB2 | 1.73 | 0.70 |
| 4:D:495:TRP:O | 4:D:503:ASN:ND2 | 2.21 | 0.70 |
| 5:E:639:GLU:OE2 | 5:E:641:GLN:NE2 | 2.24 | 0.70 |
| 1:A:744:ALA:HA | 4:D:532:LEU:HD13 | 1.73 | 0.70 |
| 1:2:747:TYR:CD1 | 4:5:532:LEU:HD11 | 2.27 | 0.70 |
| 8:S:-8[A]:DT:H4' | 8:S:-8[A]:DT:OP1 | 1.90 | 0.70 |
| 2:3:552:LEU:HG | 2:3:553:HIS:H | 1.57 | 0.70 |
| 4:D:724:ARG:HD2 | 4:D:728:LYS:HB3 | 1.74 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:5:344:PHE:HB2 | 4:5:534:LYS:HD3 | 1.74 | 0.69 |
| 6:7:323:GLU:O | 6:7:327:ILE:HG13 | 1.92 | 0.69 |
| 1:A:573:ALA:HB1 | 1:A:577:VAL:HG21 | 1.73 | 0.69 |
| 1:2:735:LEU:HD13 | 1:2:737:GLN:HE22 | 1.58 | 0.69 |
| 6:7:324:LEU:HD23 | 6:7:327:ILE:HD12 | 1.74 | 0.69 |
| 4:D:695:ILE:HD11 | 4:D:708:ILE:HG21 | 1.74 | 0.69 |
| 6:F:415:THR:HG22 | 6:F:416:ALA:H | 1.57 | 0.69 |
| 8:S:-37[A]:DT:C6 | 8:S:-36[A]:DT:H72 | 2.27 | 0.69 |
| 1:2:759:SER:HB3 | 1:2:810:VAL:HG11 | 1.73 | 0.69 |
| 4:5:337:LYS:NZ | 4:5:552:GLY:O | 2.24 | 0.69 |
| 3:C:718:ARG:NH1 | 3:C:729:ALA:O | 2.26 | 0.69 |
| 5:6:130:ARG:HH21 | 5:6:135:THR:HB | 1.56 | 0.69 |
| 2:B:551:LEU:HD22 | 2:B:557:LYS:HD3 | 1.73 | 0.69 |
| 2:B:619:GLU:OE2 | 6:F:541:HIS:NE2 | 2.25 | 0.69 |
| 7:O:6[A]:DA:C5 | 7:O:7[A]:DA:C5 | 2.80 | 0.69 |
| 4:D:645:GLN:HA | 4:D:648:THR:HG22 | 1.75 | 0.69 |
| 3:4:324:GLU:OE2 | 5:6:290:ARG:NH2 | 2.26 | 0.68 |
| 1:A:599:SER:HA | 4:D:410:SER:HB2 | 1.75 | 0.68 |
| 4:5:339:ILE:HG13 | 4:5:340:ALA:H | 1.57 | 0.68 |
| 1:2:719:VAL:HG12 | 1:2:722:LYS:NZ | 2.08 | 0.68 |
| 3:4:490:LYS:NZ | 3:4:742:GLU:OE2 | 2.27 | 0.68 |
| 5:E:20:ASP:OD1 | 5:E:85:ARG:NH2 | 2.25 | 0.68 |
| 5:6:662:PRO:O | 5:6:717:PHE:N | 2.27 | 0.68 |
| 6:7:23:ASP:HB3 | 6:7:27:GLY:HA2 | 1.74 | 0.68 |
| 2:B:336:ARG:NH2 | 2:B:338:ASP:O | 2.27 | 0.68 |
| 4:D:728:LYS:HD2 | 5:E:787:LEU:HG | 1.73 | 0.68 |
| 1:2:459:GLU:OE2 | 1:2:462:LYS:NZ | 2.26 | 0.68 |
| 6:7:587:GLU:OE1 | 6:7:590:ARG:NH2 | 2.26 | 0.68 |
| 1:A:464:ILE:HG21 | 1:A:729:GLU:HG3 | 1.76 | 0.68 |
| 4:5:662:GLY:HA2 | 4:5:665:SER:HB3 | 1.76 | 0.68 |
| 8:S:-41[A]:DT:H2" | 8:S:-40[A]:DT:H73 | 1.73 | 0.68 |
| 1:2:719:VAL:HG12 | 1:2:722:LYS:HZ3 | 1.59 | 0.67 |
| 1:A:803:ILE:HD12 | 1:A:814:MET:HB3 | 1.74 | 0.67 |
| 3:C:556:LEU:CD1 | 8:S:-36[A]:DT:OP1 | 2.42 | 0.67 |
| 2:3:390:GLU:OE2 | 6:7:236:LYS:NZ | 2.27 | 0.67 |
| 6:7:93:VAL:HG12 | 6:7:95[B]:ASN:H | 1.59 | 0.67 |
| 6:7:93:VAL:HG12 | 6:7:95[A]:ASN:H | 1.59 | 0.67 |
| 5:E:570:ASP:OD1 | 5:E:573:ARG:NH1 | 2.27 | 0.67 |
| 1:2:325:VAL:HA | 1:2:368:THR:HG23 | 1.75 | 0.67 |
| 3:4:495:THR:HA | 5:6:563:ILE:HD13 | 1.75 | 0.67 |
| 6:7:372:ARG:O | 6:7:611:ARG:NH2 | 2.27 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A:735:LEU:HD13 | 1:A:737:GLN:HE22 | 1.59 | 0.67 |
| 1:A:806:GLN:HB3 | 1:A:810:VAL:HG23 | 1.76 | 0.67 |
| 4:5:533:ALA:O | 4:5:537:ILE:HG12 | 1.95 | 0.67 |
| 8:S:-8[A]:DT:H2' | 8:S:-7[A]:DT:H71 | 1.76 | 0.67 |
| 4:5:112:ARG:HD3 | 6:F:117:GLY:HA3 | 1.76 | 0.67 |
| 3:C:277:GLU:OE1 | 3:C:277:GLU:N | 2.27 | 0.67 |
| 3:C:527:VAL:HG11 | 3:C:570:ILE:HD13 | 1.77 | 0.67 |
| 8:S:-41[A]:DT:C1' | 8:S:-40[A]:DT:C4 | 2.76 | 0.67 |
| 1:A:324:MET:HB2 | 1:A:369:ILE:HG12 | 1.77 | 0.67 |
| 3:C:683:ASP:HB3 | 3:C:686:VAL:HG22 | 1.77 | 0.67 |
| 2:3:369:THR:HG22 | 2:3:370:GLY:H | 1.60 | 0.66 |
| 1:A:643:PHE:HB3 | 1:A:805:THR:HG23 | 1.76 | 0.66 |
| 3:C:549:LYS:HB2 | 8:S:-36[A]:DT:OP1 | 1.95 | 0.66 |
| 8:S:-47[A]:DT:C2' | 8:S:-46[A]:DT:H5' | 2.23 | 0.66 |
| 3:4:404:ARG:HH12 | 8:S:-19[A]:DT:P | 2.19 | 0.66 |
| 3:4:494:HIS:O | 5:6:565:ARG:NH2 | 2.28 | 0.66 |
| 3:4:554:ARG:HH12 | 5:6:255:SER:HA | 1.58 | 0.66 |
| 1:A:321:GLN:NE2 | 4:D:287:VAL:O | 2.25 | 0.66 |
| 5:6:617:THR:H | 5:6:620:GLN:HG2 | 1.60 | 0.66 |
| 6:7:10:LYS:NZ | 6:7:83:GLU:OE2 | 2.27 | 0.66 |
| 8:S:-9[A]:DT:C5 | 8:S:-8[A]:DT:C7 | 2.77 | 0.66 |
| 1:2:893:HIS:HA | 1:2:900:ILE:HG22 | 1.77 | 0.66 |
| 1:A:641:LEU:HB3 | 1:A:645:GLU:HG3 | 1.76 | 0.66 |
| 1:2:523:GLY:HA3 | 1:2:663:VAL:HB | 1.76 | 0.66 |
| 1:A:481:ILE:HD11 | 1:A:492:LYS:HA | 1.78 | 0.66 |
| 1:A:180:HIS:CE1 | 1:A:184:GLU:HG3 | 2.31 | 0.66 |
| 4:D:533:ALA:O | 4:D:537:ILE:HD12 | 1.96 | 0.66 |
| 6:7:319:LEU:HG | 6:7:561:ARG:HH21 | 1.60 | 0.66 |
| 1:2:718:GLU:HG3 | 1:2:722:LYS:HE2 | 1.78 | 0.66 |
| 5:6:756:ILE:HD12 | 5:6:769:LYS:HD3 | 1.77 | 0.65 |
| 5:6:206:VAL:HG22 | 5:6:226:VAL:HG22 | 1.77 | 0.65 |
| 8:S:-33[A]:DT:H2'' | 8:S:-32[A]:DT:C6 | 2.31 | 0.65 |
| 2:B:128:GLU:HG2 | 2:B:236:GLN:HG3 | 1.79 | 0.65 |
| 2:B:460:ASP:H | 2:B:468:ASN:HD21 | 1.43 | 0.65 |
| 3:4:554:ARG:NH2 | 5:6:256:LYS:O | 2.30 | 0.65 |
| 4:D:649:LEU:HG | 4:D:653:LEU:HB3 | 1.77 | 0.65 |
| 5:6:141:VAL:HG21 | 5:6:236:ALA:HB1 | 1.77 | 0.65 |
| 1:A:302:LEU:HD22 | 1:A:420:ASN:HB2 | 1.78 | 0.65 |
| 1:A:523:GLY:HA3 | 1:A:663:VAL:HB | 1.79 | 0.65 |
| 5:E:356:PRO:O | 5:E:551:ARG:NH2 | 2.28 | 0.65 |
| 1:2:734:LYS:HZ2 | 1:2:786:VAL:HG23 | 1.60 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:C:231:GLN:OE1 | 6:F:225:ARG:NH2 | 2.28 | 0.65 |
| 3:4:501:ARG:NH2 | 3:4:591:MET:O | 2.30 | 0.65 |
| 2:B:242:ARG:NH2 | 4:D:217:ASP:HB3 | 2.12 | 0.65 |
| 3:C:587:LEU:O | 3:C:591:MET:HG3 | 1.97 | 0.65 |
| 4:D:728:LYS:O | 4:D:732:ARG:NE | 2.30 | 0.65 |
| 7:O:9[A]:DA:H3' | 7:O:9[A]:DA:OP2 | 1.96 | 0.65 |
| 2:B:187:GLU:OE2 | 6:F:72:ARG:NH2 | 2.29 | 0.64 |
| 8:S:-9[A]:DT:H2'' | 8:S:-8[A]:DT:O5' | 1.98 | 0.64 |
| 1:2:744:ALA:HA | 4:5:532:LEU:HD13 | 1.79 | 0.64 |
| 2:3:281:ILE:HG22 | 2:3:285:LYS:HE2 | 1.78 | 0.64 |
| 4:5:162:ARG:HB2 | 4:5:224:PHE:HD2 | 1.63 | 0.64 |
| 1:2:248:LEU:HD21 | 1:2:285:ILE:HD13 | 1.80 | 0.64 |
| 1:2:641:LEU:HB3 | 1:2:645:GLU:HG3 | 1.79 | 0.64 |
| 2:3:510:PRO:HD2 | 2:3:510:PRO:O | 1.97 | 0.64 |
| 3:C:602:GLY:HA2 | 5:E:445:GLU:HG2 | 1.79 | 0.64 |
| 6:F:319:LEU:HD11 | 6:F:561:ARG:NE | 2.12 | 0.64 |
| 7:O:5[A]:DA:H2'' | 7:O:6[A]:DA:C5' | 2.26 | 0.64 |
| 7:O:35[A]:DA:H2' | 7:O:36[A]:DA:C8 | 2.33 | 0.64 |
| 4:5:385:THR:HG21 | 4:5:520:VAL:HG11 | 1.80 | 0.64 |
| 3:C:347:SER:HB2 | 3:C:376:ASN:ND2 | 2.09 | 0.64 |
| 4:D:595:GLN:NE2 | 4:D:599:ASP:OD1 | 2.31 | 0.64 |
| 7:O:5[A]:DA:N1 | 7:O:6[A]:DA:C2 | 2.66 | 0.64 |
| 4:5:689:VAL:O | 4:5:693:SER:N | 2.31 | 0.64 |
| 3:C:302:ALA:HB2 | 3:C:322:ILE:HD13 | 1.78 | 0.64 |
| 4:5:664:THR:HG21 | 4:5:708:ILE:HG13 | 1.80 | 0.64 |
| 1:A:491:ILE:HD11 | 1:A:663:VAL:HG22 | 1.80 | 0.64 |
| 8:S:-48[A]:DT:C7 | 8:S:-47[A]:DT:C4 | 2.73 | 0.64 |
| 3:C:730:TYR:H | 3:C:733:GLN:HG2 | 1.63 | 0.64 |
| 5:6:56:PRO:O | 5:6:57:GLU:HG3 | 1.97 | 0.64 |
| 6:7:206:CYS:HA | 6:7:220:LEU:HD23 | 1.79 | 0.64 |
| 7:O:6[A]:DA:C4 | 7:O:7[A]:DA:C5 | 2.86 | 0.64 |
| 3:4:302:ALA:HB2 | 3:4:322:ILE:HD13 | 1.80 | 0.63 |
| 5:E:27:GLN:HB2 | 5:E:89:TYR:HB3 | 1.80 | 0.63 |
| 8:S:-3[A]:DT:H2'' | 8:S:-2[A]:DT:O5' | 1.98 | 0.63 |
| 3:C:651:LEU:HD12 | 3:C:780:ILE:HD11 | 1.79 | 0.63 |
| 5:E:484:ILE:HG23 | 5:E:486:LYS:HE2 | 1.80 | 0.63 |
| 5:6:117:LEU:HD12 | 5:6:136:ARG:HB2 | 1.80 | 0.63 |
| 5:6:558:ARG:HB2 | 5:6:562:SER:HB3 | 1.81 | 0.63 |
| 3:4:190:GLU:HB3 | 3:4:191:PRO:HD3 | 1.81 | 0.63 |
| 4:5:224:PHE:HE1 | 4:5:248:TYR:HE2 | 1.44 | 0.63 |
| 6:F:459:HIS:O | 6:F:514:ARG:NH1 | 2.31 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:121:LEU:HD11 | 2:B:243:CYS:SG | 2.39 | 0.63 |
| 2:B:385:ASP:OD1 | 2:B:392:ARG:NH2 | 2.32 | 0.63 |
| 8:S:-6[A]:DT:C6 | 8:S:-5[A]:DT:H72 | 2.34 | 0.63 |
| 1:2:464:ILE:HD11 | 1:2:725:ILE:HG22 | 1.80 | 0.63 |
| 2:3:19:TYR:HB3 | 2:3:76:PHE:HD1 | 1.63 | 0.63 |
| 3:4:711:ILE:HD13 | 5:6:550:ARG:HG2 | 1.80 | 0.63 |
| 1:A:799:LEU:O | 1:A:803:ILE:HG12 | 1.98 | 0.63 |
| 3:4:631:ILE:HD11 | 3:4:727:VAL:HA | 1.81 | 0.62 |
| 3:4:645:ASP:HB2 | 3:4:736:SER:OG | 1.98 | 0.62 |
| 5:6:485:THR:HG22 | 5:6:490:LYS:HB2 | 1.80 | 0.62 |
| 1:A:846:TYR:OH | 1:A:850:ARG:NH1 | 2.32 | 0.62 |
| 5:E:55:ARG:O | 5:E:108:LYS:NZ | 2.31 | 0.62 |
| 8:S:-41[A]:DT:C6 | 8:S:-40[A]:DT:H73 | 2.34 | 0.62 |
| 4:5:676:GLU:HA | 4:5:679:LEU:HG | 1.80 | 0.62 |
| 4:D:108:ASP:OD1 | 4:D:114:ARG:NH2 | 2.32 | 0.62 |
| 5:6:54:ILE:HG21 | 5:6:102:LYS:HG2 | 1.81 | 0.62 |
| 3:C:576:PHE:HB3 | 3:C:617:ALA:HB2 | 1.81 | 0.62 |
| 6:F:434:LEU:HD13 | 6:F:461:VAL:HG21 | 1.80 | 0.62 |
| 3:4:652:ASP:OD2 | 6:7:589:ARG:NH2 | 2.29 | 0.62 |
| 1:A:577:VAL:HG12 | 1:A:622:ALA:HB2 | 1.81 | 0.62 |
| 2:B:61:ARG:NH1 | 2:B:72:GLU:OE1 | 2.33 | 0.62 |
| 1:2:195:ILE:HG22 | 1:2:258:ILE:HG21 | 1.80 | 0.62 |
| 1:2:225:GLU:HG2 | 1:2:227:ARG:HG3 | 1.80 | 0.62 |
| 4:D:685:ILE:HG13 | 4:D:686:GLY:H | 1.65 | 0.62 |
| 3:C:554:ARG:NE | 5:E:257:LEU:HD22 | 2.15 | 0.62 |
| 4:D:385:THR:HG21 | 4:D:520:VAL:HG11 | 1.80 | 0.62 |
| 4:D:586:TYR:OH | 4:D:590:ARG:NH1 | 2.32 | 0.62 |
| 7:O:3[A]:DA:C6 | 7:O:4[A]:DA:N6 | 2.68 | 0.62 |
| 3:C:501:ARG:O | 3:C:739:ARG:NH2 | 2.31 | 0.62 |
| 7:O:5[A]:DA:C2 | 7:O:6[A]:DA:C2 | 2.87 | 0.62 |
| 3:4:529:ARG:O | 3:4:569:GLY:HA3 | 2.00 | 0.62 |
| 6:7:374:ASN:HD22 | 6:7:465:GLN:HE21 | 1.48 | 0.61 |
| 6:7:491:ALA:HB2 | 6:7:504:ASN:HA | 1.81 | 0.61 |
| 1:A:889:ASN:O | 1:A:902:GLN:NE2 | 2.33 | 0.61 |
| 7:O:6[A]:DA:C6 | 7:O:7[A]:DA:C6 | 2.87 | 0.61 |
| 7:O:38[A]:DA:N6 | 8:S:-39[A]:DT:O4 | 2.33 | 0.61 |
| 1:2:565:VAL:HG11 | 5:6:490:LYS:HB3 | 1.82 | 0.61 |
| 1:A:577:VAL:HG11 | 1:A:620:LEU:HD12 | 1.82 | 0.61 |
| 1:2:563:HIS:HD2 | 1:2:565:VAL:H | 1.48 | 0.61 |
| 4:D:395:GLU:HG2 | 4:D:403:TYR:HB2 | 1.82 | 0.61 |
| 8:S:-48[A]:DT:C5 | 8:S:-47[A]:DT:C4 | 2.87 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 8:S:-41[A]:DT:C1' | 8:S:-40[A]:DT:C7 | 2.79 | 0.61 |
| 8:S:-8[A]:DT:H2' | 8:S:-7[A]:DT:C7 | 2.29 | 0.61 |
| 1:2:673:GLU:HB2 | 5:6:599:LYS:HD3 | 1.83 | 0.61 |
| 4:5:676:GLU:HG3 | 4:5:679:LEU:HD12 | 1.83 | 0.61 |
| 1:A:544:ILE:HD11 | 1:A:575:ALA:O | 2.01 | 0.61 |
| 3:C:570:ILE:HG13 | 3:C:612:SER:HB2 | 1.82 | 0.61 |
| 4:D:200:ASP:OD2 | 4:D:206:LYS:NZ | 2.33 | 0.61 |
| 4:D:342:SER:O | 4:D:534:LYS:NZ | 2.33 | 0.61 |
| 6:F:563:ILE:O | 6:F:567:ARG:HG2 | 2.00 | 0.61 |
| 8:S:-31[A]:DT:H2'' | 8:S:-30[A]:DT:C6 | 2.35 | 0.61 |
| 2:3:157:ARG:HH11 | 2:B:2:ALA:HA | 1.64 | 0.61 |
| 4:5:224:PHE:CE1 | 4:5:248:TYR:HE2 | 2.18 | 0.61 |
| 3:4:497:ARG:O | 5:6:404:GLN:NE2 | 2.30 | 0.61 |
| 4:5:339:ILE:HG13 | 4:5:340:ALA:N | 2.16 | 0.61 |
| 6:7:380:MET:SD | 6:7:490:PRO:HB3 | 2.39 | 0.61 |
| 3:C:191:PRO:HB2 | 3:C:194:MET:H | 1.64 | 0.61 |
| 6:7:380:MET:SD | 6:7:490:PRO:HA | 2.41 | 0.61 |
| 1:A:752:LYS:HE2 | 4:D:526:GLU:CG | 2.31 | 0.61 |
| 8:S:-37[A]:DT:N3 | 8:S:-36[A]:DT:C4 | 2.68 | 0.61 |
| 4:D:728:LYS:HG3 | 4:D:729:VAL:HG13 | 1.82 | 0.61 |
| 2:B:458:ARG:HH11 | 4:D:607:PRO:HB3 | 1.66 | 0.61 |
| 2:3:373:SER:HB3 | 4:5:470:ALA:HB3 | 1.83 | 0.60 |
| 7:O:36[A]:DA:N6 | 8:S:-37[A]:DT:O4 | 2.33 | 0.60 |
| 2:3:128:GLU:HG2 | 2:3:236:GLN:HG2 | 1.83 | 0.60 |
| 6:7:203:LEU:HB2 | 6:7:220:LEU:HD11 | 1.84 | 0.60 |
| 7:O:14[A]:DA:H2' | 7:O:15[A]:DA:C8 | 2.36 | 0.60 |
| 5:6:769:LYS:O | 5:6:772:ILE:HG22 | 2.01 | 0.60 |
| 5:E:130:ARG:HH21 | 5:E:135:THR:HB | 1.65 | 0.60 |
| 6:F:404:THR:HG23 | 6:F:409:SER:HB2 | 1.83 | 0.60 |
| 4:5:170:ILE:HD11 | 4:5:179:LEU:HD23 | 1.84 | 0.60 |
| 7:O:6[A]:DA:C6 | 7:O:7[A]:DA:N6 | 2.69 | 0.60 |
| 3:4:388:VAL:HG12 | 3:4:423:LYS:HD2 | 1.83 | 0.60 |
| 3:C:194:MET:HE1 | 3:C:248:ARG:NH1 | 2.16 | 0.60 |
| 3:C:566:SER:O | 3:C:611:THR:HG22 | 2.01 | 0.60 |
| 1:2:750:LEU:HD11 | 1:2:799:LEU:HD21 | 1.83 | 0.60 |
| 2:B:430:ARG:HD2 | 2:B:441:ARG:HH11 | 1.66 | 0.60 |
| 1:A:767:ILE:HD11 | 4:D:535:HIS:HD2 | 1.67 | 0.60 |
| 4:D:339:ILE:HG13 | 4:D:340:ALA:N | 2.15 | 0.60 |
| 3:C:529:ARG:O | 3:C:569:GLY:HA3 | 2.01 | 0.60 |
| 5:E:332:LYS:O | 5:E:335:GLU:HG3 | 2.01 | 0.59 |
| 6:F:313:GLU:HG2 | 6:F:561:ARG:HH11 | 1.66 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:S:-22[A]:DT:C2' | 8:S:-21[A]:DT:H71 | 2.26 | 0.59 |
| 6:7:391:LEU:HD12 | 6:7:443:CYS:HB3 | 1.83 | 0.59 |
| 2:B:141:VAL:HG12 | 6:F:292:LEU:HB2 | 1.84 | 0.59 |
| 5:E:56:PRO:O | 5:E:57:GLU:HG3 | 2.02 | 0.59 |
| 1:2:851:PHE:HB3 | 1:2:855:GLN:HE22 | 1.66 | 0.59 |
| 5:6:604:ARG:NH2 | 5:6:653:ASN:OD1 | 2.34 | 0.59 |
| 2:B:369:THR:HG22 | 2:B:370:GLY:H | 1.68 | 0.59 |
| 7:O:35[A]:DA:H2' | 7:O:36[A]:DA:H8 | 1.66 | 0.59 |
| 7:O:45[A]:DA:C1' | 7:O:46[A]:DA:C8 | 2.85 | 0.59 |
| 8:S:-44[A]:DT:C4 | 8:S:-43[A]:DT:C4 | 2.91 | 0.59 |
| 6:7:374:ASN:ND2 | 6:7:465:GLN:HE21 | 1.99 | 0.59 |
| 1:A:735:LEU:HD11 | 1:A:785:TYR:CD1 | 2.35 | 0.59 |
| 4:D:195:ARG:HG2 | 4:D:210:ASP:OD1 | 2.00 | 0.59 |
| 7:O:6[A]:DA:C1' | 7:O:7[A]:DA:C8 | 2.84 | 0.59 |
| 7:O:16[A]:DA:H2'' | 7:O:17[A]:DA:C8 | 2.37 | 0.59 |
| 3:4:272:ARG:NH2 | 3:4:366:THR:O | 2.28 | 0.59 |
| 3:4:400:ARG:HH21 | 5:6:256:LYS:HB3 | 1.68 | 0.59 |
| 6:7:386:ALA:N | 11:7:803:ATP:O2A | 2.33 | 0.59 |
| 2:B:464:THR:HG22 | 2:B:466:MET:H | 1.68 | 0.59 |
| 2:3:391:ARG:HE | 2:3:437:GLY:H | 1.51 | 0.59 |
| 5:E:207:ARG:NH2 | 5:E:223:SER:OG | 2.35 | 0.59 |
| 1:2:480:SER:HA | 1:2:717:GLN:HG2 | 1.85 | 0.59 |
| 1:A:284:ARG:HH21 | 1:A:401:ASP:HB2 | 1.67 | 0.59 |
| 1:A:735:LEU:CD1 | 1:A:785:TYR:CD1 | 2.86 | 0.59 |
| 2:3:61:ARG:NH2 | 2:3:64:ARG:HD3 | 2.17 | 0.59 |
| 3:4:355:GLN:NE2 | 6:7:475:LEU:O | 2.36 | 0.59 |
| 6:7:434:LEU:HD13 | 6:7:461:VAL:HG21 | 1.85 | 0.59 |
| 5:E:387:ARG:NH2 | 5:E:531:ASP:OD2 | 2.36 | 0.59 |
| 3:4:668:ALA:HA | 3:4:671:TYR:CZ | 2.37 | 0.59 |
| 5:6:321:THR:HG23 | 5:6:324:SER:H | 1.67 | 0.59 |
| 1:A:742:LYS:NZ | 1:A:792:ASN:OD1 | 2.35 | 0.59 |
| 7:O:45[A]:DA:C2 | 7:O:46[A]:DA:C2 | 2.90 | 0.59 |
| 1:2:747:TYR:HD1 | 4:5:532:LEU:HD11 | 1.67 | 0.58 |
| 1:A:413:GLU:HG2 | 1:A:447:LYS:HE2 | 1.84 | 0.58 |
| 7:O:9[A]:DA:C1' | 7:O:10[A]:DA:C8 | 2.85 | 0.58 |
| 3:C:668:ALA:HA | 3:C:671:TYR:CZ | 2.38 | 0.58 |
| 5:E:82:GLU:HB3 | 5:E:85:ARG:HD3 | 1.85 | 0.58 |
| 1:2:579:ALA:O | 1:2:624:CYS:HB3 | 2.02 | 0.58 |
| 3:4:581:GLU:OE2 | 3:4:584:ARG:NH2 | 2.35 | 0.58 |
| 5:6:745:ARG:NH1 | 5:6:746:SER:OG | 2.36 | 0.58 |
| 3:C:165:ASN:OD1 | 3:C:168:ARG:NH2 | 2.36 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:E:777:ILE:HD13 | 5:E:782:HIS:HB2 | 1.85 | 0.58 |
| 7:O:18[A]:DA:H2'' | 7:O:19[A]:DA:C8 | 2.38 | 0.58 |
| 4:5:686:GLY:O | 4:5:726:GLN:NE2 | 2.36 | 0.58 |
| 8:S:-46[A]:DT:H2'' | 8:S:-45[A]:DT:OP1 | 2.03 | 0.58 |
| 3:4:549:LYS:HB2 | 7:O:13[A]:DA:H5'' | 1.85 | 0.58 |
| 7:O:9[A]:DA:C4 | 7:O:10[A]:DA:C5 | 2.91 | 0.58 |
| 7:O:9[A]:DA:C5 | 7:O:10[A]:DA:N6 | 2.72 | 0.58 |
| 4:D:391:LEU:HD22 | 4:D:485:LEU:HG | 1.85 | 0.58 |
| 6:F:343:GLU:HG2 | 6:F:344:ILE:HD12 | 1.84 | 0.58 |
| 7:O:45[A]:DA:C2' | 7:O:46[A]:DA:C8 | 2.86 | 0.58 |
| 5:6:594:ILE:HD13 | 5:6:625:ILE:HG22 | 1.86 | 0.58 |
| 6:7:321:ARG:NH1 | 6:7:321:ARG:O | 2.37 | 0.58 |
| 4:5:645:GLN:O | 4:5:649:LEU:HG | 2.03 | 0.58 |
| 6:7:501:LEU:HD11 | 6:7:644:LEU:HD22 | 1.86 | 0.58 |
| 1:2:839:LEU:HD11 | 1:2:868:LYS:HD2 | 1.86 | 0.57 |
| 2:3:25:ASP:O | 2:3:30:GLY:HA2 | 2.03 | 0.57 |
| 3:4:501:ARG:O | 3:4:739:ARG:NE | 2.26 | 0.57 |
| 7:O:5[A]:DA:C6 | 7:O:6[A]:DA:N1 | 2.72 | 0.57 |
| 7:O:6[A]:DA:N7 | 7:O:7[A]:DA:C6 | 2.62 | 0.57 |
| 8:S:-41[A]:DT:C2 | 8:S:-40[A]:DT:N3 | 2.72 | 0.57 |
| 3:4:290:ILE:HG13 | 3:4:355:GLN:HG3 | 1.85 | 0.57 |
| 11:A:1003:ATP:C8 | 5:E:618:VAL:HG11 | 2.38 | 0.57 |
| 3:C:563:LEU:HD13 | 3:C:590:VAL:HG21 | 1.86 | 0.57 |
| 1:2:481:ILE:HD11 | 1:2:492:LYS:O | 2.04 | 0.57 |
| 1:2:486:TYR:H | 11:2:1003:ATP:HN61 | 1.51 | 0.57 |
| 4:5:627:LYS:HB2 | 4:5:629:GLN:HG2 | 1.85 | 0.57 |
| 1:2:486:TYR:O | 11:2:1003:ATP:N6 | 2.36 | 0.57 |
| 2:3:599:SER:HB3 | 6:7:527:ARG:HD3 | 1.85 | 0.57 |
| 8:S:-22[A]:DT:H2' | 8:S:-21[A]:DT:C7 | 2.28 | 0.57 |
| 8:S:-5[A]:DT:H2'' | 8:S:-4[A]:DT:O5' | 2.04 | 0.57 |
| 1:2:544:ILE:HD11 | 1:2:575:ALA:O | 2.04 | 0.57 |
| 3:4:620:ILE:O | 3:4:621:GLU:HG2 | 2.04 | 0.57 |
| 5:E:310:PHE:CD1 | 5:E:329:MET:HB3 | 2.40 | 0.57 |
| 1:2:229:SER:HB2 | 1:2:401:ASP:OD2 | 2.04 | 0.57 |
| 2:3:604:SER:OG | 2:3:605:SER:N | 2.38 | 0.57 |
| 4:5:356:LEU:HD12 | 4:5:377:LEU:HD13 | 1.87 | 0.57 |
| 1:2:740:GLN:HE22 | 4:5:537:ILE:HD13 | 1.69 | 0.57 |
| 2:B:351:LYS:NZ | 11:B:1101:ATP:O2G | 2.38 | 0.57 |
| 7:O:6[A]:DA:C8 | 7:O:7[A]:DA:C5 | 2.93 | 0.57 |
| 3:4:112:VAL:HG22 | 3:4:257:GLN:HG3 | 1.86 | 0.57 |
| 5:6:186:ALA:O | 1:A:356:GLN:NE2 | 2.30 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:748:SER:O | 1:A:752:LYS:NZ | 2.35 | 0.57 |
| 2:B:373:SER:OG | 4:D:470:ALA:HB3 | 2.05 | 0.57 |
| 3:4:620:ILE:HD13 | 3:4:635:GLN:HG2 | 1.85 | 0.57 |
| 8:S:-43[A]:DT:H2' | 8:S:-42[A]:DT:H71 | 1.87 | 0.57 |
| 2:3:4:THR:HG22 | 2:B:157:ARG:HB2 | 1.86 | 0.57 |
| 3:4:542:GLY:HA3 | 6:7:470:ALA:O | 2.05 | 0.57 |
| 4:5:391:LEU:HD22 | 4:5:485:LEU:HG | 1.86 | 0.57 |
| 4:D:170:ILE:HD11 | 4:D:179:LEU:HD23 | 1.87 | 0.57 |
| 7:O:43[A]:DA:C4 | 7:O:44[A]:DA:N7 | 2.72 | 0.57 |
| 2:B:495:ARG:HD2 | 4:D:587:ILE:HD13 | 1.87 | 0.56 |
| 7:O:3[A]:DA:N6 | 7:O:4[A]:DA:N6 | 2.53 | 0.56 |
| 8:S:-6[A]:DT:C2' | 8:S:-5[A]:DT:C5 | 2.82 | 0.56 |
| 5:E:406:LEU:HG | 5:E:458:CYS:HB3 | 1.87 | 0.56 |
| 6:F:418:VAL:HG23 | 6:F:474:ILE:HG13 | 1.87 | 0.56 |
| 1:2:804:ASP:OD1 | 1:2:815:ARG:NH2 | 2.38 | 0.56 |
| 1:A:411:GLU:OE1 | 1:A:447:LYS:HE3 | 2.05 | 0.56 |
| 2:B:25:ASP:OD2 | 2:B:31:ILE:N | 2.38 | 0.56 |
| 3:C:171:GLN:HA | 3:C:194:MET:SD | 2.45 | 0.56 |
| 4:D:37:GLU:O | 4:D:41:GLN:HB2 | 2.05 | 0.56 |
| 5:E:263:ARG:NH2 | 5:E:265:GLU:OE2 | 2.31 | 0.56 |
| 8:S:-42[A]:DT:H4' | 8:S:-41[A]:DT:OP1 | 2.05 | 0.56 |
| 8:S:-26[A]:DT:H2' | 8:S:-25[A]:DT:H5' | 1.83 | 0.56 |
| 3:4:183:ASN:HD22 | 3:4:439:LYS:HB3 | 1.69 | 0.56 |
| 5:6:364:VAL:HG21 | 5:6:536:LEU:HD21 | 1.86 | 0.56 |
| 5:E:359:HIS:HB2 | 5:E:551:ARG:HG3 | 1.85 | 0.56 |
| 4:5:581:LYS:HZ3 | 4:5:634:GLU:HB3 | 1.70 | 0.56 |
| 2:B:146:HIS:NE2 | 2:B:175:PRO:HG2 | 2.19 | 0.56 |
| 2:B:185:GLU:HG3 | 6:F:72:ARG:HH22 | 1.70 | 0.56 |
| 8:S:-15[A]:DT:H2'' | 8:S:-14[A]:DT:H5'' | 1.87 | 0.56 |
| 2:B:593:GLU:HG3 | 2:B:646:VAL:HG21 | 1.88 | 0.56 |
| 6:F:513:SER:OG | 6:F:604:ARG:NH1 | 2.39 | 0.56 |
| 3:4:490:LYS:HE3 | 5:6:556:HIS:CD2 | 2.41 | 0.56 |
| 4:5:40:ARG:HD3 | 4:5:109:GLU:OE2 | 2.06 | 0.56 |
| 4:5:581:LYS:HZ2 | 4:5:638:GLU:HG2 | 1.71 | 0.56 |
| 5:6:72:ASN:HB3 | 5:6:75:LEU:HB3 | 1.87 | 0.56 |
| 1:A:284:ARG:HD2 | 1:A:442:ASN:O | 2.06 | 0.56 |
| 1:A:382:PRO:O | 5:E:494:ASN:ND2 | 2.29 | 0.56 |
| 2:B:10:VAL:O | 2:B:14:GLU:HG2 | 2.05 | 0.56 |
| 7:O:8[A]:DA:C5 | 7:O:9[A]:DA:C5 | 2.94 | 0.56 |
| 4:5:491:VAL:HG22 | 4:5:505:ASP:HB2 | 1.88 | 0.56 |
| 1:A:277:ILE:HG22 | 1:A:278:THR:HG23 | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:732:HIS:O | 1:A:732:HIS:CG | 2.58 | 0.56 |
| 5:E:435:ARG:HH21 | 8:S:-35[A]:DT:H3' | 1.70 | 0.56 |
| 6:F:574:PRO:HD2 | 6:F:577:LEU:HD12 | 1.87 | 0.56 |
| 5:E:120:ARG:HB2 | 5:E:136:ARG:HH21 | 1.70 | 0.56 |
| 2:3:131:VAL:HG21 | 2:3:229:ALA:HB1 | 1.88 | 0.56 |
| 3:4:175:ASP:HB3 | 3:4:178:ALA:HB2 | 1.88 | 0.56 |
| 3:C:503:GLU:OE1 | 3:C:594:GLN:NE2 | 2.39 | 0.56 |
| 6:F:93:VAL:HG12 | 6:F:95[A]:ASN:H | 1.71 | 0.56 |
| 6:F:93:VAL:HG12 | 6:F:95[B]:ASN:H | 1.71 | 0.56 |
| 2:3:74:VAL:O | 2:3:78:ARG:HG3 | 2.06 | 0.55 |
| 3:4:490:LYS:HE3 | 5:6:556:HIS:HD2 | 1.71 | 0.55 |
| 4:5:2:SER:N | 6:F:279:PRO:O | 2.39 | 0.55 |
| 1:A:448:ASP:O | 1:A:450:LYS:NZ | 2.29 | 0.55 |
| 3:C:152:ILE:HB | 3:C:155:THR:OG1 | 2.07 | 0.55 |
| 1:2:665:ASP:OD1 | 5:6:602:ARG:NH2 | 2.35 | 0.55 |
| 4:5:730:LEU:O | 4:5:734:LYS:N | 2.39 | 0.55 |
| 5:6:729:LEU:HD11 | 5:6:773:ILE:HD11 | 1.87 | 0.55 |
| 6:7:580:TYR:OH | 6:7:631:ASN:OD1 | 2.20 | 0.55 |
| 1:A:198:ARG:HD3 | 1:A:241:GLU:HG3 | 1.87 | 0.55 |
| 6:F:150:ARG:NH2 | 6:F:239:GLU:OE1 | 2.38 | 0.55 |
| 1:2:321:GLN:NE2 | 4:5:287:VAL:O | 2.32 | 0.55 |
| 1:2:573:ALA:HB1 | 1:2:577:VAL:CG2 | 2.32 | 0.55 |
| 6:7:616:LEU:HD11 | 6:7:632:GLU:HG2 | 1.87 | 0.55 |
| 4:D:170:ILE:HG13 | 4:D:179:LEU:HB3 | 1.87 | 0.55 |
| 4:D:380:LEU:HD21 | 4:D:506:PHE:HE2 | 1.70 | 0.55 |
| 5:E:284:LEU:HD22 | 5:E:289:VAL:HG21 | 1.87 | 0.55 |
| 4:5:727:ARG:HA | 4:5:730:LEU:HB3 | 1.89 | 0.55 |
| 3:C:515:SER:HA | 11:C:903:ATP:O2A | 2.06 | 0.55 |
| 1:2:196:HIS:NE2 | 1:2:265:GLU:OE2 | 2.24 | 0.55 |
| 3:4:295:LEU:HD23 | 3:4:348:ASP:OD1 | 2.06 | 0.55 |
| 3:4:354:LEU:HD13 | 3:4:372:LEU:HD11 | 1.89 | 0.55 |
| 5:6:413:SER:HB3 | 5:6:416:ALA:HB2 | 1.89 | 0.55 |
| 1:A:832:LEU:HD11 | 1:A:874:ILE:HG21 | 1.89 | 0.55 |
| 2:B:552:LEU:HG | 2:B:553:HIS:H | 1.72 | 0.55 |
| 3:C:781:VAL:HG23 | 3:C:782:ASP:H | 1.70 | 0.55 |
| 4:5:332:TYR:OH | 4:5:351:LYS:HB3 | 2.06 | 0.55 |
| 5:6:103:GLU:N | 5:6:103:GLU:OE1 | 2.40 | 0.55 |
| 1:A:809:SER:HB2 | 5:E:787:LEU:HD13 | 1.88 | 0.55 |
| 1:A:874:ILE:HG22 | 1:A:876:ASN:H | 1.72 | 0.55 |
| 7:O:9[A]:DA:C6 | 7:O:10[A]:DA:N6 | 2.75 | 0.55 |
| 4:5:537:ILE:O | 4:5:541:VAL:HG22 | 2.07 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:7:372:ARG:NH2 | 6:7:374:ASN:O | 2.40 | 0.55 |
| 6:7:555:ASP:OD1 | 6:7:556:MET:N | 2.40 | 0.55 |
| 4:D:108:ASP:O | 4:D:112:ARG:HB2 | 2.07 | 0.55 |
| 5:E:364:VAL:HG21 | 5:E:536:LEU:HD21 | 1.88 | 0.55 |
| 2:3:33:GLN:HE22 | 2:3:37:ARG:NE | 2.05 | 0.55 |
| 2:3:269:SER:HB3 | 2:3:272:ALA:HB3 | 1.87 | 0.55 |
| 4:5:581:LYS:NZ | 4:5:638:GLU:HG2 | 2.21 | 0.55 |
| 5:6:278:THR:HG23 | 6:7:205:MET:HG3 | 1.89 | 0.55 |
| 5:E:435:ARG:NH2 | 8:S:-35[A]:DT:H3' | 2.22 | 0.55 |
| 3:4:554:ARG:NH1 | 5:6:255:SER:HA | 2.21 | 0.54 |
| 6:7:213:THR:O | 6:7:215:ARG:NH2 | 2.40 | 0.54 |
| 2:B:121:LEU:CD1 | 2:B:243:CYS:SG | 2.94 | 0.54 |
| 2:B:556:LYS:HG3 | 2:B:557:LYS:N | 2.21 | 0.54 |
| 3:C:515:SER:O | 3:C:515:SER:OG | 2.22 | 0.54 |
| 1:2:491:ILE:HD11 | 1:2:663:VAL:HG22 | 1.88 | 0.54 |
| 1:2:727:ALA:O | 1:2:730:ARG:HG3 | 2.07 | 0.54 |
| 8:S:-46[A]:DT:C1' | 8:S:-45[A]:DT:OP2 | 2.48 | 0.54 |
| 1:2:302:LEU:HD22 | 1:2:420:ASN:HB2 | 1.90 | 0.54 |
| 1:2:885:LEU:O | 1:2:889:ASN:ND2 | 2.35 | 0.54 |
| 4:5:680:LYS:HB3 | 5:6:745:ARG:HB3 | 1.90 | 0.54 |
| 1:A:505:LYS:HD2 | 4:D:539:LEU:HG | 1.90 | 0.54 |
| 1:2:419:HIS:CE1 | 1:2:422:TYR:HD1 | 2.25 | 0.54 |
| 2:3:416:ASP:OD1 | 2:3:419:ARG:NH2 | 2.40 | 0.54 |
| 1:A:490:ASP:OD1 | 1:A:490:ASP:N | 2.39 | 0.54 |
| 2:B:143:ARG:NH1 | 2:B:156:GLU:OE2 | 2.37 | 0.54 |
| 2:3:146:HIS:NE2 | 2:3:175:PRO:HG2 | 2.22 | 0.54 |
| 5:6:661:THR:CG2 | 5:6:719:GLU:HG2 | 2.37 | 0.54 |
| 1:A:867:ASP:O | 1:A:871:GLN:HG2 | 2.08 | 0.54 |
| 6:F:587:GLU:O | 6:F:591:GLU:HG2 | 2.08 | 0.54 |
| 1:2:647:VAL:HG22 | 1:2:649:LEU:HD23 | 1.90 | 0.54 |
| 1:A:289:PRO:HG2 | 1:A:290:LEU:HD12 | 1.90 | 0.54 |
| 3:C:471:TYR:CD2 | 3:C:472:GLU:HG2 | 2.43 | 0.54 |
| 2:3:269:SER:HB3 | 2:3:272:ALA:CB | 2.38 | 0.54 |
| 5:6:272:GLY:H | 5:6:278:THR:HG22 | 1.71 | 0.54 |
| 5:E:485:THR:O | 5:E:486:LYS:HD3 | 2.07 | 0.54 |
| 8:S:-43[A]:DT:H2' | 8:S:-42[A]:DT:C6 | 2.43 | 0.54 |
| 5:6:582:PHE:O | 5:6:633:ARG:NH1 | 2.40 | 0.54 |
| 3:C:549:LYS:CD | 8:S:-36[A]:DT:OP2 | 2.55 | 0.54 |
| 4:D:441:VAL:HG22 | 4:D:483:SER:HB2 | 1.89 | 0.54 |
| 4:D:596:HIS:NE2 | 4:D:655:GLY:HA3 | 2.22 | 0.54 |
| 5:E:144:THR:HB | 5:E:204:GLN:HE21 | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:3:268:MET:HG2 | 2:3:533:ASN:HB3 | 1.89 | 0.54 |
| 2:3:434:ALA:O | 2:3:435:LYS:HE2 | 2.08 | 0.54 |
| 3:4:774:THR:HG22 | 3:4:780:ILE:HG13 | 1.88 | 0.54 |
| 1:A:647:VAL:HG22 | 1:A:649:LEU:HD23 | 1.90 | 0.54 |
| 1:A:673:GLU:HB2 | 5:E:599:LYS:HD3 | 1.89 | 0.54 |
| 4:D:732:ARG:NH1 | 5:E:787:LEU:HD21 | 2.21 | 0.54 |
| 5:E:788:ILE:HG13 | 5:E:788:ILE:O | 2.08 | 0.54 |
| 7:O:9[A]:DA:H2 | 8:S:-9[A]:DT:O2 | 1.91 | 0.54 |
| 5:6:313:LYS:O | 5:6:328:GLN:HG3 | 2.07 | 0.53 |
| 1:A:540:SER:HB3 | 1:A:543:ALA:HB2 | 1.90 | 0.53 |
| 4:5:673:SER:HA | 4:5:676:GLU:HB2 | 1.90 | 0.53 |
| 2:B:284:ILE:HD13 | 2:B:574:VAL:HG21 | 1.90 | 0.53 |
| 6:F:372:ARG:NH2 | 6:F:374:ASN:O | 2.41 | 0.53 |
| 1:2:857:THR:HG23 | 1:2:901:LEU:HD13 | 1.89 | 0.53 |
| 3:4:423:LYS:HB2 | 3:4:434:GLU:OE2 | 2.08 | 0.53 |
| 1:A:195:ILE:HG22 | 1:A:258:ILE:HG21 | 1.91 | 0.53 |
| 7:O:43[A]:DA:C6 | 7:O:44[A]:DA:C6 | 2.96 | 0.53 |
| 4:5:606:ILE:HG21 | 4:5:651:ALA:HA | 1.90 | 0.53 |
| 2:B:33:GLN:HG3 | 2:B:37:ARG:NH1 | 2.24 | 0.53 |
| 2:B:90:THR:O | 2:B:93:LYS:HG3 | 2.08 | 0.53 |
| 2:B:287:PHE:HB2 | 2:B:547:LYS:NZ | 2.23 | 0.53 |
| 5:E:178:ASN:O | 5:E:188:ARG:HG2 | 2.08 | 0.53 |
| 6:F:223:GLN:O | 6:F:227:SER:OG | 2.26 | 0.53 |
| 8:S:-47[A]:DT:C2' | 8:S:-46[A]:DT:C5' | 2.85 | 0.53 |
| 1:2:862:GLU:O | 1:2:866:VAL:HG23 | 2.08 | 0.53 |
| 6:7:633:ALA:O | 6:7:637:MET:HG3 | 2.08 | 0.53 |
| 3:C:723:SER:OG | 3:C:726:MET:SD | 2.65 | 0.53 |
| 5:E:732:ARG:HH12 | 5:E:752:TYR:HA | 1.73 | 0.53 |
| 6:F:374:ASN:HD22 | 6:F:483:SER:HB3 | 1.73 | 0.53 |
| 6:F:575:GLU:OE1 | 6:F:575:GLU:N | 2.41 | 0.53 |
| 1:2:188:MET:HB2 | 1:2:191:PRO:HD2 | 1.90 | 0.53 |
| 4:D:519:ILE:HG12 | 4:D:650:ASP:OD1 | 2.09 | 0.53 |
| 6:F:415:THR:HG22 | 6:F:416:ALA:N | 2.23 | 0.53 |
| 7:O:47[A]:DA:C2 | 8:S:-47[A]:DT:O2 | 2.62 | 0.53 |
| 8:S:-21[A]:DT:H2'' | 8:S:-20[A]:DT:C6 | 2.44 | 0.53 |
| 2:3:19:TYR:CG | 2:3:76:PHE:HD1 | 2.25 | 0.53 |
| 8:S:-36[A]:DT:H2'' | 8:S:-35[A]:DT:H6 | 1.72 | 0.53 |
| 1:2:193:LEU:CD2 | 1:2:197:HIS:CE1 | 2.92 | 0.53 |
| 5:6:533:PHE:O | 5:6:655:SER:OG | 2.26 | 0.53 |
| 5:6:610:THR:HG23 | 5:6:658:ARG:HD2 | 1.91 | 0.53 |
| 6:7:418:VAL:HG23 | 6:7:474:ILE:HG12 | 1.89 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 3:C:389:ASN:HB2 | 3:C:422:ARG:HB3 | 1.90 | 0.53 |
| 3:C:651:LEU:CD1 | 3:C:780:ILE:HD11 | 2.38 | 0.53 |
| 8:S:-34[A]:DT:H2'' | 8:S:-33[A]:DT:C6 | 2.43 | 0.53 |
| 6:7:52:LEU:HD12 | 6:7:141:PRO:HD3 | 1.91 | 0.53 |
| 4:D:145:MET:CE | 4:D:271:ILE:HG23 | 2.38 | 0.53 |
| 5:E:206:VAL:CG2 | 5:E:226:VAL:HG22 | 2.39 | 0.53 |
| 6:F:322:GLU:O | 6:F:325:ARG:N | 2.42 | 0.53 |
| 1:2:521:LEU:HD23 | 1:2:661:CYS:HB2 | 1.91 | 0.52 |
| 2:3:76:PHE:CE2 | 2:3:100:VAL:HG11 | 2.44 | 0.52 |
| 3:4:367:PRO:HD3 | 6:7:478:LEU:HD13 | 1.90 | 0.52 |
| 6:7:117:GLY:HA3 | 4:D:112:ARG:HD3 | 1.91 | 0.52 |
| 1:A:783:ARG:CD | 1:A:787:ILE:HG12 | 2.39 | 0.52 |
| 3:4:472:GLU:O | 3:4:472:GLU:HG3 | 2.10 | 0.52 |
| 3:C:549:LYS:CE | 8:S:-36[A]:DT:OP2 | 2.57 | 0.52 |
| 7:O:45[A]:DA:C4 | 7:O:46[A]:DA:C5 | 2.97 | 0.52 |
| 1:2:284:ARG:HD2 | 1:2:442:ASN:O | 2.08 | 0.52 |
| 1:2:719:VAL:H | 1:2:722:LYS:NZ | 2.02 | 0.52 |
| 6:7:133:ARG:HD2 | 6:7:228:ARG:HH22 | 1.73 | 0.52 |
| 6:7:372:ARG:HG3 | 6:7:611:ARG:NH2 | 2.21 | 0.52 |
| 6:7:418:VAL:HG12 | 6:7:427:LEU:HD12 | 1.92 | 0.52 |
| 6:7:563:ILE:O | 6:7:567:ARG:HG2 | 2.09 | 0.52 |
| 1:A:226:ASN:HA | 1:A:274:TYR:OH | 2.10 | 0.52 |
| 4:D:519:ILE:HG12 | 4:D:650:ASP:CG | 2.30 | 0.52 |
| 1:2:458:ASP:N | 1:2:458:ASP:OD1 | 2.42 | 0.52 |
| 2:3:598:ARG:HD2 | 2:3:613:VAL:HG12 | 1.91 | 0.52 |
| 3:4:487:GLY:O | 3:4:489:ARG:NH1 | 2.42 | 0.52 |
| 4:5:16:GLY:HA3 | 3:C:125:LEU:HD21 | 1.91 | 0.52 |
| 3:C:185:GLY:HA2 | 3:C:195:GLN:OE1 | 2.09 | 0.52 |
| 2:3:308:HIS:O | 11:3:1101:ATP:N6 | 2.43 | 0.52 |
| 6:7:282:ARG:HB2 | 6:7:293:LEU:O | 2.10 | 0.52 |
| 4:D:2:SER:OG | 4:D:3:GLY:N | 2.41 | 0.52 |
| 4:D:490:SER:HG | 4:D:495:TRP:HE3 | 1.58 | 0.52 |
| 8:S:-37[A]:DT:C4 | 8:S:-36[A]:DT:O4 | 2.63 | 0.52 |
| 1:2:737:GLN:HA | 4:5:540:HIS:CE1 | 2.45 | 0.52 |
| 2:3:106:PHE:HB3 | 2:3:109:LYS:HB2 | 1.91 | 0.52 |
| 5:6:359:HIS:O | 12:6:903:ADP:N6 | 2.43 | 0.52 |
| 4:D:580:GLU:OE2 | 4:D:584:ASN:ND2 | 2.42 | 0.52 |
| 1:2:516:ASP:OD2 | 1:2:607:GLN:NE2 | 2.43 | 0.52 |
| 3:4:563:LEU:HD13 | 3:4:590:VAL:HG21 | 1.91 | 0.52 |
| 1:A:562:ARG:NH2 | 7:O:36[A]:DA:OP1 | 2.42 | 0.52 |
| 4:D:217:ASP:OD1 | 4:D:217:ASP:N | 2.42 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:D:380:LEU:HD13 | 4:D:504:ILE:HG21 | 1.92 | 0.52 |
| 1:2:427:ASN:HB2 | 5:6:174:TYR:CD2 | 2.45 | 0.52 |
| 1:2:563:HIS:CD2 | 1:2:565:VAL:H | 2.25 | 0.52 |
| 4:5:195:ARG:NH2 | 8:S:-24[A]:DT:OP2 | 2.27 | 0.52 |
| 6:7:501:LEU:C | 6:7:503:GLN:H | 2.13 | 0.52 |
| 4:D:671:MET:O | 4:D:675:ILE:HG12 | 2.10 | 0.52 |
| 5:E:20:ASP:CG | 5:E:85:ARG:HH21 | 2.13 | 0.52 |
| 8:S:-21[A]:DT:C2' | 8:S:-20[A]:DT:H72 | 2.38 | 0.52 |
| 2:3:274:PRO:HG3 | 2:3:573:HIS:NE2 | 2.25 | 0.52 |
| 1:A:764:VAL:HG13 | 4:D:535:HIS:CD2 | 2.45 | 0.52 |
| 3:C:397:VAL:HB | 5:E:259:THR:HB | 1.91 | 0.52 |
| 8:S:-8[A]:DT:H2' | 8:S:-7[A]:DT:C5 | 2.44 | 0.52 |
| 2:3:489:MET:HB2 | 4:5:594:ARG:HD2 | 1.92 | 0.52 |
| 1:A:573:ALA:HB1 | 1:A:577:VAL:CG2 | 2.38 | 0.52 |
| 1:A:742:LYS:NZ | 1:A:788:GLU:OE2 | 2.43 | 0.52 |
| 6:F:374:ASN:OD1 | 6:F:465:GLN:NE2 | 2.43 | 0.52 |
| 1:2:324:MET:HB2 | 1:2:369:ILE:HG12 | 1.93 | 0.51 |
| 1:A:603:ALA:HB2 | 1:A:609:ILE:HD11 | 1.91 | 0.51 |
| 5:E:257:LEU:HG | 5:E:257:LEU:O | 2.08 | 0.51 |
| 5:6:27:GLN:HB2 | 5:6:89:TYR:HB3 | 1.93 | 0.51 |
| 5:6:777:ILE:HA | 5:6:780:LEU:O | 2.10 | 0.51 |
| 2:B:24:ASP:O | 2:B:26:GLU:N | 2.44 | 0.51 |
| 2:B:556:LYS:CG | 2:B:557:LYS:H | 2.21 | 0.51 |
| 4:D:222:VAL:HB | 4:D:251:ARG:HG2 | 1.92 | 0.51 |
| 7:O:5[A]:DA:C6 | 7:O:6[A]:DA:C2 | 2.97 | 0.51 |
| 8:S:-43[A]:DT:H2' | 8:S:-42[A]:DT:C5 | 2.45 | 0.51 |
| 2:3:303:LEU:O | 2:3:305:PRO:HD3 | 2.09 | 0.51 |
| 2:3:418:ASP:O | 2:3:422:ILE:HG12 | 2.10 | 0.51 |
| 4:5:222:VAL:HB | 4:5:251:ARG:HG2 | 1.92 | 0.51 |
| 5:6:124:ARG:NH2 | 5:6:210:GLU:OE1 | 2.43 | 0.51 |
| 5:6:523:SER:HB2 | 5:6:525:PRO:HD2 | 1.93 | 0.51 |
| 7:O:45[A]:DA:H2'' | 7:O:46[A]:DA:N7 | 2.25 | 0.51 |
| 1:2:290:LEU:HD23 | 1:2:290:LEU:H | 1.75 | 0.51 |
| 1:2:585:LEU:HD23 | 1:2:627:ILE:HB | 1.92 | 0.51 |
| 3:4:117:ASP:OD1 | 3:4:117:ASP:N | 2.43 | 0.51 |
| 2:3:469:ILE:HD13 | 2:3:482:LEU:HD21 | 1.91 | 0.51 |
| 4:5:170:ILE:HG22 | 4:5:214:ILE:HD13 | 1.93 | 0.51 |
| 5:6:29:LEU:HD12 | 5:6:72:ASN:ND2 | 2.26 | 0.51 |
| 1:A:767:ILE:HD12 | 4:D:532:LEU:HG | 1.90 | 0.51 |
| 8:S:-41[A]:DT:H6 | 8:S:-40[A]:DT:H73 | 1.74 | 0.51 |
| 1:2:193:LEU:HD21 | 1:2:197:HIS:HE1 | 1.74 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:2:577:VAL:HG11 | 1:2:620:LEU:HD12 | 1.92 | 0.51 |
| 6:7:589:ARG:NH1 | 6:7:601:THR:O | 2.44 | 0.51 |
| 1:A:516:ASP:HB3 | 1:A:625:THR:HG22 | 1.92 | 0.51 |
| 1:A:736:ASN:O | 4:D:540:HIS:ND1 | 2.44 | 0.51 |
| 2:B:355:LEU:HD12 | 2:B:407:CYS:HB3 | 1.93 | 0.51 |
| 7:O:33[A]:DA:H2'' | 7:O:34[A]:DA:O5' | 2.10 | 0.51 |
| 1:2:464:ILE:HG23 | 1:2:726:TYR:CD1 | 2.45 | 0.51 |
| 3:4:189:THR:HG22 | 3:4:191:PRO:HD2 | 1.92 | 0.51 |
| 1:A:372:ASN:HB2 | 1:A:400:ALA:HA | 1.92 | 0.51 |
| 5:E:39:SER:HG | 5:E:45:LYS:HD2 | 1.74 | 0.51 |
| 5:E:733:LYS:O | 5:E:736:GLU:HG2 | 2.11 | 0.51 |
| 6:F:341:ALA:HB1 | 6:F:344:ILE:HD13 | 1.91 | 0.51 |
| 6:F:630:VAL:O | 6:F:634:ILE:HG12 | 2.10 | 0.51 |
| 8:S:-44[A]:DT:C6 | 8:S:-43[A]:DT:C7 | 2.83 | 0.51 |
| 1:2:482:ALA:HB1 | 1:2:485:ILE:HD12 | 1.92 | 0.51 |
| 4:5:284:ARG:HE | 4:5:286:GLY:H | 1.59 | 0.51 |
| 4:5:407:LYS:HG3 | 4:5:449:LYS:O | 2.11 | 0.51 |
| 5:6:430:THR:HG21 | 5:6:472:ALA:HB1 | 1.93 | 0.51 |
| 3:C:411:VAL:HG22 | 6:F:176:LYS:HG3 | 1.93 | 0.51 |
| 7:O:7[A]:DA:H2'' | 7:O:8[A]:DA:C8 | 2.46 | 0.51 |
| 8:S:-7[A]:DT:H2'' | 8:S:-6[A]:DT:H71 | 1.93 | 0.51 |
| 1:2:354:GLU:CD | 3:C:335:HIS:HE2 | 2.14 | 0.51 |
| 1:2:421:ASN:HB3 | 5:6:195:THR:HG21 | 1.92 | 0.51 |
| 1:2:457:THR:HG22 | 1:2:725:ILE:HG23 | 1.93 | 0.51 |
| 4:5:7:PRO:HG2 | 6:F:194:PRO:HB2 | 1.93 | 0.51 |
| 6:7:505:ILE:HD12 | 6:7:518:LEU:HD21 | 1.93 | 0.51 |
| 7:O:14[A]:DA:H2' | 7:O:15[A]:DA:H8 | 1.76 | 0.51 |
| 8:S:-35[A]:DT:H2'' | 8:S:-34[A]:DT:C6 | 2.46 | 0.51 |
| 1:2:177:LEU:HA | 1:2:185:TRP:HE1 | 1.76 | 0.51 |
| 2:3:628:HIS:CD2 | 2:3:644:GLU:HG2 | 2.46 | 0.51 |
| 5:6:340:MET:HG3 | 5:6:575:TYR:CD1 | 2.45 | 0.51 |
| 3:C:127:VAL:HG21 | 3:C:153:TRP:CE3 | 2.39 | 0.51 |
| 5:E:452:ALA:O | 5:E:497:THR:HG22 | 2.11 | 0.51 |
| 1:2:836:LEU:HG | 1:2:891:PHE:CZ | 2.46 | 0.50 |
| 2:3:580:PRO:HG2 | 2:3:626:THR:HG23 | 1.92 | 0.50 |
| 3:4:515:SER:HA | 11:4:903:ATP:O2A | 2.11 | 0.50 |
| 6:F:616:LEU:HD13 | 6:F:632:GLU:HB3 | 1.93 | 0.50 |
| 1:2:458:ASP:C | 1:2:460:ASP:H | 2.14 | 0.50 |
| 1:2:869:ALA:HB1 | 1:2:874:ILE:HB | 1.93 | 0.50 |
| 3:4:350:GLN:HB2 | 3:4:379:VAL:HG22 | 1.92 | 0.50 |
| 4:5:388:SER:O | 4:5:392:LYS:HG3 | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 5:6:347:TYR:OH | 5:6:366:ARG:HB3 | 2.10 | 0.50 |
| 6:7:182:TYR:CG | 6:7:220:LEU:HD13 | 2.45 | 0.50 |
| 1:A:859:GLU:HA | 1:A:901:LEU:HA | 1.92 | 0.50 |
| 2:3:76:PHE:CD2 | 2:3:100:VAL:HG11 | 2.46 | 0.50 |
| 2:3:153:LYS:HE3 | 2:B:6:VAL:HG13 | 1.92 | 0.50 |
| 4:5:201:GLN:OE1 | 4:5:204:ARG:NH1 | 2.45 | 0.50 |
| 5:6:226:VAL:HG12 | 5:6:298:PHE:HB3 | 1.93 | 0.50 |
| 2:B:379:THR:O | 2:B:396:GLY:HA3 | 2.11 | 0.50 |
| 3:C:115:ARG:HD2 | 3:C:259:GLN:HG2 | 1.94 | 0.50 |
| 3:C:179:LYS:HD3 | 3:C:187:ASP:OD2 | 2.11 | 0.50 |
| 2:3:489:MET:HG2 | 4:5:590:ARG:NH2 | 2.16 | 0.50 |
| 3:4:768:ALA:O | 3:4:769:LEU:HB2 | 2.12 | 0.50 |
| 4:5:380:LEU:HD21 | 4:5:506:PHE:HE2 | 1.77 | 0.50 |
| 4:5:387:LYS:HG2 | 12:5:803:ADP:O3B | 2.11 | 0.50 |
| 1:A:225:GLU:HG3 | 1:A:227:ARG:HG2 | 1.92 | 0.50 |
| 1:A:789:ASP:N | 1:A:789:ASP:OD1 | 2.43 | 0.50 |
| 2:B:291:ARG:O | 2:B:295:ILE:HB | 2.10 | 0.50 |
| 2:B:424:GLU:HB2 | 6:F:405:THR:HG21 | 1.93 | 0.50 |
| 4:D:344:PHE:HB2 | 4:D:534:LYS:HD2 | 1.94 | 0.50 |
| 5:E:434:VAL:HG23 | 5:E:443:VAL:HG13 | 1.94 | 0.50 |
| 5:E:565:ARG:HH12 | 5:E:569:LEU:HD22 | 1.77 | 0.50 |
| 6:F:14:LYS:NZ | 6:F:83:GLU:OE1 | 2.31 | 0.50 |
| 7:O:47[A]:DA:H2 | 8:S:-47[A]:DT:O2 | 1.95 | 0.50 |
| 4:5:195:ARG:NH1 | 7:O:25[A]:DA:N1 | 2.59 | 0.50 |
| 5:6:159:LEU:HD21 | 5:6:192:LEU:HB2 | 1.92 | 0.50 |
| 5:6:566:VAL:HG23 | 5:6:567:TYR:CD2 | 2.47 | 0.50 |
| 1:A:735:LEU:O | 1:A:785:TYR:HA | 2.12 | 0.50 |
| 2:B:268:MET:SD | 2:B:533:ASN:HB3 | 2.52 | 0.50 |
| 5:E:403:SER:O | 5:E:407:LYS:HG2 | 2.10 | 0.50 |
| 6:F:415:THR:HG23 | 6:F:467:ILE:HG21 | 1.93 | 0.50 |
| 7:O:2[A]:DA:H2" | 7:O:3[A]:DA:C8 | 2.45 | 0.50 |
| 7:O:8[A]:DA:H2 | 8:S:-8[A]:DT:O2 | 1.95 | 0.50 |
| 1:2:650:THR:HB | 1:2:652:PRO:HD2 | 1.92 | 0.50 |
| 2:3:422:ILE:HG22 | 2:3:426:MET:HG3 | 1.93 | 0.50 |
| 4:5:331:VAL:HA | 4:5:334:VAL:HG12 | 1.93 | 0.50 |
| 5:6:101:ARG:HB3 | 5:6:102:LYS:HD3 | 1.94 | 0.50 |
| 3:C:356:GLU:HG2 | 3:C:357:SER:N | 2.27 | 0.50 |
| 4:D:277:THR:HG23 | 4:D:278:THR:HG23 | 1.92 | 0.50 |
| 2:B:375:GLY:N | 2:B:418:ASP:OD1 | 2.45 | 0.50 |
| 6:F:397:LEU:HD13 | 6:F:556:MET:HG3 | 1.94 | 0.50 |
| 7:O:45[A]:DA:C4 | 7:O:46[A]:DA:C6 | 3.00 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 1:2:334:PHE:CE2 | 1:2:353:PRO:HG2 | 2.47 | 0.50 |
| 2:3:410:GLU:HB3 | 2:3:413:LYS:HD2 | 1.94 | 0.50 |
| 2:3:434:ALA:HB3 | 6:7:409:SER:HB2 | 1.94 | 0.50 |
| 3:4:299:MET:HE2 | 5:6:292:LEU:HD13 | 1.94 | 0.50 |
| 3:4:352:ILE:HB | 3:4:372:LEU:HB2 | 1.93 | 0.50 |
| 5:6:733:LYS:HE2 | 5:6:782:HIS:HB3 | 1.94 | 0.50 |
| 1:A:748:SER:O | 1:A:752:LYS:HG2 | 2.12 | 0.50 |
| 4:D:145:MET:HE1 | 4:D:271:ILE:HG23 | 1.93 | 0.50 |
| 4:D:581:LYS:NZ | 4:D:638:GLU:HB2 | 2.27 | 0.50 |
| 5:E:727:ILE:HG23 | 5:E:791:THR:OG1 | 2.11 | 0.50 |
| 7:O:33[A]:DA:H2' | 7:O:34[A]:DA:C8 | 2.47 | 0.50 |
| 2:3:268:MET:O | 2:3:270:LYS:N | 2.42 | 0.50 |
| 2:3:339:ILE:HG23 | 2:3:480:ASP:OD1 | 2.12 | 0.50 |
| 6:7:400:ARG:O | 6:7:440:GLY:HA3 | 2.11 | 0.50 |
| 4:D:114:ARG:NH1 | 4:D:119:GLU:O | 2.45 | 0.50 |
| 1:2:563:HIS:CD2 | 1:2:565:VAL:HG22 | 2.47 | 0.49 |
| 5:6:750:ASN:HA | 5:6:753:LEU:HD12 | 1.94 | 0.49 |
| 6:7:180:ALA:HB3 | 6:7:193:GLN:HB3 | 1.92 | 0.49 |
| 2:B:128:GLU:CG | 2:B:236:GLN:HG3 | 2.42 | 0.49 |
| 4:D:71:GLU:HA | 4:D:127:MET:O | 2.12 | 0.49 |
| 5:E:485:THR:C | 5:E:486:LYS:HD3 | 2.32 | 0.49 |
| 5:E:767:ILE:HA | 5:E:770:LYS:HG2 | 1.94 | 0.49 |
| 6:F:639:MET:HA | 6:F:642:ASP:HB2 | 1.94 | 0.49 |
| 7:O:24[A]:DA:N6 | 7:O:25[A]:DA:N6 | 2.59 | 0.49 |
| 3:4:238:ASP:OD1 | 3:4:260:VAL:HG12 | 2.12 | 0.49 |
| 3:4:467:ALA:HB1 | 3:4:470:ILE:HD12 | 1.93 | 0.49 |
| 3:4:733:GLN:O | 3:4:736:SER:HB3 | 2.12 | 0.49 |
| 4:5:496:ASP:HB2 | 4:5:714:LEU:HD22 | 1.93 | 0.49 |
| 5:6:117:LEU:O | 5:6:136:ARG:NH1 | 2.45 | 0.49 |
| 5:6:485:THR:HG22 | 5:6:490:LYS:HE3 | 1.94 | 0.49 |
| 1:A:436:ALA:HB1 | 5:E:440:HIS:CE1 | 2.47 | 0.49 |
| 1:A:563:HIS:HB3 | 1:A:566:SER:HB2 | 1.95 | 0.49 |
| 6:F:421:ASP:HB2 | 6:F:428:THR:HG23 | 1.94 | 0.49 |
| 1:2:747:TYR:CG | 4:5:532:LEU:HD21 | 2.47 | 0.49 |
| 4:5:282:ARG:NH2 | 5:6:441:GLU:O | 2.45 | 0.49 |
| 5:6:353:SER:HA | 5:6:565:ARG:HB2 | 1.94 | 0.49 |
| 1:A:524:ASP:OD1 | 1:A:524:ASP:N | 2.42 | 0.49 |
| 5:E:117:LEU:HD11 | 5:E:134:LEU:HG | 1.94 | 0.49 |
| 1:2:486:TYR:N | 11:2:1003:ATP:HN61 | 2.10 | 0.49 |
| 3:4:191:PRO:HB2 | 3:4:194:MET:HG2 | 1.94 | 0.49 |
| 5:6:750:ASN:O | 5:6:754:LYS:HD3 | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:783:ARG:HD2 | 1:A:787:ILE:HG12 | 1.93 | 0.49 |
| 3:C:197:LEU:HD12 | 3:C:245:PHE:CD1 | 2.48 | 0.49 |
| 3:C:512:PRO:HD3 | 3:C:622:SER:O | 2.13 | 0.49 |
| 6:F:569:LYS:O | 6:F:571:PRO:HD3 | 2.12 | 0.49 |
| 1:2:734:LYS:HD3 | 1:2:735:LEU:N | 2.27 | 0.49 |
| 4:5:536:VAL:O | 4:5:540:HIS:CD2 | 2.65 | 0.49 |
| 6:7:490:PRO:C | 6:7:504:ASN:O | 2.51 | 0.49 |
| 1:A:642:THR:HG22 | 1:A:645:GLU:HG2 | 1.93 | 0.49 |
| 6:F:52:LEU:HD12 | 6:F:141:PRO:HD3 | 1.94 | 0.49 |
| 7:O:21[A]:DA:H2'' | 7:O:22[A]:DA:C8 | 2.47 | 0.49 |
| 1:2:299:GLN:HA | 1:2:302:LEU:HG | 1.94 | 0.49 |
| 5:6:59:ASN:HD21 | 5:6:230:ALA:HB1 | 1.77 | 0.49 |
| 5:6:529:ARG:HB3 | 5:6:529:ARG:CZ | 2.42 | 0.49 |
| 5:6:769:LYS:O | 5:6:773:ILE:HG12 | 2.13 | 0.49 |
| 6:7:366:PRO:HD2 | 6:7:369:MET:O | 2.12 | 0.49 |
| 1:A:886:PHE:CZ | 1:A:891:PHE:HB3 | 2.48 | 0.49 |
| 2:B:434:ALA:O | 2:B:435:LYS:HE2 | 2.12 | 0.49 |
| 3:C:190:GLU:H | 3:C:190:GLU:CD | 2.15 | 0.49 |
| 3:C:319:ARG:NH1 | 6:F:183:THR:OG1 | 2.46 | 0.49 |
| 3:C:580:ASN:OD1 | 3:C:583:THR:HG22 | 2.12 | 0.49 |
| 3:C:719:LYS:NZ | 5:E:542:GLU:OE1 | 2.34 | 0.49 |
| 4:D:697:ASP:OD1 | 4:D:698:PHE:N | 2.46 | 0.49 |
| 5:E:731:LEU:O | 5:E:735:GLU:HG2 | 2.12 | 0.49 |
| 6:F:381:GLY:O | 6:F:490:PRO:HD3 | 2.11 | 0.49 |
| 6:F:437:ALA:O | 6:F:482:CYS:HB3 | 2.13 | 0.49 |
| 1:2:382:PRO:HG3 | 5:6:492:THR:HG23 | 1.94 | 0.49 |
| 1:2:732:HIS:CG | 1:2:732:HIS:O | 2.65 | 0.49 |
| 3:4:191:PRO:CB | 3:4:194:MET:HG2 | 2.42 | 0.49 |
| 3:4:750:SER:OG | 3:4:752:LYS:O | 2.27 | 0.49 |
| 2:B:589:TYR:O | 2:B:593:GLU:HG2 | 2.13 | 0.49 |
| 5:E:361:ASN:O | 5:E:365:LYS:HG3 | 2.12 | 0.49 |
| 7:O:3[A]:DA:H2 | 8:S:-3[A]:DT:O2 | 1.96 | 0.49 |
| 1:2:193:LEU:HD21 | 1:2:197:HIS:CE1 | 2.48 | 0.49 |
| 1:2:684:VAL:HG21 | 5:6:591:GLU:OE2 | 2.13 | 0.49 |
| 2:3:286:LYS:O | 2:3:290:THR:HG23 | 2.13 | 0.49 |
| 2:3:411:PHE:HB3 | 2:3:452:ALA:HB2 | 1.95 | 0.49 |
| 2:3:443:ASN:HB3 | 2:3:445:ARG:NE | 2.28 | 0.49 |
| 5:6:126:LEU:HD11 | 5:6:137:ILE:HG21 | 1.93 | 0.49 |
| 5:6:449:LEU:HD11 | 5:6:473:ILE:HD13 | 1.95 | 0.49 |
| 6:7:4:LYS:NZ | 6:7:65:SER:OG | 2.46 | 0.49 |
| 1:2:542:ARG:O | 1:2:582:GLY:HA3 | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:2:832:LEU:HD21 | 1:2:874:ILE:HG13 | 1.94 | 0.49 |
| 6:7:522:GLN:HG3 | 6:7:643:SER:HB3 | 1.94 | 0.49 |
| 6:F:77:PHE:O | 6:F:81:VAL:HG12 | 2.13 | 0.49 |
| 7:O:48[A]:DA:OP2 | 7:O:48[A]:DA:H8 | 1.95 | 0.49 |
| 2:3:268:MET:HA | 2:3:534:PHE:CD2 | 2.48 | 0.49 |
| 3:4:516:LYS:NZ | 11:4:903:ATP:O2G | 2.39 | 0.49 |
| 5:6:558:ARG:HB3 | 5:6:561:GLU:HG2 | 1.95 | 0.49 |
| 6:7:335:LYS:HE2 | 6:7:551:PHE:CD2 | 2.47 | 0.49 |
| 1:A:222:MET:HG3 | 1:A:227:ARG:HB2 | 1.95 | 0.49 |
| 3:C:556:LEU:CG | 8:S:-36[A]:DT:OP1 | 2.61 | 0.49 |
| 5:E:479:GLN:HG3 | 5:E:481:THR:HG22 | 1.93 | 0.49 |
| 6:F:182:TYR:CG | 6:F:220:LEU:HD13 | 2.47 | 0.49 |
| 2:3:342:LEU:HD23 | 2:3:482:LEU:HD13 | 1.95 | 0.48 |
| 1:A:563:HIS:CE1 | 1:A:565:VAL:HG12 | 2.48 | 0.48 |
| 4:D:385:THR:HG22 | 4:D:386:ALA:N | 2.27 | 0.48 |
| 7:O:8[A]:DA:C6 | 7:O:9[A]:DA:C5 | 3.01 | 0.48 |
| 1:2:738:MET:HG3 | 1:2:786:VAL:O | 2.13 | 0.48 |
| 2:3:393:LEU:CD1 | 2:3:433:ILE:HD11 | 2.44 | 0.48 |
| 4:5:208:PRO:HB3 | 4:D:208:PRO:HB3 | 1.96 | 0.48 |
| 4:5:271:ILE:HD12 | 4:5:290:ARG:HD2 | 1.95 | 0.48 |
| 6:7:374:ASN:HD22 | 6:7:465:GLN:NE2 | 2.08 | 0.48 |
| 6:F:345:TYR:HB2 | 6:F:536:HIS:CG | 2.49 | 0.48 |
| 8:S:-26[A]:DT:C4 | 8:S:-25[A]:DT:H73 | 2.48 | 0.48 |
| 2:3:141:VAL:HG12 | 6:7:292:LEU:HB2 | 1.95 | 0.48 |
| 4:5:586:TYR:HA | 4:5:589:MET:HE2 | 1.95 | 0.48 |
| 6:7:192:TYR:HB2 | 4:D:10:PHE:HB2 | 1.95 | 0.48 |
| 3:C:546:TYR:CZ | 6:F:472:ALA:O | 2.67 | 0.48 |
| 5:E:225:GLU:HG3 | 5:E:225:GLU:O | 2.13 | 0.48 |
| 8:S:-9[A]:DT:C6 | 8:S:-8[A]:DT:H71 | 2.48 | 0.48 |
| 1:2:277:ILE:HG22 | 1:2:278:THR:HG23 | 1.95 | 0.48 |
| 1:2:734:LYS:HD3 | 1:2:734:LYS:C | 2.33 | 0.48 |
| 3:4:497:ARG:HA | 5:6:408:HIS:CE1 | 2.49 | 0.48 |
| 5:6:607:SER:OG | 5:6:608:GLY:N | 2.45 | 0.48 |
| 4:D:692:HIS:HA | 4:D:695:ILE:HD12 | 1.95 | 0.48 |
| 5:E:587:SER:OG | 5:E:639:GLU:OE1 | 2.28 | 0.48 |
| 8:S:-43[A]:DT:H2' | 8:S:-42[A]:DT:C7 | 2.43 | 0.48 |
| 8:S:-3[A]:DT:C1' | 8:S:-2[A]:DT:OP1 | 2.62 | 0.48 |
| 1:2:813:SER:O | 1:2:817:THR:HG23 | 2.12 | 0.48 |
| 2:3:2:ALA:O | 2:B:157:ARG:NH1 | 2.45 | 0.48 |
| 3:4:326:SER:HB3 | 5:6:267:ASN:OD1 | 2.14 | 0.48 |
| 3:4:425:ASP:O | 3:4:688:LYS:NZ | 2.45 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 3:4:775:ASP:OD1 | 3:4:775:ASP:N | 2.45 | 0.48 |
| 6:7:82:GLN:OE1 | 6:7:132:ARG:HD3 | 2.14 | 0.48 |
| 1:A:734:LYS:HE3 | 1:A:778:ALA:HB3 | 1.94 | 0.48 |
| 1:A:767:ILE:HD11 | 4:D:535:HIS:CD2 | 2.48 | 0.48 |
| 1:A:872:ILE:HG23 | 1:A:874:ILE:HG12 | 1.96 | 0.48 |
| 7:O:9[A]:DA:H2'' | 7:O:10[A]:DA:C8 | 2.49 | 0.48 |
| 1:2:193:LEU:CD2 | 1:2:197:HIS:HE1 | 2.26 | 0.48 |
| 1:2:321:GLN:HG3 | 4:5:289:ILE:HG13 | 1.95 | 0.48 |
| 1:2:426:LEU:HD22 | 5:6:438:GLU:HA | 1.96 | 0.48 |
| 5:6:101:ARG:C | 5:6:102:LYS:HD3 | 2.33 | 0.48 |
| 6:7:412:VAL:HB | 6:7:417:ALA:HB2 | 1.94 | 0.48 |
| 1:A:633:ILE:N | 1:A:646:ASN:O | 2.32 | 0.48 |
| 5:E:254:VAL:HG13 | 5:E:254:VAL:O | 2.14 | 0.48 |
| 8:S:-8[A]:DT:H2'' | 8:S:-7[A]:DT:C6 | 2.47 | 0.48 |
| 4:5:606:ILE:CG2 | 4:5:651:ALA:HA | 2.44 | 0.48 |
| 6:7:550:GLN:HG2 | 6:7:551:PHE:N | 2.29 | 0.48 |
| 1:A:713:GLU:CG | 1:A:714:PRO:HD3 | 2.44 | 0.48 |
| 2:B:178:ASP:HB3 | 2:B:182:ASN:HB2 | 1.95 | 0.48 |
| 4:D:339:ILE:HB | 4:D:393:PHE:CE2 | 2.49 | 0.48 |
| 8:S:-42[A]:DT:H2'' | 8:S:-41[A]:DT:C5 | 2.43 | 0.48 |
| 1:2:419:HIS:CE1 | 1:2:422:TYR:CD1 | 3.01 | 0.48 |
| 2:3:480:ASP:HB2 | 2:3:620:THR:CG2 | 2.44 | 0.48 |
| 3:4:206:PRO:HB2 | 3:4:256:HIS:CE1 | 2.49 | 0.48 |
| 6:7:5:ASP:O | 6:7:9:GLU:HG2 | 2.13 | 0.48 |
| 1:A:783:ARG:NE | 1:A:790:ASP:OD2 | 2.38 | 0.48 |
| 1:A:897:ARG:HG3 | 1:A:899:MET:HB2 | 1.96 | 0.48 |
| 5:E:613:SER:HB3 | 5:E:614:TRP:CE3 | 2.49 | 0.48 |
| 6:F:418:VAL:CG1 | 6:F:427:LEU:HB3 | 2.44 | 0.48 |
| 1:2:200:LYS:HD2 | 1:2:265:GLU:OE2 | 2.14 | 0.48 |
| 2:3:19:TYR:CB | 2:3:76:PHE:HD1 | 2.26 | 0.48 |
| 3:4:760:GLU:OE2 | 3:4:763:ARG:NH1 | 2.47 | 0.48 |
| 5:6:604:ARG:NH1 | 5:6:656:ILE:O | 2.33 | 0.48 |
| 6:7:208:SER:O | 6:7:212:GLN:HG2 | 2.14 | 0.48 |
| 1:A:894:ASP:HB3 | 1:A:897:ARG:HB3 | 1.96 | 0.48 |
| 3:C:267:LYS:NZ | 3:C:359:GLU:OE2 | 2.45 | 0.48 |
| 4:D:437:ALA:O | 4:D:482:CYS:HB3 | 2.13 | 0.48 |
| 1:2:288:LEU:O | 1:2:307:ARG:HD3 | 2.14 | 0.48 |
| 1:2:389:ARG:HH12 | 5:6:234:GLU:HG2 | 1.79 | 0.48 |
| 2:3:271:ASP:O | 2:3:363:PRO:HB3 | 2.13 | 0.48 |
| 3:4:553:THR:O | 3:4:554:ARG:HD3 | 2.14 | 0.48 |
| 5:6:152:VAL:HG23 | 5:6:199:ARG:HG3 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:7:203:LEU:HD11 | 4:D:9:ILE:HD12 | 1.95 | 0.48 |
| 6:7:323:GLU:OE1 | 6:7:562:TYR:OH | 2.22 | 0.48 |
| 1:A:535:TYR:CZ | 1:A:539:VAL:HG21 | 2.49 | 0.48 |
| 1:A:748:SER:OG | 4:D:529:ASP:HB3 | 2.14 | 0.48 |
| 3:C:112:VAL:HG13 | 3:C:112:VAL:O | 2.14 | 0.48 |
| 3:C:629:THR:HG23 | 3:C:632:GLU:H | 1.78 | 0.48 |
| 4:D:538:THR:O | 4:D:542:SER:HB2 | 2.14 | 0.48 |
| 4:D:564:ALA:O | 4:D:568:VAL:HG12 | 2.14 | 0.48 |
| 6:F:307:ASN:H | 6:F:310:GLU:HG3 | 1.79 | 0.48 |
| 6:F:414:LEU:HD23 | 6:F:433:ALA:HB3 | 1.96 | 0.48 |
| 8:S:-46[A]:DT:H2' | 8:S:-46[A]:DT:OP2 | 2.14 | 0.48 |
| 3:4:351:MET:HE1 | 3:4:552:GLU:OE2 | 2.13 | 0.47 |
| 1:A:248:LEU:HD21 | 1:A:285:ILE:HG13 | 1.96 | 0.47 |
| 2:B:302:SER:O | 2:B:302:SER:OG | 2.31 | 0.47 |
| 5:E:418:TYR:OH | 5:E:460:ASP:OD2 | 2.31 | 0.47 |
| 5:E:614:TRP:CZ2 | 5:E:656:ILE:HG12 | 2.49 | 0.47 |
| 1:2:528:ALA:HA | 11:2:1003:ATP:O2A | 2.14 | 0.47 |
| 4:5:391:LEU:HB3 | 4:5:443:CYS:HB3 | 1.95 | 0.47 |
| 1:A:434:VAL:HG21 | 5:E:438:GLU:HB3 | 1.97 | 0.47 |
| 2:B:424:GLU:HG3 | 6:F:405:THR:HG21 | 1.94 | 0.47 |
| 3:C:189:THR:HB | 3:C:195:GLN:NE2 | 2.27 | 0.47 |
| 3:C:221:ASN:OD1 | 3:C:224:ARG:NH2 | 2.47 | 0.47 |
| 5:E:452:ALA:C | 5:E:497:THR:HG22 | 2.34 | 0.47 |
| 6:F:362:VAL:HG21 | 6:F:571:PRO:HD2 | 1.96 | 0.47 |
| 6:F:526:ASP:OD1 | 6:F:529:ASN:HB3 | 2.14 | 0.47 |
| 4:5:386:ALA:HB2 | 12:5:803:ADP:C4 | 2.49 | 0.47 |
| 5:6:355:PHE:HB3 | 5:6:358:ILE:HD12 | 1.96 | 0.47 |
| 1:A:374:GLN:HB2 | 1:A:403:VAL:HG12 | 1.96 | 0.47 |
| 2:B:471:LEU:HD22 | 2:B:475:LEU:HD23 | 1.94 | 0.47 |
| 3:C:197:LEU:HD12 | 3:C:245:PHE:HD1 | 1.79 | 0.47 |
| 4:D:415:THR:HG22 | 4:D:434:MET:HG3 | 1.96 | 0.47 |
| 6:F:590:ARG:NH2 | 6:F:593:TRP:HE1 | 2.12 | 0.47 |
| 8:S:-32[A]:DT:H2' | 8:S:-31[A]:DT:H71 | 1.96 | 0.47 |
| 5:6:517:LYS:HD3 | 5:6:527:MET:HE1 | 1.95 | 0.47 |
| 1:A:312:VAL:HG21 | 1:A:406:CYS:HB3 | 1.97 | 0.47 |
| 4:D:724:ARG:HD3 | 5:E:787:LEU:HD12 | 1.95 | 0.47 |
| 8:S:-47[A]:DT:OP2 | 8:S:-47[A]:DT:H73 | 2.14 | 0.47 |
| 1:2:207:VAL:HA | 1:2:213:ASN:HA | 1.97 | 0.47 |
| 1:2:735:LEU:O | 1:2:785:TYR:HA | 2.15 | 0.47 |
| 1:2:751:ARG:HH22 | 4:5:522:ASP:HB3 | 1.80 | 0.47 |
| 3:4:669:LEU:HG | 6:7:366:PRO:HG3 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A:581:ARG:NH2 | 1:A:623:ARG:HD2 | 2.29 | 0.47 |
| 2:B:157:ARG:NH2 | 2:B:158:ARG:O | 2.47 | 0.47 |
| 6:F:51:ASP:HA | 6:F:139:GLN:HB2 | 1.97 | 0.47 |
| 7:O:3[A]:DA:C6 | 7:O:4[A]:DA:C6 | 3.03 | 0.47 |
| 8:S:-37[A]:DT:H4' | 8:S:-37[A]:DT:OP1 | 2.14 | 0.47 |
| 4:5:128:LEU:HD12 | 4:5:266:MET:SD | 2.55 | 0.47 |
| 5:6:439:SER:OG | 5:6:440:HIS:N | 2.47 | 0.47 |
| 1:A:544:ILE:HG12 | 1:A:579:ALA:HB2 | 1.96 | 0.47 |
| 2:B:329:LEU:HD12 | 2:B:333:SER:HB2 | 1.96 | 0.47 |
| 3:C:191:PRO:CB | 3:C:194:MET:HB2 | 2.45 | 0.47 |
| 8:S:-31[A]:DT:C2' | 8:S:-30[A]:DT:H72 | 2.44 | 0.47 |
| 1:2:233:ASN:OD1 | 1:2:234:TYR:N | 2.48 | 0.47 |
| 1:2:713:GLU:OE1 | 1:2:714:PRO:HD2 | 2.14 | 0.47 |
| 1:2:747:TYR:CD1 | 4:5:532:LEU:HD21 | 2.49 | 0.47 |
| 2:3:223:ASP:OD1 | 2:3:223:ASP:N | 2.46 | 0.47 |
| 2:3:274:PRO:HG3 | 2:3:573:HIS:CD2 | 2.50 | 0.47 |
| 2:3:351:LYS:HG2 | 11:3:1101:ATP:O2B | 2.15 | 0.47 |
| 2:3:480:ASP:HB2 | 2:3:620:THR:HG23 | 1.97 | 0.47 |
| 3:4:107:VAL:HG22 | 3:4:109:GLY:H | 1.79 | 0.47 |
| 3:4:618:ASN:HB3 | 3:4:622:SER:HA | 1.95 | 0.47 |
| 3:4:744:HIS:HD1 | 3:4:757:ASP:HA | 1.79 | 0.47 |
| 4:5:134:PRO:HB2 | 4:5:152:PRO:HD3 | 1.97 | 0.47 |
| 5:6:453:ASP:HA | 5:6:497:THR:HG22 | 1.96 | 0.47 |
| 5:6:725:ASN:HA | 5:6:728:VAL:HG12 | 1.96 | 0.47 |
| 5:6:729:LEU:HD11 | 5:6:773:ILE:CD1 | 2.45 | 0.47 |
| 6:7:327:ILE:HD13 | 6:7:565:MET:HE1 | 1.96 | 0.47 |
| 6:7:403:TYR:OH | 6:7:445:ASP:OD2 | 2.31 | 0.47 |
| 1:A:185:TRP:HA | 1:A:188:MET:HE2 | 1.96 | 0.47 |
| 2:B:14:GLU:OE2 | 2:B:17:ARG:NH2 | 2.45 | 0.47 |
| 2:B:70:PHE:CZ | 2:B:242:ARG:HD2 | 2.50 | 0.47 |
| 2:B:131:VAL:HG21 | 2:B:229:ALA:HB1 | 1.96 | 0.47 |
| 2:B:143:ARG:HD3 | 2:B:158:ARG:HG2 | 1.97 | 0.47 |
| 2:B:458:ARG:NH1 | 4:D:607:PRO:HB3 | 2.29 | 0.47 |
| 3:C:730:TYR:HB3 | 5:E:399:SER:HB3 | 1.95 | 0.47 |
| 4:D:40:ARG:O | 4:D:56:ARG:NH2 | 2.38 | 0.47 |
| 6:F:120:ARG:HD3 | 6:F:124:ASN:O | 2.14 | 0.47 |
| 8:S:-43[A]:DT:H2'' | 8:S:-42[A]:DT:O5' | 2.15 | 0.47 |
| 8:S:-7[A]:DT:H2'' | 8:S:-6[A]:DT:C7 | 2.45 | 0.47 |
| 1:2:613:LYS:HD2 | 1:2:613:LYS:HA | 1.68 | 0.47 |
| 3:4:334:THR:HG22 | 3:4:335:HIS:HD2 | 1.79 | 0.47 |
| 3:4:735:GLU:OE2 | 12:6:903:ADP:O3' | 2.24 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:6:478:GLU:OE2 | 5:6:529:ARG:CZ | 2.63 | 0.47 |
| 1:A:241:GLU:OE2 | 1:A:243:VAL:HB | 2.15 | 0.47 |
| 1:A:378:ILE:HD12 | 1:A:412:ILE:HD11 | 1.97 | 0.47 |
| 1:A:498:ALA:HA | 1:A:517:ILE:HB | 1.95 | 0.47 |
| 2:B:606:ASP:OD1 | 2:B:656:LYS:NZ | 2.34 | 0.47 |
| 4:D:409:SER:HB3 | 4:D:412:ALA:HB3 | 1.96 | 0.47 |
| 5:E:256:LYS:C | 5:E:258:SER:H | 2.17 | 0.47 |
| 8:S:-39[A]:DT:H2'' | 8:S:-38[A]:DT:O5' | 2.15 | 0.47 |
| 1:2:312:VAL:HG21 | 1:2:406:CYS:HB3 | 1.97 | 0.47 |
| 1:2:639:PRO:HD3 | 1:2:664:ARG:NH1 | 2.30 | 0.47 |
| 1:2:764:VAL:HG13 | 4:5:535:HIS:CD2 | 2.50 | 0.47 |
| 2:3:339:ILE:O | 2:3:447:SER:HB2 | 2.14 | 0.47 |
| 4:5:12:SER:HG | 4:5:15:PHE:HE2 | 1.62 | 0.47 |
| 5:6:20:ASP:O | 5:6:24:GLU:HG2 | 2.14 | 0.47 |
| 5:6:753:LEU:HD23 | 5:6:769:LYS:HD2 | 1.97 | 0.47 |
| 1:A:814:MET:HA | 1:A:817:THR:HG22 | 1.96 | 0.47 |
| 4:D:496:ASP:HA | 4:D:718:ARG:HH22 | 1.80 | 0.47 |
| 4:D:537:ILE:O | 4:D:541:VAL:HG12 | 2.14 | 0.47 |
| 5:E:565:ARG:NH1 | 5:E:569:LEU:HB2 | 2.30 | 0.47 |
| 6:F:343:GLU:O | 6:F:536:HIS:NE2 | 2.44 | 0.47 |
| 6:F:448:ASP:HA | 6:F:455:ARG:HH21 | 1.79 | 0.47 |
| 8:S:-37[A]:DT:C4 | 8:S:-36[A]:DT:C4 | 3.03 | 0.47 |
| 2:3:248:LYS:HD3 | 4:5:213:PHE:CE2 | 2.50 | 0.47 |
| 3:4:167:GLN:HG3 | 3:4:240:ALA:HB1 | 1.97 | 0.47 |
| 3:4:501:ARG:HG2 | 3:4:594:GLN:CD | 2.35 | 0.47 |
| 5:6:277:GLU:OE2 | 4:D:198:ASN:ND2 | 2.48 | 0.47 |
| 1:A:375:ARG:NH2 | 1:A:395:ASP:OD2 | 2.44 | 0.47 |
| 1:A:585:LEU:HD23 | 1:A:627:ILE:HB | 1.97 | 0.47 |
| 5:E:592:ASP:O | 5:E:595:VAL:HG22 | 2.15 | 0.47 |
| 3:4:461:ARG:HG2 | 3:4:682:LEU:HD22 | 1.96 | 0.46 |
| 4:5:339:ILE:HB | 4:5:393:PHE:CE2 | 2.50 | 0.46 |
| 5:6:158:CYS:SG | 5:6:187:ASN:ND2 | 2.84 | 0.46 |
| 6:7:150:ARG:HB2 | 6:7:239:GLU:OE2 | 2.15 | 0.46 |
| 1:A:284:ARG:NH2 | 1:A:401:ASP:HB2 | 2.30 | 0.46 |
| 1:A:288:LEU:O | 1:A:307:ARG:NE | 2.48 | 0.46 |
| 3:C:511:ASP:OD1 | 3:C:511:ASP:N | 2.48 | 0.46 |
| 5:E:206:VAL:HG22 | 5:E:226:VAL:HG22 | 1.98 | 0.46 |
| 5:E:466:ASP:HB3 | 5:E:469:ASP:OD2 | 2.14 | 0.46 |
| 7:O:8[A]:DA:N6 | 7:O:9[A]:DA:N6 | 2.62 | 0.46 |
| 2:3:508:ARG:HD2 | 2:3:513:GLN:HB2 | 1.97 | 0.46 |
| 3:4:238:ASP:O | 3:4:242:ASN:ND2 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:5:459:HIS:HE1 | 4:5:509:THR:OG1 | 1.98 | 0.46 |
| 5:6:480:GLN:OE1 | 5:6:496:ARG:HA | 2.15 | 0.46 |
| 6:7:238:GLN:HG2 | 6:7:250:PRO:HB2 | 1.97 | 0.46 |
| 2:B:139:PRO:HD2 | 6:F:294:SER:O | 2.15 | 0.46 |
| 3:C:652:ASP:OD2 | 6:F:589:ARG:NH2 | 2.47 | 0.46 |
| 4:D:532:LEU:HD23 | 4:D:532:LEU:C | 2.35 | 0.46 |
| 5:E:336:LYS:HD2 | 5:E:339:GLU:OE2 | 2.15 | 0.46 |
| 6:F:208:SER:O | 6:F:212:GLN:HG2 | 2.15 | 0.46 |
| 1:2:273:LYS:HA | 1:2:273:LYS:HD3 | 1.57 | 0.46 |
| 3:4:471:TYR:CD2 | 3:4:472:GLU:HG2 | 2.50 | 0.46 |
| 3:4:492:PHE:CE1 | 5:6:559:ILE:HG23 | 2.51 | 0.46 |
| 4:5:47:ASP:OD1 | 4:5:47:ASP:N | 2.48 | 0.46 |
| 6:7:343:GLU:HG2 | 6:7:344:ILE:HD12 | 1.97 | 0.46 |
| 1:A:886:PHE:O | 1:A:891:PHE:HB2 | 2.15 | 0.46 |
| 2:B:461:GLN:HB3 | 2:B:658:LEU:HD12 | 1.96 | 0.46 |
| 4:D:685:ILE:HG13 | 4:D:686:GLY:N | 2.28 | 0.46 |
| 5:E:52:GLU:HG3 | 5:E:55:ARG:HH12 | 1.80 | 0.46 |
| 5:E:571:ASP:OD1 | 5:E:574:ARG:NH2 | 2.47 | 0.46 |
| 1:2:413:GLU:HB2 | 1:2:445:ALA:HB3 | 1.97 | 0.46 |
| 1:2:870:ARG:HG3 | 1:2:875:HIS:CE1 | 2.51 | 0.46 |
| 2:3:368:THR:OG1 | 2:3:373:SER:OG | 2.31 | 0.46 |
| 5:6:722:ARG:HG2 | 5:6:772:ILE:CD1 | 2.45 | 0.46 |
| 5:6:723:ILE:O | 5:6:727:ILE:HG13 | 2.16 | 0.46 |
| 6:7:380:MET:SD | 6:7:490:PRO:CA | 3.03 | 0.46 |
| 2:B:580:PRO:HG2 | 2:B:626:THR:HG23 | 1.97 | 0.46 |
| 7:O:32[A]:DA:H4' | 7:O:33[A]:DA:OP1 | 2.15 | 0.46 |
| 1:2:201:ASN:O | 1:2:205:THR:OG1 | 2.24 | 0.46 |
| 3:4:317:MET:HE3 | 5:6:262:ALA:HB1 | 1.96 | 0.46 |
| 4:5:679:LEU:O | 4:5:680:LYS:HE2 | 2.15 | 0.46 |
| 4:D:727:ARG:HD2 | 4:D:731:TYR:HB2 | 1.97 | 0.46 |
| 2:3:268:MET:HA | 2:3:534:PHE:CE2 | 2.50 | 0.46 |
| 3:4:459:TYR:OH | 3:4:478:LYS:HB3 | 2.15 | 0.46 |
| 4:5:498:THR:HG23 | 4:5:714:LEU:HD13 | 1.98 | 0.46 |
| 1:A:579:ALA:O | 1:A:624:CYS:HB3 | 2.16 | 0.46 |
| 5:E:466:ASP:OD1 | 5:E:467:VAL:N | 2.48 | 0.46 |
| 5:E:601:LEU:O | 5:E:604:ARG:HG2 | 2.16 | 0.46 |
| 1:2:884:GLU:OE2 | 1:2:887:ARG:NH2 | 2.49 | 0.46 |
| 3:4:549:LYS:HD3 | 7:O:13[A]:DA:O3' | 2.15 | 0.46 |
| 4:5:150:LYS:HE2 | 4:5:264:THR:HG21 | 1.97 | 0.46 |
| 4:5:675:ILE:HG22 | 4:5:678:GLN:HB2 | 1.97 | 0.46 |
| 6:7:215:ARG:NH1 | 4:D:28:LYS:HG3 | 2.26 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:183:ARG:HG2 | 1:A:251:ALA:HB2 | 1.97 | 0.46 |
| 1:A:221:ASP:O | 1:A:225:GLU:HG2 | 2.16 | 0.46 |
| 2:B:109:LYS:HG2 | 2:B:124:VAL:O | 2.15 | 0.46 |
| 2:B:339:ILE:HG23 | 2:B:480:ASP:OD1 | 2.16 | 0.46 |
| 3:C:317:MET:SD | 3:C:322:ILE:HG13 | 2.56 | 0.46 |
| 2:3:61:ARG:NH1 | 2:3:72:GLU:OE1 | 2.48 | 0.46 |
| 3:4:705:GLU:OE2 | 3:4:754:GLU:HB2 | 2.16 | 0.46 |
| 5:6:453:ASP:OD1 | 5:6:496:ARG:N | 2.34 | 0.46 |
| 1:A:370:TYR:HB2 | 4:D:142:SER:HB2 | 1.98 | 0.46 |
| 2:B:194:LYS:NZ | 2:B:222:ASP:OD1 | 2.46 | 0.46 |
| 3:C:542:GLY:HA3 | 6:F:470:ALA:O | 2.16 | 0.46 |
| 5:E:266:THR:O | 6:F:219:ARG:NH2 | 2.37 | 0.46 |
| 6:F:362:VAL:HG22 | 6:F:618:ARG:HH21 | 1.80 | 0.46 |
| 6:F:366:PRO:HD2 | 6:F:369:MET:O | 2.16 | 0.46 |
| 8:S:-36[A]:DT:C2' | 8:S:-35[A]:DT:C7 | 2.86 | 0.46 |
| 2:3:33:GLN:O | 2:3:37:ARG:HG3 | 2.16 | 0.46 |
| 4:5:532:LEU:O | 4:5:536:VAL:HG23 | 2.16 | 0.46 |
| 5:6:204:GLN:HB2 | 5:6:233:VAL:HG22 | 1.97 | 0.46 |
| 2:B:256:PHE:HE2 | 4:D:165:ALA:HB2 | 1.81 | 0.46 |
| 6:F:280:ILE:O | 6:F:294:SER:HB2 | 2.16 | 0.46 |
| 4:5:705:GLU:HA | 4:5:708:ILE:HG22 | 1.98 | 0.46 |
| 5:6:206:VAL:CG2 | 5:6:226:VAL:HG22 | 2.44 | 0.46 |
| 2:B:369:THR:HG22 | 2:B:370:GLY:N | 2.31 | 0.46 |
| 3:C:556:LEU:HG | 8:S:-36[A]:DT:OP1 | 2.15 | 0.46 |
| 3:C:714:TYR:HB2 | 3:C:734:LEU:HD13 | 1.98 | 0.46 |
| 3:4:404:ARG:NH1 | 8:S:-19[A]:DT:OP2 | 2.49 | 0.45 |
| 3:4:653:PRO:O | 3:4:655:ASP:N | 2.49 | 0.45 |
| 1:A:229:SER:HB3 | 1:A:401:ASP:OD2 | 2.17 | 0.45 |
| 3:C:158:ASN:OD1 | 3:C:161:ALA:HB3 | 2.17 | 0.45 |
| 3:C:276:PRO:HD2 | 6:F:231:LYS:HG2 | 1.99 | 0.45 |
| 5:E:226:VAL:HG12 | 5:E:298:PHE:HB3 | 1.97 | 0.45 |
| 5:E:565:ARG:HH11 | 5:E:569:LEU:HB2 | 1.80 | 0.45 |
| 5:E:726:LEU:HD11 | 5:E:776:VAL:CG2 | 2.38 | 0.45 |
| 7:O:8[A]:DA:H2'' | 7:O:9[A]:DA:C2' | 2.41 | 0.45 |
| 6:7:456:THR:O | 6:7:459:HIS:HB2 | 2.16 | 0.45 |
| 1:A:470:ASP:C | 1:A:472:GLN:H | 2.20 | 0.45 |
| 2:B:380:ALA:HB2 | 2:B:442:LEU:HD12 | 1.98 | 0.45 |
| 2:3:578:ILE:HG22 | 2:3:580:PRO:HD3 | 1.99 | 0.45 |
| 4:5:687:SER:OG | 4:5:688:GLN:N | 2.50 | 0.45 |
| 6:7:374:ASN:ND2 | 6:7:465:GLN:HE22 | 2.12 | 0.45 |
| 2:B:65:LEU:HA | 2:B:72:GLU:HG3 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:E:759:GLU:HG2 | 5:E:760:ILE:HG12 | 1.98 | 0.45 |
| 1:2:315:CYS:SG | 1:2:374:GLN:NE2 | 2.90 | 0.45 |
| 1:2:786:VAL:HG13 | 1:2:790:ASP:HB2 | 1.98 | 0.45 |
| 3:4:714:TYR:HB2 | 3:4:734:LEU:HD13 | 1.97 | 0.45 |
| 6:7:398:ALA:HB3 | 6:7:401:SER:HB3 | 1.99 | 0.45 |
| 1:A:796:ARG:NH2 | 1:A:826:ARG:HH21 | 2.14 | 0.45 |
| 5:E:773:ILE:O | 5:E:777:ILE:HG12 | 2.16 | 0.45 |
| 7:O:2[A]:DA:H2'' | 7:O:3[A]:DA:H8 | 1.82 | 0.45 |
| 1:2:689:SER:OG | 5:6:585:LYS:HE2 | 2.17 | 0.45 |
| 2:3:153:LYS:HE2 | 2:3:153:LYS:HB3 | 1.75 | 0.45 |
| 4:5:653:LEU:HD12 | 4:5:656:THR:OG1 | 2.17 | 0.45 |
| 5:6:32:ASP:O | 5:6:36:GLU:HB2 | 2.16 | 0.45 |
| 5:6:598:TYR:CZ | 5:6:602:ARG:HD2 | 2.51 | 0.45 |
| 5:6:604:ARG:CZ | 5:6:656:ILE:HB | 2.46 | 0.45 |
| 4:D:637:VAL:O | 4:D:641:LEU:HD23 | 2.16 | 0.45 |
| 4:D:639:GLU:OE2 | 4:D:642:ARG:NH2 | 2.38 | 0.45 |
| 5:E:225:GLU:O | 5:E:297:VAL:HG13 | 2.16 | 0.45 |
| 7:O:8[A]:DA:C2 | 7:O:9[A]:DA:C2 | 3.04 | 0.45 |
| 7:O:9[A]:DA:H3' | 7:O:9[A]:DA:P | 2.55 | 0.45 |
| 1:2:507:PRO:HD2 | 1:2:511:HIS:O | 2.16 | 0.45 |
| 1:2:896:LYS:HG3 | 1:2:897:ARG:HG3 | 1.97 | 0.45 |
| 2:3:143:ARG:HD2 | 2:3:158:ARG:NE | 2.31 | 0.45 |
| 2:3:218:ASP:HB2 | 2:3:259:VAL:HG12 | 1.98 | 0.45 |
| 5:6:85:ARG:HG3 | 5:6:86:VAL:HG13 | 1.97 | 0.45 |
| 6:7:235:MET:CG | 6:7:255:VAL:HB | 2.47 | 0.45 |
| 6:7:589:ARG:HG2 | 6:7:593:TRP:CZ2 | 2.51 | 0.45 |
| 2:B:270:LYS:NZ | 2:B:362:ALA:O | 2.48 | 0.45 |
| 3:C:718:ARG:NH2 | 5:E:538:ASP:OD1 | 2.49 | 0.45 |
| 4:D:349:MET:O | 4:D:353:ILE:HG12 | 2.17 | 0.45 |
| 4:D:403:TYR:OH | 4:D:445:ASP:OD2 | 2.34 | 0.45 |
| 8:S:-30[A]:DT:C6 | 8:S:-29[A]:DT:H72 | 2.52 | 0.45 |
| 1:2:426:LEU:HA | 1:2:426:LEU:HD12 | 1.67 | 0.45 |
| 1:2:847:GLN:O | 1:2:851:PHE:HB2 | 2.16 | 0.45 |
| 2:3:508:ARG:HH22 | 2:3:516:ASP:H | 1.65 | 0.45 |
| 3:4:248:ARG:NH1 | 3:4:249:TYR:OH | 2.50 | 0.45 |
| 4:5:224:PHE:CE1 | 4:5:248:TYR:CE2 | 3.03 | 0.45 |
| 1:A:734:LYS:HE3 | 1:A:778:ALA:CB | 2.47 | 0.45 |
| 1:A:881:TYR:HE1 | 1:A:900:ILE:HD12 | 1.82 | 0.45 |
| 2:B:172:SER:O | 2:B:172:SER:OG | 2.30 | 0.45 |
| 4:D:402:VAL:HG23 | 4:D:437:ALA:HB2 | 1.98 | 0.45 |
| 8:S:-44[A]:DT:C5 | 8:S:-43[A]:DT:H72 | 2.49 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:S:-31[A]:DT:H2' | 8:S:-30[A]:DT:C5 | 2.52 | 0.45 |
| 2:3:416:ASP:O | 2:3:420:THR:HG23 | 2.17 | 0.45 |
| 4:5:344:PHE:H | 12:5:803:ADP:HN61 | 1.65 | 0.45 |
| 4:5:398:SER:OG | 4:5:400:ILE:O | 2.29 | 0.45 |
| 5:6:429:LEU:HD21 | 5:6:473:ILE:HD11 | 1.99 | 0.45 |
| 1:A:806:GLN:HB3 | 1:A:810:VAL:CG2 | 2.45 | 0.45 |
| 2:B:508:ARG:HH11 | 2:B:513:GLN:HG3 | 1.82 | 0.45 |
| 6:F:322:GLU:HG3 | 6:F:325:ARG:CZ | 2.46 | 0.45 |
| 6:F:421:ASP:HB2 | 6:F:428:THR:CG2 | 2.46 | 0.45 |
| 8:S:-44[A]:DT:C4 | 8:S:-43[A]:DT:O4 | 2.70 | 0.45 |
| 8:S:-31[A]:DT:H2' | 8:S:-30[A]:DT:H72 | 1.99 | 0.45 |
| 1:2:194:GLU:OE1 | 1:2:198:ARG:HD2 | 2.16 | 0.45 |
| 1:2:370:TYR:HB2 | 4:5:142:SER:HB2 | 1.97 | 0.45 |
| 2:3:552:LEU:HG | 2:3:553:HIS:N | 2.28 | 0.45 |
| 1:A:764:VAL:O | 1:A:767:ILE:HG12 | 2.17 | 0.45 |
| 2:B:352:SER:O | 2:B:356:ARG:HG2 | 2.16 | 0.45 |
| 4:D:209:LEU:O | 4:D:211:PRO:HD3 | 2.17 | 0.45 |
| 6:F:15:LYS:HG3 | 6:F:19:GLU:OE2 | 2.17 | 0.45 |
| 6:F:319:LEU:HB3 | 6:F:323:GLU:HG2 | 1.99 | 0.45 |
| 2:3:33:GLN:HG2 | 2:3:83:PHE:HZ | 1.82 | 0.45 |
| 4:5:171:GLN:O | 4:5:212:TYR:HA | 2.17 | 0.45 |
| 5:E:117:LEU:HD12 | 5:E:136:ARG:HB2 | 1.98 | 0.45 |
| 5:E:528:SER:HB2 | 5:E:529:ARG:NH2 | 2.31 | 0.45 |
| 8:S:-9[A]:DT:C6 | 8:S:-8[A]:DT:C7 | 3.00 | 0.45 |
| 1:2:589:PHE:O | 1:2:592:MET:HG3 | 2.17 | 0.44 |
| 1:2:845:THR:O | 1:2:849:ASN:ND2 | 2.50 | 0.44 |
| 2:3:596:ARG:O | 2:3:599:SER:OG | 2.35 | 0.44 |
| 3:4:125:LEU:HD21 | 4:D:15:PHE:HB2 | 1.99 | 0.44 |
| 4:5:444:ILE:HD12 | 4:5:484:VAL:HG13 | 1.99 | 0.44 |
| 5:6:415:ARG:O | 5:6:455:GLY:HA3 | 2.17 | 0.44 |
| 6:7:458:ILE:HG22 | 6:7:462:MET:CE | 2.47 | 0.44 |
| 6:7:512:LEU:CD1 | 6:7:518:LEU:HD22 | 2.46 | 0.44 |
| 2:B:223:ASP:N | 2:B:223:ASP:OD1 | 2.50 | 0.44 |
| 3:C:495:THR:HG22 | 5:E:563:ILE:HG13 | 1.99 | 0.44 |
| 3:C:669:LEU:HG | 6:F:366:PRO:HG3 | 1.99 | 0.44 |
| 5:E:150:GLU:HB2 | 5:E:203:PHE:HB2 | 1.99 | 0.44 |
| 7:O:9[A]:DA:C2 | 8:S:-9[A]:DT:O2 | 2.70 | 0.44 |
| 1:2:781:HIS:HB2 | 1:2:783:ARG:HG3 | 1.99 | 0.44 |
| 2:3:382:VAL:HG23 | 2:3:433:ILE:HD12 | 1.99 | 0.44 |
| 5:6:100:ASP:OD1 | 5:6:100:ASP:N | 2.50 | 0.44 |
| 6:7:437:ALA:O | 6:7:482:CYS:HB3 | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A:178:LYS:HE2 | 1:A:180:HIS:O | 2.18 | 0.44 |
| 3:C:499:LYS:NZ | 5:E:212:GLN:HE22 | 2.14 | 0.44 |
| 3:C:589:GLU:HA | 3:C:592:GLU:HG2 | 1.98 | 0.44 |
| 3:C:707:SER:O | 3:C:711:ILE:HG12 | 2.17 | 0.44 |
| 4:D:386:ALA:HA | 12:D:803:ADP:O2A | 2.18 | 0.44 |
| 5:E:82:GLU:OE2 | 5:E:85:ARG:HD3 | 2.16 | 0.44 |
| 5:E:757:GLU:HG2 | 5:E:766:LEU:HD21 | 1.99 | 0.44 |
| 6:F:401:SER:HA | 6:F:441:VAL:O | 2.17 | 0.44 |
| 8:S:-31[A]:DT:H2'' | 8:S:-30[A]:DT:C7 | 2.47 | 0.44 |
| 1:2:898:LYS:O | 1:2:899:MET:HE2 | 2.17 | 0.44 |
| 2:3:169:PRO:HG2 | 4:5:173:ARG:NH2 | 2.32 | 0.44 |
| 3:4:465:ALA:HB2 | 3:4:682:LEU:HB3 | 1.99 | 0.44 |
| 3:4:760:GLU:CD | 3:4:763:ARG:HH11 | 2.21 | 0.44 |
| 5:6:605:ASP:OD2 | 5:6:615:ARG:NE | 2.50 | 0.44 |
| 6:7:206:CYS:CA | 6:7:220:LEU:HD23 | 2.47 | 0.44 |
| 1:A:426:LEU:HD23 | 1:A:432:PHE:O | 2.17 | 0.44 |
| 4:D:28:LYS:HA | 4:D:28:LYS:HD3 | 1.77 | 0.44 |
| 4:D:499:LYS:NZ | 4:D:718:ARG:HE | 2.16 | 0.44 |
| 4:D:574:LEU:HD23 | 4:D:632:ALA:HB3 | 1.99 | 0.44 |
| 4:D:730:LEU:O | 4:D:734:LYS:N | 2.50 | 0.44 |
| 6:F:37:LEU:HD22 | 6:F:81:VAL:HG23 | 2.00 | 0.44 |
| 1:2:464:ILE:HD11 | 1:2:725:ILE:CG2 | 2.48 | 0.44 |
| 2:3:57:LYS:HB2 | 2:3:57:LYS:HE2 | 1.74 | 0.44 |
| 2:3:471:LEU:HD22 | 2:3:475:LEU:HD23 | 2.00 | 0.44 |
| 3:4:168:ARG:O | 3:4:172:ARG:HG2 | 2.17 | 0.44 |
| 6:F:400:ARG:O | 6:F:440:GLY:HA3 | 2.18 | 0.44 |
| 6:F:523:ASP:N | 6:F:523:ASP:OD1 | 2.51 | 0.44 |
| 7:O:48[A]:DA:OP2 | 7:O:48[A]:DA:C8 | 2.71 | 0.44 |
| 8:S:-41[A]:DT:H4' | 8:S:-40[A]:DT:H5' | 2.00 | 0.44 |
| 8:S:-9[A]:DT:C4 | 8:S:-8[A]:DT:H73 | 2.52 | 0.44 |
| 1:2:234:TYR:CE2 | 1:2:289:PRO:HD3 | 2.53 | 0.44 |
| 2:3:431:VAL:HG12 | 2:3:433:ILE:HG23 | 2.00 | 0.44 |
| 4:5:714:LEU:O | 4:5:718:ARG:NH2 | 2.51 | 0.44 |
| 5:6:96:THR:HA | 5:6:99:LYS:HG2 | 2.00 | 0.44 |
| 5:6:422:LYS:HG2 | 5:6:464:LYS:O | 2.18 | 0.44 |
| 6:7:322:GLU:O | 6:7:325:ARG:HB2 | 2.17 | 0.44 |
| 2:B:480:ASP:HB2 | 2:B:620:THR:OG1 | 2.17 | 0.44 |
| 8:S:-26[A]:DT:C6 | 8:S:-26[A]:DT:H3' | 2.53 | 0.44 |
| 1:2:849:ASN:O | 5:6:724:SER:OG | 2.36 | 0.44 |
| 3:4:270:ASN:HB2 | 3:4:360:ASP:HB3 | 2.00 | 0.44 |
| 4:5:649:LEU:O | 4:5:653:LEU:HB3 | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 5:6:96:THR:O | 5:6:99:LYS:HG3 | 2.17 | 0.44 |
| 5:6:646:LYS:HD2 | 5:6:646:LYS:HA | 1.62 | 0.44 |
| 6:7:342:PRO:HB2 | 6:7:546:GLN:HG2 | 1.99 | 0.44 |
| 1:A:593:ASN:HB2 | 1:A:596:ASP:H | 1.83 | 0.44 |
| 2:B:443:ASN:HB3 | 2:B:445:ARG:NE | 2.33 | 0.44 |
| 2:B:507:TYR:HE1 | 2:B:552:LEU:HD21 | 1.81 | 0.44 |
| 6:F:182:TYR:CD2 | 6:F:220:LEU:HD13 | 2.53 | 0.44 |
| 2:3:303:LEU:HD12 | 2:3:303:LEU:HA | 1.84 | 0.44 |
| 3:4:620:ILE:HD12 | 3:4:620:ILE:HA | 1.90 | 0.44 |
| 5:6:46:TYR:CZ | 5:6:63:VAL:HG23 | 2.52 | 0.44 |
| 5:6:257:LEU:HD23 | 5:6:257:LEU:O | 2.17 | 0.44 |
| 1:A:251:ALA:HB1 | 1:A:254:GLU:OE1 | 2.18 | 0.44 |
| 2:B:339:ILE:O | 2:B:447:SER:HB2 | 2.18 | 0.44 |
| 2:B:351:LYS:O | 2:B:355:LEU:HD23 | 2.18 | 0.44 |
| 3:C:238:ASP:OD1 | 3:C:260:VAL:HG12 | 2.17 | 0.44 |
| 7:O:6[A]:DA:C4 | 7:O:7[A]:DA:N7 | 2.85 | 0.44 |
| 7:O:10[A]:DA:H2'' | 7:O:11[A]:DA:C5' | 2.47 | 0.44 |
| 1:2:758:GLY:HA3 | 4:5:717:ARG:HA | 2.00 | 0.44 |
| 2:3:12:LEU:HD21 | 2:3:78:ARG:NH1 | 2.33 | 0.44 |
| 2:3:355:LEU:HD23 | 2:3:449:LEU:HG | 1.99 | 0.44 |
| 2:3:500:HIS:O | 2:3:504:MET:HG2 | 2.17 | 0.44 |
| 3:4:549:LYS:HD3 | 7:O:14[A]:DA:P | 2.56 | 0.44 |
| 4:5:68:TYR:CZ | 4:5:122:GLN:HG3 | 2.52 | 0.44 |
| 4:5:284:ARG:NE | 4:5:284:ARG:HA | 2.33 | 0.44 |
| 5:6:68:LEU:HD21 | 5:6:79:ILE:HD12 | 2.00 | 0.44 |
| 5:6:332:LYS:HD3 | 5:6:332:LYS:HA | 1.80 | 0.44 |
| 5:6:769:LYS:HA | 5:6:772:ILE:HG22 | 1.98 | 0.44 |
| 1:A:713:GLU:HG2 | 1:A:714:PRO:HD3 | 2.00 | 0.44 |
| 2:B:617:THR:O | 2:B:620:THR:HG22 | 2.17 | 0.44 |
| 3:C:107:VAL:HG22 | 3:C:109:GLY:H | 1.83 | 0.44 |
| 5:E:141:VAL:HG21 | 5:E:236:ALA:HB1 | 1.99 | 0.44 |
| 6:F:571:PRO:HG2 | 6:F:614:THR:HG23 | 2.00 | 0.44 |
| 8:S:-43[A]:DT:C4 | 8:S:-42[A]:DT:O4 | 2.70 | 0.44 |
| 8:S:-8[A]:DT:C2' | 8:S:-7[A]:DT:C6 | 3.00 | 0.44 |
| 2:3:111:VAL:HG23 | 2:3:127:VAL:HG22 | 1.99 | 0.44 |
| 6:7:210:GLU:O | 6:7:214:ASN:ND2 | 2.51 | 0.44 |
| 1:A:480:SER:HA | 1:A:717:GLN:HB2 | 1.99 | 0.44 |
| 2:B:599:SER:O | 2:B:603:MET:HE1 | 2.18 | 0.44 |
| 3:C:180:GLU:HB3 | 3:C:181:GLU:OE1 | 2.18 | 0.44 |
| 3:C:476:ILE:HG21 | 3:C:519:LEU:HD13 | 2.00 | 0.44 |
| 3:C:534:SER:CB | 6:F:460:GLU:HG3 | 2.47 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 5:E:310:PHE:CE1 | 5:E:574:ARG:HG2 | 2.53 | 0.44 |
| 6:F:620:ARG:NH2 | 6:F:629:ASP:OD2 | 2.45 | 0.44 |
| 7:O:3[A]:DA:C2 | 8:S:-3[A]:DT:O2 | 2.71 | 0.44 |
| 2:3:7:LEU:HD11 | 2:B:156:GLU:HB3 | 2.00 | 0.43 |
| 1:A:680:VAL:HG22 | 5:E:625:ILE:HD11 | 1.99 | 0.43 |
| 3:C:608:ASN:HD21 | 5:E:212:GLN:NE2 | 2.16 | 0.43 |
| 4:D:317:GLN:H | 4:D:317:GLN:CD | 2.20 | 0.43 |
| 6:F:491:ALA:N | 6:F:504:ASN:O | 2.49 | 0.43 |
| 1:2:866:VAL:HG12 | 1:2:870:ARG:NE | 2.31 | 0.43 |
| 1:2:886:PHE:O | 1:2:891:PHE:HB2 | 2.18 | 0.43 |
| 2:3:228:LYS:O | 2:3:267:GLN:NE2 | 2.51 | 0.43 |
| 2:3:269:SER:HA | 2:3:271:ASP:OD1 | 2.18 | 0.43 |
| 3:4:174:ILE:HG13 | 3:4:190:GLU:O | 2.17 | 0.43 |
| 4:5:527:GLU:HG3 | 4:5:527:GLU:O | 2.18 | 0.43 |
| 4:5:532:LEU:HD23 | 4:5:532:LEU:HA | 1.73 | 0.43 |
| 6:7:206:CYS:N | 6:7:218:GLY:O | 2.44 | 0.43 |
| 5:E:468:ARG:CZ | 5:E:468:ARG:HB2 | 2.47 | 0.43 |
| 7:O:21[A]:DA:H2'' | 7:O:22[A]:DA:H8 | 1.83 | 0.43 |
| 7:O:48[A]:DA:N3 | 7:O:49[A]:DA:N3 | 2.62 | 0.43 |
| 8:S:-37[A]:DT:C2 | 8:S:-36[A]:DT:C4 | 3.06 | 0.43 |
| 8:S:-36[A]:DT:C2 | 8:S:-35[A]:DT:C5 | 3.06 | 0.43 |
| 1:2:406:CYS:SG | 1:2:444:VAL:HG11 | 2.59 | 0.43 |
| 2:3:33:GLN:HE22 | 2:3:37:ARG:CZ | 2.31 | 0.43 |
| 2:3:163:THR:HG23 | 6:7:289:VAL:HG13 | 2.00 | 0.43 |
| 2:3:344:ILE:HD13 | 2:3:452:ALA:HB3 | 2.00 | 0.43 |
| 2:3:508:ARG:NH2 | 2:3:515:GLY:H | 2.17 | 0.43 |
| 5:6:173:LYS:HE3 | 5:6:173:LYS:HB3 | 1.82 | 0.43 |
| 6:7:306:MET:O | 6:7:310:GLU:N | 2.51 | 0.43 |
| 3:C:203:ILE:HG22 | 3:C:204:GLY:N | 2.34 | 0.43 |
| 3:C:326:SER:HB3 | 5:E:267:ASN:OD1 | 2.18 | 0.43 |
| 4:D:40:ARG:NH1 | 4:D:109:GLU:OE2 | 2.51 | 0.43 |
| 5:E:757:GLU:HG3 | 5:E:765:GLU:OE2 | 2.18 | 0.43 |
| 6:F:174:LYS:HE2 | 6:F:174:LYS:HB3 | 1.83 | 0.43 |
| 7:O:42[A]:DA:C2 | 8:S:-42[A]:DT:C2 | 3.06 | 0.43 |
| 1:2:372:ASN:HB2 | 1:2:400:ALA:HA | 2.00 | 0.43 |
| 3:4:302:ALA:HB1 | 3:4:339:LEU:HD13 | 2.00 | 0.43 |
| 5:6:601:LEU:HG | 5:6:616:ILE:HG12 | 2.01 | 0.43 |
| 5:6:760:ILE:HD12 | 5:6:765:GLU:OE1 | 2.18 | 0.43 |
| 6:7:4:LYS:HE2 | 6:7:4:LYS:HB3 | 1.90 | 0.43 |
| 6:7:135:GLU:OE1 | 6:7:137:TYR:OH | 2.23 | 0.43 |
| 2:B:436:ALA:HB3 | 6:F:417:ALA:HB3 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:D:140:LEU:HD23 | 4:D:140:LEU:HA | 1.80 | 0.43 |
| 4:D:453:ASP:OD1 | 4:D:453:ASP:N | 2.46 | 0.43 |
| 7:O:10[A]:DA:H2'' | 7:O:11[A]:DA:H5' | 2.01 | 0.43 |
| 6:7:380:MET:SD | 6:7:505:ILE:HA | 2.59 | 0.43 |
| 2:B:628:HIS:CD2 | 2:B:644:GLU:HG2 | 2.54 | 0.43 |
| 3:C:556:LEU:HD11 | 8:S:-36[A]:DT:O5' | 2.11 | 0.43 |
| 5:E:347:TYR:OH | 5:E:366:ARG:HB3 | 2.17 | 0.43 |
| 5:E:450:MET:SD | 5:E:493:LEU:HD13 | 2.59 | 0.43 |
| 5:E:554:ASP:OD2 | 5:E:558:ARG:NH2 | 2.52 | 0.43 |
| 8:S:-9[A]:DT:H72 | 8:S:-8[A]:DT:H73 | 2.00 | 0.43 |
| 1:2:837:LYS:HA | 1:2:840:VAL:HG12 | 2.01 | 0.43 |
| 2:3:19:TYR:CG | 2:3:76:PHE:CD1 | 3.06 | 0.43 |
| 2:3:355:LEU:CD2 | 2:3:449:LEU:HG | 2.49 | 0.43 |
| 3:4:504:ILE:HG23 | 3:4:645:ASP:OD1 | 2.18 | 0.43 |
| 4:5:647:SER:O | 4:5:650:ASP:OD1 | 2.37 | 0.43 |
| 5:6:434:VAL:HG23 | 5:6:443:VAL:HG13 | 2.00 | 0.43 |
| 5:6:746:SER:O | 5:6:749:VAL:HG12 | 2.18 | 0.43 |
| 6:7:421:ASP:HB2 | 6:7:428:THR:HG23 | 2.00 | 0.43 |
| 6:7:463:GLU:HG3 | 6:7:604:ARG:HH21 | 1.83 | 0.43 |
| 2:B:382:VAL:HG22 | 2:B:393:LEU:HD23 | 1.99 | 0.43 |
| 4:D:46:THR:O | 4:D:50:GLY:N | 2.52 | 0.43 |
| 4:D:391:LEU:CD2 | 4:D:485:LEU:HG | 2.48 | 0.43 |
| 4:D:594:ARG:HD2 | 4:D:598:ARG:HH12 | 1.84 | 0.43 |
| 7:O:32[A]:DA:H61 | 8:S:-32[A]:DT:H3 | 1.66 | 0.43 |
| 1:2:530:SER:HB2 | 11:2:1003:ATP:O1A | 2.18 | 0.43 |
| 3:4:263:PHE:HB3 | 3:4:420:HIS:CG | 2.54 | 0.43 |
| 4:5:456:VAL:O | 4:5:459:HIS:HB2 | 2.19 | 0.43 |
| 6:7:22:GLN:O | 6:7:29:LYS:HA | 2.18 | 0.43 |
| 1:A:421:ASN:OD1 | 1:A:421:ASN:N | 2.52 | 0.43 |
| 1:A:728:LYS:HA | 1:A:728:LYS:HD3 | 1.87 | 0.43 |
| 1:A:735:LEU:HD12 | 1:A:785:TYR:CD1 | 2.53 | 0.43 |
| 1:A:807:LYS:HG2 | 1:A:810:VAL:HG22 | 2.01 | 0.43 |
| 3:C:705:GLU:OE1 | 3:C:755:ALA:HB2 | 2.19 | 0.43 |
| 4:D:585:ARG:HA | 4:D:585:ARG:HD2 | 1.88 | 0.43 |
| 4:D:694:ILE:HD12 | 4:D:697:ASP:OD1 | 2.18 | 0.43 |
| 6:F:347:HIS:HB3 | 6:F:350:VAL:HB | 2.01 | 0.43 |
| 7:O:6[A]:DA:C1' | 7:O:7[A]:DA:N7 | 2.82 | 0.43 |
| 2:3:63:ASN:O | 2:3:67:ASN:ND2 | 2.42 | 0.43 |
| 3:4:299:MET:HE3 | 3:4:322:ILE:HD12 | 2.01 | 0.43 |
| 4:5:586:TYR:OH | 4:5:590:ARG:HD2 | 2.19 | 0.43 |
| 5:6:604:ARG:NH2 | 5:6:656:ILE:HB | 2.33 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:6:764:GLU:HA | 5:6:767:ILE:HG22 | 2.00 | 0.43 |
| 2:B:157:ARG:HD2 | 2:B:159:TYR:CZ | 2.54 | 0.43 |
| 2:B:287:PHE:HB2 | 2:B:547:LYS:HZ2 | 1.83 | 0.43 |
| 4:D:339:ILE:HD11 | 4:D:350:LYS:HA | 2.01 | 0.43 |
| 5:E:271:SER:HA | 6:F:205:MET:HE2 | 2.01 | 0.43 |
| 6:F:310:GLU:HB3 | 6:F:313:GLU:OE1 | 2.18 | 0.43 |
| 8:S:-28[A]:DT:H4' | 8:S:-27[A]:DT:OP1 | 2.18 | 0.43 |
| 1:2:359:GLY:HA2 | 8:S:-24[A]:DT:H5' | 2.01 | 0.43 |
| 1:2:420:ASN:OD1 | 1:2:435:PHE:HB3 | 2.19 | 0.43 |
| 1:2:687:HIS:CD2 | 5:6:585:LYS:HD3 | 2.54 | 0.43 |
| 3:4:112:VAL:CG2 | 3:4:257:GLN:HG3 | 2.49 | 0.43 |
| 3:4:400:ARG:HD2 | 3:4:405:VAL:O | 2.18 | 0.43 |
| 3:4:599:ALA:HA | 3:4:604:ILE:HG22 | 2.01 | 0.43 |
| 6:7:463:GLU:HG3 | 6:7:604:ARG:NH2 | 2.33 | 0.43 |
| 1:A:230:LEU:O | 1:A:283:VAL:HA | 2.19 | 0.43 |
| 1:A:777:HIS:ND1 | 1:A:790:ASP:OD1 | 2.51 | 0.43 |
| 3:C:774:THR:HA | 3:C:780:ILE:HG22 | 2.00 | 0.43 |
| 4:D:498:THR:HB | 4:D:718:ARG:NH1 | 2.34 | 0.43 |
| 5:E:20:ASP:HB3 | 5:E:23:ALA:HB3 | 2.00 | 0.43 |
| 5:E:264:ALA:O | 5:E:289:VAL:HA | 2.19 | 0.43 |
| 5:E:772:ILE:O | 5:E:776:VAL:HG23 | 2.19 | 0.43 |
| 5:E:787:LEU:HA | 5:E:787:LEU:HD23 | 1.70 | 0.43 |
| 7:O:48[A]:DA:H8 | 7:O:48[A]:DA:P | 2.42 | 0.43 |
| 8:S:-19[A]:DT:H2'' | 8:S:-18[A]:DT:H72 | 2.01 | 0.43 |
| 1:2:832:LEU:HD11 | 1:2:874:ILE:HG21 | 2.00 | 0.43 |
| 2:3:19:TYR:CD1 | 2:3:76:PHE:CD1 | 3.06 | 0.43 |
| 4:5:140:LEU:HD23 | 4:5:140:LEU:HA | 1.84 | 0.43 |
| 4:5:692:HIS:HA | 4:5:695:ILE:HD12 | 2.00 | 0.43 |
| 5:6:563:ILE:O | 5:6:563:ILE:HG13 | 2.19 | 0.43 |
| 5:6:601:LEU:O | 5:6:604:ARG:HB3 | 2.19 | 0.43 |
| 3:C:212:CYS:HB3 | 3:C:223:TYR:HE1 | 1.84 | 0.43 |
| 3:C:558:LEU:HB3 | 5:E:220:ILE:HD13 | 2.01 | 0.43 |
| 5:E:430:THR:HB | 5:E:482:ILE:HD13 | 2.01 | 0.43 |
| 5:E:727:ILE:O | 5:E:731:LEU:HG | 2.19 | 0.43 |
| 6:F:69:ASN:O | 6:F:71:ARG:N | 2.51 | 0.43 |
| 8:S:-48[A]:DT:H3' | 8:S:-48[A]:DT:H6 | 1.84 | 0.43 |
| 8:S:-27[A]:DT:C2' | 8:S:-26[A]:DT:C5 | 2.98 | 0.43 |
| 1:2:498:ALA:HA | 1:2:517:ILE:HB | 2.01 | 0.42 |
| 2:3:242:ARG:NH2 | 4:5:217:ASP:HB3 | 2.34 | 0.42 |
| 2:3:298:GLN:HG3 | 2:3:301:LYS:NZ | 2.34 | 0.42 |
| 2:3:343:LEU:HB3 | 2:3:485:MET:SD | 2.59 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:6:27:GLN:HG3 | 5:6:93:ALA:HB2 | 2.01 | 0.42 |
| 6:7:58:ASP:OD1 | 6:7:58:ASP:N | 2.51 | 0.42 |
| 6:7:281:LEU:HA | 6:7:281:LEU:HD12 | 1.83 | 0.42 |
| 6:7:507:LEU:HD22 | 6:7:511:LEU:HD23 | 2.01 | 0.42 |
| 1:A:827:ASP:C | 1:A:829:ASN:H | 2.23 | 0.42 |
| 3:C:501:ARG:O | 3:C:739:ARG:HD3 | 2.19 | 0.42 |
| 5:E:245:THR:CG2 | 5:E:302:CYS:HB3 | 2.49 | 0.42 |
| 6:F:129:GLU:H | 6:F:129:GLU:CD | 2.23 | 0.42 |
| 6:F:580:TYR:CE2 | 6:F:627:LYS:HG3 | 2.54 | 0.42 |
| 1:2:364:ASN:O | 1:2:368:THR:OG1 | 2.28 | 0.42 |
| 2:3:508:ARG:HA | 2:3:508:ARG:HD3 | 1.88 | 0.42 |
| 4:5:569:LYS:HE2 | 4:5:569:LYS:HA | 2.01 | 0.42 |
| 5:6:401:ALA:HA | 12:6:903:ADP:O1A | 2.19 | 0.42 |
| 6:7:458:ILE:HD13 | 6:7:458:ILE:HA | 1.78 | 0.42 |
| 3:C:381:LYS:HD3 | 3:C:381:LYS:HA | 1.66 | 0.42 |
| 4:D:452:GLU:O | 4:D:456:VAL:HG23 | 2.19 | 0.42 |
| 5:E:614:TRP:CE2 | 5:E:656:ILE:HG12 | 2.54 | 0.42 |
| 7:O:34[A]:DA:N6 | 8:S:-34[A]:DT:H3 | 2.17 | 0.42 |
| 8:S:-28[A]:DT:H2'' | 8:S:-27[A]:DT:O5' | 2.19 | 0.42 |
| 1:2:481:ILE:HD13 | 1:2:481:ILE:HG21 | 1.80 | 0.42 |
| 2:3:69:ALA:HB3 | 2:3:240:THR:HG23 | 2.01 | 0.42 |
| 2:3:371:ARG:HE | 4:5:453:ASP:HB3 | 1.84 | 0.42 |
| 3:4:195:GLN:O | 3:4:199:GLU:HG3 | 2.20 | 0.42 |
| 3:4:430:HIS:NE2 | 3:4:688:LYS:HE2 | 2.34 | 0.42 |
| 3:4:470:ILE:HD13 | 3:4:519:LEU:HG | 2.01 | 0.42 |
| 4:5:172:CYS:SG | 4:5:211:PRO:HB2 | 2.60 | 0.42 |
| 4:5:375:ILE:HA | 4:5:515:ASP:OD2 | 2.19 | 0.42 |
| 5:6:744:LYS:O | 5:6:748:LEU:HD12 | 2.20 | 0.42 |
| 6:7:319:LEU:HD22 | 6:7:323:GLU:HG3 | 2.01 | 0.42 |
| 6:7:319:LEU:HD23 | 6:7:319:LEU:HA | 1.91 | 0.42 |
| 1:A:714:PRO:HG2 | 1:A:715:LEU:HD23 | 2.01 | 0.42 |
| 2:B:598:ARG:HH12 | 6:F:523:ASP:HB2 | 1.84 | 0.42 |
| 3:C:781:VAL:HG23 | 3:C:782:ASP:N | 2.34 | 0.42 |
| 4:D:584:ASN:O | 4:D:588:ILE:HG12 | 2.19 | 0.42 |
| 6:F:405:THR:HG22 | 6:F:406:GLY:N | 2.24 | 0.42 |
| 1:2:230:LEU:HD12 | 1:2:230:LEU:HA | 1.81 | 0.42 |
| 1:2:759:SER:HB2 | 1:2:806:GLN:OE1 | 2.20 | 0.42 |
| 2:3:242:ARG:HH22 | 4:5:217:ASP:HB3 | 1.84 | 0.42 |
| 2:3:244:LEU:HD11 | 2:3:259:VAL:HG13 | 2.01 | 0.42 |
| 2:3:307:ILE:HD11 | 2:3:353:GLN:HB3 | 2.02 | 0.42 |
| 2:3:393:LEU:HB2 | 6:7:249:ILE:HD12 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:688:PRO:HD3 | 5:E:378:LYS:HG2 | 1.99 | 0.42 |
| 6:F:56:ALA:HB2 | 6:F:63:VAL:HG21 | 2.02 | 0.42 |
| 1:2:292:GLU:O | 1:2:308:THR:HG22 | 2.20 | 0.42 |
| 2:3:508:ARG:HH22 | 2:3:516:ASP:N | 2.17 | 0.42 |
| 4:5:68:TYR:CE2 | 4:5:122:GLN:HG3 | 2.54 | 0.42 |
| 4:5:646:VAL:HG12 | 4:5:646:VAL:O | 2.19 | 0.42 |
| 5:6:746:SER:HA | 5:6:749:VAL:HG12 | 2.01 | 0.42 |
| 6:7:32:LYS:O | 6:7:36:GLN:HG3 | 2.19 | 0.42 |
| 6:7:380:MET:SD | 6:7:490:PRO:CB | 3.05 | 0.42 |
| 1:A:842:GLU:HA | 1:A:845:THR:HG22 | 2.02 | 0.42 |
| 6:F:323:GLU:OE2 | 6:F:324:LEU:HD22 | 2.20 | 0.42 |
| 6:F:617:ALA:O | 6:F:622:VAL:HG22 | 2.19 | 0.42 |
| 7:O:9[A]:DA:C5 | 7:O:10[A]:DA:C6 | 3.08 | 0.42 |
| 8:S:-47[A]:DT:H2' | 8:S:-46[A]:DT:C5' | 2.33 | 0.42 |
| 2:3:286:LYS:HE2 | 2:3:286:LYS:HB2 | 1.88 | 0.42 |
| 3:4:392:GLY:HA2 | 3:4:419:ILE:HG12 | 2.01 | 0.42 |
| 4:5:586:TYR:CZ | 4:5:590:ARG:HD2 | 2.55 | 0.42 |
| 5:6:99:LYS:HD2 | 5:6:100:ASP:N | 2.35 | 0.42 |
| 5:6:446:ALA:HB1 | 5:6:450:MET:HB2 | 2.02 | 0.42 |
| 1:A:884:GLU:OE2 | 1:A:888:MET:HB2 | 2.18 | 0.42 |
| 2:B:508:ARG:HE | 2:B:513:GLN:HB3 | 1.84 | 0.42 |
| 4:D:559:LEU:HD12 | 4:D:559:LEU:HA | 1.79 | 0.42 |
| 4:D:578:ALA:HB1 | 4:D:637:VAL:HG21 | 2.02 | 0.42 |
| 5:E:326:LYS:HG2 | 5:E:334:TRP:CD1 | 2.55 | 0.42 |
| 5:E:560:GLU:H | 5:E:560:GLU:CD | 2.23 | 0.42 |
| 6:F:14:LYS:HG2 | 6:F:84:LEU:HD21 | 2.01 | 0.42 |
| 6:F:321:ARG:O | 6:F:324:LEU:HB2 | 2.20 | 0.42 |
| 8:S:-48[A]:DT:C6 | 8:S:-48[A]:DT:O5' | 2.72 | 0.42 |
| 1:2:426:LEU:HD11 | 1:2:430:ASN:OD1 | 2.20 | 0.42 |
| 2:3:369:THR:HG22 | 2:3:370:GLY:N | 2.29 | 0.42 |
| 3:4:157:VAL:HG12 | 3:4:225:GLN:OE1 | 2.20 | 0.42 |
| 3:4:471:TYR:CE2 | 3:4:472:GLU:HG2 | 2.55 | 0.42 |
| 4:5:391:LEU:CD2 | 4:5:485:LEU:HG | 2.50 | 0.42 |
| 4:5:536:VAL:HG12 | 4:5:540:HIS:NE2 | 2.35 | 0.42 |
| 4:5:679:LEU:HD23 | 4:5:679:LEU:HA | 1.92 | 0.42 |
| 6:7:423:VAL:HG23 | 6:7:424:SER:H | 1.85 | 0.42 |
| 1:A:426:LEU:HA | 1:A:426:LEU:HD12 | 1.82 | 0.42 |
| 2:B:73:LEU:HD23 | 2:B:73:LEU:HA | 1.86 | 0.42 |
| 3:C:107:VAL:HG23 | 3:C:257:GLN:HE22 | 1.84 | 0.42 |
| 3:C:216:LYS:HD3 | 3:C:223:TYR:CD2 | 2.54 | 0.42 |
| 3:C:560:THR:HB | 3:C:564:VAL:HB | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:E:783:TYR:H | 5:E:786:VAL:HG13 | 1.85 | 0.42 |
| 6:F:512:LEU:CD1 | 6:F:518:LEU:HD13 | 2.50 | 0.42 |
| 6:F:586:VAL:O | 6:F:590:ARG:HG2 | 2.19 | 0.42 |
| 1:2:293:GLU:OE1 | 1:2:295:ARG:NE | 2.53 | 0.42 |
| 1:2:379:GLN:HA | 1:2:393:SER:HA | 2.00 | 0.42 |
| 1:2:524:ASP:OD1 | 1:2:524:ASP:N | 2.53 | 0.42 |
| 2:3:380:ALA:HB2 | 2:3:442:LEU:HD12 | 2.02 | 0.42 |
| 3:4:256:HIS:ND1 | 3:4:257:GLN:O | 2.51 | 0.42 |
| 4:5:521:LYS:HE2 | 4:5:521:LYS:HB2 | 1.91 | 0.42 |
| 4:5:581:LYS:NZ | 4:5:634:GLU:HB3 | 2.32 | 0.42 |
| 5:6:59:ASN:ND2 | 5:6:230:ALA:HB1 | 2.34 | 0.42 |
| 5:6:269:ARG:HB3 | 6:7:217:GLY:N | 2.34 | 0.42 |
| 1:A:315:CYS:SG | 1:A:374:GLN:NE2 | 2.92 | 0.42 |
| 1:A:644:SER:OG | 1:A:651:GLU:OE2 | 2.21 | 0.42 |
| 1:A:754:SER:OG | 1:A:761:PRO:HA | 2.20 | 0.42 |
| 1:A:841:ALA:HA | 1:A:844:VAL:HG12 | 2.02 | 0.42 |
| 2:B:10:VAL:HG22 | 2:B:13:ARG:HH11 | 1.85 | 0.42 |
| 2:B:220:ILE:HG12 | 2:B:259:VAL:HG21 | 2.02 | 0.42 |
| 3:C:205:GLU:HA | 3:C:206:PRO:HD3 | 1.80 | 0.42 |
| 3:C:549:LYS:HA | 3:C:556:LEU:HA | 2.02 | 0.42 |
| 3:C:768:ALA:O | 3:C:769:LEU:HB2 | 2.19 | 0.42 |
| 4:D:498:THR:HA | 4:D:661:GLU:OE2 | 2.20 | 0.42 |
| 5:E:484:ILE:O | 5:E:490:LYS:HA | 2.20 | 0.42 |
| 6:F:333:TYR:OH | 6:F:352:LYS:HB3 | 2.20 | 0.42 |
| 1:2:331:LYS:HG3 | 5:E:276:TYR:CG | 2.55 | 0.42 |
| 3:4:546:TYR:CZ | 6:7:472:ALA:O | 2.73 | 0.42 |
| 3:4:548:MET:O | 3:4:556:LEU:HA | 2.19 | 0.42 |
| 4:5:409:SER:OG | 4:5:410:SER:N | 2.53 | 0.42 |
| 4:5:438:ASP:OD1 | 4:5:481:ARG:HB2 | 2.20 | 0.42 |
| 5:6:186:ALA:HB1 | 1:A:353:PRO:HA | 2.02 | 0.42 |
| 6:7:401:SER:HA | 6:7:441:VAL:O | 2.19 | 0.42 |
| 2:B:427:GLU:OE1 | 2:B:616:ARG:NE | 2.44 | 0.42 |
| 4:D:685:ILE:HD12 | 4:D:730:LEU:HD13 | 2.02 | 0.42 |
| 5:E:215:LEU:HD21 | 5:E:221:PRO:HA | 2.02 | 0.42 |
| 5:E:254:VAL:HG23 | 5:E:256:LYS:HZ1 | 1.85 | 0.42 |
| 5:E:446:ALA:HA | 5:E:450:MET:HE2 | 2.02 | 0.42 |
| 1:2:360:PRO:HD3 | 8:S:-24[A]:DT:H5' | 2.01 | 0.42 |
| 3:4:253:ILE:O | 3:4:253:ILE:HG13 | 2.20 | 0.42 |
| 3:4:319:ARG:HB2 | 6:7:221:TYR:CE2 | 2.55 | 0.42 |
| 4:5:519:ILE:HG12 | 4:5:650:ASP:OD2 | 2.20 | 0.42 |
| 5:6:780:LEU:O | 5:6:780:LEU:HD12 | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:869:ALA:O | 1:A:873:ASN:N | 2.53 | 0.42 |
| 4:D:42:TYR:CZ | 4:D:76:ASP:HB3 | 2.55 | 0.42 |
| 5:E:100:ASP:N | 5:E:100:ASP:OD1 | 2.51 | 0.42 |
| 8:S:-26[A]:DT:H3' | 8:S:-26[A]:DT:H6 | 1.84 | 0.42 |
| 1:2:799:LEU:HD23 | 1:2:799:LEU:HA | 1.89 | 0.41 |
| 1:2:827:ASP:OD1 | 1:2:830:GLU:HG2 | 2.19 | 0.41 |
| 3:4:593:GLN:HB2 | 3:4:595:THR:HG22 | 2.01 | 0.41 |
| 3:4:718:ARG:O | 3:4:722:SER:HB3 | 2.19 | 0.41 |
| 6:7:381:GLY:HA2 | 6:7:521:ILE:O | 2.20 | 0.41 |
| 2:B:287:PHE:HD1 | 2:B:547:LYS:HD3 | 1.85 | 0.41 |
| 4:D:380:LEU:O | 4:D:520:VAL:N | 2.51 | 0.41 |
| 5:E:398:PRO:HD3 | 5:E:508:GLY:O | 2.19 | 0.41 |
| 6:F:228:ARG:HD2 | 6:F:228:ARG:HA | 1.90 | 0.41 |
| 7:O:8[A]:DA:C2 | 7:O:9[A]:DA:C4 | 3.08 | 0.41 |
| 1:2:592:MET:HE1 | 1:2:600:ILE:HG21 | 2.02 | 0.41 |
| 1:2:747:TYR:HB3 | 4:5:532:LEU:HD13 | 2.02 | 0.41 |
| 2:3:380:ALA:HB3 | 2:3:433:ILE:HD13 | 2.02 | 0.41 |
| 3:4:227:ILE:O | 3:4:281:GLN:HB2 | 2.20 | 0.41 |
| 4:5:155:ILE:HG22 | 4:5:259:PRO:HA | 2.02 | 0.41 |
| 4:5:176:ARG:HD3 | 4:5:176:ARG:HA | 1.85 | 0.41 |
| 5:6:126:LEU:HD23 | 5:6:126:LEU:HA | 1.90 | 0.41 |
| 1:A:870:ARG:HG3 | 1:A:875:HIS:CD2 | 2.55 | 0.41 |
| 5:E:596:GLU:O | 5:E:600:HIS:ND1 | 2.53 | 0.41 |
| 6:F:319:LEU:CB | 6:F:323:GLU:HG2 | 2.49 | 0.41 |
| 1:2:637:TYR:O | 1:2:664:ARG:NH1 | 2.53 | 0.41 |
| 2:3:19:TYR:HB3 | 2:3:76:PHE:CD1 | 2.49 | 0.41 |
| 3:4:153:TRP:CZ3 | 6:7:109:MET:HG3 | 2.55 | 0.41 |
| 5:6:82:GLU:OE1 | 5:6:85:ARG:HD3 | 2.20 | 0.41 |
| 6:7:528:ASP:OD1 | 6:7:529:ASN:N | 2.53 | 0.41 |
| 1:A:741:ASP:O | 1:A:745:LYS:HD3 | 2.20 | 0.41 |
| 3:C:153:TRP:CZ3 | 6:F:105:HIS:HB3 | 2.55 | 0.41 |
| 3:C:518:GLN:HG2 | 11:C:903:ATP:O2A | 2.20 | 0.41 |
| 3:C:775:ASP:OD1 | 3:C:775:ASP:N | 2.47 | 0.41 |
| 4:D:78:ALA:O | 4:D:82:GLU:HG3 | 2.19 | 0.41 |
| 2:3:54:LEU:O | 2:3:58:ASN:N | 2.37 | 0.41 |
| 2:3:398:MET:HG2 | 2:3:406:VAL:HG21 | 2.01 | 0.41 |
| 3:4:237:PHE:HB3 | 3:4:260:VAL:HG11 | 2.01 | 0.41 |
| 4:5:448:ASP:N | 4:5:448:ASP:OD1 | 2.53 | 0.41 |
| 5:6:25:LYS:O | 5:6:29:LEU:HD23 | 2.21 | 0.41 |
| 5:6:512:ARG:HE | 5:6:537:VAL:HG11 | 1.84 | 0.41 |
| 1:A:195:ILE:HG12 | 1:A:244:LEU:HD21 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:A:594:ASP:O | 1:A:598:THR:HG23 | 2.19 | 0.41 |
| 1:A:647:VAL:HG11 | 1:A:654:ILE:HD11 | 2.03 | 0.41 |
| 3:C:631:ILE:HD13 | 3:C:631:ILE:HA | 1.94 | 0.41 |
| 4:D:391:LEU:HB3 | 4:D:443:CYS:HB3 | 2.02 | 0.41 |
| 4:D:498:THR:HB | 4:D:718:ARG:HH11 | 1.85 | 0.41 |
| 6:F:320:THR:O | 6:F:323:GLU:HG3 | 2.19 | 0.41 |
| 6:F:550:GLN:HG2 | 6:F:551:PHE:N | 2.35 | 0.41 |
| 8:S:-41[A]:DT:O3' | 8:S:-40[A]:DT:C6 | 2.73 | 0.41 |
| 8:S:-36[A]:DT:H2'' | 8:S:-35[A]:DT:C6 | 2.53 | 0.41 |
| 1:2:428:THR:HB | 1:2:430:ASN:OD1 | 2.21 | 0.41 |
| 1:2:481:ILE:HG22 | 1:2:723:TYR:CE2 | 2.56 | 0.41 |
| 2:3:146:HIS:HE1 | 2:3:174:TYR:CZ | 2.39 | 0.41 |
| 2:3:245:PRO:HB3 | 4:5:216:PRO:HG3 | 2.01 | 0.41 |
| 2:3:330:GLU:HG2 | 2:3:331:ASN:N | 2.34 | 0.41 |
| 2:3:412:ASP:HB3 | 2:3:452:ALA:HB1 | 2.01 | 0.41 |
| 4:5:459:HIS:CD2 | 4:5:510:ILE:HD11 | 2.55 | 0.41 |
| 4:5:720:GLU:HG2 | 4:5:721:ILE:HG23 | 2.03 | 0.41 |
| 5:6:347:TYR:CD1 | 5:6:634:MET:HE1 | 2.56 | 0.41 |
| 5:6:625:ILE:HD13 | 5:6:625:ILE:HG21 | 1.87 | 0.41 |
| 6:7:81:VAL:O | 6:7:85:LEU:HG | 2.21 | 0.41 |
| 1:A:846:TYR:OH | 1:A:850:ARG:HD2 | 2.21 | 0.41 |
| 3:C:117:ASP:N | 3:C:117:ASP:OD1 | 2.47 | 0.41 |
| 3:C:472:GLU:HG3 | 3:C:472:GLU:O | 2.20 | 0.41 |
| 6:F:330:GLU:HG2 | 6:F:331:ASP:N | 2.35 | 0.41 |
| 8:S:-43[A]:DT:C2' | 8:S:-42[A]:DT:C6 | 3.03 | 0.41 |
| 1:2:767:ILE:HD13 | 4:5:532:LEU:CD2 | 2.50 | 0.41 |
| 3:4:543:LEU:HD23 | 3:4:562:ALA:HB3 | 2.03 | 0.41 |
| 3:4:597:SER:OG | 3:4:606:GLN:HG2 | 2.21 | 0.41 |
| 5:6:225:GLU:HG3 | 5:6:225:GLU:O | 2.20 | 0.41 |
| 6:7:557:LYS:HB3 | 6:7:557:LYS:HE3 | 1.79 | 0.41 |
| 6:7:568:GLU:O | 6:7:568:GLU:HG2 | 2.20 | 0.41 |
| 2:B:76:PHE:CE2 | 2:B:100:VAL:HG11 | 2.55 | 0.41 |
| 2:B:461:GLN:OE1 | 2:B:486:LEU:HD21 | 2.20 | 0.41 |
| 2:B:520:LEU:HD12 | 2:B:521:GLY:H | 1.85 | 0.41 |
| 2:B:582:LEU:HA | 2:B:637:VAL:HB | 2.01 | 0.41 |
| 3:C:302:ALA:HB1 | 3:C:339:LEU:HD13 | 2.03 | 0.41 |
| 3:C:649:LEU:HG | 3:C:769:LEU:HA | 2.03 | 0.41 |
| 6:F:132:ARG:HD3 | 6:F:134:PHE:CE2 | 2.54 | 0.41 |
| 8:S:-22[A]:DT:H2'' | 8:S:-21[A]:DT:C6 | 2.55 | 0.41 |
| 1:2:470:ASP:C | 1:2:472:GLN:H | 2.24 | 0.41 |
| 1:2:608:SER:HA | 1:2:621:GLN:HA | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:4:191:PRO:HB2 | 3:4:194:MET:CG | 2.50 | 0.41 |
| 4:5:352:ALA:HB1 | 4:5:516:MET:HE3 | 2.03 | 0.41 |
| 6:7:182:TYR:CD2 | 6:7:220:LEU:HD13 | 2.55 | 0.41 |
| 6:7:325:ARG:O | 6:7:329:GLU:HG3 | 2.21 | 0.41 |
| 1:A:850:ARG:NH2 | 5:E:759:GLU:HB3 | 2.36 | 0.41 |
| 2:B:287:PHE:CD1 | 2:B:547:LYS:HD3 | 2.55 | 0.41 |
| 3:C:283:ILE:HD11 | 3:C:416:ILE:CD1 | 2.51 | 0.41 |
| 5:E:236:ALA:HB2 | 5:E:303:VAL:HG11 | 2.02 | 0.41 |
| 8:S:-36[A]:DT:C5 | 8:S:-35[A]:DT:H71 | 2.52 | 0.41 |
| 8:S:-22[A]:DT:H4' | 8:S:-21[A]:DT:OP1 | 2.19 | 0.41 |
| 1:2:207:VAL:HG12 | 1:2:212:HIS:N | 2.35 | 0.41 |
| 1:2:252:PRO:O | 1:2:256:LEU:HB2 | 2.20 | 0.41 |
| 1:2:895:LEU:HD23 | 1:2:895:LEU:H | 1.86 | 0.41 |
| 3:4:389:ASN:HB2 | 3:4:422:ARG:HB3 | 2.02 | 0.41 |
| 3:4:439:LYS:HD2 | 3:4:439:LYS:HA | 1.79 | 0.41 |
| 3:4:600:LYS:HA | 3:4:600:LYS:HD3 | 1.95 | 0.41 |
| 5:6:407:LYS:HA | 5:6:407:LYS:HD2 | 1.80 | 0.41 |
| 6:7:269:ASP:OD2 | 6:7:305:LYS:HE3 | 2.20 | 0.41 |
| 1:A:650:THR:HB | 1:A:652:PRO:HD2 | 2.02 | 0.41 |
| 2:B:213:LEU:HD23 | 2:B:213:LEU:HA | 1.87 | 0.41 |
| 2:B:551:LEU:CD2 | 2:B:557:LYS:HD3 | 2.45 | 0.41 |
| 4:D:40:ARG:HH11 | 4:D:109:GLU:CD | 2.24 | 0.41 |
| 6:F:5:ASP:O | 6:F:9:GLU:HG2 | 2.21 | 0.41 |
| 6:F:507:LEU:HD22 | 6:F:511:LEU:HD23 | 2.01 | 0.41 |
| 1:2:184:GLU:O | 1:2:188:MET:HG3 | 2.21 | 0.41 |
| 1:2:198:ARG:NE | 1:2:241:GLU:OE2 | 2.47 | 0.41 |
| 1:2:425:SER:HB2 | 1:2:435:PHE:CE1 | 2.56 | 0.41 |
| 1:2:747:TYR:HB3 | 4:5:532:LEU:CD1 | 2.51 | 0.41 |
| 2:3:303:LEU:O | 2:3:357:TYR:CZ | 2.74 | 0.41 |
| 3:4:251:ASP:N | 3:4:251:ASP:OD1 | 2.52 | 0.41 |
| 3:4:628:LYS:HD3 | 3:4:632:GLU:HG2 | 2.03 | 0.41 |
| 4:5:676:GLU:HA | 4:5:679:LEU:CG | 2.48 | 0.41 |
| 5:6:202:ASP:HB2 | 5:6:230:ALA:HA | 2.03 | 0.41 |
| 5:6:264:ALA:O | 5:6:289:VAL:HA | 2.21 | 0.41 |
| 6:7:235:MET:HG3 | 6:7:255:VAL:HB | 2.03 | 0.41 |
| 6:7:341:ALA:HB1 | 6:7:344:ILE:HD13 | 2.03 | 0.41 |
| 1:A:252:PRO:HG2 | 1:A:417:ILE:HG12 | 2.02 | 0.41 |
| 1:A:349:PRO:HG2 | 1:A:361:PHE:CD2 | 2.55 | 0.41 |
| 1:A:426:LEU:HD22 | 5:E:438:GLU:HA | 2.03 | 0.41 |
| 1:A:803:ILE:HG22 | 1:A:811:MET:HG3 | 2.03 | 0.41 |
| 2:B:40:ILE:HD11 | 2:B:84:VAL:HG13 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:303:LEU:O | 2:B:357:TYR:CZ | 2.74 | 0.41 |
| 2:B:327:ARG:HB2 | 2:B:335:ILE:HB | 2.03 | 0.41 |
| 3:C:514:THR:O | 3:C:515:SER:HB3 | 2.21 | 0.41 |
| 3:C:647:ILE:O | 3:C:768:ALA:HB1 | 2.21 | 0.41 |
| 3:C:654:GLN:NE2 | 6:F:593:TRP:CE3 | 2.89 | 0.41 |
| 4:D:150:LYS:HA | 4:D:265:ILE:O | 2.21 | 0.41 |
| 4:D:155:ILE:HD13 | 4:D:257:VAL:HG21 | 2.02 | 0.41 |
| 4:D:375:ILE:HA | 4:D:515:ASP:OD2 | 2.21 | 0.41 |
| 4:D:405:SER:HA | 4:D:445:ASP:O | 2.20 | 0.41 |
| 4:D:705:GLU:HA | 4:D:708:ILE:HG22 | 2.03 | 0.41 |
| 5:E:47:LEU:HD11 | 5:E:101:ARG:HG2 | 2.02 | 0.41 |
| 5:E:309:ARG:HA | 5:E:309:ARG:HD3 | 1.90 | 0.41 |
| 5:E:516:LEU:HD13 | 5:E:535:ILE:HD11 | 2.03 | 0.41 |
| 6:F:387:LYS:HE2 | 6:F:387:LYS:HB2 | 1.73 | 0.41 |
| 7:O:30[A]:DA:H2'' | 7:O:31[A]:DA:C8 | 2.55 | 0.41 |
| 7:O:43[A]:DA:H2 | 8:S:-43[A]:DT:O2 | 2.03 | 0.41 |
| 1:2:344:ASN:HB2 | 1:2:421:ASN:O | 2.20 | 0.41 |
| 5:6:435:ARG:NE | 7:O:15[A]:DA:H5'' | 2.35 | 0.41 |
| 5:6:726:LEU:CD1 | 5:6:776:VAL:HG21 | 2.51 | 0.41 |
| 1:A:740:GLN:HE22 | 4:D:537:ILE:HG13 | 1.85 | 0.41 |
| 3:C:108:ARG:NE | 3:C:252:SER:O | 2.54 | 0.41 |
| 4:D:436:LEU:HD23 | 4:D:436:LEU:HA | 1.90 | 0.41 |
| 4:D:527:GLU:O | 4:D:530:VAL:HG22 | 2.21 | 0.41 |
| 6:F:322:GLU:HG3 | 6:F:325:ARG:NH2 | 2.36 | 0.41 |
| 7:O:6[A]:DA:N6 | 7:O:7[A]:DA:N6 | 2.69 | 0.41 |
| 1:2:213:ASN:ND2 | 1:2:216:LYS:HE2 | 2.36 | 0.40 |
| 1:2:284:ARG:NH2 | 1:2:402:LEU:HG | 2.36 | 0.40 |
| 1:2:542:ARG:HE | 1:2:542:ARG:HB3 | 1.77 | 0.40 |
| 2:3:180:GLU:N | 2:3:180:GLU:OE1 | 2.54 | 0.40 |
| 3:4:152:ILE:HD12 | 3:4:157:VAL:HG23 | 2.03 | 0.40 |
| 3:4:649:LEU:HG | 3:4:769:LEU:HA | 2.03 | 0.40 |
| 4:5:9:ILE:HD12 | 6:F:203:LEU:HD11 | 2.03 | 0.40 |
| 6:7:68:GLU:HA | 6:7:159:LYS:HD2 | 2.03 | 0.40 |
| 6:7:558:LEU:HA | 6:7:558:LEU:HD12 | 1.87 | 0.40 |
| 1:A:735:LEU:HD12 | 1:A:785:TYR:HD1 | 1.85 | 0.40 |
| 3:C:775:ASP:OD2 | 3:C:778:THR:OG1 | 2.37 | 0.40 |
| 6:F:585:TYR:CD2 | 6:F:606:LEU:HD12 | 2.57 | 0.40 |
| 7:O:43[A]:DA:N1 | 7:O:44[A]:DA:C6 | 2.89 | 0.40 |
| 1:2:356:GLN:NE2 | 5:E:186:ALA:O | 2.38 | 0.40 |
| 1:2:375:ARG:NH2 | 1:2:395:ASP:OD2 | 2.54 | 0.40 |
| 2:3:18:ASP:HB2 | 2:3:61:ARG:HD2 | 2.02 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:4:730:TYR:HB3 | 5:6:399:SER:HB3 | 2.03 | 0.40 |
| 4:5:427:PHE:CZ | 4:5:474:ILE:HG23 | 2.56 | 0.40 |
| 6:7:56:ALA:HB2 | 6:7:63:VAL:HG21 | 2.04 | 0.40 |
| 6:7:120:ARG:NH2 | 4:D:13:ASP:OD2 | 2.55 | 0.40 |
| 6:7:569:LYS:O | 6:7:571:PRO:HD3 | 2.21 | 0.40 |
| 1:A:602:GLU:CD | 4:D:409:SER:HG | 2.21 | 0.40 |
| 1:A:689:SER:HB2 | 5:E:585:LYS:CE | 2.52 | 0.40 |
| 3:C:563:LEU:HD23 | 3:C:563:LEU:HA | 1.90 | 0.40 |
| 5:E:139:GLY:HA3 | 5:E:208:ILE:HD12 | 2.04 | 0.40 |
| 5:E:254:VAL:HG23 | 5:E:256:LYS:NZ | 2.36 | 0.40 |
| 6:F:236:LYS:HE3 | 6:F:252:SER:HB3 | 2.03 | 0.40 |
| 7:O:1[A]:DA:C2' | 7:O:2[A]:DA:N7 | 2.74 | 0.40 |
| 8:S:-9[A]:DT:C7 | 8:S:-8[A]:DT:H73 | 2.50 | 0.40 |
| 1:2:213:ASN:HD22 | 1:2:216:LYS:HE2 | 1.85 | 0.40 |
| 1:2:256:LEU:HD23 | 1:2:256:LEU:HA | 1.93 | 0.40 |
| 1:2:842:GLU:OE2 | 5:6:731:LEU:HG | 2.22 | 0.40 |
| 4:5:34:ARG:HB3 | 4:5:84:LEU:HD11 | 2.03 | 0.40 |
| 4:5:36:LYS:HE3 | 4:5:105:GLU:HB3 | 2.03 | 0.40 |
| 4:5:586:TYR:CE1 | 4:5:613:LEU:HB2 | 2.56 | 0.40 |
| 4:5:646:VAL:HA | 4:5:649:LEU:HD12 | 2.04 | 0.40 |
| 5:6:310:PHE:HB3 | 5:6:329:MET:HA | 2.04 | 0.40 |
| 5:6:767:ILE:HD12 | 5:6:767:ILE:HA | 1.94 | 0.40 |
| 6:7:308:LYS:HD2 | 6:7:398:ALA:O | 2.21 | 0.40 |
| 6:7:554:LEU:HD22 | 6:7:558:LEU:HD23 | 2.03 | 0.40 |
| 1:A:429:ALA:C | 1:A:431:GLY:H | 2.24 | 0.40 |
| 1:A:649:LEU:HD12 | 1:A:653:ILE:HG21 | 2.03 | 0.40 |
| 1:A:738:MET:HG3 | 1:A:786:VAL:O | 2.22 | 0.40 |
| 2:B:285:LYS:HB3 | 2:B:285:LYS:HE3 | 1.84 | 0.40 |
| 3:C:186:ILE:HG22 | 3:C:188:ILE:HG12 | 2.02 | 0.40 |
| 3:C:287:GLY:HA3 | 3:C:354:LEU:HD21 | 2.02 | 0.40 |
| 3:C:587:LEU:HD23 | 3:C:587:LEU:HA | 1.90 | 0.40 |
| 4:D:134:PRO:HB2 | 4:D:152:PRO:HD3 | 2.03 | 0.40 |
| 4:D:357:LEU:HB3 | 4:D:563:ILE:HD13 | 2.03 | 0.40 |
| 7:O:30[A]:DA:C2 | 7:O:31[A]:DA:C2 | 3.09 | 0.40 |
| 7:O:43[A]:DA:H2'' | 7:O:44[A]:DA:H8 | 1.87 | 0.40 |
| 8:S:-4[A]:DT:C2' | 8:S:-3[A]:DT:H5'' | 2.52 | 0.40 |
| 1:2:719:VAL:CG1 | 1:2:722:LYS:HG2 | 2.50 | 0.40 |
| 3:4:291:ARG:HE | 3:4:559:GLN:HG3 | 1.85 | 0.40 |
| 3:4:353:LYS:HE3 | 3:4:369:THR:HG21 | 2.02 | 0.40 |
| 3:4:560:THR:HB | 3:4:564:VAL:HB | 2.03 | 0.40 |
| 5:6:124:ARG:HG2 | 5:6:210:GLU:OE2 | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:B:6:VAL:HG11 | 2:B:9:ASP:HB2 | 2.02 | 0.40 |
| 3:C:544:THR:HA | 3:C:596:LEU:HD21 | 2.04 | 0.40 |
| 4:D:360:GLY:N | 4:D:373:GLY:O | 2.54 | 0.40 |
| 4:D:385:THR:HG22 | 4:D:386:ALA:H | 1.85 | 0.40 |
| 6:F:463:GLU:HG3 | 6:F:604:ARG:HH21 | 1.86 | 0.40 |
| 6:F:510:ALA:O | 6:F:514:ARG:HG2 | 2.20 | 0.40 |
| 8:S:-6[A]:DT:H2'' | 8:S:-5[A]:DT:H6 | 1.74 | 0.40 |
| 1:2:748:SER:OG | 4:5:529:ASP:OD1 | 2.40 | 0.40 |
| 1:2:872:ILE:HD12 | 1:2:872:ILE:HA | 1.93 | 0.40 |
| 2:3:458:ARG:NH1 | 4:5:604:SER:O | 2.43 | 0.40 |
| 2:3:594:TYR:OH | 2:3:598:ARG:NH2 | 2.48 | 0.40 |
| 3:4:153:TRP:HZ3 | 6:7:109:MET:HG3 | 1.85 | 0.40 |
| 5:6:512:ARG:HD3 | 5:6:660:GLU:OE2 | 2.21 | 0.40 |
| 5:6:591:GLU:O | 5:6:595:VAL:HG23 | 2.22 | 0.40 |
| 2:B:205:PRO:HB2 | 4:D:476:THR:HG21 | 2.03 | 0.40 |
| 5:E:197:LYS:HG2 | 5:E:197:LYS:O | 2.21 | 0.40 |
| 5:E:458:CYS:HA | 5:E:500:LEU:O | 2.22 | 0.40 |
| 6:F:176:LYS:HB2 | 6:F:232:PHE:HB2 | 2.03 | 0.40 |
| 6:F:420:ARG:HG2 | 6:F:421:ASP:O | 2.21 | 0.40 |
| 7:O:33[A]:DA:H2'' | 7:O:34[A]:DA:C5' | 2.51 | 0.40 |

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 1 | 2 | 700/904 (77%) | 643 (92%) | 57 (8%) | 0 | 100 | 100 |
| 1 | A | 696/904 (77%) | 646 (93%) | 50 (7%) | 0 | 100 | 100 |
| 2 | 3 | 646/853 (76%) | 601 (93%) | 45 (7%) | 0 | 100 | 100 |
| 2 | B | 647/853 (76%) | 613 (95%) | 34 (5%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 3 | 4 | 647/863 (75%) | 598 (92%) | 49 (8%) | 0 | 100 | 100 |
| 3 | C | 645/863 (75%) | 602 (93%) | 43 (7%) | 0 | 100 | 100 |
| 4 | 5 | 700/734 (95%) | 640 (91%) | 60 (9%) | 0 | 100 | 100 |
| 4 | D | 693/734 (94%) | 649 (94%) | 44 (6%) | 0 | 100 | 100 |
| 5 | 6 | 710/821 (86%) | 668 (94%) | 42 (6%) | 0 | 100 | 100 |
| 5 | E | 703/821 (86%) | 666 (95%) | 37 (5%) | 0 | 100 | 100 |
| 6 | 7 | 633/719 (88%) | 588 (93%) | 45 (7%) | 0 | 100 | 100 |
| 6 | F | 642/719 (89%) | 601 (94%) | 41 (6%) | 0 | 100 | 100 |
| All | All | 8062/9788 (82%) | 7515 (93%) | 547 (7%) | 0 | 100 | 100 |

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|-------------|----------|-------------|-----|
| 1 | 2 | 615/781 (79%) | 611 (99%) | 4 (1%) | 84 | 94 |
| 1 | A | 610/781 (78%) | 607 (100%) | 3 (0%) | 88 | 96 |
| 2 | 3 | 557/742 (75%) | 556 (100%) | 1 (0%) | 93 | 98 |
| 2 | B | 561/742 (76%) | 558 (100%) | 3 (0%) | 88 | 96 |
| 3 | 4 | 574/753 (76%) | 571 (100%) | 3 (0%) | 88 | 96 |
| 3 | C | 575/753 (76%) | 575 (100%) | 0 | 100 | 100 |
| 4 | 5 | 589/625 (94%) | 588 (100%) | 1 (0%) | 93 | 98 |
| 4 | D | 589/625 (94%) | 588 (100%) | 1 (0%) | 93 | 98 |
| 5 | 6 | 639/724 (88%) | 636 (100%) | 3 (0%) | 88 | 96 |
| 5 | E | 636/724 (88%) | 636 (100%) | 0 | 100 | 100 |
| 6 | 7 | 554/619 (90%) | 552 (100%) | 2 (0%) | 91 | 97 |
| 6 | F | 556/619 (90%) | 554 (100%) | 2 (0%) | 91 | 97 |
| All | All | 7055/8488 (83%) | 7032 (100%) | 23 (0%) | 92 | 98 |

All (23) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 2 | 276 | ARG |
| 1 | 2 | 581 | ARG |
| 1 | 2 | 850 | ARG |
| 1 | 2 | 870 | ARG |
| 2 | 3 | 445 | ARG |
| 3 | 4 | 497 | ARG |
| 3 | 4 | 554 | ARG |
| 3 | 4 | 610 | ARG |
| 4 | 5 | 481 | ARG |
| 5 | 6 | 99 | LYS |
| 5 | 6 | 496 | ARG |
| 5 | 6 | 779 | ARG |
| 6 | 7 | 219 | ARG |
| 6 | 7 | 286 | ARG |
| 1 | A | 784 | ASP |
| 1 | A | 870 | ARG |
| 1 | A | 896 | LYS |
| 2 | B | 93 | LYS |
| 2 | B | 157 | ARG |
| 2 | B | 445 | ARG |
| 4 | D | 481 | ARG |
| 6 | F | 219 | ARG |
| 6 | F | 372 | ARG |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 2 | 197 | HIS |
| 1 | 2 | 563 | HIS |
| 1 | 2 | 843 | GLN |
| 1 | 2 | 849 | ASN |
| 1 | 2 | 855 | GLN |
| 2 | 3 | 33 | GLN |
| 4 | 5 | 459 | HIS |
| 4 | 5 | 540 | HIS |
| 4 | 5 | 726 | GLN |
| 6 | 7 | 374 | ASN |
| 6 | 7 | 465 | GLN |
| 2 | B | 468 | ASN |
| 3 | C | 126 | GLN |
| 3 | C | 376 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 594 | GLN |
| 3 | C | 608 | ASN |
| 5 | E | 212 | GLN |
| 6 | F | 196 | GLN |

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 34 ligands modelled in this entry, 22 are monoatomic - leaving 12 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 |
| 11 | ATP | B | 1101 | 10 | 26,33,33 | 0.95 | 0 | 31,52,52 | 1.40 | 5 (16%) |
| 11 | ATP | 4 | 903 | 10 | 26,33,33 | 1.06 | 1 (3%) | 31,52,52 | 1.42 | 4 (12%) |
| 12 | ADP | 6 | 903 | 10 | 24,29,29 | 1.01 | 1 (4%) | 29,45,45 | 1.30 | 2 (6%) |
| 12 | ADP | D | 803 | 10 | 24,29,29 | 1.02 | 0 | 29,45,45 | 1.28 | 2 (6%) |
| 11 | ATP | F | 803 | 10 | 26,33,33 | 0.93 | 0 | 31,52,52 | 1.47 | 5 (16%) |
| 11 | ATP | 7 | 803 | 10 | 26,33,33 | 1.07 | 1 (3%) | 31,52,52 | 1.65 | 6 (19%) |
| 11 | ATP | C | 903 | 10 | 26,33,33 | 0.99 | 1 (3%) | 31,52,52 | 1.33 | 4 (12%) |
| 12 | ADP | 5 | 803 | 10 | 24,29,29 | 1.05 | 1 (4%) | 29,45,45 | 1.40 | 4 (13%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 11 | ATP | 3 | 1101 | 10 | 26,33,33 | 1.02 | 2 (7%) | 31,52,52 | 1.26 | 2 (6%) |
| 11 | ATP | 2 | 1003 | 10 | 26,33,33 | 0.97 | 1 (3%) | 31,52,52 | 1.33 | 4 (12%) |
| 12 | ADP | E | 903 | 10 | 24,29,29 | 1.01 | 0 | 29,45,45 | 1.40 | 4 (13%) |
| 11 | ATP | A | 1003 | 10 | 26,33,33 | 0.94 | 0 | 31,52,52 | 1.56 | 5 (16%) |

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 |
|-----|------|-------|------|------|---------|------------|---------|
| 11 | ATP | B | 1101 | 10 | - | 1/18/38/38 | 0/3/3/3 |
| 11 | ATP | 4 | 903 | 10 | - | 4/18/38/38 | 0/3/3/3 |
| 12 | ADP | 6 | 903 | 10 | - | 0/12/32/32 | 0/3/3/3 |
| 12 | ADP | D | 803 | 10 | - | 4/12/32/32 | 0/3/3/3 |
| 11 | ATP | F | 803 | 10 | - | 0/18/38/38 | 0/3/3/3 |
| 11 | ATP | 7 | 803 | 10 | - | 4/18/38/38 | 0/3/3/3 |
| 11 | ATP | C | 903 | 10 | - | 3/18/38/38 | 0/3/3/3 |
| 12 | ADP | 5 | 803 | 10 | - | 4/12/32/32 | 0/3/3/3 |
| 11 | ATP | 3 | 1101 | 10 | - | 5/18/38/38 | 0/3/3/3 |
| 11 | ATP | 2 | 1003 | 10 | - | 3/18/38/38 | 0/3/3/3 |
| 12 | ADP | E | 903 | 10 | - | 6/12/32/32 | 0/3/3/3 |
| 11 | ATP | A | 1003 | 10 | - | 3/18/38/38 | 0/3/3/3 |

All (8) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 11 | 3 | 1101 | ATP | C5-C4 | 2.28 | 1.47 | 1.40 |
| 11 | 4 | 903 | ATP | C5-C4 | 2.25 | 1.46 | 1.40 |
| 12 | 6 | 903 | ADP | C5-C4 | 2.24 | 1.46 | 1.40 |
| 11 | 7 | 803 | ATP | C5-C4 | 2.22 | 1.46 | 1.40 |
| 12 | 5 | 803 | ADP | C5-C4 | 2.22 | 1.46 | 1.40 |
| 11 | 2 | 1003 | ATP | C5-C4 | 2.14 | 1.46 | 1.40 |
| 11 | 3 | 1101 | ATP | C2'-C1' | -2.10 | 1.50 | 1.53 |
| 11 | C | 903 | ATP | C5-C4 | 2.02 | 1.46 | 1.40 |

All (47) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 11 | 7 | 803 | ATP | C5'-C4'-C3' | -4.49 | 98.35 | 115.18 |
| 11 | F | 803 | ATP | N3-C2-N1 | -3.78 | 122.77 | 128.68 |
| 12 | 5 | 803 | ADP | O4'-C1'-C2' | -3.78 | 101.41 | 106.93 |
| 12 | D | 803 | ADP | N3-C2-N1 | -3.35 | 123.45 | 128.68 |
| 11 | 4 | 903 | ATP | C3'-C2'-C1' | 3.30 | 105.94 | 100.98 |
| 11 | A | 1003 | ATP | PB-O3B-PG | -3.24 | 121.71 | 132.83 |
| 11 | B | 1101 | ATP | N3-C2-N1 | -3.21 | 123.66 | 128.68 |
| 11 | A | 1003 | ATP | PA-O3A-PB | -3.21 | 121.81 | 132.83 |
| 12 | 5 | 803 | ADP | N3-C2-N1 | -3.16 | 123.73 | 128.68 |
| 11 | A | 1003 | ATP | N3-C2-N1 | -3.15 | 123.76 | 128.68 |
| 11 | 4 | 903 | ATP | N3-C2-N1 | -3.02 | 123.96 | 128.68 |
| 12 | E | 903 | ADP | C3'-C2'-C1' | 2.99 | 105.48 | 100.98 |
| 11 | C | 903 | ATP | N3-C2-N1 | -2.99 | 124.00 | 128.68 |
| 12 | E | 903 | ADP | N3-C2-N1 | -2.96 | 124.06 | 128.68 |
| 11 | 7 | 803 | ATP | O5'-C5'-C4' | 2.96 | 119.16 | 108.99 |
| 11 | F | 803 | ATP | C4-C5-N7 | -2.88 | 106.39 | 109.40 |
| 11 | C | 903 | ATP | C4-C5-N7 | -2.86 | 106.42 | 109.40 |
| 11 | 2 | 1003 | ATP | N3-C2-N1 | -2.85 | 124.22 | 128.68 |
| 12 | 6 | 903 | ADP | N3-C2-N1 | -2.83 | 124.25 | 128.68 |
| 11 | 3 | 1101 | ATP | PB-O3B-PG | -2.83 | 123.12 | 132.83 |
| 11 | 4 | 903 | ATP | PA-O3A-PB | -2.77 | 123.31 | 132.83 |
| 12 | E | 903 | ADP | C4-C5-N7 | -2.75 | 106.53 | 109.40 |
| 12 | D | 803 | ADP | C4-C5-N7 | -2.72 | 106.56 | 109.40 |
| 11 | F | 803 | ATP | PA-O3A-PB | -2.69 | 123.61 | 132.83 |
| 11 | F | 803 | ATP | C3'-C2'-C1' | 2.67 | 105.00 | 100.98 |
| 11 | 2 | 1003 | ATP | C3'-C2'-C1' | 2.61 | 104.91 | 100.98 |
| 11 | A | 1003 | ATP | C3'-C2'-C1' | 2.60 | 104.90 | 100.98 |
| 11 | 7 | 803 | ATP | N3-C2-N1 | -2.53 | 124.72 | 128.68 |
| 11 | B | 1101 | ATP | C3'-C2'-C1' | 2.53 | 104.78 | 100.98 |
| 11 | B | 1101 | ATP | PB-O3B-PG | -2.51 | 124.20 | 132.83 |
| 11 | C | 903 | ATP | C3'-C2'-C1' | 2.50 | 104.74 | 100.98 |
| 11 | 7 | 803 | ATP | PA-O3A-PB | -2.42 | 124.53 | 132.83 |
| 11 | 3 | 1101 | ATP | N3-C2-N1 | -2.39 | 124.94 | 128.68 |
| 11 | A | 1003 | ATP | C4-C5-N7 | -2.38 | 106.91 | 109.40 |
| 11 | 2 | 1003 | ATP | PA-O3A-PB | -2.33 | 124.83 | 132.83 |
| 12 | 6 | 903 | ADP | PA-O3A-PB | -2.27 | 125.03 | 132.83 |
| 11 | B | 1101 | ATP | C4-C5-N7 | -2.25 | 107.06 | 109.40 |
| 12 | E | 903 | ADP | PA-O3A-PB | -2.17 | 125.39 | 132.83 |
| 11 | 4 | 903 | ATP | O3G-PG-O2G | 2.16 | 115.89 | 107.64 |
| 11 | F | 803 | ATP | C2-N1-C6 | 2.15 | 122.43 | 118.75 |
| 11 | C | 903 | ATP | PB-O3B-PG | -2.14 | 125.47 | 132.83 |
| 11 | 7 | 803 | ATP | O4'-C1'-C2' | -2.13 | 103.81 | 106.93 |
| 11 | 2 | 1003 | ATP | PB-O3B-PG | -2.11 | 125.59 | 132.83 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 11 | 7 | 803 | ATP | O4'-C4'-C5' | 2.06 | 116.16 | 109.37 |
| 12 | 5 | 803 | ADP | PA-O3A-PB | -2.05 | 125.78 | 132.83 |
| 11 | B | 1101 | ATP | O2B-PB-O1B | 2.02 | 122.21 | 112.24 |
| 12 | 5 | 803 | ADP | O2A-PA-O1A | 2.00 | 122.14 | 112.24 |

There are no chirality outliers.

All (37) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 11 | 3 | 1101 | ATP | C5'-O5'-PA-O1A |
| 11 | 7 | 803 | ATP | PB-O3B-PG-O3G |
| 11 | 7 | 803 | ATP | C5'-O5'-PA-O2A |
| 11 | 7 | 803 | ATP | C5'-O5'-PA-O3A |
| 12 | 5 | 803 | ADP | C5'-O5'-PA-O1A |
| 12 | 5 | 803 | ADP | C5'-O5'-PA-O2A |
| 12 | 5 | 803 | ADP | C5'-O5'-PA-O3A |
| 12 | D | 803 | ADP | C5'-O5'-PA-O1A |
| 12 | E | 903 | ADP | C5'-O5'-PA-O1A |
| 12 | E | 903 | ADP | C5'-O5'-PA-O2A |
| 11 | 2 | 1003 | ATP | O4'-C4'-C5'-O5' |
| 11 | 2 | 1003 | ATP | C3'-C4'-C5'-O5' |
| 11 | C | 903 | ATP | PA-O3A-PB-O1B |
| 11 | 3 | 1101 | ATP | C5'-O5'-PA-O3A |
| 12 | D | 803 | ADP | C5'-O5'-PA-O3A |
| 12 | E | 903 | ADP | C5'-O5'-PA-O3A |
| 11 | 3 | 1101 | ATP | PA-O3A-PB-O1B |
| 11 | 4 | 903 | ATP | PG-O3B-PB-O2B |
| 11 | A | 1003 | ATP | PA-O3A-PB-O1B |
| 11 | 3 | 1101 | ATP | C5'-O5'-PA-O2A |
| 12 | D | 803 | ADP | C5'-O5'-PA-O2A |
| 11 | C | 903 | ATP | PA-O3A-PB-O2B |
| 11 | A | 1003 | ATP | C3'-C4'-C5'-O5' |
| 11 | 4 | 903 | ATP | PB-O3B-PG-O1G |
| 11 | 2 | 1003 | ATP | PA-O3A-PB-O2B |
| 11 | C | 903 | ATP | O4'-C4'-C5'-O5' |
| 12 | E | 903 | ADP | PA-O3A-PB-O1B |
| 11 | A | 1003 | ATP | O4'-C4'-C5'-O5' |
| 12 | D | 803 | ADP | PA-O3A-PB-O2B |
| 12 | E | 903 | ADP | PA-O3A-PB-O2B |
| 12 | E | 903 | ADP | PA-O3A-PB-O3B |
| 11 | 3 | 1101 | ATP | PA-O3A-PB-O2B |
| 11 | 4 | 903 | ATP | PG-O3B-PB-O1B |

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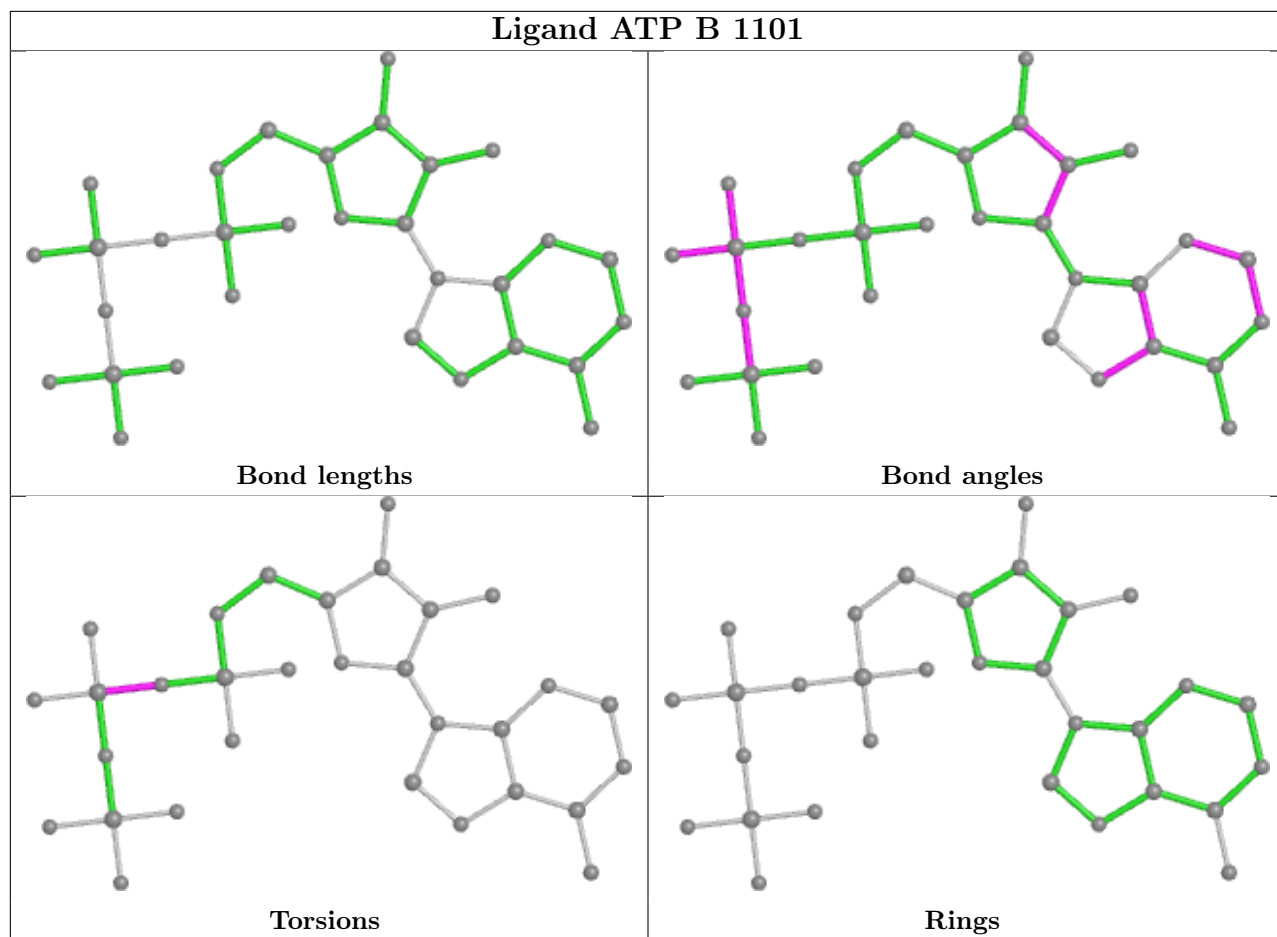
| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 11 | 7 | 803 | ATP | PG-O3B-PB-O1B |
| 11 | B | 1101 | ATP | PA-O3A-PB-O2B |
| 12 | 5 | 803 | ADP | PB-O3A-PA-O2A |
| 11 | 4 | 903 | ATP | O4'-C4'-C5'-O5' |

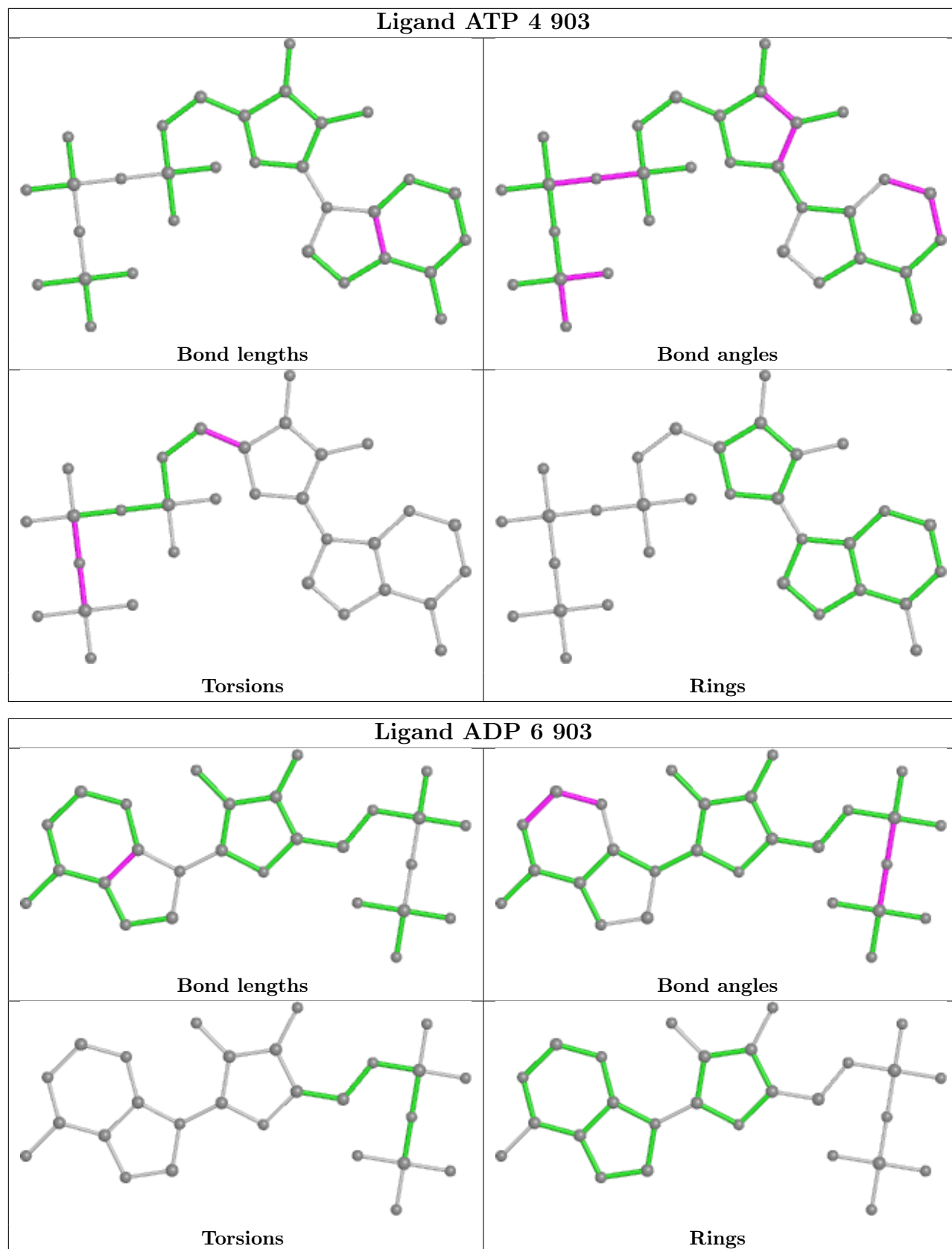
There are no ring outliers.

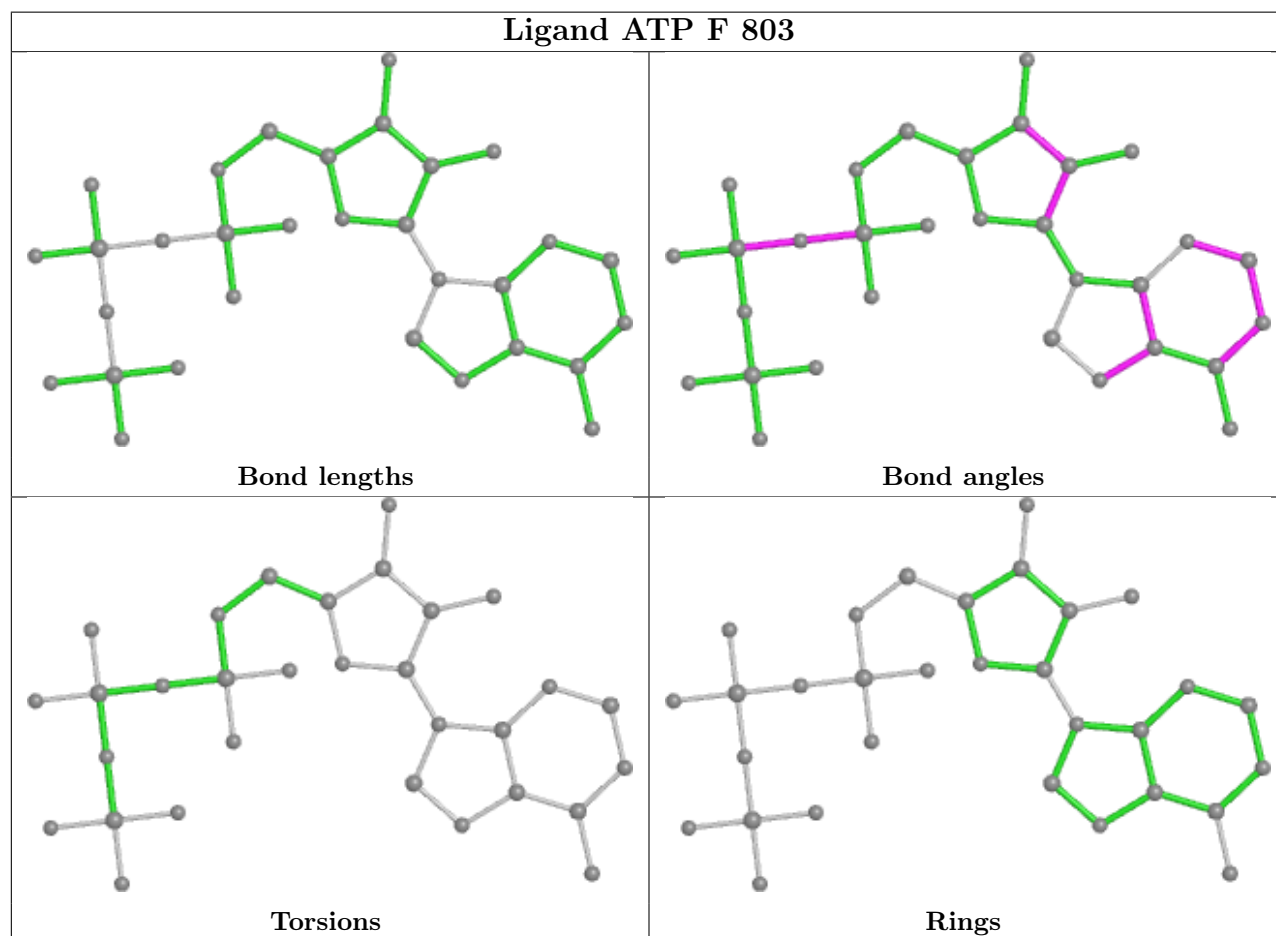
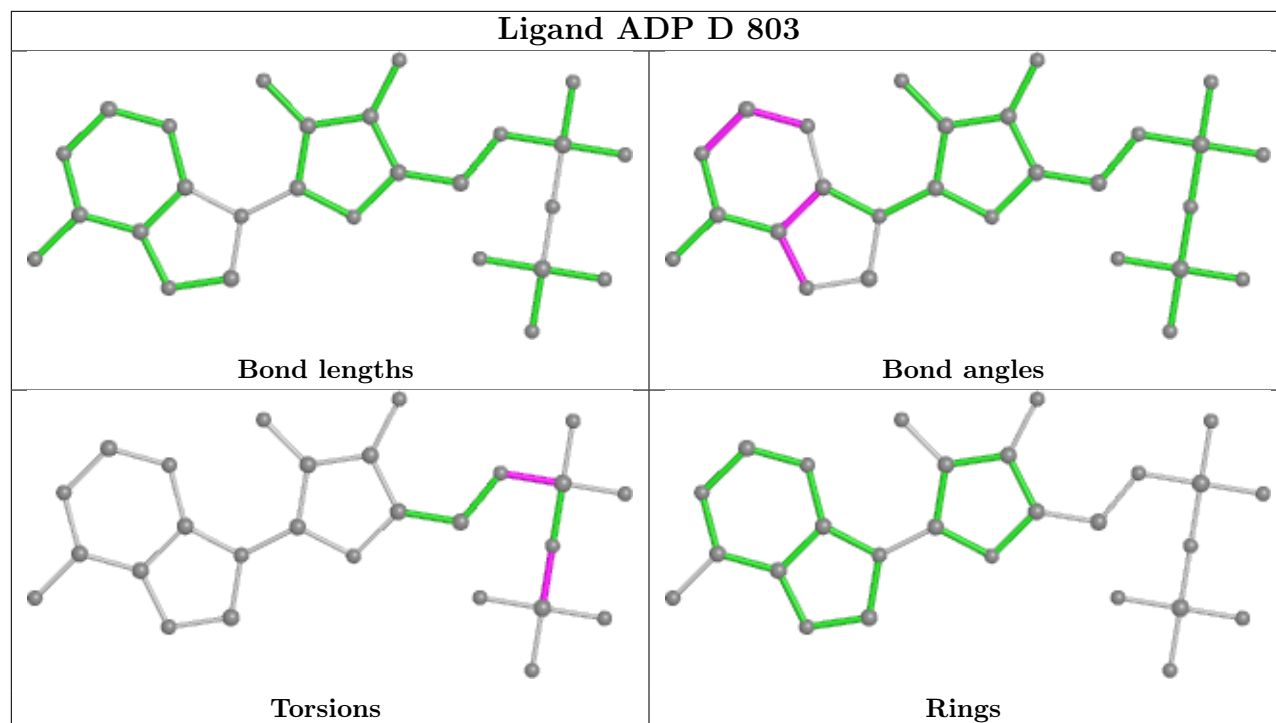
10 monomers are involved in 22 short contacts:

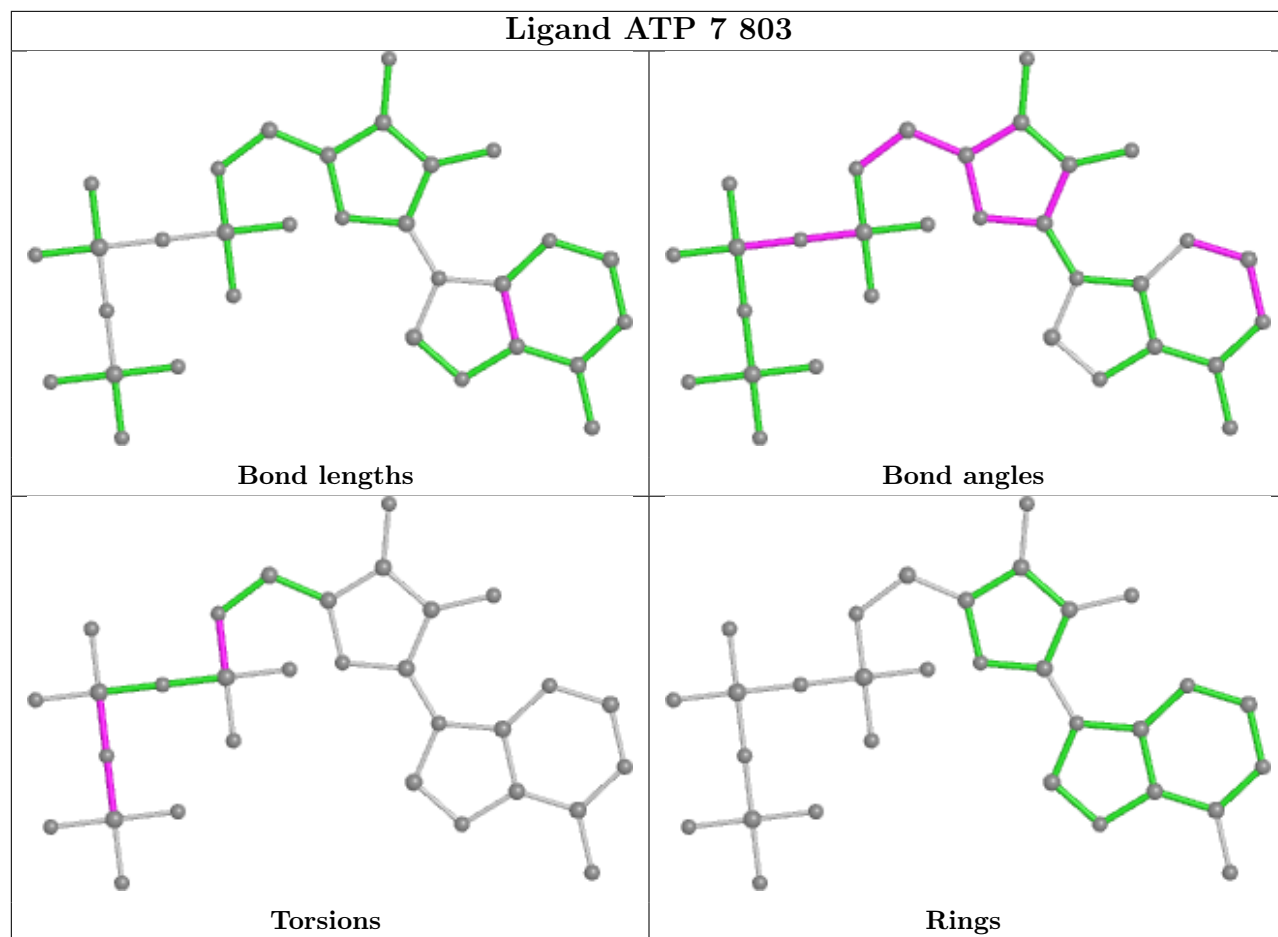
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 11 | B | 1101 | ATP | 1 | 0 |
| 11 | 4 | 903 | ATP | 2 | 0 |
| 12 | 6 | 903 | ADP | 3 | 0 |
| 12 | D | 803 | ADP | 1 | 0 |
| 11 | 7 | 803 | ATP | 1 | 0 |
| 11 | C | 903 | ATP | 2 | 0 |
| 12 | 5 | 803 | ADP | 3 | 0 |
| 11 | 3 | 1101 | ATP | 3 | 0 |
| 11 | 2 | 1003 | ATP | 5 | 0 |
| 11 | A | 1003 | ATP | 1 | 0 |

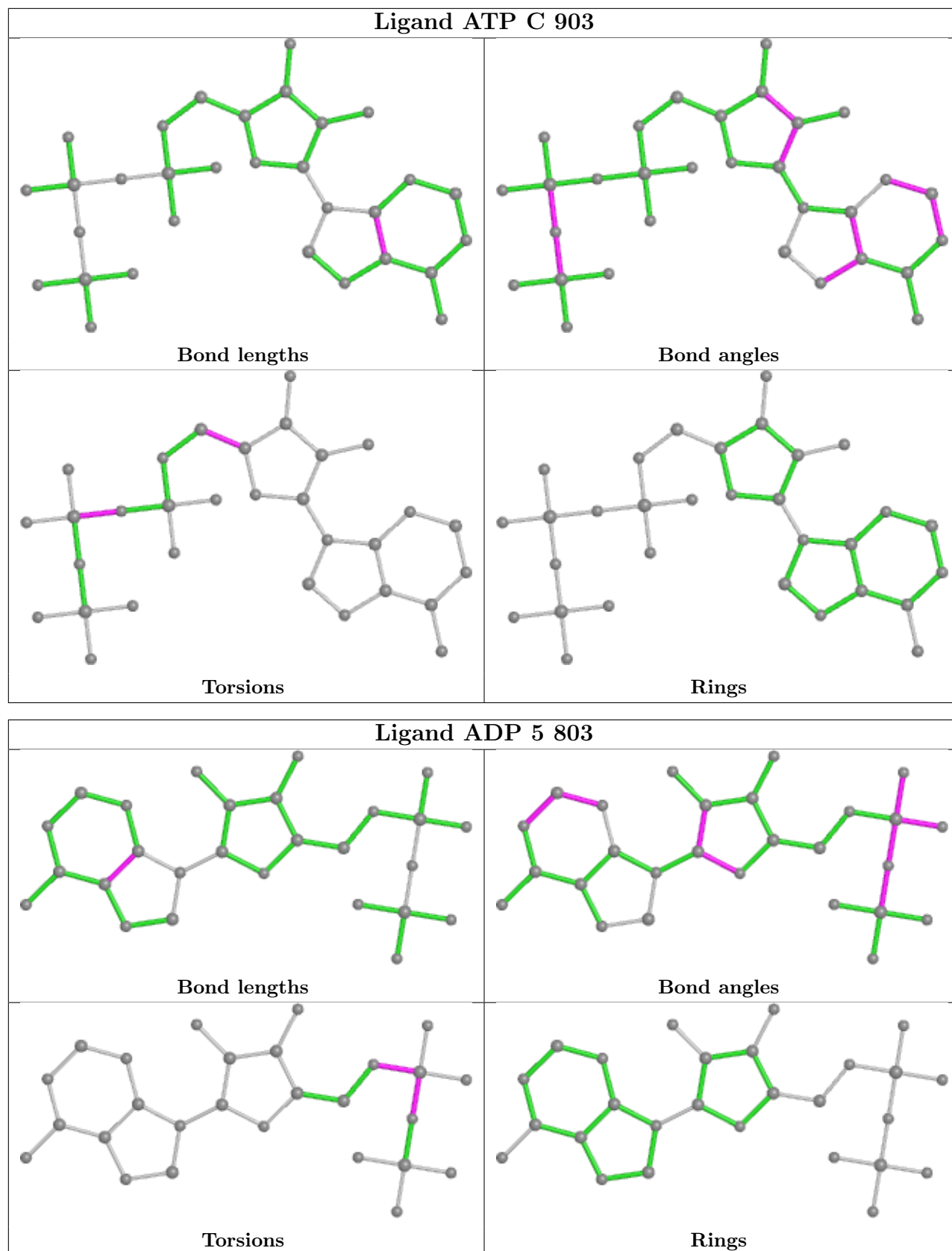
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

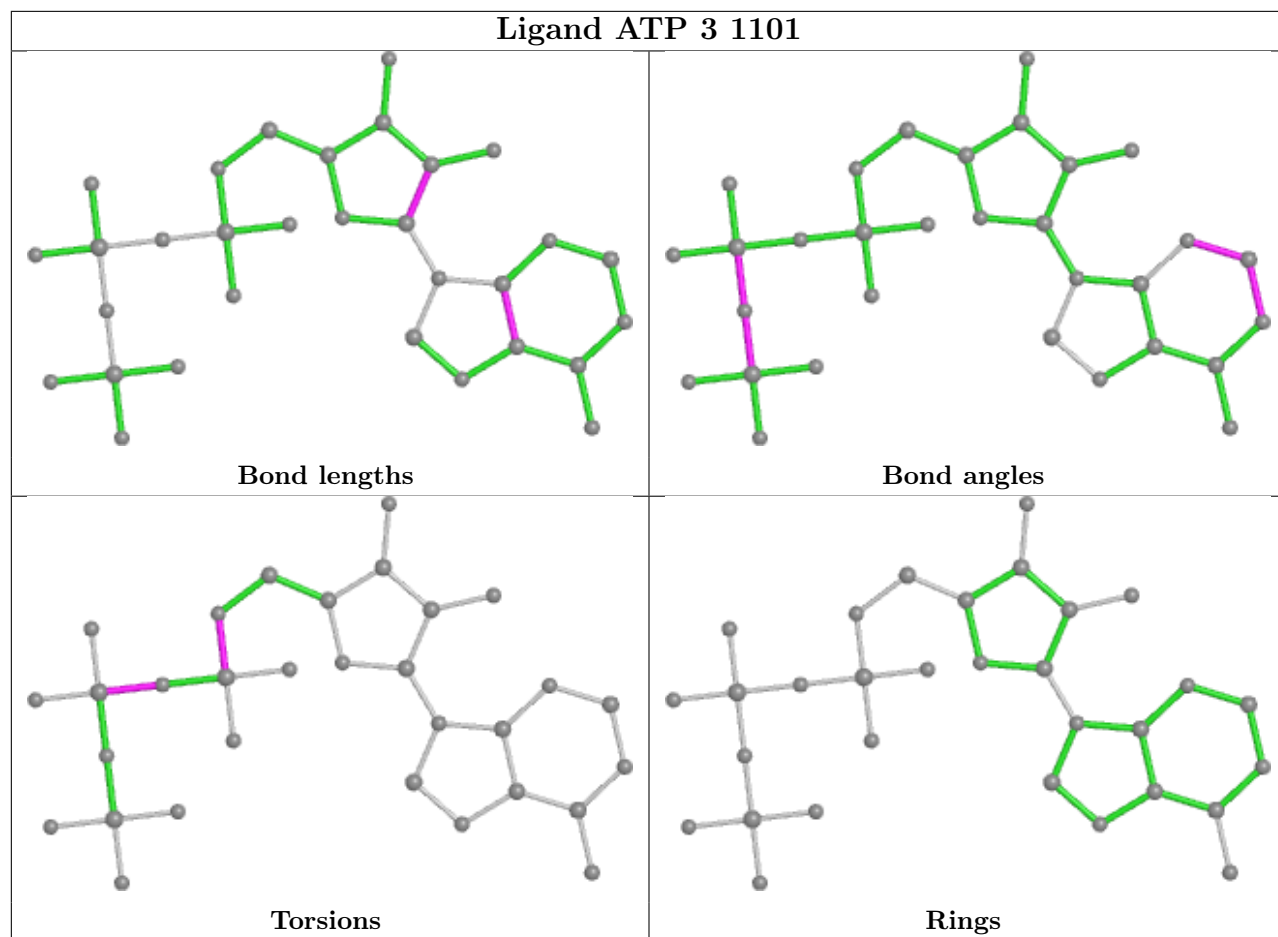


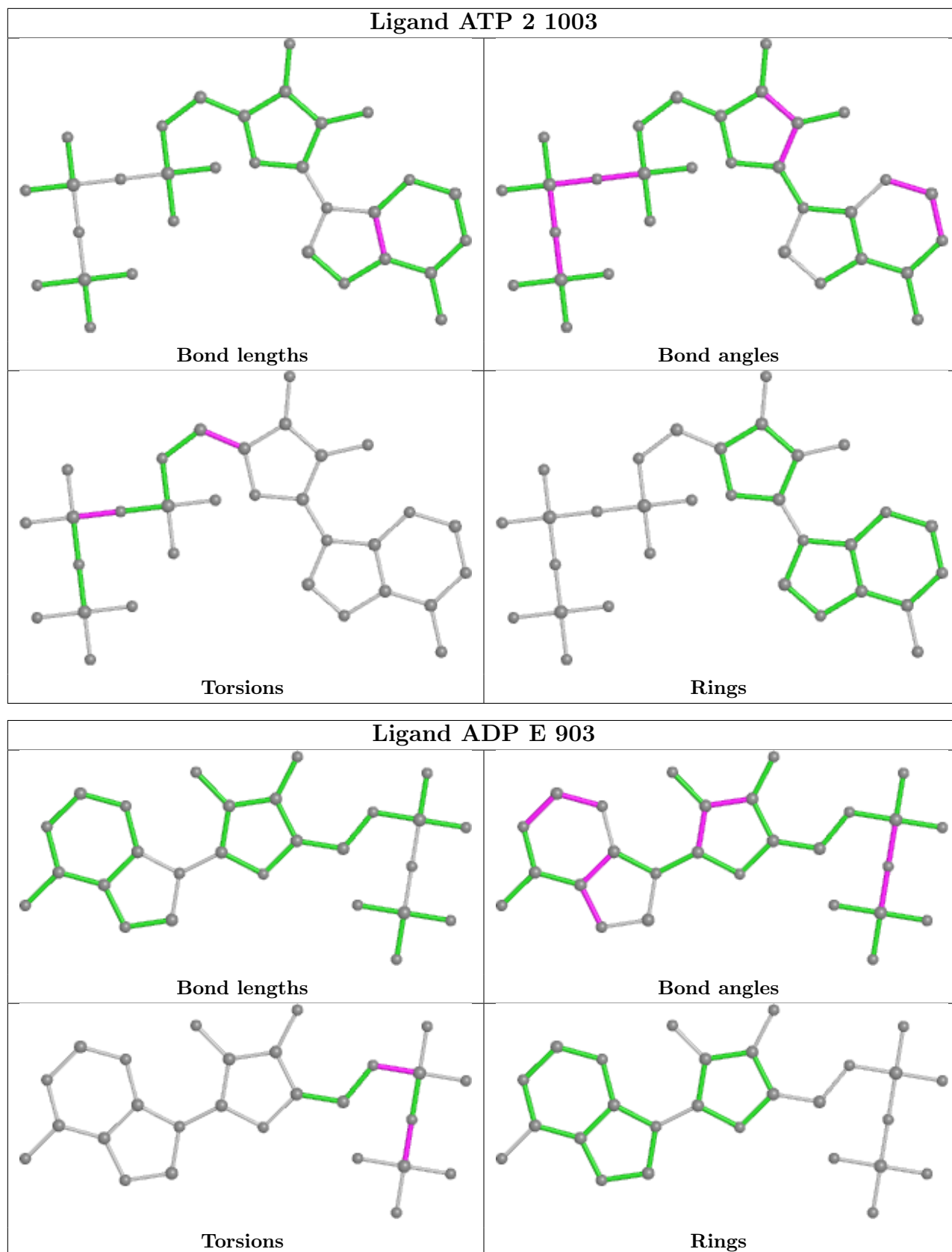


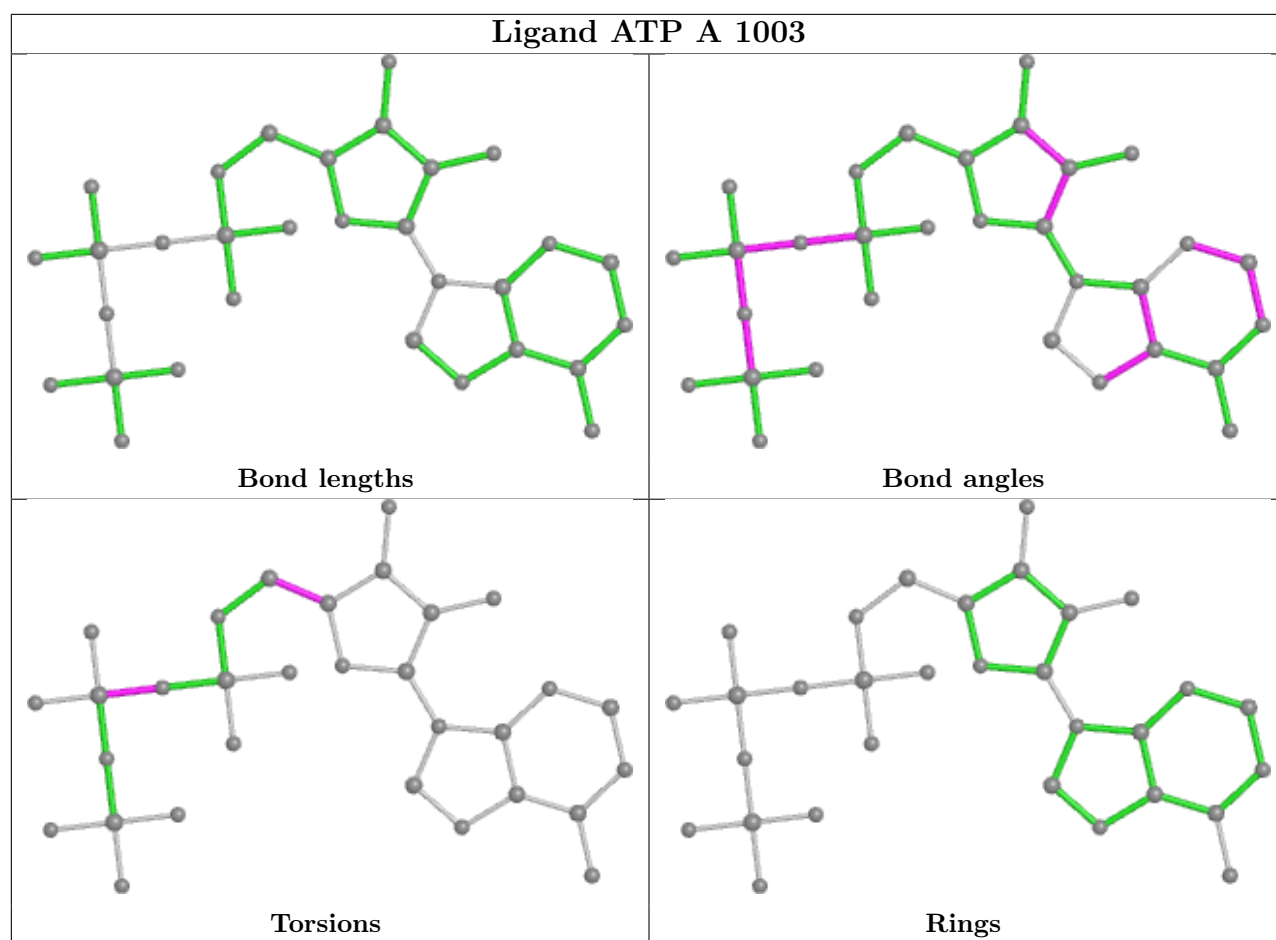












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

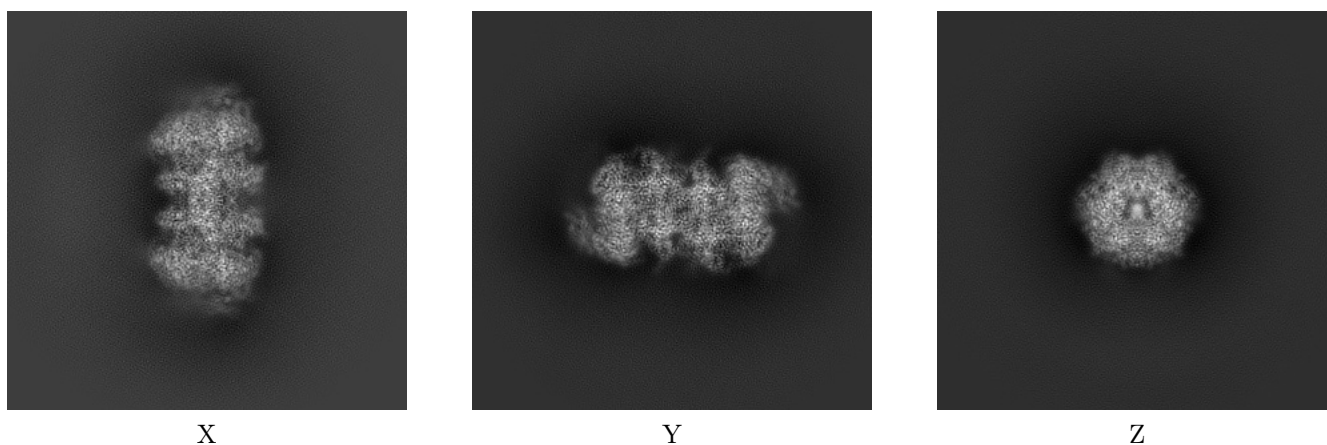
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32258. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

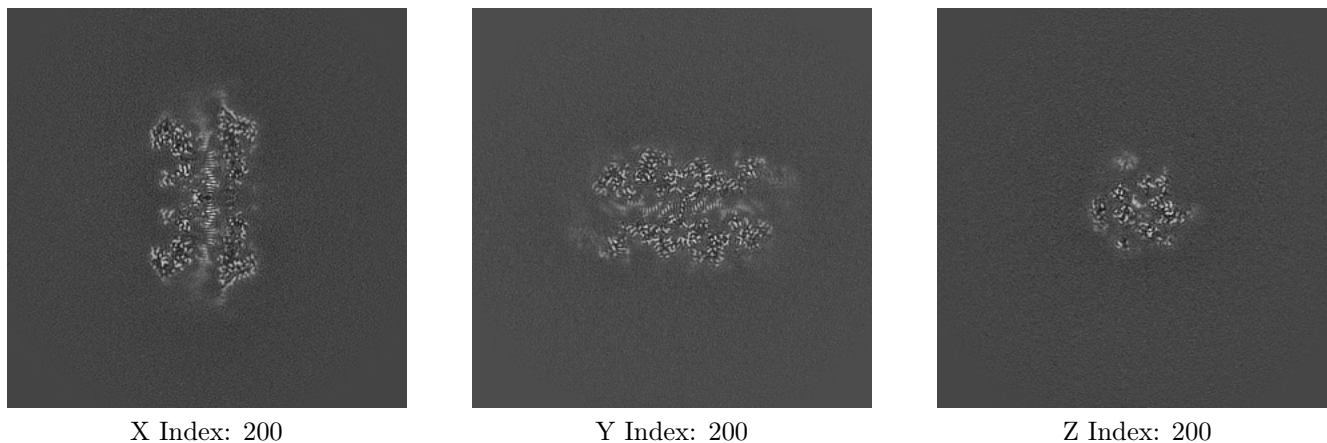
6.1.1 Primary map



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

6.2 Central slices [i](#)

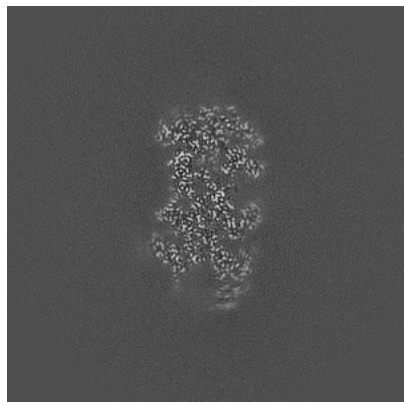
6.2.1 Primary map



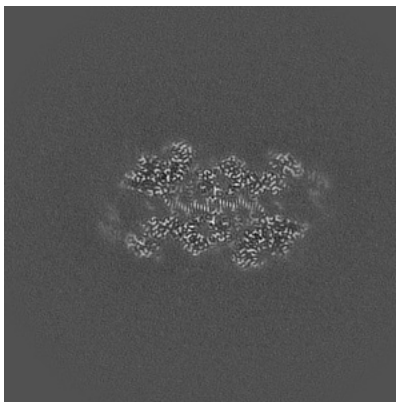
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

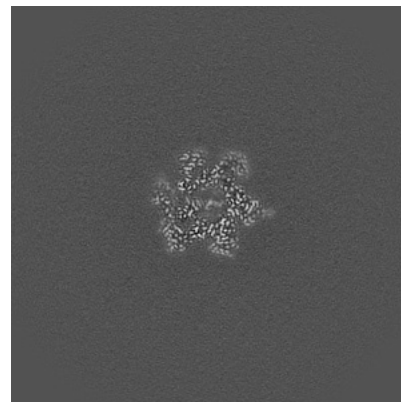
6.3.1 Primary map



X Index: 183



Y Index: 205

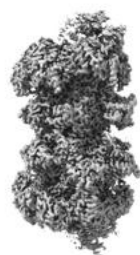


Z Index: 233

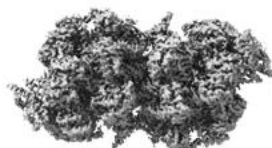
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

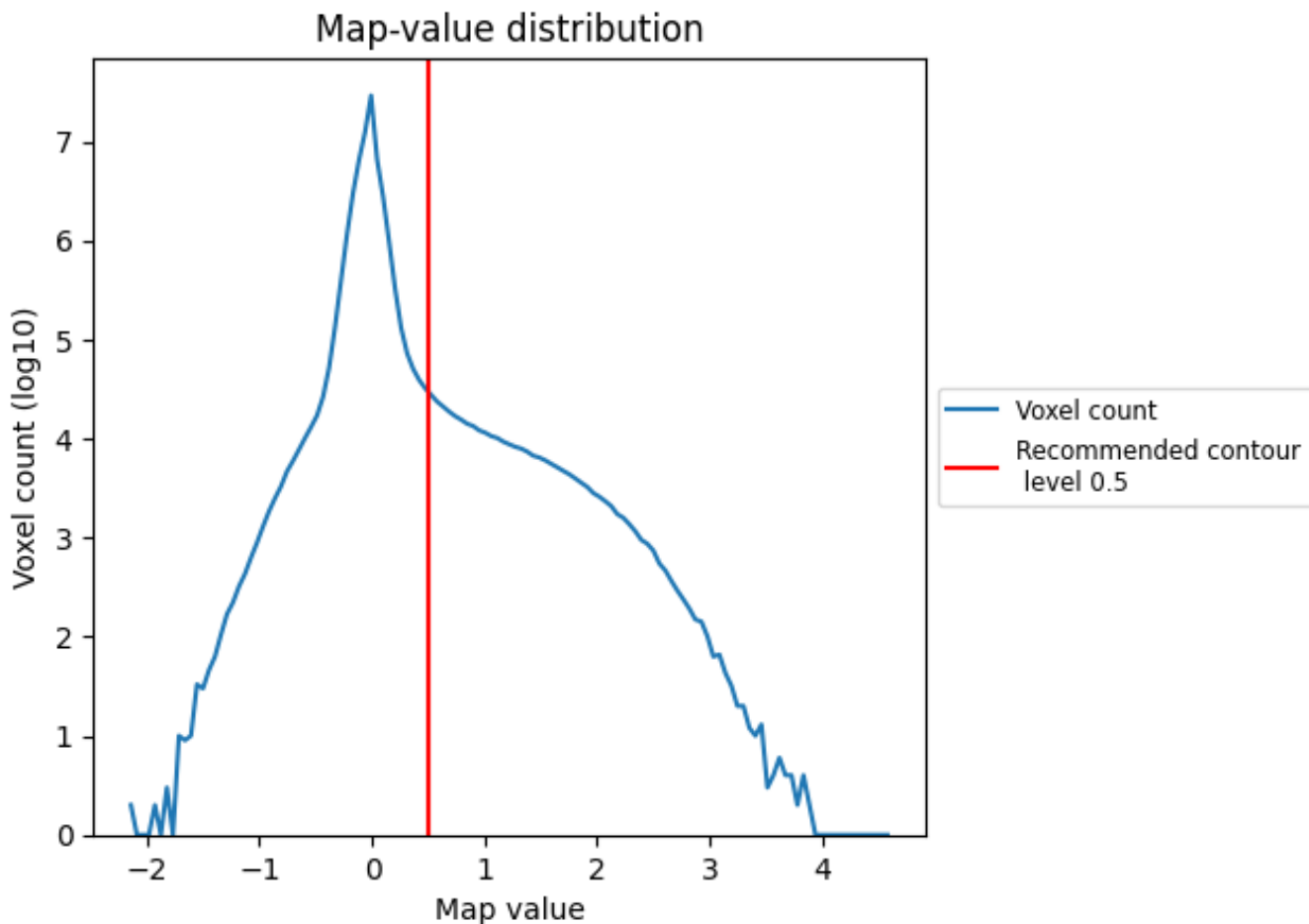
6.5 Mask visualisation

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

7 Map analysis [i](#)

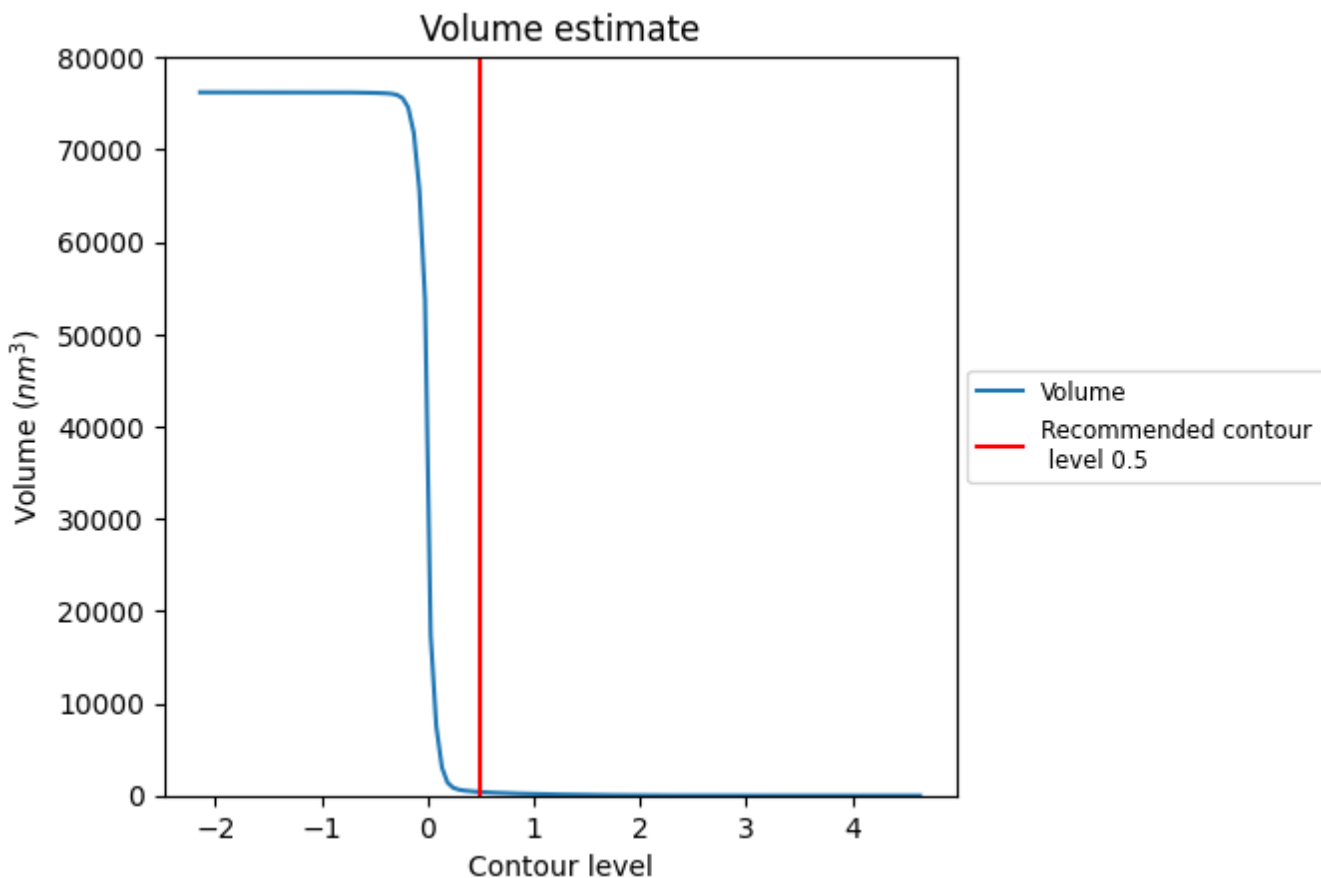
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

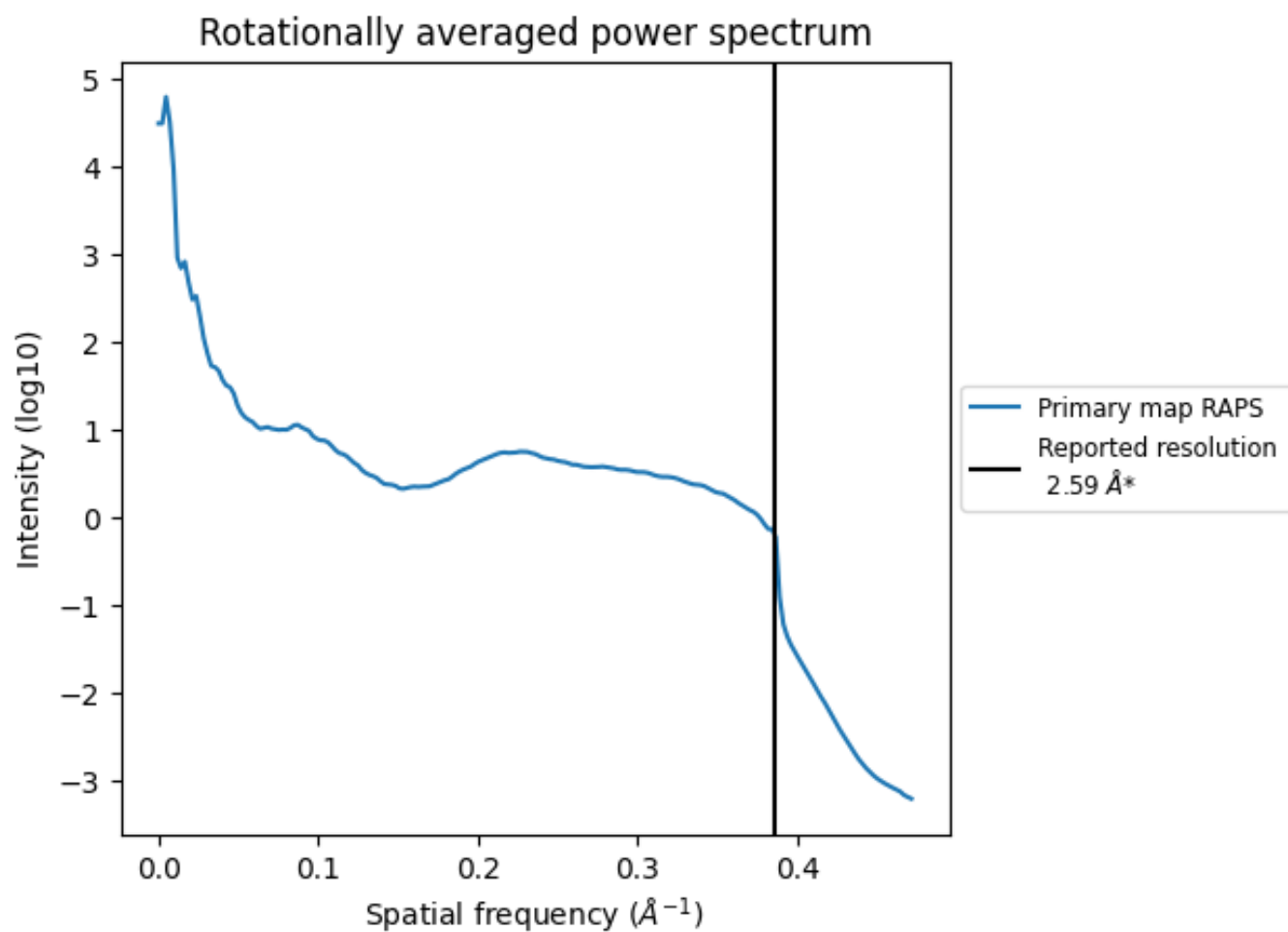
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 385 nm³; this corresponds to an approximate mass of 348 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)



*Reported resolution corresponds to spatial frequency of 0.386\AA^{-1}

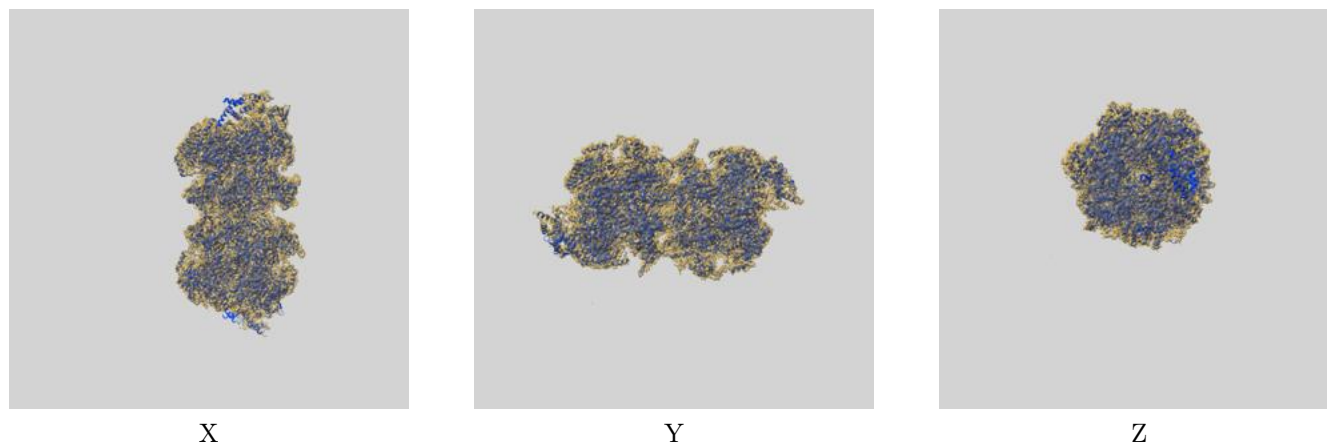
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

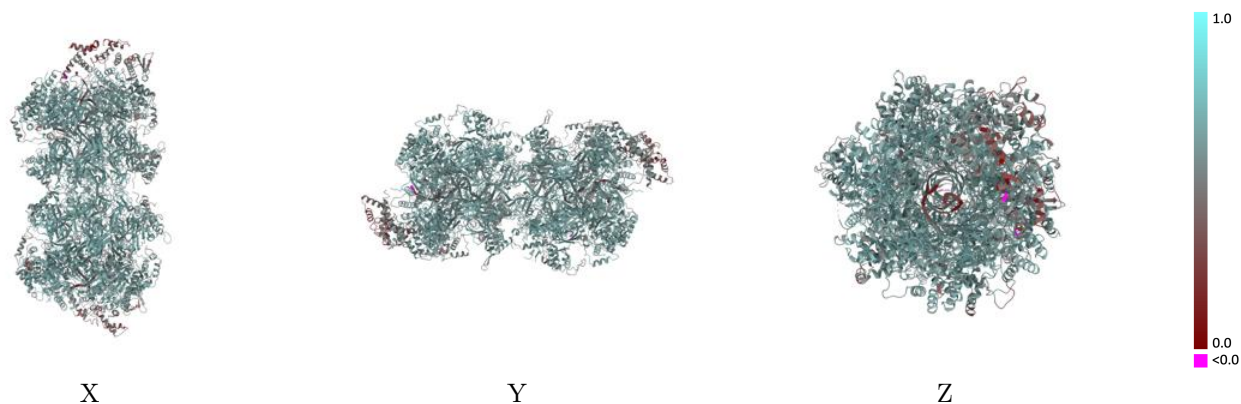
This section contains information regarding the fit between EMDB map EMD-32258 and PDB model 7W1Y. Per-residue inclusion information can be found in section [3](#) on page [9](#).

9.1 Map-model overlay [i](#)



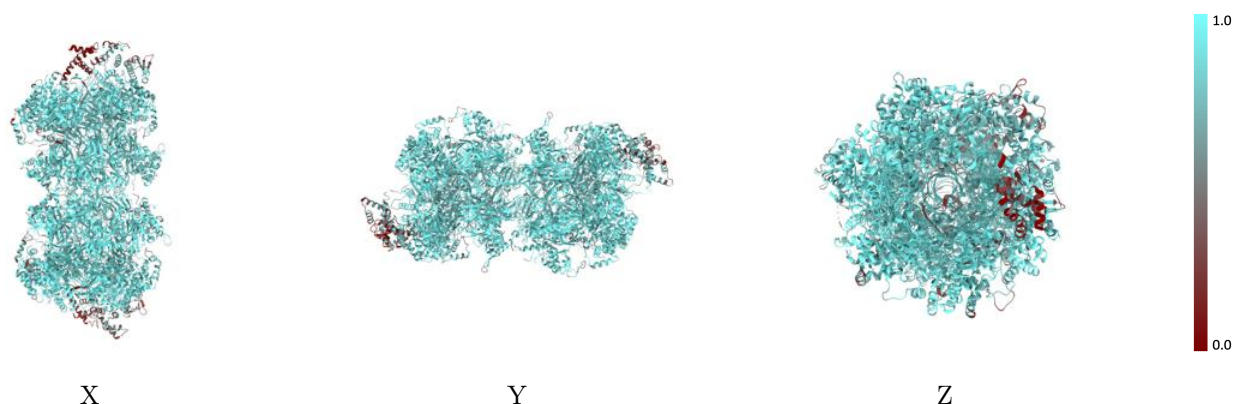
The images above show the 3D surface view of the map at the recommended contour level 0.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



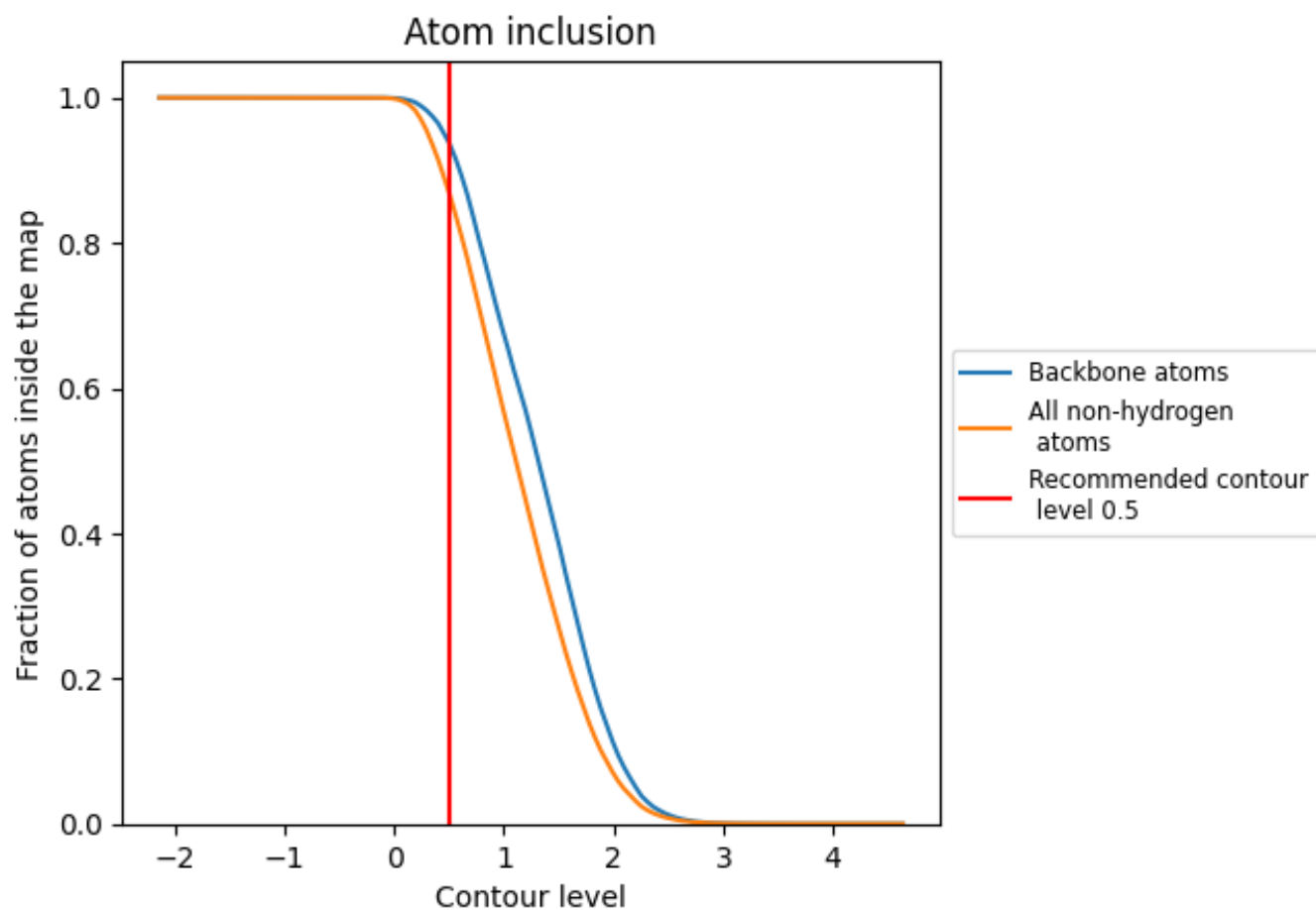
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.5).































9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 87% 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 (0.5) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|---|---|
| All |  0.8698 |  0.5950 |
| 2 |  0.8419 |  0.5760 |
| 3 |  0.8934 |  0.6120 |
| 4 |  0.9096 |  0.6170 |
| 5 |  0.8109 |  0.5810 |
| 6 |  0.8528 |  0.5870 |
| 7 |  0.9062 |  0.6190 |
| A |  0.8572 |  0.5760 |
| B |  0.8893 |  0.6080 |
| C |  0.9129 |  0.6170 |
| D |  0.8297 |  0.5870 |
| E |  0.8720 |  0.5900 |
| F |  0.9035 |  0.6160 |
| O |  0.8222 |  0.5120 |
| S |  0.7673 |  0.5190 |

