# Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 05:01 pm GMT

| | | |
|---|---|---|
| PDB ID | : | 4ADV |
| EMDB ID | : | EMD-2017 |
| Title | : | Structure of the E. coli methyltransferase KsgA bound to the E. coli 30S ribosomal subunit |
| Authors | : | Boehringer, D.; O'Farrell, H.C.; Rife, J.P.; Ban, N. |
| Deposited on | : | 2012-01-03 |
| Resolution | : | 13.50 Å(reported) |
| Based on initial models | : | 2AVY, 1QYR |

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.

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

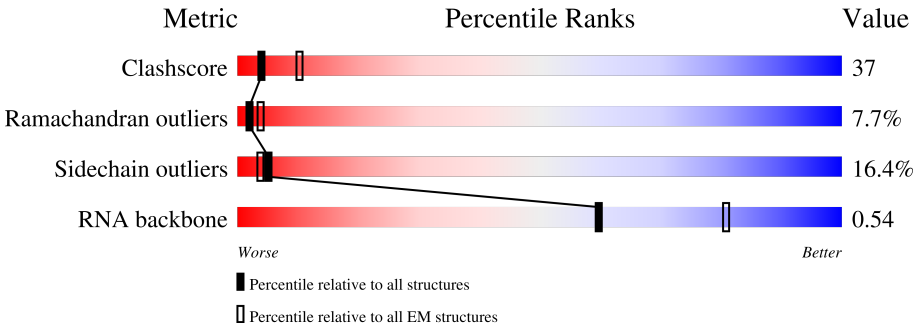
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev43 |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| MapQ | : | 1.9.9 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.31.2 |

# 1 Overall quality at a glance

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

The reported resolution of this entry is 13.50 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 |
| RNA backbone | 4643 | 859 |

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

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 1542 | 6% 23% 55% 13% 9% |
| 2 | B | 240 | 45% 19% 52% 19% • 9% |
| 3 | C | 232 | 76% 27% 48% 13% • 11% |
| 4 | D | 205 | 27% 27% 53% 19% • |
| 5 | E | 166 | 48% 28% 50% 11% • 10% |
| 6 | F | 135 | 13% 24% 37% 11% • 26% |
| 7 | G | 178 | 42% 26% 46% 11% • 16% |

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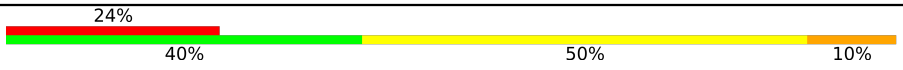
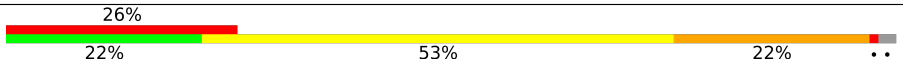
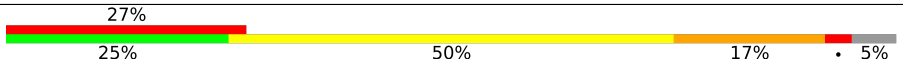
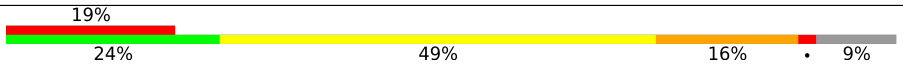
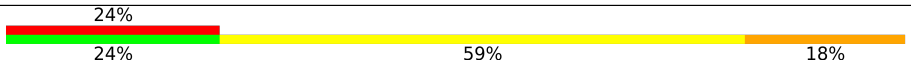
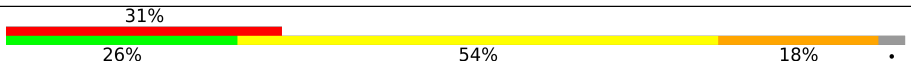
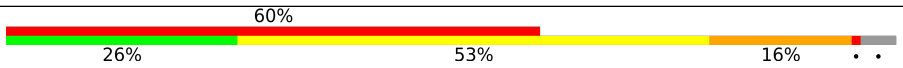
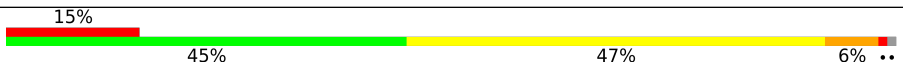
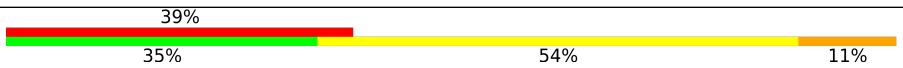
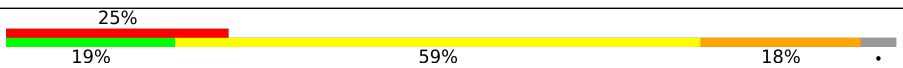
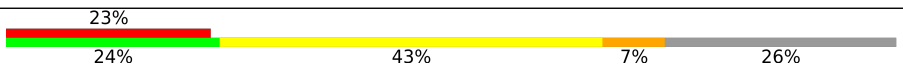
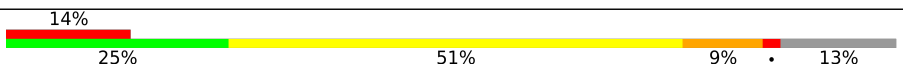
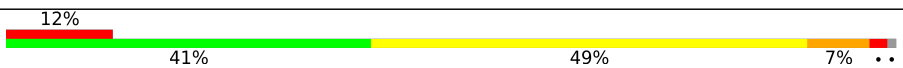
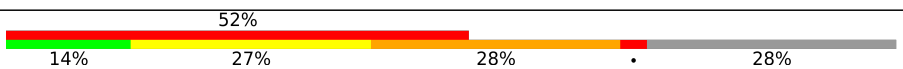
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 8 | H | 129 |   |
| 9 | I | 129 |   |
| 10 | J | 103 |   |
| 11 | K | 128 |   |
| 12 | L | 123 |   |
| 13 | M | 117 |   |
| 14 | N | 100 |   |
| 15 | O | 89 |   |
| 16 | P | 82 |   |
| 17 | Q | 83 |   |
| 18 | R | 74 |   |
| 19 | S | 91 |   |
| 20 | T | 86 |   |
| 21 | U | 71 |   |
| 22 | V | 252 |   |

# 2 Entry composition (i)

There are 23 unique types of molecules in this entry. The entry contains 50888 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 RNA chain called 16S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 1 | A | 1410 | 30262 | 13496 | 5559 | 9797 | 1410 | 0 | 0 |

- Molecule 2 is a protein called 30S RIBOSOMAL PROTEIN S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 2 | B | 218 | 1704 | 1081 | 305 | 311 | 7 | 0 | 0 |

- Molecule 3 is a protein called 30S RIBOSOMAL PROTEIN S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | C | 206 | 1624 | 1028 | 305 | 288 | 3 | 0 | 0 |

- Molecule 4 is a protein called 30S RIBOSOMAL PROTEIN S4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | D | 205 | 1643 | 1026 | 315 | 298 | 4 | 0 | 0 |

- Molecule 5 is a protein called 30S RIBOSOMAL PROTEIN S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | E | 150 | 1105 | 687 | 211 | 201 | 6 | 0 | 0 |

- Molecule 6 is a protein called 30S RIBOSOMAL PROTEIN S6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | F | 100 | 817 | 515 | 148 | 148 | 6 | 0 | 0 |

- Molecule 7 is a protein called 30S RIBOSOMAL PROTEIN S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | G | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1174 | 730 | 226 | 214 | 4 | | |

- Molecule 8 is a protein called 30S RIBOSOMAL PROTEIN S8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | H | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 979 | 616 | 173 | 184 | 6 | | |

- Molecule 9 is a protein called 30S RIBOSOMAL PROTEIN S9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | I | 127 | Total | C | N | O | S | 0 | 0 |
| | | | 1022 | 634 | 206 | 179 | 3 | | |

- Molecule 10 is a protein called 30S RIBOSOMAL PROTEIN S10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | J | 98 | Total | C | N | O | S | 0 | 0 |
| | | | 786 | 493 | 150 | 142 | 1 | | |

- Molecule 11 is a protein called 30S RIBOSOMAL PROTEIN S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | K | 117 | Total | C | N | O | S | 0 | 0 |
| | | | 877 | 540 | 174 | 160 | 3 | | |

- Molecule 12 is a protein called 30S RIBOSOMAL PROTEIN S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | L | 123 | Total | C | N | O | S | 0 | 0 |
| | | | 955 | 590 | 196 | 165 | 4 | | |

- Molecule 13 is a protein called 30S RIBOSOMAL PROTEIN S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | M | 114 | Total | C | N | O | S | 0 | 0 |
| | | | 883 | 546 | 178 | 156 | 3 | | |

- Molecule 14 is a protein called 30S RIBOSOMAL PROTEIN S14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | N | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 774 | 483 | 160 | 128 | 3 | | |

- Molecule 15 is a protein called 30S RIBOSOMAL PROTEIN S15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | O | 88 | Total | C | N | O | S | 0 | 0 |
| | | | 716 | 440 | 146 | 129 | 1 | | |

- Molecule 16 is a protein called 30S RIBOSOMAL PROTEIN S16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | P | 82 | Total | C | N | O | S | 0 | 0 |
| | | | 649 | 406 | 128 | 114 | 1 | | |

- Molecule 17 is a protein called 30S RIBOSOMAL PROTEIN S17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | Q | 80 | Total | C | N | O | S | 0 | 0 |
| | | | 648 | 411 | 121 | 113 | 3 | | |

- Molecule 18 is a protein called 30S RIBOSOMAL PROTEIN S18.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 18 | R | 55 | Total | C | N | O | 0 | 0 |
| | | | 455 | 288 | 86 | 81 | | |

- Molecule 19 is a protein called 30S RIBOSOMAL PROTEIN S19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | S | 79 | Total | C | N | O | S | 0 | 0 |
| | | | 637 | 408 | 120 | 107 | 2 | | |

- Molecule 20 is a protein called 30S RIBOSOMAL PROTEIN S20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | T | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 665 | 411 | 137 | 114 | 3 | | |

- Molecule 21 is a protein called 30S RIBOSOMAL PROTEIN S21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | U | 51 | Total | C | N | O | S | 0 | 0 |
| | | | 425 | 265 | 86 | 73 | 1 | | |

- Molecule 22 is a protein called RIBOSOMAL RNA SMALL SUBUNIT METHYLTRANSFERASE A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | V | 252 | Total | C | N | O | S | 0 | 0 |
| | | | 1949 | 1241 | 336 | 359 | 13 | | |

- Molecule 23 is water.

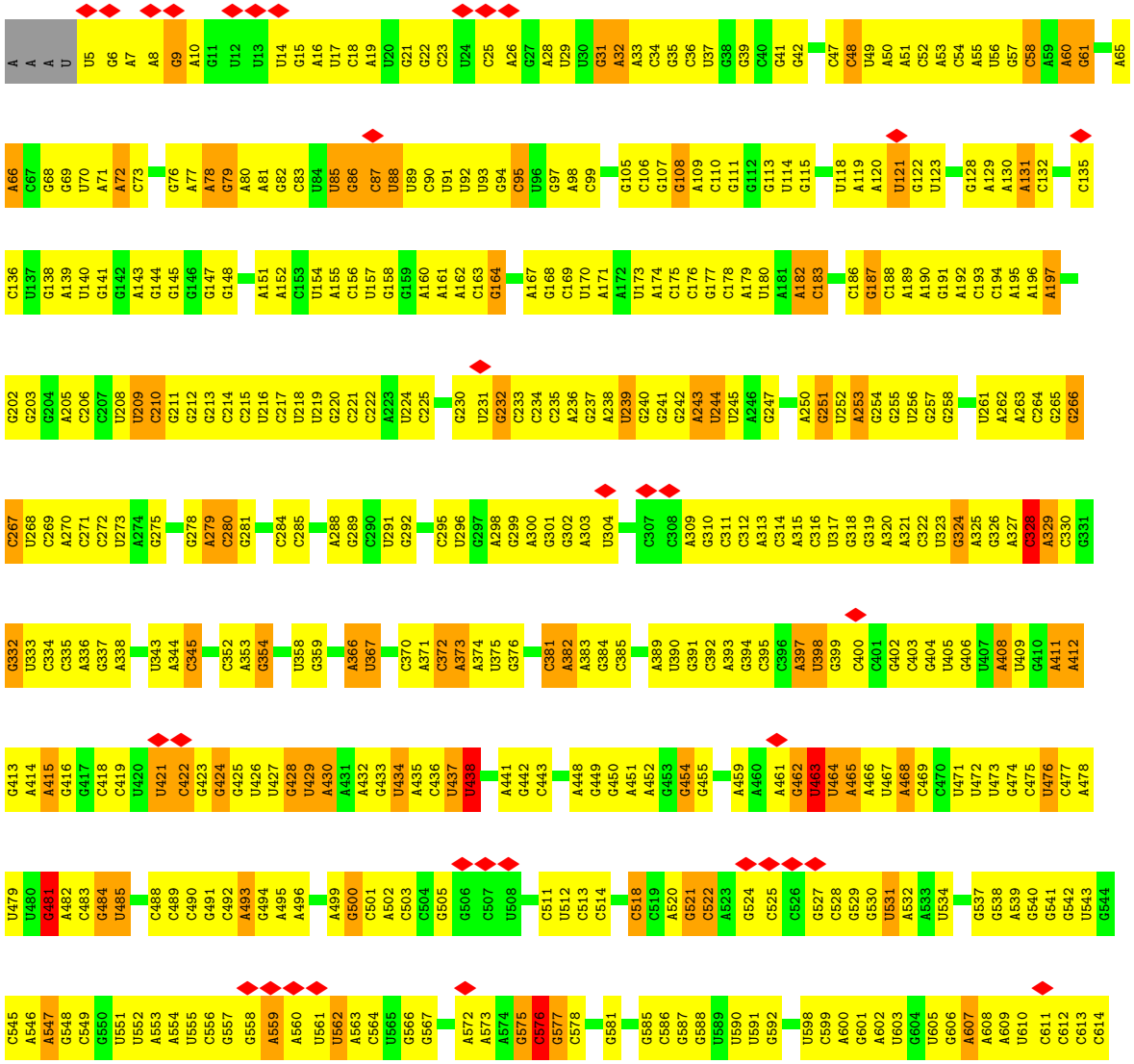
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 23 | V | 139 | Total | O | 0 |
| | | | 139 | 139 | |

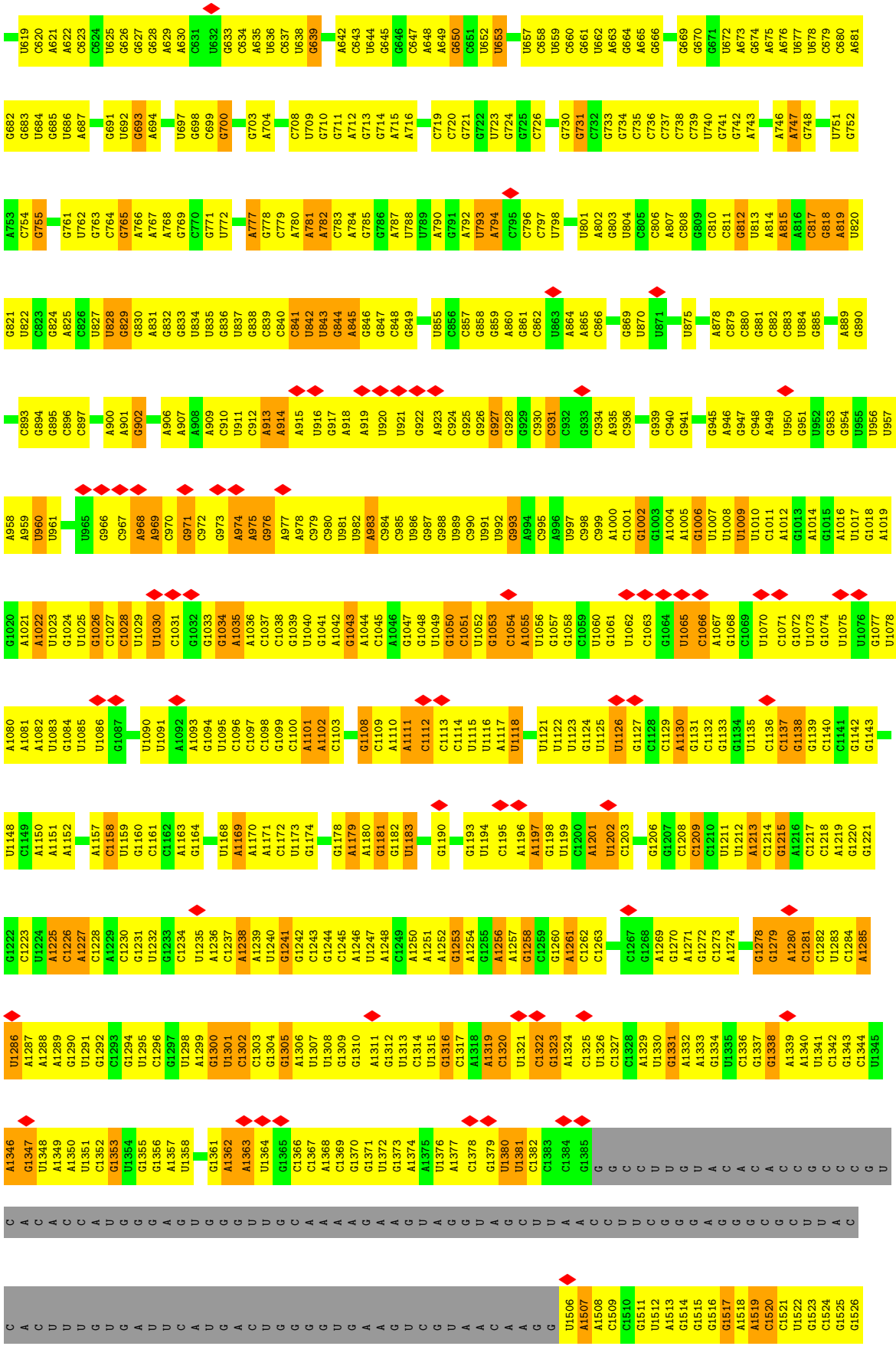
# 3 Residue-property plots (i)

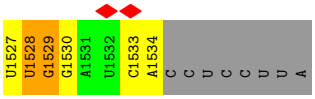
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 16S RIBOSOMAL RNA

Chain A:

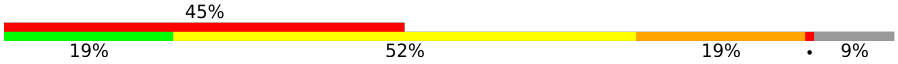



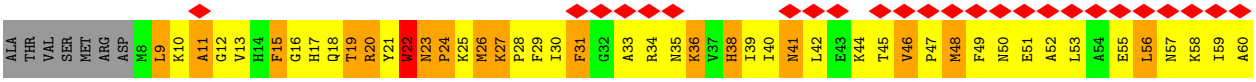


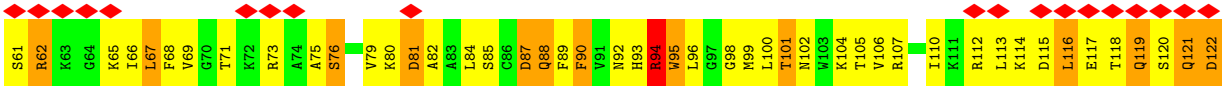


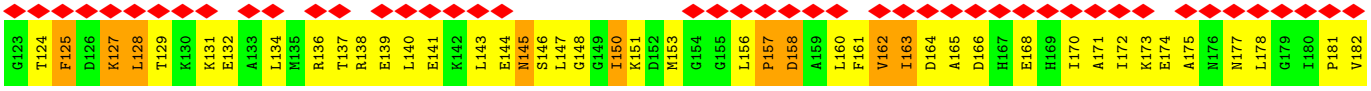

• Molecule 2: 30S RIBOSOMAL PROTEIN S2

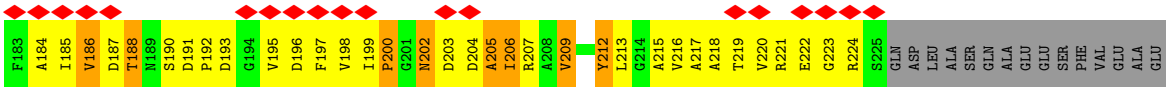
Chain B:



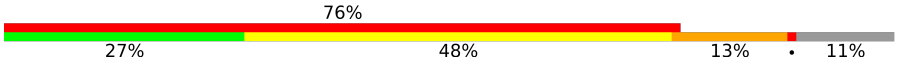



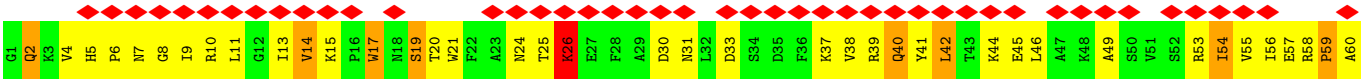



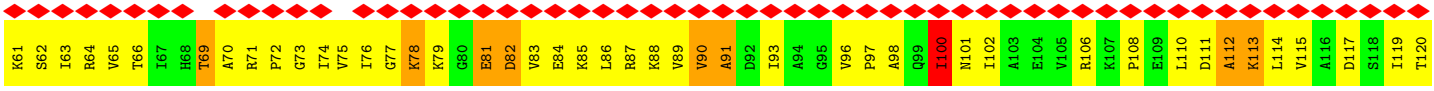



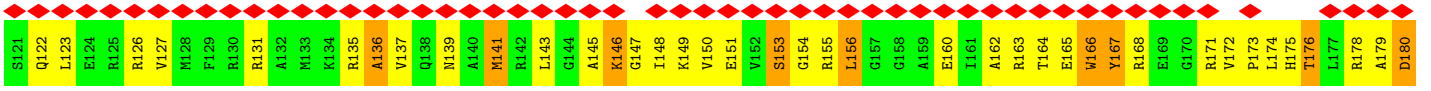

• Molecule 3: 30S RIBOSOMAL PROTEIN S3

Chain C:



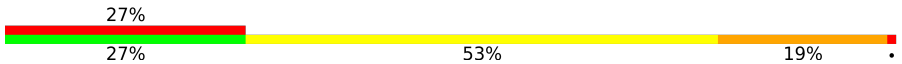



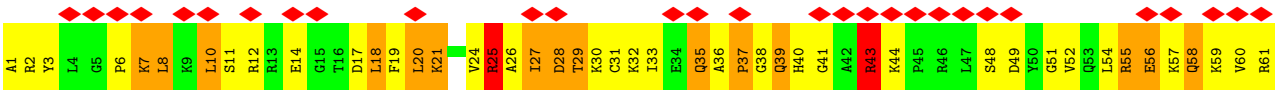



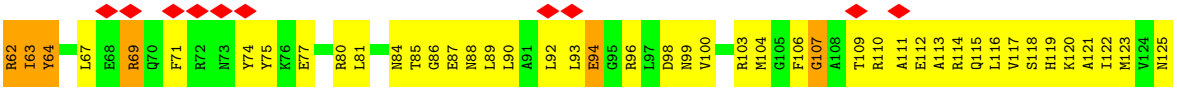


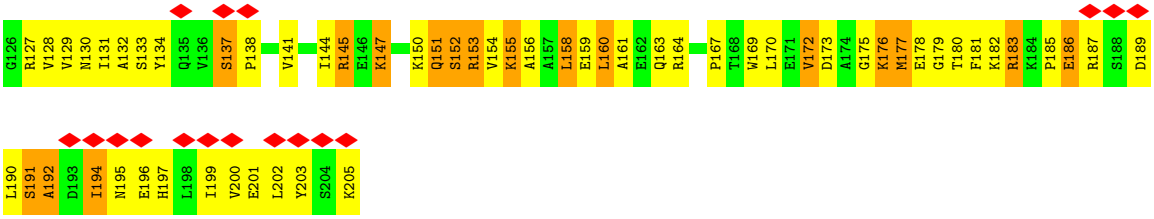
• Molecule 4: 30S RIBOSOMAL PROTEIN S4

Chain D:



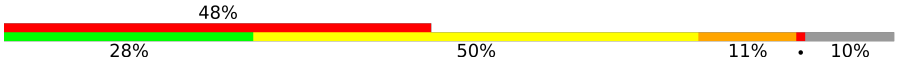



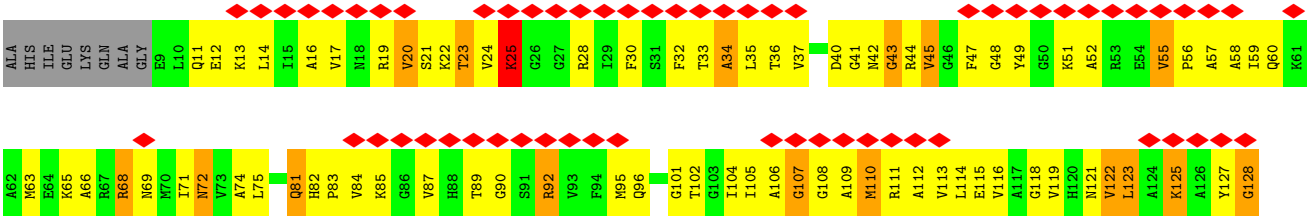






• Molecule 5: 30S RIBOSOMAL PROTEIN S5

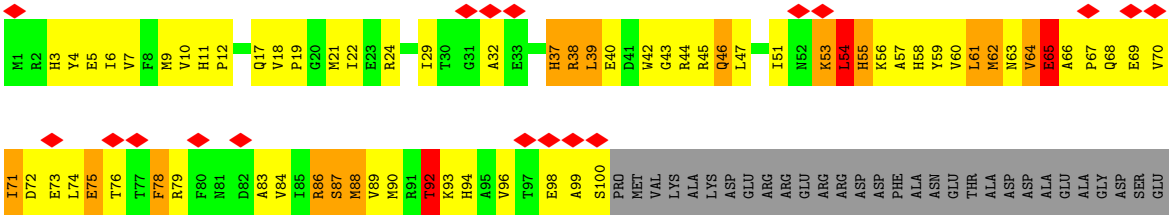
Chain E:



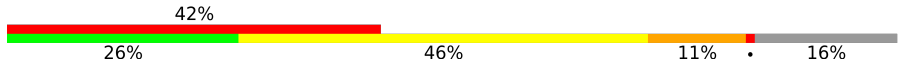

• Molecule 6: 30S RIBOSOMAL PROTEIN S6

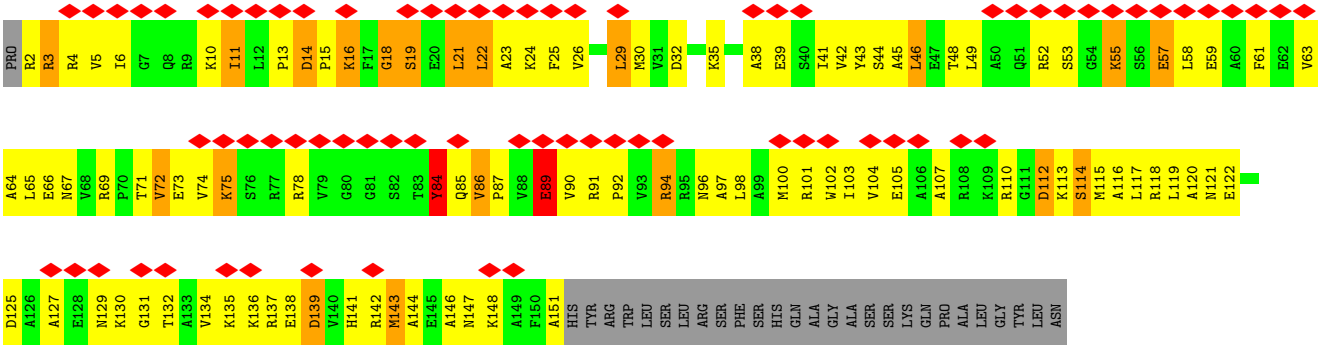
Chain F:


• Molecule 7: 30S RIBOSOMAL PROTEIN S7

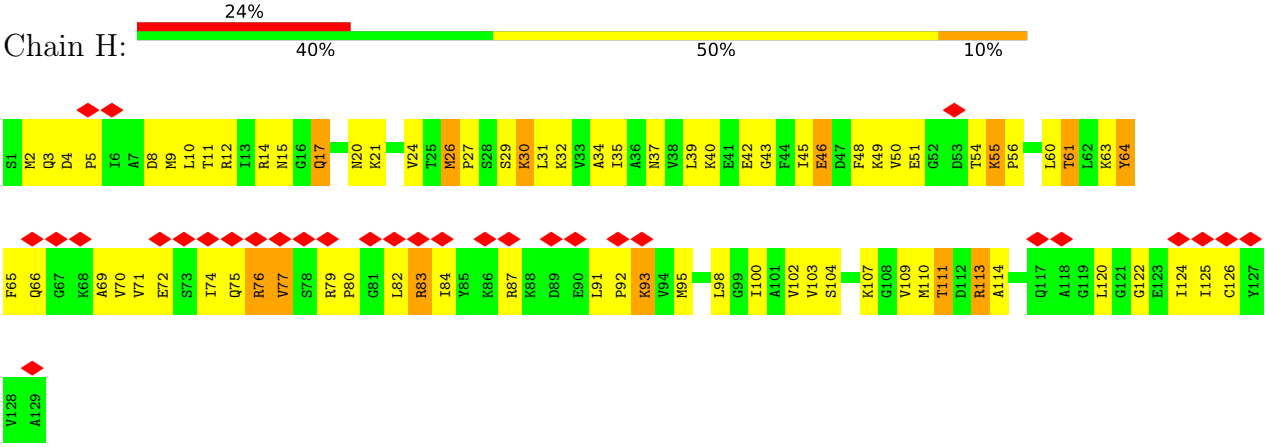
Chain G:



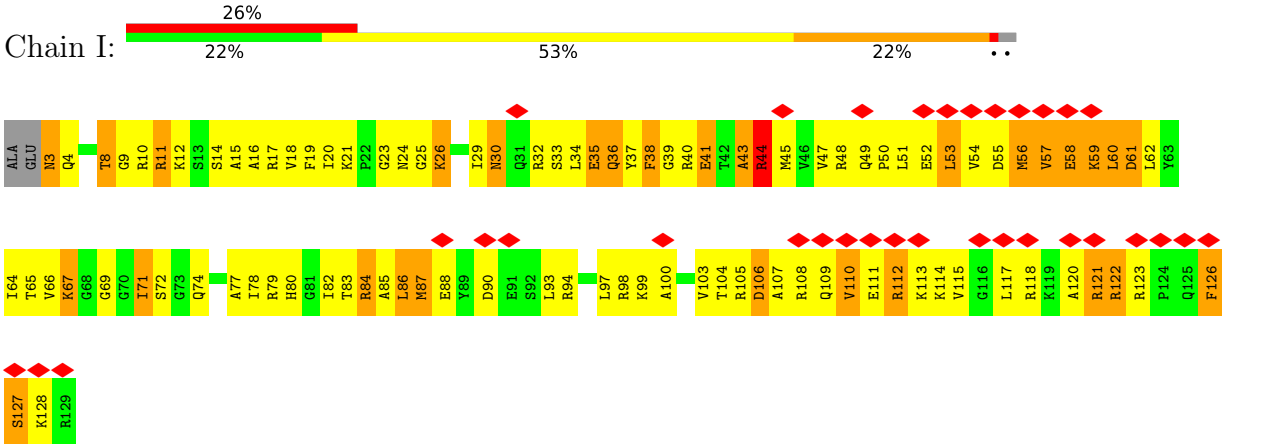
• Molecule 8: 30S RIBOSOMAL PROTEIN S8

Chain H:



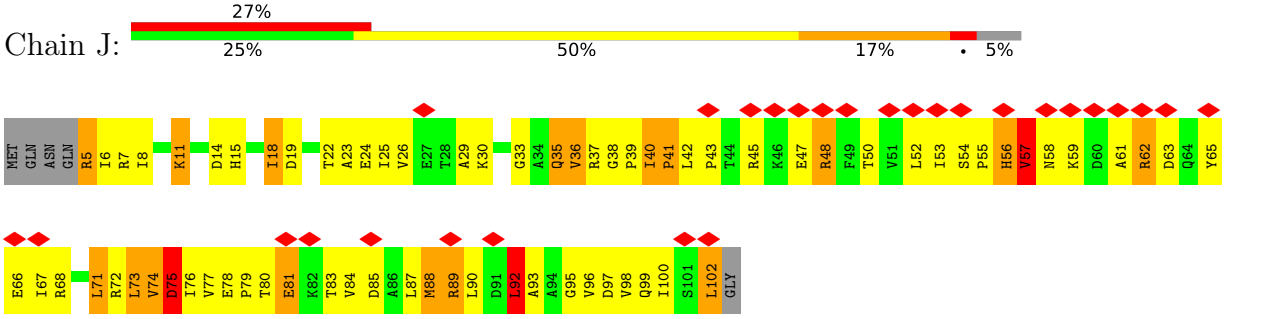

• Molecule 9: 30S RIBOSOMAL PROTEIN S9

Chain I:



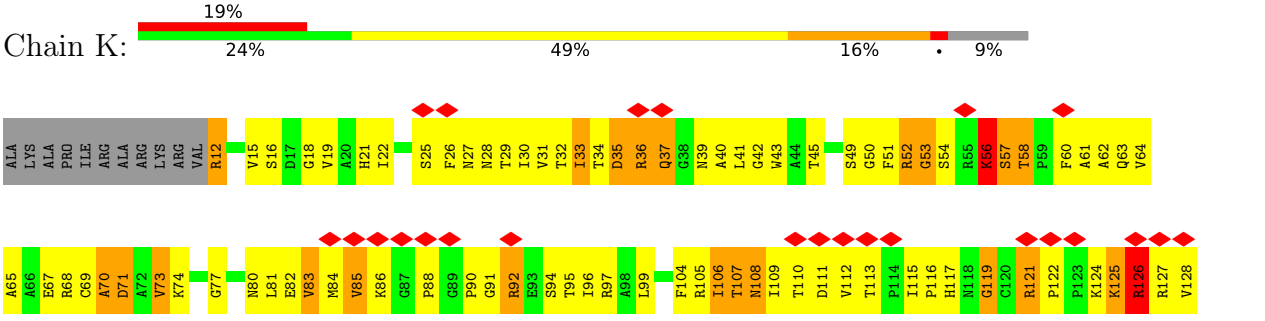

• Molecule 10: 30S RIBOSOMAL PROTEIN S10

Chain J:



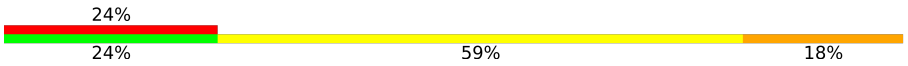

• Molecule 11: 30S RIBOSOMAL PROTEIN S11

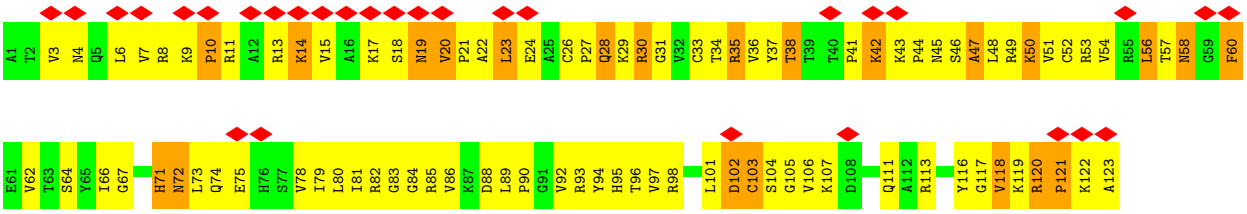
Chain K:



• Molecule 12: 30S RIBOSOMAL PROTEIN S12

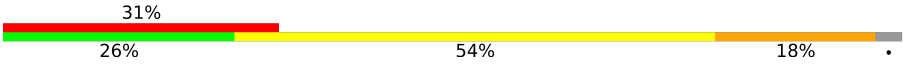
Chain L:

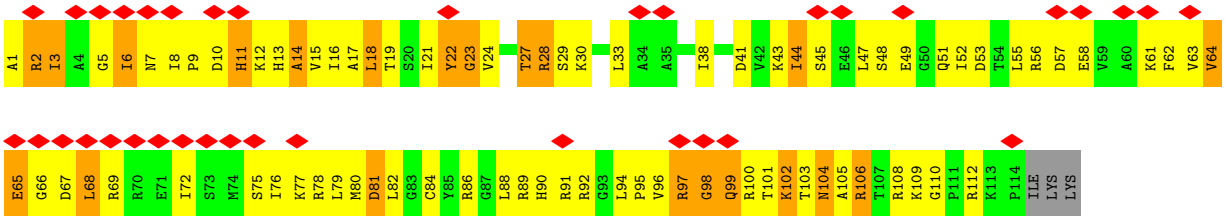


• Molecule 13: 30S RIBOSOMAL PROTEIN S13

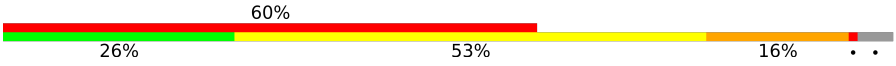
Chain M:

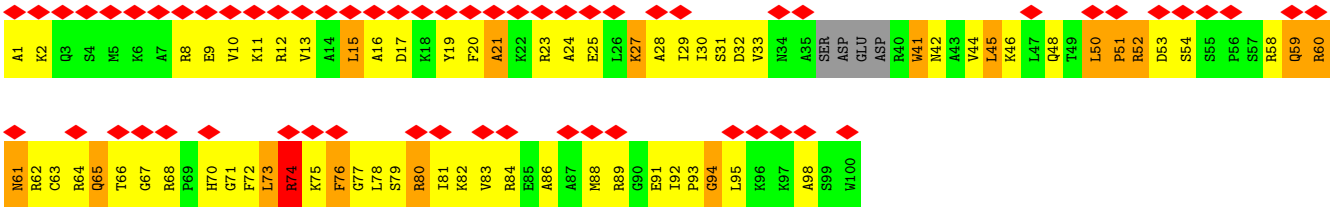


• Molecule 14: 30S RIBOSOMAL PROTEIN S14

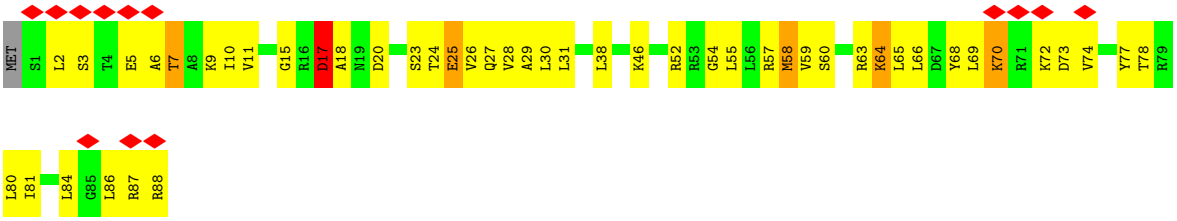
Chain N:



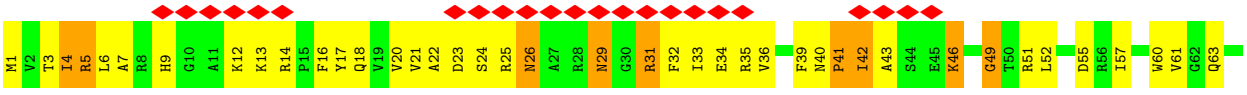
• Molecule 15: 30S RIBOSOMAL PROTEIN S15

Chain O:

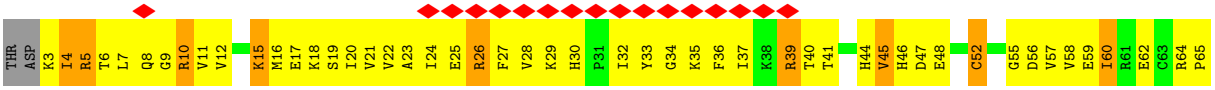



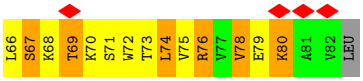
• Molecule 16: 30S RIBOSOMAL PROTEIN S16

Chain P:

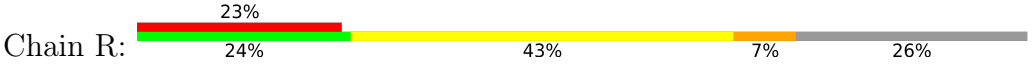



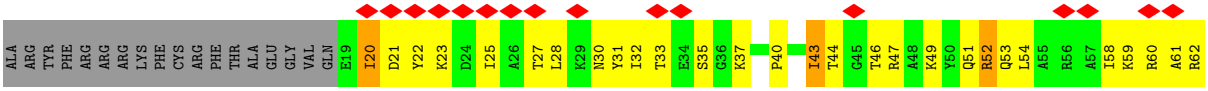

• Molecule 17: 30S RIBOSOMAL PROTEIN S17

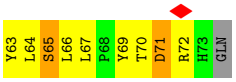



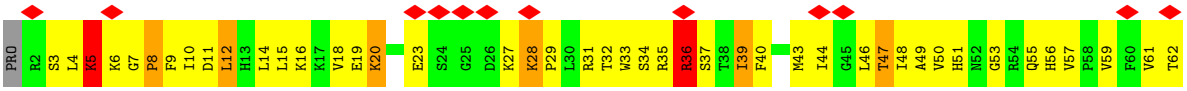

• Molecule 18: 30S RIBOSOMAL PROTEIN S18

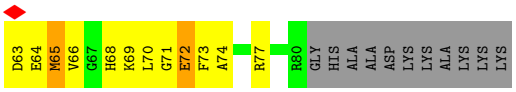


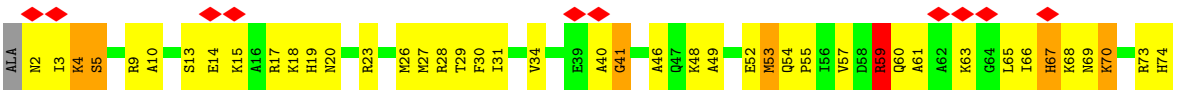



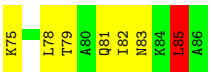

• Molecule 19: 30S RIBOSOMAL PROTEIN S19

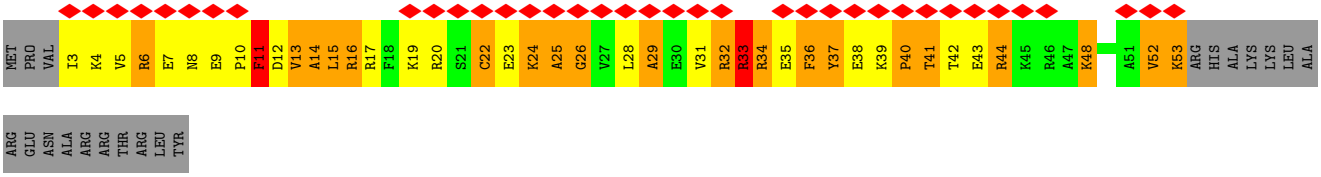




• Molecule 20: 30S RIBOSOMAL PROTEIN S20

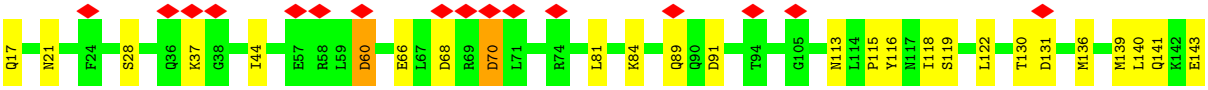



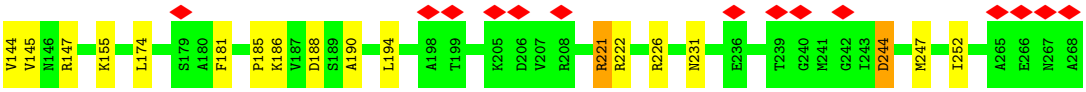

• Molecule 21: 30S RIBOSOMAL PROTEIN S21




• Molecule 22: RIBOSOMAL RNA SMALL SUBUNIT METHYLTRANSFERASE A

Chain V:

# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 23343 | Depositor |
| Resolution determination method | Not provided | |
| CTF correction method | PER IMAGE, CTFFIND3 | Depositor |
| Microscope | FEI TECNAI 20 | Depositor |
| Voltage (kV) | 200 | Depositor |
| Electron dose ($e^-/Å^2$) | 20 | Depositor |
| Minimum defocus (nm) | 2000 | Depositor |
| Maximum defocus (nm) | 4000 | Depositor |
| Magnification | 82000 | Depositor |
| Image detector | GATAN ULTRASCAN 4000 (4k x 4k) | Depositor |
| Maximum map value | 615.226 | Depositor |
| Minimum map value | -195.405 | Depositor |
| Average map value | -10.220 | Depositor |
| Map value standard deviation | 23.595 | Depositor |
| Recommended contour level | 39.0 | Depositor |
| Map size (Å) | 392.96, 392.96, 392.96 | wwPDB |
| Map dimensions | 128, 128, 128 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 3.07, 3.07, 3.07 | Depositor |

# 5 Model quality (i)

## 5.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #$\|Z\|$ >5 | RMSZ | #$\|Z\|$ >5 |
| 1 | A | 0.27 | 2/33885 (0.0%) | 0.75 | 7/52858 (0.0%) |
| 2 | B | 0.25 | 0/1735 | 0.47 | 0/2338 |
| 3 | C | 0.23 | 0/1651 | 0.45 | 0/2225 |
| 4 | D | 0.23 | 0/1665 | 0.46 | 0/2227 |
| 5 | E | 0.23 | 0/1118 | 0.45 | 0/1504 |
| 6 | F | 0.25 | 0/835 | 0.48 | 0/1128 |
| 7 | G | 0.23 | 0/1187 | 0.44 | 0/1591 |
| 8 | H | 0.23 | 0/989 | 0.45 | 0/1326 |
| 9 | I | 0.24 | 0/1034 | 0.45 | 0/1375 |
| 10 | J | 0.23 | 0/796 | 0.49 | 0/1077 |
| 11 | K | 0.24 | 0/893 | 0.46 | 0/1205 |
| 12 | L | 0.22 | 0/969 | 0.47 | 0/1300 |
| 13 | M | 0.21 | 0/892 | 0.48 | 0/1193 |
| 14 | N | 0.25 | 0/785 | 0.46 | 0/1043 |
| 15 | O | 0.23 | 0/724 | 0.45 | 0/966 |
| 16 | P | 0.26 | 0/659 | 0.44 | 0/884 |
| 17 | Q | 0.24 | 0/657 | 0.46 | 0/881 |
| 18 | R | 0.23 | 0/462 | 0.46 | 0/621 |
| 19 | S | 0.25 | 0/652 | 0.46 | 0/877 |
| 20 | T | 0.24 | 0/671 | 0.41 | 0/888 |
| 21 | U | 1.01 | 4/430 (0.9%) | 0.74 | 2/570 (0.4%) |
| 22 | V | 0.62 | 0/1991 | 0.80 | 7/2710 (0.3%) |
| All | All | 0.29 | 6/54680 (0.0%) | 0.68 | 16/80787 (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 |
|---|---|---|---|
| 1 | A | 0 | 15 |
| 21 | U | 0 | 1 |
| All | All | 0 | 16 |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 21 | U | 15 | LEU | C-N | -15.01 | 0.99 | 1.34 |
| 21 | U | 25 | ALA | C-N | -9.28 | 1.16 | 1.33 |
| 1 | A | 463 | U | O3'-P | -6.70 | 1.53 | 1.61 |
| 21 | U | 29 | ALA | C-N | 6.63 | 1.49 | 1.34 |
| 21 | U | 11 | PHE | C-N | -5.36 | 1.21 | 1.34 |
| 1 | A | 495 | A | N3-C4 | -5.07 | 1.31 | 1.34 |

All (16) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 765 | G | N9-C1'-C2' | -8.16 | 103.02 | 112.00 |
| 22 | V | 221 | ARG | NE-CZ-NH2 | -6.96 | 116.82 | 120.30 |
| 1 | A | 438 | U | N1-C1'-C2' | -6.29 | 105.08 | 112.00 |
| 22 | V | 221 | ARG | NE-CZ-NH1 | 6.22 | 123.41 | 120.30 |
| 1 | A | 232 | G | C5'-C4'-C3' | -6.21 | 106.07 | 116.00 |
| 1 | A | 66 | A | N9-C1'-C2' | -5.98 | 105.42 | 112.00 |
| 22 | V | 244 | ASP | CB-CG-OD1 | 5.93 | 123.64 | 118.30 |
| 22 | V | 60 | ASP | CB-CG-OD1 | 5.90 | 123.61 | 118.30 |
| 21 | U | 15 | LEU | C-N-CA | 5.77 | 136.12 | 121.70 |
| 1 | A | 328 | C | C2'-C3'-O3' | 5.49 | 122.48 | 113.70 |
| 21 | U | 11 | PHE | CA-C-N | -5.46 | 105.19 | 117.20 |
| 22 | V | 70 | ASP | CB-CG-OD2 | 5.43 | 123.19 | 118.30 |
| 1 | A | 1118 | U | C5'-C4'-C3' | -5.23 | 107.63 | 116.00 |
| 22 | V | 131 | ASP | CB-CG-OD2 | 5.21 | 122.99 | 118.30 |
| 22 | V | 188 | ASP | CB-CG-OD2 | 5.01 | 122.81 | 118.30 |
| 1 | A | 576 | C | C5'-C4'-O4' | 5.00 | 115.10 | 109.10 |

There are no chirality outliers.

All (16) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 1 | A | 1006 | G | Sidechain |
| 1 | A | 1028 | C | Sidechain |
| 1 | A | 1319 | A | Sidechain |
| 1 | A | 1331 | G | Sidechain |
| 1 | A | 187 | G | Sidechain |
| 1 | A | 281 | G | Sidechain |
| 1 | A | 437 | U | Sidechain |
| 1 | A | 438 | U | Sidechain |
| 1 | A | 454 | G | Sidechain |
| 1 | A | 481 | G | Sidechain |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 1 | A | 496 | A | Sidechain |
| 1 | A | 521 | G | Sidechain |
| 1 | A | 575 | G | Sidechain |
| 1 | A | 58 | C | Sidechain |
| 1 | A | 703 | G | Sidechain |
| 21 | U | 11 | PHE | Mainchain |

## 5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 30262 | 0 | 15198 | 1460 | 0 |
| 2 | B | 1704 | 0 | 1720 | 428 | 0 |
| 3 | C | 1624 | 0 | 1699 | 158 | 0 |
| 4 | D | 1643 | 0 | 1710 | 176 | 0 |
| 5 | E | 1105 | 0 | 1145 | 170 | 0 |
| 6 | F | 817 | 0 | 808 | 76 | 0 |
| 7 | G | 1174 | 0 | 1230 | 100 | 0 |
| 8 | H | 979 | 0 | 1032 | 81 | 0 |
| 9 | I | 1022 | 0 | 1070 | 141 | 0 |
| 10 | J | 786 | 0 | 828 | 96 | 0 |
| 11 | K | 877 | 0 | 887 | 107 | 0 |
| 12 | L | 955 | 0 | 1019 | 103 | 0 |
| 13 | M | 883 | 0 | 944 | 84 | 0 |
| 14 | N | 774 | 0 | 827 | 92 | 0 |
| 15 | O | 716 | 0 | 742 | 50 | 0 |
| 16 | P | 649 | 0 | 666 | 78 | 0 |
| 17 | Q | 648 | 0 | 691 | 81 | 0 |
| 18 | R | 455 | 0 | 478 | 39 | 0 |
| 19 | S | 637 | 0 | 665 | 78 | 0 |
| 20 | T | 665 | 0 | 714 | 53 | 0 |
| 21 | U | 425 | 0 | 447 | 102 | 0 |
| 22 | V | 1949 | 0 | 1949 | 46 | 0 |
| 23 | V | 139 | 0 | 0 | 11 | 0 |
| All | All | 50888 | 0 | 36469 | 3247 | 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 37.

All (3247) 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) |
|---|---|---|---|
| 1:A:870:U:C6 | 2:B:27:LYS:HD3 | 1.28 | 1.64 |
| 1:A:829:G:C3' | 2:B:30:ILE:HG12 | 1.18 | 1.62 |
| 1:A:830:G:C4 | 2:B:22:TRP:HB3 | 1.40 | 1.53 |
| 1:A:17:U:C5' | 1:A:1079:G:H5' | 1.39 | 1.49 |
| 1:A:830:G:C5 | 2:B:22:TRP:HB3 | 1.47 | 1.49 |
| 1:A:17:U:H5' | 1:A:1079:G:C4' | 1.00 | 1.47 |
| 1:A:17:U:H5' | 1:A:1079:G:C5' | 1.46 | 1.45 |
| 1:A:17:U:C5' | 1:A:1079:G:C5' | 1.94 | 1.44 |
| 1:A:829:G:C4' | 2:B:30:ILE:HG12 | 1.24 | 1.43 |
| 1:A:829:G:C4' | 2:B:30:ILE:CG1 | 1.91 | 1.43 |
| 1:A:17:U:C5' | 1:A:1079:G:C4' | 1.95 | 1.42 |
| 1:A:1082:A:H8 | 5:E:22:LYS:NZ | 1.14 | 1.41 |
| 1:A:869:G:C3' | 2:B:24:PRO:HB3 | 1.49 | 1.40 |
| 1:A:1081:A:C8 | 5:E:22:LYS:HB2 | 1.55 | 1.39 |
| 1:A:1081:A:C8 | 5:E:22:LYS:CD | 1.97 | 1.38 |
| 1:A:1081:A:C8 | 5:E:22:LYS:HD2 | 1.26 | 1.38 |
| 21:U:14:ALA:HA | 21:U:16:ARG:NH1 | 1.37 | 1.37 |
| 1:A:920:U:C2 | 1:A:1079:G:O6 | 1.78 | 1.37 |
| 21:U:14:ALA:O | 21:U:16:ARG:NE | 1.57 | 1.36 |
| 1:A:859:G:O3' | 2:B:191:ASP:C | 1.68 | 1.32 |
| 1:A:1517:G:OP2 | 22:V:147:ARG:NH2 | 1.61 | 1.31 |
| 21:U:14:ALA:CA | 21:U:16:ARG:NH1 | 1.92 | 1.31 |
| 1:A:859:G:C1' | 2:B:26:MET:HG2 | 1.63 | 1.29 |
| 1:A:870:U:O4 | 2:B:28:PRO:CD | 1.79 | 1.28 |
| 1:A:829:G:C8 | 2:B:26:MET:O | 1.87 | 1.28 |
| 1:A:870:U:O4 | 2:B:28:PRO:HD3 | 1.13 | 1.26 |
| 1:A:855:U:H3 | 2:B:20:ARG:NH2 | 1.33 | 1.25 |
| 1:A:870:U:C6 | 2:B:27:LYS:CD | 2.17 | 1.25 |
| 1:A:1081:A:H8 | 5:E:22:LYS:CB | 1.43 | 1.24 |
| 1:A:1080:A:O2' | 5:E:28:ARG:HG3 | 1.30 | 1.24 |
| 1:A:827:U:H2' | 2:B:28:PRO:CG | 1.68 | 1.24 |
| 1:A:861:G:O6 | 2:B:25:LYS:CE | 1.84 | 1.24 |
| 1:A:869:G:H2' | 2:B:24:PRO:CB | 1.68 | 1.23 |
| 1:A:18:C:C6 | 1:A:1078:U:C1' | 2.22 | 1.23 |
| 1:A:17:U:C4' | 1:A:1079:G:H5' | 1.66 | 1.23 |
| 1:A:860:A:C3' | 2:B:193:ASP:OD1 | 1.86 | 1.22 |
| 1:A:861:G:O6 | 2:B:25:LYS:HE2 | 1.36 | 1.22 |
| 1:A:1517:G:H4' | 22:V:144:VAL:CG2 | 1.69 | 1.22 |
| 1:A:829:G:C3' | 2:B:30:ILE:CG1 | 2.12 | 1.22 |
| 1:A:17:U:C4' | 1:A:1079:G:C5' | 2.20 | 1.20 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:830:G:C4’ | 2:B:17:HIS:O | 1.89 | 1.20 |
| 21:U:14:ALA:N | 21:U:16:ARG:NH1 | 1.88 | 1.20 |
| 1:A:855:U:N3 | 2:B:20:ARG:NH2 | 1.88 | 1.19 |
| 1:A:857:C:O2 | 2:B:22:TRP:O | 1.60 | 1.19 |
| 1:A:870:U:N1 | 2:B:27:LYS:HD3 | 1.43 | 1.19 |
| 1:A:861:G:C6 | 2:B:25:LYS:HE2 | 1.78 | 1.18 |
| 1:A:920:U:C2 | 1:A:1079:G:C6 | 2.30 | 1.17 |
| 1:A:1080:A:C8 | 5:E:22:LYS:HA | 1.78 | 1.17 |
| 1:A:1081:A:O3’ | 5:E:24:VAL:CG1 | 1.93 | 1.17 |
| 1:A:830:G:H3’ | 2:B:38:HIS:ND1 | 1.51 | 1.16 |
| 1:A:830:G:C5 | 2:B:22:TRP:CB | 2.29 | 1.16 |
| 1:A:830:G:H3’ | 2:B:38:HIS:H | 1.04 | 1.15 |
| 1:A:18:C:C6 | 1:A:1078:U:H1’ | 1.81 | 1.15 |
| 1:A:869:G:C2’ | 2:B:24:PRO:CB | 2.25 | 1.15 |
| 1:A:17:U:H4’ | 1:A:1079:G:H5’ | 1.30 | 1.14 |
| 1:A:827:U:C2’ | 2:B:28:PRO:CG | 2.25 | 1.14 |
| 1:A:921:U:H4’ | 1:A:1081:A:O2’ | 1.47 | 1.14 |
| 1:A:829:G:H3’ | 2:B:30:ILE:CG1 | 1.76 | 1.14 |
| 1:A:830:G:C3’ | 2:B:38:HIS:ND1 | 2.07 | 1.14 |
| 21:U:14:ALA:CA | 21:U:16:ARG:CZ | 2.24 | 1.14 |
| 1:A:860:A:OP2 | 2:B:191:ASP:OD1 | 1.66 | 1.14 |
| 1:A:870:U:C4 | 2:B:27:LYS:HB3 | 1.83 | 1.14 |
| 1:A:830:G:C2’ | 2:B:19:THR:O | 1.92 | 1.13 |
| 1:A:860:A:C5’ | 2:B:192:PRO:O | 1.84 | 1.13 |
| 1:A:1082:A:C8 | 5:E:22:LYS:NZ | 2.04 | 1.13 |
| 1:A:830:G:H4’ | 2:B:17:HIS:O | 0.95 | 1.13 |
| 1:A:859:G:O3’ | 2:B:192:PRO:N | 1.63 | 1.13 |
| 2:B:156:LEU:HD13 | 5:E:68:ARG:HH12 | 1.06 | 1.13 |
| 1:A:859:G:H1’ | 2:B:26:MET:HG2 | 1.16 | 1.12 |
| 1:A:869:G:H3’ | 2:B:24:PRO:CB | 1.80 | 1.12 |
| 1:A:829:G:H3’ | 2:B:30:ILE:HG12 | 1.11 | 1.11 |
| 1:A:830:G:C4’ | 2:B:38:HIS:HD1 | 1.64 | 1.11 |
| 2:B:156:LEU:HD13 | 5:E:68:ARG:NH1 | 1.65 | 1.11 |
| 1:A:830:G:C3’ | 2:B:38:HIS:HD1 | 1.63 | 1.10 |
| 1:A:830:G:C1’ | 2:B:19:THR:O | 1.99 | 1.10 |
| 1:A:1080:A:O2’ | 5:E:28:ARG:CG | 2.00 | 1.10 |
| 1:A:829:G:O4’ | 2:B:30:ILE:HG13 | 1.48 | 1.09 |
| 1:A:830:G:C4 | 2:B:22:TRP:CB | 2.35 | 1.09 |
| 1:A:1517:G:H4’ | 22:V:144:VAL:HG23 | 1.15 | 1.09 |
| 1:A:869:G:C3’ | 2:B:24:PRO:CB | 2.31 | 1.09 |
| 1:A:17:U:C5’ | 1:A:1079:G:O4’ | 2.01 | 1.08 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:18:C:H5' | 1:A:1078:U:H4' | 1.09 | 1.08 |
| 1:A:861:G:O6 | 2:B:25:LYS:NZ | 1.87 | 1.08 |
| 2:B:156:LEU:CD1 | 5:E:68:ARG:HH12 | 1.67 | 1.08 |
| 1:A:827:U:O3' | 2:B:28:PRO:HB3 | 0.92 | 1.08 |
| 1:A:860:A:N7 | 2:B:25:LYS:HB3 | 1.69 | 1.08 |
| 1:A:830:G:O5' | 2:B:38:HIS:ND1 | 1.84 | 1.07 |
| 1:A:827:U:C2' | 2:B:28:PRO:HG3 | 1.84 | 1.07 |
| 1:A:829:G:O4' | 2:B:30:ILE:CG1 | 2.00 | 1.07 |
| 1:A:17:U:H4' | 1:A:1079:G:C5' | 1.82 | 1.07 |
| 1:A:828:U:OP1 | 2:B:28:PRO:O | 1.73 | 1.07 |
| 3:C:78:LYS:HG2 | 3:C:81:GLU:HB2 | 1.36 | 1.07 |
| 1:A:860:A:H3' | 2:B:193:ASP:OD1 | 0.91 | 1.06 |
| 1:A:869:G:H2' | 2:B:24:PRO:HB2 | 1.33 | 1.06 |
| 1:A:17:U:H5" | 1:A:1079:G:H5' | 1.34 | 1.05 |
| 1:A:921:U:C4' | 1:A:1081:A:O2' | 2.04 | 1.05 |
| 1:A:827:U:C3' | 2:B:28:PRO:HB3 | 1.87 | 1.05 |
| 1:A:1514:G:H5" | 22:V:222:ARG:CZ | 1.84 | 1.05 |
| 1:A:17:U:H5' | 1:A:1079:G:H4' | 1.05 | 1.04 |
| 2:B:163:ILE:HG23 | 2:B:164:ASP:H | 1.17 | 1.04 |
| 1:A:829:G:OP1 | 2:B:41:ASN:HB3 | 1.56 | 1.04 |
| 1:A:1518:A:OP1 | 22:V:143:GLU:HB2 | 1.57 | 1.04 |
| 1:A:18:C:O4' | 1:A:1078:U:O4' | 1.76 | 1.03 |
| 10:J:35:GLN:HB3 | 10:J:77:VAL:HG23 | 1.34 | 1.03 |
| 1:A:855:U:C4 | 2:B:20:ARG:NH2 | 2.27 | 1.03 |
| 1:A:827:U:H2' | 2:B:28:PRO:HG3 | 1.03 | 1.02 |
| 1:A:869:G:C2' | 2:B:24:PRO:HB2 | 1.86 | 1.02 |
| 1:A:18:C:C5 | 1:A:1078:U:C2 | 2.47 | 1.01 |
| 1:A:857:C:O2 | 2:B:22:TRP:C | 1.86 | 1.01 |
| 21:U:14:ALA:N | 21:U:16:ARG:CZ | 2.23 | 1.01 |
| 1:A:17:U:O4' | 1:A:1079:G:O4' | 1.78 | 1.01 |
| 1:A:18:C:C5' | 1:A:1078:U:H4' | 1.89 | 1.01 |
| 1:A:869:G:H3' | 2:B:24:PRO:HB3 | 1.04 | 1.01 |
| 1:A:827:U:O3' | 2:B:28:PRO:CB | 1.85 | 1.01 |
| 1:A:830:G:C5' | 2:B:38:HIS:HD1 | 1.74 | 1.01 |
| 1:A:830:G:N3 | 2:B:19:THR:O | 1.93 | 1.00 |
| 1:A:870:U:O4 | 2:B:28:PRO:CG | 2.09 | 1.00 |
| 7:G:125:ASP:HB3 | 7:G:130:LYS:HB3 | 1.39 | 1.00 |
| 1:A:17:U:H5' | 1:A:1079:G:O4' | 1.60 | 1.00 |
| 1:A:859:G:C5' | 2:B:190:SER:O | 1.84 | 0.99 |
| 1:A:919:A:C2 | 1:A:1078:U:O4 | 2.15 | 0.99 |
| 1:A:921:U:O2' | 1:A:1081:A:O2' | 1.81 | 0.99 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 21:U:29:ALA:HB1 | 21:U:32:ARG:HH21 | 1.26 | 0.98 |
| 1:A:830:G:C6 | 2:B:22:TRP:CG | 2.51 | 0.98 |
| 1:A:1081:A:C8 | 5:E:22:LYS:CB | 2.16 | 0.98 |
| 2:B:46:VAL:HG13 | 2:B:47:PRO:HD3 | 1.45 | 0.98 |
| 8:H:103:VAL:HG12 | 8:H:124:ILE:HA | 1.46 | 0.97 |
| 1:A:829:G:N1 | 2:B:23:ASN:N | 2.02 | 0.97 |
| 13:M:106:ARG:HE | 13:M:112:ARG:HG2 | 1.29 | 0.97 |
| 1:A:376:G:H5" | 16:P:5:ARG:HB2 | 1.45 | 0.97 |
| 1:A:827:U:O2' | 2:B:28:PRO:HG2 | 1.64 | 0.97 |
| 1:A:870:U:C5 | 2:B:27:LYS:HD3 | 2.00 | 0.97 |
| 1:A:828:U:P | 2:B:28:PRO:O | 2.20 | 0.97 |
| 1:A:830:G:N3 | 2:B:22:TRP:N | 2.12 | 0.97 |
| 1:A:1313:U:H5" | 19:S:5:LYS:HG2 | 1.47 | 0.96 |
| 1:A:859:G:O5' | 2:B:23:ASN:OD1 | 1.83 | 0.96 |
| 1:A:1081:A:O3' | 5:E:24:VAL:HG11 | 1.64 | 0.96 |
| 1:A:870:U:C5 | 2:B:27:LYS:HB3 | 2.00 | 0.96 |
| 11:K:124:LYS:HA | 21:U:34:ARG:HB3 | 1.47 | 0.96 |
| 14:N:63:CYS:HB3 | 14:N:67:GLY:H | 1.30 | 0.95 |
| 1:A:869:G:C2' | 2:B:24:PRO:HB3 | 1.93 | 0.95 |
| 1:A:859:G:H5' | 2:B:190:SER:O | 1.12 | 0.95 |
| 3:C:58:ARG:HG2 | 3:C:63:ILE:HG22 | 1.48 | 0.95 |
| 13:M:11:HIS:H | 13:M:44:ILE:HD11 | 1.32 | 0.95 |
| 1:A:829:G:C4' | 2:B:30:ILE:HG13 | 1.91 | 0.94 |
| 19:S:49:ALA:HB1 | 19:S:56:HIS:HB3 | 1.47 | 0.94 |
| 6:F:53:LYS:HD3 | 6:F:54:LEU:H | 1.30 | 0.94 |
| 1:A:1517:G:N3 | 22:V:141:GLN:HG2 | 1.81 | 0.93 |
| 10:J:88:MET:HB2 | 10:J:89:ARG:HH12 | 1.32 | 0.93 |
| 1:A:859:G:C4' | 2:B:190:SER:O | 2.15 | 0.93 |
| 2:B:67:LEU:HD11 | 2:B:157:PRO:HB3 | 1.47 | 0.93 |
| 1:A:17:U:H4' | 1:A:1079:G:P | 2.00 | 0.93 |
| 1:A:18:C:O4' | 1:A:1078:U:C4' | 2.16 | 0.93 |
| 1:A:830:G:O4' | 2:B:188:THR:HG21 | 1.69 | 0.93 |
| 1:A:849:G:OP2 | 2:B:34:ARG:HD3 | 1.68 | 0.92 |
| 21:U:14:ALA:HA | 21:U:16:ARG:CZ | 1.90 | 0.92 |
| 1:A:848:C:OP1 | 2:B:35:ASN:OD1 | 1.87 | 0.92 |
| 1:A:849:G:OP2 | 2:B:34:ARG:CD | 2.18 | 0.92 |
| 1:A:859:G:C8 | 2:B:26:MET:N | 2.23 | 0.92 |
| 17:Q:18:LYS:HG2 | 17:Q:48:GLU:HA | 1.52 | 0.91 |
| 11:K:22:ILE:HG21 | 11:K:95:THR:HG21 | 1.53 | 0.91 |
| 1:A:830:G:C5' | 2:B:188:THR:HG21 | 2.02 | 0.91 |
| 1:A:860:A:H62 | 2:B:25:LYS:HG2 | 1.36 | 0.90 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:828:U:H3' | 2:B:27:LYS:O | 1.70 | 0.90 |
| 19:S:18:VAL:HG21 | 19:S:43:MET:HG2 | 1.53 | 0.90 |
| 1:A:1086:U:H3 | 1:A:1099:G:H22 | 1.14 | 0.90 |
| 20:T:68:LYS:HG3 | 20:T:69:ASN:H | 1.36 | 0.90 |
| 1:A:828:U:H3' | 2:B:27:LYS:C | 1.92 | 0.89 |
| 14:N:60:ARG:HD3 | 14:N:60:ARG:H | 1.37 | 0.89 |
| 1:A:1517:G:C8 | 22:V:141:GLN:NE2 | 2.39 | 0.89 |
| 1:A:860:A:H5" | 2:B:192:PRO:O | 1.58 | 0.89 |
| 1:A:18:C:H6 | 1:A:1078:U:C1' | 1.83 | 0.89 |
| 1:A:859:G:P | 2:B:23:ASN:OD1 | 2.29 | 0.89 |
| 1:A:18:C:C6 | 1:A:1078:U:O4' | 2.24 | 0.89 |
| 1:A:860:A:P | 2:B:191:ASP:OD1 | 2.30 | 0.89 |
| 13:M:48:SER:H | 13:M:51:GLN:HB2 | 1.38 | 0.88 |
| 1:A:857:C:C2 | 2:B:22:TRP:C | 2.46 | 0.88 |
| 1:A:830:G:C3' | 2:B:38:HIS:H | 1.87 | 0.88 |
| 1:A:870:U:C4 | 2:B:28:PRO:HD3 | 2.07 | 0.88 |
| 7:G:112:ASP:HB2 | 7:G:118:ARG:HG2 | 1.55 | 0.88 |
| 1:A:860:A:N7 | 2:B:25:LYS:CB | 2.36 | 0.88 |
| 16:P:46:LYS:H | 16:P:46:LYS:HD3 | 1.38 | 0.88 |
| 1:A:829:G:OP2 | 2:B:30:ILE:O | 1.88 | 0.87 |
| 13:M:78:ARG:HH21 | 13:M:79:LEU:HG | 1.37 | 0.87 |
| 4:D:60:VAL:HA | 4:D:63:ILE:HD12 | 1.57 | 0.87 |
| 19:S:4:LEU:HD13 | 19:S:9:PHE:H | 1.37 | 0.87 |
| 2:B:131:LYS:HA | 2:B:134:LEU:HD12 | 1.56 | 0.87 |
| 12:L:8:ARG:HG3 | 12:L:9:LYS:H | 1.40 | 0.86 |
| 18:R:52:ARG:HB3 | 18:R:52:ARG:HH11 | 1.40 | 0.86 |
| 1:A:699:C:H2' | 1:A:700:G:H5" | 1.57 | 0.86 |
| 9:I:34:LEU:HD11 | 9:I:47:VAL:HG21 | 1.56 | 0.86 |
| 1:A:1517:G:P | 22:V:147:ARG:NH2 | 2.48 | 0.86 |
| 1:A:1514:G:O4' | 23:V:312:HOH:O | 1.90 | 0.86 |
| 10:J:8:ILE:HD12 | 10:J:100:ILE:HG22 | 1.58 | 0.86 |
| 1:A:920:U:N3 | 1:A:1079:G:O6 | 2.08 | 0.86 |
| 1:A:829:G:N9 | 2:B:26:MET:O | 2.08 | 0.86 |
| 1:A:1082:A:H8 | 5:E:22:LYS:HZ1 | 1.23 | 0.86 |
| 1:A:859:G:C1' | 2:B:26:MET:CG | 2.51 | 0.85 |
| 1:A:830:G:H1' | 2:B:19:THR:O | 1.74 | 0.85 |
| 21:U:14:ALA:HA | 21:U:16:ARG:HH11 | 1.03 | 0.85 |
| 1:A:859:G:C3' | 2:B:191:ASP:C | 2.33 | 0.85 |
| 21:U:13:VAL:HG13 | 21:U:14:ALA:H | 1.38 | 0.85 |
| 1:A:243:A:H4' | 1:A:244:U:H5' | 1.59 | 0.85 |
| 1:A:1101:A:H4' | 1:A:1102:A:O5' | 1.76 | 0.85 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 15:O:6:ALA:HA | 15:O:9:LYS:HE3 | 1.59 | 0.85 |
| 9:I:29:ILE:HG22 | 9:I:64:ILE:HB | 1.57 | 0.85 |
| 1:A:1081:A:N6 | 5:E:51:LYS:NZ | 2.24 | 0.85 |
| 12:L:48:LEU:H | 12:L:48:LEU:HD23 | 1.42 | 0.85 |
| 1:A:664:G:H22 | 1:A:741:G:H1 | 1.26 | 0.84 |
| 1:A:870:U:OP2 | 2:B:22:TRP:CH2 | 2.30 | 0.84 |
| 16:P:20:VAL:HG23 | 16:P:35:ARG:HA | 1.57 | 0.84 |
| 17:Q:27:PHE:HB3 | 17:Q:36:PHE:HB3 | 1.59 | 0.84 |
| 21:U:14:ALA:C | 21:U:16:ARG:NE | 2.30 | 0.84 |
| 1:A:857:C:C2 | 2:B:22:TRP:O | 2.28 | 0.84 |
| 2:B:163:ILE:HG23 | 2:B:164:ASP:N | 1.92 | 0.84 |
| 1:A:830:G:C5 | 2:B:22:TRP:CG | 2.66 | 0.84 |
| 21:U:13:VAL:C | 21:U:16:ARG:HH12 | 1.81 | 0.84 |
| 21:U:14:ALA:O | 21:U:16:ARG:CZ | 2.25 | 0.84 |
| 1:A:1514:G:C5' | 22:V:222:ARG:CZ | 2.39 | 0.84 |
| 2:B:33:ALA:HA | 2:B:38:HIS:HA | 1.58 | 0.84 |
| 21:U:14:ALA:O | 21:U:16:ARG:CD | 2.26 | 0.84 |
| 2:B:67:LEU:HD12 | 2:B:153:MET:HE2 | 1.59 | 0.84 |
| 14:N:60:ARG:HH21 | 14:N:62:ARG:HE | 1.21 | 0.84 |
| 1:A:18:C:C5 | 1:A:1078:U:H1' | 2.12 | 0.83 |
| 1:A:18:C:H6 | 1:A:1078:U:H1' | 1.33 | 0.83 |
| 1:A:1517:G:N9 | 22:V:141:GLN:NE2 | 2.26 | 0.83 |
| 11:K:126:ARG:HB2 | 21:U:33:ARG:HD2 | 1.61 | 0.83 |
| 15:O:25:GLU:HG3 | 15:O:80:LEU:HD12 | 1.58 | 0.83 |
| 2:B:202:ASN:HD22 | 2:B:204:ASP:H | 1.26 | 0.83 |
| 12:L:56:LEU:HD11 | 12:L:81:ILE:HD12 | 1.60 | 0.83 |
| 1:A:830:G:O5' | 2:B:38:HIS:CG | 2.23 | 0.83 |
| 4:D:36:ALA:HA | 4:D:41:GLY:HA3 | 1.61 | 0.83 |
| 1:A:921:U:C3' | 1:A:1081:A:O2' | 2.26 | 0.83 |
| 4:D:160:LEU:H | 4:D:160:LEU:HD13 | 1.41 | 0.82 |
| 1:A:920:U:O2 | 1:A:1079:G:C6 | 2.33 | 0.82 |
| 8:H:54:THR:HG23 | 8:H:55:LYS:HG2 | 1.59 | 0.82 |
| 13:M:33:LEU:HD22 | 13:M:38:ILE:HB | 1.61 | 0.82 |
| 1:A:17:U:C4' | 1:A:1079:G:O4' | 2.28 | 0.82 |
| 1:A:920:U:N1 | 1:A:1079:G:O6 | 2.11 | 0.82 |
| 3:C:146:LYS:HE3 | 3:C:202:PHE:HE2 | 1.42 | 0.82 |
| 1:A:1323:G:H2' | 1:A:1324:A:C8 | 2.15 | 0.82 |
| 3:C:49:ALA:HB1 | 3:C:75:VAL:HG22 | 1.63 | 0.81 |
| 3:C:155:ARG:H | 3:C:162:ALA:HA | 1.45 | 0.81 |
| 15:O:7:THR:HG22 | 15:O:30:LEU:HD11 | 1.62 | 0.81 |
| 1:A:793:U:O4 | 22:V:116:TYR:O | 1.97 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1082:A:P | 5:E:24:VAL:HG11 | 2.20 | 0.81 |
| 4:D:159:GLU:HG3 | 4:D:160:LEU:N | 1.94 | 0.81 |
| 1:A:830:G:C4 | 2:B:20:ARG:HA | 2.15 | 0.81 |
| 6:F:64:VAL:HG12 | 6:F:65:GLU:H | 1.45 | 0.81 |
| 1:A:859:G:H1' | 2:B:26:MET:CG | 2.06 | 0.81 |
| 1:A:921:U:C2' | 1:A:1081:A:O2' | 2.29 | 0.81 |
| 1:A:33:A:H1' | 12:L:27:PRO:HG3 | 1.61 | 0.80 |
| 7:G:21:LEU:HD23 | 7:G:21:LEU:H | 1.45 | 0.80 |
| 17:Q:16:MET:HB2 | 17:Q:19:SER:HB2 | 1.64 | 0.80 |
| 5:E:87:VAL:HG12 | 5:E:92:ARG:HA | 1.64 | 0.80 |
| 1:A:830:G:H3' | 2:B:38:HIS:N | 1.89 | 0.80 |
| 1:A:870:U:C5 | 2:B:27:LYS:CB | 2.65 | 0.80 |
| 21:U:3:ILE:HA | 21:U:19:LYS:HG2 | 1.64 | 0.80 |
| 2:B:112:ARG:O | 2:B:116:LEU:HB2 | 1.82 | 0.80 |
| 1:A:827:U:C2' | 2:B:28:PRO:HG2 | 2.04 | 0.80 |
| 1:A:1211:U:H4' | 1:A:1213:A:H1' | 1.64 | 0.80 |
| 21:U:13:VAL:C | 21:U:16:ARG:NH1 | 2.35 | 0.80 |
| 13:M:19:THR:HA | 13:M:24:VAL:HG23 | 1.64 | 0.80 |
| 5:E:105:ILE:HB | 5:E:123:LEU:HA | 1.61 | 0.79 |
| 1:A:1005:A:H2' | 1:A:1006:G:O4' | 1.82 | 0.79 |
| 1:A:831:A:H3' | 2:B:36:LYS:C | 2.03 | 0.79 |
| 5:E:83:PRO:HB3 | 5:E:96:GLN:HG3 | 1.65 | 0.79 |
| 17:Q:10:ARG:CZ | 17:Q:11:VAL:H | 1.95 | 0.79 |
| 20:T:30:PHE:HB3 | 20:T:53:MET:HB3 | 1.63 | 0.79 |
| 1:A:829:G:C1' | 2:B:30:ILE:CG1 | 2.60 | 0.79 |
| 2:B:61:SER:HA | 2:B:224:ARG:HA | 1.62 | 0.79 |
| 2:B:9:LEU:HD22 | 2:B:11:ALA:H | 1.48 | 0.79 |
| 1:A:1517:G:H4' | 22:V:144:VAL:HG21 | 1.62 | 0.79 |
| 1:A:1518:A:OP1 | 22:V:143:GLU:CB | 2.31 | 0.79 |
| 4:D:187:ARG:HA | 4:D:190:LEU:HD22 | 1.65 | 0.79 |
| 1:A:860:A:N7 | 2:B:25:LYS:CG | 2.46 | 0.79 |
| 1:A:858:G:C4 | 2:B:23:ASN:ND2 | 2.50 | 0.78 |
| 17:Q:10:ARG:NH1 | 17:Q:56:ASP:H | 1.79 | 0.78 |
| 9:I:110:VAL:HG12 | 9:I:111:GLU:H | 1.47 | 0.78 |
| 10:J:35:GLN:HB2 | 10:J:78:GLU:HB2 | 1.64 | 0.78 |
| 14:N:12:ARG:HA | 14:N:15:LEU:HD11 | 1.66 | 0.78 |
| 17:Q:11:VAL:HA | 17:Q:22:VAL:HG22 | 1.66 | 0.78 |
| 2:B:150:ILE:HG13 | 2:B:153:MET:HE3 | 1.65 | 0.78 |
| 2:B:156:LEU:HD13 | 5:E:68:ARG:CZ | 2.12 | 0.78 |
| 21:U:36:PHE:HB3 | 21:U:40:PRO:HD3 | 1.63 | 0.78 |
| 9:I:12:LYS:H | 9:I:109:GLN:HE22 | 1.30 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:23:GLY:H | 9:I:60:LEU:HA | 1.48 | 0.77 |
| 10:J:56:HIS:H | 14:N:80:ARG:HH22 | 1.30 | 0.77 |
| 13:M:11:HIS:N | 13:M:44:ILE:HD11 | 1.99 | 0.77 |
| 1:A:65:A:N3 | 1:A:65:A:H2' | 1.99 | 0.77 |
| 1:A:855:U:O4 | 2:B:20:ARG:NH2 | 2.12 | 0.77 |
| 1:A:830:G:O4' | 2:B:188:THR:CG2 | 2.33 | 0.77 |
| 1:A:1080:A:O2' | 5:E:28:ARG:CD | 2.31 | 0.77 |
| 15:O:2:LEU:HD22 | 15:O:7:THR:HG23 | 1.65 | 0.77 |
| 19:S:35:ARG:HG2 | 19:S:50:VAL:HG13 | 1.66 | 0.77 |
| 1:A:17:U:H4' | 1:A:1079:G:O5' | 1.84 | 0.77 |
| 1:A:849:G:OP2 | 2:B:34:ARG:NE | 2.16 | 0.77 |
| 1:A:859:G:O4' | 2:B:190:SER:O | 2.03 | 0.77 |
| 1:A:861:G:C8 | 2:B:193:ASP:OD1 | 2.38 | 0.77 |
| 3:C:184:ASN:HD22 | 3:C:185:THR:H | 1.32 | 0.77 |
| 15:O:81:ILE:HA | 15:O:86:LEU:HD12 | 1.67 | 0.77 |
| 1:A:1074:G:OP1 | 5:E:65:LYS:HD3 | 1.85 | 0.77 |
| 13:M:18:LEU:HB3 | 13:M:29:SER:HB2 | 1.67 | 0.77 |
| 6:F:38:ARG:HB3 | 6:F:63:ASN:HB2 | 1.65 | 0.77 |
| 13:M:23:GLY:HA3 | 13:M:64:VAL:HG13 | 1.67 | 0.77 |
| 2:B:120:SER:HA | 2:B:125:PHE:HB3 | 1.67 | 0.76 |
| 1:A:830:G:C2 | 2:B:21:TYR:C | 2.48 | 0.76 |
| 1:A:921:U:O3' | 1:A:1082:A:H5' | 1.85 | 0.76 |
| 11:K:30:ILE:HG22 | 11:K:45:THR:HA | 1.67 | 0.76 |
| 15:O:70:LYS:HZ1 | 15:O:74:VAL:HG13 | 1.50 | 0.76 |
| 13:M:21:ILE:HG22 | 13:M:64:VAL:HG11 | 1.67 | 0.76 |
| 8:H:113:ARG:HH21 | 8:H:114:ALA:HA | 1.49 | 0.76 |
| 1:A:830:G:C2 | 2:B:22:TRP:N | 2.54 | 0.76 |
| 2:B:162:VAL:HG13 | 2:B:184:ALA:HB2 | 1.67 | 0.76 |
| 7:G:87:PRO:HG2 | 7:G:151:ALA:HB2 | 1.66 | 0.76 |
| 1:A:857:C:H1' | 2:B:21:TYR:CA | 2.15 | 0.76 |
| 12:L:35:ARG:NH2 | 12:L:75:GLU:HB3 | 2.00 | 0.76 |
| 16:P:42:ILE:HB | 16:P:46:LYS:HD2 | 1.68 | 0.76 |
| 1:A:437:U:H2' | 1:A:438:U:O4' | 1.85 | 0.76 |
| 1:A:764:C:H3' | 1:A:765:G:H21 | 1.51 | 0.76 |
| 1:A:830:G:C4 | 2:B:19:THR:O | 2.39 | 0.76 |
| 1:A:1103:C:H5" | 2:B:96:LEU:HD12 | 1.68 | 0.76 |
| 14:N:30:ILE:HG21 | 14:N:41:TRP:HB2 | 1.65 | 0.76 |
| 1:A:18:C:C5 | 1:A:1078:U:C1' | 2.69 | 0.76 |
| 1:A:840:C:H2' | 1:A:842:U:H5" | 1.67 | 0.76 |
| 3:C:8:GLY:HA2 | 3:C:11:LEU:HG | 1.67 | 0.75 |
| 1:A:1219:A:H2' | 1:A:1220:G:C8 | 2.21 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1308:U:H2' | 1:A:1309:G:H8 | 1.50 | 0.75 |
| 1:A:18:C:H5' | 1:A:1078:U:C4' | 2.05 | 0.75 |
| 1:A:78:A:H2' | 1:A:79:G:C8 | 2.20 | 0.75 |
| 1:A:829:G:OP1 | 2:B:41:ASN:CB | 2.33 | 0.75 |
| 1:A:859:G:O3' | 2:B:192:PRO:CA | 2.33 | 0.75 |
| 10:J:19:ASP:O | 10:J:22:THR:HG22 | 1.87 | 0.75 |
| 21:U:14:ALA:N | 21:U:16:ARG:HH12 | 1.81 | 0.75 |
| 2:B:41:ASN:HD22 | 2:B:44:LYS:HE2 | 1.50 | 0.75 |
| 16:P:71:VAL:HA | 16:P:74:LEU:HG | 1.69 | 0.75 |
| 1:A:869:G:H2' | 2:B:24:PRO:C | 2.06 | 0.75 |
| 16:P:52:LEU:HG | 16:P:75:ILE:HG12 | 1.69 | 0.75 |
| 3:C:179:ALA:HB1 | 3:C:202:PHE:HE1 | 1.52 | 0.74 |
| 7:G:67:ASN:HD22 | 7:G:127:ALA:HA | 1.51 | 0.74 |
| 1:A:429:U:H3' | 4:D:8:LEU:HD23 | 1.70 | 0.74 |
| 13:M:44:ILE:HD12 | 13:M:45:SER:H | 1.52 | 0.74 |
| 1:A:830:G:N9 | 2:B:22:TRP:HB3 | 2.01 | 0.74 |
| 21:U:14:ALA:C | 21:U:16:ARG:CZ | 2.56 | 0.74 |
| 1:A:812:G:H2' | 1:A:812:G:N3 | 2.02 | 0.74 |
| 21:U:14:ALA:HA | 21:U:16:ARG:CD | 2.16 | 0.74 |
| 1:A:830:G:C6 | 2:B:22:TRP:CD1 | 2.76 | 0.74 |
| 1:A:858:G:C1' | 2:B:22:TRP:O | 2.34 | 0.74 |
| 11:K:86:LYS:HB2 | 11:K:112:VAL:HG23 | 1.68 | 0.74 |
| 1:A:921:U:C2' | 1:A:1081:A:HO2' | 2.00 | 0.74 |
| 12:L:66:ILE:HD13 | 12:L:73:LEU:HD12 | 1.69 | 0.74 |
| 1:A:1074:G:OP1 | 5:E:65:LYS:NZ | 2.17 | 0.73 |
| 10:J:39:PRO:HA | 10:J:74:VAL:HG22 | 1.70 | 0.73 |
| 21:U:40:PRO:HG2 | 21:U:41:THR:H | 1.53 | 0.73 |
| 1:A:1081:A:O3' | 5:E:24:VAL:HG12 | 1.88 | 0.73 |
| 2:B:67:LEU:H | 2:B:67:LEU:HD22 | 1.52 | 0.73 |
| 13:M:15:VAL:HG23 | 13:M:33:LEU:HD12 | 1.70 | 0.73 |
| 1:A:870:U:C2 | 2:B:27:LYS:HD3 | 2.21 | 0.73 |
| 21:U:20:ARG:HA | 21:U:24:LYS:HG3 | 1.70 | 0.73 |
| 1:A:135:C:O2 | 16:P:1:MET:HB2 | 1.88 | 0.73 |
| 4:D:10:LEU:HD21 | 4:D:62:ARG:HD3 | 1.70 | 0.73 |
| 1:A:830:G:H4' | 2:B:17:HIS:C | 2.03 | 0.73 |
| 1:A:830:G:H5' | 2:B:188:THR:HG21 | 1.69 | 0.73 |
| 20:T:60:GLN:HE21 | 20:T:61:ALA:H | 1.36 | 0.73 |
| 1:A:830:G:O4' | 2:B:188:THR:CB | 2.37 | 0.73 |
| 1:A:18:C:C5 | 1:A:1078:U:N1 | 2.57 | 0.73 |
| 1:A:946:A:H2' | 1:A:947:G:C8 | 2.24 | 0.73 |
| 1:A:1081:A:N6 | 5:E:51:LYS:HZ2 | 1.85 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:5:HIS:HD2 | 3:C:8:GLY:H | 1.35 | 0.73 |
| 1:A:430:A:OP1 | 4:D:8:LEU:HB2 | 1.89 | 0.73 |
| 1:A:1513:A:H2' | 23:V:312:HOH:O | 1.87 | 0.73 |
| 2:B:163:ILE:HD11 | 2:B:209:VAL:HG12 | 1.70 | 0.73 |
| 1:A:781:A:H2' | 1:A:782:A:H5' | 1.69 | 0.73 |
| 4:D:84:ASN:ND2 | 4:D:87:GLU:H | 1.87 | 0.73 |
| 13:M:77:LYS:HA | 13:M:80:MET:HB3 | 1.71 | 0.73 |
| 1:A:1080:A:H8 | 5:E:22:LYS:HA | 1.45 | 0.72 |
| 1:A:1514:G:H8 | 23:V:312:HOH:O | 1.72 | 0.72 |
| 1:A:829:G:H3' | 2:B:30:ILE:CD1 | 2.17 | 0.72 |
| 1:A:1250:A:H4' | 9:I:69:GLY:H | 1.54 | 0.72 |
| 1:A:1125:U:H2' | 1:A:1126:U:H5" | 1.70 | 0.72 |
| 21:U:14:ALA:C | 21:U:16:ARG:HD2 | 2.09 | 0.72 |
| 2:B:116:LEU:HD11 | 2:B:139:GLU:HB3 | 1.71 | 0.72 |
| 4:D:156:ALA:O | 4:D:159:GLU:HG2 | 1.89 | 0.72 |
| 1:A:18:C:O4' | 1:A:1078:U:H5' | 1.89 | 0.72 |
| 6:F:53:LYS:HZ3 | 6:F:53:LYS:HA | 1.55 | 0.72 |
| 11:K:110:THR:HG21 | 21:U:4:LYS:HD2 | 1.69 | 0.72 |
| 13:M:38:ILE:HG13 | 13:M:55:LEU:HD21 | 1.71 | 0.72 |
| 21:U:29:ALA:CB | 21:U:32:ARG:HH21 | 2.03 | 0.72 |
| 11:K:56:LYS:O | 11:K:58:THR:HG22 | 1.90 | 0.72 |
| 1:A:830:G:H5' | 2:B:188:THR:CG2 | 2.19 | 0.72 |
| 1:A:832:G:C8 | 2:B:20:ARG:HG3 | 2.25 | 0.72 |
| 1:A:1517:G:C4' | 22:V:144:VAL:CG2 | 2.59 | 0.72 |
| 1:A:1515:G:P | 23:V:336:HOH:O | 2.48 | 0.72 |
| 12:L:98:ARG:HA | 12:L:98:ARG:HE | 1.55 | 0.72 |
| 1:A:1081:A:C4' | 5:E:24:VAL:HG13 | 2.19 | 0.71 |
| 1:A:1517:G:C4' | 22:V:144:VAL:HG23 | 2.09 | 0.71 |
| 2:B:46:VAL:HA | 2:B:49:PHE:HD2 | 1.55 | 0.71 |
| 1:A:501:C:H2' | 1:A:502:A:H8 | 1.53 | 0.71 |
| 1:A:921:U:H4' | 1:A:1081:A:C2' | 2.20 | 0.71 |
| 1:A:1218:C:H2' | 1:A:1219:A:H8 | 1.54 | 0.71 |
| 10:J:92:LEU:HD22 | 10:J:92:LEU:H | 1.55 | 0.71 |
| 1:A:278:G:H21 | 1:A:279:A:H62 | 1.36 | 0.71 |
| 4:D:94:GLU:HG3 | 4:D:103:ARG:HH12 | 1.55 | 0.71 |
| 13:M:44:ILE:HA | 13:M:47:LEU:HD13 | 1.71 | 0.71 |
| 16:P:67:ILE:HG13 | 16:P:71:VAL:HG13 | 1.71 | 0.71 |
| 17:Q:29:LYS:HD3 | 17:Q:35:LYS:N | 2.06 | 0.71 |
| 1:A:1082:A:O5' | 5:E:22:LYS:NZ | 2.23 | 0.71 |
| 1:A:1308:U:H2' | 1:A:1309:G:C8 | 2.24 | 0.71 |
| 5:E:131:ASN:HD21 | 5:E:133:ILE:HB | 1.54 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:18:C:O4' | 1:A:1078:U:C5' | 2.38 | 0.71 |
| 1:A:780:A:O2' | 1:A:781:A:H5" | 1.91 | 0.71 |
| 1:A:870:U:O4 | 2:B:28:PRO:HG3 | 1.88 | 0.71 |
| 11:K:92:ARG:HH11 | 11:K:92:ARG:HB3 | 1.55 | 0.71 |
| 13:M:78:ARG:NH2 | 13:M:79:LEU:HG | 2.05 | 0.71 |
| 1:A:920:U:N3 | 1:A:1079:G:C6 | 2.57 | 0.71 |
| 7:G:100:MET:HA | 7:G:103:ILE:HD12 | 1.71 | 0.71 |
| 11:K:42:GLY:HA3 | 11:K:73:VAL:HG22 | 1.71 | 0.71 |
| 20:T:81:GLN:O | 20:T:85:LEU:HB3 | 1.90 | 0.71 |
| 1:A:1057:G:H5" | 3:C:153:SER:HB3 | 1.72 | 0.71 |
| 3:C:57:GLU:HB2 | 3:C:64:ARG:HB2 | 1.73 | 0.71 |
| 9:I:71:ILE:H | 9:I:71:ILE:HD12 | 1.55 | 0.71 |
| 11:K:113:THR:HG21 | 21:U:28:LEU:HD11 | 1.72 | 0.71 |
| 1:A:17:U:C5' | 1:A:1079:G:H4' | 1.90 | 0.71 |
| 1:A:1179:A:H4' | 9:I:104:THR:HA | 1.73 | 0.71 |
| 1:A:1218:C:H2' | 1:A:1219:A:C8 | 2.25 | 0.71 |
| 19:S:48:ILE:HB | 19:S:59:VAL:HB | 1.73 | 0.71 |
| 1:A:814:A:H5' | 1:A:1511:G:H4' | 1.73 | 0.70 |
| 17:Q:20:ILE:HG13 | 17:Q:45:VAL:HB | 1.73 | 0.70 |
| 21:U:14:ALA:C | 21:U:16:ARG:CD | 2.58 | 0.70 |
| 1:A:1081:A:H8 | 5:E:22:LYS:HB2 | 0.98 | 0.70 |
| 1:A:878:A:H5" | 8:H:80:PRO:HG2 | 1.73 | 0.70 |
| 3:C:153:SER:HB2 | 3:C:196:GLY:H | 1.54 | 0.70 |
| 8:H:49:LYS:HG3 | 8:H:50:VAL:H | 1.56 | 0.70 |
| 14:N:63:CYS:HB3 | 14:N:67:GLY:N | 2.04 | 0.70 |
| 9:I:40:ARG:H | 9:I:44:ARG:HE | 1.39 | 0.70 |
| 10:J:56:HIS:O | 10:J:57:VAL:HG12 | 1.92 | 0.70 |
| 1:A:1330:U:H2' | 1:A:1331:G:H5' | 1.72 | 0.70 |
| 3:C:72:PRO:O | 3:C:76:ILE:HG12 | 1.91 | 0.70 |
| 4:D:194:ILE:HD13 | 4:D:195:ASN:N | 2.06 | 0.70 |
| 14:N:30:ILE:HD12 | 14:N:30:ILE:H | 1.56 | 0.70 |
| 1:A:860:A:C8 | 2:B:25:LYS:HB3 | 2.27 | 0.70 |
| 1:A:922:G:H2' | 1:A:923:A:C8 | 2.26 | 0.70 |
| 2:B:204:ASP:CG | 2:B:205:ALA:H | 1.95 | 0.70 |
| 16:P:7:ALA:HB1 | 16:P:29:ASN:HB3 | 1.74 | 0.70 |
| 1:A:239:U:H4' | 1:A:239:U:OP1 | 1.90 | 0.70 |
| 1:A:828:U:C4' | 2:B:29:PHE:CG | 2.68 | 0.70 |
| 7:G:13:PRO:HB2 | 7:G:18:GLY:HA2 | 1.72 | 0.70 |
| 11:K:19:VAL:HG12 | 11:K:82:GLU:HB2 | 1.74 | 0.70 |
| 11:K:88:PRO:HD3 | 21:U:28:LEU:HD13 | 1.73 | 0.70 |
| 1:A:673:A:H2' | 1:A:674:G:C8 | 2.27 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:870:U:N1 | 2:B:27:LYS:CD | 2.29 | 0.69 |
| 9:I:112:ARG:NH1 | 9:I:112:ARG:HB2 | 2.07 | 0.69 |
| 16:P:42:ILE:HG22 | 16:P:43:ALA:H | 1.55 | 0.69 |
| 21:U:14:ALA:CA | 21:U:16:ARG:HD2 | 2.22 | 0.69 |
| 1:A:279:A:H5" | 1:A:280:C:H3' | 1.74 | 0.69 |
| 1:A:390:U:H2' | 1:A:391:G:C8 | 2.27 | 0.69 |
| 1:A:412:A:H1' | 1:A:413:G:H8 | 1.54 | 0.69 |
| 1:A:1074:G:P | 5:E:65:LYS:HZ2 | 2.15 | 0.69 |
| 7:G:38:ALA:O | 7:G:41:ILE:HG22 | 1.92 | 0.69 |
| 1:A:1182:G:H4' | 1:A:1183:U:C5' | 2.21 | 0.69 |
| 2:B:96:LEU:HB2 | 2:B:99:MET:HE3 | 1.72 | 0.69 |
| 12:L:28:GLN:HG3 | 12:L:80:LEU:HD21 | 1.73 | 0.69 |
| 1:A:541:G:O2' | 4:D:39:GLN:HB2 | 1.92 | 0.69 |
| 1:A:1081:A:H62 | 5:E:51:LYS:HZ2 | 1.39 | 0.69 |
| 1:A:1517:G:OP2 | 22:V:147:ARG:CZ | 2.39 | 0.69 |
| 8:H:93:LYS:HZ2 | 8:H:93:LYS:H | 1.40 | 0.69 |
| 9:I:56:MET:HA | 9:I:59:LYS:HZ2 | 1.56 | 0.69 |
| 12:L:35:ARG:HG3 | 12:L:36:VAL:H | 1.56 | 0.69 |
| 12:L:79:ILE:HD13 | 12:L:96:THR:HG22 | 1.74 | 0.69 |
| 1:A:186:C:H4' | 20:T:75:LYS:HB2 | 1.74 | 0.69 |
| 1:A:473:U:H2' | 1:A:474:G:H8 | 1.58 | 0.69 |
| 1:A:518:C:H2' | 1:A:530:G:C8 | 2.28 | 0.69 |
| 1:A:1326:U:H2' | 1:A:1327:C:C6 | 2.28 | 0.69 |
| 6:F:86:ARG:HH11 | 18:R:63:TYR:HB3 | 1.55 | 0.69 |
| 1:A:870:U:C4 | 2:B:27:LYS:CB | 2.72 | 0.69 |
| 1:A:1208:C:H2' | 1:A:1209:C:O4' | 1.93 | 0.69 |
| 19:S:49:ALA:HA | 19:S:57:VAL:O | 1.93 | 0.69 |
| 1:A:1517:G:O4' | 23:V:359:HOH:O | 2.10 | 0.69 |
| 2:B:141:GLU:O | 2:B:145:ASN:HB2 | 1.93 | 0.69 |
| 2:B:212:TYR:O | 2:B:216:VAL:HG23 | 1.92 | 0.69 |
| 1:A:830:G:OP2 | 2:B:30:ILE:HG23 | 1.93 | 0.69 |
| 1:A:1320:C:H41 | 19:S:36:ARG:HG2 | 1.57 | 0.69 |
| 12:L:20:VAL:HG13 | 12:L:94:TYR:HH | 1.58 | 0.69 |
| 1:A:860:A:H5' | 2:B:192:PRO:O | 1.40 | 0.68 |
| 10:J:52:LEU:HB2 | 14:N:80:ARG:HD2 | 1.74 | 0.68 |
| 4:D:12:ARG:HD2 | 4:D:37:PRO:HA | 1.75 | 0.68 |
| 14:N:50:LEU:HD23 | 14:N:51:PRO:HD3 | 1.73 | 0.68 |
| 18:R:46:THR:HG23 | 18:R:51:GLN:HB2 | 1.75 | 0.68 |
| 3:C:154:GLY:HA3 | 3:C:162:ALA:HB1 | 1.76 | 0.68 |
| 10:J:71:LEU:H | 10:J:71:LEU:HD12 | 1.58 | 0.68 |
| 1:A:18:C:C6 | 1:A:1078:U:N1 | 2.62 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 12:L:24:GLU:HB3 | 12:L:26:CYS:SG | 2.34 | 0.68 |
| 13:M:9:PRO:O | 13:M:44:ILE:HG12 | 1.94 | 0.68 |
| 16:P:26:ASN:CG | 16:P:31:ARG:HB3 | 2.13 | 0.68 |
| 21:U:7:GLU:OE2 | 21:U:15:LEU:HD22 | 1.93 | 0.68 |
| 1:A:830:G:C4' | 2:B:188:THR:HG21 | 2.24 | 0.68 |
| 8:H:111:THR:HG23 | 8:H:114:ALA:HB2 | 1.76 | 0.68 |
| 1:A:869:G:H2' | 2:B:24:PRO:CA | 2.22 | 0.68 |
| 1:A:901:A:H5' | 1:A:902:G:OP2 | 1.94 | 0.68 |
| 5:E:101:GLY:H | 5:E:121:ASN:HD21 | 1.41 | 0.68 |
| 1:A:619:U:N3 | 4:D:131:ILE:HD12 | 2.09 | 0.68 |
| 3:C:9:ILE:HG23 | 3:C:10:ARG:HG3 | 1.76 | 0.68 |
| 10:J:40:ILE:HG13 | 10:J:73:LEU:HB3 | 1.75 | 0.68 |
| 12:L:80:LEU:HD23 | 12:L:97:VAL:HG21 | 1.74 | 0.68 |
| 1:A:268:U:H2' | 1:A:269:C:C6 | 2.28 | 0.68 |
| 1:A:1029:U:H5" | 1:A:1030:U:H5 | 1.59 | 0.68 |
| 1:A:501:C:H2' | 1:A:502:A:C8 | 2.30 | 0.67 |
| 1:A:967:C:H3' | 1:A:968:A:H5' | 1.75 | 0.67 |
| 6:F:37:HIS:CE1 | 6:F:65:GLU:HB2 | 2.29 | 0.67 |
| 8:H:92:PRO:HA | 8:H:93:LYS:NZ | 2.09 | 0.67 |
| 10:J:6:ILE:HG12 | 10:J:102:LEU:HD11 | 1.74 | 0.67 |
| 15:O:68:TYR:CZ | 15:O:72:LYS:HG3 | 2.29 | 0.67 |
| 1:A:1021:A:H2' | 1:A:1022:A:O4' | 1.93 | 0.67 |
| 1:A:1241:G:H2' | 1:A:1242:G:H8 | 1.59 | 0.67 |
| 1:A:1251:A:H2' | 1:A:1252:A:C8 | 2.28 | 0.67 |
| 1:A:71:A:H61 | 1:A:99:C:H1' | 1.56 | 0.67 |
| 1:A:238:A:H2' | 1:A:239:U:H5" | 1.77 | 0.67 |
| 2:B:44:LYS:NZ | 8:H:21:LYS:CE | 2.37 | 0.67 |
| 3:C:33:ASP:HB2 | 14:N:64:ARG:HD3 | 1.75 | 0.67 |
| 8:H:64:TYR:HB3 | 8:H:69:ALA:HA | 1.77 | 0.67 |
| 6:F:86:ARG:NH1 | 18:R:63:TYR:HB3 | 2.09 | 0.67 |
| 20:T:28:ARG:HA | 20:T:31:ILE:HD12 | 1.77 | 0.67 |
| 2:B:102:ASN:O | 2:B:106:VAL:HG23 | 1.93 | 0.67 |
| 2:B:198:VAL:HG22 | 2:B:200:PRO:HD3 | 1.76 | 0.67 |
| 1:A:1060:U:H2' | 1:A:1061:G:H8 | 1.58 | 0.67 |
| 1:A:18:C:C5 | 1:A:1078:U:O2 | 2.48 | 0.67 |
| 1:A:1000:A:H2' | 1:A:1001:C:C6 | 2.29 | 0.67 |
| 1:A:1060:U:H5" | 10:J:53:ILE:HG22 | 1.75 | 0.67 |
| 1:A:1071:C:H2' | 1:A:1072:G:H8 | 1.59 | 0.67 |
| 1:A:1236:A:H4' | 1:A:1304:G:H4' | 1.76 | 0.67 |
| 10:J:65:TYR:HB3 | 14:N:95:LEU:HD11 | 1.77 | 0.67 |
| 3:C:46:LEU:HD11 | 3:C:86:LEU:HD21 | 1.76 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:176:THR:HB | 3:C:179:ALA:HB2 | 1.77 | 0.67 |
| 14:N:60:ARG:NH2 | 14:N:62:ARG:HE | 1.92 | 0.67 |
| 1:A:919:A:C2 | 1:A:1078:U:C4 | 2.83 | 0.67 |
| 2:B:67:LEU:HD21 | 2:B:157:PRO:HG3 | 1.76 | 0.67 |
| 18:R:58:ILE:O | 18:R:62:ARG:HG3 | 1.95 | 0.67 |
| 13:M:109:LYS:HG3 | 13:M:110:GLY:H | 1.58 | 0.66 |
| 1:A:1123:U:O2' | 1:A:1124:G:H5' | 1.96 | 0.66 |
| 3:C:13:ILE:O | 3:C:14:VAL:HG22 | 1.96 | 0.66 |
| 13:M:106:ARG:NE | 13:M:112:ARG:HG2 | 2.08 | 0.66 |
| 1:A:858:G:H1' | 2:B:22:TRP:O | 1.95 | 0.66 |
| 1:A:1342:C:H2' | 1:A:1343:G:H8 | 1.61 | 0.66 |
| 1:A:1517:G:C1' | 23:V:359:HOH:O | 2.43 | 0.66 |
| 4:D:123:MET:HA | 4:D:128:VAL:HA | 1.78 | 0.66 |
| 8:H:102:VAL:HG12 | 8:H:125:ILE:HD12 | 1.76 | 0.66 |
| 13:M:64:VAL:HA | 13:M:68:LEU:HD12 | 1.76 | 0.66 |
| 21:U:3:ILE:HG12 | 21:U:19:LYS:HG2 | 1.77 | 0.66 |
| 1:A:860:A:N7 | 2:B:25:LYS:HD3 | 2.09 | 0.66 |
| 3:C:178:ARG:O | 3:C:178:ARG:HG2 | 1.96 | 0.66 |
| 14:N:66:THR:HG23 | 14:N:67:GLY:H | 1.59 | 0.66 |
| 14:N:30:ILE:HB | 14:N:44:VAL:HG11 | 1.78 | 0.66 |
| 1:A:1080:A:OP1 | 5:E:20:VAL:C | 2.34 | 0.66 |
| 3:C:77:GLY:HA3 | 3:C:82:ASP:H | 1.59 | 0.66 |
| 16:P:51:ARG:HB3 | 16:P:51:ARG:NH1 | 2.10 | 0.66 |
| 1:A:1026:G:H2' | 1:A:1027:C:C6 | 2.31 | 0.66 |
| 1:A:1300:G:H1' | 1:A:1301:U:H5 | 1.61 | 0.66 |
| 1:A:1514:G:C8 | 23:V:312:HOH:O | 2.47 | 0.66 |
| 1:A:1081:A:N7 | 5:E:22:LYS:HD2 | 2.03 | 0.66 |
| 1:A:1326:U:H2' | 1:A:1327:C:H6 | 1.61 | 0.66 |
| 10:J:11:LYS:HG2 | 10:J:97:ASP:HB3 | 1.78 | 0.66 |
| 1:A:829:G:N3 | 2:B:188:THR:HG22 | 2.11 | 0.66 |
| 9:I:33:SER:HB3 | 9:I:36:GLN:HB2 | 1.76 | 0.66 |
| 2:B:156:LEU:HD13 | 5:E:68:ARG:NH2 | 2.10 | 0.66 |
| 2:B:202:ASN:ND2 | 2:B:204:ASP:H | 1.92 | 0.66 |
| 5:E:109:ALA:HB3 | 5:E:135:VAL:HG23 | 1.77 | 0.66 |
| 4:D:159:GLU:HG3 | 4:D:160:LEU:H | 1.59 | 0.65 |
| 17:Q:10:ARG:HH11 | 17:Q:55:GLY:H | 1.43 | 0.65 |
| 1:A:17:U:C4' | 1:A:1079:G:O5' | 2.40 | 0.65 |
| 1:A:562:U:H1' | 12:L:11:ARG:HB3 | 1.78 | 0.65 |
| 1:A:830:G:C8 | 2:B:22:TRP:HB3 | 2.31 | 0.65 |
| 1:A:832:G:C6 | 2:B:20:ARG:NH2 | 2.62 | 0.65 |
| 1:A:859:G:O4' | 2:B:26:MET:CG | 2.44 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:M:52:ILE:HD12 | 13:M:55:LEU:HD12 | 1.78 | 0.65 |
| 1:A:869:G:N9 | 2:B:24:PRO:HB2 | 2.10 | 0.65 |
| 10:J:53:ILE:HG12 | 10:J:63:ASP:HB2 | 1.78 | 0.65 |
| 1:A:1225:A:H3' | 1:A:1226:C:H6 | 1.61 | 0.65 |
| 6:F:40:GLU:HG3 | 6:F:42:TRP:HE1 | 1.60 | 0.65 |
| 8:H:5:PRO:HB2 | 8:H:32:LYS:NZ | 2.11 | 0.65 |
| 8:H:111:THR:H | 8:H:114:ALA:HB3 | 1.60 | 0.65 |
| 10:J:37:ARG:NE | 10:J:77:VAL:HG11 | 2.11 | 0.65 |
| 14:N:60:ARG:HE | 14:N:62:ARG:NE | 1.93 | 0.65 |
| 21:U:36:PHE:HB3 | 21:U:40:PRO:CD | 2.25 | 0.65 |
| 1:A:922:G:H4' | 5:E:24:VAL:HA | 1.77 | 0.65 |
| 2:B:53:LEU:HD21 | 2:B:212:TYR:HE1 | 1.60 | 0.65 |
| 2:B:202:ASN:HD22 | 2:B:204:ASP:N | 1.95 | 0.65 |
| 6:F:10:VAL:HA | 6:F:84:VAL:HA | 1.77 | 0.65 |
| 21:U:14:ALA:HA | 21:U:16:ARG:HD2 | 1.76 | 0.65 |
| 1:A:188:C:H2' | 1:A:189:A:O4' | 1.97 | 0.65 |
| 1:A:278:G:N2 | 1:A:279:A:H62 | 1.93 | 0.65 |
| 1:A:559:A:H4' | 1:A:560:A:H3' | 1.77 | 0.65 |
| 1:A:1062:U:H2' | 1:A:1063:C:C6 | 2.31 | 0.65 |
| 1:A:1182:G:H4' | 1:A:1183:U:H5' | 1.79 | 0.65 |
| 2:B:119:GLN:HE22 | 2:B:127:LYS:HD3 | 1.60 | 0.65 |
| 6:F:3:HIS:HA | 6:F:65:GLU:HA | 1.77 | 0.65 |
| 10:J:15:HIS:HA | 10:J:18:ILE:HG22 | 1.79 | 0.65 |
| 14:N:60:ARG:HD3 | 14:N:60:ARG:N | 2.12 | 0.65 |
| 15:O:31:LEU:HD12 | 15:O:58:MET:HB2 | 1.78 | 0.65 |
| 17:Q:10:ARG:HA | 17:Q:10:ARG:HE | 1.62 | 0.65 |
| 1:A:270:A:H2' | 1:A:271:C:C6 | 2.31 | 0.65 |
| 5:E:23:THR:HG23 | 5:E:28:ARG:HD3 | 1.78 | 0.65 |
| 8:H:30:LYS:HA | 8:H:30:LYS:NZ | 2.12 | 0.65 |
| 1:A:441:A:H61 | 1:A:493:A:H62 | 1.44 | 0.65 |
| 1:A:1074:G:H5' | 2:B:104:LYS:HZ1 | 1.62 | 0.65 |
| 2:B:52:ALA:O | 2:B:56:LEU:HD22 | 1.96 | 0.65 |
| 1:A:87:C:H2' | 1:A:88:U:H4' | 1.79 | 0.65 |
| 4:D:19:PHE:HB2 | 4:D:110:ARG:HH12 | 1.60 | 0.65 |
| 4:D:84:ASN:HD22 | 4:D:87:GLU:H | 1.43 | 0.65 |
| 1:A:859:G:H2' | 1:A:860:A:C8 | 2.32 | 0.65 |
| 2:B:163:ILE:CG2 | 2:B:164:ASP:H | 1.98 | 0.65 |
| 3:C:146:LYS:HD3 | 3:C:204:GLY:HA2 | 1.79 | 0.65 |
| 21:U:14:ALA:CA | 21:U:16:ARG:NE | 2.59 | 0.65 |
| 1:A:36:C:H5" | 12:L:119:LYS:HB3 | 1.79 | 0.64 |
| 1:A:1017:U:H2' | 1:A:1018:G:C8 | 2.31 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1221:G:H5” | 19:S:35:ARG:HH11 | 1.62 | 0.64 |
| 4:D:88:ASN:O | 4:D:92:LEU:HD23 | 1.97 | 0.64 |
| 17:Q:59:GLU:H | 17:Q:74:LEU:HD23 | 1.62 | 0.64 |
| 1:A:828:U:H4’ | 2:B:29:PHE:CD1 | 2.31 | 0.64 |
| 1:A:831:A:H3’ | 2:B:36:LYS:O | 1.97 | 0.64 |
| 1:A:859:G:N9 | 2:B:26:MET:HG2 | 2.10 | 0.64 |
| 1:A:1302:C:O4’ | 13:M:16:ILE:HD11 | 1.96 | 0.64 |
| 1:A:1342:C:H2’ | 1:A:1343:G:C8 | 2.32 | 0.64 |
| 1:A:1513:A:H2’ | 1:A:1514:G:C8 | 2.32 | 0.64 |
| 14:N:12:ARG:HH11 | 14:N:60:ARG:NH1 | 1.95 | 0.64 |
| 20:T:59:ARG:HB2 | 20:T:59:ARG:HH11 | 1.62 | 0.64 |
| 1:A:1518:A:H2 | 22:V:186:LYS:H | 1.45 | 0.64 |
| 2:B:41:ASN:ND2 | 2:B:44:LYS:HB2 | 2.13 | 0.64 |
| 11:K:105:ARG:NH2 | 21:U:10:PRO:HG3 | 2.12 | 0.64 |
| 13:M:3:ILE:HG23 | 13:M:56:ARG:HG2 | 1.78 | 0.64 |
| 14:N:51:PRO:HB2 | 14:N:54:SER:HB3 | 1.79 | 0.64 |
| 1:A:203:G:H1’ | 1:A:465:A:N6 | 2.13 | 0.64 |
| 1:A:205:A:H2’ | 1:A:206:C:H6 | 1.60 | 0.64 |
| 1:A:269:C:H2’ | 1:A:270:A:H8 | 1.63 | 0.64 |
| 1:A:1515:G:OP2 | 23:V:336:HOH:O | 2.15 | 0.64 |
| 3:C:141:MET:HE1 | 3:C:147:GLY:H | 1.61 | 0.64 |
| 5:E:45:VAL:O | 5:E:71:ILE:HG22 | 1.98 | 0.64 |
| 8:H:63:LYS:HG2 | 8:H:70:VAL:HG21 | 1.80 | 0.64 |
| 20:T:48:LYS:O | 20:T:52:GLU:HB2 | 1.96 | 0.64 |
| 1:A:875:U:O2’ | 8:H:14:ARG:HD2 | 1.97 | 0.64 |
| 3:C:113:LYS:HE2 | 3:C:117:ASP:OD2 | 1.97 | 0.64 |
| 3:C:185:THR:HG22 | 3:C:186:SER:H | 1.62 | 0.64 |
| 7:G:148:LYS:HG3 | 7:G:151:ALA:HB3 | 1.80 | 0.64 |
| 1:A:522:C:H41 | 12:L:49:ARG:HH22 | 1.45 | 0.64 |
| 1:A:1080:A:C8 | 5:E:22:LYS:CA | 2.70 | 0.64 |
| 5:E:104:ILE:HD13 | 5:E:115:GLU:HG3 | 1.78 | 0.64 |
| 11:K:88:PRO:HA | 11:K:92:ARG:HE | 1.63 | 0.64 |
| 1:A:269:C:H2’ | 1:A:270:A:C8 | 2.32 | 0.64 |
| 1:A:539:A:H2’ | 1:A:540:G:C8 | 2.32 | 0.64 |
| 1:A:827:U:C3’ | 2:B:28:PRO:CB | 2.64 | 0.64 |
| 1:A:828:U:O4 | 2:B:23:ASN:O | 2.15 | 0.64 |
| 4:D:2:ARG:HG3 | 4:D:114:ARG:CZ | 2.28 | 0.64 |
| 19:S:31:ARG:HG3 | 19:S:56:HIS:NE2 | 2.13 | 0.64 |
| 1:A:131:A:H2’ | 1:A:132:C:C6 | 2.32 | 0.64 |
| 1:A:312:C:H2’ | 1:A:313:A:C8 | 2.33 | 0.64 |
| 6:F:53:LYS:HA | 6:F:53:LYS:NZ | 2.11 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:N:71:GLY:O | 14:N:79:SER:HA | 1.98 | 0.64 |
| 20:T:4:LYS:HD2 | 20:T:5:SER:N | 2.13 | 0.64 |
| 20:T:15:LYS:HD3 | 20:T:18:LYS:HE3 | 1.79 | 0.64 |
| 1:A:18:C:H5 | 1:A:1078:U:O2 | 1.81 | 0.63 |
| 1:A:1081:A:H61 | 5:E:51:LYS:HZ3 | 1.45 | 0.63 |
| 2:B:65:LYS:HD2 | 2:B:157:PRO:HA | 1.80 | 0.63 |
| 1:A:524:G:H2' | 1:A:525:C:C6 | 2.34 | 0.63 |
| 1:A:1081:A:H61 | 5:E:51:LYS:NZ | 1.95 | 0.63 |
| 9:I:20:ILE:HG23 | 9:I:60:LEU:HD13 | 1.79 | 0.63 |
| 16:P:46:LYS:H | 16:P:46:LYS:CD | 2.10 | 0.63 |
| 17:Q:26:ARG:HE | 17:Q:39:ARG:NH1 | 1.96 | 0.63 |
| 1:A:105:G:H2' | 1:A:106:C:C6 | 2.33 | 0.63 |
| 13:M:106:ARG:HH11 | 13:M:106:ARG:HA | 1.61 | 0.63 |
| 16:P:42:ILE:HG22 | 16:P:43:ALA:N | 2.14 | 0.63 |
| 1:A:10:A:OP2 | 5:E:130:THR:HB | 1.99 | 0.63 |
| 1:A:919:A:H2 | 1:A:1078:U:O4 | 1.78 | 0.63 |
| 1:A:981:U:H4' | 14:N:60:ARG:HG3 | 1.81 | 0.63 |
| 2:B:75:ALA:O | 2:B:79:VAL:HB | 1.98 | 0.63 |
| 6:F:92:THR:HG23 | 6:F:93:LYS:H | 1.64 | 0.63 |
| 8:H:11:THR:HA | 8:H:14:ARG:NH1 | 2.14 | 0.63 |
| 10:J:87:LEU:HD22 | 10:J:90:LEU:HD12 | 1.79 | 0.63 |
| 12:L:20:VAL:HG13 | 12:L:94:TYR:OH | 1.98 | 0.63 |
| 12:L:85:ARG:HA | 12:L:93:ARG:HA | 1.80 | 0.63 |
| 1:A:1080:A:O3' | 5:E:22:LYS:O | 2.00 | 0.63 |
| 1:A:1118:U:H1' | 1:A:1179:A:C4 | 2.34 | 0.63 |
| 2:B:118:THR:O | 2:B:121:GLN:HB3 | 1.98 | 0.63 |
| 3:C:146:LYS:HE3 | 3:C:202:PHE:CE2 | 2.30 | 0.63 |
| 5:E:104:ILE:HD11 | 5:E:114:LEU:HB2 | 1.79 | 0.63 |
| 9:I:51:LEU:HB3 | 9:I:56:MET:HG2 | 1.81 | 0.63 |
| 10:J:88:MET:HB2 | 10:J:89:ARG:NH1 | 2.11 | 0.63 |
| 19:S:39:ILE:HG21 | 19:S:65:MET:HB3 | 1.80 | 0.63 |
| 21:U:36:PHE:HB3 | 21:U:40:PRO:CG | 2.29 | 0.63 |
| 1:A:9:G:H5' | 5:E:107:GLY:HA3 | 1.81 | 0.63 |
| 1:A:1082:A:P | 5:E:22:LYS:NZ | 2.72 | 0.63 |
| 11:K:105:ARG:HH21 | 21:U:10:PRO:HG3 | 1.63 | 0.63 |
| 13:M:1:ALA:O | 13:M:8:ILE:HG22 | 1.98 | 0.63 |
| 19:S:4:LEU:HD13 | 19:S:9:PHE:N | 2.13 | 0.63 |
| 1:A:620:C:H1' | 4:D:131:ILE:HG21 | 1.79 | 0.63 |
| 1:A:678:U:H2' | 1:A:679:C:C6 | 2.34 | 0.63 |
| 1:A:870:U:C5 | 2:B:27:LYS:CD | 2.72 | 0.63 |
| 2:B:148:GLY:O | 2:B:151:LYS:HE2 | 1.99 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:662:U:H2' | 1:A:663:A:C8 | 2.34 | 0.63 |
| 1:A:921:U:C6 | 1:A:1080:A:N6 | 2.66 | 0.63 |
| 2:B:178:LEU:HD13 | 5:E:69:ASN:OD1 | 1.98 | 0.63 |
| 13:M:68:LEU:O | 13:M:72:ILE:HD13 | 1.99 | 0.63 |
| 16:P:9:HIS:HE1 | 16:P:29:ASN:HB2 | 1.64 | 0.63 |
| 16:P:68:SER:HB3 | 16:P:71:VAL:HG12 | 1.80 | 0.63 |
| 17:Q:10:ARG:HH11 | 17:Q:55:GLY:N | 1.97 | 0.63 |
| 10:J:67:ILE:HD11 | 14:N:95:LEU:HD22 | 1.81 | 0.62 |
| 1:A:60:A:H4' | 1:A:61:G:O5' | 1.99 | 0.62 |
| 1:A:921:U:C2 | 1:A:1080:A:C6 | 2.87 | 0.62 |
| 2:B:163:ILE:O | 2:B:185:ILE:HG13 | 1.99 | 0.62 |
| 7:G:44:SER:O | 7:G:48:THR:HG23 | 1.99 | 0.62 |
| 9:I:30:ASN:ND2 | 9:I:65:THR:HA | 2.14 | 0.62 |
| 12:L:43:LYS:N | 12:L:44:PRO:HD2 | 2.14 | 0.62 |
| 16:P:67:ILE:HD11 | 16:P:72:ALA:HA | 1.81 | 0.62 |
| 1:A:69:G:H2' | 1:A:70:U:C6 | 2.34 | 0.62 |
| 1:A:1011:C:H2' | 1:A:1012:A:H8 | 1.64 | 0.62 |
| 3:C:61:LYS:O | 3:C:96:VAL:HB | 1.98 | 0.62 |
| 6:F:9:MET:HA | 6:F:58:HIS:O | 1.99 | 0.62 |
| 3:C:5:HIS:CD2 | 3:C:8:GLY:H | 2.16 | 0.62 |
| 4:D:56:GLU:HG2 | 4:D:195:ASN:HD22 | 1.63 | 0.62 |
| 11:K:69:CYS:C | 11:K:71:ASP:H | 2.01 | 0.62 |
| 21:U:40:PRO:O | 21:U:44:ARG:HB2 | 1.98 | 0.62 |
| 1:A:121:U:OP1 | 1:A:121:U:H3' | 2.00 | 0.62 |
| 15:O:11:VAL:HG23 | 15:O:26:VAL:HG11 | 1.82 | 0.62 |
| 15:O:29:ALA:HA | 15:O:84:LEU:HD21 | 1.80 | 0.62 |
| 1:A:79:G:H2' | 1:A:80:A:C8 | 2.34 | 0.62 |
| 1:A:918:A:H2' | 1:A:919:A:C8 | 2.35 | 0.62 |
| 5:E:114:LEU:HD22 | 5:E:119:VAL:HG21 | 1.80 | 0.62 |
| 14:N:11:LYS:O | 14:N:15:LEU:HG | 1.99 | 0.62 |
| 14:N:15:LEU:HD12 | 14:N:16:ALA:N | 2.14 | 0.62 |
| 1:A:37:U:P | 12:L:119:LYS:HB2 | 2.40 | 0.62 |
| 1:A:78:A:H2' | 1:A:79:G:H8 | 1.63 | 0.62 |
| 1:A:531:U:H5' | 1:A:531:U:H6 | 1.63 | 0.62 |
| 1:A:1101:A:H61 | 2:B:173:LYS:HD2 | 1.63 | 0.62 |
| 3:C:151:GLU:O | 3:C:197:VAL:HA | 1.99 | 0.62 |
| 9:I:113:LYS:HA | 9:I:120:ALA:HB2 | 1.81 | 0.62 |
| 13:M:88:LEU:O | 13:M:92:ARG:HG3 | 2.00 | 0.62 |
| 19:S:5:LYS:N | 19:S:5:LYS:HE3 | 2.15 | 0.62 |
| 9:I:35:GLU:HA | 9:I:39:GLY:HA3 | 1.82 | 0.62 |
| 9:I:40:ARG:N | 9:I:44:ARG:HE | 1.96 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 12:L:64:SER:OG | 12:L:96:THR:HG23 | 2.00 | 0.62 |
| 21:U:39:LYS:N | 21:U:40:PRO:HD2 | 2.14 | 0.62 |
| 1:A:501:C:H1' | 1:A:549:C:H1' | 1.81 | 0.62 |
| 1:A:1081:A:H8 | 5:E:22:LYS:HB3 | 1.57 | 0.62 |
| 1:A:1081:A:C5' | 5:E:24:VAL:HG13 | 2.30 | 0.62 |
| 2:B:17:HIS:HB2 | 2:B:202:ASN:OD1 | 2.00 | 0.62 |
| 3:C:69:THR:HG21 | 3:C:75:VAL:HG21 | 1.81 | 0.62 |
| 21:U:14:ALA:CA | 21:U:16:ARG:CD | 2.78 | 0.62 |
| 1:A:763:G:H2' | 1:A:764:C:H6 | 1.64 | 0.62 |
| 1:A:817:C:H1' | 1:A:819:A:H5' | 1.80 | 0.62 |
| 3:C:59:PRO:HG2 | 3:C:60:ALA:H | 1.65 | 0.62 |
| 5:E:33:THR:O | 5:E:34:ALA:HB3 | 2.00 | 0.62 |
| 15:O:87:ARG:NH1 | 15:O:87:ARG:HA | 2.15 | 0.62 |
| 1:A:882:C:O2' | 1:A:883:C:H5' | 1.99 | 0.61 |
| 2:B:96:LEU:HD21 | 2:B:146:SER:HB2 | 1.82 | 0.61 |
| 4:D:163:GLN:HB2 | 4:D:164:ARG:NH1 | 2.14 | 0.61 |
| 5:E:140:ILE:HA | 5:E:143:LEU:HD12 | 1.81 | 0.61 |
| 1:A:8:A:H2' | 4:D:205:LYS:O | 2.00 | 0.61 |
| 1:A:1038:C:H2' | 1:A:1039:G:H8 | 1.64 | 0.61 |
| 1:A:1074:G:H5' | 2:B:104:LYS:NZ | 2.15 | 0.61 |
| 1:A:1285:A:H4' | 1:A:1286:U:C5 | 2.36 | 0.61 |
| 6:F:99:ALA:O | 6:F:100:SER:HB2 | 2.00 | 0.61 |
| 9:I:10:ARG:HB2 | 9:I:14:SER:O | 2.00 | 0.61 |
| 13:M:103:THR:HG22 | 13:M:104:ASN:H | 1.62 | 0.61 |
| 4:D:99:ASN:ND2 | 4:D:110:ARG:HE | 1.97 | 0.61 |
| 10:J:15:HIS:HD2 | 10:J:18:ILE:HG22 | 1.65 | 0.61 |
| 10:J:80:THR:H | 10:J:84:VAL:HG11 | 1.66 | 0.61 |
| 14:N:78:LEU:HB2 | 14:N:83:VAL:HG22 | 1.82 | 0.61 |
| 18:R:52:ARG:HB3 | 18:R:52:ARG:NH1 | 2.14 | 0.61 |
| 1:A:590:U:H2' | 1:A:591:U:C6 | 2.35 | 0.61 |
| 1:A:1060:U:H2' | 1:A:1061:G:C8 | 2.35 | 0.61 |
| 5:E:35:LEU:HD11 | 5:E:136:VAL:HG11 | 1.81 | 0.61 |
| 13:M:98:GLY:H | 13:M:99:GLN:HE21 | 1.49 | 0.61 |
| 1:A:505:G:H5' | 1:A:534:U:H2' | 1.81 | 0.61 |
| 4:D:7:LYS:HE2 | 4:D:20:LEU:HD22 | 1.83 | 0.61 |
| 7:G:49:LEU:HB2 | 7:G:57:GLU:HG3 | 1.82 | 0.61 |
| 11:K:69:CYS:O | 11:K:73:VAL:HG23 | 2.01 | 0.61 |
| 19:S:50:VAL:O | 19:S:56:HIS:HA | 2.00 | 0.61 |
| 22:V:44:ILE:HD13 | 22:V:122:LEU:HD21 | 1.83 | 0.61 |
| 1:A:919:A:C2 | 1:A:1079:G:O6 | 2.54 | 0.61 |
| 1:A:983:A:H5' | 1:A:984:C:OP2 | 1.99 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1300:G:H1' | 1:A:1301:U:C5 | 2.36 | 0.61 |
| 2:B:27:LYS:HB3 | 2:B:28:PRO:HD3 | 1.82 | 0.61 |
| 11:K:95:THR:HG23 | 11:K:96:ILE:H | 1.65 | 0.61 |
| 20:T:54:GLN:N | 20:T:55:PRO:HD2 | 2.16 | 0.61 |
| 1:A:476:U:H2' | 1:A:477:C:C6 | 2.35 | 0.61 |
| 1:A:1225:A:H3' | 1:A:1226:C:C6 | 2.35 | 0.61 |
| 1:A:1254:A:OP1 | 10:J:47:GLU:HG3 | 2.01 | 0.61 |
| 1:A:194:C:O2' | 1:A:195:A:H5' | 2.01 | 0.61 |
| 1:A:699:C:C2' | 1:A:700:G:H5" | 2.30 | 0.61 |
| 1:A:1225:A:H4' | 19:S:77:ARG:NH2 | 2.16 | 0.61 |
| 4:D:94:GLU:HG3 | 4:D:103:ARG:NH1 | 2.16 | 0.61 |
| 5:E:155:LYS:HA | 8:H:65:PHE:CD1 | 2.36 | 0.61 |
| 1:A:1295:U:H2' | 1:A:1296:C:C6 | 2.35 | 0.61 |
| 1:A:1518:A:H2' | 1:A:1519:A:C8 | 2.35 | 0.61 |
| 2:B:76:SER:O | 2:B:79:VAL:HG12 | 2.01 | 0.61 |
| 7:G:3:ARG:HB3 | 7:G:3:ARG:NH1 | 2.16 | 0.61 |
| 7:G:117:LEU:HD22 | 7:G:120:ALA:HB3 | 1.83 | 0.61 |
| 7:G:144:ALA:C | 7:G:146:ALA:H | 2.04 | 0.61 |
| 1:A:80:A:H2' | 1:A:81:A:O4' | 2.01 | 0.61 |
| 1:A:590:U:H2' | 1:A:591:U:H6 | 1.66 | 0.61 |
| 1:A:1171:A:H2' | 1:A:1172:C:H6 | 1.65 | 0.61 |
| 5:E:96:GLN:HB3 | 5:E:123:LEU:CD1 | 2.31 | 0.61 |
| 9:I:15:ALA:O | 9:I:66:VAL:HG23 | 2.01 | 0.61 |
| 10:J:25:ILE:HG23 | 10:J:29:ALA:HB3 | 1.83 | 0.61 |
| 1:A:1193:G:O2' | 1:A:1194:U:H5' | 2.01 | 0.60 |
| 1:A:1513:A:H2' | 1:A:1514:G:H8 | 1.65 | 0.60 |
| 3:C:30:ASP:O | 3:C:33:ASP:HB3 | 2.01 | 0.60 |
| 5:E:110:MET:HB3 | 5:E:139:THR:HG21 | 1.82 | 0.60 |
| 8:H:30:LYS:HA | 8:H:30:LYS:HZ2 | 1.65 | 0.60 |
| 13:M:5:GLY:O | 13:M:6:ILE:HG12 | 2.00 | 0.60 |
| 14:N:63:CYS:SG | 14:N:66:THR:HG22 | 2.41 | 0.60 |
| 1:A:801:U:H2' | 1:A:802:A:H8 | 1.66 | 0.60 |
| 1:A:1048:G:H4' | 14:N:2:LYS:HZ2 | 1.66 | 0.60 |
| 1:A:1257:A:H2' | 1:A:1257:A:N3 | 2.16 | 0.60 |
| 6:F:40:GLU:HG3 | 6:F:42:TRP:NE1 | 2.16 | 0.60 |
| 22:V:181:PHE:HB2 | 22:V:185:PRO:HD3 | 1.83 | 0.60 |
| 13:M:98:GLY:H | 13:M:99:GLN:NE2 | 1.99 | 0.60 |
| 1:A:95:C:O2 | 1:A:95:C:H2' | 2.02 | 0.60 |
| 1:A:1281:C:H5' | 1:A:1282:C:H5 | 1.66 | 0.60 |
| 1:A:1307:U:H2' | 1:A:1308:U:C6 | 2.36 | 0.60 |
| 2:B:53:LEU:HD21 | 2:B:212:TYR:CE1 | 2.37 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:120:LYS:HB2 | 4:D:145:ARG:HH21 | 1.66 | 0.60 |
| 5:E:85:LYS:HE2 | 5:E:92:ARG:NH1 | 2.16 | 0.60 |
| 9:I:18:VAL:HG11 | 9:I:82:ILE:HG12 | 1.83 | 0.60 |
| 11:K:86:LYS:HG3 | 11:K:113:THR:HA | 1.82 | 0.60 |
| 20:T:60:GLN:NE2 | 20:T:61:ALA:H | 1.99 | 0.60 |
| 1:A:132:C:H5" | 20:T:68:LYS:HE3 | 1.82 | 0.60 |
| 1:A:429:U:H1' | 1:A:430:A:H5" | 1.84 | 0.60 |
| 1:A:859:G:O4' | 2:B:26:MET:HG2 | 2.02 | 0.60 |
| 2:B:69:VAL:O | 2:B:163:ILE:HG22 | 2.00 | 0.60 |
| 8:H:79:ARG:HB2 | 8:H:80:PRO:HD2 | 1.84 | 0.60 |
| 4:D:20:LEU:H | 4:D:20:LEU:HD12 | 1.65 | 0.60 |
| 17:Q:26:ARG:HH21 | 17:Q:39:ARG:CZ | 2.13 | 0.60 |
| 1:A:370:C:H2' | 1:A:371:A:H8 | 1.66 | 0.60 |
| 1:A:858:G:O4' | 2:B:22:TRP:O | 2.18 | 0.60 |
| 1:A:858:G:O6 | 1:A:869:G:H3' | 2.01 | 0.60 |
| 1:A:1090:U:H2' | 1:A:1091:U:C6 | 2.37 | 0.60 |
| 15:O:55:LEU:O | 15:O:59:VAL:HG23 | 2.01 | 0.60 |
| 19:S:28:LYS:HB2 | 19:S:29:PRO:HD2 | 1.84 | 0.60 |
| 1:A:105:G:H2' | 1:A:106:C:H6 | 1.66 | 0.60 |
| 1:A:212:G:H2' | 1:A:213:G:H8 | 1.65 | 0.60 |
| 1:A:783:C:O2' | 1:A:784:A:H5' | 2.02 | 0.60 |
| 1:A:832:G:O2' | 1:A:833:G:H5' | 2.02 | 0.60 |
| 1:A:1074:G:H2' | 1:A:1075:U:C6 | 2.35 | 0.60 |
| 4:D:191:SER:O | 4:D:192:ALA:HB2 | 2.01 | 0.60 |
| 5:E:152:VAL:HG21 | 8:H:98:LEU:HD23 | 1.83 | 0.60 |
| 7:G:59:GLU:O | 7:G:63:VAL:HG23 | 2.01 | 0.60 |
| 12:L:78:VAL:HG12 | 12:L:101:LEU:HD23 | 1.82 | 0.60 |
| 19:S:50:VAL:HB | 19:S:57:VAL:HG22 | 1.84 | 0.60 |
| 22:V:115:PRO:HD2 | 22:V:118:ILE:HD11 | 1.84 | 0.60 |
| 1:A:1278:G:H4' | 1:A:1279:G:O5' | 2.01 | 0.60 |
| 2:B:31:PHE:HB3 | 2:B:39:ILE:HB | 1.84 | 0.60 |
| 2:B:51:GLU:OE2 | 8:H:20:ASN:ND2 | 2.34 | 0.60 |
| 7:G:22:LEU:O | 7:G:25:PHE:HB3 | 2.01 | 0.60 |
| 3:C:5:HIS:CD2 | 14:N:88:MET:HB3 | 2.37 | 0.60 |
| 4:D:59:LYS:O | 4:D:63:ILE:HG13 | 2.02 | 0.60 |
| 10:J:56:HIS:N | 14:N:80:ARG:HH22 | 1.98 | 0.60 |
| 14:N:20:PHE:HA | 14:N:24:ALA:HB2 | 1.83 | 0.60 |
| 1:A:17:U:C4' | 1:A:1079:G:P | 2.84 | 0.59 |
| 1:A:1074:G:H2' | 1:A:1075:U:H6 | 1.67 | 0.59 |
| 4:D:90:LEU:HA | 4:D:93:LEU:HD12 | 1.83 | 0.59 |
| 12:L:35:ARG:HA | 12:L:35:ARG:HE | 1.67 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:59:GLU:H | 17:Q:74:LEU:CD2 | 2.14 | 0.59 |
| 1:A:93:U:H3’ | 1:A:94:G:H5” | 1.83 | 0.59 |
| 1:A:118:U:O4 | 1:A:288:A:H2’ | 2.02 | 0.59 |
| 1:A:720:C:H5” | 18:R:40:PRO:HA | 1.84 | 0.59 |
| 1:A:829:G:C1’ | 2:B:30:ILE:HG12 | 2.30 | 0.59 |
| 1:A:1109:C:H42 | 1:A:1110:A:N6 | 1.98 | 0.59 |
| 11:K:83:VAL:HG23 | 11:K:109:ILE:HA | 1.84 | 0.59 |
| 1:A:763:G:H2’ | 1:A:764:C:C6 | 2.36 | 0.59 |
| 1:A:858:G:N9 | 2:B:23:ASN:ND2 | 2.46 | 0.59 |
| 1:A:920:U:H2’ | 1:A:921:U:C6 | 2.38 | 0.59 |
| 3:C:112:ALA:HB1 | 3:C:199:VAL:HG23 | 1.84 | 0.59 |
| 4:D:11:SER:OG | 4:D:17:ASP:HA | 2.02 | 0.59 |
| 4:D:58:GLN:HA | 4:D:61:ARG:HB2 | 1.83 | 0.59 |
| 4:D:94:GLU:HA | 4:D:103:ARG:HH22 | 1.67 | 0.59 |
| 7:G:64:ALA:HA | 7:G:127:ALA:HB2 | 1.83 | 0.59 |
| 1:A:107:G:O6 | 20:T:9:ARG:HD3 | 2.03 | 0.59 |
| 1:A:451:A:H4’ | 1:A:452:A:O4’ | 2.03 | 0.59 |
| 1:A:1243:C:H2’ | 1:A:1244:G:H8 | 1.67 | 0.59 |
| 1:A:1361:G:H2’ | 1:A:1362:A:H5” | 1.85 | 0.59 |
| 20:T:67:HIS:O | 20:T:70:LYS:HG2 | 2.02 | 0.59 |
| 21:U:13:VAL:HG13 | 21:U:14:ALA:N | 2.16 | 0.59 |
| 1:A:57:G:H2’ | 1:A:58:C:C6 | 2.37 | 0.59 |
| 1:A:241:G:O2’ | 1:A:242:G:H5’ | 2.03 | 0.59 |
| 2:B:156:LEU:HD13 | 5:E:68:ARG:HH22 | 1.68 | 0.59 |
| 4:D:20:LEU:O | 4:D:21:LYS:HE3 | 2.02 | 0.59 |
| 4:D:118:SER:HA | 4:D:130:ASN:HB2 | 1.85 | 0.59 |
| 7:G:53:SER:HB2 | 7:G:55:LYS:NZ | 2.18 | 0.59 |
| 10:J:26:VAL:O | 10:J:30:LYS:HB3 | 2.02 | 0.59 |
| 1:A:858:G:H1’ | 2:B:22:TRP:C | 2.11 | 0.59 |
| 1:A:967:C:H3’ | 1:A:968:A:C5’ | 2.33 | 0.59 |
| 1:A:1517:G:N3 | 22:V:141:GLN:CG | 2.51 | 0.59 |
| 2:B:128:LEU:HG | 2:B:132:GLU:HG2 | 1.83 | 0.59 |
| 10:J:38:GLY:O | 10:J:74:VAL:HA | 2.02 | 0.59 |
| 16:P:51:ARG:O | 16:P:52:LEU:HD13 | 2.03 | 0.59 |
| 1:A:398:U:H2’ | 1:A:399:G:H8 | 1.66 | 0.59 |
| 1:A:829:G:C3’ | 2:B:30:ILE:CD1 | 2.78 | 0.59 |
| 1:A:830:G:C4’ | 2:B:38:HIS:ND1 | 2.34 | 0.59 |
| 1:A:1260:G:H4’ | 1:A:1284:C:H5’ | 1.84 | 0.59 |
| 5:E:156:ARG:HD2 | 8:H:42:GLU:O | 2.03 | 0.59 |
| 21:U:26:GLY:C | 21:U:28:LEU:H | 2.05 | 0.59 |
| 1:A:1219:A:H2’ | 1:A:1220:G:H8 | 1.64 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:67:LEU:HD13 | 2:B:67:LEU:N | 2.18 | 0.59 |
| 6:F:42:TRP:HB2 | 6:F:59:TYR:HB2 | 1.85 | 0.59 |
| 9:I:117:LEU:HD22 | 9:I:123:ARG:HG2 | 1.84 | 0.59 |
| 12:L:19:ASN:HB2 | 12:L:93:ARG:NH1 | 2.18 | 0.59 |
| 13:M:48:SER:O | 13:M:52:ILE:HG22 | 2.03 | 0.59 |
| 19:S:7:GLY:H | 19:S:8:PRO:HD3 | 1.67 | 0.59 |
| 1:A:626:G:H2' | 1:A:627:G:C8 | 2.38 | 0.59 |
| 3:C:141:MET:HE2 | 3:C:141:MET:HA | 1.84 | 0.59 |
| 15:O:60:SER:HA | 15:O:63:ARG:NH1 | 2.17 | 0.59 |
| 1:A:1163:A:H2' | 1:A:1164:G:H8 | 1.68 | 0.59 |
| 3:C:184:ASN:HD22 | 3:C:185:THR:N | 1.98 | 0.59 |
| 7:G:74:VAL:HG12 | 7:G:75:LYS:H | 1.68 | 0.59 |
| 10:J:30:LYS:HB2 | 10:J:36:VAL:HG21 | 1.85 | 0.59 |
| 14:N:61:ASN:O | 14:N:62:ARG:HB2 | 2.03 | 0.59 |
| 1:A:272:C:H2' | 1:A:273:U:H6 | 1.68 | 0.58 |
| 1:A:829:G:C8 | 2:B:27:LYS:HA | 2.38 | 0.58 |
| 1:A:1284:C:H3' | 1:A:1285:A:H5" | 1.84 | 0.58 |
| 4:D:25:ARG:NH1 | 4:D:30:LYS:HG2 | 2.18 | 0.58 |
| 4:D:154:VAL:HG13 | 4:D:155:LYS:H | 1.66 | 0.58 |
| 8:H:93:LYS:HZ2 | 8:H:93:LYS:N | 2.01 | 0.58 |
| 12:L:19:ASN:O | 12:L:20:VAL:HG23 | 2.03 | 0.58 |
| 17:Q:46:HIS:HB2 | 17:Q:70:LYS:HE3 | 1.85 | 0.58 |
| 8:H:8:ASP:O | 8:H:12:ARG:HG3 | 2.03 | 0.58 |
| 9:I:18:VAL:HG13 | 9:I:64:ILE:HG12 | 1.85 | 0.58 |
| 13:M:89:ARG:HB2 | 13:M:96:VAL:HG12 | 1.84 | 0.58 |
| 16:P:1:MET:N | 16:P:24:SER:HB3 | 2.18 | 0.58 |
| 1:A:1116:U:O2' | 1:A:1117:A:H5' | 2.03 | 0.58 |
| 2:B:41:ASN:ND2 | 2:B:44:LYS:HE2 | 2.17 | 0.58 |
| 2:B:166:ASP:OD1 | 2:B:190:SER:HA | 2.02 | 0.58 |
| 4:D:99:ASN:CG | 4:D:103:ARG:HH21 | 2.06 | 0.58 |
| 4:D:169:TRP:NE1 | 4:D:170:LEU:HD23 | 2.18 | 0.58 |
| 9:I:18:VAL:HG22 | 9:I:64:ILE:HG23 | 1.85 | 0.58 |
| 17:Q:7:LEU:HD13 | 17:Q:24:ILE:HG12 | 1.84 | 0.58 |
| 1:A:436:C:O2' | 1:A:437:U:H5' | 2.03 | 0.58 |
| 1:A:827:U:O2' | 2:B:28:PRO:CG | 2.36 | 0.58 |
| 1:A:1081:A:H4' | 5:E:24:VAL:HG13 | 1.82 | 0.58 |
| 1:A:1081:A:H5" | 5:E:24:VAL:HG13 | 1.84 | 0.58 |
| 1:A:1172:C:H2' | 1:A:1173:U:C6 | 2.39 | 0.58 |
| 7:G:11:ILE:HG12 | 7:G:24:LYS:HE2 | 1.85 | 0.58 |
| 1:A:270:A:H2' | 1:A:271:C:H6 | 1.68 | 0.58 |
| 1:A:830:G:C4 | 2:B:22:TRP:N | 2.71 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1241:G:H2' | 1:A:1242:G:C8 | 2.39 | 0.58 |
| 8:H:42:GLU:HG3 | 8:H:100:ILE:HD13 | 1.84 | 0.58 |
| 1:A:450:G:H4' | 16:P:41:PRO:HB2 | 1.85 | 0.58 |
| 1:A:784:A:H2' | 1:A:785:G:H8 | 1.69 | 0.58 |
| 1:A:1048:G:H4' | 14:N:2:LYS:NZ | 2.18 | 0.58 |
| 4:D:69:ARG:HA | 4:D:69:ARG:HE | 1.68 | 0.58 |
| 9:I:17:ARG:O | 9:I:64:ILE:HA | 2.02 | 0.58 |
| 1:A:376:G:H5" | 16:P:5:ARG:CB | 2.28 | 0.58 |
| 1:A:384:G:H2' | 1:A:385:C:C6 | 2.39 | 0.58 |
| 1:A:555:U:H2' | 1:A:556:C:C6 | 2.39 | 0.58 |
| 1:A:830:G:C5' | 2:B:17:HIS:O | 2.51 | 0.58 |
| 1:A:1217:C:OP1 | 14:N:8:ARG:HD3 | 2.03 | 0.58 |
| 1:A:1517:G:C4 | 22:V:141:GLN:NE2 | 2.72 | 0.58 |
| 9:I:118:ARG:HH22 | 9:I:122:ARG:HH21 | 1.52 | 0.58 |
| 1:A:987:G:H2' | 1:A:988:G:H8 | 1.69 | 0.58 |
| 1:A:1011:C:H2' | 1:A:1012:A:C8 | 2.37 | 0.58 |
| 4:D:137:SER:HB2 | 4:D:138:PRO:HD2 | 1.85 | 0.58 |
| 6:F:17:GLN:HG2 | 6:F:21:MET:HG3 | 1.86 | 0.58 |
| 12:L:42:LYS:HE3 | 12:L:90:PRO:HD3 | 1.84 | 0.58 |
| 1:A:560:A:H4' | 1:A:561:U:H5" | 1.86 | 0.58 |
| 1:A:676:A:H1' | 11:K:116:PRO:HB3 | 1.86 | 0.58 |
| 1:A:1163:A:H2' | 1:A:1164:G:C8 | 2.39 | 0.58 |
| 1:A:1329:A:OP1 | 13:M:28:ARG:HB2 | 2.04 | 0.58 |
| 1:A:1338:G:H2' | 1:A:1339:A:C8 | 2.39 | 0.58 |
| 5:E:13:LYS:HD2 | 5:E:112:ALA:HB1 | 1.85 | 0.58 |
| 1:A:1091:U:H2' | 1:A:1093:A:OP2 | 2.04 | 0.58 |
| 1:A:1100:C:OP2 | 2:B:94:ARG:HD3 | 2.04 | 0.58 |
| 1:A:1238:A:C2 | 1:A:1241:G:H1' | 2.38 | 0.58 |
| 1:A:1380:U:O4 | 7:G:2:ARG:HA | 2.04 | 0.58 |
| 3:C:46:LEU:HD23 | 3:C:75:VAL:HG13 | 1.86 | 0.58 |
| 4:D:24:VAL:HG23 | 4:D:25:ARG:HD2 | 1.86 | 0.58 |
| 7:G:97:ALA:HA | 7:G:100:MET:HE3 | 1.84 | 0.58 |
| 15:O:78:THR:HA | 15:O:81:ILE:HG12 | 1.84 | 0.58 |
| 1:A:57:G:H2' | 1:A:58:C:H6 | 1.68 | 0.57 |
| 1:A:870:U:OP2 | 2:B:24:PRO:HA | 2.03 | 0.57 |
| 4:D:25:ARG:HH12 | 4:D:30:LYS:HG2 | 1.69 | 0.57 |
| 6:F:18:VAL:N | 6:F:19:PRO:HD2 | 2.19 | 0.57 |
| 8:H:26:MET:HB2 | 8:H:27:PRO:HD2 | 1.86 | 0.57 |
| 9:I:18:VAL:HG22 | 9:I:64:ILE:HG12 | 1.85 | 0.57 |
| 11:K:126:ARG:HB2 | 21:U:33:ARG:CD | 2.32 | 0.57 |
| 19:S:44:ILE:HA | 19:S:61:VAL:HB | 1.86 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:678:U:H2' | 1:A:679:C:H6 | 1.69 | 0.57 |
| 1:A:829:G:C4 | 2:B:188:THR:HG22 | 2.37 | 0.57 |
| 1:A:860:A:N7 | 2:B:25:LYS:CD | 2.66 | 0.57 |
| 1:A:919:A:N1 | 1:A:1078:U:O4 | 2.36 | 0.57 |
| 2:B:147:LEU:O | 2:B:150:ILE:HG22 | 2.03 | 0.57 |
| 3:C:90:VAL:CG2 | 3:C:98:ALA:HB3 | 2.34 | 0.57 |
| 4:D:138:PRO:HA | 4:D:181:PHE:HD2 | 1.67 | 0.57 |
| 5:E:156:ARG:HB2 | 8:H:43:GLY:HA3 | 1.85 | 0.57 |
| 11:K:18:GLY:O | 11:K:81:LEU:HB2 | 2.03 | 0.57 |
| 12:L:22:ALA:HB2 | 12:L:56:LEU:HD21 | 1.85 | 0.57 |
| 1:A:312:C:H2' | 1:A:313:A:H8 | 1.68 | 0.57 |
| 1:A:390:U:H2' | 1:A:391:G:H8 | 1.66 | 0.57 |
| 1:A:1077:G:N2 | 1:A:1079:G:H3' | 2.19 | 0.57 |
| 1:A:1129:C:H5" | 9:I:17:ARG:HH22 | 1.70 | 0.57 |
| 1:A:1142:G:H2' | 1:A:1143:G:O4' | 2.03 | 0.57 |
| 4:D:99:ASN:HD21 | 4:D:110:ARG:HE | 1.52 | 0.57 |
| 4:D:170:LEU:HB2 | 4:D:180:THR:O | 2.04 | 0.57 |
| 4:D:196:GLU:HA | 4:D:199:ILE:HD12 | 1.85 | 0.57 |
| 5:E:90:GLY:O | 5:E:128:GLY:HA3 | 2.04 | 0.57 |
| 8:H:5:PRO:HB2 | 8:H:32:LYS:HZ1 | 1.68 | 0.57 |
| 1:A:91:U:H2' | 1:A:92:U:C6 | 2.40 | 0.57 |
| 1:A:1055:A:H4' | 3:C:160:GLU:CG | 2.35 | 0.57 |
| 1:A:1201:A:H1' | 1:A:1202:U:OP2 | 2.04 | 0.57 |
| 11:K:25:SER:HB3 | 11:K:28:ASN:O | 2.04 | 0.57 |
| 17:Q:10:ARG:HA | 17:Q:10:ARG:NE | 2.18 | 0.57 |
| 1:A:160:A:H2' | 1:A:161:A:O4' | 2.04 | 0.57 |
| 1:A:672:U:H2' | 1:A:673:A:C8 | 2.39 | 0.57 |
| 8:H:29:SER:CB | 8:H:32:LYS:HZ2 | 2.18 | 0.57 |
| 8:H:64:TYR:HA | 8:H:70:VAL:HG23 | 1.85 | 0.57 |
| 9:I:51:LEU:HD11 | 9:I:82:ILE:HG21 | 1.87 | 0.57 |
| 11:K:52:ARG:HD2 | 11:K:53:GLY:N | 2.19 | 0.57 |
| 11:K:58:THR:HG23 | 11:K:61:ALA:HB2 | 1.85 | 0.57 |
| 14:N:24:ALA:HB1 | 14:N:27:LYS:HE3 | 1.87 | 0.57 |
| 21:U:13:VAL:O | 21:U:14:ALA:HB2 | 2.05 | 0.57 |
| 1:A:72:A:H2' | 1:A:73:C:H6 | 1.70 | 0.57 |
| 1:A:203:G:H1' | 1:A:465:A:H62 | 1.69 | 0.57 |
| 1:A:239:U:C5' | 1:A:239:U:H6 | 2.18 | 0.57 |
| 1:A:586:C:O2' | 1:A:587:G:H5' | 2.04 | 0.57 |
| 1:A:625:U:H4' | 16:P:16:PHE:CE2 | 2.39 | 0.57 |
| 1:A:677:U:H3 | 1:A:713:G:H22 | 1.51 | 0.57 |
| 1:A:869:G:C1' | 2:B:24:PRO:HB2 | 2.35 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:K:95:THR:HG23 | 11:K:96:ILE:N | 2.20 | 0.57 |
| 13:M:95:PRO:HD3 | 13:M:108:ARG:HG2 | 1.87 | 0.57 |
| 20:T:60:GLN:H | 20:T:60:GLN:CD | 2.07 | 0.57 |
| 1:A:168:G:O2' | 1:A:169:C:H5' | 2.04 | 0.57 |
| 1:A:796:C:H5' | 11:K:128:VAL:HG13 | 1.86 | 0.57 |
| 1:A:967:C:OP1 | 1:A:969:A:H5' | 2.04 | 0.57 |
| 1:A:1026:G:H2' | 1:A:1027:C:H6 | 1.67 | 0.57 |
| 1:A:1111:A:HO2' | 1:A:1112:C:H6 | 1.53 | 0.57 |
| 3:C:183:TYR:HA | 3:C:199:VAL:O | 2.03 | 0.57 |
| 4:D:111:ALA:O | 4:D:114:ARG:HB3 | 2.04 | 0.57 |
| 4:D:173:ASP:HB3 | 4:D:178:GLU:HB3 | 1.85 | 0.57 |
| 7:G:4:ARG:CZ | 7:G:5:VAL:H | 2.18 | 0.57 |
| 9:I:118:ARG:NH1 | 9:I:122:ARG:HE | 2.03 | 0.57 |
| 11:K:92:ARG:HB3 | 11:K:92:ARG:NH1 | 2.19 | 0.57 |
| 1:A:129:A:H1' | 1:A:130:A:C8 | 2.40 | 0.57 |
| 1:A:190:A:H8 | 1:A:190:A:O5' | 1.87 | 0.57 |
| 1:A:827:U:C3' | 2:B:28:PRO:CG | 2.82 | 0.57 |
| 1:A:883:C:O2' | 1:A:884:U:H5' | 2.05 | 0.57 |
| 1:A:1074:G:OP1 | 5:E:65:LYS:CD | 2.52 | 0.57 |
| 1:A:1102:A:H2' | 1:A:1103:C:C6 | 2.40 | 0.57 |
| 4:D:117:VAL:O | 4:D:130:ASN:HA | 2.05 | 0.57 |
| 6:F:53:LYS:CD | 6:F:54:LEU:H | 2.11 | 0.57 |
| 7:G:132:THR:HG22 | 7:G:136:LYS:HG3 | 1.87 | 0.57 |
| 9:I:82:ILE:O | 9:I:86:LEU:HD22 | 2.03 | 0.57 |
| 20:T:34:VAL:HG22 | 20:T:49:ALA:HB1 | 1.87 | 0.57 |
| 21:U:14:ALA:HA | 21:U:16:ARG:NE | 2.18 | 0.57 |
| 1:A:528:C:H41 | 12:L:45:ASN:CG | 2.07 | 0.57 |
| 1:A:674:G:H2' | 1:A:675:A:H8 | 1.70 | 0.57 |
| 1:A:940:C:H2' | 1:A:941:G:H8 | 1.69 | 0.57 |
| 1:A:973:G:H1' | 10:J:56:HIS:ND1 | 2.20 | 0.57 |
| 13:M:21:ILE:CG2 | 13:M:64:VAL:HG11 | 2.32 | 0.57 |
| 14:N:30:ILE:CG2 | 14:N:41:TRP:HB2 | 2.34 | 0.57 |
| 1:A:1508:A:H2' | 1:A:1509:C:C6 | 2.40 | 0.57 |
| 4:D:60:VAL:HB | 4:D:194:ILE:HG13 | 1.86 | 0.57 |
| 6:F:3:HIS:HB2 | 6:F:92:THR:CB | 2.35 | 0.57 |
| 9:I:80:HIS:O | 9:I:84:ARG:HB2 | 2.04 | 0.57 |
| 16:P:12:LYS:HD2 | 16:P:13:LYS:HE3 | 1.87 | 0.57 |
| 17:Q:75:VAL:HG23 | 17:Q:76:ARG:H | 1.70 | 0.57 |
| 1:A:202:G:H2' | 1:A:203:G:C8 | 2.39 | 0.56 |
| 1:A:940:C:H2' | 1:A:941:G:C8 | 2.40 | 0.56 |
| 1:A:987:G:H2' | 1:A:988:G:C8 | 2.40 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1027:C:H2' | 1:A:1028:C:H6 | 1.70 | 0.56 |
| 1:A:1035:A:H2' | 1:A:1036:A:H8 | 1.69 | 0.56 |
| 1:A:1053:G:H4' | 1:A:1054:C:H5' | 1.87 | 0.56 |
| 1:A:1294:G:H2' | 1:A:1295:U:C6 | 2.40 | 0.56 |
| 7:G:13:PRO:HB2 | 7:G:18:GLY:CA | 2.35 | 0.56 |
| 7:G:96:ASN:O | 7:G:100:MET:HG3 | 2.04 | 0.56 |
| 9:I:56:MET:HE2 | 9:I:57:VAL:H | 1.70 | 0.56 |
| 14:N:9:GLU:HB2 | 14:N:60:ARG:NH2 | 2.20 | 0.56 |
| 16:P:23:ASP:O | 16:P:26:ASN:HB2 | 2.05 | 0.56 |
| 1:A:978:A:H5' | 1:A:1362:A:N6 | 2.19 | 0.56 |
| 1:A:985:C:H2' | 1:A:986:U:C6 | 2.41 | 0.56 |
| 9:I:56:MET:CE | 9:I:57:VAL:H | 2.17 | 0.56 |
| 9:I:61:ASP:O | 9:I:62:LEU:HD13 | 2.06 | 0.56 |
| 13:M:22:TYR:HB3 | 13:M:69:ARG:NH2 | 2.20 | 0.56 |
| 14:N:42:ASN:O | 14:N:46:LYS:HG3 | 2.05 | 0.56 |
| 1:A:176:C:H2' | 1:A:177:G:N3 | 2.20 | 0.56 |
| 1:A:177:G:H5" | 20:T:59:ARG:HH21 | 1.70 | 0.56 |
| 1:A:372:C:H1' | 1:A:373:A:OP2 | 2.05 | 0.56 |
| 1:A:764:C:H2' | 1:A:765:G:H5' | 1.87 | 0.56 |
| 1:A:978:A:HO2' | 1:A:1322:C:H5 | 1.51 | 0.56 |
| 1:A:1008:U:H2' | 1:A:1009:U:H4' | 1.87 | 0.56 |
| 1:A:1171:A:H2' | 1:A:1172:C:C6 | 2.40 | 0.56 |
| 1:A:1225:A:O5' | 13:M:102:LYS:HB3 | 2.06 | 0.56 |
| 1:A:1330:U:C2' | 1:A:1331:G:H5' | 2.35 | 0.56 |
| 4:D:25:ARG:HH11 | 4:D:30:LYS:HE3 | 1.70 | 0.56 |
| 5:E:104:ILE:CD1 | 5:E:114:LEU:HB2 | 2.34 | 0.56 |
| 6:F:54:LEU:CD1 | 6:F:55:HIS:H | 2.18 | 0.56 |
| 9:I:30:ASN:HD22 | 9:I:30:ASN:N | 2.04 | 0.56 |
| 11:K:61:ALA:O | 11:K:64:VAL:HG12 | 2.06 | 0.56 |
| 15:O:60:SER:HA | 15:O:63:ARG:HH12 | 1.69 | 0.56 |
| 16:P:51:ARG:HB3 | 16:P:51:ARG:HH11 | 1.71 | 0.56 |
| 19:S:59:VAL:HG11 | 19:S:70:LEU:HD11 | 1.87 | 0.56 |
| 1:A:810:C:O2' | 1:A:811:C:H5' | 2.06 | 0.56 |
| 1:A:1246:A:H2' | 1:A:1247:U:C6 | 2.41 | 0.56 |
| 2:B:119:GLN:O | 2:B:124:THR:HG23 | 2.04 | 0.56 |
| 7:G:4:ARG:NE | 7:G:5:VAL:H | 2.03 | 0.56 |
| 11:K:32:THR:HA | 11:K:43:TRP:HA | 1.88 | 0.56 |
| 12:L:105:GLY:HA3 | 12:L:117:GLY:HA3 | 1.88 | 0.56 |
| 16:P:41:PRO:O | 16:P:42:ILE:HD13 | 2.06 | 0.56 |
| 1:A:85:U:H4' | 1:A:86:G:H4' | 1.86 | 0.56 |
| 1:A:829:G:H1' | 2:B:188:THR:HA | 1.86 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:N:50:LEU:CD2 | 14:N:51:PRO:HD3 | 2.36 | 0.56 |
| 17:Q:45:VAL:HG12 | 17:Q:46:HIS:H | 1.70 | 0.56 |
| 19:S:32:THR:HB | 19:S:49:ALA:O | 2.06 | 0.56 |
| 1:A:278:G:H21 | 1:A:279:A:N6 | 2.04 | 0.56 |
| 1:A:335:C:H2' | 1:A:336:A:C8 | 2.41 | 0.56 |
| 2:B:38:HIS:O | 2:B:39:ILE:HD13 | 2.06 | 0.56 |
| 5:E:95:MET:HE2 | 5:E:114:LEU:HD11 | 1.87 | 0.56 |
| 7:G:67:ASN:ND2 | 7:G:127:ALA:HA | 2.21 | 0.56 |
| 11:K:97:ARG:HB3 | 11:K:97:ARG:NH1 | 2.21 | 0.56 |
| 16:P:18:GLN:NE2 | 16:P:35:ARG:HD2 | 2.20 | 0.56 |
| 20:T:68:LYS:CG | 20:T:69:ASN:H | 2.12 | 0.56 |
| 1:A:372:C:H4' | 1:A:373:A:H5' | 1.87 | 0.56 |
| 1:A:1244:G:H2' | 1:A:1245:C:C6 | 2.41 | 0.56 |
| 6:F:4:TYR:O | 6:F:63:ASN:HA | 2.04 | 0.56 |
| 12:L:37:TYR:HB2 | 12:L:51:VAL:HG23 | 1.88 | 0.56 |
| 1:A:521:G:OP2 | 12:L:50:LYS:HE3 | 2.06 | 0.56 |
| 1:A:629:A:H2' | 1:A:630:A:O4' | 2.06 | 0.56 |
| 1:A:1027:C:H2' | 1:A:1028:C:C6 | 2.41 | 0.56 |
| 1:A:1170:A:H8 | 1:A:1170:A:O5' | 1.88 | 0.56 |
| 7:G:72:VAL:HA | 7:G:89:GLU:HA | 1.87 | 0.56 |
| 11:K:88:PRO:HD3 | 21:U:28:LEU:CD1 | 2.34 | 0.56 |
| 14:N:12:ARG:HH21 | 14:N:58:ARG:HH12 | 1.53 | 0.56 |
| 19:S:11:ASP:CG | 19:S:34:SER:HB2 | 2.26 | 0.56 |
| 9:I:50:PRO:HG2 | 9:I:51:LEU:HD12 | 1.88 | 0.56 |
| 10:J:55:PRO:HA | 14:N:80:ARG:NH2 | 2.21 | 0.56 |
| 14:N:15:LEU:HD12 | 14:N:16:ALA:H | 1.71 | 0.56 |
| 16:P:20:VAL:HG22 | 16:P:21:VAL:N | 2.21 | 0.56 |
| 22:V:226:ARG:HD2 | 23:V:341:HOH:O | 2.06 | 0.56 |
| 1:A:163:C:H2' | 1:A:164:G:O4' | 2.06 | 0.56 |
| 1:A:313:A:H2' | 1:A:314:C:C6 | 2.40 | 0.56 |
| 1:A:449:G:H2' | 1:A:450:G:C8 | 2.40 | 0.56 |
| 1:A:829:G:C2' | 2:B:30:ILE:HG12 | 2.22 | 0.56 |
| 1:A:861:G:H8 | 2:B:193:ASP:OD1 | 1.84 | 0.56 |
| 6:F:100:SER:HA | 18:R:23:LYS:NZ | 2.21 | 0.56 |
| 13:M:106:ARG:NH1 | 13:M:109:LYS:HD2 | 2.21 | 0.56 |
| 1:A:389:A:H3' | 1:A:390:U:H6 | 1.71 | 0.55 |
| 1:A:555:U:H2' | 1:A:556:C:H6 | 1.71 | 0.55 |
| 1:A:1115:U:H2' | 1:A:1116:U:C6 | 2.41 | 0.55 |
| 1:A:1320:C:N4 | 19:S:36:ARG:HG2 | 2.21 | 0.55 |
| 10:J:87:LEU:HB3 | 10:J:88:MET:HE3 | 1.88 | 0.55 |
| 13:M:2:ARG:HB3 | 13:M:6:ILE:O | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:16:MET:CB | 17:Q:19:SER:HB2 | 2.35 | 0.55 |
| 1:A:803:G:H2' | 1:A:804:U:C6 | 2.40 | 0.55 |
| 1:A:844:G:N2 | 1:A:845:A:H62 | 2.03 | 0.55 |
| 1:A:1522:U:O2' | 1:A:1523:G:H5' | 2.06 | 0.55 |
| 2:B:138:ARG:HA | 2:B:141:GLU:OE2 | 2.06 | 0.55 |
| 3:C:45:GLU:C | 3:C:46:LEU:HD12 | 2.25 | 0.55 |
| 7:G:19:SER:OG | 7:G:22:LEU:HB2 | 2.06 | 0.55 |
| 10:J:24:GLU:OE2 | 10:J:90:LEU:HD22 | 2.06 | 0.55 |
| 10:J:53:ILE:HG23 | 14:N:84:ARG:CZ | 2.37 | 0.55 |
| 11:K:113:THR:HG21 | 21:U:28:LEU:HD21 | 1.88 | 0.55 |
| 11:K:113:THR:CG2 | 21:U:28:LEU:HD21 | 2.36 | 0.55 |
| 11:K:124:LYS:CA | 21:U:34:ARG:HB3 | 2.29 | 0.55 |
| 1:A:878:A:H1' | 8:H:3:GLN:HE22 | 1.70 | 0.55 |
| 2:B:125:PHE:HD1 | 2:B:125:PHE:H | 1.53 | 0.55 |
| 3:C:71:ARG:HB3 | 3:C:74:ILE:HG22 | 1.87 | 0.55 |
| 5:E:82:HIS:HB2 | 5:E:83:PRO:HD2 | 1.88 | 0.55 |
| 13:M:64:VAL:HG12 | 13:M:65:GLU:H | 1.71 | 0.55 |
| 14:N:66:THR:HG23 | 14:N:67:GLY:N | 2.20 | 0.55 |
| 17:Q:74:LEU:HD22 | 17:Q:75:VAL:N | 2.21 | 0.55 |
| 21:U:36:PHE:CB | 21:U:40:PRO:HD3 | 2.35 | 0.55 |
| 1:A:6:G:H4' | 1:A:298:A:H4' | 1.88 | 0.55 |
| 1:A:332:G:OP2 | 20:T:2:ASN:HB3 | 2.06 | 0.55 |
| 1:A:924:C:O2' | 1:A:925:G:H5' | 2.05 | 0.55 |
| 2:B:112:ARG:HA | 2:B:115:ASP:OD2 | 2.07 | 0.55 |
| 11:K:58:THR:HG23 | 11:K:61:ALA:CB | 2.36 | 0.55 |
| 12:L:83:GLY:HA2 | 12:L:94:TYR:HD1 | 1.70 | 0.55 |
| 13:M:13:HIS:HB2 | 13:M:16:ILE:CG2 | 2.37 | 0.55 |
| 21:U:14:ALA:N | 21:U:16:ARG:NH2 | 2.55 | 0.55 |
| 1:A:370:C:H2' | 1:A:371:A:C8 | 2.42 | 0.55 |
| 1:A:408:A:H5' | 4:D:21:LYS:HE2 | 1.88 | 0.55 |
| 1:A:845:A:H3' | 1:A:846:G:O4' | 2.06 | 0.55 |
| 1:A:1513:A:C2' | 23:V:312:HOH:O | 2.50 | 0.55 |
| 1:A:1517:G:C4' | 22:V:144:VAL:HG21 | 2.29 | 0.55 |
| 3:C:42:LEU:O | 3:C:46:LEU:HB2 | 2.07 | 0.55 |
| 4:D:117:VAL:HG12 | 4:D:130:ASN:HA | 1.88 | 0.55 |
| 9:I:51:LEU:HD11 | 9:I:82:ILE:HD13 | 1.87 | 0.55 |
| 21:U:39:LYS:N | 21:U:40:PRO:CD | 2.69 | 0.55 |
| 1:A:218:U:H2' | 1:A:219:U:C6 | 2.41 | 0.55 |
| 1:A:1280:A:O4' | 10:J:43:PRO:HG3 | 2.06 | 0.55 |
| 1:A:1324:A:H2' | 1:A:1325:C:H6 | 1.72 | 0.55 |
| 1:A:1332:A:H2' | 1:A:1333:A:C8 | 2.42 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:166:TRP:HA | 3:C:166:TRP:CE3 | 2.42 | 0.55 |
| 5:E:45:VAL:CG1 | 5:E:116:VAL:HG23 | 2.37 | 0.55 |
| 6:F:46:GLN:HA | 6:F:56:LYS:HG3 | 1.89 | 0.55 |
| 12:L:30:ARG:CB | 12:L:30:ARG:HH11 | 2.19 | 0.55 |
| 14:N:17:ASP:HA | 14:N:21:ALA:CB | 2.37 | 0.55 |
| 1:A:32:A:H2' | 1:A:33:A:C8 | 2.42 | 0.55 |
| 1:A:918:A:N1 | 1:A:1078:U:C5 | 2.74 | 0.55 |
| 1:A:1512:U:O2' | 1:A:1513:A:H5' | 2.07 | 0.55 |
| 2:B:148:GLY:HA2 | 2:B:151:LYS:HD3 | 1.89 | 0.55 |
| 3:C:39:ARG:HG3 | 3:C:54:ILE:HG21 | 1.87 | 0.55 |
| 3:C:151:GLU:HB2 | 3:C:200:TRP:HZ3 | 1.71 | 0.55 |
| 7:G:45:ALA:HB1 | 7:G:120:ALA:HB2 | 1.88 | 0.55 |
| 10:J:67:ILE:HG13 | 14:N:95:LEU:HD13 | 1.87 | 0.55 |
| 12:L:3:VAL:O | 12:L:7:VAL:HG23 | 2.07 | 0.55 |
| 14:N:65:GLN:HB2 | 14:N:78:LEU:HD22 | 1.87 | 0.55 |
| 17:Q:10:ARG:CZ | 17:Q:56:ASP:H | 2.20 | 0.55 |
| 1:A:97:G:H2' | 1:A:98:A:O4' | 2.07 | 0.55 |
| 1:A:921:U:O3' | 1:A:1082:A:C5' | 2.54 | 0.55 |
| 1:A:1517:G:H1' | 22:V:141:GLN:H | 1.71 | 0.55 |
| 4:D:32:LYS:O | 4:D:35:GLN:HB2 | 2.05 | 0.55 |
| 8:H:50:VAL:HG22 | 8:H:51:GLU:N | 2.22 | 0.55 |
| 9:I:38:PHE:O | 9:I:44:ARG:HG2 | 2.07 | 0.55 |
| 1:A:18:C:C4' | 1:A:1078:U:H5' | 2.37 | 0.55 |
| 1:A:173:U:H5' | 1:A:197:A:O4' | 2.07 | 0.55 |
| 1:A:1243:C:H2' | 1:A:1244:G:C8 | 2.41 | 0.55 |
| 5:E:132:PRO:HA | 5:E:135:VAL:HG22 | 1.88 | 0.55 |
| 8:H:46:GLU:HA | 8:H:63:LYS:HZ3 | 1.71 | 0.55 |
| 19:S:49:ALA:HB1 | 19:S:56:HIS:CB | 2.29 | 0.55 |
| 20:T:82:ILE:HG13 | 20:T:83:ASN:N | 2.22 | 0.55 |
| 1:A:190:A:H2' | 1:A:191:G:O4' | 2.07 | 0.55 |
| 1:A:393:A:H5' | 1:A:483:C:O2' | 2.07 | 0.55 |
| 1:A:769:G:H4' | 1:A:1513:A:H4' | 1.87 | 0.55 |
| 1:A:1101:A:N6 | 2:B:173:LYS:HD2 | 2.22 | 0.55 |
| 1:A:1112:C:O2 | 3:C:178:ARG:N | 2.40 | 0.55 |
| 2:B:67:LEU:HD22 | 2:B:67:LEU:N | 2.21 | 0.55 |
| 3:C:21:TRP:CB | 3:C:58:ARG:HB2 | 2.37 | 0.55 |
| 1:A:801:U:H2' | 1:A:802:A:C8 | 2.42 | 0.54 |
| 1:A:1035:A:H2' | 1:A:1036:A:C8 | 2.43 | 0.54 |
| 1:A:1135:U:O2 | 1:A:1135:U:H2' | 2.06 | 0.54 |
| 1:A:1160:G:H2' | 1:A:1161:C:H6 | 1.72 | 0.54 |
| 1:A:1346:A:N1 | 1:A:1374:A:H5" | 2.22 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:87:ASP:O | 2:B:88:GLN:HG3 | 2.07 | 0.54 |
| 2:B:216:VAL:O | 2:B:220:VAL:HG23 | 2.06 | 0.54 |
| 3:C:77:GLY:HA3 | 3:C:81:GLU:HB3 | 1.89 | 0.54 |
| 10:J:11:LYS:NZ | 10:J:99:GLN:H | 2.05 | 0.54 |
| 11:K:54:SER:HA | 11:K:56:LYS:HE3 | 1.90 | 0.54 |
| 1:A:930:C:H2' | 1:A:931:C:O4' | 2.08 | 0.54 |
| 1:A:1117:A:H5" | 9:I:105:ARG:HH12 | 1.73 | 0.54 |
| 2:B:144:GLU:O | 2:B:148:GLY:HA3 | 2.06 | 0.54 |
| 3:C:156:LEU:HD12 | 3:C:156:LEU:H | 1.72 | 0.54 |
| 5:E:56:PRO:O | 5:E:60:GLN:HG3 | 2.07 | 0.54 |
| 9:I:49:GLN:NE2 | 9:I:79:ARG:HD2 | 2.21 | 0.54 |
| 11:K:70:ALA:HB1 | 11:K:74:LYS:HE3 | 1.89 | 0.54 |
| 14:N:30:ILE:HG21 | 14:N:44:VAL:HG21 | 1.88 | 0.54 |
| 15:O:84:LEU:HD22 | 15:O:86:LEU:HD11 | 1.90 | 0.54 |
| 17:Q:32:ILE:HG13 | 17:Q:33:TYR:N | 2.21 | 0.54 |
| 1:A:398:U:H2' | 1:A:399:G:C8 | 2.42 | 0.54 |
| 1:A:1221:G:H5" | 19:S:35:ARG:NH1 | 2.23 | 0.54 |
| 3:C:154:GLY:HA2 | 3:C:163:ARG:O | 2.06 | 0.54 |
| 6:F:61:LEU:HD12 | 6:F:63:ASN:OD1 | 2.07 | 0.54 |
| 6:F:64:VAL:HG12 | 6:F:65:GLU:N | 2.17 | 0.54 |
| 7:G:110:ARG:HH22 | 7:G:121:ASN:HB3 | 1.73 | 0.54 |
| 1:A:921:U:H2' | 1:A:922:G:O4' | 2.06 | 0.54 |
| 1:A:1363:A:H2' | 1:A:1363:A:N3 | 2.22 | 0.54 |
| 6:F:6:ILE:HD13 | 6:F:89:VAL:HB | 1.90 | 0.54 |
| 11:K:51:PHE:CE1 | 11:K:61:ALA:HB1 | 2.43 | 0.54 |
| 15:O:54:GLY:O | 15:O:58:MET:HG2 | 2.07 | 0.54 |
| 17:Q:44:HIS:O | 17:Q:72:TRP:HB2 | 2.07 | 0.54 |
| 1:A:415:A:H3' | 1:A:416:G:H8 | 1.72 | 0.54 |
| 1:A:621:A:H2' | 1:A:622:A:C8 | 2.43 | 0.54 |
| 1:A:830:G:O4' | 2:B:188:THR:HB | 2.08 | 0.54 |
| 1:A:830:G:N1 | 2:B:22:TRP:CD1 | 2.75 | 0.54 |
| 2:B:46:VAL:O | 2:B:49:PHE:HB2 | 2.07 | 0.54 |
| 2:B:67:LEU:HA | 2:B:89:PHE:O | 2.07 | 0.54 |
| 9:I:23:GLY:O | 9:I:24:ASN:HB2 | 2.06 | 0.54 |
| 11:K:15:VAL:HG21 | 11:K:41:LEU:HD11 | 1.88 | 0.54 |
| 11:K:110:THR:CG2 | 21:U:4:LYS:HA | 2.37 | 0.54 |
| 19:S:20:LYS:O | 19:S:23:GLU:HB3 | 2.07 | 0.54 |
| 1:A:1307:U:H2' | 1:A:1308:U:H6 | 1.72 | 0.54 |
| 2:B:113:LEU:HG | 2:B:143:LEU:HB3 | 1.90 | 0.54 |
| 10:J:11:LYS:HZ3 | 10:J:99:GLN:H | 1.55 | 0.54 |
| 1:A:86:G:H4' | 1:A:86:G:OP1 | 2.05 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:859:G:H2' | 1:A:860:A:H8 | 1.71 | 0.54 |
| 8:H:92:PRO:HA | 8:H:93:LYS:HZ2 | 1.73 | 0.54 |
| 10:J:87:LEU:H | 10:J:88:MET:HE1 | 1.72 | 0.54 |
| 17:Q:17:GLU:C | 17:Q:19:SER:H | 2.11 | 0.54 |
| 17:Q:45:VAL:HG11 | 17:Q:74:LEU:HB2 | 1.89 | 0.54 |
| 18:R:33:THR:HG23 | 18:R:35:SER:H | 1.73 | 0.54 |
| 1:A:18:C:C5' | 1:A:1078:U:C4' | 2.74 | 0.54 |
| 1:A:37:U:OP1 | 12:L:119:LYS:HE3 | 2.07 | 0.54 |
| 1:A:764:C:C2' | 1:A:765:G:H5' | 2.37 | 0.54 |
| 1:A:865:A:H2' | 1:A:866:C:C6 | 2.43 | 0.54 |
| 1:A:1100:C:O2' | 1:A:1101:A:H5' | 2.07 | 0.54 |
| 1:A:1111:A:O2' | 1:A:1112:C:H6 | 1.90 | 0.54 |
| 2:B:67:LEU:HD11 | 2:B:157:PRO:CB | 2.30 | 0.54 |
| 3:C:111:ASP:O | 3:C:115:VAL:HG23 | 2.08 | 0.54 |
| 16:P:12:LYS:HD2 | 16:P:13:LYS:HG3 | 1.89 | 0.54 |
| 1:A:399:G:H2' | 1:A:400:C:C6 | 2.43 | 0.54 |
| 1:A:477:C:H2' | 1:A:478:A:C8 | 2.42 | 0.54 |
| 1:A:638:U:H2' | 1:A:639:G:O4' | 2.08 | 0.54 |
| 3:C:38:VAL:HG23 | 3:C:39:ARG:N | 2.23 | 0.54 |
| 3:C:55:VAL:HG12 | 3:C:56:ILE:N | 2.23 | 0.54 |
| 4:D:144:ILE:CD1 | 4:D:154:VAL:HG21 | 2.38 | 0.54 |
| 16:P:40:ASN:HB3 | 16:P:49:GLY:O | 2.08 | 0.54 |
| 1:A:189:A:H2' | 1:A:190:A:C8 | 2.43 | 0.54 |
| 1:A:403:C:O2' | 1:A:404:G:H5' | 2.08 | 0.54 |
| 1:A:513:C:H2' | 1:A:514:C:H6 | 1.73 | 0.54 |
| 1:A:1310:G:H2' | 1:A:1311:A:O4' | 2.07 | 0.54 |
| 2:B:163:ILE:CD1 | 2:B:209:VAL:HG12 | 2.38 | 0.54 |
| 3:C:53:ARG:HG2 | 3:C:54:ILE:H | 1.72 | 0.54 |
| 3:C:156:LEU:HD11 | 3:C:163:ARG:O | 2.08 | 0.54 |
| 8:H:49:LYS:HG3 | 8:H:50:VAL:N | 2.21 | 0.54 |
| 14:N:81:ILE:HD12 | 14:N:82:LYS:H | 1.72 | 0.54 |
| 1:A:1323:G:H2' | 1:A:1324:A:H8 | 1.65 | 0.53 |
| 2:B:67:LEU:HD21 | 2:B:157:PRO:CG | 2.37 | 0.53 |
| 2:B:185:ILE:HA | 2:B:199:ILE:HB | 1.90 | 0.53 |
| 4:D:17:ASP:OD2 | 4:D:27:ILE:HG12 | 2.08 | 0.53 |
| 5:E:84:VAL:HG22 | 5:E:85:LYS:H | 1.73 | 0.53 |
| 5:E:134:ASN:O | 5:E:137:ARG:HG2 | 2.07 | 0.53 |
| 7:G:16:LYS:HG3 | 7:G:43:TYR:OH | 2.08 | 0.53 |
| 7:G:100:MET:O | 7:G:104:VAL:HG23 | 2.08 | 0.53 |
| 9:I:113:LYS:HG2 | 9:I:114:LYS:N | 2.22 | 0.53 |
| 17:Q:18:LYS:HA | 17:Q:47:ASP:O | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:64:ARG:HG3 | 17:Q:65:PRO:HD2 | 1.89 | 0.53 |
| 1:A:636:U:H2' | 1:A:637:C:C6 | 2.43 | 0.53 |
| 1:A:828:U:C4' | 2:B:29:PHE:CD1 | 2.90 | 0.53 |
| 1:A:956:U:O2' | 1:A:957:U:H5' | 2.09 | 0.53 |
| 6:F:18:VAL:O | 6:F:22:ILE:HG13 | 2.07 | 0.53 |
| 7:G:45:ALA:HA | 7:G:48:THR:OG1 | 2.08 | 0.53 |
| 12:L:58:ASN:H | 12:L:58:ASN:ND2 | 2.06 | 0.53 |
| 14:N:42:ASN:HB3 | 14:N:46:LYS:HE2 | 1.89 | 0.53 |
| 17:Q:4:ILE:HD12 | 17:Q:5:ARG:H | 1.73 | 0.53 |
| 1:A:53:A:C2 | 1:A:54:C:H1' | 2.43 | 0.53 |
| 1:A:476:U:H2' | 1:A:477:C:H6 | 1.73 | 0.53 |
| 1:A:716:A:N3 | 11:K:119:GLY:HA2 | 2.22 | 0.53 |
| 1:A:1042:A:H2' | 1:A:1043:G:O4' | 2.08 | 0.53 |
| 1:A:1082:A:OP2 | 5:E:22:LYS:NZ | 2.40 | 0.53 |
| 9:I:24:ASN:O | 9:I:61:ASP:HA | 2.09 | 0.53 |
| 9:I:44:ARG:N | 9:I:44:ARG:HH11 | 2.06 | 0.53 |
| 12:L:8:ARG:HG3 | 12:L:9:LYS:N | 2.17 | 0.53 |
| 12:L:20:VAL:O | 12:L:23:LEU:HG | 2.08 | 0.53 |
| 17:Q:28:VAL:C | 17:Q:36:PHE:HA | 2.28 | 0.53 |
| 19:S:69:LYS:O | 19:S:72:GLU:HB2 | 2.08 | 0.53 |
| 1:A:520:A:OP2 | 12:L:47:ALA:HB1 | 2.09 | 0.53 |
| 1:A:870:U:OP2 | 2:B:22:TRP:CZ2 | 2.61 | 0.53 |
| 1:A:1517:G:H1' | 23:V:359:HOH:O | 2.04 | 0.53 |
| 3:C:155:ARG:N | 3:C:162:ALA:HA | 2.21 | 0.53 |
| 7:G:112:ASP:CB | 7:G:118:ARG:HG2 | 2.33 | 0.53 |
| 9:I:113:LYS:HG2 | 9:I:114:LYS:H | 1.74 | 0.53 |
| 10:J:81:GLU:HA | 10:J:84:VAL:HG22 | 1.89 | 0.53 |
| 1:A:742:G:O2' | 1:A:743:A:H5' | 2.08 | 0.53 |
| 1:A:1130:A:H5' | 9:I:19:PHE:CE2 | 2.44 | 0.53 |
| 1:A:1299:A:H62 | 1:A:1302:C:H5 | 1.57 | 0.53 |
| 1:A:1517:G:P | 22:V:147:ARG:HH21 | 2.25 | 0.53 |
| 4:D:25:ARG:HD3 | 4:D:26:ALA:H | 1.73 | 0.53 |
| 8:H:43:GLY:O | 8:H:63:LYS:HE3 | 2.09 | 0.53 |
| 12:L:56:LEU:HB3 | 12:L:58:ASN:ND2 | 2.24 | 0.53 |
| 16:P:42:ILE:HB | 16:P:46:LYS:CD | 2.36 | 0.53 |
| 17:Q:4:ILE:HD12 | 17:Q:4:ILE:H | 1.74 | 0.53 |
| 1:A:405:U:O4 | 4:D:1:ALA:HA | 2.09 | 0.53 |
| 1:A:602:A:O2' | 1:A:603:U:H5' | 2.07 | 0.53 |
| 1:A:824:G:O2' | 1:A:825:A:H5' | 2.08 | 0.53 |
| 1:A:1039:G:H2' | 1:A:1040:U:C6 | 2.43 | 0.53 |
| 1:A:1040:U:H2' | 1:A:1041:G:H8 | 1.74 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:5:PRO:O | 8:H:32:LYS:HE3 | 2.09 | 0.53 |
| 9:I:11:ARG:HA | 9:I:105:ARG:NE | 2.23 | 0.53 |
| 10:J:7:ARG:HA | 10:J:75:ASP:HB2 | 1.90 | 0.53 |
| 11:K:110:THR:HG22 | 21:U:4:LYS:HA | 1.90 | 0.53 |
| 12:L:20:VAL:O | 12:L:20:VAL:HG12 | 2.08 | 0.53 |
| 16:P:57:ILE:O | 16:P:61:VAL:HG22 | 2.09 | 0.53 |
| 1:A:18:C:C4' | 1:A:1078:U:C4' | 2.87 | 0.53 |
| 1:A:71:A:N6 | 1:A:99:C:H1' | 2.24 | 0.53 |
| 1:A:196:A:O5' | 20:T:63:LYS:HE2 | 2.09 | 0.53 |
| 1:A:263:A:P | 20:T:73:ARG:HH22 | 2.32 | 0.53 |
| 1:A:859:G:O4' | 2:B:26:MET:HG3 | 2.08 | 0.53 |
| 1:A:860:A:N6 | 2:B:25:LYS:HG2 | 2.16 | 0.53 |
| 1:A:919:A:H2 | 1:A:1079:G:C6 | 2.26 | 0.53 |
| 1:A:973:G:H3' | 1:A:974:A:H5" | 1.90 | 0.53 |
| 1:A:1040:U:H2' | 1:A:1041:G:C8 | 2.43 | 0.53 |
| 1:A:1250:A:H4' | 9:I:69:GLY:N | 2.22 | 0.53 |
| 1:A:1508:A:H2' | 1:A:1509:C:H6 | 1.73 | 0.53 |
| 3:C:78:LYS:CG | 3:C:81:GLU:HB2 | 2.24 | 0.53 |
| 5:E:55:VAL:N | 5:E:56:PRO:HD2 | 2.23 | 0.53 |
| 6:F:47:LEU:HD13 | 6:F:51:ILE:HG22 | 1.91 | 0.53 |
| 11:K:33:ILE:O | 11:K:41:LEU:HB2 | 2.08 | 0.53 |
| 14:N:81:ILE:O | 14:N:84:ARG:HB3 | 2.09 | 0.53 |
| 15:O:15:GLY:HA3 | 15:O:20:ASP:OD1 | 2.09 | 0.53 |
| 18:R:62:ARG:HD3 | 18:R:69:TYR:HA | 1.90 | 0.53 |
| 1:A:317:U:H2' | 1:A:318:G:H8 | 1.74 | 0.53 |
| 1:A:1514:G:H5' | 22:V:222:ARG:CZ | 2.36 | 0.53 |
| 3:C:186:SER:HB3 | 3:C:197:VAL:CG1 | 2.38 | 0.53 |
| 6:F:100:SER:HA | 18:R:23:LYS:HD2 | 1.91 | 0.53 |
| 9:I:90:ASP:O | 9:I:93:LEU:HG | 2.09 | 0.53 |
| 12:L:86:VAL:HG11 | 12:L:89:LEU:HD23 | 1.90 | 0.53 |
| 20:T:74:HIS:O | 20:T:78:LEU:HD12 | 2.08 | 0.53 |
| 1:A:128:G:H2' | 1:A:129:A:C8 | 2.44 | 0.53 |
| 1:A:252:U:H2' | 1:A:253:A:H8 | 1.74 | 0.53 |
| 1:A:626:G:H2' | 1:A:627:G:H8 | 1.74 | 0.53 |
| 1:A:1507:A:H2' | 1:A:1508:A:C8 | 2.44 | 0.53 |
| 4:D:138:PRO:HA | 4:D:181:PHE:CD2 | 2.43 | 0.53 |
| 6:F:40:GLU:CG | 6:F:42:TRP:HE1 | 2.22 | 0.53 |
| 6:F:43:GLY:O | 6:F:58:HIS:HA | 2.09 | 0.53 |
| 11:K:36:ARG:HG2 | 11:K:37:GLN:H | 1.74 | 0.53 |
| 20:T:53:MET:O | 20:T:57:VAL:HG23 | 2.08 | 0.53 |
| 1:A:275:G:C5' | 17:Q:15:LYS:HG2 | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:600:A:H2' | 1:A:601:G:H8 | 1.74 | 0.53 |
| 1:A:746:A:H2' | 1:A:747:A:C8 | 2.44 | 0.53 |
| 1:A:960:U:O2' | 1:A:1223:C:H4' | 2.08 | 0.53 |
| 1:A:997:U:O2' | 1:A:998:C:H5' | 2.09 | 0.53 |
| 2:B:185:ILE:HG22 | 2:B:199:ILE:HB | 1.91 | 0.53 |
| 3:C:6:PRO:HG3 | 3:C:200:TRP:HE1 | 1.73 | 0.53 |
| 3:C:126:ARG:HH22 | 3:C:190:THR:HG22 | 1.72 | 0.53 |
| 6:F:55:HIS:O | 6:F:56:LYS:HG3 | 2.09 | 0.53 |
| 15:O:2:LEU:HD23 | 15:O:3:SER:N | 2.24 | 0.53 |
| 15:O:6:ALA:O | 15:O:9:LYS:HB3 | 2.09 | 0.53 |
| 19:S:29:PRO:HA | 19:S:47:THR:HB | 1.89 | 0.53 |
| 1:A:77:A:H2' | 1:A:78:A:C8 | 2.43 | 0.52 |
| 1:A:766:A:H2' | 1:A:767:A:O4' | 2.08 | 0.52 |
| 1:A:1381:U:O2' | 1:A:1382:C:H5' | 2.08 | 0.52 |
| 1:A:1517:G:P | 22:V:147:ARG:HH22 | 2.31 | 0.52 |
| 4:D:96:ARG:O | 4:D:100:VAL:HG23 | 2.09 | 0.52 |
| 1:A:177:G:P | 20:T:59:ARG:HE | 2.33 | 0.52 |
| 1:A:408:A:H3' | 1:A:409:U:H6 | 1.74 | 0.52 |
| 1:A:411:A:O2' | 1:A:412:A:H4' | 2.09 | 0.52 |
| 1:A:499:A:H4' | 1:A:500:G:OP1 | 2.09 | 0.52 |
| 1:A:664:G:N2 | 1:A:741:G:H1 | 2.02 | 0.52 |
| 1:A:860:A:H2' | 1:A:861:G:O4' | 2.09 | 0.52 |
| 1:A:1170:A:H2' | 1:A:1171:A:O4' | 2.09 | 0.52 |
| 1:A:1308:U:OP1 | 13:M:95:PRO:HA | 2.09 | 0.52 |
| 1:A:1309:G:N7 | 13:M:97:ARG:NH2 | 2.58 | 0.52 |
| 2:B:95:TRP:HH2 | 2:B:100:LEU:HB2 | 1.75 | 0.52 |
| 4:D:183:ARG:HH22 | 4:D:186:GLU:H | 1.58 | 0.52 |
| 5:E:109:ALA:CB | 5:E:135:VAL:HG23 | 2.39 | 0.52 |
| 14:N:30:ILE:C | 14:N:32:ASP:H | 2.13 | 0.52 |
| 21:U:14:ALA:H | 21:U:16:ARG:NH2 | 2.07 | 0.52 |
| 1:A:17:U:O4' | 1:A:1079:G:C8 | 2.63 | 0.52 |
| 1:A:120:A:H2' | 1:A:121:U:H5" | 1.90 | 0.52 |
| 1:A:187:G:H4' | 20:T:79:THR:HG21 | 1.90 | 0.52 |
| 1:A:279:A:H4' | 1:A:280:C:OP2 | 2.10 | 0.52 |
| 1:A:889:A:H61 | 1:A:907:A:H3' | 1.74 | 0.52 |
| 1:A:1132:C:H2' | 1:A:1133:G:O4' | 2.09 | 0.52 |
| 1:A:1283:U:H2' | 1:A:1284:C:C6 | 2.44 | 0.52 |
| 2:B:101:THR:HG23 | 2:B:102:ASN:H | 1.75 | 0.52 |
| 4:D:54:LEU:O | 4:D:54:LEU:HD22 | 2.09 | 0.52 |
| 7:G:143:MET:O | 7:G:147:ASN:HB2 | 2.09 | 0.52 |
| 15:O:7:THR:CG2 | 15:O:30:LEU:HD11 | 2.38 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:35:LYS:O | 17:Q:37:ILE:HG13 | 2.10 | 0.52 |
| 19:S:62:THR:HB | 19:S:64:GLU:OE2 | 2.10 | 0.52 |
| 1:A:214:C:H2' | 1:A:215:C:C6 | 2.44 | 0.52 |
| 1:A:919:A:O2' | 1:A:1077:G:H4' | 2.08 | 0.52 |
| 1:A:1103:C:C5' | 2:B:96:LEU:HD12 | 2.37 | 0.52 |
| 4:D:98:ASP:CG | 4:D:132:ALA:HB1 | 2.30 | 0.52 |
| 12:L:30:ARG:HH11 | 12:L:30:ARG:HB3 | 1.75 | 0.52 |
| 12:L:35:ARG:CZ | 12:L:75:GLU:HB3 | 2.39 | 0.52 |
| 1:A:936:C:H1' | 1:A:1382:C:H42 | 1.74 | 0.52 |
| 5:E:14:LEU:HA | 5:E:36:THR:HG22 | 1.92 | 0.52 |
| 7:G:110:ARG:HH22 | 7:G:121:ASN:CB | 2.23 | 0.52 |
| 11:K:109:ILE:H | 21:U:5:VAL:HB | 1.75 | 0.52 |
| 11:K:111:ASP:HB3 | 21:U:3:ILE:HD13 | 1.92 | 0.52 |
| 19:S:50:VAL:H | 19:S:57:VAL:H | 1.57 | 0.52 |
| 21:U:36:PHE:HB3 | 21:U:40:PRO:HG3 | 1.90 | 0.52 |
| 1:A:472:U:H2' | 1:A:473:U:C6 | 2.44 | 0.52 |
| 1:A:830:G:N9 | 2:B:19:THR:O | 2.42 | 0.52 |
| 1:A:1080:A:O2' | 5:E:28:ARG:HD2 | 2.07 | 0.52 |
| 1:A:1376:U:H2' | 1:A:1377:A:H8 | 1.75 | 0.52 |
| 2:B:95:TRP:CZ3 | 2:B:171:ALA:HA | 2.44 | 0.52 |
| 3:C:39:ARG:HG3 | 3:C:54:ILE:HD13 | 1.91 | 0.52 |
| 5:E:74:ALA:HB1 | 5:E:148:SER:HB3 | 1.91 | 0.52 |
| 10:J:22:THR:HG23 | 10:J:23:ALA:N | 2.23 | 0.52 |
| 11:K:28:ASN:ND2 | 11:K:29:THR:N | 2.58 | 0.52 |
| 11:K:56:LYS:O | 11:K:58:THR:N | 2.43 | 0.52 |
| 13:M:106:ARG:CZ | 13:M:109:LYS:HD2 | 2.40 | 0.52 |
| 19:S:18:VAL:CG2 | 19:S:43:MET:HG2 | 2.32 | 0.52 |
| 19:S:29:PRO:CA | 19:S:47:THR:HB | 2.39 | 0.52 |
| 1:A:736:C:H2' | 1:A:737:C:C6 | 2.45 | 0.52 |
| 1:A:861:G:C6 | 2:B:25:LYS:CE | 2.62 | 0.52 |
| 1:A:1247:U:O2' | 1:A:1248:A:H5' | 2.10 | 0.52 |
| 1:A:1289:A:H2' | 1:A:1290:G:H5' | 1.91 | 0.52 |
| 2:B:46:VAL:CG1 | 2:B:47:PRO:HD3 | 2.31 | 0.52 |
| 2:B:53:LEU:HA | 2:B:56:LEU:HD23 | 1.92 | 0.52 |
| 3:C:141:MET:CE | 3:C:147:GLY:H | 2.23 | 0.52 |
| 5:E:149:PRO:HA | 8:H:98:LEU:HD21 | 1.91 | 0.52 |
| 8:H:76:ARG:HH11 | 8:H:76:ARG:HG3 | 1.74 | 0.52 |
| 1:A:266:G:O2' | 1:A:267:C:H3' | 2.10 | 0.52 |
| 1:A:815:A:H4' | 1:A:817:C:C4 | 2.45 | 0.52 |
| 1:A:860:A:N7 | 2:B:25:LYS:HG2 | 2.25 | 0.52 |
| 1:A:1225:A:H4' | 19:S:77:ARG:HH22 | 1.75 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1521:C:O2' | 1:A:1522:U:H5' | 2.09 | 0.52 |
| 4:D:58:GLN:OE1 | 4:D:62:ARG:HG3 | 2.09 | 0.52 |
| 4:D:122:ILE:O | 4:D:128:VAL:HG23 | 2.10 | 0.52 |
| 8:H:104:SER:O | 8:H:122:GLY:HA3 | 2.10 | 0.52 |
| 9:I:11:ARG:HA | 9:I:105:ARG:HE | 1.75 | 0.52 |
| 9:I:56:MET:SD | 9:I:57:VAL:N | 2.82 | 0.52 |
| 9:I:93:LEU:HD13 | 9:I:97:LEU:HD23 | 1.92 | 0.52 |
| 13:M:106:ARG:HD3 | 13:M:110:GLY:O | 2.09 | 0.52 |
| 17:Q:80:LYS:O | 17:Q:80:LYS:HE3 | 2.09 | 0.52 |
| 1:A:18:C:C1' | 1:A:1078:U:O4' | 2.57 | 0.52 |
| 2:B:55:GLU:HG3 | 2:B:197:PHE:CZ | 2.45 | 0.52 |
| 4:D:107:GLY:HA2 | 4:D:112:GLU:OE1 | 2.10 | 0.52 |
| 4:D:186:GLU:O | 4:D:190:LEU:HD13 | 2.09 | 0.52 |
| 5:E:71:ILE:HG12 | 5:E:72:ASN:N | 2.24 | 0.52 |
| 1:A:195:A:H1' | 1:A:222:C:O2' | 2.09 | 0.52 |
| 1:A:320:A:H2' | 1:A:321:A:C8 | 2.44 | 0.52 |
| 1:A:423:G:H2' | 1:A:424:G:O4' | 2.09 | 0.52 |
| 1:A:975:A:H5" | 1:A:976:G:O5' | 2.10 | 0.52 |
| 1:A:1060:U:H5" | 10:J:53:ILE:CG2 | 2.40 | 0.52 |
| 1:A:1071:C:H2' | 1:A:1072:G:C8 | 2.41 | 0.52 |
| 1:A:1517:G:H1' | 22:V:141:GLN:N | 2.24 | 0.52 |
| 2:B:76:SER:OG | 2:B:92:ASN:HB2 | 2.10 | 0.52 |
| 4:D:115:GLN:HE21 | 4:D:119:HIS:CE1 | 2.28 | 0.52 |
| 9:I:30:ASN:ND2 | 9:I:30:ASN:N | 2.56 | 0.52 |
| 9:I:38:PHE:O | 9:I:41:GLU:HB2 | 2.09 | 0.52 |
| 9:I:99:LYS:HD3 | 9:I:100:ALA:N | 2.25 | 0.52 |
| 14:N:9:GLU:O | 14:N:13:VAL:HG23 | 2.10 | 0.52 |
| 15:O:66:LEU:HB3 | 15:O:77:TYR:HE1 | 1.74 | 0.52 |
| 1:A:492:C:H2' | 1:A:493:A:H5" | 1.92 | 0.51 |
| 1:A:828:U:OP1 | 2:B:44:LYS:HE3 | 2.10 | 0.51 |
| 1:A:939:G:H4' | 7:G:101:ARG:NH2 | 2.25 | 0.51 |
| 1:A:1122:U:H2' | 1:A:1123:U:C6 | 2.45 | 0.51 |
| 1:A:1190:G:O2' | 3:C:2:GLN:HB2 | 2.10 | 0.51 |
| 3:C:100:ILE:HG23 | 3:C:100:ILE:O | 2.10 | 0.51 |
| 5:E:81:GLN:HG2 | 5:E:148:SER:HA | 1.92 | 0.51 |
| 7:G:85:GLN:O | 7:G:86:VAL:C | 2.49 | 0.51 |
| 10:J:39:PRO:CA | 10:J:74:VAL:HG22 | 2.39 | 0.51 |
| 12:L:103:CYS:SG | 12:L:104:SER:N | 2.83 | 0.51 |
| 18:R:44:THR:HG22 | 18:R:46:THR:HB | 1.91 | 0.51 |
| 21:U:5:VAL:HG12 | 21:U:6:ARG:N | 2.25 | 0.51 |
| 1:A:300:A:H2' | 1:A:301:G:O4' | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:474:G:H2' | 1:A:475:C:C6 | 2.45 | 0.51 |
| 1:A:642:A:H2' | 1:A:643:C:C6 | 2.45 | 0.51 |
| 1:A:920:U:H2' | 1:A:921:U:H6 | 1.75 | 0.51 |
| 1:A:1098:C:C2' | 1:A:1099:G:H5' | 2.40 | 0.51 |
| 11:K:80:ASN:HD21 | 11:K:107:THR:CG2 | 2.23 | 0.51 |
| 11:K:88:PRO:HD3 | 21:U:28:LEU:HD22 | 1.91 | 0.51 |
| 17:Q:56:ASP:HB3 | 17:Q:79:GLU:O | 2.09 | 0.51 |
| 17:Q:60:ILE:HD13 | 17:Q:60:ILE:N | 2.25 | 0.51 |
| 18:R:25:ILE:HG13 | 18:R:67:LEU:HD11 | 1.91 | 0.51 |
| 1:A:56:U:H2' | 1:A:57:G:C8 | 2.44 | 0.51 |
| 1:A:731:G:OP1 | 1:A:766:A:H1' | 2.10 | 0.51 |
| 1:A:838:G:H2' | 1:A:839:C:O4' | 2.11 | 0.51 |
| 1:A:846:G:H2' | 1:A:846:G:N3 | 2.23 | 0.51 |
| 1:A:1172:C:H2' | 1:A:1173:U:H6 | 1.76 | 0.51 |
| 1:A:1366:C:H2' | 1:A:1367:C:H6 | 1.76 | 0.51 |
| 1:A:1524:C:H2' | 1:A:1525:G:C8 | 2.46 | 0.51 |
| 3:C:77:GLY:CA | 3:C:81:GLU:HB3 | 2.40 | 0.51 |
| 4:D:197:HIS:HA | 4:D:200:VAL:HG22 | 1.91 | 0.51 |
| 7:G:30:MET:SD | 7:G:35:LYS:HB2 | 2.50 | 0.51 |
| 11:K:63:GLN:HB3 | 11:K:94:SER:OG | 2.10 | 0.51 |
| 11:K:88:PRO:HA | 11:K:92:ARG:NE | 2.23 | 0.51 |
| 12:L:22:ALA:HB2 | 12:L:56:LEU:CD2 | 2.40 | 0.51 |
| 12:L:95:HIS:HD1 | 12:L:96:THR:N | 2.09 | 0.51 |
| 18:R:52:ARG:HH11 | 18:R:52:ARG:CB | 2.15 | 0.51 |
| 1:A:205:A:H2' | 1:A:206:C:C6 | 2.43 | 0.51 |
| 1:A:275:G:O5' | 17:Q:15:LYS:HG2 | 2.11 | 0.51 |
| 1:A:275:G:H5' | 17:Q:15:LYS:HG2 | 1.92 | 0.51 |
| 1:A:693:G:H2' | 1:A:694:A:O4' | 2.10 | 0.51 |
| 1:A:712:A:O2' | 1:A:713:G:H5' | 2.10 | 0.51 |
| 1:A:857:C:H2' | 1:A:858:G:O4' | 2.10 | 0.51 |
| 1:A:909:A:H2' | 1:A:910:C:O4' | 2.11 | 0.51 |
| 1:A:958:A:N1 | 19:S:53:GLY:HA3 | 2.25 | 0.51 |
| 1:A:1005:A:H3' | 1:A:1006:G:H8 | 1.74 | 0.51 |
| 1:A:1197:A:O2' | 1:A:1198:G:H5' | 2.10 | 0.51 |
| 1:A:1320:C:H41 | 19:S:36:ARG:HE | 1.57 | 0.51 |
| 1:A:1332:A:H2' | 1:A:1333:A:H8 | 1.75 | 0.51 |
| 2:B:68:PHE:HA | 2:B:161:PHE:O | 2.10 | 0.51 |
| 3:C:110:LEU:O | 3:C:203:LYS:HE2 | 2.11 | 0.51 |
| 3:C:186:SER:O | 3:C:197:VAL:HG12 | 2.11 | 0.51 |
| 5:E:37:VAL:HG11 | 5:E:113:VAL:HG12 | 1.93 | 0.51 |
| 7:G:14:ASP:OD1 | 7:G:22:LEU:HD12 | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 7:G:114:SER:C | 7:G:118:ARG:HG3 | 2.30 | 0.51 |
| 9:I:11:ARG:HG3 | 9:I:11:ARG:O | 2.10 | 0.51 |
| 9:I:32:ARG:NH2 | 9:I:36:GLN:HG2 | 2.25 | 0.51 |
| 11:K:110:THR:CG2 | 21:U:4:LYS:HD2 | 2.40 | 0.51 |
| 12:L:48:LEU:H | 12:L:48:LEU:CD2 | 2.18 | 0.51 |
| 14:N:11:LYS:HZ2 | 14:N:11:LYS:HA | 1.75 | 0.51 |
| 14:N:27:LYS:HD2 | 14:N:28:ALA:N | 2.26 | 0.51 |
| 16:P:40:ASN:HD21 | 16:P:42:ILE:HG13 | 1.76 | 0.51 |
| 1:A:36:C:H2' | 1:A:37:U:O4' | 2.09 | 0.51 |
| 1:A:202:G:H2' | 1:A:203:G:H8 | 1.74 | 0.51 |
| 1:A:251:G:H4' | 1:A:252:U:H5' | 1.93 | 0.51 |
| 1:A:545:C:O2' | 1:A:546:A:H5' | 2.10 | 0.51 |
| 1:A:1033:G:H2' | 1:A:1034:G:O4' | 2.10 | 0.51 |
| 1:A:1080:A:N9 | 5:E:22:LYS:HA | 2.04 | 0.51 |
| 7:G:3:ARG:HB3 | 7:G:3:ARG:CZ | 2.40 | 0.51 |
| 7:G:72:VAL:HB | 7:G:144:ALA:HB3 | 1.92 | 0.51 |
| 11:K:80:ASN:HD21 | 11:K:107:THR:HG23 | 1.76 | 0.51 |
| 11:K:83:VAL:HG21 | 11:K:109:ILE:HG12 | 1.92 | 0.51 |
| 18:R:60:ARG:HG3 | 18:R:61:ALA:N | 2.25 | 0.51 |
| 1:A:208:U:H2' | 1:A:210:C:C5 | 2.45 | 0.51 |
| 1:A:272:C:H2' | 1:A:273:U:C6 | 2.45 | 0.51 |
| 1:A:857:C:H1' | 2:B:21:TYR:HA | 1.91 | 0.51 |
| 2:B:49:PHE:O | 2:B:53:LEU:HD23 | 2.10 | 0.51 |
| 5:E:108:GLY:H | 5:E:110:MET:HE1 | 1.75 | 0.51 |
| 7:G:91:ARG:HB3 | 7:G:92:PRO:HD2 | 1.91 | 0.51 |
| 11:K:111:ASP:O | 18:R:72:ARG:HD3 | 2.09 | 0.51 |
| 16:P:9:HIS:CE1 | 16:P:29:ASN:HB2 | 2.44 | 0.51 |
| 19:S:20:LYS:HB3 | 19:S:20:LYS:HZ2 | 1.75 | 0.51 |
| 1:A:219:U:H2' | 1:A:220:G:C8 | 2.46 | 0.51 |
| 1:A:590:U:OP1 | 8:H:30:LYS:HE2 | 2.10 | 0.51 |
| 1:A:663:A:O2' | 1:A:664:G:H5' | 2.11 | 0.51 |
| 1:A:711:G:O2' | 1:A:712:A:H5' | 2.11 | 0.51 |
| 1:A:979:C:H2' | 1:A:980:C:O4' | 2.10 | 0.51 |
| 1:A:1051:C:H2' | 1:A:1052:U:C6 | 2.46 | 0.51 |
| 1:A:1110:A:N7 | 1:A:1111:A:N6 | 2.58 | 0.51 |
| 1:A:1285:A:N6 | 1:A:1355:G:H4' | 2.26 | 0.51 |
| 9:I:51:LEU:HD23 | 9:I:56:MET:CE | 2.40 | 0.51 |
| 11:K:125:LYS:O | 11:K:126:ARG:O | 2.29 | 0.51 |
| 12:L:31:GLY:HA3 | 12:L:54:VAL:CG1 | 2.41 | 0.51 |
| 13:M:78:ARG:HH12 | 19:S:64:GLU:HG2 | 1.76 | 0.51 |
| 19:S:35:ARG:HG2 | 19:S:50:VAL:CG1 | 2.39 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:830:G:N7 | 2:B:22:TRP:CB | 2.73 | 0.51 |
| 1:A:857:C:N3 | 2:B:22:TRP:C | 2.63 | 0.51 |
| 2:B:10:LYS:C | 2:B:12:GLY:H | 2.14 | 0.51 |
| 4:D:71:PHE:O | 4:D:74:TYR:HB2 | 2.11 | 0.51 |
| 6:F:32:ALA:HB1 | 6:F:70:VAL:HG11 | 1.93 | 0.51 |
| 7:G:11:ILE:HD12 | 7:G:11:ILE:H | 1.75 | 0.51 |
| 7:G:23:ALA:O | 7:G:26:VAL:HG22 | 2.11 | 0.51 |
| 9:I:34:LEU:HD11 | 9:I:47:VAL:CG2 | 2.35 | 0.51 |
| 11:K:81:LEU:HD22 | 11:K:104:PHE:HB3 | 1.92 | 0.51 |
| 13:M:13:HIS:O | 13:M:16:ILE:HG22 | 2.11 | 0.51 |
| 13:M:18:LEU:O | 13:M:21:ILE:HG13 | 2.10 | 0.51 |
| 13:M:27:THR:O | 13:M:30:LYS:HB3 | 2.11 | 0.51 |
| 14:N:27:LYS:HD2 | 14:N:27:LYS:C | 2.30 | 0.51 |
| 22:V:28:SER:OG | 22:V:174:LEU:HD11 | 2.11 | 0.51 |
| 1:A:255:G:H5’ | 17:Q:17:GLU:O | 2.10 | 0.51 |
| 1:A:529:G:H22 | 12:L:47:ALA:CB | 2.24 | 0.51 |
| 1:A:644:U:H4’ | 8:H:83:ARG:HH22 | 1.75 | 0.51 |
| 1:A:840:C:C2’ | 1:A:842:U:H5” | 2.38 | 0.51 |
| 1:A:859:G:C4’ | 2:B:190:SER:C | 2.56 | 0.51 |
| 1:A:1081:A:H4’ | 5:E:23:THR:O | 2.11 | 0.51 |
| 3:C:83:VAL:HG12 | 3:C:87:ARG:HE | 1.75 | 0.51 |
| 4:D:116:LEU:HB3 | 4:D:122:ILE:HD11 | 1.93 | 0.51 |
| 5:E:17:VAL:HA | 5:E:34:ALA:HA | 1.93 | 0.51 |
| 5:E:110:MET:O | 5:E:113:VAL:HG22 | 2.10 | 0.51 |
| 11:K:88:PRO:HA | 11:K:92:ARG:HD2 | 1.93 | 0.51 |
| 12:L:54:VAL:HG12 | 12:L:56:LEU:HD12 | 1.93 | 0.51 |
| 14:N:17:ASP:HA | 14:N:21:ALA:HB2 | 1.92 | 0.51 |
| 21:U:43:GLU:OE1 | 21:U:43:GLU:HA | 2.10 | 0.51 |
| 1:A:337:G:H2’ | 1:A:338:A:C8 | 2.45 | 0.51 |
| 1:A:413:G:O6 | 4:D:32:LYS:HE3 | 2.11 | 0.51 |
| 1:A:841:C:H3’ | 1:A:843:U:OP2 | 2.11 | 0.51 |
| 1:A:919:A:C2 | 1:A:1079:G:C6 | 2.99 | 0.51 |
| 1:A:1206:G:H4’ | 3:C:192:TYR:HA | 1.93 | 0.51 |
| 1:A:1324:A:H2’ | 1:A:1325:C:C6 | 2.46 | 0.51 |
| 6:F:37:HIS:HE1 | 6:F:65:GLU:HB2 | 1.73 | 0.51 |
| 7:G:19:SER:OG | 7:G:21:LEU:HG | 2.10 | 0.51 |
| 8:H:60:LEU:HD12 | 8:H:60:LEU:N | 2.26 | 0.51 |
| 10:J:55:PRO:O | 10:J:56:HIS:HB3 | 2.10 | 0.51 |
| 13:M:44:ILE:HD12 | 13:M:45:SER:N | 2.23 | 0.51 |
| 1:A:824:G:H2’ | 1:A:825:A:H8 | 1.75 | 0.50 |
| 1:A:921:U:N3 | 1:A:1080:A:N1 | 2.59 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:150:ILE:HG13 | 2:B:153:MET:CE | 2.39 | 0.50 |
| 3:C:71:ARG:NH2 | 3:C:74:ILE:HB | 2.26 | 0.50 |
| 3:C:71:ARG:O | 3:C:74:ILE:HG22 | 2.11 | 0.50 |
| 4:D:2:ARG:O | 4:D:3:TYR:HB2 | 2.11 | 0.50 |
| 6:F:6:ILE:HB | 6:F:89:VAL:HB | 1.93 | 0.50 |
| 6:F:53:LYS:HZ2 | 6:F:54:LEU:N | 2.09 | 0.50 |
| 9:I:49:GLN:HE21 | 9:I:79:ARG:HD2 | 1.75 | 0.50 |
| 11:K:92:ARG:HH11 | 11:K:92:ARG:CB | 2.23 | 0.50 |
| 13:M:10:ASP:HA | 13:M:44:ILE:CD1 | 2.41 | 0.50 |
| 18:R:62:ARG:HD2 | 18:R:69:TYR:CD1 | 2.46 | 0.50 |
| 1:A:751:U:H2' | 1:A:752:G:O4' | 2.11 | 0.50 |
| 1:A:1101:A:N7 | 2:B:170:ILE:HD12 | 2.26 | 0.50 |
| 1:A:1169:A:H2' | 1:A:1170:A:C8 | 2.47 | 0.50 |
| 2:B:31:PHE:HA | 2:B:41:ASN:HB2 | 1.94 | 0.50 |
| 4:D:172:VAL:HA | 4:D:178:GLU:O | 2.11 | 0.50 |
| 7:G:45:ALA:HB2 | 7:G:116:ALA:O | 2.10 | 0.50 |
| 7:G:66:GLU:HA | 7:G:69:ARG:HE | 1.75 | 0.50 |
| 12:L:20:VAL:HG22 | 12:L:94:TYR:CE1 | 2.46 | 0.50 |
| 16:P:51:ARG:C | 16:P:52:LEU:HD22 | 2.31 | 0.50 |
| 18:R:23:LYS:C | 18:R:25:ILE:H | 2.14 | 0.50 |
| 1:A:33:A:H2' | 1:A:34:C:C6 | 2.46 | 0.50 |
| 1:A:1142:G:H3' | 1:A:1143:G:H8 | 1.76 | 0.50 |
| 1:A:1343:G:H2' | 1:A:1344:C:C6 | 2.47 | 0.50 |
| 4:D:17:ASP:HB2 | 4:D:27:ILE:HG23 | 1.94 | 0.50 |
| 4:D:77:GLU:O | 4:D:81:LEU:HG | 2.11 | 0.50 |
| 4:D:131:ILE:O | 4:D:134:TYR:HB2 | 2.10 | 0.50 |
| 6:F:12:PRO:HG3 | 6:F:54:LEU:HG | 1.94 | 0.50 |
| 6:F:67:PRO:HG2 | 6:F:70:VAL:HG22 | 1.92 | 0.50 |
| 6:F:98:GLU:HG2 | 6:F:99:ALA:H | 1.76 | 0.50 |
| 9:I:110:VAL:HG12 | 9:I:111:GLU:N | 2.20 | 0.50 |
| 11:K:56:LYS:H | 11:K:56:LYS:HD3 | 1.75 | 0.50 |
| 12:L:3:VAL:HG23 | 12:L:4:ASN:OD1 | 2.11 | 0.50 |
| 15:O:70:LYS:HZ1 | 15:O:74:VAL:HA | 1.76 | 0.50 |
| 17:Q:24:ILE:HB | 17:Q:41:THR:HB | 1.92 | 0.50 |
| 1:A:90:C:H2' | 1:A:91:U:H6 | 1.76 | 0.50 |
| 1:A:412:A:H1' | 1:A:413:G:C8 | 2.43 | 0.50 |
| 1:A:807:A:H2' | 1:A:808:C:C6 | 2.47 | 0.50 |
| 1:A:830:G:H3' | 2:B:38:HIS:CG | 2.39 | 0.50 |
| 1:A:919:A:C2 | 1:A:1078:U:C5 | 2.99 | 0.50 |
| 1:A:1007:U:H2' | 1:A:1008:U:H6 | 1.77 | 0.50 |
| 1:A:1366:C:H2' | 1:A:1367:C:C6 | 2.45 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:113:LEU:O | 2:B:117:GLU:HG3 | 2.12 | 0.50 |
| 2:B:132:GLU:O | 2:B:136:ARG:HG3 | 2.11 | 0.50 |
| 3:C:21:TRP:HB3 | 3:C:58:ARG:HB2 | 1.93 | 0.50 |
| 3:C:154:GLY:HA2 | 3:C:163:ARG:H | 1.77 | 0.50 |
| 8:H:8:ASP:OD2 | 8:H:12:ARG:HD2 | 2.11 | 0.50 |
| 11:K:122:PRO:HG2 | 21:U:35:GLU:HG2 | 1.93 | 0.50 |
| 12:L:106:VAL:CG2 | 12:L:116:TYR:HB3 | 2.40 | 0.50 |
| 1:A:633:G:H2' | 1:A:634:C:C6 | 2.47 | 0.50 |
| 1:A:837:U:H2' | 1:A:838:G:H8 | 1.77 | 0.50 |
| 1:A:840:C:C2 | 1:A:842:U:H4' | 2.47 | 0.50 |
| 2:B:100:LEU:O | 2:B:178:LEU:HG | 2.12 | 0.50 |
| 2:B:107:ARG:HA | 2:B:110:ILE:CD1 | 2.42 | 0.50 |
| 2:B:156:LEU:CD1 | 5:E:68:ARG:HH22 | 2.25 | 0.50 |
| 3:C:78:LYS:HE3 | 3:C:81:GLU:OE2 | 2.11 | 0.50 |
| 4:D:11:SER:HB2 | 4:D:20:LEU:HD11 | 1.92 | 0.50 |
| 4:D:51:GLY:O | 4:D:55:ARG:HB2 | 2.12 | 0.50 |
| 10:J:41:PRO:O | 10:J:42:LEU:HB2 | 2.12 | 0.50 |
| 10:J:67:ILE:HG12 | 14:N:94:GLY:O | 2.11 | 0.50 |
| 18:R:40:PRO:HD2 | 18:R:43:ILE:HD11 | 1.94 | 0.50 |
| 1:A:16:A:H4' | 5:E:21:SER:H | 1.76 | 0.50 |
| 1:A:33:A:H2' | 1:A:34:C:H6 | 1.77 | 0.50 |
| 1:A:1081:A:H62 | 5:E:51:LYS:NZ | 2.02 | 0.50 |
| 3:C:146:LYS:HG3 | 3:C:202:PHE:HD2 | 1.74 | 0.50 |
| 6:F:100:SER:HA | 18:R:23:LYS:CE | 2.42 | 0.50 |
| 9:I:56:MET:HA | 9:I:59:LYS:HB2 | 1.94 | 0.50 |
| 1:A:556:C:O2' | 1:A:557:G:H5' | 2.11 | 0.50 |
| 1:A:848:C:P | 2:B:35:ASN:OD1 | 2.70 | 0.50 |
| 2:B:53:LEU:HD12 | 2:B:219:THR:HG21 | 1.92 | 0.50 |
| 2:B:156:LEU:HD11 | 5:E:68:ARG:HH12 | 1.67 | 0.50 |
| 17:Q:18:LYS:HE3 | 17:Q:48:GLU:HG2 | 1.93 | 0.50 |
| 1:A:90:C:H2' | 1:A:91:U:C6 | 2.47 | 0.50 |
| 1:A:220:G:O2' | 1:A:221:C:H5' | 2.12 | 0.50 |
| 1:A:723:U:O4' | 21:U:48:LYS:HD3 | 2.12 | 0.50 |
| 1:A:1080:A:HO2' | 5:E:28:ARG:CD | 2.24 | 0.50 |
| 1:A:1108:G:H5' | 3:C:175:HIS:CD2 | 2.47 | 0.50 |
| 1:A:1110:A:C2' | 1:A:1111:A:H5' | 2.42 | 0.50 |
| 1:A:1137:C:O2' | 1:A:1138:G:H5" | 2.12 | 0.50 |
| 2:B:71:THR:CG2 | 2:B:94:ARG:HH21 | 2.25 | 0.50 |
| 4:D:18:LEU:HB2 | 4:D:20:LEU:HD11 | 1.92 | 0.50 |
| 4:D:64:TYR:H | 4:D:64:TYR:HD1 | 1.59 | 0.50 |
| 7:G:61:PHE:O | 7:G:65:LEU:HD13 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 10:J:57:VAL:HG13 | 10:J:58:ASN:N | 2.27 | 0.50 |
| 15:O:70:LYS:NZ | 15:O:74:VAL:HG13 | 2.22 | 0.50 |
| 1:A:49:U:O2' | 1:A:50:A:H2' | 2.11 | 0.50 |
| 1:A:216:U:H2' | 1:A:217:C:C6 | 2.46 | 0.50 |
| 1:A:235:C:H2' | 1:A:236:A:C8 | 2.47 | 0.50 |
| 1:A:613:C:H2' | 1:A:614:C:C6 | 2.46 | 0.50 |
| 2:B:59:ILE:HD12 | 2:B:60:ALA:N | 2.27 | 0.50 |
| 4:D:112:GLU:OE2 | 4:D:153:ARG:HD3 | 2.11 | 0.50 |
| 5:E:92:ARG:HB3 | 5:E:127:TYR:HB2 | 1.94 | 0.50 |
| 5:E:155:LYS:HE3 | 8:H:70:VAL:HG13 | 1.94 | 0.50 |
| 7:G:72:VAL:HB | 7:G:144:ALA:CB | 2.41 | 0.50 |
| 7:G:94:ARG:HD3 | 7:G:98:LEU:HD11 | 1.93 | 0.50 |
| 17:Q:10:ARG:NH2 | 17:Q:11:VAL:HG23 | 2.27 | 0.50 |
| 1:A:18:C:C4' | 1:A:1078:U:H4' | 2.41 | 0.49 |
| 1:A:98:A:H2' | 1:A:99:C:C6 | 2.47 | 0.49 |
| 1:A:370:C:O2' | 1:A:371:A:H5' | 2.13 | 0.49 |
| 1:A:664:G:H5" | 18:R:52:ARG:NH2 | 2.27 | 0.49 |
| 1:A:859:G:O3' | 2:B:191:ASP:OD1 | 2.29 | 0.49 |
| 1:A:869:G:C6 | 2:B:23:ASN:ND2 | 2.76 | 0.49 |
| 1:A:1082:A:O5' | 5:E:22:LYS:CE | 2.60 | 0.49 |
| 2:B:114:LYS:HA | 2:B:117:GLU:OE1 | 2.12 | 0.49 |
| 5:E:41:GLY:HA2 | 5:E:118:GLY:HA2 | 1.94 | 0.49 |
| 12:L:113:ARG:HA | 12:L:118:VAL:HG23 | 1.93 | 0.49 |
| 13:M:89:ARG:NH1 | 13:M:94:LEU:HD13 | 2.27 | 0.49 |
| 21:U:38:GLU:C | 21:U:40:PRO:HD2 | 2.31 | 0.49 |
| 1:A:110:C:H2' | 1:A:111:G:O4' | 2.12 | 0.49 |
| 1:A:537:G:H2' | 1:A:538:G:C8 | 2.47 | 0.49 |
| 1:A:600:A:H2' | 1:A:601:G:C8 | 2.48 | 0.49 |
| 1:A:685:G:O4' | 11:K:40:ALA:HB3 | 2.11 | 0.49 |
| 1:A:1096:C:O2' | 1:A:1097:C:H5' | 2.12 | 0.49 |
| 1:A:1284:C:H3' | 1:A:1285:A:C5' | 2.42 | 0.49 |
| 1:A:1313:U:H5" | 19:S:5:LYS:CG | 2.33 | 0.49 |
| 2:B:36:LYS:N | 2:B:36:LYS:HE3 | 2.28 | 0.49 |
| 2:B:218:ALA:HA | 2:B:221:ARG:HE | 1.76 | 0.49 |
| 5:E:110:MET:SD | 5:E:110:MET:N | 2.85 | 0.49 |
| 6:F:54:LEU:HD13 | 6:F:55:HIS:H | 1.77 | 0.49 |
| 7:G:103:ILE:O | 7:G:107:ALA:HB2 | 2.11 | 0.49 |
| 13:M:89:ARG:HH11 | 13:M:94:LEU:HD13 | 1.76 | 0.49 |
| 1:A:72:A:H2' | 1:A:73:C:C6 | 2.47 | 0.49 |
| 1:A:218:U:H2' | 1:A:219:U:H6 | 1.77 | 0.49 |
| 1:A:237:G:O2' | 1:A:238:A:H5' | 2.11 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:309:A:H2' | 1:A:310:G:H8 | 1.76 | 0.49 |
| 1:A:642:A:H2' | 1:A:643:C:H6 | 1.76 | 0.49 |
| 1:A:830:G:C8 | 2:B:22:TRP:CB | 2.95 | 0.49 |
| 1:A:830:G:N7 | 2:B:22:TRP:HB3 | 2.13 | 0.49 |
| 1:A:859:G:O3' | 2:B:191:ASP:O | 2.22 | 0.49 |
| 2:B:95:TRP:CE3 | 2:B:171:ALA:HA | 2.47 | 0.49 |
| 2:B:113:LEU:HD23 | 2:B:113:LEU:C | 2.33 | 0.49 |
| 3:C:78:LYS:H | 3:C:81:GLU:CB | 2.25 | 0.49 |
| 3:C:119:ILE:O | 3:C:123:LEU:HG | 2.12 | 0.49 |
| 4:D:169:TRP:HB3 | 4:D:183:ARG:HH21 | 1.77 | 0.49 |
| 9:I:53:LEU:O | 9:I:53:LEU:HD13 | 2.12 | 0.49 |
| 13:M:38:ILE:HG13 | 13:M:55:LEU:CD2 | 2.41 | 0.49 |
| 20:T:68:LYS:HG3 | 20:T:69:ASN:ND2 | 2.27 | 0.49 |
| 21:U:37:TYR:C | 21:U:40:PRO:HD2 | 2.33 | 0.49 |
| 1:A:546:A:H4' | 1:A:548:G:O3' | 2.12 | 0.49 |
| 1:A:685:G:O2' | 1:A:686:U:H5' | 2.12 | 0.49 |
| 1:A:764:C:H3' | 1:A:765:G:N2 | 2.25 | 0.49 |
| 1:A:915:A:H2' | 1:A:916:U:H5' | 1.94 | 0.49 |
| 1:A:969:A:N3 | 1:A:970:C:O2 | 2.45 | 0.49 |
| 1:A:971:G:OP1 | 1:A:971:G:H3' | 2.12 | 0.49 |
| 3:C:49:ALA:HB1 | 3:C:75:VAL:CG2 | 2.40 | 0.49 |
| 3:C:149:LYS:HB3 | 3:C:200:TRP:HB2 | 1.94 | 0.49 |
| 4:D:7:LYS:HG3 | 4:D:20:LEU:HB2 | 1.94 | 0.49 |
| 10:J:48:ARG:HA | 10:J:66:GLU:HA | 1.95 | 0.49 |
| 19:S:64:GLU:OE2 | 19:S:65:MET:HG3 | 2.12 | 0.49 |
| 1:A:957:U:H3 | 1:A:960:U:H5" | 1.77 | 0.49 |
| 9:I:51:LEU:CD1 | 9:I:82:ILE:HG21 | 2.42 | 0.49 |
| 12:L:35:ARG:O | 12:L:52:CYS:HB2 | 2.13 | 0.49 |
| 13:M:84:CYS:HA | 19:S:72:GLU:O | 2.13 | 0.49 |
| 15:O:78:THR:HA | 15:O:81:ILE:CD1 | 2.42 | 0.49 |
| 1:A:636:U:H2' | 1:A:637:C:H6 | 1.78 | 0.49 |
| 1:A:677:U:H2' | 1:A:678:U:C6 | 2.48 | 0.49 |
| 4:D:10:LEU:HD21 | 4:D:62:ARG:CD | 2.41 | 0.49 |
| 5:E:89:THR:HG21 | 5:E:134:ASN:ND2 | 2.27 | 0.49 |
| 17:Q:10:ARG:NE | 17:Q:10:ARG:CA | 2.76 | 0.49 |
| 21:U:8:ASN:O | 21:U:9:GLU:HB2 | 2.12 | 0.49 |
| 1:A:34:C:H2' | 1:A:35:G:C8 | 2.47 | 0.49 |
| 1:A:212:G:H2' | 1:A:213:G:C8 | 2.47 | 0.49 |
| 1:A:610:U:O2 | 1:A:610:U:O4' | 2.28 | 0.49 |
| 1:A:806:C:H2' | 1:A:807:A:H8 | 1.77 | 0.49 |
| 1:A:1220:G:H2' | 1:A:1221:G:H8 | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1285:A:H62 | 1:A:1355:G:H4' | 1.76 | 0.49 |
| 2:B:15:PHE:HD1 | 2:B:16:GLY:H | 1.61 | 0.49 |
| 2:B:45:THR:HA | 2:B:48:MET:HG3 | 1.95 | 0.49 |
| 4:D:29:THR:O | 4:D:30:LYS:HB2 | 2.13 | 0.49 |
| 11:K:52:ARG:O | 11:K:54:SER:N | 2.46 | 0.49 |
| 13:M:15:VAL:HG13 | 13:M:29:SER:OG | 2.13 | 0.49 |
| 16:P:5:ARG:H | 16:P:5:ARG:HD2 | 1.77 | 0.49 |
| 22:V:244:ASP:HB3 | 22:V:247:MET:HG3 | 1.94 | 0.49 |
| 1:A:16:A:N1 | 1:A:919:A:H2 | 2.10 | 0.49 |
| 1:A:79:G:H2' | 1:A:80:A:O4' | 2.13 | 0.49 |
| 1:A:254:G:O2' | 1:A:255:G:H5' | 2.13 | 0.49 |
| 1:A:327:A:H1' | 1:A:329:A:O4' | 2.13 | 0.49 |
| 1:A:830:G:N3 | 2:B:19:THR:C | 2.65 | 0.49 |
| 1:A:1271:A:H2' | 1:A:1272:G:H8 | 1.78 | 0.49 |
| 1:A:1372:U:OP1 | 9:I:72:SER:HB2 | 2.12 | 0.49 |
| 2:B:9:LEU:H | 2:B:9:LEU:HD12 | 1.78 | 0.49 |
| 9:I:32:ARG:HD3 | 9:I:37:TYR:HD1 | 1.77 | 0.49 |
| 11:K:15:VAL:HG11 | 11:K:35:ASP:HB2 | 1.94 | 0.49 |
| 11:K:49:SER:HA | 11:K:68:ARG:HH21 | 1.77 | 0.49 |
| 16:P:42:ILE:CB | 16:P:46:LYS:HD2 | 2.42 | 0.49 |
| 17:Q:60:ILE:HB | 17:Q:72:TRP:HE3 | 1.78 | 0.49 |
| 1:A:22:G:H4' | 1:A:885:G:C8 | 2.47 | 0.49 |
| 1:A:214:C:H2' | 1:A:215:C:H6 | 1.76 | 0.49 |
| 1:A:677:U:H2' | 1:A:678:U:H6 | 1.77 | 0.49 |
| 1:A:755:G:OP2 | 15:O:64:LYS:HG2 | 2.13 | 0.49 |
| 1:A:870:U:O4 | 2:B:27:LYS:HB3 | 2.06 | 0.49 |
| 1:A:1081:A:C3' | 5:E:24:VAL:CG1 | 2.89 | 0.49 |
| 1:A:1329:A:O2' | 1:A:1330:U:H5' | 2.13 | 0.49 |
| 1:A:1514:G:H5' | 22:V:222:ARG:NH1 | 2.28 | 0.49 |
| 2:B:9:LEU:HD11 | 2:B:11:ALA:HB3 | 1.93 | 0.49 |
| 3:C:115:VAL:CG1 | 3:C:137:VAL:HG13 | 2.43 | 0.49 |
| 6:F:88:MET:CE | 6:F:90:MET:HG3 | 2.43 | 0.49 |
| 9:I:112:ARG:HB2 | 9:I:112:ARG:HH11 | 1.77 | 0.49 |
| 14:N:74:ARG:O | 14:N:74:ARG:HD3 | 2.13 | 0.49 |
| 16:P:52:LEU:HG | 16:P:75:ILE:CG1 | 2.40 | 0.49 |
| 21:U:29:ALA:HA | 21:U:32:ARG:HB2 | 1.94 | 0.49 |
| 1:A:560:A:H5' | 1:A:566:G:N2 | 2.28 | 0.49 |
| 1:A:708:C:H2' | 1:A:709:U:C6 | 2.47 | 0.49 |
| 1:A:1018:G:H2' | 1:A:1019:A:C8 | 2.48 | 0.49 |
| 1:A:1281:C:H5' | 1:A:1282:C:C5 | 2.48 | 0.49 |
| 1:A:1506:U:H4' | 11:K:128:VAL:OXT | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:162:VAL:HG13 | 2:B:184:ALA:CB | 2.39 | 0.49 |
| 2:B:195:VAL:HG12 | 2:B:197:PHE:H | 1.78 | 0.49 |
| 4:D:194:ILE:HD11 | 4:D:199:ILE:HD11 | 1.95 | 0.49 |
| 16:P:29:ASN:N | 16:P:29:ASN:ND2 | 2.60 | 0.49 |
| 17:Q:23:ALA:HB1 | 17:Q:40:THR:HG23 | 1.94 | 0.49 |
| 19:S:12:LEU:O | 19:S:15:LEU:HB3 | 2.13 | 0.49 |
| 19:S:51:HIS:HA | 19:S:55:GLN:O | 2.12 | 0.49 |
| 21:U:26:GLY:C | 21:U:28:LEU:N | 2.66 | 0.49 |
| 1:A:335:C:H2' | 1:A:336:A:H8 | 1.78 | 0.48 |
| 1:A:806:C:H2' | 1:A:807:A:C8 | 2.48 | 0.48 |
| 3:C:150:VAL:HG12 | 3:C:151:GLU:N | 2.27 | 0.48 |
| 6:F:39:LEU:HD13 | 6:F:40:GLU:H | 1.77 | 0.48 |
| 8:H:29:SER:HB3 | 8:H:32:LYS:HG3 | 1.95 | 0.48 |
| 9:I:4:GLN:NE2 | 9:I:21:LYS:HE3 | 2.28 | 0.48 |
| 11:K:125:LYS:O | 21:U:33:ARG:NH2 | 2.45 | 0.48 |
| 12:L:35:ARG:HG3 | 12:L:36:VAL:N | 2.26 | 0.48 |
| 17:Q:68:LYS:O | 17:Q:69:THR:CB | 2.61 | 0.48 |
| 1:A:182:A:H1' | 1:A:183:C:C5 | 2.47 | 0.48 |
| 1:A:575:G:H4' | 1:A:576:C:O5' | 2.13 | 0.48 |
| 1:A:878:A:C5' | 8:H:80:PRO:HG2 | 2.43 | 0.48 |
| 1:A:900:A:H2' | 1:A:901:A:C8 | 2.47 | 0.48 |
| 1:A:920:U:C6 | 1:A:1079:G:O6 | 2.65 | 0.48 |
| 1:A:1178:G:H2' | 1:A:1180:A:OP2 | 2.13 | 0.48 |
| 1:A:1234:C:H2' | 1:A:1235:U:C6 | 2.48 | 0.48 |
| 2:B:13:VAL:HG11 | 2:B:207:ARG:HB2 | 1.95 | 0.48 |
| 2:B:71:THR:HG23 | 2:B:93:HIS:C | 2.33 | 0.48 |
| 2:B:76:SER:HA | 2:B:92:ASN:HB2 | 1.94 | 0.48 |
| 2:B:162:VAL:HG21 | 2:B:168:GLU:HB2 | 1.95 | 0.48 |
| 5:E:40:ASP:C | 5:E:42:ASN:H | 2.17 | 0.48 |
| 5:E:150:GLU:C | 5:E:152:VAL:H | 2.16 | 0.48 |
| 9:I:64:ILE:HG22 | 9:I:65:THR:N | 2.28 | 0.48 |
| 18:R:70:THR:OG1 | 18:R:71:ASP:N | 2.46 | 0.48 |
| 1:A:239:U:H5" | 1:A:239:U:H6 | 1.78 | 0.48 |
| 1:A:1002:G:H2' | 1:A:1002:G:N3 | 2.27 | 0.48 |
| 1:A:1314:C:H2' | 1:A:1315:U:C6 | 2.49 | 0.48 |
| 3:C:77:GLY:O | 3:C:79:LYS:N | 2.46 | 0.48 |
| 3:C:122:GLN:HE22 | 3:C:136:ALA:HB1 | 1.78 | 0.48 |
| 3:C:150:VAL:HG12 | 3:C:151:GLU:H | 1.77 | 0.48 |
| 5:E:33:THR:O | 5:E:34:ALA:CB | 2.61 | 0.48 |
| 8:H:24:VAL:CG1 | 8:H:60:LEU:HB2 | 2.43 | 0.48 |
| 10:J:55:PRO:HA | 14:N:80:ARG:HH22 | 1.77 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:56:U:H2' | 1:A:57:G:H8 | 1.77 | 0.48 |
| 1:A:157:U:O2' | 1:A:158:G:H5' | 2.13 | 0.48 |
| 1:A:208:U:C2' | 1:A:209:U:H5" | 2.43 | 0.48 |
| 1:A:265:G:H2' | 1:A:267:C:H5 | 1.78 | 0.48 |
| 1:A:919:A:H2 | 1:A:1078:U:C4 | 2.28 | 0.48 |
| 1:A:946:A:H2' | 1:A:947:G:H8 | 1.75 | 0.48 |
| 8:H:11:THR:HG22 | 8:H:15:ASN:ND2 | 2.29 | 0.48 |
| 9:I:18:VAL:HG21 | 9:I:82:ILE:HG13 | 1.95 | 0.48 |
| 9:I:87:MET:SD | 9:I:94:ARG:HG3 | 2.53 | 0.48 |
| 15:O:70:LYS:HZ1 | 15:O:74:VAL:CG1 | 2.22 | 0.48 |
| 16:P:20:VAL:HG21 | 16:P:32:PHE:CD2 | 2.48 | 0.48 |
| 16:P:71:VAL:HA | 16:P:74:LEU:CG | 2.39 | 0.48 |
| 17:Q:20:ILE:HG21 | 17:Q:52:CYS:SG | 2.54 | 0.48 |
| 20:T:61:ALA:HA | 20:T:66:ILE:O | 2.13 | 0.48 |
| 21:U:3:ILE:HA | 21:U:19:LYS:CG | 2.37 | 0.48 |
| 1:A:15:G:C6 | 1:A:1079:G:C2 | 3.01 | 0.48 |
| 1:A:87:C:N3 | 1:A:88:U:H1' | 2.28 | 0.48 |
| 1:A:333:U:H2' | 1:A:334:C:H6 | 1.79 | 0.48 |
| 1:A:911:U:H2' | 1:A:912:C:C6 | 2.49 | 0.48 |
| 2:B:60:ALA:HB3 | 2:B:223:GLY:HA3 | 1.95 | 0.48 |
| 3:C:66:THR:HA | 3:C:101:ASN:O | 2.14 | 0.48 |
| 5:E:19:ARG:O | 5:E:20:VAL:HB | 2.14 | 0.48 |
| 5:E:111:ARG:O | 5:E:115:GLU:HG3 | 2.13 | 0.48 |
| 8:H:10:LEU:HA | 8:H:74:ILE:HD11 | 1.95 | 0.48 |
| 8:H:87:ARG:O | 8:H:91:LEU:HG | 2.14 | 0.48 |
| 9:I:18:VAL:HG21 | 9:I:82:ILE:CG1 | 2.43 | 0.48 |
| 11:K:22:ILE:CG2 | 11:K:95:THR:HG21 | 2.35 | 0.48 |
| 11:K:69:CYS:C | 11:K:71:ASP:N | 2.66 | 0.48 |
| 13:M:106:ARG:HH11 | 13:M:106:ARG:CA | 2.24 | 0.48 |
| 19:S:4:LEU:CD1 | 19:S:9:PHE:H | 2.17 | 0.48 |
| 1:A:31:G:H2' | 1:A:48:C:H5 | 1.77 | 0.48 |
| 1:A:591:U:H2' | 1:A:592:G:H8 | 1.79 | 0.48 |
| 1:A:782:A:H2' | 1:A:783:C:O4' | 2.13 | 0.48 |
| 1:A:1081:A:O2' | 1:A:1082:A:H5' | 2.14 | 0.48 |
| 1:A:1130:A:O2' | 1:A:1131:G:H5' | 2.13 | 0.48 |
| 3:C:85:LYS:O | 3:C:89:VAL:HG23 | 2.13 | 0.48 |
| 3:C:113:LYS:HG3 | 3:C:117:ASP:OD2 | 2.13 | 0.48 |
| 3:C:135:ARG:C | 3:C:137:VAL:H | 2.17 | 0.48 |
| 6:F:75:GLU:O | 6:F:79:ARG:HG2 | 2.14 | 0.48 |
| 8:H:17:GLN:NE2 | 8:H:69:ALA:HB1 | 2.28 | 0.48 |
| 20:T:60:GLN:CD | 20:T:60:GLN:N | 2.67 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:65:A:N3 | 1:A:65:A:C2' | 2.74 | 0.48 |
| 1:A:238:A:C2' | 1:A:239:U:H5" | 2.42 | 0.48 |
| 1:A:522:C:H41 | 12:L:49:ARG:NH2 | 2.10 | 0.48 |
| 1:A:537:G:H2' | 1:A:538:G:H8 | 1.78 | 0.48 |
| 1:A:734:G:H2' | 1:A:735:C:C6 | 2.49 | 0.48 |
| 1:A:812:G:N3 | 1:A:812:G:C2' | 2.75 | 0.48 |
| 1:A:1220:G:H4' | 19:S:33:TRP:O | 2.14 | 0.48 |
| 1:A:1376:U:H2' | 1:A:1377:A:C8 | 2.49 | 0.48 |
| 1:A:1526:G:O2' | 1:A:1527:U:H5' | 2.13 | 0.48 |
| 2:B:35:ASN:O | 2:B:36:LYS:HB2 | 2.13 | 0.48 |
| 5:E:81:GLN:HE21 | 5:E:147:ASN:C | 2.17 | 0.48 |
| 6:F:67:PRO:O | 6:F:70:VAL:HG22 | 2.13 | 0.48 |
| 8:H:29:SER:HB3 | 8:H:32:LYS:HZ2 | 1.77 | 0.48 |
| 9:I:118:ARG:HH22 | 9:I:122:ARG:NH2 | 2.10 | 0.48 |
| 11:K:82:GLU:HG3 | 11:K:107:THR:OG1 | 2.13 | 0.48 |
| 11:K:121:ARG:HG3 | 11:K:121:ARG:NH1 | 2.29 | 0.48 |
| 13:M:78:ARG:HH22 | 13:M:82:LEU:HD11 | 1.78 | 0.48 |
| 14:N:59:GLN:N | 14:N:59:GLN:NE2 | 2.62 | 0.48 |
| 18:R:64:LEU:CB | 18:R:66:LEU:HG | 2.44 | 0.48 |
| 21:U:3:ILE:CA | 21:U:19:LYS:HG2 | 2.38 | 0.48 |
| 1:A:147:G:H2' | 1:A:148:G:C8 | 2.49 | 0.48 |
| 1:A:720:C:C5' | 18:R:40:PRO:HA | 2.43 | 0.48 |
| 1:A:864:A:H2' | 1:A:865:A:C8 | 2.49 | 0.48 |
| 4:D:94:GLU:CA | 4:D:103:ARG:HH22 | 2.27 | 0.48 |
| 5:E:63:MET:O | 5:E:66:ALA:HB3 | 2.14 | 0.48 |
| 5:E:104:ILE:HG23 | 5:E:104:ILE:O | 2.14 | 0.48 |
| 7:G:131:GLY:O | 7:G:134:VAL:HG12 | 2.13 | 0.48 |
| 10:J:41:PRO:O | 10:J:71:LEU:HD13 | 2.13 | 0.48 |
| 16:P:12:LYS:C | 16:P:14:ARG:H | 2.17 | 0.48 |
| 17:Q:8:GLN:HB3 | 17:Q:57:VAL:HG13 | 1.95 | 0.48 |
| 17:Q:10:ARG:NH1 | 17:Q:11:VAL:HB | 2.28 | 0.48 |
| 22:V:113:ASN:HA | 22:V:139:MET:HB3 | 1.96 | 0.48 |
| 1:A:5:U:H1' | 1:A:6:G:C2 | 2.48 | 0.48 |
| 1:A:21:G:H2' | 1:A:22:G:C8 | 2.49 | 0.48 |
| 1:A:179:A:H2' | 1:A:180:U:C6 | 2.48 | 0.48 |
| 1:A:182:A:H1' | 1:A:183:C:H5 | 1.79 | 0.48 |
| 1:A:434:U:O2 | 1:A:434:U:H2' | 2.14 | 0.48 |
| 1:A:829:G:H5' | 2:B:39:ILE:O | 2.13 | 0.48 |
| 1:A:1072:G:H2' | 1:A:1073:U:C6 | 2.48 | 0.48 |
| 2:B:66:ILE:C | 2:B:67:LEU:HD13 | 2.34 | 0.48 |
| 2:B:160:LEU:O | 2:B:182:VAL:HA | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:162:VAL:O | 2:B:184:ALA:HA | 2.14 | 0.48 |
| 2:B:215:ALA:O | 2:B:218:ALA:HB3 | 2.13 | 0.48 |
| 7:G:53:SER:HB2 | 7:G:55:LYS:HZ2 | 1.77 | 0.48 |
| 11:K:15:VAL:HG21 | 11:K:41:LEU:CD1 | 2.44 | 0.48 |
| 12:L:80:LEU:O | 12:L:97:VAL:HG23 | 2.14 | 0.48 |
| 16:P:36:VAL:HG13 | 16:P:36:VAL:O | 2.14 | 0.48 |
| 1:A:252:U:H2' | 1:A:253:A:C8 | 2.48 | 0.48 |
| 1:A:608:A:H2' | 1:A:609:A:O4' | 2.14 | 0.48 |
| 1:A:684:U:O2' | 11:K:39:ASN:HB3 | 2.14 | 0.48 |
| 1:A:830:G:C6 | 2:B:22:TRP:CD2 | 3.02 | 0.48 |
| 1:A:870:U:P | 2:B:24:PRO:HB3 | 2.54 | 0.48 |
| 1:A:922:G:H2' | 1:A:923:A:H8 | 1.75 | 0.48 |
| 1:A:1014:A:C2 | 1:A:1219:A:H1' | 2.49 | 0.48 |
| 1:A:1137:C:H1' | 1:A:1138:G:N2 | 2.28 | 0.48 |
| 4:D:84:ASN:HD22 | 4:D:87:GLU:N | 2.10 | 0.48 |
| 4:D:93:LEU:O | 4:D:96:ARG:HB3 | 2.14 | 0.48 |
| 7:G:14:ASP:OD2 | 7:G:15:PRO:HD2 | 2.14 | 0.48 |
| 11:K:121:ARG:HG3 | 11:K:121:ARG:HH11 | 1.79 | 0.48 |
| 12:L:90:PRO:C | 12:L:92:VAL:H | 2.17 | 0.48 |
| 16:P:33:ILE:H | 16:P:33:ILE:HD12 | 1.79 | 0.48 |
| 21:U:14:ALA:H | 21:U:16:ARG:CZ | 2.15 | 0.48 |
| 1:A:109:A:H4' | 1:A:110:C:OP2 | 2.14 | 0.47 |
| 1:A:174:A:O2' | 1:A:175:C:H5' | 2.13 | 0.47 |
| 1:A:235:C:H2' | 1:A:236:A:H8 | 1.78 | 0.47 |
| 1:A:437:U:H5" | 4:D:151:GLN:NE2 | 2.29 | 0.47 |
| 1:A:953:G:H2' | 1:A:954:G:O4' | 2.14 | 0.47 |
| 1:A:1060:U:C5' | 10:J:53:ILE:HG22 | 2.42 | 0.47 |
| 1:A:1080:A:H8 | 5:E:22:LYS:CA | 2.18 | 0.47 |
| 1:A:1081:A:C5 | 5:E:22:LYS:HD2 | 2.37 | 0.47 |
| 1:A:1258:G:C4 | 1:A:1278:G:N2 | 2.82 | 0.47 |
| 2:B:80:LYS:O | 2:B:84:LEU:N | 2.47 | 0.47 |
| 6:F:18:VAL:HG21 | 6:F:58:HIS:CG | 2.49 | 0.47 |
| 6:F:70:VAL:HA | 6:F:73:GLU:HG3 | 1.96 | 0.47 |
| 7:G:125:ASP:HB3 | 7:G:130:LYS:CB | 2.27 | 0.47 |
| 10:J:22:THR:CG2 | 10:J:23:ALA:N | 2.77 | 0.47 |
| 12:L:58:ASN:HD22 | 12:L:58:ASN:N | 2.11 | 0.47 |
| 15:O:28:VAL:HG22 | 15:O:65:LEU:HB3 | 1.96 | 0.47 |
| 16:P:6:LEU:HD11 | 16:P:71:VAL:HB | 1.96 | 0.47 |
| 1:A:34:C:H2' | 1:A:35:G:H8 | 1.79 | 0.47 |
| 1:A:193:C:H2' | 1:A:194:C:C6 | 2.49 | 0.47 |
| 1:A:333:U:H2' | 1:A:334:C:C6 | 2.49 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:659:U:H2' | 1:A:660:C:C6 | 2.49 | 0.47 |
| 4:D:117:VAL:HG12 | 4:D:130:ASN:C | 2.35 | 0.47 |
| 7:G:16:LYS:C | 7:G:16:LYS:HD3 | 2.34 | 0.47 |
| 7:G:22:LEU:O | 7:G:26:VAL:HG13 | 2.14 | 0.47 |
| 9:I:43:ALA:C | 9:I:45:MET:H | 2.16 | 0.47 |
| 10:J:88:MET:CE | 10:J:88:MET:H | 2.27 | 0.47 |
| 11:K:60:PHE:HA | 11:K:63:GLN:OE1 | 2.14 | 0.47 |
| 14:N:12:ARG:HH11 | 14:N:60:ARG:HH12 | 1.62 | 0.47 |
| 19:S:3:SER:O | 19:S:4:LEU:HG | 2.14 | 0.47 |
| 19:S:10:ILE:HD11 | 19:S:15:LEU:HD13 | 1.96 | 0.47 |
| 20:T:4:LYS:HD2 | 20:T:5:SER:H | 1.79 | 0.47 |
| 1:A:317:U:H2' | 1:A:318:G:C8 | 2.49 | 0.47 |
| 1:A:321:A:O2' | 1:A:322:C:H5' | 2.14 | 0.47 |
| 1:A:426:U:H2' | 1:A:427:U:C6 | 2.48 | 0.47 |
| 1:A:513:C:H2' | 1:A:514:C:C6 | 2.49 | 0.47 |
| 1:A:577:G:O2' | 1:A:578:C:H5' | 2.14 | 0.47 |
| 1:A:672:U:H2' | 1:A:673:A:H8 | 1.78 | 0.47 |
| 1:A:1352:C:H2' | 1:A:1353:G:C8 | 2.50 | 0.47 |
| 3:C:120:THR:HA | 3:C:123:LEU:HD12 | 1.96 | 0.47 |
| 3:C:178:ARG:O | 3:C:206:ILE:HA | 2.14 | 0.47 |
| 7:G:71:THR:HA | 7:G:90:VAL:HG22 | 1.96 | 0.47 |
| 7:G:137:ARG:HG2 | 7:G:141:HIS:CE1 | 2.48 | 0.47 |
| 1:A:343:U:O2' | 1:A:344:A:H2' | 2.14 | 0.47 |
| 1:A:986:U:H1' | 19:S:53:GLY:O | 2.14 | 0.47 |
| 1:A:1215:G:H5' | 1:A:1215:G:H8 | 1.78 | 0.47 |
| 1:A:1369:C:H2' | 1:A:1370:G:C8 | 2.49 | 0.47 |
| 3:C:11:LEU:HD22 | 3:C:17:TRP:CD1 | 2.50 | 0.47 |
| 3:C:46:LEU:CD2 | 3:C:75:VAL:HG13 | 2.44 | 0.47 |
| 4:D:69:ARG:HE | 4:D:69:ARG:CA | 2.25 | 0.47 |
| 4:D:160:LEU:H | 4:D:160:LEU:CD1 | 2.20 | 0.47 |
| 5:E:45:VAL:HG23 | 5:E:71:ILE:CG2 | 2.43 | 0.47 |
| 6:F:71:ILE:HG13 | 6:F:72:ASP:N | 2.29 | 0.47 |
| 11:K:83:VAL:CG2 | 11:K:109:ILE:HG12 | 2.44 | 0.47 |
| 22:V:60:ASP:O | 22:V:84:LYS:HG2 | 2.14 | 0.47 |
| 1:A:389:A:H2' | 1:A:389:A:N3 | 2.30 | 0.47 |
| 1:A:462:G:H3' | 1:A:463:U:H5" | 1.95 | 0.47 |
| 1:A:1343:G:H2' | 1:A:1344:C:H6 | 1.78 | 0.47 |
| 1:A:1367:C:O2' | 1:A:1368:A:H5' | 2.14 | 0.47 |
| 2:B:158:ASP:O | 2:B:181:PRO:HD2 | 2.15 | 0.47 |
| 3:C:5:HIS:CD2 | 3:C:7:ASN:HB2 | 2.49 | 0.47 |
| 7:G:58:LEU:HB3 | 7:G:59:GLU:OE2 | 2.14 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:30:ASN:HD21 | 9:I:65:THR:HA | 1.80 | 0.47 |
| 13:M:58:GLU:HA | 13:M:61:LYS:HE2 | 1.95 | 0.47 |
| 17:Q:20:ILE:CG1 | 17:Q:45:VAL:HB | 2.43 | 0.47 |
| 21:U:29:ALA:HB1 | 21:U:32:ARG:NH2 | 2.10 | 0.47 |
| 1:A:901:A:H3' | 1:A:902:G:O4' | 2.15 | 0.47 |
| 1:A:1518:A:C2 | 22:V:186:LYS:HB2 | 2.50 | 0.47 |
| 2:B:163:ILE:HG13 | 2:B:185:ILE:HD11 | 1.96 | 0.47 |
| 2:B:172:ILE:O | 2:B:175:ALA:HB3 | 2.13 | 0.47 |
| 6:F:38:ARG:HH21 | 6:F:96:VAL:CG1 | 2.28 | 0.47 |
| 7:G:87:PRO:CG | 7:G:151:ALA:HB2 | 2.41 | 0.47 |
| 8:H:64:TYR:CB | 8:H:69:ALA:HA | 2.44 | 0.47 |
| 10:J:88:MET:C | 10:J:90:LEU:H | 2.17 | 0.47 |
| 13:M:33:LEU:HB3 | 13:M:38:ILE:O | 2.14 | 0.47 |
| 13:M:109:LYS:HG3 | 13:M:110:GLY:N | 2.28 | 0.47 |
| 14:N:72:PHE:CE1 | 14:N:77:GLY:HA2 | 2.49 | 0.47 |
| 17:Q:24:ILE:O | 17:Q:40:THR:HA | 2.14 | 0.47 |
| 1:A:232:G:H1' | 1:A:262:A:N1 | 2.29 | 0.47 |
| 1:A:255:G:H2' | 1:A:256:U:C6 | 2.48 | 0.47 |
| 1:A:301:G:H2' | 1:A:302:G:H8 | 1.79 | 0.47 |
| 1:A:588:G:H5' | 8:H:2:MET:O | 2.14 | 0.47 |
| 1:A:1060:U:H4' | 10:J:54:SER:HB2 | 1.95 | 0.47 |
| 1:A:1109:C:N4 | 1:A:1110:A:N6 | 2.62 | 0.47 |
| 1:A:1121:U:H2' | 1:A:1122:U:O4' | 2.15 | 0.47 |
| 1:A:1171:A:O2' | 1:A:1172:C:H5' | 2.15 | 0.47 |
| 1:A:1272:G:H2' | 1:A:1273:C:C6 | 2.50 | 0.47 |
| 2:B:206:ILE:O | 2:B:209:VAL:HG23 | 2.13 | 0.47 |
| 3:C:21:TRP:CD1 | 3:C:58:ARG:HD2 | 2.49 | 0.47 |
| 3:C:61:LYS:O | 3:C:97:PRO:HD2 | 2.14 | 0.47 |
| 3:C:75:VAL:O | 3:C:75:VAL:HG12 | 2.14 | 0.47 |
| 4:D:81:LEU:HD11 | 4:D:92:LEU:HD21 | 1.97 | 0.47 |
| 7:G:94:ARG:CD | 7:G:98:LEU:HD11 | 2.44 | 0.47 |
| 7:G:142:ARG:C | 7:G:146:ALA:HB3 | 2.34 | 0.47 |
| 8:H:49:LYS:CG | 8:H:50:VAL:H | 2.27 | 0.47 |
| 8:H:111:THR:HG23 | 8:H:114:ALA:CB | 2.44 | 0.47 |
| 10:J:5:ARG:HD3 | 10:J:5:ARG:N | 2.29 | 0.47 |
| 11:K:63:GLN:O | 11:K:67:GLU:HB3 | 2.14 | 0.47 |
| 11:K:92:ARG:NH2 | 11:K:111:ASP:OD1 | 2.47 | 0.47 |
| 13:M:11:HIS:O | 13:M:12:LYS:HG2 | 2.14 | 0.47 |
| 13:M:77:LYS:O | 13:M:81:ASP:N | 2.44 | 0.47 |
| 16:P:39:PHE:CE1 | 16:P:74:LEU:HD22 | 2.49 | 0.47 |
| 16:P:67:ILE:HG13 | 16:P:71:VAL:CG1 | 2.41 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:22:VAL:HG21 | 17:Q:58:VAL:HG21 | 1.96 | 0.47 |
| 19:S:37:SER:O | 19:S:69:LYS:HG2 | 2.15 | 0.47 |
| 21:U:40:PRO:O | 21:U:42:THR:N | 2.48 | 0.47 |
| 1:A:78:A:O2' | 1:A:79:G:H5' | 2.14 | 0.47 |
| 1:A:471:U:H2' | 1:A:472:U:H6 | 1.80 | 0.47 |
| 1:A:746:A:H2' | 1:A:747:A:H8 | 1.80 | 0.47 |
| 1:A:812:G:HO2' | 1:A:813:U:H6 | 1.55 | 0.47 |
| 1:A:1348:U:H2' | 1:A:1349:A:H8 | 1.80 | 0.47 |
| 3:C:139:ASN:O | 3:C:143:LEU:HD22 | 2.14 | 0.47 |
| 10:J:8:ILE:H | 10:J:75:ASP:HB2 | 1.80 | 0.47 |
| 13:M:13:HIS:HB2 | 13:M:16:ILE:HG22 | 1.97 | 0.47 |
| 15:O:87:ARG:HA | 15:O:87:ARG:HH11 | 1.78 | 0.47 |
| 19:S:4:LEU:N | 19:S:5:LYS:HE3 | 2.29 | 0.47 |
| 20:T:49:ALA:HA | 20:T:52:GLU:HB3 | 1.96 | 0.47 |
| 21:U:3:ILE:HA | 21:U:19:LYS:HE3 | 1.97 | 0.47 |
| 21:U:35:GLU:HB2 | 21:U:37:TYR:CZ | 2.50 | 0.47 |
| 22:V:136:MET:HB2 | 22:V:194:LEU:HB2 | 1.96 | 0.47 |
| 1:A:167:A:O2' | 1:A:168:G:H5' | 2.15 | 0.47 |
| 1:A:552:U:H2' | 1:A:553:A:C8 | 2.50 | 0.47 |
| 1:A:674:G:H2' | 1:A:675:A:C8 | 2.49 | 0.47 |
| 1:A:719:C:H1' | 18:R:37:LYS:HE3 | 1.96 | 0.47 |
| 1:A:751:U:H4' | 15:O:23:SER:HA | 1.97 | 0.47 |
| 1:A:827:U:C2' | 2:B:28:PRO:CB | 2.86 | 0.47 |
| 1:A:1085:U:H3' | 1:A:1086:U:H5 | 1.80 | 0.47 |
| 1:A:1124:G:H5" | 10:J:38:GLY:HA3 | 1.97 | 0.47 |
| 1:A:1198:G:H2' | 1:A:1199:U:C6 | 2.50 | 0.47 |
| 2:B:156:LEU:H | 2:B:156:LEU:HD12 | 1.80 | 0.47 |
| 2:B:162:VAL:HG11 | 2:B:172:ILE:HG12 | 1.96 | 0.47 |
| 4:D:117:VAL:HG12 | 4:D:130:ASN:CA | 2.45 | 0.47 |
| 9:I:51:LEU:HD23 | 9:I:56:MET:HE3 | 1.97 | 0.47 |
| 11:K:21:HIS:CE1 | 11:K:34:THR:HG21 | 2.50 | 0.47 |
| 14:N:60:ARG:HE | 14:N:62:ARG:CZ | 2.28 | 0.47 |
| 1:A:975:A:H4' | 1:A:976:G:OP2 | 2.14 | 0.47 |
| 1:A:1018:G:H2' | 1:A:1019:A:H8 | 1.80 | 0.47 |
| 4:D:147:LYS:HE3 | 4:D:147:LYS:H | 1.80 | 0.47 |
| 6:F:43:GLY:HA2 | 6:F:58:HIS:CE1 | 2.49 | 0.47 |
| 10:J:18:ILE:HD12 | 10:J:72:ARG:HG3 | 1.97 | 0.47 |
| 10:J:35:GLN:H | 10:J:78:GLU:HB3 | 1.80 | 0.47 |
| 11:K:12:ARG:N | 11:K:12:ARG:HD2 | 2.30 | 0.47 |
| 11:K:52:ARG:HD2 | 11:K:53:GLY:H | 1.80 | 0.47 |
| 12:L:106:VAL:HG22 | 12:L:117:GLY:H | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:M:72:ILE:O | 13:M:76:ILE:HG13 | 2.15 | 0.47 |
| 16:P:29:ASN:N | 16:P:29:ASN:HD22 | 2.11 | 0.47 |
| 16:P:33:ILE:HD12 | 16:P:33:ILE:N | 2.29 | 0.47 |
| 1:A:767:A:H2' | 1:A:768:A:C8 | 2.51 | 0.46 |
| 1:A:1294:G:H2' | 1:A:1295:U:H6 | 1.79 | 0.46 |
| 3:C:84:GLU:HA | 3:C:87:ARG:NH2 | 2.30 | 0.46 |
| 4:D:163:GLN:HB2 | 4:D:164:ARG:HH12 | 1.80 | 0.46 |
| 5:E:45:VAL:HG12 | 5:E:116:VAL:HG23 | 1.98 | 0.46 |
| 6:F:5:GLU:HG3 | 6:F:63:ASN:OD1 | 2.15 | 0.46 |
| 6:F:64:VAL:CG1 | 6:F:65:GLU:H | 2.15 | 0.46 |
| 6:F:66:ALA:HB1 | 6:F:67:PRO:HD2 | 1.96 | 0.46 |
| 10:J:57:VAL:HG22 | 10:J:58:ASN:H | 1.80 | 0.46 |
| 12:L:50:LYS:HE2 | 12:L:50:LYS:N | 2.30 | 0.46 |
| 16:P:3:THR:HG22 | 16:P:66:THR:HB | 1.98 | 0.46 |
| 16:P:26:ASN:OD1 | 16:P:31:ARG:HB3 | 2.14 | 0.46 |
| 1:A:18:C:C4 | 1:A:1078:U:C2 | 3.02 | 0.46 |
| 1:A:303:A:H2' | 1:A:304:U:O4' | 2.14 | 0.46 |
| 1:A:649:A:H2' | 1:A:650:G:O4' | 2.15 | 0.46 |
| 1:A:916:U:H2' | 1:A:917:G:H8 | 1.80 | 0.46 |
| 1:A:1016:A:H5' | 1:A:1218:C:H4' | 1.97 | 0.46 |
| 1:A:1057:G:H4' | 3:C:194:VAL:O | 2.15 | 0.46 |
| 1:A:1180:A:P | 9:I:98:ARG:HH22 | 2.38 | 0.46 |
| 2:B:204:ASP:CG | 2:B:205:ALA:N | 2.63 | 0.46 |
| 3:C:78:LYS:H | 3:C:81:GLU:HB3 | 1.79 | 0.46 |
| 5:E:84:VAL:HG21 | 5:E:142:GLY:O | 2.15 | 0.46 |
| 7:G:35:LYS:O | 7:G:39:GLU:HG2 | 2.16 | 0.46 |
| 11:K:109:ILE:O | 11:K:110:THR:HG23 | 2.16 | 0.46 |
| 12:L:35:ARG:HH21 | 12:L:75:GLU:HB3 | 1.78 | 0.46 |
| 16:P:4:ILE:HA | 16:P:20:VAL:O | 2.15 | 0.46 |
| 22:V:119:SER:HB2 | 22:V:140:LEU:HD22 | 1.97 | 0.46 |
| 1:A:607:A:H2' | 1:A:608:A:C8 | 2.49 | 0.46 |
| 1:A:692:U:H2' | 1:A:694:A:OP2 | 2.16 | 0.46 |
| 1:A:844:G:H21 | 1:A:845:A:H62 | 1.61 | 0.46 |
| 1:A:894:G:O2' | 1:A:895:G:H5' | 2.15 | 0.46 |
| 1:A:1118:U:H1' | 1:A:1179:A:C5 | 2.50 | 0.46 |
| 1:A:1527:U:O2' | 1:A:1528:U:H5' | 2.16 | 0.46 |
| 2:B:82:ALA:O | 2:B:217:ALA:HB2 | 2.15 | 0.46 |
| 3:C:71:ARG:O | 3:C:75:VAL:HG23 | 2.15 | 0.46 |
| 3:C:171:ARG:NH1 | 3:C:173:PRO:HG3 | 2.31 | 0.46 |
| 4:D:81:LEU:CD1 | 4:D:92:LEU:HD21 | 2.45 | 0.46 |
| 4:D:167:PRO:HB2 | 4:D:170:LEU:HG | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:92:PRO:HA | 8:H:93:LYS:HZ1 | 1.78 | 0.46 |
| 9:I:40:ARG:HA | 9:I:44:ARG:HH21 | 1.81 | 0.46 |
| 10:J:89:ARG:NE | 10:J:89:ARG:HA | 2.31 | 0.46 |
| 13:M:22:TYR:HB3 | 13:M:69:ARG:HH22 | 1.78 | 0.46 |
| 19:S:43:MET:O | 19:S:46:LEU:HB2 | 2.14 | 0.46 |
| 20:T:70:LYS:HB2 | 20:T:70:LYS:NZ | 2.31 | 0.46 |
| 1:A:26:A:H61 | 1:A:558:G:H1' | 1.81 | 0.46 |
| 1:A:418:C:H2' | 1:A:419:C:H6 | 1.79 | 0.46 |
| 1:A:541:G:H2' | 1:A:542:G:H8 | 1.79 | 0.46 |
| 1:A:950:U:H2' | 1:A:951:G:C8 | 2.50 | 0.46 |
| 1:A:1096:C:H2' | 1:A:1097:C:C6 | 2.50 | 0.46 |
| 2:B:119:GLN:HA | 2:B:124:THR:HG23 | 1.97 | 0.46 |
| 3:C:24:ASN:O | 3:C:26:LYS:N | 2.49 | 0.46 |
| 3:C:126:ARG:HH22 | 3:C:190:THR:CG2 | 2.28 | 0.46 |
| 3:C:131:ARG:CZ | 3:C:131:ARG:HB3 | 2.45 | 0.46 |
| 5:E:108:GLY:N | 5:E:110:MET:SD | 2.89 | 0.46 |
| 8:H:64:TYR:CA | 8:H:70:VAL:HG23 | 2.45 | 0.46 |
| 9:I:49:GLN:N | 9:I:50:PRO:HD2 | 2.30 | 0.46 |
| 9:I:64:ILE:HD13 | 9:I:78:ILE:HG21 | 1.98 | 0.46 |
| 14:N:79:SER:O | 14:N:81:ILE:HD12 | 2.14 | 0.46 |
| 15:O:24:THR:HB | 15:O:69:LEU:HD21 | 1.98 | 0.46 |
| 19:S:4:LEU:O | 19:S:6:LYS:N | 2.48 | 0.46 |
| 1:A:301:G:H2' | 1:A:302:G:C8 | 2.50 | 0.46 |
| 1:A:1320:C:P | 19:S:69:LYS:HZ2 | 2.38 | 0.46 |
| 2:B:9:LEU:HD22 | 2:B:11:ALA:N | 2.24 | 0.46 |
| 2:B:79:VAL:HG13 | 2:B:90:PHE:HD2 | 1.79 | 0.46 |
| 2:B:178:LEU:CD1 | 5:E:69:ASN:HD21 | 2.28 | 0.46 |
| 4:D:43:ARG:HB3 | 4:D:44:LYS:H | 1.49 | 0.46 |
| 4:D:117:VAL:HG22 | 4:D:122:ILE:HG13 | 1.97 | 0.46 |
| 7:G:14:ASP:CG | 7:G:15:PRO:HD2 | 2.36 | 0.46 |
| 10:J:80:THR:N | 10:J:84:VAL:HG11 | 2.29 | 0.46 |
| 13:M:106:ARG:HE | 13:M:112:ARG:CG | 2.14 | 0.46 |
| 1:A:230:G:O2' | 1:A:231:U:H5' | 2.15 | 0.46 |
| 1:A:829:G:OP1 | 2:B:41:ASN:N | 2.49 | 0.46 |
| 1:A:948:C:O2' | 1:A:949:A:H5' | 2.15 | 0.46 |
| 1:A:1071:C:O2' | 1:A:1072:G:H5' | 2.15 | 0.46 |
| 1:A:1256:A:O4' | 1:A:1278:G:N2 | 2.49 | 0.46 |
| 1:A:1348:U:H4' | 9:I:121:ARG:NH1 | 2.31 | 0.46 |
| 3:C:33:ASP:O | 3:C:37:LYS:HE2 | 2.16 | 0.46 |
| 3:C:76:ILE:C | 3:C:82:ASP:HB2 | 2.36 | 0.46 |
| 4:D:25:ARG:HD3 | 4:D:26:ALA:N | 2.31 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 7:G:42:VAL:O | 7:G:46:LEU:HB2 | 2.15 | 0.46 |
| 8:H:65:PHE:CD2 | 8:H:66:GLN:HG3 | 2.51 | 0.46 |
| 14:N:10:VAL:HG12 | 14:N:11:LYS:NZ | 2.31 | 0.46 |
| 17:Q:66:LEU:HD11 | 17:Q:73:THR:HG22 | 1.98 | 0.46 |
| 1:A:829:G:O3' | 2:B:39:ILE:O | 2.33 | 0.46 |
| 1:A:841:C:H6 | 1:A:843:U:OP1 | 1.99 | 0.46 |
| 1:A:920:U:N3 | 1:A:1079:G:N1 | 2.63 | 0.46 |
| 1:A:947:G:H2' | 1:A:948:C:C6 | 2.51 | 0.46 |
| 1:A:982:U:H4' | 1:A:983:A:O4' | 2.16 | 0.46 |
| 1:A:1131:G:O2' | 1:A:1132:C:H5' | 2.15 | 0.46 |
| 3:C:112:ALA:HB2 | 3:C:182:ASP:O | 2.16 | 0.46 |
| 3:C:131:ARG:HH22 | 3:C:135:ARG:NH1 | 2.14 | 0.46 |
| 4:D:94:GLU:HA | 4:D:94:GLU:OE1 | 2.14 | 0.46 |
| 4:D:160:LEU:HD22 | 4:D:161:ALA:N | 2.31 | 0.46 |
| 5:E:108:GLY:H | 5:E:110:MET:CE | 2.28 | 0.46 |
| 16:P:39:PHE:HE2 | 16:P:70:ARG:HH21 | 1.63 | 0.46 |
| 16:P:71:VAL:CA | 16:P:74:LEU:HG | 2.41 | 0.46 |
| 17:Q:19:SER:O | 17:Q:20:ILE:HG23 | 2.16 | 0.46 |
| 1:A:792:A:H1' | 1:A:794:A:N7 | 2.31 | 0.46 |
| 1:A:981:U:H4' | 14:N:60:ARG:CG | 2.45 | 0.46 |
| 1:A:1315:U:H3' | 1:A:1316:G:C8 | 2.51 | 0.46 |
| 1:A:1320:C:H2' | 1:A:1321:U:O4' | 2.16 | 0.46 |
| 2:B:95:TRP:CH2 | 2:B:100:LEU:HB2 | 2.50 | 0.46 |
| 6:F:42:TRP:CZ2 | 6:F:61:LEU:HD23 | 2.51 | 0.46 |
| 7:G:132:THR:HA | 7:G:135:LYS:HB3 | 1.97 | 0.46 |
| 11:K:22:ILE:HD13 | 11:K:95:THR:CG2 | 2.46 | 0.46 |
| 13:M:21:ILE:HG22 | 13:M:64:VAL:CG1 | 2.41 | 0.46 |
| 1:A:114:U:H2' | 1:A:115:G:C8 | 2.50 | 0.46 |
| 1:A:512:U:H2' | 1:A:513:C:C6 | 2.51 | 0.46 |
| 1:A:601:G:H2' | 1:A:602:A:C8 | 2.51 | 0.46 |
| 1:A:664:G:H5" | 18:R:52:ARG:CZ | 2.46 | 0.46 |
| 1:A:890:G:O2' | 1:A:906:A:N6 | 2.49 | 0.46 |
| 1:A:947:G:H2' | 1:A:948:C:H6 | 1.81 | 0.46 |
| 1:A:1211:U:H1' | 1:A:1213:A:C2 | 2.51 | 0.46 |
| 3:C:166:TRP:HB3 | 3:C:167:TYR:H | 1.49 | 0.46 |
| 7:G:110:ARG:HH12 | 7:G:122:GLU:N | 2.13 | 0.46 |
| 16:P:1:MET:H2 | 16:P:24:SER:HB3 | 1.80 | 0.46 |
| 17:Q:10:ARG:NE | 17:Q:11:VAL:H | 2.12 | 0.46 |
| 18:R:46:THR:CG2 | 18:R:51:GLN:HB2 | 2.43 | 0.46 |
| 20:T:74:HIS:O | 20:T:78:LEU:HB2 | 2.16 | 0.46 |
| 1:A:131:A:H2' | 1:A:132:C:H6 | 1.75 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:844:G:N7 | 1:A:846:G:N3 | 2.63 | 0.46 |
| 1:A:1038:C:H2' | 1:A:1039:G:C8 | 2.47 | 0.46 |
| 2:B:128:LEU:CG | 2:B:132:GLU:HG2 | 2.46 | 0.46 |
| 3:C:90:VAL:HG21 | 3:C:98:ALA:HB3 | 1.97 | 0.46 |
| 3:C:90:VAL:HA | 3:C:93:ILE:HG21 | 1.97 | 0.46 |
| 4:D:32:LYS:HB3 | 4:D:35:GLN:HE21 | 1.81 | 0.46 |
| 4:D:123:MET:HG3 | 4:D:127:ARG:C | 2.36 | 0.46 |
| 4:D:170:LEU:HD12 | 4:D:170:LEU:O | 2.15 | 0.46 |
| 6:F:5:GLU:HA | 6:F:63:ASN:HA | 1.97 | 0.46 |
| 7:G:139:ASP:HA | 7:G:142:ARG:HH12 | 1.81 | 0.46 |
| 8:H:34:ALA:HB1 | 8:H:109:VAL:HG21 | 1.97 | 0.46 |
| 9:I:10:ARG:HA | 9:I:77:ALA:HB1 | 1.98 | 0.46 |
| 9:I:15:ALA:O | 9:I:66:VAL:HA | 2.16 | 0.46 |
| 9:I:44:ARG:O | 9:I:47:VAL:HG22 | 2.15 | 0.46 |
| 10:J:80:THR:HG22 | 10:J:81:GLU:H | 1.81 | 0.46 |
| 12:L:49:ARG:HH12 | 12:L:88:ASP:CB | 2.29 | 0.46 |
| 12:L:98:ARG:CB | 12:L:116:TYR:HA | 2.46 | 0.46 |
| 12:L:121:PRO:C | 12:L:123:ALA:H | 2.18 | 0.46 |
| 13:M:53:ASP:OD1 | 13:M:56:ARG:HD2 | 2.15 | 0.46 |
| 15:O:6:ALA:O | 15:O:10:ILE:HG22 | 2.16 | 0.46 |
| 18:R:63:TYR:C | 18:R:65:SER:H | 2.19 | 0.46 |
| 20:T:68:LYS:HG3 | 20:T:69:ASN:N | 2.19 | 0.46 |
| 1:A:16:A:O3' | 1:A:1079:G:H4' | 2.17 | 0.45 |
| 1:A:22:G:O2' | 1:A:23:C:H5' | 2.16 | 0.45 |
| 1:A:136:C:H1' | 16:P:1:MET:HE1 | 1.99 | 0.45 |
| 1:A:299:G:H2' | 1:A:300:A:C8 | 2.51 | 0.45 |
| 1:A:489:C:H2' | 1:A:490:C:C6 | 2.51 | 0.45 |
| 1:A:491:G:H2' | 1:A:492:C:C6 | 2.51 | 0.45 |
| 1:A:927:G:O2' | 1:A:928:G:H5' | 2.16 | 0.45 |
| 2:B:102:ASN:OD1 | 2:B:105:THR:HG22 | 2.16 | 0.45 |
| 2:B:128:LEU:HD13 | 2:B:129:THR:H | 1.80 | 0.45 |
| 8:H:31:LEU:O | 8:H:35:ILE:HG13 | 2.15 | 0.45 |
| 14:N:45:LEU:O | 14:N:48:GLN:HB3 | 2.16 | 0.45 |
| 15:O:27:GLN:O | 15:O:31:LEU:HD23 | 2.16 | 0.45 |
| 1:A:234:C:H2' | 1:A:235:C:C6 | 2.52 | 0.45 |
| 1:A:366:A:O2' | 1:A:394:G:N2 | 2.49 | 0.45 |
| 1:A:812:G:H4' | 1:A:812:G:OP1 | 2.16 | 0.45 |
| 1:A:820:U:H4' | 1:A:821:G:OP2 | 2.16 | 0.45 |
| 1:A:968:A:H5' | 1:A:968:A:N3 | 2.31 | 0.45 |
| 1:A:1085:U:H3' | 1:A:1086:U:C5 | 2.51 | 0.45 |
| 1:A:1113:C:H2' | 1:A:1114:C:H6 | 1.81 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:33:ALA:HA | 2:B:38:HIS:CA | 2.39 | 0.45 |
| 2:B:174:GLU:O | 2:B:178:LEU:HD23 | 2.16 | 0.45 |
| 3:C:89:VAL:C | 3:C:91:ALA:H | 2.19 | 0.45 |
| 4:D:113:ALA:O | 4:D:117:VAL:HG23 | 2.16 | 0.45 |
| 10:J:67:ILE:CG1 | 14:N:95:LEU:HD13 | 2.45 | 0.45 |
| 11:K:88:PRO:HA | 11:K:92:ARG:CD | 2.47 | 0.45 |
| 13:M:49:GLU:O | 13:M:53:ASP:HB3 | 2.17 | 0.45 |
| 21:U:40:PRO:C | 21:U:42:THR:N | 2.69 | 0.45 |
| 1:A:325:A:H2' | 1:A:326:G:O4' | 2.16 | 0.45 |
| 1:A:563:A:H2' | 1:A:567:G:C8 | 2.50 | 0.45 |
| 1:A:708:C:H2' | 1:A:709:U:H6 | 1.80 | 0.45 |
| 1:A:1231:G:H2' | 1:A:1232:U:H6 | 1.80 | 0.45 |
| 1:A:1306:A:N6 | 1:A:1331:G:H1' | 2.32 | 0.45 |
| 1:A:1348:U:H2' | 1:A:1349:A:C8 | 2.51 | 0.45 |
| 2:B:56:LEU:O | 2:B:59:ILE:HG13 | 2.16 | 0.45 |
| 2:B:145:ASN:HD22 | 2:B:145:ASN:HA | 1.55 | 0.45 |
| 3:C:14:VAL:HG23 | 3:C:15:LYS:HG2 | 1.98 | 0.45 |
| 5:E:89:THR:HG21 | 5:E:134:ASN:HD21 | 1.81 | 0.45 |
| 9:I:79:ARG:O | 9:I:83:THR:HG22 | 2.17 | 0.45 |
| 13:M:3:ILE:HA | 13:M:56:ARG:HG2 | 1.98 | 0.45 |
| 13:M:75:SER:O | 13:M:78:ARG:HB3 | 2.16 | 0.45 |
| 13:M:78:ARG:HE | 13:M:79:LEU:HG | 1.82 | 0.45 |
| 14:N:25:GLU:O | 14:N:29:ILE:HG13 | 2.16 | 0.45 |
| 14:N:50:LEU:CG | 14:N:51:PRO:HD3 | 2.46 | 0.45 |
| 15:O:80:LEU:HD23 | 15:O:80:LEU:C | 2.36 | 0.45 |
| 20:T:23:ARG:HB2 | 20:T:65:LEU:HD11 | 1.98 | 0.45 |
| 1:A:384:G:H2' | 1:A:385:C:H6 | 1.80 | 0.45 |
| 1:A:551:U:O2' | 1:A:552:U:H5' | 2.16 | 0.45 |
| 1:A:1348:U:H4' | 9:I:121:ARG:HH11 | 1.79 | 0.45 |
| 3:C:131:ARG:HH22 | 3:C:135:ARG:CZ | 2.29 | 0.45 |
| 3:C:146:LYS:HG3 | 3:C:202:PHE:CD2 | 2.51 | 0.45 |
| 5:E:35:LEU:HD23 | 5:E:36:THR:N | 2.30 | 0.45 |
| 9:I:66:VAL:CG2 | 9:I:74:GLN:HG3 | 2.47 | 0.45 |
| 10:J:33:GLY:HA3 | 10:J:83:THR:OG1 | 2.16 | 0.45 |
| 16:P:42:ILE:CG2 | 16:P:43:ALA:H | 2.20 | 0.45 |
| 20:T:54:GLN:N | 20:T:55:PRO:CD | 2.80 | 0.45 |
| 21:U:5:VAL:CG2 | 21:U:19:LYS:HZ1 | 2.30 | 0.45 |
| 1:A:22:G:H2' | 1:A:23:C:C6 | 2.52 | 0.45 |
| 1:A:123:U:H5" | 1:A:311:C:O2' | 2.16 | 0.45 |
| 1:A:620:C:C6 | 4:D:131:ILE:HD13 | 2.51 | 0.45 |
| 1:A:662:U:O2' | 1:A:836:G:H5" | 2.15 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:687:A:C2 | 1:A:704:A:C5 | 3.05 | 0.45 |
| 1:A:734:G:O2' | 18:R:59:LYS:HD3 | 2.17 | 0.45 |
| 1:A:1101:A:O2' | 1:A:1102:A:OP2 | 2.34 | 0.45 |
| 1:A:1126:U:O2' | 1:A:1280:A:H2' | 2.17 | 0.45 |
| 7:G:102:TRP:N | 7:G:102:TRP:CD1 | 2.83 | 0.45 |
| 8:H:51:GLU:O | 8:H:56:PRO:HA | 2.16 | 0.45 |
| 10:J:89:ARG:HA | 10:J:89:ARG:CZ | 2.47 | 0.45 |
| 15:O:52:ARG:HG3 | 15:O:55:LEU:HD23 | 1.99 | 0.45 |
| 20:T:70:LYS:HA | 20:T:73:ARG:CZ | 2.47 | 0.45 |
| 21:U:5:VAL:HG22 | 21:U:19:LYS:NZ | 2.31 | 0.45 |
| 1:A:832:G:C8 | 2:B:20:ARG:CD | 3.00 | 0.45 |
| 1:A:1056:U:O2' | 1:A:1057:G:H5' | 2.16 | 0.45 |
| 1:A:1096:C:H2' | 1:A:1097:C:H6 | 1.82 | 0.45 |
| 1:A:1237:C:H4' | 1:A:1334:G:N2 | 2.31 | 0.45 |
| 1:A:1252:A:H2' | 1:A:1253:G:H5" | 1.98 | 0.45 |
| 3:C:41:TYR:HA | 3:C:44:LYS:HD3 | 1.98 | 0.45 |
| 4:D:1:ALA:O | 4:D:67:LEU:HD21 | 2.16 | 0.45 |
| 4:D:2:ARG:NH1 | 4:D:114:ARG:HD2 | 2.32 | 0.45 |
| 4:D:29:THR:OG1 | 4:D:30:LYS:HD3 | 2.17 | 0.45 |
| 4:D:99:ASN:ND2 | 4:D:110:ARG:NE | 2.64 | 0.45 |
| 4:D:201:GLU:OE2 | 5:E:104:ILE:HG22 | 2.17 | 0.45 |
| 6:F:7:VAL:HG23 | 6:F:60:VAL:O | 2.17 | 0.45 |
| 6:F:45:ARG:HG2 | 6:F:46:GLN:N | 2.31 | 0.45 |
| 6:F:51:ILE:HG23 | 6:F:51:ILE:O | 2.17 | 0.45 |
| 7:G:71:THR:O | 7:G:72:VAL:HG13 | 2.16 | 0.45 |
| 9:I:115:VAL:HG21 | 10:J:62:ARG:HB2 | 1.98 | 0.45 |
| 13:M:10:ASP:HA | 13:M:44:ILE:HD11 | 1.99 | 0.45 |
| 16:P:43:ALA:H | 16:P:46:LYS:HD2 | 1.81 | 0.45 |
| 19:S:61:VAL:HA | 19:S:65:MET:SD | 2.56 | 0.45 |
| 1:A:87:C:H2' | 1:A:88:U:C4' | 2.44 | 0.45 |
| 1:A:155:A:H2' | 1:A:156:C:O4' | 2.16 | 0.45 |
| 1:A:244:U:O4 | 1:A:906:A:H1' | 2.16 | 0.45 |
| 1:A:295:C:H2' | 1:A:296:U:C6 | 2.52 | 0.45 |
| 1:A:652:U:H1' | 1:A:653:U:C5 | 2.52 | 0.45 |
| 1:A:766:A:H2 | 1:A:1525:G:N3 | 2.15 | 0.45 |
| 1:A:778:G:O2' | 1:A:779:C:H5' | 2.16 | 0.45 |
| 1:A:1010:U:H2' | 1:A:1011:C:C6 | 2.51 | 0.45 |
| 1:A:1230:C:H2' | 1:A:1231:G:H8 | 1.81 | 0.45 |
| 3:C:8:GLY:HA2 | 3:C:11:LEU:CG | 2.41 | 0.45 |
| 6:F:7:VAL:HG11 | 18:R:64:LEU:HD21 | 1.99 | 0.45 |
| 7:G:144:ALA:C | 7:G:146:ALA:N | 2.70 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:K:30:ILE:HG22 | 11:K:45:THR:CA | 2.41 | 0.45 |
| 12:L:34:THR:HG21 | 12:L:53:ARG:CZ | 2.47 | 0.45 |
| 20:T:49:ALA:O | 20:T:52:GLU:HB3 | 2.16 | 0.45 |
| 1:A:123:U:OP1 | 1:A:312:C:H5' | 2.16 | 0.45 |
| 1:A:232:G:H2' | 1:A:233:C:O4' | 2.17 | 0.45 |
| 1:A:373:A:H1' | 1:A:481:G:H1' | 1.99 | 0.45 |
| 1:A:627:G:H2' | 1:A:628:G:C8 | 2.51 | 0.45 |
| 1:A:734:G:N2 | 18:R:63:TYR:CE2 | 2.84 | 0.45 |
| 1:A:828:U:N3 | 2:B:26:MET:SD | 2.53 | 0.45 |
| 1:A:870:U:C2 | 2:B:27:LYS:CD | 2.92 | 0.45 |
| 1:A:985:C:H2' | 1:A:986:U:H6 | 1.82 | 0.45 |
| 1:A:1051:C:H2' | 1:A:1052:U:H6 | 1.82 | 0.45 |
| 3:C:59:PRO:HD2 | 3:C:62:SER:O | 2.17 | 0.45 |
| 4:D:64:TYR:N | 4:D:64:TYR:CD1 | 2.84 | 0.45 |
| 4:D:100:VAL:HA | 4:D:103:ARG:HD2 | 1.99 | 0.45 |
| 5:E:16:ALA:O | 5:E:34:ALA:HA | 2.17 | 0.45 |
| 5:E:82:HIS:CD2 | 8:H:95:MET:HG3 | 2.51 | 0.45 |
| 7:G:130:LYS:N | 7:G:134:VAL:HG11 | 2.31 | 0.45 |
| 8:H:29:SER:HB3 | 8:H:32:LYS:CG | 2.46 | 0.45 |
| 10:J:73:LEU:CD1 | 10:J:75:ASP:HB3 | 2.47 | 0.45 |
| 16:P:12:LYS:O | 16:P:14:ARG:HG3 | 2.17 | 0.45 |
| 18:R:31:TYR:CG | 18:R:54:LEU:HD21 | 2.52 | 0.45 |
| 1:A:454:G:O2' | 1:A:455:G:H5' | 2.17 | 0.45 |
| 1:A:463:U:H5' | 1:A:464:U:OP2 | 2.17 | 0.45 |
| 1:A:647:C:O2' | 1:A:648:A:H5' | 2.16 | 0.45 |
| 1:A:1244:G:H2' | 1:A:1245:C:H6 | 1.81 | 0.45 |
| 1:A:1514:G:C5' | 22:V:222:ARG:NH1 | 2.80 | 0.45 |
| 1:A:1518:A:N3 | 22:V:186:LYS:N | 2.62 | 0.45 |
| 3:C:72:PRO:HG2 | 3:C:73:GLY:H | 1.81 | 0.45 |
| 3:C:131:ARG:HB3 | 3:C:131:ARG:NH1 | 2.31 | 0.45 |
| 14:N:92:ILE:HG21 | 14:N:95:LEU:HD23 | 1.99 | 0.45 |
| 16:P:26:ASN:ND2 | 16:P:31:ARG:HB3 | 2.31 | 0.45 |
| 18:R:20:ILE:HG23 | 18:R:53:GLN:NE2 | 2.32 | 0.45 |
| 1:A:267:C:OP2 | 17:Q:68:LYS:HD2 | 2.17 | 0.45 |
| 1:A:429:U:H4' | 1:A:430:A:O5' | 2.16 | 0.45 |
| 1:A:448:A:H2' | 1:A:449:G:C8 | 2.51 | 0.45 |
| 1:A:552:U:H5' | 12:L:82:ARG:HH11 | 1.82 | 0.45 |
| 1:A:628:G:H2' | 1:A:629:A:C8 | 2.51 | 0.45 |
| 2:B:119:GLN:O | 2:B:125:PHE:HB3 | 2.17 | 0.45 |
| 9:I:51:LEU:HD12 | 9:I:51:LEU:N | 2.32 | 0.45 |
| 12:L:43:LYS:N | 12:L:44:PRO:CD | 2.80 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:N:63:CYS:HB2 | 14:N:79:SER:OG | 2.17 | 0.45 |
| 16:P:7:ALA:O | 16:P:17:TYR:HA | 2.17 | 0.45 |
| 17:Q:26:ARG:HH21 | 17:Q:39:ARG:NH2 | 2.15 | 0.45 |
| 1:A:71:A:N1 | 1:A:99:C:H1' | 2.32 | 0.44 |
| 1:A:191:G:H2' | 1:A:192:A:C8 | 2.52 | 0.44 |
| 1:A:336:A:O2' | 1:A:337:G:H5' | 2.17 | 0.44 |
| 1:A:382:A:H2' | 1:A:383:A:C8 | 2.51 | 0.44 |
| 1:A:473:U:C2 | 1:A:474:G:N7 | 2.85 | 0.44 |
| 1:A:834:U:H2' | 1:A:835:U:C6 | 2.52 | 0.44 |
| 1:A:1023:U:H2' | 1:A:1024:G:H8 | 1.82 | 0.44 |
| 1:A:1325:C:O2' | 1:A:1326:U:H5' | 2.17 | 0.44 |
| 3:C:57:GLU:HB2 | 3:C:64:ARG:CB | 2.45 | 0.44 |
| 3:C:176:THR:O | 3:C:179:ALA:HB3 | 2.17 | 0.44 |
| 4:D:75:TYR:CE2 | 4:D:203:TYR:HB3 | 2.51 | 0.44 |
| 5:E:49:TYR:HE2 | 5:E:133:ILE:HG12 | 1.83 | 0.44 |
| 10:J:42:LEU:HB2 | 10:J:71:LEU:HD13 | 1.98 | 0.44 |
| 17:Q:80:LYS:HE3 | 17:Q:80:LYS:H | 1.82 | 0.44 |
| 19:S:4:LEU:HD13 | 19:S:8:PRO:HA | 1.99 | 0.44 |
| 20:T:10:ALA:O | 20:T:13:SER:HB3 | 2.17 | 0.44 |
| 1:A:68:G:H5' | 1:A:171:A:O2' | 2.17 | 0.44 |
| 1:A:87:C:C2 | 1:A:88:U:H1' | 2.51 | 0.44 |
| 1:A:175:C:H2' | 1:A:176:C:H6 | 1.83 | 0.44 |
| 1:A:191:G:H2' | 1:A:192:A:H8 | 1.83 | 0.44 |
| 1:A:238:A:C3' | 1:A:239:U:H5" | 2.47 | 0.44 |
| 1:A:1246:A:H2' | 1:A:1247:U:O4' | 2.17 | 0.44 |
| 1:A:1342:C:H5' | 9:I:127:SER:HA | 1.98 | 0.44 |
| 2:B:101:THR:HG23 | 2:B:102:ASN:N | 2.32 | 0.44 |
| 3:C:19:SER:HB2 | 3:C:39:ARG:HH22 | 1.82 | 0.44 |
| 4:D:152:SER:O | 4:D:155:LYS:HG3 | 2.17 | 0.44 |
| 6:F:38:ARG:HH21 | 6:F:96:VAL:HG11 | 1.81 | 0.44 |
| 8:H:40:LYS:HA | 8:H:45:ILE:HG13 | 1.97 | 0.44 |
| 9:I:3:ASN:HB3 | 9:I:4:GLN:H | 1.54 | 0.44 |
| 10:J:6:ILE:HG12 | 10:J:102:LEU:CD1 | 2.45 | 0.44 |
| 10:J:15:HIS:CD2 | 10:J:19:ASP:HB2 | 2.52 | 0.44 |
| 12:L:71:HIS:CG | 12:L:72:ASN:N | 2.86 | 0.44 |
| 15:O:78:THR:HA | 15:O:81:ILE:CG1 | 2.46 | 0.44 |
| 16:P:70:ARG:O | 16:P:74:LEU:HG | 2.18 | 0.44 |
| 19:S:39:ILE:CG2 | 19:S:65:MET:HB3 | 2.46 | 0.44 |
| 19:S:48:ILE:HG22 | 19:S:49:ALA:N | 2.33 | 0.44 |
| 1:A:138:G:O2' | 1:A:139:A:H5' | 2.17 | 0.44 |
| 1:A:811:C:O2' | 1:A:901:A:N1 | 2.48 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:950:U:H2' | 1:A:951:G:H8 | 1.81 | 0.44 |
| 1:A:1238:A:C8 | 1:A:1303:C:H1' | 2.52 | 0.44 |
| 2:B:187:ASP:CG | 2:B:188:THR:N | 2.70 | 0.44 |
| 3:C:5:HIS:O | 3:C:9:ILE:HG22 | 2.16 | 0.44 |
| 3:C:100:ILE:C | 3:C:100:ILE:HD13 | 2.38 | 0.44 |
| 14:N:20:PHE:CG | 14:N:24:ALA:HB2 | 2.51 | 0.44 |
| 17:Q:20:ILE:CD1 | 17:Q:45:VAL:HB | 2.47 | 0.44 |
| 21:U:34:ARG:NH1 | 21:U:39:LYS:HE3 | 2.33 | 0.44 |
| 1:A:93:U:H2' | 1:A:95:C:H5 | 1.83 | 0.44 |
| 1:A:119:A:H4' | 1:A:120:A:O4' | 2.18 | 0.44 |
| 1:A:586:C:C2' | 1:A:587:G:H5' | 2.46 | 0.44 |
| 1:A:859:G:C3' | 2:B:191:ASP:OD1 | 2.66 | 0.44 |
| 1:A:1081:A:P | 5:E:22:LYS:N | 2.66 | 0.44 |
| 2:B:31:PHE:CD2 | 2:B:41:ASN:HA | 2.53 | 0.44 |
| 2:B:175:ALA:C | 2:B:177:ASN:H | 2.20 | 0.44 |
| 3:C:205:GLU:HB2 | 3:C:206:ILE:H | 1.52 | 0.44 |
| 4:D:191:SER:O | 4:D:192:ALA:CB | 2.65 | 0.44 |
| 5:E:81:GLN:OE1 | 5:E:81:GLN:N | 2.50 | 0.44 |
| 6:F:79:ARG:HH21 | 6:F:87:SER:HB2 | 1.81 | 0.44 |
| 9:I:25:GLY:HA3 | 9:I:57:VAL:O | 2.16 | 0.44 |
| 10:J:87:LEU:H | 10:J:88:MET:CE | 2.30 | 0.44 |
| 11:K:28:ASN:HD21 | 11:K:30:ILE:HG23 | 1.83 | 0.44 |
| 12:L:41:PRO:HG3 | 12:L:46:SER:O | 2.18 | 0.44 |
| 12:L:52:CYS:SG | 12:L:66:ILE:HD11 | 2.57 | 0.44 |
| 12:L:106:VAL:CG1 | 12:L:116:TYR:HB3 | 2.47 | 0.44 |
| 12:L:119:LYS:O | 12:L:119:LYS:HG3 | 2.16 | 0.44 |
| 13:M:14:ALA:HB1 | 13:M:33:LEU:HD11 | 2.00 | 0.44 |
| 14:N:84:ARG:HH11 | 14:N:84:ARG:HG3 | 1.83 | 0.44 |
| 19:S:18:VAL:HG13 | 19:S:19:GLU:N | 2.32 | 0.44 |
| 1:A:203:G:N2 | 1:A:205:A:H61 | 2.16 | 0.44 |
| 1:A:323:U:H2' | 1:A:324:G:O4' | 2.18 | 0.44 |
| 1:A:471:U:H2' | 1:A:472:U:C6 | 2.52 | 0.44 |
| 1:A:771:G:H2' | 1:A:772:U:C6 | 2.53 | 0.44 |
| 1:A:913:A:H1' | 1:A:914:A:O4' | 2.17 | 0.44 |
| 1:A:1081:A:C4 | 5:E:22:LYS:HD2 | 2.07 | 0.44 |
| 1:A:1239:A:H1' | 1:A:1241:G:C5 | 2.52 | 0.44 |
| 1:A:1300:G:O2' | 1:A:1301:U:P | 2.75 | 0.44 |
| 2:B:67:LEU:HD23 | 2:B:160:LEU:CG | 2.48 | 0.44 |
| 4:D:104:MET:SD | 4:D:179:GLY:HA3 | 2.57 | 0.44 |
| 5:E:40:ASP:O | 5:E:42:ASN:N | 2.45 | 0.44 |
| 8:H:45:ILE:C | 8:H:63:LYS:HZ1 | 2.21 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:48:ARG:HA | 9:I:51:LEU:HD13 | 1.99 | 0.44 |
| 11:K:88:PRO:HD3 | 21:U:28:LEU:CD2 | 2.47 | 0.44 |
| 12:L:80:LEU:HD13 | 12:L:101:LEU:HD11 | 1.99 | 0.44 |
| 14:N:20:PHE:HA | 14:N:24:ALA:CB | 2.47 | 0.44 |
| 1:A:113:G:O4' | 1:A:354:G:H4' | 2.18 | 0.44 |
| 1:A:284:C:H2' | 1:A:285:C:H6 | 1.81 | 0.44 |
| 1:A:657:U:H4' | 15:O:27:GLN:HG3 | 1.99 | 0.44 |
| 1:A:832:G:C8 | 2:B:20:ARG:CG | 2.98 | 0.44 |
| 1:A:878:A:H2' | 1:A:879:C:C6 | 2.53 | 0.44 |
| 1:A:1515:G:O2' | 1:A:1516:G:H5' | 2.17 | 0.44 |
| 3:C:112:ALA:HB1 | 3:C:199:VAL:CG2 | 2.47 | 0.44 |
| 4:D:24:VAL:O | 4:D:25:ARG:C | 2.55 | 0.44 |
| 4:D:137:SER:CB | 4:D:138:PRO:HD2 | 2.47 | 0.44 |
| 6:F:7:VAL:HB | 6:F:61:LEU:HD22 | 2.00 | 0.44 |
| 6:F:88:MET:HE1 | 6:F:90:MET:HG3 | 2.00 | 0.44 |
| 11:K:62:ALA:O | 11:K:65:ALA:HB3 | 2.18 | 0.44 |
| 13:M:106:ARG:NH1 | 13:M:106:ARG:HG2 | 2.33 | 0.44 |
| 17:Q:62:GLU:HG3 | 17:Q:72:TRP:CH2 | 2.53 | 0.44 |
| 1:A:15:G:O2' | 5:E:21:SER:HB2 | 2.18 | 0.44 |
| 1:A:25:C:H2' | 1:A:26:A:C8 | 2.53 | 0.44 |
| 1:A:442:G:H2' | 1:A:443:C:C6 | 2.53 | 0.44 |
| 1:A:554:A:H2' | 1:A:555:U:C6 | 2.53 | 0.44 |
| 1:A:601:G:H2' | 1:A:602:A:H8 | 1.83 | 0.44 |
| 1:A:1074:G:H5" | 5:E:65:LYS:NZ | 2.33 | 0.44 |
| 1:A:1197:A:P | 1:A:1197:A:H3' | 2.57 | 0.44 |
| 2:B:67:LEU:HD23 | 2:B:160:LEU:HG | 1.99 | 0.44 |
| 2:B:94:ARG:H | 2:B:94:ARG:HG2 | 1.50 | 0.44 |
| 2:B:116:LEU:HD22 | 2:B:140:LEU:HG | 1.99 | 0.44 |
| 2:B:132:GLU:HG3 | 2:B:136:ARG:HD2 | 1.99 | 0.44 |
| 5:E:57:ALA:O | 5:E:60:GLN:HB2 | 2.16 | 0.44 |
| 6:F:10:VAL:CG1 | 6:F:83:ALA:HB1 | 2.48 | 0.44 |
| 1:A:41:G:H2' | 1:A:42:G:H8 | 1.83 | 0.44 |
| 1:A:736:C:H2' | 1:A:737:C:H6 | 1.82 | 0.44 |
| 1:A:921:U:C2 | 1:A:1080:A:N1 | 2.86 | 0.44 |
| 1:A:1256:A:O2' | 1:A:1257:A:H5" | 2.18 | 0.44 |
| 1:A:1291:U:O2' | 1:A:1292:G:H5' | 2.18 | 0.44 |
| 2:B:59:ILE:CD1 | 2:B:66:ILE:HD11 | 2.48 | 0.44 |
| 3:C:90:VAL:HA | 3:C:93:ILE:CG2 | 2.48 | 0.44 |
| 4:D:109:THR:HG23 | 4:D:112:GLU:H | 1.83 | 0.44 |
| 8:H:46:GLU:HB2 | 8:H:61:THR:OG1 | 2.18 | 0.44 |
| 9:I:9:GLY:HA2 | 9:I:80:HIS:CD2 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:K:88:PRO:CD | 21:U:28:LEU:HD22 | 2.48 | 0.44 |
| 12:L:58:ASN:ND2 | 12:L:58:ASN:N | 2.64 | 0.44 |
| 13:M:63:VAL:HB | 13:M:68:LEU:HG | 2.00 | 0.44 |
| 15:O:11:VAL:HA | 15:O:26:VAL:HG13 | 1.98 | 0.44 |
| 19:S:31:ARG:NH2 | 19:S:55:GLN:HE22 | 2.16 | 0.44 |
| 1:A:392:C:H2' | 1:A:393:A:H8 | 1.82 | 0.44 |
| 1:A:408:A:OP1 | 4:D:109:THR:HG21 | 2.18 | 0.44 |
| 1:A:474:G:H2' | 1:A:475:C:H6 | 1.83 | 0.44 |
| 1:A:803:G:H2' | 1:A:804:U:H6 | 1.82 | 0.44 |
| 1:A:1008:U:H2' | 1:A:1009:U:C4' | 2.47 | 0.44 |
| 1:A:1314:C:H2' | 1:A:1315:U:H6 | 1.81 | 0.44 |
| 1:A:1350:A:H2' | 1:A:1351:U:C6 | 2.53 | 0.44 |
| 2:B:113:LEU:CG | 2:B:143:LEU:HB3 | 2.47 | 0.44 |
| 2:B:121:GLN:HB3 | 2:B:121:GLN:HE21 | 1.64 | 0.44 |
| 4:D:18:LEU:HD22 | 4:D:63:ILE:HG12 | 2.00 | 0.44 |
| 4:D:190:LEU:O | 4:D:192:ALA:N | 2.51 | 0.44 |
| 5:E:89:THR:HG22 | 5:E:90:GLY:N | 2.33 | 0.44 |
| 5:E:114:LEU:C | 5:E:116:VAL:H | 2.20 | 0.44 |
| 7:G:148:LYS:HA | 7:G:151:ALA:HB3 | 2.00 | 0.44 |
| 8:H:11:THR:HG23 | 8:H:14:ARG:NH1 | 2.33 | 0.44 |
| 8:H:98:LEU:H | 8:H:98:LEU:HD12 | 1.82 | 0.44 |
| 16:P:7:ALA:HB1 | 16:P:29:ASN:CB | 2.45 | 0.44 |
| 20:T:66:ILE:HG23 | 20:T:70:LYS:CD | 2.48 | 0.44 |
| 1:A:22:G:H2' | 1:A:23:C:H6 | 1.83 | 0.43 |
| 1:A:394:G:H2' | 1:A:395:C:C6 | 2.53 | 0.43 |
| 1:A:394:G:H2' | 1:A:395:C:H6 | 1.82 | 0.43 |
| 1:A:397:A:H5' | 1:A:398:U:OP1 | 2.18 | 0.43 |
| 1:A:432:A:H2' | 1:A:433:G:H5' | 1.99 | 0.43 |
| 1:A:1007:U:H2' | 1:A:1008:U:C6 | 2.52 | 0.43 |
| 1:A:1348:U:OP1 | 9:I:111:GLU:HB2 | 2.18 | 0.43 |
| 2:B:67:LEU:HD12 | 2:B:153:MET:CE | 2.39 | 0.43 |
| 2:B:110:ILE:O | 2:B:113:LEU:HB3 | 2.18 | 0.43 |
| 2:B:165:ALA:CB | 2:B:186:VAL:HG12 | 2.48 | 0.43 |
| 3:C:39:ARG:HH21 | 3:C:56:ILE:HD12 | 1.83 | 0.43 |
| 5:E:33:THR:O | 5:E:58:ALA:HB1 | 2.17 | 0.43 |
| 5:E:109:ALA:O | 5:E:113:VAL:HG13 | 2.18 | 0.43 |
| 7:G:13:PRO:HA | 7:G:23:ALA:HB2 | 2.00 | 0.43 |
| 10:J:80:THR:H | 10:J:84:VAL:CG1 | 2.29 | 0.43 |
| 10:J:81:GLU:O | 10:J:85:ASP:HB2 | 2.17 | 0.43 |
| 12:L:83:GLY:HA2 | 12:L:94:TYR:CD1 | 2.52 | 0.43 |
| 16:P:21:VAL:HG21 | 16:P:60:TRP:CD1 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 18:R:49:LYS:HA | 18:R:52:ARG:HD2 | 2.00 | 0.43 |
| 22:V:145:VAL:HG21 | 22:V:190:ALA:HB3 | 2.00 | 0.43 |
| 1:A:501:C:O2' | 1:A:502:A:H5' | 2.17 | 0.43 |
| 1:A:619:U:C2 | 4:D:131:ILE:HD12 | 2.53 | 0.43 |
| 1:A:627:G:H2' | 1:A:628:G:H8 | 1.83 | 0.43 |
| 1:A:661:G:O2' | 1:A:662:U:H5' | 2.18 | 0.43 |
| 1:A:692:U:H5 | 11:K:27:ASN:HD22 | 1.64 | 0.43 |
| 1:A:829:G:N3 | 2:B:188:THR:O | 2.51 | 0.43 |
| 1:A:830:G:C4 | 2:B:22:TRP:CA | 2.99 | 0.43 |
| 1:A:893:C:H2' | 1:A:894:G:H8 | 1.83 | 0.43 |
| 1:A:924:C:H2' | 1:A:925:G:H8 | 1.83 | 0.43 |
| 1:A:969:A:H2' | 1:A:970:C:O2 | 2.18 | 0.43 |
| 1:A:1073:U:O3' | 2:B:104:LYS:NZ | 2.51 | 0.43 |
| 1:A:1124:G:C5' | 10:J:38:GLY:HA3 | 2.49 | 0.43 |
| 1:A:1148:U:H5" | 9:I:8:THR:HG23 | 1.99 | 0.43 |
| 1:A:1376:U:P | 7:G:24:LYS:HD3 | 2.58 | 0.43 |
| 2:B:134:LEU:HA | 2:B:137:THR:OG1 | 2.17 | 0.43 |
| 8:H:9:MET:HE3 | 8:H:32:LYS:HB3 | 1.99 | 0.43 |
| 9:I:38:PHE:C | 9:I:44:ARG:HG2 | 2.39 | 0.43 |
| 10:J:7:ARG:O | 10:J:8:ILE:HD13 | 2.18 | 0.43 |
| 21:U:13:VAL:CG1 | 21:U:14:ALA:H | 2.21 | 0.43 |
| 1:A:17:U:O5' | 1:A:1079:G:O4' | 2.35 | 0.43 |
| 1:A:19:A:OP1 | 5:E:134:ASN:ND2 | 2.51 | 0.43 |
| 1:A:611:C:H2' | 1:A:612:C:H6 | 1.83 | 0.43 |
| 1:A:682:G:O2' | 1:A:683:G:H5' | 2.17 | 0.43 |
| 1:A:818:G:O2' | 1:A:819:A:H5" | 2.19 | 0.43 |
| 1:A:831:A:H5' | 2:B:19:THR:HA | 1.15 | 0.43 |
| 1:A:1082:A:O2' | 1:A:1083:U:H5' | 2.18 | 0.43 |
| 1:A:1254:A:H61 | 1:A:1283:U:H3 | 1.66 | 0.43 |
| 1:A:1517:G:C5' | 22:V:144:VAL:CG2 | 2.96 | 0.43 |
| 7:G:55:LYS:HE2 | 7:G:57:GLU:OE1 | 2.18 | 0.43 |
| 9:I:12:LYS:N | 9:I:109:GLN:HE22 | 2.07 | 0.43 |
| 11:K:124:LYS:O | 21:U:33:ARG:NH2 | 2.51 | 0.43 |
| 15:O:58:MET:HG2 | 15:O:58:MET:H | 1.59 | 0.43 |
| 17:Q:30:HIS:H | 17:Q:35:LYS:H | 1.65 | 0.43 |
| 19:S:68:HIS:NE2 | 19:S:72:GLU:HG3 | 2.33 | 0.43 |
| 1:A:15:G:H1' | 1:A:1080:A:H1' | 2.00 | 0.43 |
| 1:A:82:G:C6 | 1:A:88:U:O2 | 2.71 | 0.43 |
| 1:A:224:U:H2' | 1:A:225:C:H6 | 1.82 | 0.43 |
| 1:A:261:U:H2' | 1:A:263:A:OP2 | 2.18 | 0.43 |
| 1:A:669:G:O2' | 1:A:670:G:H5' | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:740:U:O3' | 15:O:38:LEU:HD21 | 2.18 | 0.43 |
| 1:A:1057:G:H2' | 1:A:1058:G:O4' | 2.19 | 0.43 |
| 1:A:1110:A:H2' | 1:A:1111:A:H5' | 1.99 | 0.43 |
| 2:B:147:LEU:O | 2:B:151:LYS:HG3 | 2.17 | 0.43 |
| 2:B:164:ASP:OD2 | 2:B:203:ASP:HB2 | 2.18 | 0.43 |
| 3:C:71:ARG:HB3 | 3:C:74:ILE:CG2 | 2.47 | 0.43 |
| 4:D:14:GLU:OE2 | 4:D:58:GLN:HG3 | 2.18 | 0.43 |
| 4:D:154:VAL:HG13 | 4:D:155:LYS:N | 2.33 | 0.43 |
| 4:D:169:TRP:CE2 | 4:D:185:PRO:HB3 | 2.54 | 0.43 |
| 7:G:29:LEU:HD12 | 7:G:104:VAL:CG1 | 2.48 | 0.43 |
| 9:I:23:GLY:N | 9:I:60:LEU:HA | 2.24 | 0.43 |
| 9:I:64:ILE:HD13 | 9:I:78:ILE:CG2 | 2.49 | 0.43 |
| 11:K:69:CYS:O | 11:K:71:ASP:N | 2.51 | 0.43 |
| 12:L:38:THR:HA | 12:L:49:ARG:O | 2.19 | 0.43 |
| 13:M:79:LEU:HD22 | 13:M:86:ARG:NH2 | 2.34 | 0.43 |
| 20:T:20:ASN:O | 20:T:65:LEU:HD21 | 2.18 | 0.43 |
| 21:U:5:VAL:HG13 | 21:U:15:LEU:HD23 | 2.00 | 0.43 |
| 1:A:140:U:H2' | 1:A:141:G:H8 | 1.82 | 0.43 |
| 1:A:210:C:H4' | 1:A:211:G:H5" | 2.01 | 0.43 |
| 1:A:383:A:H2' | 1:A:384:G:O4' | 2.18 | 0.43 |
| 1:A:489:C:H2' | 1:A:490:C:H6 | 1.84 | 0.43 |
| 1:A:709:U:H2' | 1:A:710:G:H8 | 1.83 | 0.43 |
| 1:A:973:G:O2' | 10:J:56:HIS:HA | 2.18 | 0.43 |
| 1:A:989:U:H2' | 1:A:990:C:H6 | 1.84 | 0.43 |
| 1:A:1014:A:H2 | 1:A:1219:A:H1' | 1.83 | 0.43 |
| 1:A:1114:C:H2' | 1:A:1115:U:O4' | 2.19 | 0.43 |
| 3:C:40:GLN:O | 3:C:44:LYS:HG3 | 2.18 | 0.43 |
| 4:D:54:LEU:HA | 4:D:202:LEU:HD22 | 2.01 | 0.43 |
| 4:D:58:GLN:CD | 4:D:62:ARG:HG3 | 2.39 | 0.43 |
| 4:D:89:LEU:O | 4:D:92:LEU:HB2 | 2.18 | 0.43 |
| 4:D:147:LYS:HE3 | 4:D:147:LYS:N | 2.34 | 0.43 |
| 7:G:29:LEU:HD21 | 7:G:41:ILE:CG2 | 2.48 | 0.43 |
| 8:H:24:VAL:HG13 | 8:H:60:LEU:HB2 | 2.00 | 0.43 |
| 11:K:15:VAL:O | 11:K:16:SER:HB2 | 2.17 | 0.43 |
| 12:L:98:ARG:HA | 12:L:98:ARG:NE | 2.29 | 0.43 |
| 16:P:67:ILE:CD1 | 16:P:72:ALA:HA | 2.49 | 0.43 |
| 22:V:247:MET:HE3 | 22:V:252:ILE:HD13 | 2.00 | 0.43 |
| 1:A:179:A:H2' | 1:A:180:U:H6 | 1.83 | 0.43 |
| 1:A:237:G:H2' | 1:A:238:A:H8 | 1.84 | 0.43 |
| 1:A:251:G:H4' | 1:A:252:U:C5' | 2.48 | 0.43 |
| 1:A:473:U:N3 | 1:A:474:G:N7 | 2.67 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:538:G:OP2 | 12:L:111:GLN:HB2 | 2.18 | 0.43 |
| 1:A:740:U:O2' | 1:A:741:G:H5' | 2.19 | 0.43 |
| 1:A:847:G:H2' | 1:A:848:C:C6 | 2.54 | 0.43 |
| 1:A:1099:G:H2' | 1:A:1100:C:O4' | 2.19 | 0.43 |
| 2:B:101:THR:HG22 | 2:B:174:GLU:OE1 | 2.18 | 0.43 |
| 2:B:163:ILE:CG2 | 2:B:164:ASP:N | 2.64 | 0.43 |
| 4:D:77:GLU:OE1 | 4:D:80:ARG:NH2 | 2.48 | 0.43 |
| 4:D:100:VAL:HA | 4:D:103:ARG:CD | 2.48 | 0.43 |
| 4:D:125:ASN:HA | 4:D:141:VAL:HG23 | 2.00 | 0.43 |
| 5:E:36:THR:O | 5:E:48:GLY:N | 2.51 | 0.43 |
| 5:E:106:ALA:HB1 | 5:E:110:MET:HB2 | 2.00 | 0.43 |
| 9:I:51:LEU:HD21 | 9:I:62:LEU:HG | 2.01 | 0.43 |
| 9:I:56:MET:HA | 9:I:59:LYS:NZ | 2.31 | 0.43 |
| 10:J:30:LYS:HG3 | 10:J:36:VAL:HB | 2.01 | 0.43 |
| 10:J:40:ILE:CG1 | 10:J:73:LEU:HB3 | 2.46 | 0.43 |
| 10:J:65:TYR:C | 14:N:98:ALA:HB2 | 2.39 | 0.43 |
| 11:K:70:ALA:HA | 11:K:74:LYS:HD3 | 1.99 | 0.43 |
| 11:K:81:LEU:O | 11:K:106:ILE:HA | 2.19 | 0.43 |
| 19:S:44:ILE:HA | 19:S:61:VAL:CG1 | 2.48 | 0.43 |
| 21:U:40:PRO:HG2 | 21:U:41:THR:N | 2.27 | 0.43 |
| 1:A:26:A:N6 | 1:A:558:G:H1' | 2.33 | 0.43 |
| 1:A:143:A:H2 | 1:A:220:G:H22 | 1.65 | 0.43 |
| 1:A:224:U:H2' | 1:A:225:C:C6 | 2.53 | 0.43 |
| 1:A:473:U:C2 | 1:A:474:G:C8 | 3.07 | 0.43 |
| 1:A:539:A:H2' | 1:A:540:G:H8 | 1.78 | 0.43 |
| 1:A:599:C:O2' | 1:A:600:A:H5' | 2.19 | 0.43 |
| 1:A:859:G:H3' | 2:B:191:ASP:OD1 | 2.18 | 0.43 |
| 1:A:1050:G:C2' | 1:A:1051:C:H5' | 2.49 | 0.43 |
| 1:A:1080:A:OP1 | 5:E:21:SER:N | 2.48 | 0.43 |
| 4:D:28:ASP:O | 4:D:29:THR:OG1 | 2.35 | 0.43 |
| 4:D:163:GLN:N | 4:D:163:GLN:OE1 | 2.51 | 0.43 |
| 5:E:17:VAL:HB | 5:E:34:ALA:HB2 | 2.00 | 0.43 |
| 9:I:32:ARG:HG2 | 9:I:32:ARG:HH11 | 1.83 | 0.43 |
| 16:P:20:VAL:HG22 | 16:P:21:VAL:H | 1.83 | 0.43 |
| 16:P:75:ILE:O | 16:P:78:VAL:HG12 | 2.19 | 0.43 |
| 1:A:144:G:H2' | 1:A:145:G:O4' | 2.19 | 0.43 |
| 1:A:397:A:H3' | 1:A:397:A:N3 | 2.33 | 0.43 |
| 1:A:644:U:O2' | 1:A:645:G:H5' | 2.19 | 0.43 |
| 1:A:697:U:H2' | 1:A:698:G:H5' | 2.00 | 0.43 |
| 1:A:777:A:H2' | 1:A:778:G:C8 | 2.53 | 0.43 |
| 1:A:813:U:O2' | 1:A:814:A:H5' | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1324:A:H2' | 1:A:1325:C:O4' | 2.19 | 0.43 |
| 2:B:98:GLY:C | 2:B:100:LEU:H | 2.22 | 0.43 |
| 2:B:116:LEU:CD1 | 2:B:139:GLU:HB3 | 2.44 | 0.43 |
| 12:L:22:ALA:HB1 | 12:L:29:LYS:HG3 | 2.00 | 0.43 |
| 13:M:84:CYS:SG | 13:M:86:ARG:HB3 | 2.59 | 0.43 |
| 16:P:18:GLN:NE2 | 16:P:35:ARG:HH11 | 2.16 | 0.43 |
| 17:Q:45:VAL:HG13 | 17:Q:60:ILE:CG2 | 2.48 | 0.43 |
| 19:S:16:LYS:HA | 19:S:16:LYS:HD3 | 1.83 | 0.43 |
| 1:A:238:A:H3' | 1:A:239:U:H5" | 2.00 | 0.43 |
| 1:A:242:G:H2' | 1:A:243:A:H5" | 2.01 | 0.43 |
| 1:A:382:A:O2' | 1:A:383:A:H5' | 2.19 | 0.43 |
| 1:A:478:A:H2' | 1:A:479:U:O4' | 2.19 | 0.43 |
| 1:A:488:C:H2' | 1:A:489:C:H6 | 1.84 | 0.43 |
| 1:A:598:U:H2' | 1:A:599:C:C6 | 2.53 | 0.43 |
| 4:D:159:GLU:HG3 | 4:D:160:LEU:HD13 | 2.01 | 0.43 |
| 8:H:9:MET:HE1 | 8:H:32:LYS:O | 2.18 | 0.43 |
| 8:H:35:ILE:O | 8:H:39:LEU:HD12 | 2.19 | 0.43 |
| 12:L:14:LYS:NZ | 12:L:17:LYS:HE2 | 2.34 | 0.43 |
| 12:L:41:PRO:HD3 | 12:L:47:ALA:O | 2.19 | 0.43 |
| 12:L:101:LEU:HB3 | 12:L:102:ASP:H | 1.61 | 0.43 |
| 17:Q:29:LYS:HA | 17:Q:35:LYS:C | 2.39 | 0.43 |
| 19:S:12:LEU:CD2 | 19:S:15:LEU:HD23 | 2.49 | 0.43 |
| 20:T:40:ALA:O | 20:T:41:GLY:C | 2.56 | 0.43 |
| 21:U:32:ARG:HB3 | 21:U:33:ARG:H | 1.69 | 0.43 |
| 1:A:31:G:H2' | 1:A:48:C:C5 | 2.53 | 0.43 |
| 1:A:177:G:N3 | 1:A:177:G:O4' | 2.51 | 0.43 |
| 1:A:284:C:H2' | 1:A:285:C:C6 | 2.53 | 0.43 |
| 1:A:415:A:N3 | 1:A:415:A:O4' | 2.52 | 0.43 |
| 1:A:970:C:C5 | 1:A:1231:G:H1' | 2.54 | 0.43 |
| 3:C:21:TRP:CH2 | 14:N:93:PRO:HG3 | 2.54 | 0.43 |
| 4:D:12:ARG:HG3 | 4:D:33:ILE:HA | 2.00 | 0.43 |
| 5:E:30:PHE:CD1 | 5:E:30:PHE:N | 2.87 | 0.43 |
| 5:E:105:ILE:HD12 | 5:E:123:LEU:HB3 | 2.00 | 0.43 |
| 5:E:114:LEU:HD13 | 5:E:122:VAL:HG21 | 2.01 | 0.43 |
| 8:H:69:ALA:HB3 | 8:H:72:GLU:OE2 | 2.19 | 0.43 |
| 9:I:56:MET:CA | 9:I:59:LYS:HZ2 | 2.28 | 0.43 |
| 19:S:16:LYS:HA | 19:S:19:GLU:OE1 | 2.19 | 0.43 |
| 19:S:31:ARG:HG3 | 19:S:56:HIS:HE2 | 1.81 | 0.43 |
| 1:A:237:G:H2' | 1:A:238:A:C8 | 2.54 | 0.42 |
| 1:A:564:C:H1' | 17:Q:32:ILE:O | 2.19 | 0.42 |
| 1:A:828:U:P | 2:B:44:LYS:HE3 | 2.59 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1033:G:H3' | 1:A:1034:G:H5" | 2.01 | 0.42 |
| 1:A:1052:U:H5' | 1:A:1053:G:OP2 | 2.19 | 0.42 |
| 1:A:1072:G:H2' | 1:A:1073:U:H6 | 1.84 | 0.42 |
| 1:A:1157:A:H4' | 1:A:1158:C:O5' | 2.19 | 0.42 |
| 1:A:1181:G:O4' | 1:A:1181:G:P | 2.77 | 0.42 |
| 1:A:1226:C:H4' | 1:A:1227:A:OP1 | 2.19 | 0.42 |
| 1:A:1238:A:N7 | 1:A:1303:C:H1' | 2.34 | 0.42 |
| 2:B:71:THR:HG22 | 2:B:94:ARG:HH21 | 1.84 | 0.42 |
| 2:B:224:ARG:H | 2:B:224:ARG:HG2 | 1.61 | 0.42 |
| 4:D:84:ASN:OD1 | 5:E:101:GLY:HA2 | 2.19 | 0.42 |
| 4:D:176:LYS:O | 4:D:177:MET:C | 2.57 | 0.42 |
| 5:E:95:MET:CE | 5:E:114:LEU:HD21 | 2.48 | 0.42 |
| 9:I:21:LYS:O | 9:I:60:LEU:HB2 | 2.19 | 0.42 |
| 10:J:5:ARG:HG3 | 10:J:79:PRO:HD3 | 2.01 | 0.42 |
| 14:N:15:LEU:C | 14:N:17:ASP:H | 2.21 | 0.42 |
| 17:Q:56:ASP:C | 17:Q:79:GLU:HB3 | 2.40 | 0.42 |
| 19:S:28:LYS:H | 19:S:28:LYS:HD3 | 1.84 | 0.42 |
| 21:U:11:PHE:O | 21:U:11:PHE:HD1 | 2.02 | 0.42 |
| 21:U:31:VAL:O | 21:U:32:ARG:C | 2.57 | 0.42 |
| 1:A:861:G:H2' | 1:A:862:C:H6 | 1.84 | 0.42 |
| 1:A:914:A:O2' | 1:A:915:A:H5' | 2.19 | 0.42 |
| 1:A:1081:A:C3' | 5:E:24:VAL:HG13 | 2.50 | 0.42 |
| 2:B:53:LEU:HD12 | 2:B:219:THR:CG2 | 2.49 | 0.42 |
| 3:C:39:ARG:NH2 | 3:C:56:ILE:HD12 | 2.35 | 0.42 |
| 3:C:112:ALA:O | 3:C:113:LYS:C | 2.57 | 0.42 |
| 4:D:49:ASP:O | 4:D:52:VAL:HG22 | 2.19 | 0.42 |
| 5:E:85:LYS:HE2 | 5:E:92:ARG:HH11 | 1.82 | 0.42 |
| 12:L:8:ARG:CZ | 12:L:9:LYS:HE3 | 2.50 | 0.42 |
| 12:L:56:LEU:HB2 | 12:L:60:PHE:O | 2.19 | 0.42 |
| 16:P:40:ASN:HA | 16:P:41:PRO:HD3 | 1.73 | 0.42 |
| 17:Q:12:VAL:HG13 | 17:Q:21:VAL:HB | 2.01 | 0.42 |
| 19:S:20:LYS:O | 19:S:20:LYS:HD2 | 2.19 | 0.42 |
| 19:S:57:VAL:HG21 | 19:S:74:ALA:HB2 | 2.01 | 0.42 |
| 1:A:8:A:H1' | 5:E:107:GLY:HA2 | 2.00 | 0.42 |
| 1:A:113:G:H21 | 1:A:353:A:H8 | 1.67 | 0.42 |
| 1:A:236:A:H2' | 1:A:237:G:H8 | 1.85 | 0.42 |
| 1:A:1121:U:O2' | 1:A:1122:U:H5' | 2.20 | 0.42 |
| 1:A:1356:G:H2' | 1:A:1357:A:C8 | 2.54 | 0.42 |
| 1:A:1519:A:H3' | 1:A:1520:C:C5' | 2.49 | 0.42 |
| 2:B:22:TRP:CG | 2:B:23:ASN:N | 2.81 | 0.42 |
| 2:B:50:ASN:O | 2:B:51:GLU:C | 2.58 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:151:GLN:HB3 | 4:D:154:VAL:CG1 | 2.49 | 0.42 |
| 6:F:68:GLN:O | 6:F:71:ILE:HG13 | 2.19 | 0.42 |
| 9:I:98:ARG:HA | 9:I:103:VAL:HG22 | 2.02 | 0.42 |
| 12:L:21:PRO:HD2 | 12:L:94:TYR:OH | 2.20 | 0.42 |
| 14:N:86:ALA:HB3 | 14:N:92:ILE:HD11 | 2.02 | 0.42 |
| 20:T:60:GLN:HE21 | 20:T:61:ALA:N | 2.10 | 0.42 |
| 21:U:3:ILE:CG1 | 21:U:19:LYS:HG2 | 2.46 | 0.42 |
| 1:A:114:U:O2' | 1:A:115:G:H5' | 2.19 | 0.42 |
| 1:A:462:G:H2' | 1:A:463:U:C6 | 2.55 | 0.42 |
| 1:A:538:G:H2' | 1:A:539:A:C8 | 2.54 | 0.42 |
| 1:A:711:G:H2' | 1:A:712:A:H8 | 1.85 | 0.42 |
| 1:A:829:G:P | 2:B:30:ILE:C | 2.68 | 0.42 |
| 1:A:972:C:H4' | 10:J:59:LYS:HB3 | 2.02 | 0.42 |
| 1:A:1252:A:H2' | 1:A:1253:G:C5' | 2.49 | 0.42 |
| 3:C:156:LEU:H | 3:C:156:LEU:CD1 | 2.31 | 0.42 |
| 3:C:185:THR:O | 3:C:186:SER:HB2 | 2.19 | 0.42 |
| 4:D:48:SER:OG | 4:D:49:ASP:N | 2.52 | 0.42 |
| 9:I:10:ARG:HA | 9:I:77:ALA:CB | 2.50 | 0.42 |
| 9:I:11:ARG:NH1 | 9:I:106:ASP:OD2 | 2.53 | 0.42 |
| 9:I:26:LYS:H | 9:I:26:LYS:HG2 | 1.56 | 0.42 |
| 9:I:83:THR:HG23 | 9:I:84:ARG:N | 2.35 | 0.42 |
| 19:S:62:THR:HG22 | 19:S:63:ASP:N | 2.33 | 0.42 |
| 20:T:19:HIS:O | 20:T:23:ARG:HG2 | 2.18 | 0.42 |
| 20:T:57:VAL:C | 20:T:60:GLN:HE22 | 2.22 | 0.42 |
| 1:A:421:U:H5' | 1:A:422:C:C5 | 2.55 | 0.42 |
| 1:A:796:C:O2' | 1:A:797:C:H5' | 2.19 | 0.42 |
| 1:A:839:C:O2' | 1:A:840:C:H5' | 2.19 | 0.42 |
| 1:A:1029:U:H5" | 1:A:1030:U:C5 | 2.47 | 0.42 |
| 1:A:1079:G:O3' | 5:E:21:SER:N | 2.51 | 0.42 |
| 1:A:1220:G:H21 | 19:S:53:GLY:HA2 | 1.84 | 0.42 |
| 2:B:61:SER:HA | 2:B:224:ARG:CA | 2.42 | 0.42 |
| 4:D:169:TRP:O | 4:D:182:LYS:HB3 | 2.19 | 0.42 |
| 4:D:169:TRP:CB | 4:D:183:ARG:HH21 | 2.32 | 0.42 |
| 5:E:101:GLY:N | 5:E:121:ASN:HD21 | 2.14 | 0.42 |
| 9:I:4:GLN:HE21 | 9:I:21:LYS:HE3 | 1.84 | 0.42 |
| 9:I:20:ILE:HA | 9:I:61:ASP:O | 2.19 | 0.42 |
| 18:R:60:ARG:HA | 18:R:63:TYR:CD1 | 2.54 | 0.42 |
| 20:T:57:VAL:O | 20:T:61:ALA:HB2 | 2.19 | 0.42 |
| 22:V:66:GLU:O | 22:V:89:GLN:HA | 2.19 | 0.42 |
| 1:A:41:G:H2' | 1:A:42:G:C8 | 2.54 | 0.42 |
| 1:A:93:U:H2' | 1:A:95:C:C5 | 2.54 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:202:G:H1' | 1:A:468:A:H8 | 1.85 | 0.42 |
| 1:A:321:A:H2' | 1:A:322:C:H6 | 1.85 | 0.42 |
| 1:A:622:A:H2' | 1:A:623:C:H5' | 2.02 | 0.42 |
| 1:A:1113:C:H2' | 1:A:1114:C:C6 | 2.55 | 0.42 |
| 2:B:81:ASP:O | 2:B:85:SER:HB2 | 2.19 | 0.42 |
| 3:C:55:VAL:HG12 | 3:C:56:ILE:H | 1.84 | 0.42 |
| 4:D:84:ASN:ND2 | 4:D:86:GLY:N | 2.67 | 0.42 |
| 6:F:11:HIS:CG | 6:F:12:PRO:HD2 | 2.54 | 0.42 |
| 9:I:9:GLY:O | 9:I:16:ALA:HB3 | 2.20 | 0.42 |
| 9:I:66:VAL:HG22 | 9:I:67:LYS:N | 2.34 | 0.42 |
| 9:I:85:ALA:O | 9:I:88:GLU:HB2 | 2.20 | 0.42 |
| 17:Q:28:VAL:HG13 | 17:Q:28:VAL:O | 2.19 | 0.42 |
| 17:Q:67:SER:HB2 | 17:Q:70:LYS:HB3 | 2.01 | 0.42 |
| 19:S:35:ARG:HB3 | 19:S:71:GLY:HA2 | 2.02 | 0.42 |
| 1:A:15:G:C6 | 1:A:1079:G:N2 | 2.88 | 0.42 |
| 1:A:373:A:C1' | 1:A:481:G:H1' | 2.50 | 0.42 |
| 1:A:432:A:C2' | 1:A:433:G:H5' | 2.49 | 0.42 |
| 1:A:557:G:H2' | 1:A:558:G:O4' | 2.20 | 0.42 |
| 1:A:818:G:C3' | 1:A:819:A:H5" | 2.50 | 0.42 |
| 1:A:857:C:H1' | 2:B:21:TYR:HB3 | 2.02 | 0.42 |
| 1:A:918:A:N1 | 1:A:1078:U:C4 | 2.87 | 0.42 |
| 1:A:1271:A:H2' | 1:A:1272:G:C8 | 2.55 | 0.42 |
| 1:A:1286:U:OP1 | 1:A:1286:U:C2 | 2.72 | 0.42 |
| 2:B:9:LEU:CD1 | 2:B:11:ALA:HB3 | 2.50 | 0.42 |
| 4:D:145:ARG:C | 4:D:147:LYS:H | 2.22 | 0.42 |
| 9:I:56:MET:O | 9:I:58:GLU:N | 2.52 | 0.42 |
| 11:K:22:ILE:HD13 | 11:K:95:THR:HG21 | 2.01 | 0.42 |
| 12:L:113:ARG:HD3 | 12:L:121:PRO:HD3 | 2.02 | 0.42 |
| 16:P:68:SER:HB3 | 16:P:71:VAL:CG1 | 2.49 | 0.42 |
| 18:R:27:THR:O | 18:R:28:LEU:HD12 | 2.20 | 0.42 |
| 19:S:64:GLU:O | 19:S:66:VAL:HG23 | 2.20 | 0.42 |
| 21:U:22:CYS:O | 21:U:23:GLU:HG2 | 2.20 | 0.42 |
| 21:U:52:VAL:HG13 | 21:U:53:LYS:N | 2.34 | 0.42 |
| 1:A:255:G:H2' | 1:A:256:U:H6 | 1.84 | 0.42 |
| 1:A:402:G:H2' | 1:A:403:C:H6 | 1.84 | 0.42 |
| 1:A:411:A:C4 | 1:A:413:G:H1' | 2.55 | 0.42 |
| 1:A:512:U:O2' | 1:A:513:C:H5' | 2.20 | 0.42 |
| 1:A:552:U:H4' | 12:L:82:ARG:HG2 | 2.01 | 0.42 |
| 1:A:832:G:H8 | 2:B:20:ARG:HG3 | 1.79 | 0.42 |
| 1:A:999:C:O2' | 1:A:1000:A:H5' | 2.20 | 0.42 |
| 1:A:1151:A:HO2' | 1:A:1152:A:H8 | 1.65 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1273:C:H2' | 1:A:1274:A:O4' | 2.20 | 0.42 |
| 2:B:45:THR:HA | 2:B:48:MET:CG | 2.50 | 0.42 |
| 2:B:121:GLN:NE2 | 2:B:122:ASP:HB2 | 2.35 | 0.42 |
| 3:C:160:GLU:HG2 | 3:C:160:GLU:O | 2.19 | 0.42 |
| 3:C:172:VAL:HG11 | 3:C:200:TRP:HB3 | 2.02 | 0.42 |
| 5:E:105:ILE:HB | 5:E:123:LEU:CA | 2.42 | 0.42 |
| 9:I:17:ARG:HE | 9:I:65:THR:HB | 1.85 | 0.42 |
| 9:I:82:ILE:HG22 | 9:I:86:LEU:HD21 | 2.01 | 0.42 |
| 10:J:15:HIS:HD2 | 10:J:18:ILE:CG2 | 2.31 | 0.42 |
| 13:M:58:GLU:HA | 13:M:61:LYS:CE | 2.50 | 0.42 |
| 16:P:25:ARG:HD3 | 16:P:25:ARG:N | 2.34 | 0.42 |
| 16:P:39:PHE:HE2 | 16:P:70:ARG:NH2 | 2.18 | 0.42 |
| 20:T:17:ARG:C | 20:T:17:ARG:HD2 | 2.40 | 0.42 |
| 1:A:358:U:H2' | 1:A:359:G:C8 | 2.55 | 0.42 |
| 1:A:709:U:H2' | 1:A:710:G:C8 | 2.54 | 0.42 |
| 1:A:920:U:O2' | 1:A:921:U:H5' | 2.19 | 0.42 |
| 1:A:957:U:O2 | 1:A:959:A:H8 | 2.03 | 0.42 |
| 1:A:1262:C:H2' | 1:A:1263:C:O4' | 2.19 | 0.42 |
| 1:A:1528:U:O5' | 1:A:1528:U:H6 | 2.03 | 0.42 |
| 2:B:79:VAL:HG11 | 2:B:92:ASN:HB3 | 2.01 | 0.42 |
| 2:B:120:SER:HA | 2:B:125:PHE:CB | 2.44 | 0.42 |
| 3:C:41:TYR:HA | 3:C:44:LYS:CD | 2.49 | 0.42 |
| 3:C:111:ASP:OD2 | 3:C:114:LEU:HG | 2.19 | 0.42 |
| 5:E:101:GLY:H | 5:E:121:ASN:ND2 | 2.14 | 0.42 |
| 6:F:7:VAL:HA | 6:F:60:VAL:O | 2.20 | 0.42 |
| 9:I:62:LEU:N | 9:I:62:LEU:HD22 | 2.35 | 0.42 |
| 10:J:48:ARG:HB3 | 10:J:66:GLU:HB3 | 2.01 | 0.42 |
| 1:A:5:U:H1' | 1:A:6:G:N1 | 2.35 | 0.42 |
| 1:A:399:G:H2' | 1:A:400:C:H6 | 1.85 | 0.42 |
| 1:A:405:U:OP2 | 4:D:114:ARG:NH2 | 2.53 | 0.42 |
| 1:A:605:U:H2' | 1:A:606:G:C8 | 2.55 | 0.42 |
| 1:A:666:G:H5' | 1:A:726:C:H1' | 2.02 | 0.42 |
| 1:A:828:U:O2 | 2:B:29:PHE:HD2 | 1.83 | 0.42 |
| 1:A:844:G:H2' | 1:A:845:A:H5" | 2.00 | 0.42 |
| 1:A:896:C:O2' | 1:A:897:C:H5' | 2.20 | 0.42 |
| 1:A:920:U:C4 | 1:A:1079:G:O6 | 2.70 | 0.42 |
| 1:A:1269:A:H1' | 1:A:1326:U:O4' | 2.20 | 0.42 |
| 2:B:61:SER:HB3 | 2:B:223:GLY:O | 2.20 | 0.42 |
| 3:C:13:ILE:HG22 | 3:C:14:VAL:HG13 | 2.01 | 0.42 |
| 5:E:56:PRO:O | 5:E:59:ILE:HG22 | 2.19 | 0.42 |
| 10:J:57:VAL:HG13 | 10:J:58:ASN:CG | 2.40 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:K:33:ILE:HG13 | 11:K:73:VAL:HG21 | 2.01 | 0.42 |
| 12:L:4:ASN:O | 12:L:8:ARG:HG2 | 2.19 | 0.42 |
| 14:N:20:PHE:HA | 14:N:24:ALA:H | 1.85 | 0.42 |
| 1:A:337:G:O2' | 1:A:338:A:H5' | 2.20 | 0.41 |
| 1:A:730:G:O2' | 1:A:766:A:H5' | 2.20 | 0.41 |
| 1:A:812:G:OP1 | 1:A:812:G:C4' | 2.68 | 0.41 |
| 1:A:829:G:C2' | 2:B:30:ILE:CG1 | 2.93 | 0.41 |
| 1:A:861:G:H2' | 1:A:862:C:C6 | 2.55 | 0.41 |
| 1:A:1037:C:H2' | 1:A:1038:C:C6 | 2.55 | 0.41 |
| 1:A:1300:G:O2' | 1:A:1301:U:O5' | 2.37 | 0.41 |
| 3:C:155:ARG:NH1 | 3:C:192:TYR:HB2 | 2.35 | 0.41 |
| 3:C:181:ILE:HG22 | 3:C:182:ASP:N | 2.35 | 0.41 |
| 4:D:54:LEU:HA | 4:D:57:LYS:HB3 | 2.01 | 0.41 |
| 5:E:35:LEU:HD12 | 5:E:133:ILE:HA | 2.01 | 0.41 |
| 5:E:143:LEU:O | 5:E:146:MET:HB2 | 2.20 | 0.41 |
| 6:F:64:VAL:CG1 | 6:F:65:GLU:N | 2.82 | 0.41 |
| 7:G:115:MET:CE | 7:G:119:LEU:HB2 | 2.50 | 0.41 |
| 9:I:49:GLN:HE21 | 9:I:49:GLN:HB3 | 1.70 | 0.41 |
| 9:I:66:VAL:HG21 | 9:I:74:GLN:HG3 | 2.02 | 0.41 |
| 11:K:57:SER:O | 11:K:90:PRO:HG2 | 2.19 | 0.41 |
| 11:K:85:VAL:O | 11:K:111:ASP:HA | 2.20 | 0.41 |
| 12:L:117:GLY:O | 12:L:118:VAL:HG13 | 2.19 | 0.41 |
| 14:N:73:LEU:O | 14:N:75:LYS:N | 2.52 | 0.41 |
| 15:O:17:ASP:HB2 | 15:O:18:ALA:H | 1.59 | 0.41 |
| 1:A:9:G:OP2 | 5:E:125:LYS:HD3 | 2.20 | 0.41 |
| 1:A:113:G:H2' | 1:A:114:U:C6 | 2.55 | 0.41 |
| 1:A:493:A:N3 | 1:A:493:A:O4' | 2.52 | 0.41 |
| 1:A:542:G:O2' | 1:A:543:U:H5' | 2.20 | 0.41 |
| 1:A:585:G:O2' | 1:A:586:C:H5' | 2.20 | 0.41 |
| 1:A:923:A:H2' | 1:A:924:C:C6 | 2.55 | 0.41 |
| 1:A:1238:A:H2 | 1:A:1241:G:H1' | 1.82 | 0.41 |
| 1:A:1261:A:H2' | 1:A:1262:C:O4' | 2.20 | 0.41 |
| 2:B:138:ARG:HA | 2:B:141:GLU:CD | 2.40 | 0.41 |
| 5:E:37:VAL:HA | 5:E:47:PHE:HA | 2.01 | 0.41 |
| 7:G:84:TYR:HD1 | 7:G:84:TYR:HA | 1.74 | 0.41 |
| 7:G:87:PRO:HB2 | 7:G:144:ALA:CB | 2.50 | 0.41 |
| 7:G:94:ARG:NH1 | 7:G:98:LEU:HD21 | 2.34 | 0.41 |
| 9:I:25:GLY:HA2 | 9:I:60:LEU:O | 2.19 | 0.41 |
| 9:I:86:LEU:HD13 | 9:I:86:LEU:N | 2.34 | 0.41 |
| 12:L:120:ARG:HA | 12:L:121:PRO:HD2 | 1.87 | 0.41 |
| 14:N:68:ARG:HH11 | 14:N:70:HIS:HB2 | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:P:6:LEU:HD21 | 16:P:74:LEU:HD11 | 2.02 | 0.41 |
| 21:U:3:ILE:HG23 | 21:U:19:LYS:HE3 | 2.01 | 0.41 |
| 1:A:70:U:H1' | 1:A:71:A:N7 | 2.36 | 0.41 |
| 1:A:152:A:N6 | 1:A:170:U:C2 | 2.88 | 0.41 |
| 1:A:408:A:OP1 | 4:D:111:ALA:HB3 | 2.20 | 0.41 |
| 1:A:581:G:OP1 | 15:O:64:LYS:HE3 | 2.20 | 0.41 |
| 1:A:1065:U:H1' | 1:A:1066:C:OP2 | 2.19 | 0.41 |
| 2:B:42:LEU:O | 2:B:46:VAL:HG12 | 2.20 | 0.41 |
| 3:C:40:GLN:OE1 | 3:C:44:LYS:HD2 | 2.19 | 0.41 |
| 3:C:54:ILE:O | 3:C:54:ILE:HG12 | 2.19 | 0.41 |
| 4:D:19:PHE:CB | 4:D:110:ARG:HH12 | 2.30 | 0.41 |
| 4:D:99:ASN:HB3 | 4:D:103:ARG:HH21 | 1.86 | 0.41 |
| 11:K:81:LEU:CD2 | 11:K:104:PHE:HB3 | 2.50 | 0.41 |
| 12:L:9:LYS:HG3 | 12:L:9:LYS:O | 2.20 | 0.41 |
| 14:N:19:TYR:HD1 | 14:N:23:ARG:HD3 | 1.85 | 0.41 |
| 16:P:22:ALA:HB2 | 16:P:32:PHE:HB3 | 2.01 | 0.41 |
| 19:S:29:PRO:HB3 | 19:S:47:THR:HB | 2.01 | 0.41 |
| 21:U:5:VAL:O | 21:U:6:ARG:HB2 | 2.19 | 0.41 |
| 1:A:17:U:C4' | 1:A:1079:G:C4' | 2.68 | 0.41 |
| 1:A:60:A:H1' | 1:A:61:G:O4' | 2.20 | 0.41 |
| 1:A:328:C:H4' | 1:A:329:A:H5" | 2.02 | 0.41 |
| 1:A:343:U:H2' | 1:A:345:C:C5 | 2.55 | 0.41 |
| 1:A:634:C:O2' | 1:A:635:A:H5' | 2.20 | 0.41 |
| 1:A:680:C:H2' | 1:A:681:A:H8 | 1.85 | 0.41 |
| 1:A:691:G:H2' | 1:A:692:U:C6 | 2.55 | 0.41 |
| 1:A:829:G:H3' | 2:B:30:ILE:HD13 | 2.00 | 0.41 |
| 1:A:830:G:H3' | 2:B:38:HIS:HD1 | 1.27 | 0.41 |
| 1:A:857:C:H1' | 2:B:21:TYR:CB | 2.50 | 0.41 |
| 1:A:1248:A:H2 | 9:I:71:ILE:HD11 | 1.85 | 0.41 |
| 1:A:1304:G:H2' | 1:A:1305:G:C1' | 2.51 | 0.41 |
| 1:A:1358:U:OP1 | 14:N:73:LEU:HA | 2.20 | 0.41 |
| 2:B:104:LYS:H | 2:B:104:LYS:HG3 | 1.62 | 0.41 |
| 2:B:205:ALA:O | 2:B:209:VAL:HG22 | 2.20 | 0.41 |
| 5:E:25:LYS:C | 5:E:25:LYS:HE2 | 2.41 | 0.41 |
| 7:G:112:ASP:H | 7:G:118:ARG:HD3 | 1.86 | 0.41 |
| 9:I:71:ILE:O | 9:I:72:SER:C | 2.59 | 0.41 |
| 9:I:118:ARG:O | 9:I:118:ARG:HG2 | 2.21 | 0.41 |
| 10:J:30:LYS:O | 10:J:30:LYS:HD2 | 2.20 | 0.41 |
| 11:K:121:ARG:HA | 11:K:122:PRO:HD2 | 1.93 | 0.41 |
| 15:O:52:ARG:HA | 15:O:55:LEU:HB3 | 2.02 | 0.41 |
| 18:R:64:LEU:HB3 | 18:R:66:LEU:HG | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 19:S:31:ARG:HH11 | 19:S:31:ARG:HG2 | 1.86 | 0.41 |
| 1:A:16:A:H4' | 5:E:21:SER:N | 2.35 | 0.41 |
| 1:A:17:U:C1' | 1:A:1079:G:C8 | 3.04 | 0.41 |
| 1:A:29:U:H5' | 1:A:296:U:OP1 | 2.19 | 0.41 |
| 1:A:233:C:O2' | 1:A:234:C:H5' | 2.20 | 0.41 |
| 1:A:415:A:N1 | 1:A:428:G:O6 | 2.53 | 0.41 |
| 1:A:787:A:O2' | 1:A:788:U:H5' | 2.20 | 0.41 |
| 1:A:861:G:O2' | 1:A:862:C:H5' | 2.20 | 0.41 |
| 1:A:870:U:C6 | 2:B:27:LYS:HD2 | 2.37 | 0.41 |
| 1:A:959:A:H2' | 1:A:960:U:O4' | 2.21 | 0.41 |
| 1:A:1074:G:O2' | 1:A:1075:U:H5' | 2.21 | 0.41 |
| 1:A:1129:C:H5" | 9:I:17:ARG:NH2 | 2.34 | 0.41 |
| 2:B:80:LYS:HB3 | 2:B:90:PHE:CE2 | 2.54 | 0.41 |
| 3:C:148:ILE:HA | 3:C:200:TRP:O | 2.20 | 0.41 |
| 4:D:84:ASN:ND2 | 4:D:87:GLU:N | 2.64 | 0.41 |
| 4:D:187:ARG:HH11 | 4:D:187:ARG:HG3 | 1.86 | 0.41 |
| 5:E:155:LYS:HG3 | 8:H:65:PHE:HB2 | 2.01 | 0.41 |
| 7:G:46:LEU:O | 7:G:46:LEU:HD13 | 2.20 | 0.41 |
| 12:L:30:ARG:HB3 | 12:L:57:THR:CG2 | 2.50 | 0.41 |
| 12:L:34:THR:HB | 12:L:53:ARG:HB2 | 2.02 | 0.41 |
| 14:N:45:LEU:HD23 | 14:N:46:LYS:N | 2.35 | 0.41 |
| 15:O:5:GLU:O | 15:O:9:LYS:HB2 | 2.20 | 0.41 |
| 20:T:53:MET:SD | 20:T:57:VAL:HG21 | 2.60 | 0.41 |
| 1:A:65:A:N7 | 1:A:381:C:C4 | 2.89 | 0.41 |
| 1:A:367:U:OP1 | 1:A:395:C:H1' | 2.21 | 0.41 |
| 1:A:484:G:H4' | 1:A:485:U:H5' | 2.02 | 0.41 |
| 1:A:761:G:H2' | 1:A:762:U:C6 | 2.55 | 0.41 |
| 1:A:921:U:O3' | 1:A:1081:A:O2' | 2.38 | 0.41 |
| 1:A:980:C:H2' | 1:A:981:U:H5' | 2.03 | 0.41 |
| 1:A:1098:C:H2' | 1:A:1099:G:O4' | 2.20 | 0.41 |
| 1:A:1371:G:OP1 | 9:I:12:LYS:HG2 | 2.20 | 0.41 |
| 2:B:9:LEU:H | 2:B:9:LEU:CD1 | 2.33 | 0.41 |
| 2:B:187:ASP:H | 2:B:190:SER:HB2 | 1.85 | 0.41 |
| 5:E:35:LEU:CD1 | 5:E:133:ILE:HA | 2.50 | 0.41 |
| 5:E:131:ASN:ND2 | 5:E:134:ASN:N | 2.69 | 0.41 |
| 6:F:7:VAL:HG13 | 6:F:7:VAL:O | 2.21 | 0.41 |
| 8:H:75:GLN:O | 8:H:126:CYS:HB2 | 2.21 | 0.41 |
| 9:I:24:ASN:CA | 9:I:26:LYS:HZ2 | 2.33 | 0.41 |
| 10:J:36:VAL:CG2 | 10:J:76:ILE:HG22 | 2.50 | 0.41 |
| 10:J:48:ARG:H | 10:J:48:ARG:HG2 | 1.73 | 0.41 |
| 15:O:2:LEU:HD13 | 15:O:7:THR:HG23 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:P:52:LEU:HD22 | 16:P:52:LEU:N | 2.36 | 0.41 |
| 17:Q:65:PRO:HA | 17:Q:71:SER:OG | 2.21 | 0.41 |
| 20:T:27:MET:O | 20:T:31:ILE:HG13 | 2.21 | 0.41 |
| 22:V:68:ASP:OD1 | 22:V:70:ASP:HB2 | 2.21 | 0.41 |
| 1:A:162:A:H2' | 1:A:163:C:O4' | 2.20 | 0.41 |
| 1:A:319:G:O2' | 1:A:320:A:H5' | 2.20 | 0.41 |
| 1:A:441:A:N6 | 1:A:493:A:H62 | 2.15 | 0.41 |
| 1:A:612:C:H2' | 1:A:613:C:C6 | 2.55 | 0.41 |
| 1:A:711:G:H2' | 1:A:712:A:C8 | 2.56 | 0.41 |
| 1:A:993:G:C2' | 1:A:995:C:H41 | 2.34 | 0.41 |
| 1:A:1219:A:OP1 | 14:N:52:ARG:HG2 | 2.21 | 0.41 |
| 1:A:1340:A:H2' | 1:A:1341:U:H6 | 1.86 | 0.41 |
| 1:A:1351:U:H4' | 7:G:32:ASP:OD2 | 2.21 | 0.41 |
| 1:A:1521:C:H2' | 1:A:1522:U:C6 | 2.56 | 0.41 |
| 1:A:1529:G:H3' | 1:A:1529:G:OP2 | 2.20 | 0.41 |
| 3:C:60:ALA:O | 3:C:61:LYS:HB2 | 2.21 | 0.41 |
| 6:F:3:HIS:HB2 | 6:F:92:THR:OG1 | 2.21 | 0.41 |
| 6:F:44:ARG:HA | 6:F:57:ALA:O | 2.21 | 0.41 |
| 7:G:138:GLU:HA | 7:G:141:HIS:HB2 | 2.02 | 0.41 |
| 7:G:141:HIS:O | 7:G:144:ALA:O | 2.39 | 0.41 |
| 9:I:52:GLU:N | 9:I:56:MET:HG2 | 2.35 | 0.41 |
| 10:J:73:LEU:O | 10:J:74:VAL:HB | 2.21 | 0.41 |
| 12:L:6:LEU:O | 12:L:10:PRO:HG3 | 2.19 | 0.41 |
| 14:N:1:ALA:O | 14:N:2:LYS:HB2 | 2.20 | 0.41 |
| 17:Q:7:LEU:C | 17:Q:9:GLY:H | 2.24 | 0.41 |
| 18:R:64:LEU:C | 18:R:66:LEU:H | 2.23 | 0.41 |
| 19:S:35:ARG:H | 19:S:35:ARG:HG3 | 1.72 | 0.41 |
| 21:U:33:ARG:CZ | 21:U:34:ARG:HG3 | 2.51 | 0.41 |
| 1:A:56:U:H6 | 1:A:56:U:O5' | 2.04 | 0.41 |
| 1:A:154:U:H2' | 1:A:155:A:C8 | 2.56 | 0.41 |
| 1:A:648:A:H2' | 1:A:649:A:C8 | 2.56 | 0.41 |
| 1:A:777:A:H2' | 1:A:778:G:H8 | 1.86 | 0.41 |
| 1:A:1123:U:C2' | 1:A:1124:G:H5' | 2.51 | 0.41 |
| 1:A:1217:C:H2' | 1:A:1218:C:C6 | 2.56 | 0.41 |
| 1:A:1311:A:H2' | 1:A:1312:G:O4' | 2.21 | 0.41 |
| 2:B:131:LYS:O | 2:B:134:LEU:HB2 | 2.21 | 0.41 |
| 3:C:17:TRP:C | 3:C:19:SER:H | 2.24 | 0.41 |
| 4:D:26:ALA:O | 4:D:27:ILE:O | 2.38 | 0.41 |
| 9:I:20:ILE:HD12 | 9:I:20:ILE:N | 2.35 | 0.41 |
| 9:I:83:THR:HA | 9:I:86:LEU:CD2 | 2.51 | 0.41 |
| 12:L:35:ARG:HE | 12:L:35:ARG:CA | 2.29 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:26:ARG:NH2 | 17:Q:28:VAL:HG11 | 2.36 | 0.41 |
| 1:A:28:A:H2' | 1:A:29:U:O4' | 2.21 | 0.41 |
| 1:A:36:C:O2' | 1:A:37:U:H5' | 2.20 | 0.41 |
| 1:A:132:C:H5" | 20:T:68:LYS:CE | 2.47 | 0.41 |
| 1:A:236:A:H2' | 1:A:237:G:C8 | 2.56 | 0.41 |
| 1:A:374:A:H2' | 1:A:375:U:C6 | 2.55 | 0.41 |
| 1:A:425:G:O2' | 1:A:426:U:H5' | 2.21 | 0.41 |
| 1:A:502:A:O2' | 1:A:503:C:H5' | 2.20 | 0.41 |
| 1:A:591:U:H2' | 1:A:592:G:C8 | 2.55 | 0.41 |
| 1:A:619:U:O2 | 4:D:129:VAL:HG13 | 2.20 | 0.41 |
| 1:A:676:A:O2' | 1:A:677:U:H5' | 2.21 | 0.41 |
| 1:A:790:A:H2 | 22:V:17:GLN:CB | 2.32 | 0.41 |
| 1:A:821:G:H2' | 1:A:822:U:C6 | 2.56 | 0.41 |
| 1:A:842:U:H3' | 1:A:842:U:OP1 | 2.21 | 0.41 |
| 1:A:860:A:C3' | 2:B:193:ASP:HA | 2.38 | 0.41 |
| 1:A:893:C:H2' | 1:A:894:G:C8 | 2.55 | 0.41 |
| 1:A:1057:G:O2' | 1:A:1058:G:H5' | 2.20 | 0.41 |
| 1:A:1081:A:O3' | 5:E:24:VAL:HG13 | 2.04 | 0.41 |
| 1:A:1126:U:O2' | 1:A:1127:G:H5' | 2.21 | 0.41 |
| 1:A:1231:G:H2' | 1:A:1232:U:C6 | 2.55 | 0.41 |
| 1:A:1517:G:C8 | 22:V:141:GLN:CD | 2.83 | 0.41 |
| 2:B:42:LEU:HA | 2:B:45:THR:OG1 | 2.21 | 0.41 |
| 2:B:58:LYS:HD3 | 2:B:62:ARG:NH2 | 2.35 | 0.41 |
| 2:B:116:LEU:HD13 | 2:B:140:LEU:HD23 | 2.02 | 0.41 |
| 2:B:202:ASN:HD21 | 2:B:204:ASP:HB3 | 1.86 | 0.41 |
| 4:D:36:ALA:C | 4:D:38:GLY:H | 2.24 | 0.41 |
| 4:D:104:MET:CE | 4:D:170:LEU:HD13 | 2.50 | 0.41 |
| 4:D:120:LYS:CB | 4:D:145:ARG:HH21 | 2.32 | 0.41 |
| 4:D:160:LEU:HA | 4:D:163:GLN:OE1 | 2.21 | 0.41 |
| 5:E:51:LYS:O | 5:E:52:ALA:HB2 | 2.21 | 0.41 |
| 8:H:76:ARG:HG3 | 8:H:76:ARG:NH1 | 2.36 | 0.41 |
| 11:K:26:PHE:HE1 | 11:K:88:PRO:HG2 | 1.85 | 0.41 |
| 12:L:80:LEU:HD13 | 12:L:101:LEU:CD1 | 2.51 | 0.41 |
| 14:N:65:GLN:HE21 | 14:N:65:GLN:HA | 1.86 | 0.41 |
| 14:N:89:ARG:HB2 | 14:N:91:GLU:HG3 | 2.02 | 0.41 |
| 15:O:70:LYS:NZ | 15:O:74:VAL:HA | 2.36 | 0.41 |
| 17:Q:3:LYS:HD2 | 17:Q:3:LYS:O | 2.20 | 0.41 |
| 17:Q:57:VAL:N | 17:Q:79:GLU:HB3 | 2.35 | 0.41 |
| 17:Q:68:LYS:O | 17:Q:69:THR:HB | 2.21 | 0.41 |
| 17:Q:76:ARG:HE | 17:Q:78:VAL:HG22 | 1.85 | 0.41 |
| 21:U:20:ARG:O | 21:U:20:ARG:HG2 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 21:U:24:LYS:O | 21:U:26:GLY:N | 2.54 | 0.41 |
| 21:U:40:PRO:CG | 21:U:41:THR:H | 2.29 | 0.41 |
| 1:A:17:U:C6 | 1:A:1079:G:C4 | 3.09 | 0.41 |
| 1:A:219:U:H2' | 1:A:220:G:H8 | 1.85 | 0.41 |
| 1:A:291:U:O2' | 1:A:292:G:H5' | 2.21 | 0.41 |
| 1:A:529:G:H22 | 12:L:47:ALA:HB2 | 1.85 | 0.41 |
| 1:A:547:A:H4' | 1:A:548:G:O5' | 2.21 | 0.41 |
| 1:A:635:A:H2' | 1:A:636:U:C6 | 2.56 | 0.41 |
| 1:A:635:A:O2' | 1:A:636:U:H5' | 2.21 | 0.41 |
| 1:A:714:G:H2' | 1:A:715:A:C8 | 2.56 | 0.41 |
| 1:A:1073:U:O2 | 2:B:102:ASN:ND2 | 2.53 | 0.41 |
| 1:A:1281:C:H3' | 1:A:1282:C:H6 | 1.86 | 0.41 |
| 3:C:122:GLN:O | 3:C:127:VAL:HG22 | 2.20 | 0.41 |
| 4:D:99:ASN:CB | 4:D:103:ARG:HH21 | 2.34 | 0.41 |
| 5:E:43:GLY:HA2 | 5:E:75:LEU:HD12 | 2.03 | 0.41 |
| 6:F:62:MET:O | 6:F:63:ASN:HB2 | 2.21 | 0.41 |
| 10:J:88:MET:SD | 10:J:88:MET:N | 2.85 | 0.41 |
| 12:L:42:LYS:HB3 | 12:L:44:PRO:HD2 | 2.03 | 0.41 |
| 13:M:103:THR:HG22 | 13:M:104:ASN:N | 2.33 | 0.41 |
| 14:N:74:ARG:HD3 | 14:N:74:ARG:C | 2.41 | 0.41 |
| 15:O:25:GLU:HA | 15:O:80:LEU:CD1 | 2.51 | 0.41 |
| 21:U:34:ARG:C | 21:U:34:ARG:HD2 | 2.41 | 0.41 |
| 1:A:35:G:H2' | 1:A:36:C:H6 | 1.86 | 0.40 |
| 1:A:167:A:H2' | 1:A:168:G:H8 | 1.86 | 0.40 |
| 1:A:177:G:C5' | 20:T:59:ARG:HH21 | 2.33 | 0.40 |
| 1:A:426:U:O2' | 1:A:427:U:H5' | 2.21 | 0.40 |
| 1:A:499:A:H4' | 1:A:500:G:H5' | 2.03 | 0.40 |
| 1:A:611:C:H2' | 1:A:612:C:C6 | 2.56 | 0.40 |
| 1:A:657:U:O2' | 1:A:658:C:H5' | 2.21 | 0.40 |
| 1:A:847:G:H2' | 1:A:848:C:H6 | 1.86 | 0.40 |
| 1:A:1337:G:H5" | 1:A:1338:G:OP1 | 2.21 | 0.40 |
| 2:B:209:VAL:O | 2:B:213:LEU:HB2 | 2.21 | 0.40 |
| 4:D:54:LEU:C | 4:D:54:LEU:HD13 | 2.41 | 0.40 |
| 4:D:116:LEU:O | 4:D:121:ALA:HB3 | 2.21 | 0.40 |
| 6:F:74:LEU:HG | 6:F:78:PHE:CD2 | 2.55 | 0.40 |
| 9:I:52:GLU:C | 9:I:54:VAL:N | 2.75 | 0.40 |
| 9:I:64:ILE:HG22 | 9:I:65:THR:H | 1.85 | 0.40 |
| 9:I:126:PHE:O | 9:I:128:LYS:N | 2.54 | 0.40 |
| 14:N:11:LYS:HA | 14:N:11:LYS:NZ | 2.36 | 0.40 |
| 15:O:46:LYS:HE3 | 15:O:46:LYS:HB2 | 1.89 | 0.40 |
| 16:P:73:ALA:HB1 | 16:P:77:GLU:OE2 | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:4:ILE:H | 17:Q:4:ILE:CD1 | 2.32 | 0.40 |
| 18:R:64:LEU:C | 18:R:66:LEU:N | 2.74 | 0.40 |
| 1:A:178:C:O2' | 1:A:179:A:H5' | 2.20 | 0.40 |
| 1:A:254:G:OP1 | 17:Q:68:LYS:O | 2.39 | 0.40 |
| 1:A:738:C:H2' | 1:A:739:C:C6 | 2.56 | 0.40 |
| 1:A:768:A:H4' | 1:A:1523:G:N2 | 2.35 | 0.40 |
| 1:A:1195:C:H2' | 1:A:1197:A:O4' | 2.21 | 0.40 |
| 1:A:1225:A:H4' | 19:S:77:ARG:CZ | 2.51 | 0.40 |
| 1:A:1338:G:H2' | 1:A:1339:A:H8 | 1.83 | 0.40 |
| 1:A:1347:G:N2 | 1:A:1373:G:H2' | 2.35 | 0.40 |
| 2:B:119:GLN:HE21 | 2:B:119:GLN:HB3 | 1.59 | 0.40 |
| 3:C:40:GLN:HE21 | 3:C:40:GLN:HB3 | 1.63 | 0.40 |
| 7:G:57:GLU:OE1 | 7:G:57:GLU:HA | 2.22 | 0.40 |
| 7:G:101:ARG:HB3 | 7:G:105:GLU:OE2 | 2.20 | 0.40 |
| 8:H:77:VAL:HG12 | 8:H:84:ILE:HD13 | 2.03 | 0.40 |
| 9:I:18:VAL:HG22 | 9:I:64:ILE:CG2 | 2.50 | 0.40 |
| 10:J:6:ILE:HA | 10:J:102:LEU:CD2 | 2.51 | 0.40 |
| 10:J:37:ARG:N | 10:J:77:VAL:HG22 | 2.36 | 0.40 |
| 12:L:56:LEU:HB3 | 12:L:58:ASN:HD21 | 1.84 | 0.40 |
| 12:L:71:HIS:CE1 | 12:L:73:LEU:H | 2.39 | 0.40 |
| 13:M:16:ILE:CG2 | 13:M:17:ALA:N | 2.84 | 0.40 |
| 14:N:75:LYS:HG3 | 14:N:76:PHE:CE1 | 2.57 | 0.40 |
| 17:Q:10:ARG:CZ | 17:Q:56:ASP:N | 2.84 | 0.40 |
| 20:T:68:LYS:HA | 20:T:68:LYS:HD3 | 1.96 | 0.40 |
| 1:A:841:C:H3' | 1:A:843:U:P | 2.60 | 0.40 |
| 1:A:880:C:H2' | 1:A:881:G:H8 | 1.86 | 0.40 |
| 1:A:1047:G:O2' | 1:A:1048:G:H5' | 2.21 | 0.40 |
| 1:A:1067:A:H1' | 1:A:1068:G:C8 | 2.55 | 0.40 |
| 1:A:1150:A:H1' | 1:A:1280:A:N6 | 2.36 | 0.40 |
| 2:B:186:VAL:HG22 | 2:B:198:VAL:HG23 | 2.03 | 0.40 |
| 3:C:4:VAL:HG21 | 3:C:9:ILE:HD13 | 2.02 | 0.40 |
| 3:C:70:ALA:CB | 3:C:108:PRO:HB3 | 2.52 | 0.40 |
| 4:D:158:LEU:HD23 | 4:D:158:LEU:N | 2.36 | 0.40 |
| 5:E:71:ILE:HG12 | 5:E:72:ASN:H | 1.86 | 0.40 |
| 6:F:18:VAL:HG11 | 6:F:58:HIS:CE1 | 2.57 | 0.40 |
| 7:G:112:ASP:HB3 | 7:G:113:LYS:H | 1.66 | 0.40 |
| 8:H:110:MET:HB3 | 8:H:114:ALA:HB3 | 2.03 | 0.40 |
| 9:I:107:ALA:O | 9:I:109:GLN:HG2 | 2.21 | 0.40 |
| 10:J:71:LEU:HD12 | 10:J:71:LEU:N | 2.27 | 0.40 |
| 13:M:44:ILE:CA | 13:M:47:LEU:HD13 | 2.46 | 0.40 |
| 15:O:70:LYS:HG2 | 15:O:77:TYR:CG | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 19:S:57:VAL:HG21 | 19:S:74:ALA:CB | 2.51 | 0.40 |
| 1:A:108:G:N3 | 1:A:108:G:O4' | 2.54 | 0.40 |
| 1:A:192:A:O2' | 1:A:193:C:H5' | 2.20 | 0.40 |
| 1:A:438:U:H2' | 1:A:494:G:O6 | 2.21 | 0.40 |
| 1:A:797:C:O2' | 1:A:798:U:H5' | 2.21 | 0.40 |
| 1:A:812:G:O2' | 1:A:813:U:H6 | 2.04 | 0.40 |
| 1:A:830:G:H2' | 2:B:19:THR:O | 1.79 | 0.40 |
| 1:A:1084:G:H2' | 1:A:1085:U:C5 | 2.56 | 0.40 |
| 1:A:1368:A:O2' | 1:A:1369:C:H5' | 2.21 | 0.40 |
| 1:A:1521:C:H2' | 1:A:1522:U:H6 | 1.87 | 0.40 |
| 4:D:25:ARG:NH1 | 4:D:30:LYS:HE3 | 2.36 | 0.40 |
| 4:D:158:LEU:HD23 | 4:D:158:LEU:H | 1.87 | 0.40 |
| 6:F:29:ILE:HG23 | 6:F:66:ALA:HB2 | 2.03 | 0.40 |
| 7:G:29:LEU:HD12 | 7:G:104:VAL:HG13 | 2.04 | 0.40 |
| 7:G:94:ARG:O | 7:G:98:LEU:HD12 | 2.22 | 0.40 |
| 7:G:94:ARG:CZ | 7:G:98:LEU:HD21 | 2.51 | 0.40 |
| 9:I:49:GLN:HB3 | 9:I:50:PRO:CD | 2.51 | 0.40 |
| 9:I:118:ARG:HH12 | 9:I:122:ARG:HE | 1.67 | 0.40 |
| 17:Q:30:HIS:N | 17:Q:35:LYS:H | 2.19 | 0.40 |
| 1:A:68:G:C4' | 1:A:171:A:H1' | 2.52 | 0.40 |
| 1:A:140:U:H2' | 1:A:141:G:C8 | 2.56 | 0.40 |
| 1:A:264:C:O2' | 17:Q:65:PRO:O | 2.39 | 0.40 |
| 1:A:314:C:O2' | 1:A:315:A:H5' | 2.21 | 0.40 |
| 1:A:492:C:C2' | 1:A:493:A:H5" | 2.51 | 0.40 |
| 1:A:633:G:H2' | 1:A:634:C:H6 | 1.86 | 0.40 |
| 1:A:737:C:H2' | 1:A:738:C:H6 | 1.86 | 0.40 |
| 1:A:754:C:O2 | 1:A:754:C:H3' | 2.21 | 0.40 |
| 1:A:829:G:O2' | 1:A:830:G:H5' | 2.22 | 0.40 |
| 1:A:921:U:O3' | 1:A:1082:A:H4' | 2.22 | 0.40 |
| 1:A:945:G:N1 | 1:A:1337:G:C2 | 2.89 | 0.40 |
| 1:A:951:G:H1' | 1:A:970:C:O2' | 2.22 | 0.40 |
| 1:A:1036:A:N3 | 1:A:1036:A:H2' | 2.36 | 0.40 |
| 1:A:1082:A:H2' | 1:A:1083:U:C6 | 2.56 | 0.40 |
| 1:A:1202:U:H2' | 1:A:1203:C:H5' | 2.02 | 0.40 |
| 1:A:1225:A:H2' | 1:A:1225:A:N3 | 2.37 | 0.40 |
| 1:A:1236:A:H2' | 1:A:1237:C:O4' | 2.22 | 0.40 |
| 1:A:1288:A:N1 | 1:A:1371:G:H1' | 2.36 | 0.40 |
| 1:A:1319:A:H5" | 19:S:3:SER:OG | 2.21 | 0.40 |
| 3:C:6:PRO:HG2 | 3:C:183:TYR:CD2 | 2.57 | 0.40 |
| 3:C:54:ILE:O | 3:C:54:ILE:HG23 | 2.22 | 0.40 |
| 4:D:106:PHE:N | 4:D:106:PHE:CD1 | 2.88 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:196:GLU:HA | 4:D:199:ILE:CD1 | 2.51 | 0.40 |
| 7:G:73:GLU:OE2 | 7:G:90:VAL:HG12 | 2.21 | 0.40 |
| 7:G:114:SER:O | 7:G:118:ARG:HG3 | 2.21 | 0.40 |
| 9:I:41:GLU:H | 9:I:44:ARG:CZ | 2.34 | 0.40 |
| 11:K:22:ILE:HA | 11:K:31:VAL:HG22 | 2.02 | 0.40 |
| 11:K:113:THR:O | 11:K:115:ILE:HG13 | 2.22 | 0.40 |
| 15:O:87:ARG:C | 15:O:88:ARG:HG2 | 2.41 | 0.40 |
| 16:P:4:ILE:HD12 | 16:P:66:THR:O | 2.22 | 0.40 |
| 16:P:12:LYS:C | 16:P:14:ARG:N | 2.75 | 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 |
|---|---|---|---|---|---|---|
| 2 | B | 216/240 (90%) | 145 (67%) | 53 (24%) | 18 (8%) | 1 12 |
| 3 | C | 204/232 (88%) | 135 (66%) | 49 (24%) | 20 (10%) | 0 10 |
| 4 | D | 203/205 (99%) | 130 (64%) | 55 (27%) | 18 (9%) | 1 11 |
| 5 | E | 148/166 (89%) | 108 (73%) | 33 (22%) | 7 (5%) | 2 21 |
| 6 | F | 98/135 (73%) | 69 (70%) | 23 (24%) | 6 (6%) | 1 17 |
| 7 | G | 148/178 (83%) | 103 (70%) | 37 (25%) | 8 (5%) | 2 19 |
| 8 | H | 127/129 (98%) | 105 (83%) | 19 (15%) | 3 (2%) | 6 33 |
| 9 | I | 125/129 (97%) | 86 (69%) | 28 (22%) | 11 (9%) | 1 11 |
| 10 | J | 96/103 (93%) | 63 (66%) | 21 (22%) | 12 (12%) | 0 5 |
| 11 | K | 115/128 (90%) | 75 (65%) | 27 (24%) | 13 (11%) | 0 7 |
| 12 | L | 121/123 (98%) | 74 (61%) | 30 (25%) | 17 (14%) | 0 4 |
| 13 | M | 112/117 (96%) | 87 (78%) | 14 (12%) | 11 (10%) | 0 10 |
| 14 | N | 92/100 (92%) | 59 (64%) | 24 (26%) | 9 (10%) | 0 10 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 15 | O | 86/89 (97%) | 66 (77%) | 18 (21%) | 2 (2%) | 6 34 |
| 16 | P | 80/82 (98%) | 59 (74%) | 17 (21%) | 4 (5%) | 2 20 |
| 17 | Q | 78/83 (94%) | 48 (62%) | 26 (33%) | 4 (5%) | 2 19 |
| 18 | R | 53/74 (72%) | 27 (51%) | 19 (36%) | 7 (13%) | 0 5 |
| 19 | S | 77/91 (85%) | 57 (74%) | 14 (18%) | 6 (8%) | 1 13 |
| 20 | T | 83/86 (96%) | 69 (83%) | 8 (10%) | 6 (7%) | 1 14 |
| 21 | U | 49/71 (69%) | 22 (45%) | 12 (24%) | 15 (31%) | 0 0 |
| 22 | V | 250/252 (99%) | 247 (99%) | 2 (1%) | 1 (0%) | 34 72 |
| All | All | 2561/2813 (91%) | 1834 (72%) | 529 (21%) | 198 (8%) | 2 13 |

All (198) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 19 | THR |
| 2 | B | 22 | TRP |
| 2 | B | 163 | ILE |
| 2 | B | 186 | VAL |
| 3 | C | 2 | GLN |
| 3 | C | 91 | ALA |
| 3 | C | 153 | SER |
| 4 | D | 18 | LEU |
| 4 | D | 31 | CYS |
| 4 | D | 191 | SER |
| 6 | F | 92 | THR |
| 9 | I | 8 | THR |
| 9 | I | 43 | ALA |
| 10 | J | 57 | VAL |
| 11 | K | 56 | LYS |
| 11 | K | 126 | ARG |
| 12 | L | 10 | PRO |
| 12 | L | 23 | LEU |
| 13 | M | 6 | ILE |
| 13 | M | 14 | ALA |
| 14 | N | 52 | ARG |
| 21 | U | 14 | ALA |
| 21 | U | 22 | CYS |
| 2 | B | 18 | GLN |
| 3 | C | 19 | SER |
| 3 | C | 25 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | C | 54 | ILE |
| 3 | C | 81 | GLU |
| 3 | C | 100 | ILE |
| 3 | C | 180 | ASP |
| 4 | D | 25 | ARG |
| 4 | D | 107 | GLY |
| 4 | D | 152 | SER |
| 4 | D | 172 | VAL |
| 4 | D | 192 | ALA |
| 5 | E | 20 | VAL |
| 5 | E | 128 | GLY |
| 6 | F | 62 | MET |
| 6 | F | 64 | VAL |
| 6 | F | 65 | GLU |
| 7 | G | 84 | TYR |
| 7 | G | 129 | ASN |
| 9 | I | 57 | VAL |
| 9 | I | 71 | ILE |
| 9 | I | 108 | ARG |
| 10 | J | 75 | ASP |
| 10 | J | 92 | LEU |
| 11 | K | 50 | GLY |
| 11 | K | 53 | GLY |
| 11 | K | 125 | LYS |
| 12 | L | 19 | ASN |
| 12 | L | 72 | ASN |
| 12 | L | 84 | GLY |
| 13 | M | 3 | ILE |
| 13 | M | 66 | GLY |
| 13 | M | 104 | ASN |
| 14 | N | 51 | PRO |
| 14 | N | 61 | ASN |
| 15 | O | 73 | ASP |
| 16 | P | 79 | ASN |
| 17 | Q | 6 | THR |
| 17 | Q | 34 | GLY |
| 18 | R | 32 | ILE |
| 19 | S | 5 | LYS |
| 20 | T | 85 | LEU |
| 21 | U | 32 | ARG |
| 21 | U | 34 | ARG |
| 2 | B | 20 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 76 | SER |
| 3 | C | 59 | PRO |
| 3 | C | 78 | LYS |
| 3 | C | 136 | ALA |
| 4 | D | 27 | ILE |
| 4 | D | 28 | ASP |
| 4 | D | 43 | ARG |
| 4 | D | 151 | GLN |
| 4 | D | 177 | MET |
| 5 | E | 43 | GLY |
| 6 | F | 94 | HIS |
| 7 | G | 89 | GLU |
| 9 | I | 44 | ARG |
| 9 | I | 55 | ASP |
| 9 | I | 127 | SER |
| 10 | J | 62 | ARG |
| 10 | J | 93 | ALA |
| 11 | K | 70 | ALA |
| 11 | K | 77 | GLY |
| 11 | K | 91 | GLY |
| 12 | L | 13 | ARG |
| 12 | L | 60 | PHE |
| 12 | L | 122 | LYS |
| 13 | M | 7 | ASN |
| 13 | M | 22 | TYR |
| 13 | M | 65 | GLU |
| 13 | M | 98 | GLY |
| 14 | N | 21 | ALA |
| 14 | N | 74 | ARG |
| 14 | N | 80 | ARG |
| 17 | Q | 5 | ARG |
| 18 | R | 21 | ASP |
| 18 | R | 71 | ASP |
| 20 | T | 59 | ARG |
| 21 | U | 6 | ARG |
| 21 | U | 24 | LYS |
| 21 | U | 25 | ALA |
| 21 | U | 40 | PRO |
| 2 | B | 11 | ALA |
| 2 | B | 41 | ASN |
| 2 | B | 88 | GLN |
| 2 | B | 200 | PRO |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | C | 65 | VAL |
| 3 | C | 186 | SER |
| 4 | D | 29 | THR |
| 5 | E | 25 | LYS |
| 5 | E | 34 | ALA |
| 6 | F | 54 | LEU |
| 7 | G | 18 | GLY |
| 7 | G | 57 | GLU |
| 7 | G | 75 | LYS |
| 7 | G | 86 | VAL |
| 8 | H | 46 | GLU |
| 9 | I | 67 | LYS |
| 10 | J | 56 | HIS |
| 10 | J | 61 | ALA |
| 10 | J | 74 | VAL |
| 11 | K | 57 | SER |
| 11 | K | 108 | ASN |
| 12 | L | 14 | LYS |
| 12 | L | 15 | VAL |
| 12 | L | 47 | ALA |
| 12 | L | 56 | LEU |
| 12 | L | 67 | GLY |
| 12 | L | 120 | ARG |
| 14 | N | 31 | SER |
| 14 | N | 94 | GLY |
| 16 | P | 42 | ILE |
| 17 | Q | 69 | THR |
| 18 | R | 22 | TYR |
| 18 | R | 47 | ARG |
| 19 | S | 27 | LYS |
| 19 | S | 36 | ARG |
| 19 | S | 65 | MET |
| 21 | U | 26 | GLY |
| 21 | U | 33 | ARG |
| 21 | U | 36 | PHE |
| 21 | U | 37 | TYR |
| 21 | U | 41 | THR |
| 22 | V | 130 | THR |
| 2 | B | 24 | PRO |
| 2 | B | 27 | LYS |
| 2 | B | 87 | ASP |
| 2 | B | 94 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | C | 14 | VAL |
| 3 | C | 145 | ALA |
| 3 | C | 167 | TYR |
| 5 | E | 146 | MET |
| 9 | I | 122 | ARG |
| 10 | J | 36 | VAL |
| 11 | K | 127 | ARG |
| 12 | L | 42 | LYS |
| 12 | L | 121 | PRO |
| 13 | M | 105 | ALA |
| 15 | O | 17 | ASP |
| 18 | R | 20 | ILE |
| 19 | S | 8 | PRO |
| 20 | T | 5 | SER |
| 20 | T | 46 | ALA |
| 2 | B | 205 | ALA |
| 3 | C | 26 | LYS |
| 3 | C | 112 | ALA |
| 4 | D | 6 | PRO |
| 5 | E | 107 | GLY |
| 7 | G | 6 | ILE |
| 10 | J | 95 | GLY |
| 11 | K | 106 | ILE |
| 14 | N | 33 | VAL |
| 19 | S | 39 | ILE |
| 21 | U | 13 | VAL |
| 2 | B | 157 | PRO |
| 3 | C | 90 | VAL |
| 4 | D | 63 | ILE |
| 4 | D | 175 | GLY |
| 11 | K | 119 | GLY |
| 16 | P | 41 | PRO |
| 16 | P | 49 | GLY |
| 20 | T | 3 | ILE |
| 4 | D | 37 | PRO |
| 8 | H | 71 | VAL |
| 10 | J | 41 | PRO |
| 10 | J | 96 | VAL |
| 12 | L | 62 | VAL |
| 13 | M | 23 | GLY |
| 20 | T | 41 | GLY |
| 21 | U | 52 | VAL |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 150 | ILE |
| 8 | H | 77 | VAL |
| 9 | I | 110 | VAL |
| 18 | R | 43 | ILE |

### 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 |
|---|---|---|---|---|---|
| 2 | B | 180/198 (91%) | 142 (79%) | 38 (21%) | 1 6 |
| 3 | C | 170/189 (90%) | 142 (84%) | 28 (16%) | 2 12 |
| 4 | D | 172/172 (100%) | 140 (81%) | 32 (19%) | 1 9 |
| 5 | E | 113/125 (90%) | 92 (81%) | 21 (19%) | 1 9 |
| 6 | F | 87/116 (75%) | 68 (78%) | 19 (22%) | 1 6 |
| 7 | G | 123/146 (84%) | 102 (83%) | 21 (17%) | 2 11 |
| 8 | H | 104/104 (100%) | 87 (84%) | 17 (16%) | 2 13 |
| 9 | I | 105/106 (99%) | 83 (79%) | 22 (21%) | 1 6 |
| 10 | J | 86/90 (96%) | 66 (77%) | 20 (23%) | 1 4 |
| 11 | K | 90/98 (92%) | 70 (78%) | 20 (22%) | 1 6 |
| 12 | L | 103/103 (100%) | 88 (85%) | 15 (15%) | 3 15 |
| 13 | M | 92/95 (97%) | 70 (76%) | 22 (24%) | 0 4 |
| 14 | N | 79/83 (95%) | 67 (85%) | 12 (15%) | 3 14 |
| 15 | O | 76/77 (99%) | 69 (91%) | 7 (9%) | 9 29 |
| 16 | P | 65/65 (100%) | 56 (86%) | 9 (14%) | 3 17 |
| 17 | Q | 74/77 (96%) | 60 (81%) | 14 (19%) | 1 8 |
| 18 | R | 48/64 (75%) | 45 (94%) | 3 (6%) | 18 43 |
| 19 | S | 70/78 (90%) | 60 (86%) | 10 (14%) | 3 16 |
| 20 | T | 65/65 (100%) | 56 (86%) | 9 (14%) | 3 17 |
| 21 | U | 44/61 (72%) | 36 (82%) | 8 (18%) | 1 10 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 22 | V | 213/216 (99%) | 206 (97%) | 7 (3%) | 38 61 |
| All | All | 2159/2328 (93%) | 1805 (84%) | 354 (16%) | 5 12 |

All (354) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 9 | LEU |
| 2 | B | 15 | PHE |
| 2 | B | 22 | TRP |
| 2 | B | 23 | ASN |
| 2 | B | 26 | MET |
| 2 | B | 31 | PHE |
| 2 | B | 36 | LYS |
| 2 | B | 38 | HIS |
| 2 | B | 40 | ILE |
| 2 | B | 46 | VAL |
| 2 | B | 48 | MET |
| 2 | B | 56 | LEU |
| 2 | B | 57 | ASN |
| 2 | B | 62 | ARG |
| 2 | B | 67 | LEU |
| 2 | B | 73 | ARG |
| 2 | B | 81 | ASP |
| 2 | B | 90 | PHE |
| 2 | B | 94 | ARG |
| 2 | B | 95 | TRP |
| 2 | B | 101 | THR |
| 2 | B | 116 | LEU |
| 2 | B | 119 | GLN |
| 2 | B | 121 | GLN |
| 2 | B | 122 | ASP |
| 2 | B | 125 | PHE |
| 2 | B | 127 | LYS |
| 2 | B | 128 | LEU |
| 2 | B | 145 | ASN |
| 2 | B | 158 | ASP |
| 2 | B | 162 | VAL |
| 2 | B | 188 | THR |
| 2 | B | 196 | ASP |
| 2 | B | 202 | ASN |
| 2 | B | 206 | ILE |
| 2 | B | 209 | VAL |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 212 | TYR |
| 2 | B | 222 | GLU |
| 3 | C | 17 | TRP |
| 3 | C | 20 | THR |
| 3 | C | 26 | LYS |
| 3 | C | 31 | ASN |
| 3 | C | 40 | GLN |
| 3 | C | 42 | LEU |
| 3 | C | 69 | THR |
| 3 | C | 82 | ASP |
| 3 | C | 88 | LYS |
| 3 | C | 100 | ILE |
| 3 | C | 102 | ILE |
| 3 | C | 106 | ARG |
| 3 | C | 113 | LYS |
| 3 | C | 141 | MET |
| 3 | C | 146 | LYS |
| 3 | C | 156 | LEU |
| 3 | C | 164 | THR |
| 3 | C | 165 | GLU |
| 3 | C | 166 | TRP |
| 3 | C | 168 | ARG |
| 3 | C | 174 | LEU |
| 3 | C | 176 | THR |
| 3 | C | 180 | ASP |
| 3 | C | 184 | ASN |
| 3 | C | 185 | THR |
| 3 | C | 189 | HIS |
| 3 | C | 190 | THR |
| 3 | C | 192 | TYR |
| 4 | D | 7 | LYS |
| 4 | D | 8 | LEU |
| 4 | D | 10 | LEU |
| 4 | D | 20 | LEU |
| 4 | D | 21 | LYS |
| 4 | D | 25 | ARG |
| 4 | D | 35 | GLN |
| 4 | D | 39 | GLN |
| 4 | D | 40 | HIS |
| 4 | D | 43 | ARG |
| 4 | D | 55 | ARG |
| 4 | D | 56 | GLU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 4 | D | 58 | GLN |
| 4 | D | 62 | ARG |
| 4 | D | 64 | TYR |
| 4 | D | 69 | ARG |
| 4 | D | 85 | THR |
| 4 | D | 94 | GLU |
| 4 | D | 133 | SER |
| 4 | D | 137 | SER |
| 4 | D | 145 | ARG |
| 4 | D | 147 | LYS |
| 4 | D | 150 | LYS |
| 4 | D | 153 | ARG |
| 4 | D | 155 | LYS |
| 4 | D | 158 | LEU |
| 4 | D | 160 | LEU |
| 4 | D | 176 | LYS |
| 4 | D | 183 | ARG |
| 4 | D | 186 | GLU |
| 4 | D | 189 | ASP |
| 4 | D | 194 | ILE |
| 5 | E | 11 | GLN |
| 5 | E | 12 | GLU |
| 5 | E | 23 | THR |
| 5 | E | 25 | LYS |
| 5 | E | 32 | PHE |
| 5 | E | 44 | ARG |
| 5 | E | 45 | VAL |
| 5 | E | 55 | VAL |
| 5 | E | 68 | ARG |
| 5 | E | 72 | ASN |
| 5 | E | 81 | GLN |
| 5 | E | 92 | ARG |
| 5 | E | 102 | THR |
| 5 | E | 110 | MET |
| 5 | E | 122 | VAL |
| 5 | E | 123 | LEU |
| 5 | E | 125 | LYS |
| 5 | E | 139 | THR |
| 5 | E | 143 | LEU |
| 5 | E | 151 | MET |
| 5 | E | 158 | LYS |
| 6 | F | 24 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 6 | F | 37 | HIS |
| 6 | F | 38 | ARG |
| 6 | F | 39 | LEU |
| 6 | F | 46 | GLN |
| 6 | F | 53 | LYS |
| 6 | F | 54 | LEU |
| 6 | F | 55 | HIS |
| 6 | F | 61 | LEU |
| 6 | F | 65 | GLU |
| 6 | F | 69 | GLU |
| 6 | F | 71 | ILE |
| 6 | F | 75 | GLU |
| 6 | F | 76 | THR |
| 6 | F | 78 | PHE |
| 6 | F | 86 | ARG |
| 6 | F | 87 | SER |
| 6 | F | 88 | MET |
| 6 | F | 92 | THR |
| 7 | G | 3 | ARG |
| 7 | G | 10 | LYS |
| 7 | G | 11 | ILE |
| 7 | G | 14 | ASP |
| 7 | G | 16 | LYS |
| 7 | G | 19 | SER |
| 7 | G | 21 | LEU |
| 7 | G | 22 | LEU |
| 7 | G | 29 | LEU |
| 7 | G | 46 | LEU |
| 7 | G | 52 | ARG |
| 7 | G | 55 | LYS |
| 7 | G | 72 | VAL |
| 7 | G | 78 | ARG |
| 7 | G | 84 | TYR |
| 7 | G | 89 | GLU |
| 7 | G | 94 | ARG |
| 7 | G | 112 | ASP |
| 7 | G | 114 | SER |
| 7 | G | 139 | ASP |
| 7 | G | 143 | MET |
| 8 | H | 4 | ASP |
| 8 | H | 17 | GLN |
| 8 | H | 26 | MET |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | H | 30 | LYS |
| 8 | H | 37 | ASN |
| 8 | H | 48 | PHE |
| 8 | H | 55 | LYS |
| 8 | H | 61 | THR |
| 8 | H | 64 | TYR |
| 8 | H | 76 | ARG |
| 8 | H | 82 | LEU |
| 8 | H | 83 | ARG |
| 8 | H | 93 | LYS |
| 8 | H | 107 | LYS |
| 8 | H | 111 | THR |
| 8 | H | 113 | ARG |
| 8 | H | 120 | LEU |
| 9 | I | 3 | ASN |
| 9 | I | 11 | ARG |
| 9 | I | 26 | LYS |
| 9 | I | 30 | ASN |
| 9 | I | 35 | GLU |
| 9 | I | 36 | GLN |
| 9 | I | 38 | PHE |
| 9 | I | 41 | GLU |
| 9 | I | 44 | ARG |
| 9 | I | 53 | LEU |
| 9 | I | 56 | MET |
| 9 | I | 58 | GLU |
| 9 | I | 59 | LYS |
| 9 | I | 60 | LEU |
| 9 | I | 61 | ASP |
| 9 | I | 84 | ARG |
| 9 | I | 86 | LEU |
| 9 | I | 87 | MET |
| 9 | I | 106 | ASP |
| 9 | I | 112 | ARG |
| 9 | I | 121 | ARG |
| 9 | I | 126 | PHE |
| 10 | J | 5 | ARG |
| 10 | J | 11 | LYS |
| 10 | J | 14 | ASP |
| 10 | J | 18 | ILE |
| 10 | J | 35 | GLN |
| 10 | J | 40 | ILE |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 10 | J | 45 | ARG |
| 10 | J | 48 | ARG |
| 10 | J | 50 | THR |
| 10 | J | 57 | VAL |
| 10 | J | 68 | ARG |
| 10 | J | 71 | LEU |
| 10 | J | 73 | LEU |
| 10 | J | 75 | ASP |
| 10 | J | 81 | GLU |
| 10 | J | 88 | MET |
| 10 | J | 89 | ARG |
| 10 | J | 92 | LEU |
| 10 | J | 98 | VAL |
| 10 | J | 102 | LEU |
| 11 | K | 12 | ARG |
| 11 | K | 33 | ILE |
| 11 | K | 35 | ASP |
| 11 | K | 36 | ARG |
| 11 | K | 37 | GLN |
| 11 | K | 52 | ARG |
| 11 | K | 56 | LYS |
| 11 | K | 58 | THR |
| 11 | K | 71 | ASP |
| 11 | K | 73 | VAL |
| 11 | K | 83 | VAL |
| 11 | K | 84 | MET |
| 11 | K | 85 | VAL |
| 11 | K | 92 | ARG |
| 11 | K | 99 | LEU |
| 11 | K | 107 | THR |
| 11 | K | 108 | ASN |
| 11 | K | 117 | HIS |
| 11 | K | 121 | ARG |
| 11 | K | 126 | ARG |
| 12 | L | 18 | SER |
| 12 | L | 20 | VAL |
| 12 | L | 28 | GLN |
| 12 | L | 30 | ARG |
| 12 | L | 33 | CYS |
| 12 | L | 35 | ARG |
| 12 | L | 38 | THR |
| 12 | L | 50 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 12 | L | 58 | ASN |
| 12 | L | 71 | HIS |
| 12 | L | 74 | GLN |
| 12 | L | 102 | ASP |
| 12 | L | 103 | CYS |
| 12 | L | 107 | LYS |
| 12 | L | 118 | VAL |
| 13 | M | 2 | ARG |
| 13 | M | 11 | HIS |
| 13 | M | 18 | LEU |
| 13 | M | 27 | THR |
| 13 | M | 28 | ARG |
| 13 | M | 41 | ASP |
| 13 | M | 43 | LYS |
| 13 | M | 44 | ILE |
| 13 | M | 57 | ASP |
| 13 | M | 62 | PHE |
| 13 | M | 64 | VAL |
| 13 | M | 67 | ASP |
| 13 | M | 68 | LEU |
| 13 | M | 81 | ASP |
| 13 | M | 90 | HIS |
| 13 | M | 91 | ARG |
| 13 | M | 97 | ARG |
| 13 | M | 99 | GLN |
| 13 | M | 100 | ARG |
| 13 | M | 101 | THR |
| 13 | M | 102 | LYS |
| 13 | M | 106 | ARG |
| 14 | N | 15 | LEU |
| 14 | N | 27 | LYS |
| 14 | N | 41 | TRP |
| 14 | N | 45 | LEU |
| 14 | N | 50 | LEU |
| 14 | N | 53 | ASP |
| 14 | N | 59 | GLN |
| 14 | N | 60 | ARG |
| 14 | N | 65 | GLN |
| 14 | N | 73 | LEU |
| 14 | N | 74 | ARG |
| 14 | N | 76 | PHE |
| 15 | O | 7 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 15 | O | 17 | ASP |
| 15 | O | 25 | GLU |
| 15 | O | 57 | ARG |
| 15 | O | 58 | MET |
| 15 | O | 64 | LYS |
| 15 | O | 70 | LYS |
| 16 | P | 4 | ILE |
| 16 | P | 5 | ARG |
| 16 | P | 26 | ASN |
| 16 | P | 29 | ASN |
| 16 | P | 31 | ARG |
| 16 | P | 34 | GLU |
| 16 | P | 46 | LYS |
| 16 | P | 55 | ASP |
| 16 | P | 63 | GLN |
| 17 | Q | 4 | ILE |
| 17 | Q | 10 | ARG |
| 17 | Q | 15 | LYS |
| 17 | Q | 25 | GLU |
| 17 | Q | 26 | ARG |
| 17 | Q | 39 | ARG |
| 17 | Q | 45 | VAL |
| 17 | Q | 52 | CYS |
| 17 | Q | 60 | ILE |
| 17 | Q | 67 | SER |
| 17 | Q | 74 | LEU |
| 17 | Q | 76 | ARG |
| 17 | Q | 78 | VAL |
| 17 | Q | 80 | LYS |
| 18 | R | 30 | ASN |
| 18 | R | 52 | ARG |
| 18 | R | 65 | SER |
| 19 | S | 5 | LYS |
| 19 | S | 12 | LEU |
| 19 | S | 14 | LEU |
| 19 | S | 20 | LYS |
| 19 | S | 28 | LYS |
| 19 | S | 36 | ARG |
| 19 | S | 40 | PHE |
| 19 | S | 47 | THR |
| 19 | S | 72 | GLU |
| 19 | S | 73 | PHE |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 20 | T | 4 | LYS |
| 20 | T | 14 | GLU |
| 20 | T | 26 | MET |
| 20 | T | 29 | THR |
| 20 | T | 53 | MET |
| 20 | T | 59 | ARG |
| 20 | T | 67 | HIS |
| 20 | T | 70 | LYS |
| 20 | T | 85 | LEU |
| 21 | U | 11 | PHE |
| 21 | U | 12 | ASP |
| 21 | U | 16 | ARG |
| 21 | U | 17 | ARG |
| 21 | U | 33 | ARG |
| 21 | U | 44 | ARG |
| 21 | U | 48 | LYS |
| 21 | U | 53 | LYS |
| 22 | V | 21 | ASN |
| 22 | V | 37 | LYS |
| 22 | V | 81 | LEU |
| 22 | V | 91 | ASP |
| 22 | V | 155 | LYS |
| 22 | V | 221 | ARG |
| 22 | V | 231 | ASN |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (69) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 108 | GLN |
| 2 | B | 119 | GLN |
| 2 | B | 121 | GLN |
| 2 | B | 145 | ASN |
| 2 | B | 167 | HIS |
| 2 | B | 202 | ASN |
| 3 | C | 2 | GLN |
| 3 | C | 5 | HIS |
| 3 | C | 40 | GLN |
| 3 | C | 68 | HIS |
| 3 | C | 122 | GLN |
| 3 | C | 139 | ASN |
| 3 | C | 184 | ASN |
| 4 | D | 35 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 4 | D | 84 | ASN |
| 4 | D | 99 | ASN |
| 4 | D | 135 | GLN |
| 4 | D | 195 | ASN |
| 5 | E | 69 | ASN |
| 5 | E | 72 | ASN |
| 5 | E | 82 | HIS |
| 5 | E | 96 | GLN |
| 5 | E | 121 | ASN |
| 5 | E | 131 | ASN |
| 5 | E | 134 | ASN |
| 6 | F | 14 | GLN |
| 6 | F | 17 | GLN |
| 6 | F | 46 | GLN |
| 6 | F | 58 | HIS |
| 7 | G | 67 | ASN |
| 7 | G | 85 | GLN |
| 7 | G | 121 | ASN |
| 7 | G | 147 | ASN |
| 8 | H | 3 | GLN |
| 8 | H | 17 | GLN |
| 8 | H | 20 | ASN |
| 9 | I | 4 | GLN |
| 9 | I | 24 | ASN |
| 9 | I | 30 | ASN |
| 9 | I | 31 | GLN |
| 9 | I | 36 | GLN |
| 9 | I | 49 | GLN |
| 9 | I | 109 | GLN |
| 10 | J | 15 | HIS |
| 10 | J | 20 | GLN |
| 10 | J | 70 | HIS |
| 10 | J | 99 | GLN |
| 11 | K | 28 | ASN |
| 11 | K | 37 | GLN |
| 11 | K | 100 | ASN |
| 12 | L | 58 | ASN |
| 12 | L | 72 | ASN |
| 13 | M | 99 | GLN |
| 14 | N | 59 | GLN |
| 14 | N | 61 | ASN |
| 14 | N | 65 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 15 | O | 34 | GLN |
| 15 | O | 39 | GLN |
| 16 | P | 9 | HIS |
| 16 | P | 18 | GLN |
| 16 | P | 29 | ASN |
| 16 | P | 63 | GLN |
| 18 | R | 53 | GLN |
| 19 | S | 51 | HIS |
| 19 | S | 55 | GLN |
| 20 | T | 12 | GLN |
| 20 | T | 20 | ASN |
| 20 | T | 54 | GLN |
| 20 | T | 60 | GLN |

### 5.3.3 RNA

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | A | 1407/1542 (91%) | 261 (18%) | 24 (1%) |

All (261) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 7 | A |
| 1 | A | 9 | G |
| 1 | A | 14 | U |
| 1 | A | 31 | G |
| 1 | A | 32 | A |
| 1 | A | 39 | G |
| 1 | A | 47 | C |
| 1 | A | 48 | C |
| 1 | A | 51 | A |
| 1 | A | 52 | C |
| 1 | A | 55 | A |
| 1 | A | 61 | G |
| 1 | A | 66 | A |
| 1 | A | 72 | A |
| 1 | A | 76 | G |
| 1 | A | 78 | A |
| 1 | A | 79 | G |
| 1 | A | 83 | C |
| 1 | A | 85 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 86 | G |
| 1 | A | 87 | C |
| 1 | A | 88 | U |
| 1 | A | 89 | U |
| 1 | A | 95 | C |
| 1 | A | 108 | G |
| 1 | A | 121 | U |
| 1 | A | 122 | G |
| 1 | A | 131 | A |
| 1 | A | 151 | A |
| 1 | A | 164 | G |
| 1 | A | 182 | A |
| 1 | A | 183 | C |
| 1 | A | 197 | A |
| 1 | A | 209 | U |
| 1 | A | 210 | C |
| 1 | A | 239 | U |
| 1 | A | 240 | G |
| 1 | A | 243 | A |
| 1 | A | 244 | U |
| 1 | A | 245 | U |
| 1 | A | 247 | G |
| 1 | A | 250 | A |
| 1 | A | 251 | G |
| 1 | A | 253 | A |
| 1 | A | 257 | G |
| 1 | A | 258 | G |
| 1 | A | 266 | G |
| 1 | A | 267 | C |
| 1 | A | 280 | C |
| 1 | A | 289 | G |
| 1 | A | 316 | C |
| 1 | A | 324 | G |
| 1 | A | 328 | C |
| 1 | A | 329 | A |
| 1 | A | 330 | C |
| 1 | A | 332 | G |
| 1 | A | 345 | C |
| 1 | A | 352 | C |
| 1 | A | 354 | G |
| 1 | A | 367 | U |
| 1 | A | 372 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 373 | A |
| 1 | A | 381 | C |
| 1 | A | 382 | A |
| 1 | A | 397 | A |
| 1 | A | 398 | U |
| 1 | A | 406 | G |
| 1 | A | 408 | A |
| 1 | A | 411 | A |
| 1 | A | 412 | A |
| 1 | A | 414 | A |
| 1 | A | 415 | A |
| 1 | A | 421 | U |
| 1 | A | 422 | C |
| 1 | A | 424 | G |
| 1 | A | 429 | U |
| 1 | A | 430 | A |
| 1 | A | 434 | U |
| 1 | A | 435 | A |
| 1 | A | 438 | U |
| 1 | A | 459 | A |
| 1 | A | 461 | A |
| 1 | A | 462 | G |
| 1 | A | 463 | U |
| 1 | A | 464 | U |
| 1 | A | 465 | A |
| 1 | A | 466 | A |
| 1 | A | 467 | U |
| 1 | A | 468 | A |
| 1 | A | 469 | C |
| 1 | A | 476 | U |
| 1 | A | 481 | G |
| 1 | A | 482 | A |
| 1 | A | 484 | G |
| 1 | A | 485 | U |
| 1 | A | 493 | A |
| 1 | A | 500 | G |
| 1 | A | 511 | C |
| 1 | A | 518 | C |
| 1 | A | 522 | C |
| 1 | A | 527 | G |
| 1 | A | 531 | U |
| 1 | A | 532 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 547 | A |
| 1 | A | 559 | A |
| 1 | A | 562 | U |
| 1 | A | 572 | A |
| 1 | A | 573 | A |
| 1 | A | 576 | C |
| 1 | A | 577 | G |
| 1 | A | 607 | A |
| 1 | A | 639 | G |
| 1 | A | 650 | G |
| 1 | A | 653 | U |
| 1 | A | 665 | A |
| 1 | A | 693 | G |
| 1 | A | 700 | G |
| 1 | A | 721 | G |
| 1 | A | 724 | G |
| 1 | A | 731 | G |
| 1 | A | 733 | G |
| 1 | A | 747 | A |
| 1 | A | 748 | G |
| 1 | A | 755 | G |
| 1 | A | 777 | A |
| 1 | A | 781 | A |
| 1 | A | 782 | A |
| 1 | A | 793 | U |
| 1 | A | 794 | A |
| 1 | A | 812 | G |
| 1 | A | 815 | A |
| 1 | A | 817 | C |
| 1 | A | 818 | G |
| 1 | A | 819 | A |
| 1 | A | 828 | U |
| 1 | A | 829 | G |
| 1 | A | 841 | C |
| 1 | A | 842 | U |
| 1 | A | 843 | U |
| 1 | A | 844 | G |
| 1 | A | 845 | A |
| 1 | A | 902 | G |
| 1 | A | 914 | A |
| 1 | A | 926 | G |
| 1 | A | 927 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 931 | C |
| 1 | A | 934 | C |
| 1 | A | 935 | A |
| 1 | A | 960 | U |
| 1 | A | 961 | U |
| 1 | A | 966 | G |
| 1 | A | 968 | A |
| 1 | A | 969 | A |
| 1 | A | 971 | G |
| 1 | A | 974 | A |
| 1 | A | 976 | G |
| 1 | A | 977 | A |
| 1 | A | 983 | A |
| 1 | A | 991 | U |
| 1 | A | 992 | U |
| 1 | A | 993 | G |
| 1 | A | 1002 | G |
| 1 | A | 1004 | A |
| 1 | A | 1009 | U |
| 1 | A | 1022 | A |
| 1 | A | 1026 | G |
| 1 | A | 1030 | U |
| 1 | A | 1031 | C |
| 1 | A | 1034 | G |
| 1 | A | 1035 | A |
| 1 | A | 1043 | G |
| 1 | A | 1044 | A |
| 1 | A | 1045 | C |
| 1 | A | 1049 | U |
| 1 | A | 1050 | G |
| 1 | A | 1051 | C |
| 1 | A | 1053 | G |
| 1 | A | 1054 | C |
| 1 | A | 1055 | A |
| 1 | A | 1065 | U |
| 1 | A | 1066 | C |
| 1 | A | 1070 | U |
| 1 | A | 1094 | G |
| 1 | A | 1095 | U |
| 1 | A | 1101 | A |
| 1 | A | 1102 | A |
| 1 | A | 1108 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 1111 | A |
| 1 | A | 1112 | C |
| 1 | A | 1126 | U |
| 1 | A | 1130 | A |
| 1 | A | 1136 | C |
| 1 | A | 1137 | C |
| 1 | A | 1138 | G |
| 1 | A | 1139 | G |
| 1 | A | 1140 | C |
| 1 | A | 1158 | C |
| 1 | A | 1159 | U |
| 1 | A | 1168 | U |
| 1 | A | 1169 | A |
| 1 | A | 1174 | G |
| 1 | A | 1179 | A |
| 1 | A | 1181 | G |
| 1 | A | 1183 | U |
| 1 | A | 1196 | A |
| 1 | A | 1197 | A |
| 1 | A | 1201 | A |
| 1 | A | 1202 | U |
| 1 | A | 1209 | C |
| 1 | A | 1212 | U |
| 1 | A | 1213 | A |
| 1 | A | 1214 | C |
| 1 | A | 1215 | G |
| 1 | A | 1225 | A |
| 1 | A | 1226 | C |
| 1 | A | 1227 | A |
| 1 | A | 1228 | C |
| 1 | A | 1238 | A |
| 1 | A | 1240 | U |
| 1 | A | 1241 | G |
| 1 | A | 1253 | G |
| 1 | A | 1256 | A |
| 1 | A | 1258 | G |
| 1 | A | 1261 | A |
| 1 | A | 1270 | G |
| 1 | A | 1278 | G |
| 1 | A | 1279 | G |
| 1 | A | 1280 | A |
| 1 | A | 1281 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 1285 | A |
| 1 | A | 1286 | U |
| 1 | A | 1287 | A |
| 1 | A | 1298 | U |
| 1 | A | 1300 | G |
| 1 | A | 1301 | U |
| 1 | A | 1305 | G |
| 1 | A | 1316 | G |
| 1 | A | 1317 | C |
| 1 | A | 1320 | C |
| 1 | A | 1322 | C |
| 1 | A | 1323 | G |
| 1 | A | 1336 | C |
| 1 | A | 1338 | G |
| 1 | A | 1346 | A |
| 1 | A | 1347 | G |
| 1 | A | 1353 | G |
| 1 | A | 1362 | A |
| 1 | A | 1363 | A |
| 1 | A | 1364 | U |
| 1 | A | 1378 | C |
| 1 | A | 1379 | G |
| 1 | A | 1380 | U |
| 1 | A | 1381 | U |
| 1 | A | 1507 | A |
| 1 | A | 1517 | G |
| 1 | A | 1519 | A |
| 1 | A | 1520 | C |
| 1 | A | 1529 | G |
| 1 | A | 1530 | G |
| 1 | A | 1533 | C |
| 1 | A | 1534 | A |

All (24) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 51 | A |
| 1 | A | 60 | A |
| 1 | A | 243 | A |
| 1 | A | 279 | A |
| 1 | A | 328 | C |
| 1 | A | 366 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 372 | C |
| 1 | A | 428 | G |
| 1 | A | 429 | U |
| 1 | A | 484 | G |
| 1 | A | 576 | C |
| 1 | A | 913 | A |
| 1 | A | 960 | U |
| 1 | A | 975 | A |
| 1 | A | 1025 | U |
| 1 | A | 1049 | U |
| 1 | A | 1065 | U |
| 1 | A | 1101 | A |
| 1 | A | 1181 | G |
| 1 | A | 1201 | A |
| 1 | A | 1226 | C |
| 1 | A | 1300 | G |
| 1 | A | 1302 | C |
| 1 | A | 1528 | U |

## 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)

There are no ligands in this entry.

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|---|---|---|
| 21 | U | 2 |
| 1 | A | 1 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | A | 929:G | O3' | 930:C | P | 7.59 |
| 1 | U | 25:ALA | C | 26:GLY | N | 1.16 |
| 1 | U | 15:LEU | C | 16:ARG | N | 0.99 |

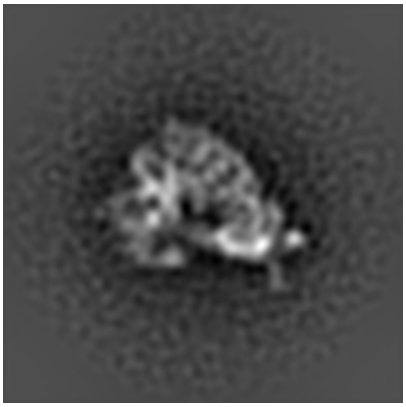
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-2017. These allow visual inspection of the internal detail of the map and identification of artifacts.

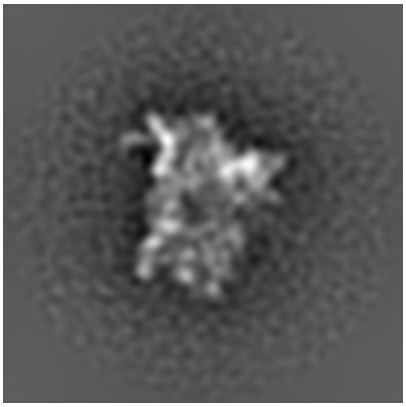
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

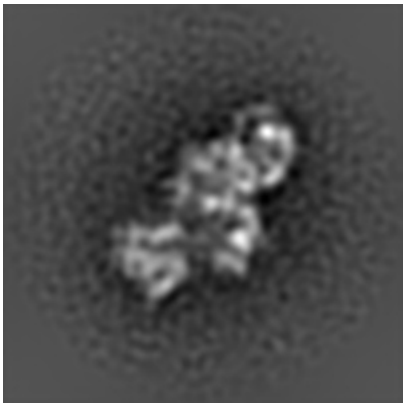
### 6.1.1 Primary map



X



Y

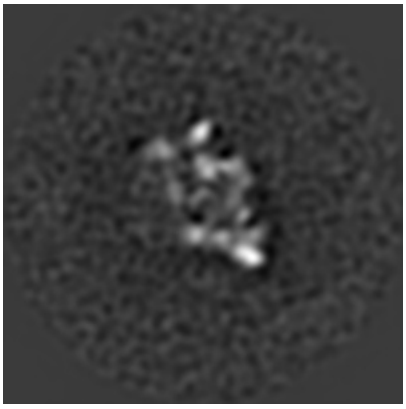


Z

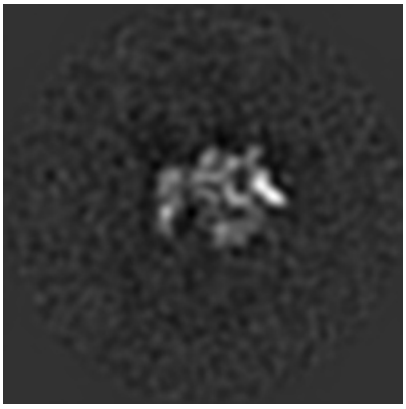
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

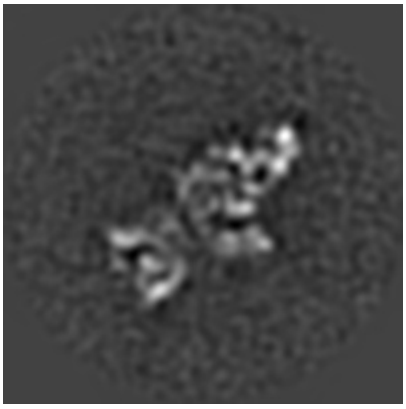
### 6.2.1 Primary map



X Index: 64



Y Index: 64

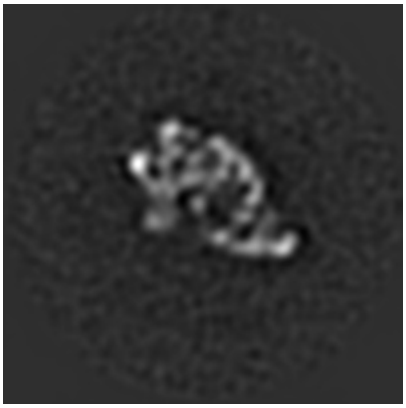


Z Index: 64

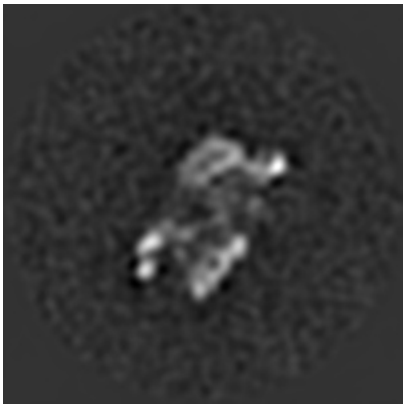
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

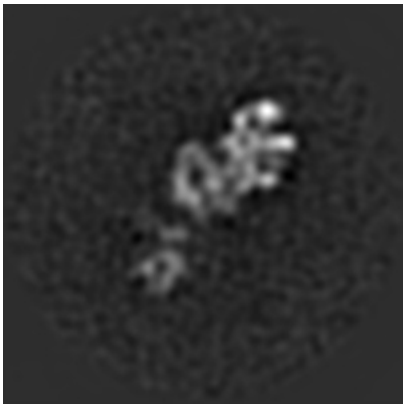
### 6.3.1 Primary map



X Index: 75



Y Index: 53

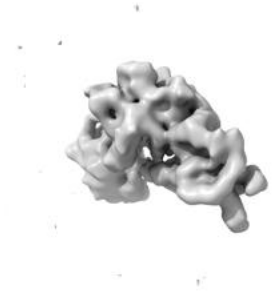


Z Index: 51

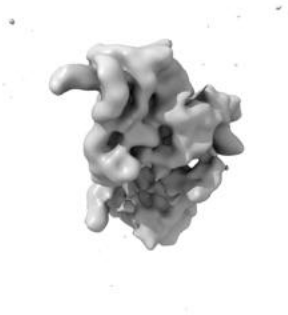
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views (i)

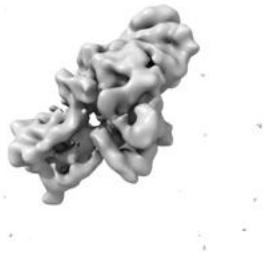
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 39.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

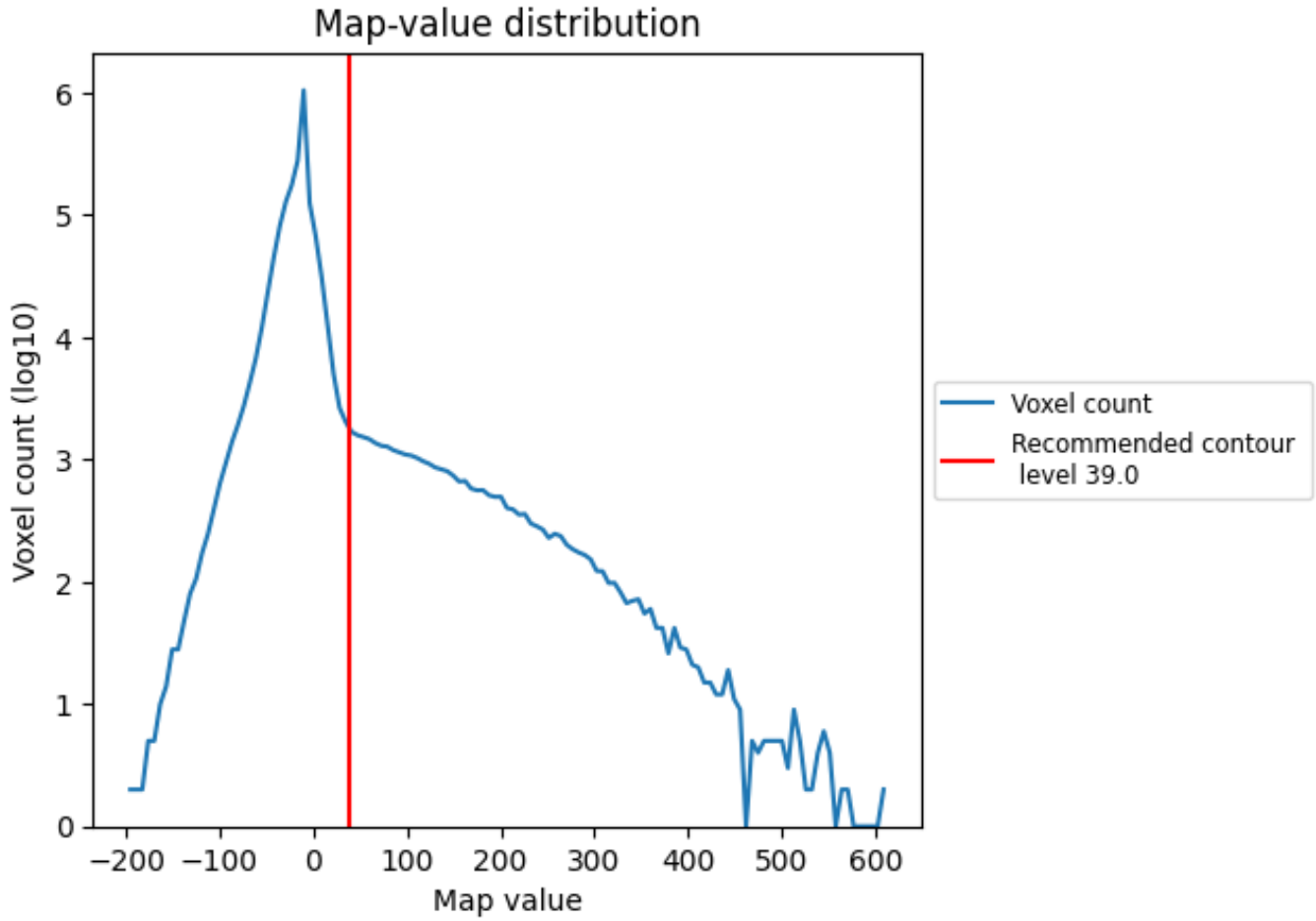
## 6.5 Mask visualisation (i)

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

# 7 Map analysis

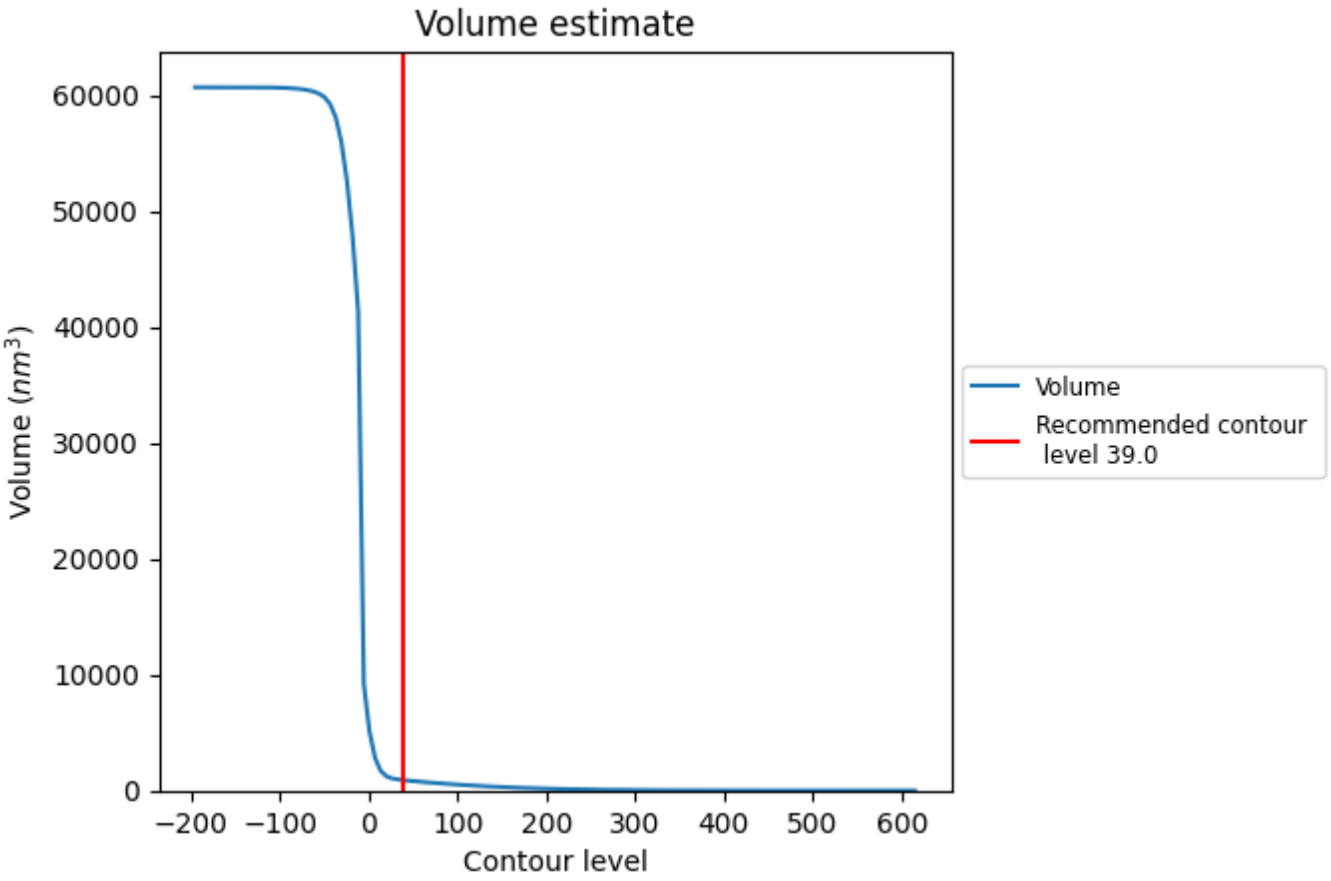
This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution




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

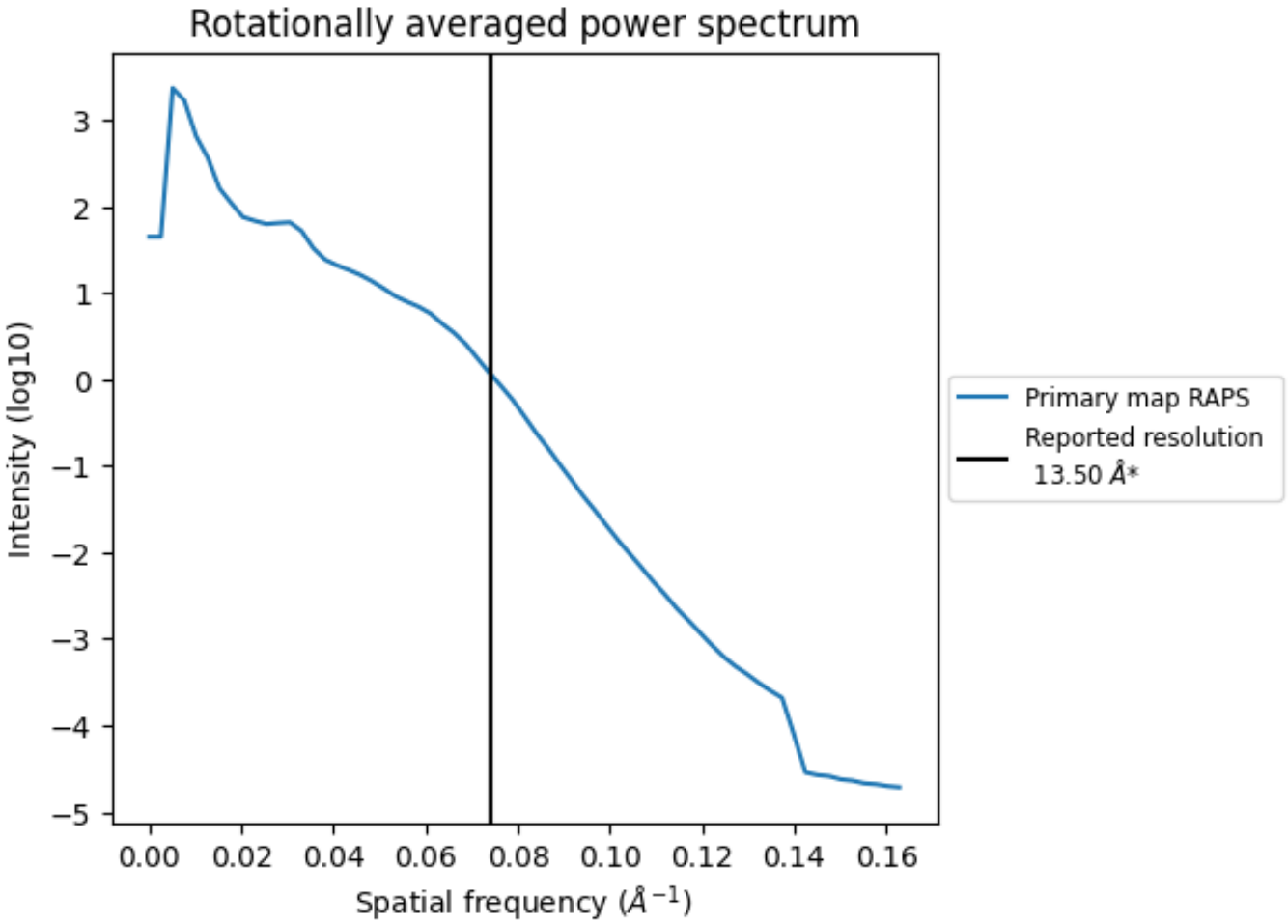
## 7.2 Volume estimate




The volume at the recommended contour level is 902 $nm^3$; this corresponds to an approximate mass of 815 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 0.074 Å$^{-1}$

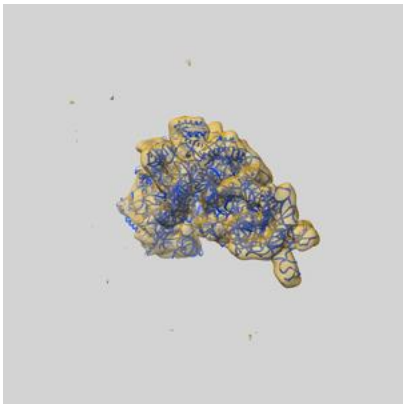
# 8 Fourier-Shell correlation

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

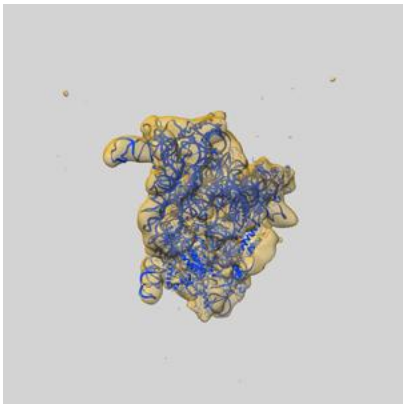
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-2017 and PDB model 4ADV. Per-residue inclusion information can be found in section 3 on page 8.

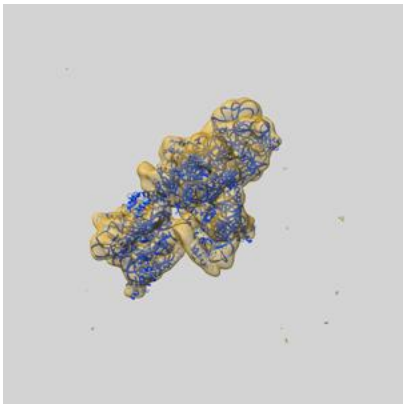
## 9.1 Map-model overlay



X



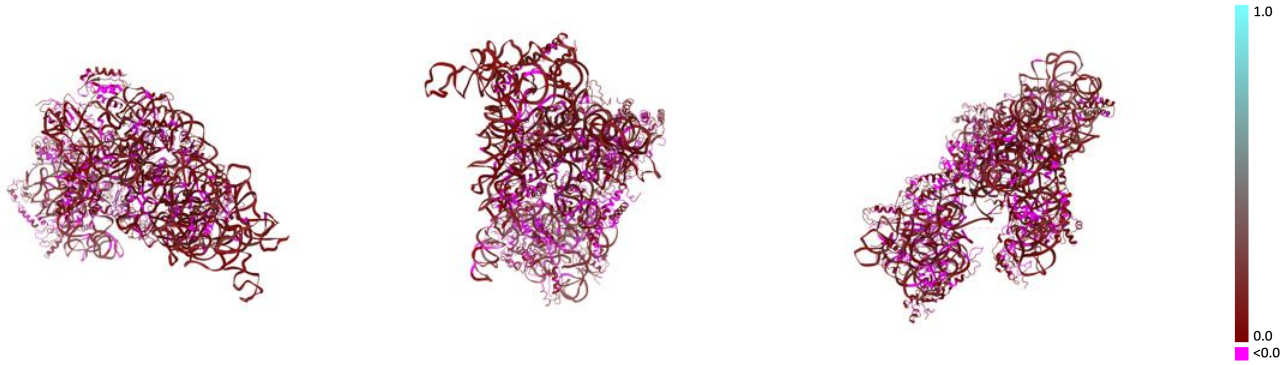
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 39.0 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.

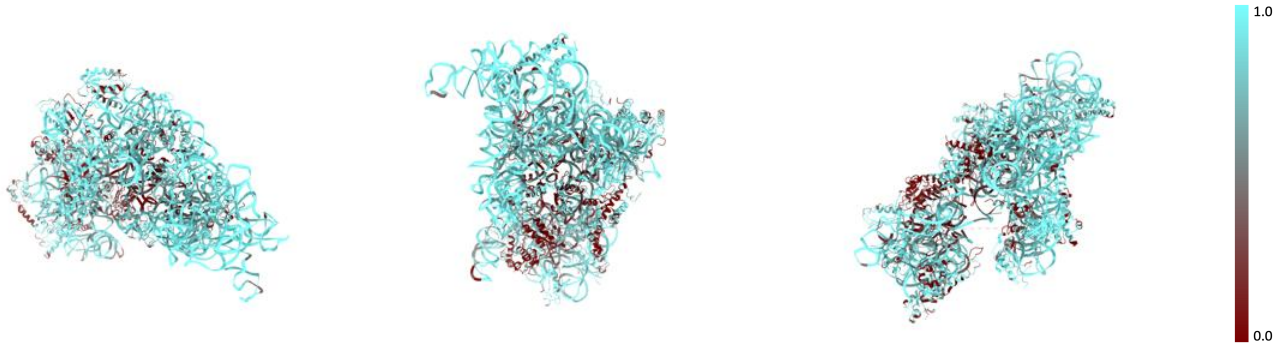
## 9.2 Q-score mapped to coordinate model




X Y Z

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

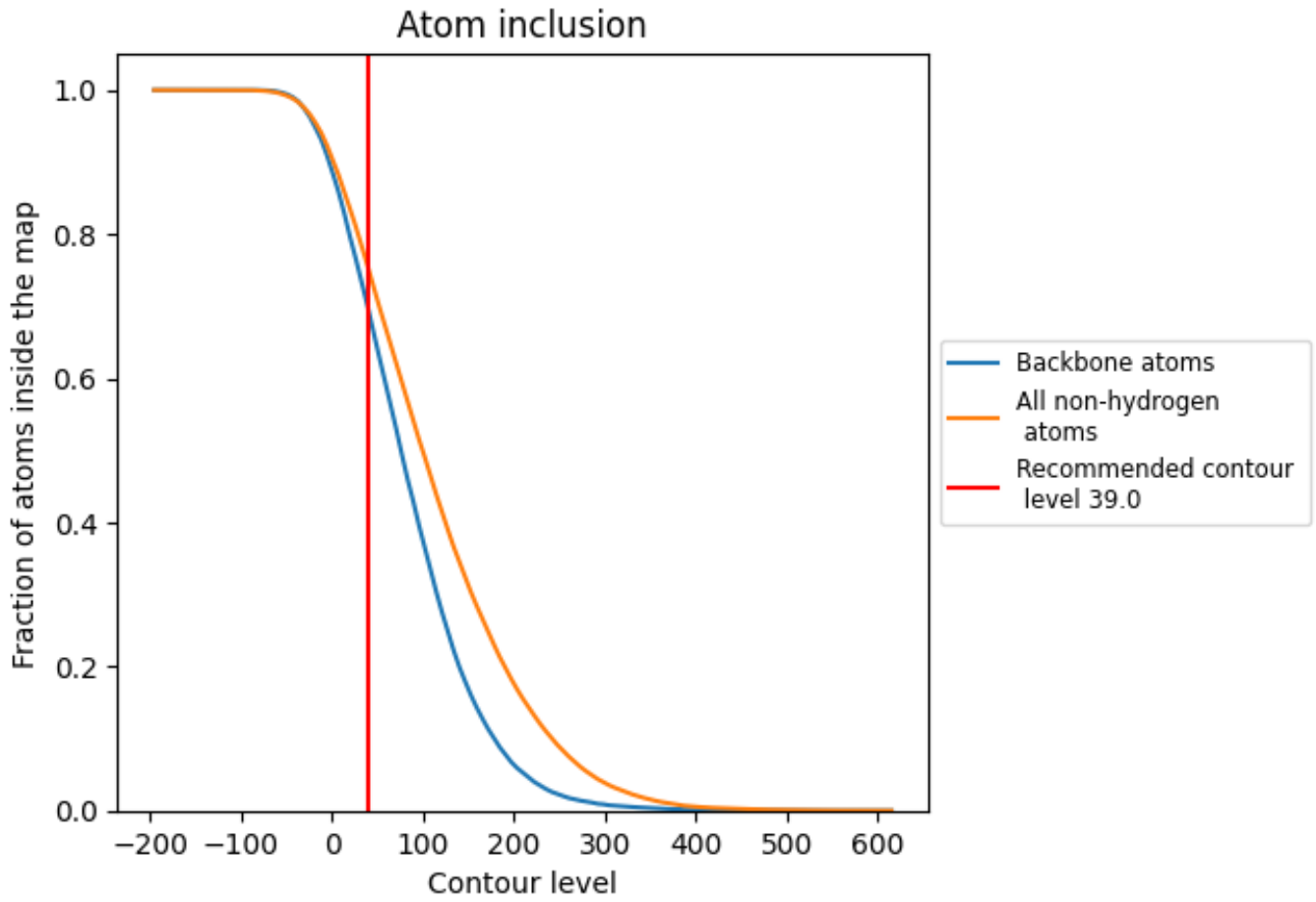
## 9.3 Atom inclusion mapped to coordinate model




X Y Z

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 (39.0).

## 9.4 Atom inclusion (i)




At the recommended contour level, 70% of all backbone atoms, 76% 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 (39.0) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.7570 | 0.0610 |
| A | 0.8594 | 0.0810 |
| B | 0.4824 | 0.0100 |
| C | 0.1217 | 0.0090 |
| D | 0.6610 | 0.0230 |
| E | 0.4718 | 0.0700 |
| F | 0.7613 | 0.0440 |
| G | 0.4547 | 0.0460 |
| H | 0.7323 | 0.0370 |
| I | 0.6691 | 0.0260 |
| J | 0.6557 | 0.0130 |
| K | 0.7175 | 0.0360 |
| L | 0.6895 | 0.0310 |
| M | 0.6287 | 0.0300 |
| N | 0.3324 | -0.0020 |
| O | 0.8217 | 0.0540 |
| P | 0.5885 | 0.0130 |
| Q | 0.6899 | 0.0790 |
| R | 0.6743 | 0.0040 |
| S | 0.8213 | 0.0420 |
| T | 0.8108 | 0.0440 |
| U | 0.2562 | 0.0160 |
| V | 0.8288 | 0.0480 |