



## Full wwPDB EM Validation Report ⓘ

Jan 5, 2026 – 04:10 PM JST

PDB ID : 9XCF / pdb\_00009xcf  
EMDB ID : EMD-66729  
Title : Cryo-EM structure of csy3 with crRNA  
Authors : Gao, X.; Cui, S.; Zhu, H.; Zhu, K.  
Deposited on : 2025-10-25  
Resolution : 4.58 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

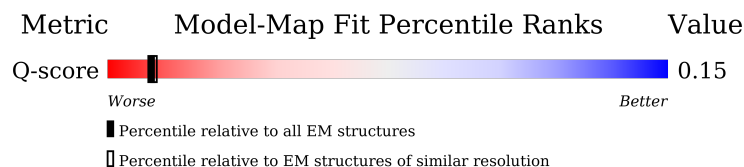
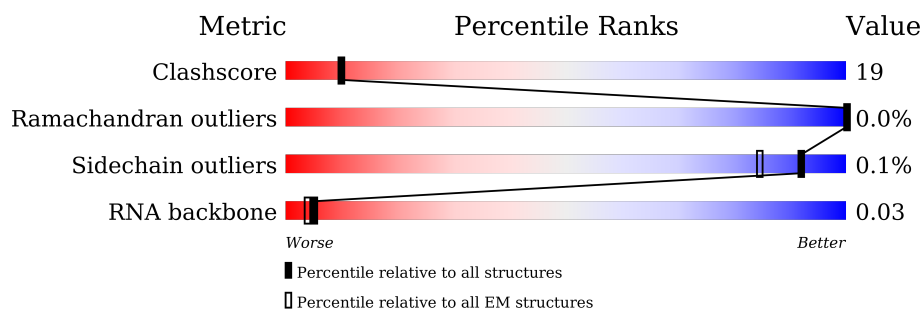
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.58 Å.

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



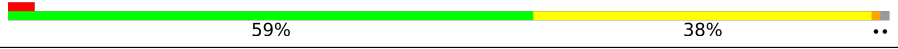
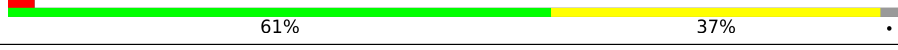
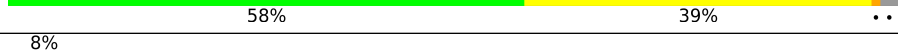
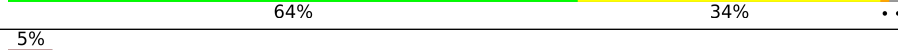
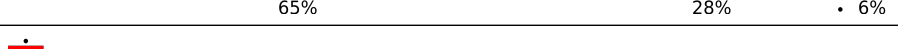
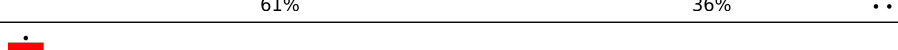
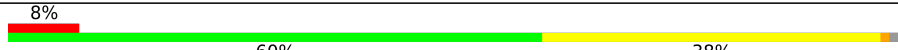
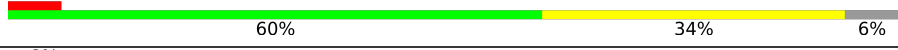
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 210492                      | 15764                       | -                                                        |
| Ramachandran outliers | 207382                      | 16835                       | -                                                        |
| Sidechain outliers    | 206894                      | 16415                       | -                                                        |
| RNA backbone          | 6643                        | 2191                        | -                                                        |
| Q-score               | -                           | 25397                       | 2398 ( 4.08 - 5.08 )                                     |

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

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 1   | A     | 337    |  |
| 1   | B     | 337    |  |
| 1   | C     | 337    |  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 1   | D     | 337    |    |
| 1   | E     | 337    |    |
| 1   | F     | 337    |    |
| 1   | G     | 337    |    |
| 1   | H     | 337    |    |
| 1   | I     | 337    |    |
| 1   | J     | 337    |    |
| 1   | K     | 337    |    |
| 1   | L     | 337    |    |
| 1   | N     | 337    |    |
| 1   | O     | 337    |    |
| 1   | P     | 337    |  |
| 1   | Q     | 337    |  |
| 1   | S     | 337    |  |
| 1   | T     | 337    |  |
| 1   | U     | 337    |  |
| 1   | V     | 337    |  |
| 1   | W     | 337    |  |
| 1   | Y     | 337    |  |
| 1   | Z     | 337    |  |
| 1   | a     | 337    |  |
| 1   | b     | 337    |  |
| 1   | f     | 337    |  |
| 1   | i     | 337    |  |
| 1   | o     | 337    |  |

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| Mol | Chain | Length | Quality of chain                                                                         |
|-----|-------|--------|------------------------------------------------------------------------------------------|
| 1   | p     | 337    | <div><div></div><div>9%</div><div>70%</div><div>28%</div><div></div></div>               |
| 1   | q     | 337    | <div><div></div><div>11%</div><div>74%</div><div>20%</div><div>6%</div><div></div></div> |
| 2   | M     | 185    | <div><div></div><div>19%</div><div>81%</div><div></div></div>                            |

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 155526 atoms, of which 75360 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called CRISPR-associated protein Csy3.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 1   | A     | 325      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5001  | 1587 | 2487 | 439 | 485 | 3 |         |       |
| 1   | C     | 330      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5091  | 1614 | 2532 | 448 | 493 | 4 |         |       |
| 1   | D     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5097  | 1618 | 2531 | 449 | 495 | 4 |         |       |
| 1   | E     | 332      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5119  | 1622 | 2546 | 450 | 497 | 4 |         |       |
| 1   | F     | 332      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5119  | 1622 | 2546 | 450 | 497 | 4 |         |       |
| 1   | G     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5105  | 1618 | 2539 | 449 | 495 | 4 |         |       |
| 1   | I     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5105  | 1618 | 2539 | 449 | 495 | 4 |         |       |
| 1   | J     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5105  | 1618 | 2539 | 449 | 495 | 4 |         |       |
| 1   | K     | 330      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5091  | 1614 | 2532 | 448 | 493 | 4 |         |       |
| 1   | L     | 317      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4896  | 1553 | 2433 | 433 | 473 | 4 |         |       |
| 1   | B     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5094  | 1616 | 2530 | 449 | 495 | 4 |         |       |
| 1   | H     | 328      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5050  | 1602 | 2511 | 442 | 491 | 4 |         |       |
| 1   | N     | 331      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5105  | 1618 | 2539 | 449 | 495 | 4 |         |       |
| 1   | O     | 330      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5081  | 1612 | 2526 | 447 | 492 | 4 |         |       |
| 1   | P     | 317      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4896  | 1553 | 2433 | 433 | 473 | 4 |         |       |
| 1   | Q     | 323      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4960  | 1576 | 2466 | 433 | 482 | 3 |         |       |
| 1   | S     | 330      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5091  | 1614 | 2532 | 448 | 493 | 4 |         |       |

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| Mol | Chain | Residues | Atoms         |           |           |          |          |        | AltConf | Trace |
|-----|-------|----------|---------------|-----------|-----------|----------|----------|--------|---------|-------|
| 1   | T     | 331      | Total<br>5097 | C<br>1618 | H<br>2531 | N<br>449 | O<br>495 | S<br>4 | 0       | 0     |
| 1   | U     | 332      | Total<br>5119 | C<br>1622 | H<br>2546 | N<br>450 | O<br>497 | S<br>4 | 0       | 0     |
| 1   | V     | 332      | Total<br>5119 | C<br>1622 | H<br>2546 | N<br>450 | O<br>497 | S<br>4 | 0       | 0     |
| 1   | W     | 331      | Total<br>5105 | C<br>1618 | H<br>2539 | N<br>449 | O<br>495 | S<br>4 | 0       | 0     |
| 1   | Y     | 331      | Total<br>5105 | C<br>1618 | H<br>2539 | N<br>449 | O<br>495 | S<br>4 | 0       | 0     |
| 1   | Z     | 331      | Total<br>5105 | C<br>1618 | H<br>2539 | N<br>449 | O<br>495 | S<br>4 | 0       | 0     |
| 1   | a     | 330      | Total<br>5091 | C<br>1614 | H<br>2532 | N<br>448 | O<br>493 | S<br>4 | 0       | 0     |
| 1   | b     | 317      | Total<br>4896 | C<br>1553 | H<br>2433 | N<br>433 | O<br>473 | S<br>4 | 0       | 0     |
| 1   | f     | 317      | Total<br>4896 | C<br>1553 | H<br>2433 | N<br>433 | O<br>473 | S<br>4 | 0       | 0     |
| 1   | i     | 322      | Total<br>4940 | C<br>1567 | H<br>2457 | N<br>432 | O<br>481 | S<br>3 | 0       | 0     |
| 1   | o     | 331      | Total<br>5105 | C<br>1618 | H<br>2539 | N<br>449 | O<br>495 | S<br>4 | 0       | 0     |
| 1   | p     | 330      | Total<br>5091 | C<br>1614 | H<br>2532 | N<br>448 | O<br>493 | S<br>4 | 0       | 0     |
| 1   | q     | 317      | Total<br>4896 | C<br>1553 | H<br>2433 | N<br>433 | O<br>473 | S<br>4 | 0       | 0     |

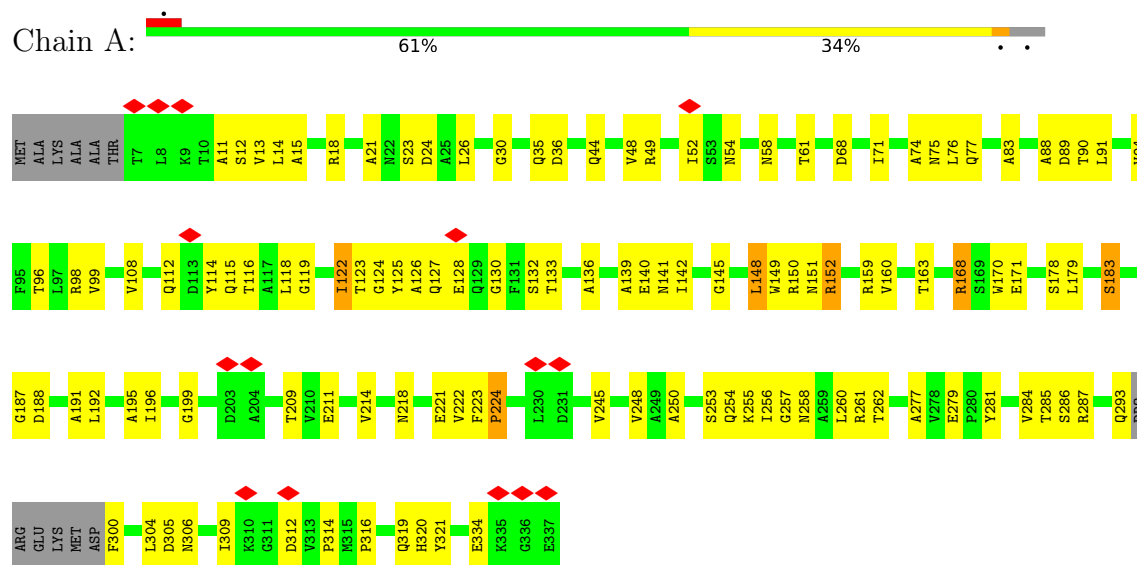
- Molecule 2 is a RNA chain called RNA (185-MER).

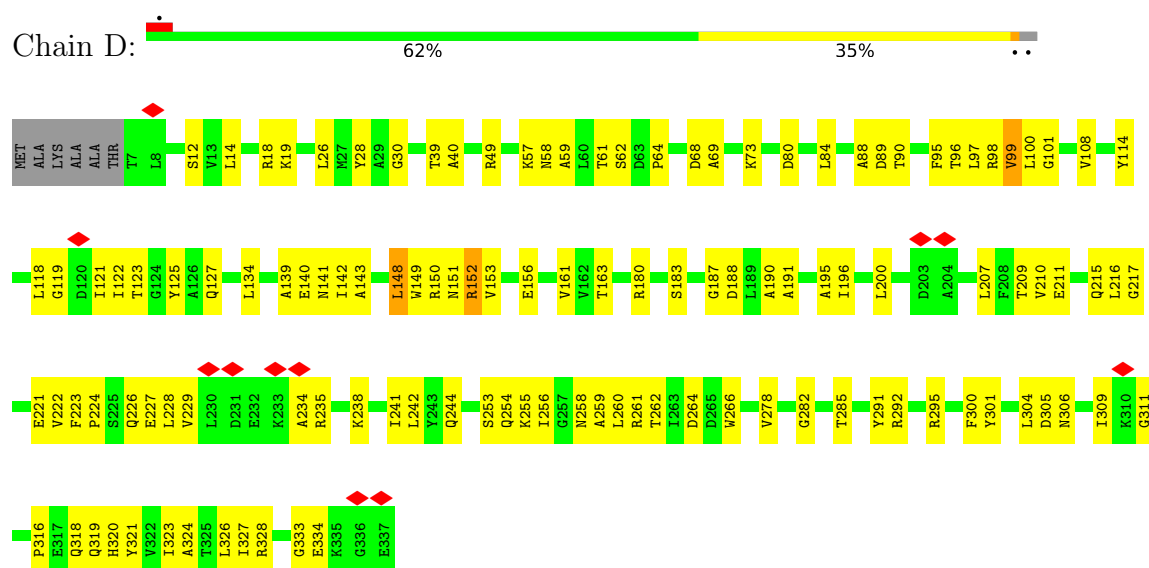
| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 2   | M     | 185      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3955  | 1771 | 731 | 1268 | 185 |         |       |

### 3 Residue-property plots

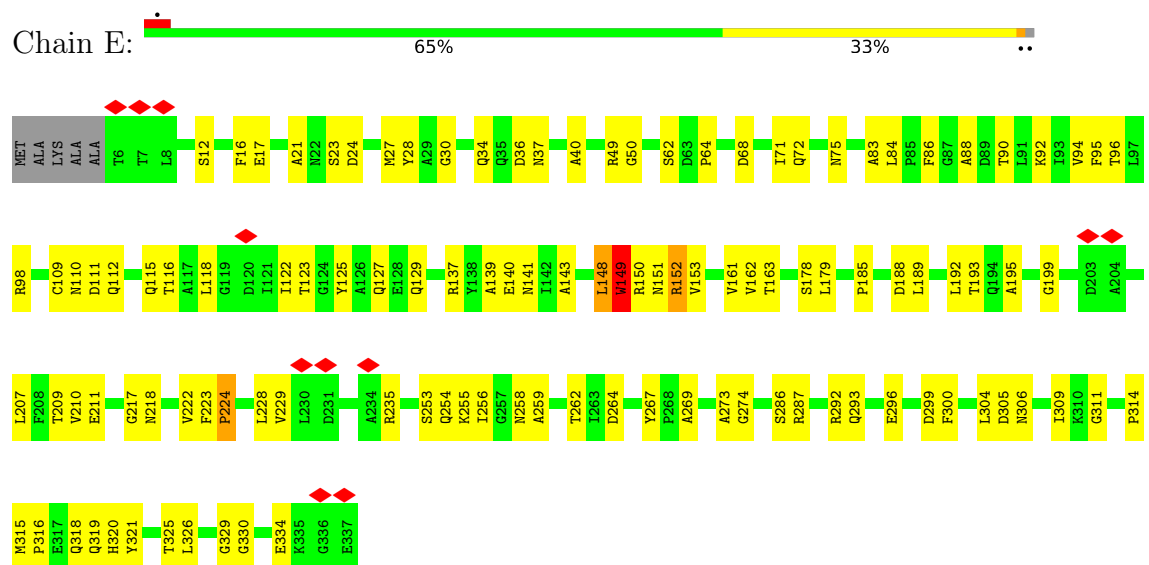
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

#### • Molecule 1: CRISPR-associated protein Csy3

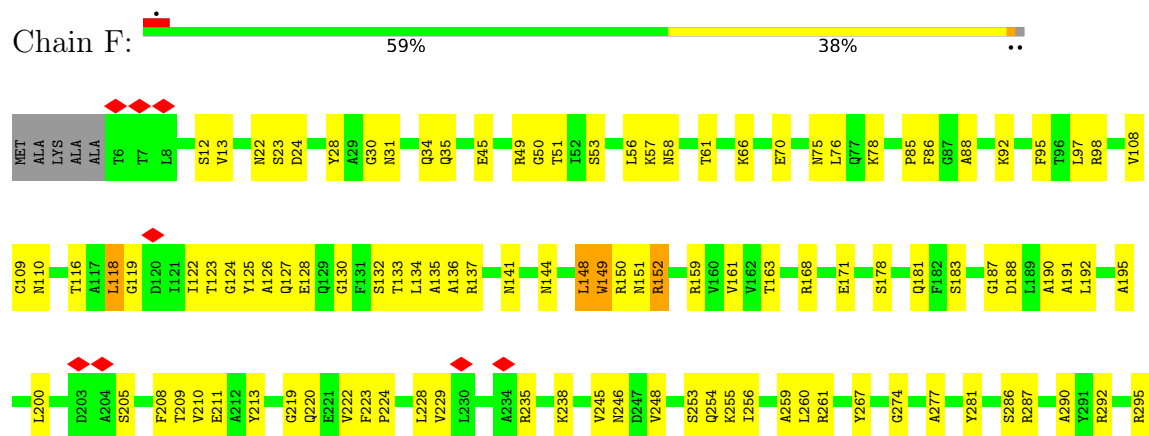




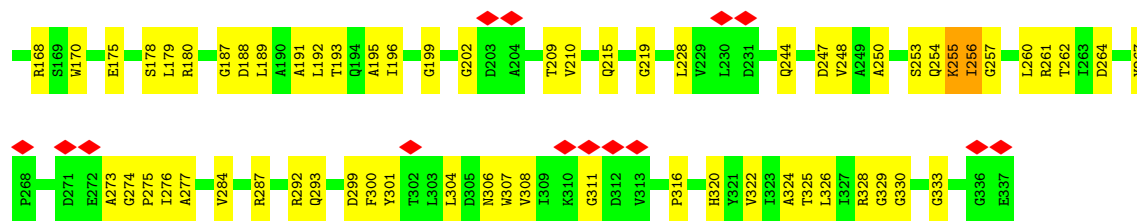
• Molecule 1: CRISPR-associated protein Csy3



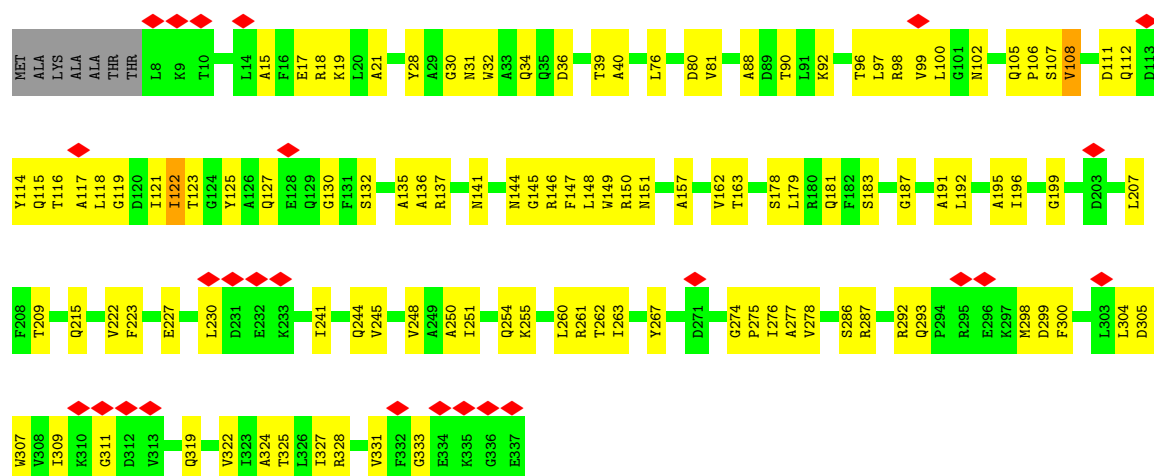
• Molecule 1: CRISPR-associated protein Csy3



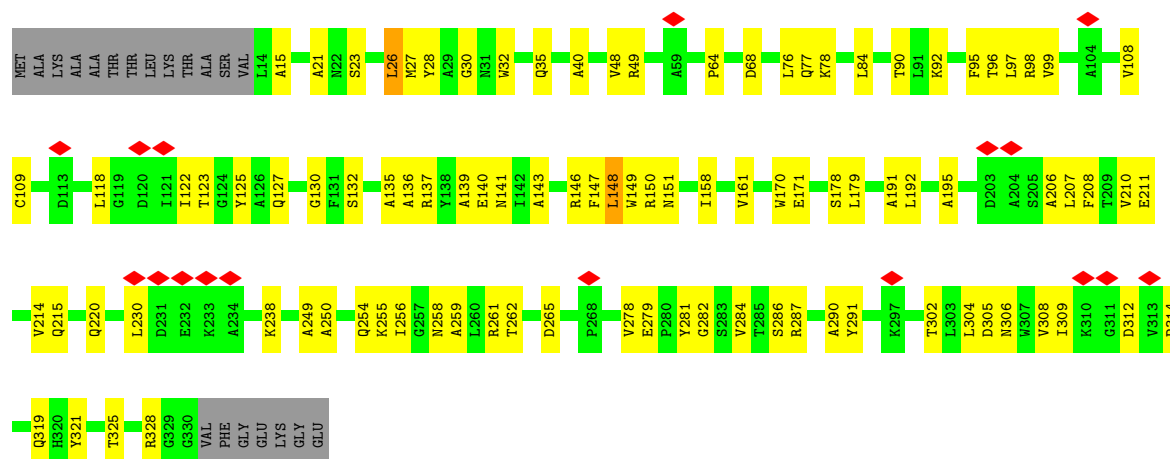




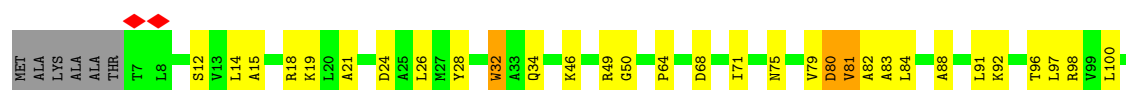
• Molecule 1: CRISPR-associated protein Csy3

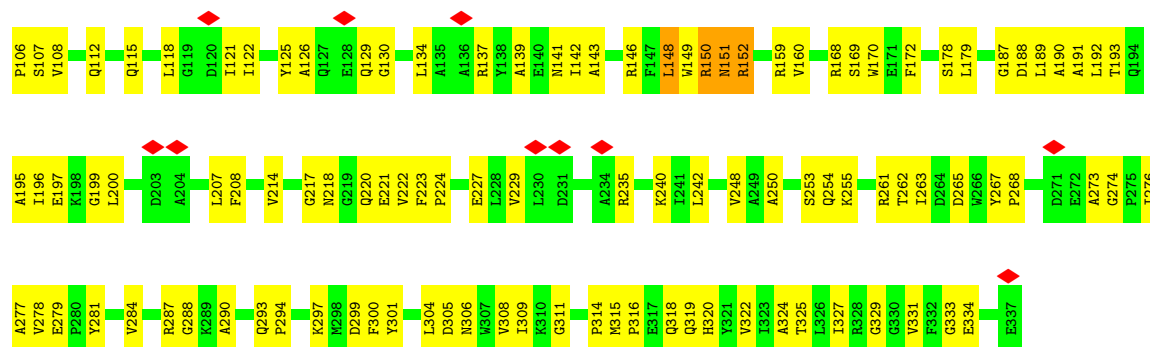


• Molecule 1: CRISPR-associated protein Csy3



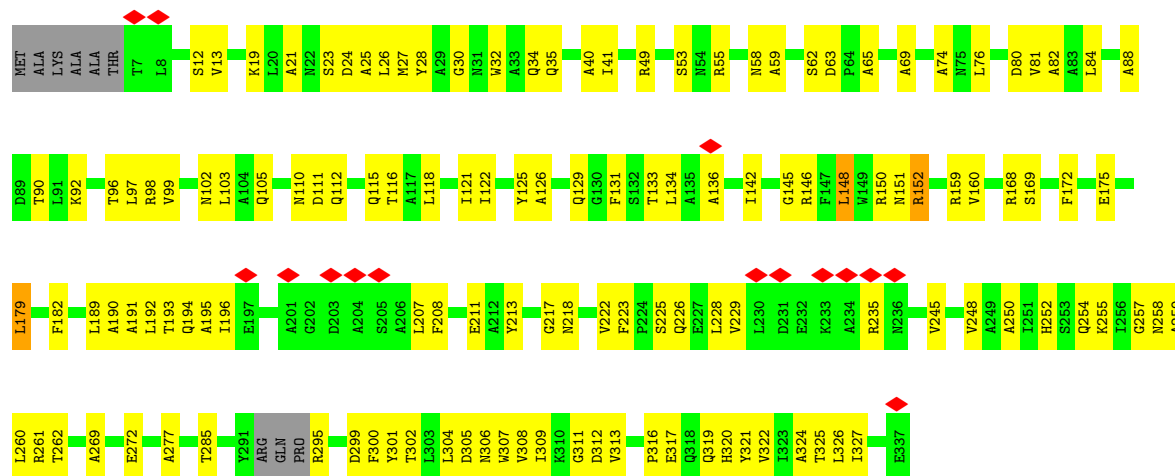
• Molecule 1: CRISPR-associated protein Csy3





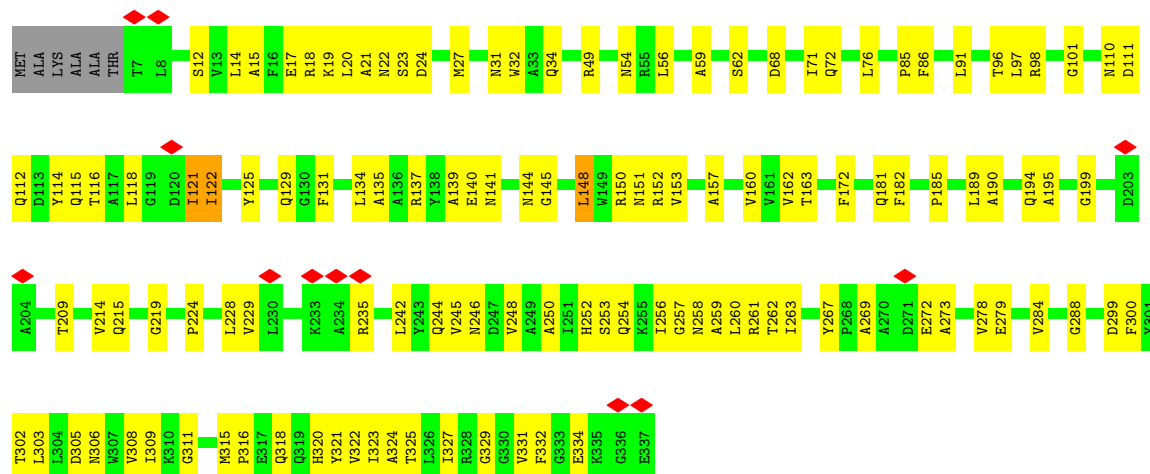
• Molecule 1: CRISPR-associated protein Csy3

Chain H: 58% 38%

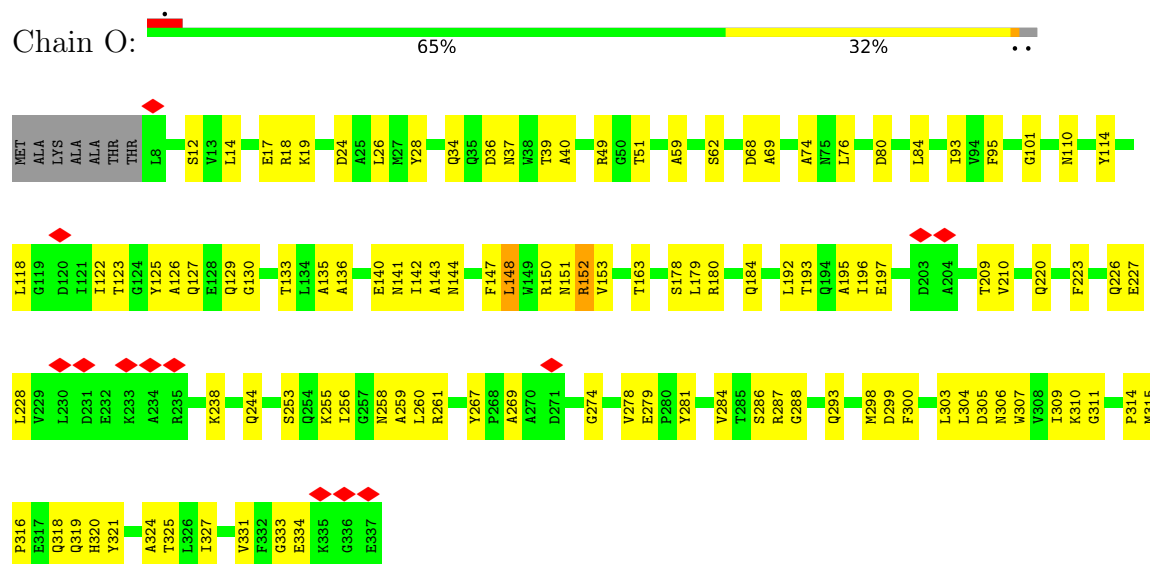


• Molecule 1: CRISPR-associated protein Csy3

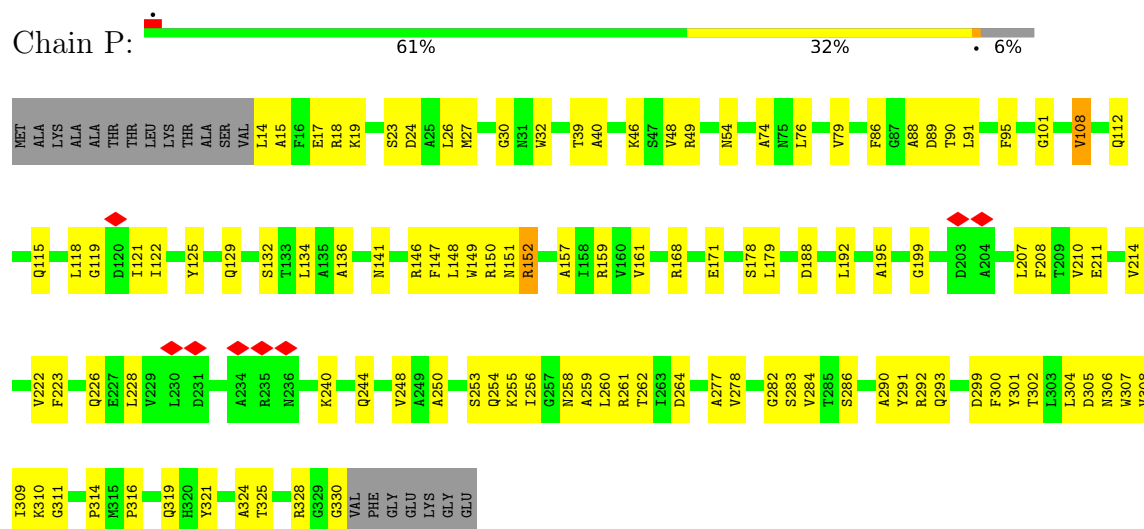
Chain N: 61% 36%



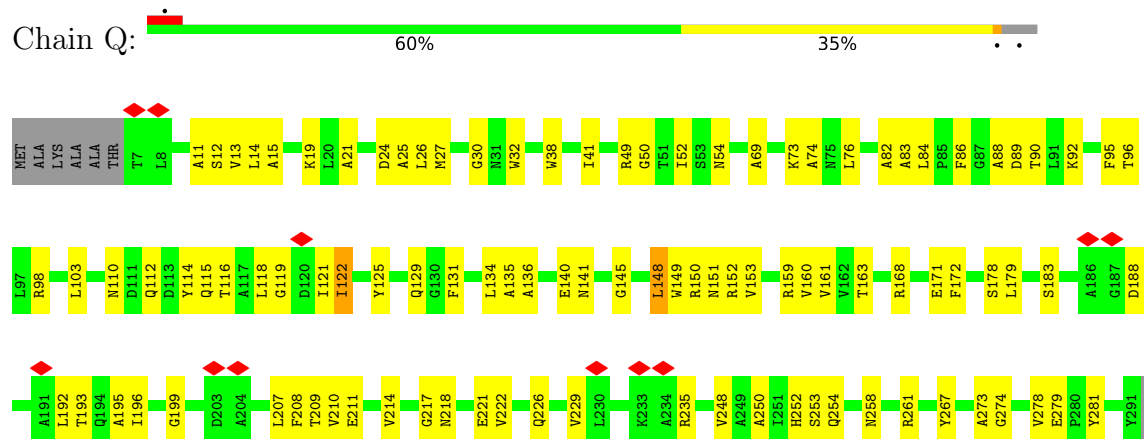
• Molecule 1: CRISPR-associated protein Csy3



• Molecule 1: CRISPR-associated protein Csy3

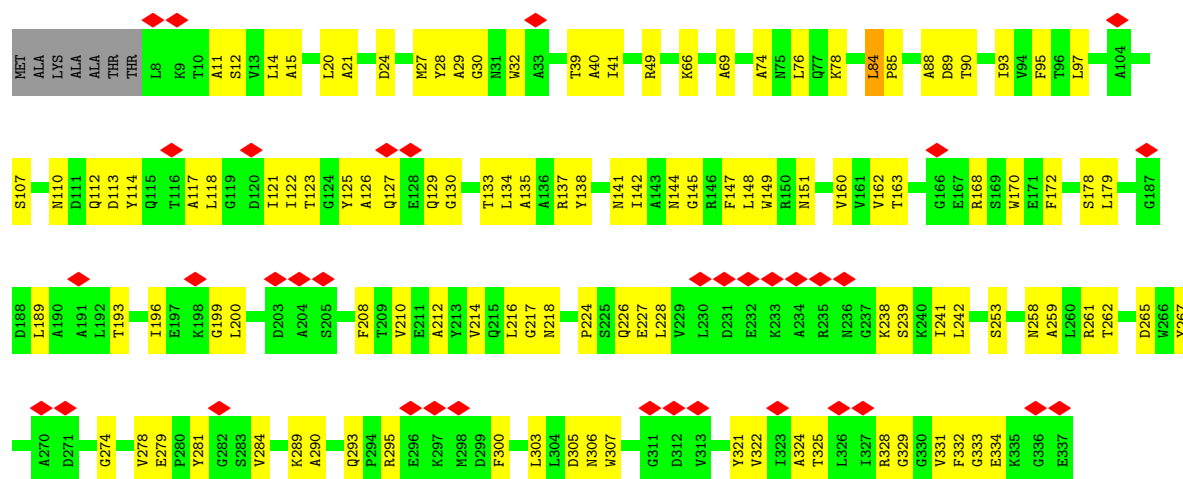


• Molecule 1: CRISPR-associated protein Csy3

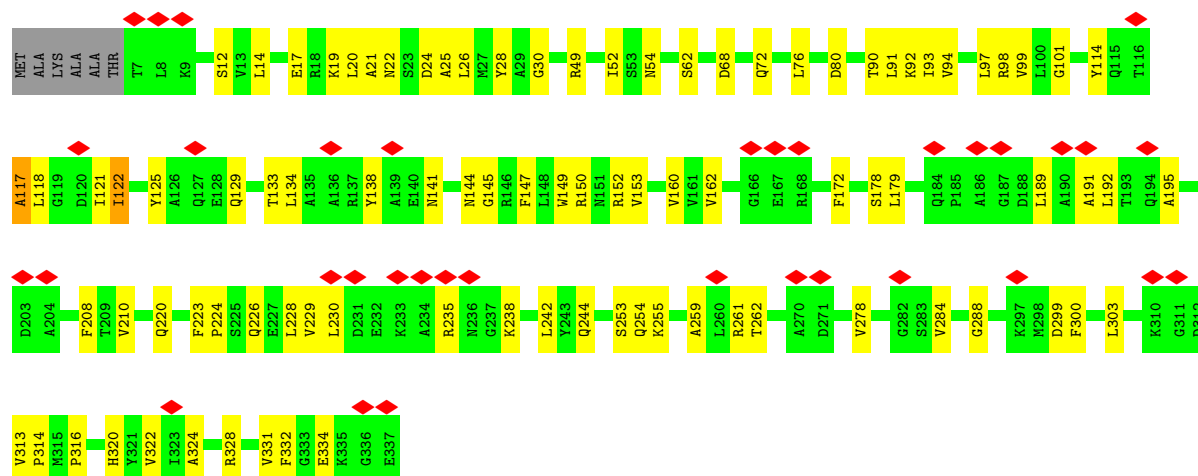




• Molecule 1: CRISPR-associated protein Csy3

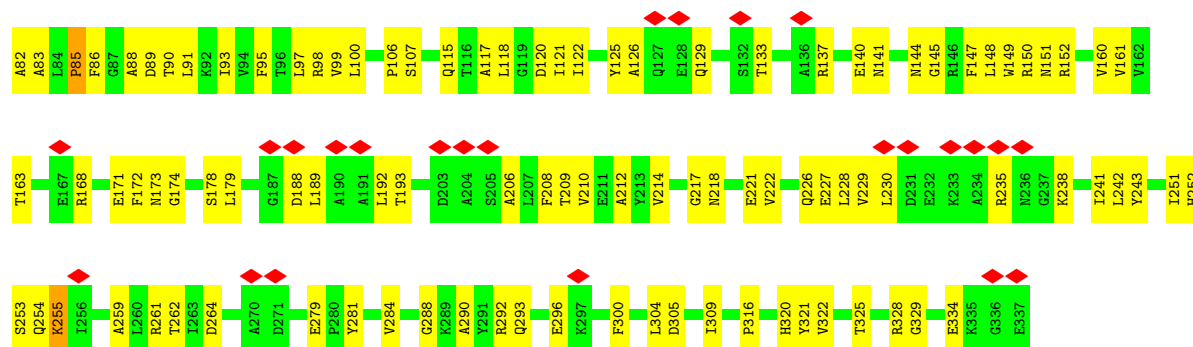


• Molecule 1: CRISPR-associated protein Csy3

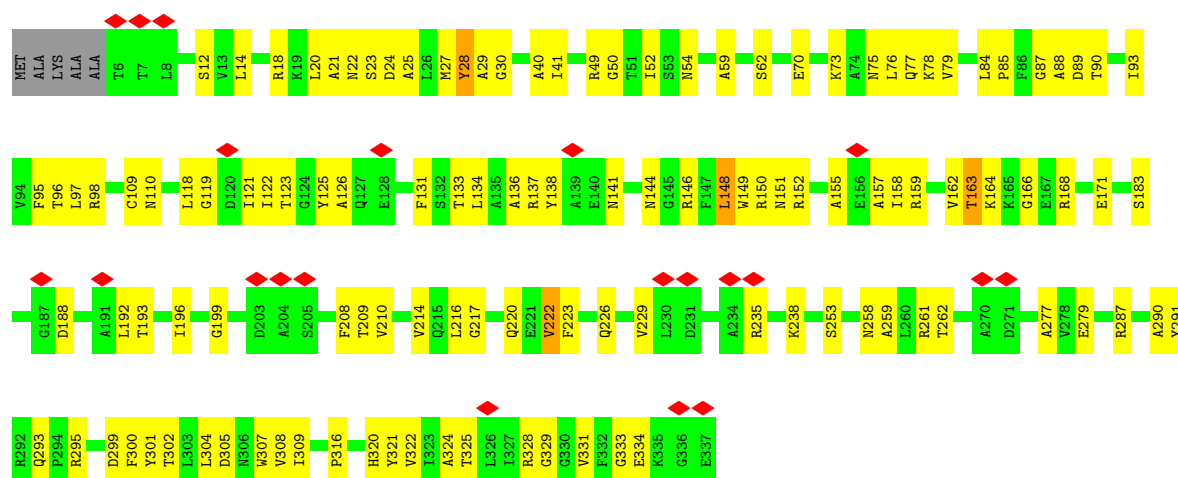


• Molecule 1: CRISPR-associated protein Csy3

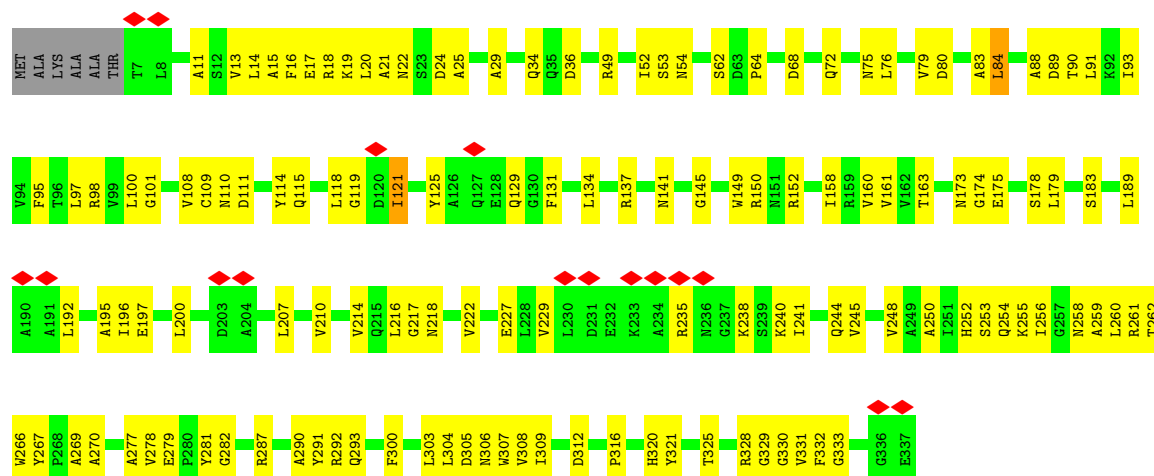




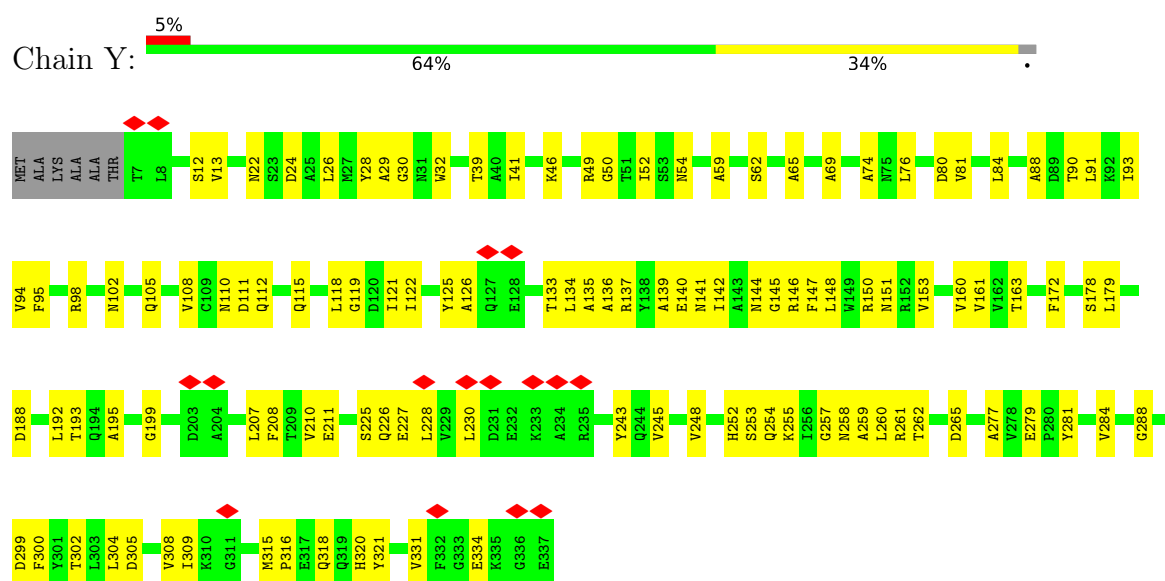
• Molecule 1: CRISPR-associated protein Csy3



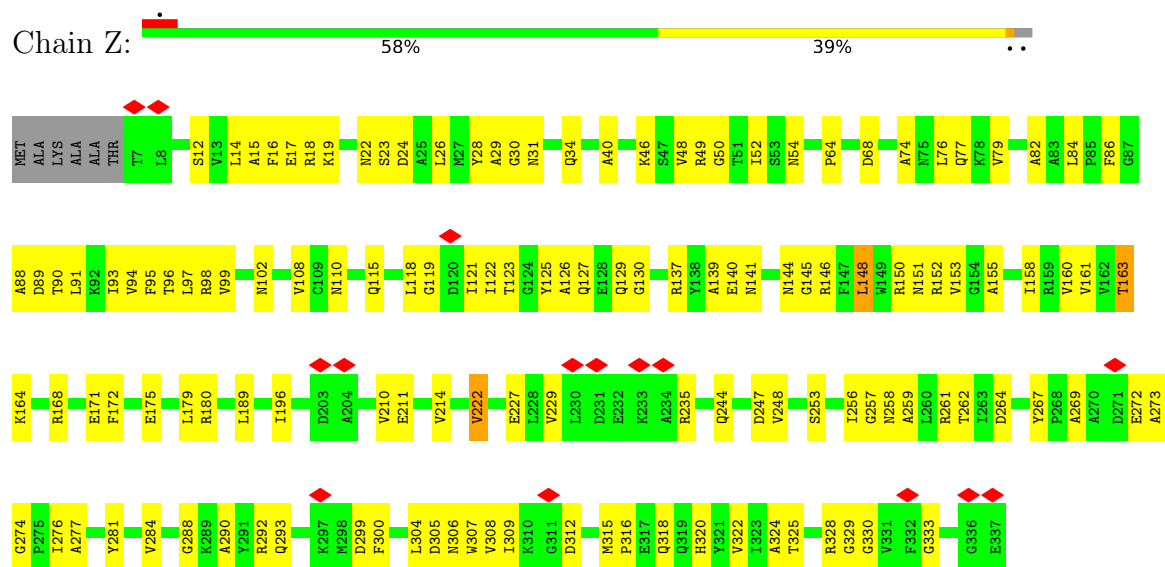
• Molecule 1: CRISPR-associated protein Csy3



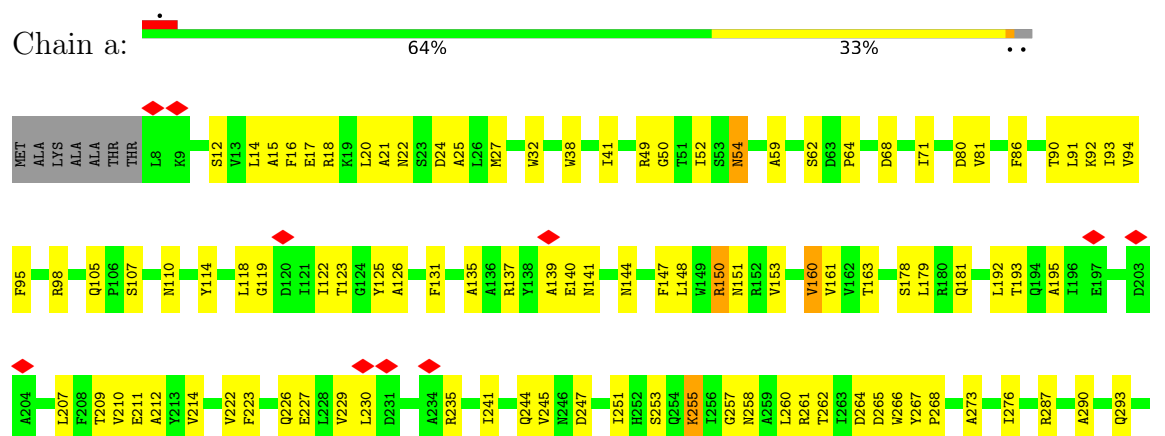
• Molecule 1: CRISPR-associated protein Csy3



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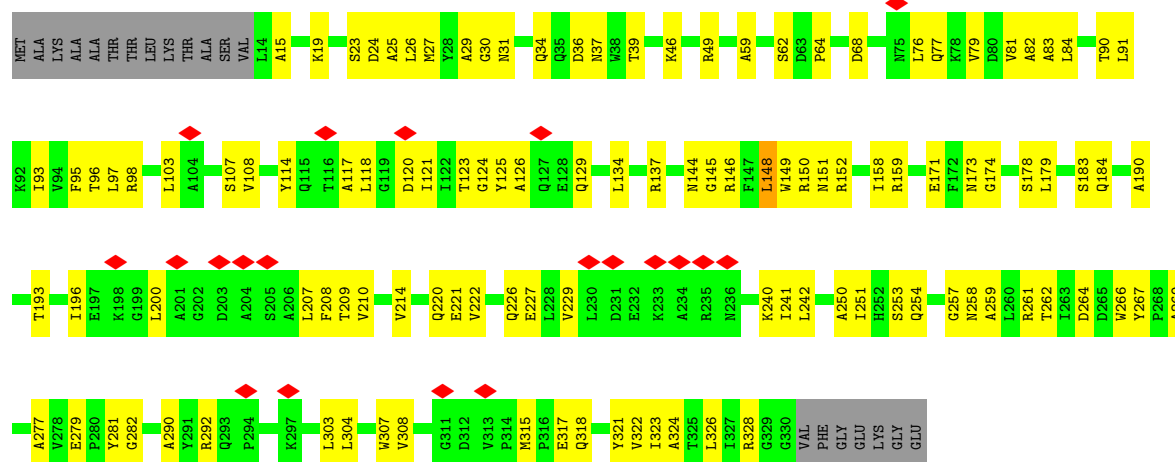


• Molecule 1: CRISPR-associated protein Csy3

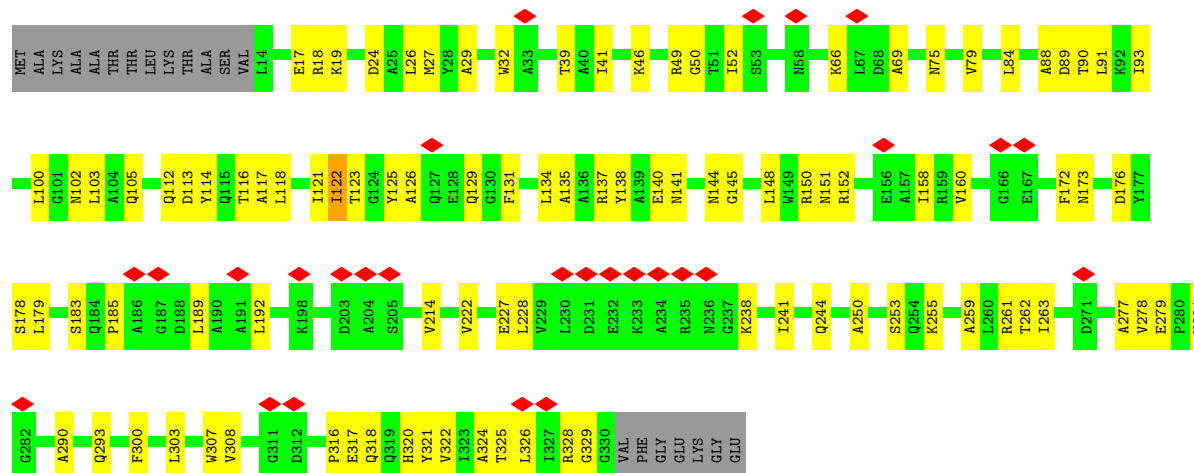




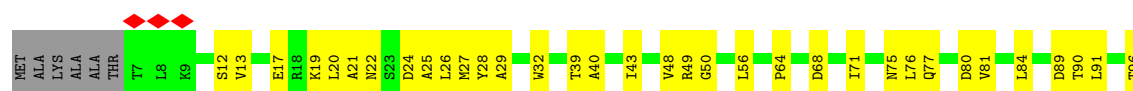
• Molecule 1: CRISPR-associated protein Csy3

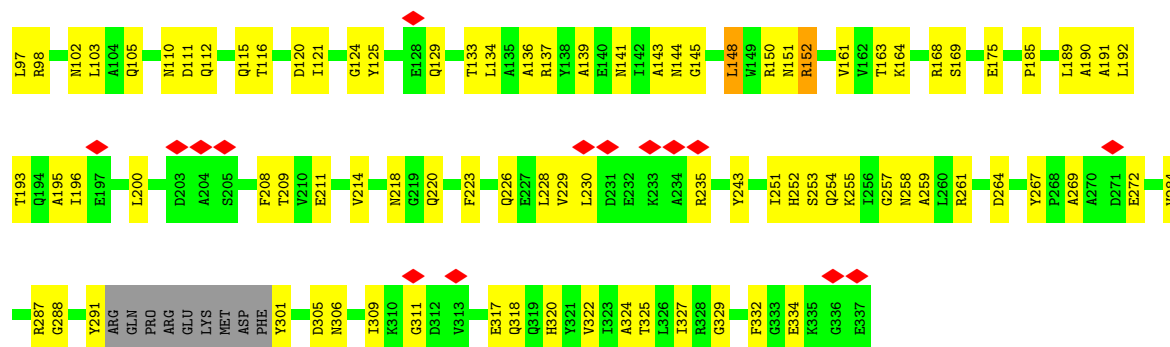


• Molecule 1: CRISPR-associated protein Csy3

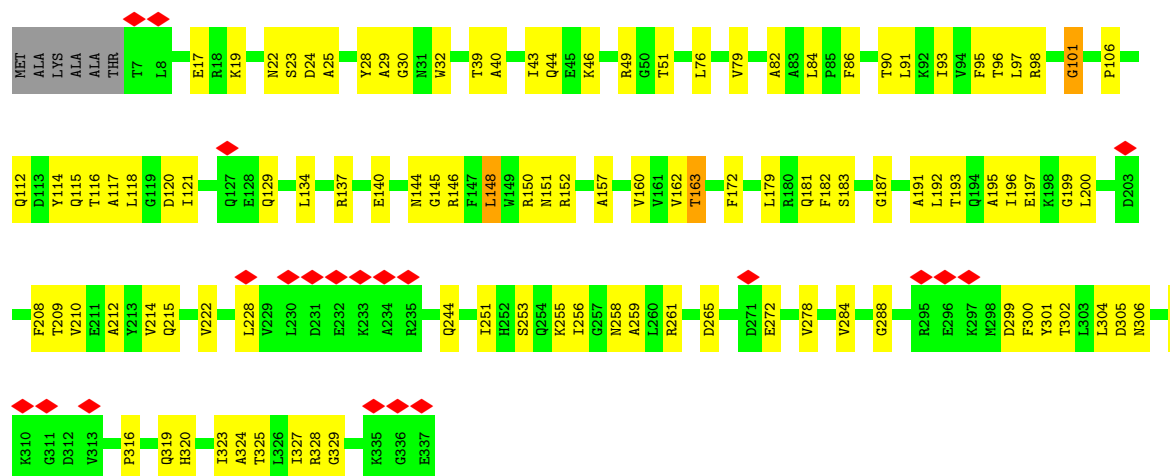


• Molecule 1: CRISPR-associated protein Csy3

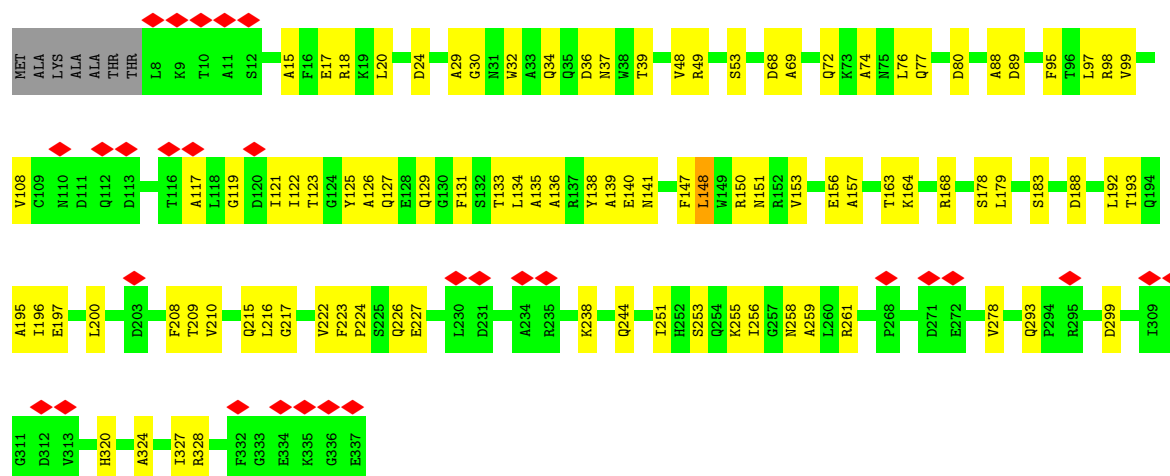




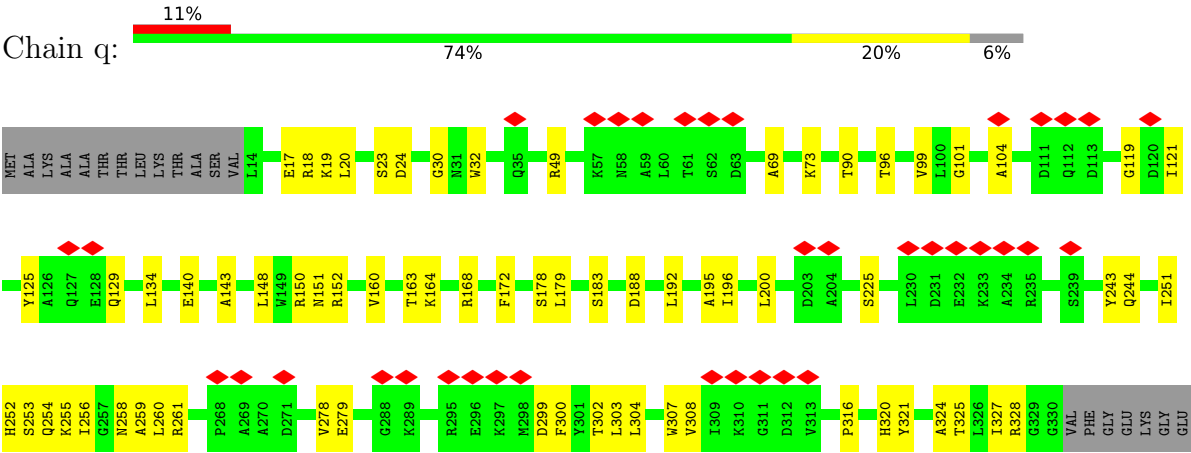
• Molecule 1: CRISPR-associated protein Csy3



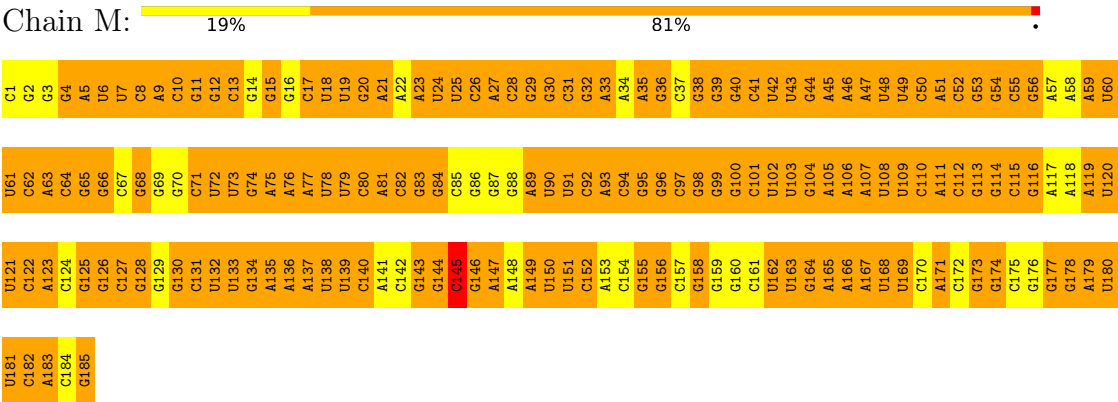
• Molecule 1: CRISPR-associated protein Csy3



• Molecule 1: CRISPR-associated protein Csy3



● Molecule 2: RNA (185-MER)



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 168817                                  | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | TFS KRIOS                               | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 60                                      | Depositor |
| Minimum defocus (nm)                 | 1500                                    | Depositor |
| Maximum defocus (nm)                 | 2500                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 (6k x 4k)                      | Depositor |
| Maximum map value                    | 1.566                                   | Depositor |
| Minimum map value                    | -0.003                                  | Depositor |
| Average map value                    | 0.002                                   | Depositor |
| Map value standard deviation         | 0.027                                   | Depositor |
| Recommended contour level            | 0.005                                   | Depositor |
| Map size ( $\text{\AA}$ )            | 480.0, 480.0, 480.0                     | wwPDB     |
| Map dimensions                       | 480, 480, 480                           | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 1.0, 1.0, 1.0                           | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

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     | 0.78         | 2/2559 (0.1%)   | 0.74        | 0/3469           |
| 1   | B     | 0.82         | 5/2611 (0.2%)   | 0.77        | 0/3539           |
| 1   | C     | 0.80         | 2/2606 (0.1%)   | 0.75        | 1/3532 (0.0%)    |
| 1   | D     | 0.79         | 1/2613 (0.0%)   | 0.72        | 0/3542           |
| 1   | E     | 0.82         | 2/2620 (0.1%)   | 0.72        | 1/3552 (0.0%)    |
| 1   | F     | 0.87         | 3/2620 (0.1%)   | 0.76        | 1/3552 (0.0%)    |
| 1   | G     | 0.84         | 2/2613 (0.1%)   | 0.73        | 0/3542           |
| 1   | H     | 0.84         | 0/2584          | 0.81        | 2/3501 (0.1%)    |
| 1   | I     | 0.75         | 0/2613          | 0.73        | 0/3542           |
| 1   | J     | 0.72         | 2/2613 (0.1%)   | 0.72        | 0/3542           |
| 1   | K     | 0.69         | 1/2606 (0.0%)   | 0.70        | 0/3532           |
| 1   | L     | 0.66         | 0/2509          | 0.69        | 0/3404           |
| 1   | N     | 0.82         | 1/2613 (0.0%)   | 0.75        | 0/3542           |
| 1   | O     | 0.74         | 0/2602          | 0.72        | 1/3527 (0.0%)    |
| 1   | P     | 0.79         | 0/2509          | 0.70        | 0/3404           |
| 1   | Q     | 0.79         | 3/2539 (0.1%)   | 0.75        | 1/3443 (0.0%)    |
| 1   | S     | 0.60         | 0/2606          | 0.63        | 0/3532           |
| 1   | T     | 0.64         | 0/2613          | 0.70        | 1/3542 (0.0%)    |
| 1   | U     | 0.71         | 0/2620          | 0.74        | 1/3552 (0.0%)    |
| 1   | V     | 0.78         | 1/2620 (0.0%)   | 0.74        | 0/3552           |
| 1   | W     | 0.82         | 1/2613 (0.0%)   | 0.79        | 0/3542           |
| 1   | Y     | 0.74         | 1/2613 (0.0%)   | 0.69        | 0/3542           |
| 1   | Z     | 0.74         | 0/2613          | 0.71        | 0/3542           |
| 1   | a     | 0.78         | 0/2606          | 0.75        | 1/3532 (0.0%)    |
| 1   | b     | 0.74         | 1/2509 (0.0%)   | 0.76        | 2/3404 (0.1%)    |
| 1   | f     | 0.58         | 0/2509          | 0.62        | 0/3404           |
| 1   | i     | 0.72         | 1/2527 (0.0%)   | 0.74        | 2/3427 (0.1%)    |
| 1   | o     | 0.67         | 1/2613 (0.0%)   | 0.66        | 1/3542 (0.0%)    |
| 1   | p     | 0.56         | 0/2606          | 0.64        | 0/3532           |
| 1   | q     | 0.53         | 0/2509          | 0.60        | 0/3404           |
| 2   | M     | 0.78         | 0/4430          | 0.77        | 9/6893 (0.1%)    |
| All | All   | 0.75         | 30/82037 (0.0%) | 0.72        | 24/112107 (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                   | 5                   |
| 1   | B     | 0                   | 5                   |
| 1   | C     | 0                   | 1                   |
| 1   | D     | 0                   | 5                   |
| 1   | E     | 0                   | 2                   |
| 1   | F     | 0                   | 5                   |
| 1   | G     | 0                   | 4                   |
| 1   | H     | 0                   | 3                   |
| 1   | I     | 0                   | 5                   |
| 1   | J     | 0                   | 2                   |
| 1   | K     | 0                   | 4                   |
| 1   | L     | 0                   | 2                   |
| 1   | N     | 0                   | 2                   |
| 1   | O     | 0                   | 3                   |
| 1   | P     | 0                   | 2                   |
| 1   | Q     | 0                   | 2                   |
| 1   | S     | 0                   | 2                   |
| 1   | T     | 0                   | 3                   |
| 1   | U     | 0                   | 2                   |
| 1   | V     | 0                   | 5                   |
| 1   | W     | 0                   | 7                   |
| 1   | Y     | 0                   | 2                   |
| 1   | Z     | 0                   | 4                   |
| 1   | a     | 0                   | 4                   |
| 1   | b     | 0                   | 3                   |
| 1   | f     | 0                   | 1                   |
| 1   | i     | 0                   | 1                   |
| 1   | o     | 0                   | 4                   |
| 1   | p     | 0                   | 3                   |
| All | All   | 0                   | 93                  |

All (30) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 1   | G     | 83  | ALA  | C-N   | -8.47 | 1.21        | 1.33     |
| 1   | C     | 83  | ALA  | C-N   | -8.16 | 1.21        | 1.33     |
| 1   | F     | 149 | TRP  | CA-CB | -7.45 | 1.40        | 1.53     |
| 1   | o     | 183 | SER  | C-N   | -7.29 | 1.22        | 1.33     |
| 1   | V     | 149 | TRP  | CA-CB | -7.05 | 1.41        | 1.53     |
| 1   | Y     | 84  | LEU  | C-N   | -6.35 | 1.25        | 1.33     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 1   | K     | 183 | SER  | C-N     | -6.01 | 1.24        | 1.33     |
| 1   | B     | 151 | ASN  | CA-C    | -5.97 | 1.44        | 1.52     |
| 1   | A     | 183 | SER  | C-N     | -5.93 | 1.25        | 1.33     |
| 1   | E     | 224 | PRO  | CB-CG   | -5.81 | 1.20        | 1.49     |
| 1   | D     | 221 | GLU  | C-N     | -5.79 | 1.27        | 1.33     |
| 1   | B     | 150 | ARG  | C-N     | -5.71 | 1.26        | 1.33     |
| 1   | b     | 149 | TRP  | CB-CG   | -5.64 | 1.32        | 1.50     |
| 1   | B     | 151 | ASN  | N-CA    | -5.55 | 1.38        | 1.46     |
| 1   | B     | 149 | TRP  | CB-CG   | -5.55 | 1.33        | 1.50     |
| 1   | F     | 149 | TRP  | CB-CG   | -5.54 | 1.33        | 1.50     |
| 1   | C     | 292 | ARG  | C-N     | 5.54  | 1.40        | 1.33     |
| 1   | F     | 152 | ARG  | C-N     | -5.53 | 1.26        | 1.33     |
| 1   | Q     | 149 | TRP  | CB-CG   | -5.52 | 1.33        | 1.50     |
| 1   | W     | 83  | ALA  | C-N     | -5.45 | 1.20        | 1.33     |
| 1   | J     | 256 | ILE  | CG1-CD1 | -5.42 | 1.30        | 1.51     |
| 1   | A     | 224 | PRO  | CB-CG   | -5.41 | 1.22        | 1.49     |
| 1   | N     | 122 | ILE  | CG1-CD1 | -5.37 | 1.30        | 1.51     |
| 1   | Q     | 149 | TRP  | CA-CB   | -5.18 | 1.45        | 1.53     |
| 1   | Q     | 183 | SER  | C-N     | -5.18 | 1.23        | 1.33     |
| 1   | E     | 149 | TRP  | CB-CG   | -5.17 | 1.34        | 1.50     |
| 1   | i     | 223 | PHE  | C-N     | -5.09 | 1.27        | 1.33     |
| 1   | B     | 32  | TRP  | CB-CG   | -5.08 | 1.34        | 1.50     |
| 1   | J     | 44  | GLN  | CA-CB   | -5.06 | 1.47        | 1.53     |
| 1   | G     | 51  | THR  | C-N     | -5.05 | 1.27        | 1.33     |

All (24) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 2   | M     | 31  | C    | OP1-P-O3' | -9.66 | 79.03       | 108.00   |
| 2   | M     | 55  | C    | OP1-P-O3' | -9.49 | 79.52       | 108.00   |
| 2   | M     | 145 | C    | OP1-P-O3' | -9.42 | 79.74       | 108.00   |
| 2   | M     | 145 | C    | OP2-P-O3' | -9.42 | 79.74       | 108.00   |
| 2   | M     | 115 | C    | OP1-P-O3' | -9.16 | 80.52       | 108.00   |
| 2   | M     | 55  | C    | OP2-P-O3' | -8.47 | 82.58       | 108.00   |
| 2   | M     | 115 | C    | OP2-P-O3' | -8.45 | 82.64       | 108.00   |
| 2   | M     | 31  | C    | OP2-P-O3' | -8.28 | 83.16       | 108.00   |
| 1   | b     | 148 | LEU  | CA-C-N    | 6.54  | 130.64      | 120.82   |
| 1   | b     | 148 | LEU  | C-N-CA    | 6.54  | 130.64      | 120.82   |
| 1   | U     | 255 | LYS  | CD-CE-NZ  | 6.00  | 131.10      | 111.90   |
| 1   | E     | 224 | PRO  | CA-N-CD   | -5.66 | 104.08      | 112.00   |
| 1   | O     | 184 | GLN  | N-CA-C    | -5.49 | 103.21      | 110.40   |
| 1   | a     | 105 | GLN  | N-CA-C    | -5.37 | 103.27      | 109.93   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1   | F     | 35  | GLN  | N-CA-C    | -5.37 | 103.54      | 111.81   |
| 1   | i     | 148 | LEU  | CA-C-N    | 5.18  | 129.43      | 121.19   |
| 1   | i     | 148 | LEU  | C-N-CA    | 5.18  | 129.43      | 121.19   |
| 1   | T     | 153 | VAL  | N-CA-CB   | -5.18 | 105.76      | 111.66   |
| 1   | Q     | 19  | LYS  | CD-CE-NZ  | 5.16  | 128.40      | 111.90   |
| 1   | H     | 148 | LEU  | CA-C-N    | 5.11  | 128.49      | 120.82   |
| 1   | H     | 148 | LEU  | C-N-CA    | 5.11  | 128.49      | 120.82   |
| 1   | o     | 101 | GLY  | N-CA-C    | -5.04 | 105.38      | 112.13   |
| 1   | C     | 142 | ILE  | CB-CA-C   | -5.04 | 105.76      | 111.55   |
| 2   | M     | 31  | C    | O3'-P-O5' | -5.03 | 96.45       | 104.00   |

There are no chirality outliers.

All (93) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 1   | A     | 122 | ILE  | Peptide |
| 1   | A     | 148 | LEU  | Peptide |
| 1   | A     | 152 | ARG  | Peptide |
| 1   | A     | 168 | ARG  | Peptide |
| 1   | A     | 44  | GLN  | Peptide |
| 1   | B     | 106 | PRO  | Peptide |
| 1   | B     | 148 | LEU  | Peptide |
| 1   | B     | 152 | ARG  | Peptide |
| 1   | B     | 227 | GLU  | Peptide |
| 1   | B     | 34  | GLN  | Peptide |
| 1   | C     | 149 | TRP  | Peptide |
| 1   | D     | 108 | VAL  | Peptide |
| 1   | D     | 148 | LEU  | Peptide |
| 1   | D     | 152 | ARG  | Peptide |
| 1   | D     | 39  | THR  | Peptide |
| 1   | D     | 99  | VAL  | Peptide |
| 1   | E     | 148 | LEU  | Peptide |
| 1   | E     | 152 | ARG  | Peptide |
| 1   | F     | 108 | VAL  | Peptide |
| 1   | F     | 148 | LEU  | Peptide |
| 1   | F     | 183 | SER  | Peptide |
| 1   | F     | 205 | SER  | Peptide |
| 1   | F     | 299 | ASP  | Peptide |
| 1   | G     | 146 | ARG  | Peptide |
| 1   | G     | 176 | ASP  | Peptide |
| 1   | G     | 226 | GLN  | Peptide |
| 1   | G     | 76  | LEU  | Peptide |

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| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 1   | H     | 152 | ARG  | Peptide |
| 1   | H     | 179 | LEU  | Peptide |
| 1   | H     | 34  | GLN  | Peptide |
| 1   | I     | 148 | LEU  | Peptide |
| 1   | I     | 163 | THR  | Peptide |
| 1   | I     | 23  | SER  | Peptide |
| 1   | I     | 54  | ASN  | Peptide |
| 1   | I     | 99  | VAL  | Peptide |
| 1   | J     | 148 | LEU  | Peptide |
| 1   | J     | 255 | LYS  | Peptide |
| 1   | K     | 108 | VAL  | Peptide |
| 1   | K     | 117 | ALA  | Peptide |
| 1   | K     | 122 | ILE  | Peptide |
| 1   | K     | 99  | VAL  | Peptide |
| 1   | L     | 148 | LEU  | Peptide |
| 1   | L     | 26  | LEU  | Peptide |
| 1   | N     | 121 | ILE  | Peptide |
| 1   | N     | 148 | LEU  | Peptide |
| 1   | O     | 148 | LEU  | Peptide |
| 1   | O     | 152 | ARG  | Peptide |
| 1   | O     | 227 | GLU  | Peptide |
| 1   | P     | 108 | VAL  | Peptide |
| 1   | P     | 152 | ARG  | Peptide |
| 1   | Q     | 122 | ILE  | Peptide |
| 1   | Q     | 148 | LEU  | Peptide |
| 1   | S     | 84  | LEU  | Peptide |
| 1   | S     | 85  | PRO  | Peptide |
| 1   | T     | 117 | ALA  | Peptide |
| 1   | T     | 122 | ILE  | Peptide |
| 1   | T     | 152 | ARG  | Peptide |
| 1   | U     | 106 | PRO  | Peptide |
| 1   | U     | 85  | PRO  | Peptide |
| 1   | V     | 148 | LEU  | Peptide |
| 1   | V     | 163 | THR  | Peptide |
| 1   | V     | 183 | SER  | Peptide |
| 1   | V     | 222 | VAL  | Peptide |
| 1   | V     | 84  | LEU  | Peptide |
| 1   | W     | 121 | ILE  | Peptide |
| 1   | W     | 149 | TRP  | Peptide |
| 1   | W     | 152 | ARG  | Peptide |
| 1   | W     | 163 | THR  | Peptide |
| 1   | W     | 183 | SER  | Peptide |

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| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 1   | W     | 222 | VAL  | Peptide |
| 1   | W     | 84  | LEU  | Peptide |
| 1   | Y     | 163 | THR  | Peptide |
| 1   | Y     | 22  | ASN  | Peptide |
| 1   | Z     | 148 | LEU  | Peptide |
| 1   | Z     | 163 | THR  | Peptide |
| 1   | Z     | 222 | VAL  | Peptide |
| 1   | Z     | 274 | GLY  | Peptide |
| 1   | a     | 150 | ARG  | Peptide |
| 1   | a     | 160 | VAL  | Peptide |
| 1   | a     | 255 | LYS  | Peptide |
| 1   | a     | 54  | ASN  | Peptide |
| 1   | b     | 221 | GLU  | Peptide |
| 1   | b     | 282 | GLY  | Peptide |
| 1   | b     | 83  | ALA  | Peptide |
| 1   | f     | 122 | ILE  | Peptide |
| 1   | i     | 152 | ARG  | Peptide |
| 1   | o     | 106 | PRO  | Peptide |
| 1   | o     | 148 | LEU  | Peptide |
| 1   | o     | 163 | THR  | Peptide |
| 1   | o     | 84  | LEU  | Peptide |
| 1   | p     | 148 | LEU  | Peptide |
| 1   | p     | 164 | LYS  | Peptide |
| 1   | p     | 227 | GLU  | Peptide |

## 5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 2514  | 2487     | 2485     | 96      | 0            |
| 1   | B     | 2564  | 2530     | 2531     | 104     | 0            |
| 1   | C     | 2559  | 2532     | 2531     | 97      | 0            |
| 1   | D     | 2566  | 2531     | 2538     | 104     | 0            |
| 1   | E     | 2573  | 2546     | 2545     | 98      | 0            |
| 1   | F     | 2573  | 2546     | 2545     | 93      | 0            |
| 1   | G     | 2566  | 2539     | 2538     | 104     | 0            |
| 1   | H     | 2539  | 2511     | 2509     | 110     | 0            |
| 1   | I     | 2566  | 2539     | 2538     | 86      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | J     | 2566  | 2539     | 2538     | 106     | 0            |
| 1   | K     | 2559  | 2532     | 2531     | 90      | 0            |
| 1   | L     | 2463  | 2433     | 2432     | 81      | 0            |
| 1   | N     | 2566  | 2539     | 2538     | 104     | 0            |
| 1   | O     | 2555  | 2526     | 2525     | 85      | 0            |
| 1   | P     | 2463  | 2433     | 2432     | 85      | 0            |
| 1   | Q     | 2494  | 2466     | 2464     | 96      | 0            |
| 1   | S     | 2559  | 2532     | 2531     | 88      | 0            |
| 1   | T     | 2566  | 2531     | 2538     | 75      | 0            |
| 1   | U     | 2573  | 2546     | 2545     | 107     | 0            |
| 1   | V     | 2573  | 2546     | 2545     | 102     | 0            |
| 1   | W     | 2566  | 2539     | 2538     | 104     | 0            |
| 1   | Y     | 2566  | 2539     | 2538     | 96      | 0            |
| 1   | Z     | 2566  | 2539     | 2538     | 108     | 0            |
| 1   | a     | 2559  | 2532     | 2531     | 95      | 0            |
| 1   | b     | 2463  | 2433     | 2432     | 96      | 0            |
| 1   | f     | 2463  | 2433     | 2432     | 72      | 0            |
| 1   | i     | 2483  | 2457     | 2455     | 98      | 0            |
| 1   | o     | 2566  | 2539     | 2538     | 81      | 0            |
| 1   | p     | 2559  | 2532     | 2531     | 74      | 0            |
| 1   | q     | 2463  | 2433     | 2432     | 49      | 0            |
| 2   | M     | 3955  | 0        | 2000     | 627     | 0            |
| All | All   | 80166 | 75360    | 77344    | 3007    | 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 19.

All (3007) 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:150:ARG:NH1 | 2:M:56:G:O5'    | 2.06                     | 0.87              |
| 2:M:93:A:O2'    | 2:M:94:C:O4'    | 1.92                     | 0.87              |
| 1:L:328:ARG:NH2 | 2:M:27:A:O2'    | 2.07                     | 0.87              |
| 1:F:150:ARG:NH1 | 2:M:68:G:O5'    | 2.07                     | 0.87              |
| 1:b:26:LEU:HD23 | 1:b:250:ALA:HB2 | 1.55                     | 0.86              |
| 1:W:137:ARG:O   | 1:W:141:ASN:ND2 | 2.08                     | 0.86              |
| 1:I:19:LYS:NZ   | 1:I:101:GLY:O   | 2.09                     | 0.86              |
| 2:M:39:G:O2'    | 2:M:40:G:O4'    | 1.92                     | 0.86              |
| 1:G:125:TYR:HH  | 1:G:320:HIS:HD1 | 1.21                     | 0.85              |
| 1:V:148:LEU:O   | 1:V:151:ASN:N   | 2.10                     | 0.85              |
| 2:M:137:A:OP2   | 1:Y:261:ARG:NH2 | 2.10                     | 0.85              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 2:M:87:G:O2'    | 2:M:88:G:O4'    | 1.93                     | 0.84              |
| 1:N:19:LYS:NZ   | 1:N:101:GLY:O   | 2.10                     | 0.84              |
| 2:M:45:A:O2'    | 2:M:46:A:O4'    | 1.95                     | 0.84              |
| 1:L:261:ARG:NH1 | 1:L:278:VAL:O   | 2.12                     | 0.83              |
| 1:p:74:ALA:HB1  | 1:p:76:LEU:HD21 | 1.61                     | 0.83              |
| 1:L:258:ASN:ND2 | 2:M:29:G:O4'    | 2.10                     | 0.83              |
| 1:V:279:GLU:O   | 1:V:321:TYR:OH  | 1.95                     | 0.83              |
| 1:K:322:VAL:O   | 1:K:325:THR:OG1 | 1.97                     | 0.83              |
| 2:M:155:G:OP2   | 1:V:261:ARG:NH2 | 2.11                     | 0.83              |
| 2:M:105:A:O2'   | 2:M:106:A:O4'   | 1.96                     | 0.83              |
| 2:M:92:C:O5'    | 1:P:150:ARG:NH1 | 2.10                     | 0.83              |
| 1:H:32:TRP:O    | 1:H:35:GLN:NE2  | 2.11                     | 0.83              |
| 1:C:98:ARG:NH2  | 1:D:153:VAL:O   | 2.11                     | 0.83              |
| 2:M:63:A:O2'    | 2:M:64:C:O4'    | 1.97                     | 0.83              |
| 1:q:261:ARG:NH1 | 1:q:278:VAL:O   | 2.12                     | 0.82              |
| 1:F:305:ASP:O   | 1:F:309:ILE:N   | 2.13                     | 0.82              |
| 2:M:21:A:O2'    | 2:M:22:A:O4'    | 1.98                     | 0.82              |
| 1:F:328:ARG:NH2 | 2:M:63:A:O2'    | 2.13                     | 0.82              |
| 1:N:305:ASP:O   | 1:N:309:ILE:N   | 2.11                     | 0.82              |
| 1:f:261:ARG:NH1 | 1:f:278:VAL:O   | 2.13                     | 0.82              |
| 2:M:174:G:N3    | 1:T:49:ARG:NH1  | 2.28                     | 0.82              |
| 1:O:19:LYS:NZ   | 1:O:101:GLY:O   | 2.12                     | 0.81              |
| 2:M:102:U:O2'   | 2:M:103:U:O5'   | 1.98                     | 0.81              |
| 1:C:88:ALA:O    | 1:C:218:ASN:ND2 | 2.13                     | 0.81              |
| 1:N:148:LEU:O   | 1:N:152:ARG:N   | 2.13                     | 0.81              |
| 2:M:15:G:O2'    | 2:M:16:G:O4'    | 1.97                     | 0.81              |
| 1:L:279:GLU:O   | 1:L:321:TYR:OH  | 1.98                     | 0.81              |
| 2:M:33:A:O2'    | 2:M:34:A:O4'    | 1.99                     | 0.81              |
| 2:M:57:A:O2'    | 2:M:58:A:O4'    | 1.96                     | 0.81              |
| 2:M:147:A:O2'   | 2:M:148:A:O4'   | 1.99                     | 0.81              |
| 1:b:226:GLN:NE2 | 1:b:227:GLU:O   | 2.15                     | 0.81              |
| 1:b:279:GLU:O   | 1:b:321:TYR:OH  | 1.99                     | 0.80              |
| 2:M:23:A:OP2    | 1:i:258:ASN:ND2 | 2.14                     | 0.80              |
| 2:M:111:A:O5'   | 1:B:18:ARG:NH1  | 2.15                     | 0.80              |
| 2:M:132:U:O2'   | 2:M:133:U:O5'   | 1.97                     | 0.80              |
| 2:M:159:G:O2'   | 2:M:160:G:O4'   | 1.99                     | 0.80              |
| 1:L:255:LYS:NZ  | 2:M:29:G:O2'    | 2.14                     | 0.80              |
| 2:M:69:G:O2'    | 2:M:70:G:O4'    | 2.00                     | 0.80              |
| 1:D:255:LYS:NZ  | 2:M:77:A:O3'    | 2.14                     | 0.79              |
| 2:M:9:A:O3'     | 1:p:18:ARG:NH2  | 2.16                     | 0.79              |
| 1:Z:264:ASP:OD1 | 1:Z:292:ARG:NH2 | 2.14                     | 0.79              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:19:LYS:NZ    | 1:D:101:GLY:O    | 2.10                     | 0.79              |
| 2:M:98:G:O5'     | 1:O:150:ARG:NH1  | 2.15                     | 0.79              |
| 1:B:21:ALA:HB3   | 1:B:98:ARG:HB3   | 1.63                     | 0.79              |
| 1:U:261:ARG:NE   | 1:U:279:GLU:OE2  | 2.16                     | 0.79              |
| 1:A:148:LEU:O    | 1:A:151:ASN:N    | 2.16                     | 0.79              |
| 1:U:21:ALA:HB3   | 1:U:98:ARG:HB3   | 1.65                     | 0.79              |
| 1:i:96:THR:OG1   | 1:i:208:PHE:O    | 2.00                     | 0.79              |
| 2:M:135:A:O2'    | 2:M:136:A:O4'    | 2.00                     | 0.79              |
| 1:H:301:TYR:O    | 1:H:305:ASP:N    | 2.16                     | 0.79              |
| 1:V:14:LEU:O     | 1:V:333:GLY:N    | 2.16                     | 0.79              |
| 1:A:119:GLY:HA2  | 1:A:122:ILE:HD12 | 1.65                     | 0.79              |
| 1:H:191:ALA:O    | 1:H:195:ALA:N    | 2.15                     | 0.79              |
| 1:G:114:TYR:O    | 1:G:118:LEU:N    | 2.16                     | 0.79              |
| 1:H:228:LEU:HD21 | 1:N:76:LEU:HD22  | 1.65                     | 0.79              |
| 1:F:125:TYR:O    | 1:F:130:GLY:N    | 2.15                     | 0.78              |
| 2:M:123:A:O2'    | 2:M:124:C:O4'    | 2.01                     | 0.78              |
| 1:O:148:LEU:O    | 1:O:151:ASN:N    | 2.17                     | 0.78              |
| 1:I:299:ASP:OD1  | 1:I:302:THR:OG1  | 2.02                     | 0.78              |
| 2:M:179:A:N3     | 1:f:255:LYS:NZ   | 2.31                     | 0.78              |
| 1:W:88:ALA:O     | 1:W:218:ASN:ND2  | 2.16                     | 0.78              |
| 2:M:51:A:O2'     | 2:M:52:C:O4'     | 2.01                     | 0.78              |
| 2:M:126:G:O2'    | 1:a:226:GLN:OE1  | 2.00                     | 0.78              |
| 2:M:129:G:OP1    | 1:Z:18:ARG:NH1   | 2.17                     | 0.78              |
| 2:M:144:G:N3     | 1:Y:49:ARG:NH1   | 2.30                     | 0.78              |
| 1:D:141:ASN:ND2  | 1:D:262:THR:OG1  | 2.16                     | 0.78              |
| 1:I:264:ASP:OD2  | 1:I:292:ARG:NH2  | 2.16                     | 0.78              |
| 1:L:314:PRO:O    | 1:L:319:GLN:NE2  | 2.16                     | 0.78              |
| 1:Z:322:VAL:O    | 1:Z:325:THR:OG1  | 2.01                     | 0.78              |
| 2:M:27:A:O2'     | 2:M:28:C:O5'     | 2.00                     | 0.78              |
| 1:S:24:ASP:OD1   | 1:S:253:SER:N    | 2.17                     | 0.78              |
| 1:C:168:ARG:NH2  | 1:C:188:ASP:OD1  | 2.17                     | 0.78              |
| 1:G:261:ARG:NH1  | 1:G:278:VAL:O    | 2.17                     | 0.78              |
| 1:U:148:LEU:O    | 1:U:151:ASN:N    | 2.17                     | 0.78              |
| 1:Y:305:ASP:O    | 1:Y:309:ILE:N    | 2.17                     | 0.78              |
| 1:G:148:LEU:HB3  | 1:G:151:ASN:HB2  | 1.66                     | 0.78              |
| 1:C:15:ALA:O     | 1:C:107:SER:OG   | 2.01                     | 0.77              |
| 1:H:306:ASN:O    | 1:H:311:GLY:N    | 2.17                     | 0.77              |
| 1:f:24:ASP:OD1   | 1:f:253:SER:N    | 2.16                     | 0.77              |
| 1:I:305:ASP:O    | 1:I:309:ILE:N    | 2.17                     | 0.77              |
| 1:J:125:TYR:O    | 1:J:130:GLY:N    | 2.17                     | 0.77              |
| 2:M:183:A:O2'    | 2:M:184:C:O4'    | 2.01                     | 0.77              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:U:305:ASP:O    | 1:U:309:ILE:N    | 2.17                     | 0.77              |
| 1:A:125:TYR:O    | 1:A:130:GLY:N    | 2.18                     | 0.77              |
| 2:M:75:A:O2'     | 2:M:76:A:O4'     | 2.02                     | 0.77              |
| 2:M:95:G:O4'     | 1:O:258:ASN:ND2  | 2.17                     | 0.77              |
| 1:F:148:LEU:O    | 1:F:151:ASN:N    | 2.16                     | 0.77              |
| 1:S:15:ALA:O     | 1:S:107:SER:OG   | 2.02                     | 0.77              |
| 1:V:141:ASN:ND2  | 1:V:259:ALA:O    | 2.18                     | 0.77              |
| 1:V:295:ARG:NH2  | 1:W:62:SER:O     | 2.16                     | 0.77              |
| 1:Y:29:ALA:HB2   | 1:Y:41:ILE:HD11  | 1.66                     | 0.77              |
| 1:H:146:ARG:NH1  | 1:H:179:LEU:O    | 2.17                     | 0.77              |
| 2:M:143:G:OP2    | 1:Q:261:ARG:NH2  | 2.18                     | 0.77              |
| 2:M:161:C:OP2    | 1:U:261:ARG:NH2  | 2.18                     | 0.77              |
| 1:Z:155:ALA:HB3  | 1:Z:158:ILE:HD11 | 1.67                     | 0.77              |
| 1:Q:306:ASN:O    | 1:Q:312:ASP:N    | 2.18                     | 0.77              |
| 2:M:101:C:OP2    | 1:N:261:ARG:NH2  | 2.18                     | 0.77              |
| 1:E:163:THR:OG1  | 1:E:209:THR:OG1  | 2.02                     | 0.77              |
| 2:M:180:U:O2     | 1:S:49:ARG:NH1   | 2.18                     | 0.76              |
| 1:W:19:LYS:NZ    | 1:W:101:GLY:O    | 2.15                     | 0.76              |
| 1:C:267:TYR:OH   | 1:C:274:GLY:O    | 2.02                     | 0.76              |
| 1:F:163:THR:O    | 1:F:209:THR:OG1  | 2.04                     | 0.76              |
| 2:M:95:G:N3      | 1:O:255:LYS:NZ   | 2.32                     | 0.76              |
| 1:p:24:ASP:OD1   | 1:p:253:SER:N    | 2.18                     | 0.76              |
| 2:M:168:U:O2'    | 1:T:226:GLN:OE1  | 2.02                     | 0.76              |
| 2:M:168:U:OP1    | 1:T:254:GLN:NE2  | 2.19                     | 0.76              |
| 1:K:187:GLY:O    | 1:K:191:ALA:N    | 2.19                     | 0.76              |
| 1:O:305:ASP:O    | 1:O:309:ILE:N    | 2.18                     | 0.76              |
| 2:M:27:A:O2'     | 2:M:28:C:O4'     | 2.02                     | 0.76              |
| 1:E:148:LEU:O    | 1:E:151:ASN:N    | 2.17                     | 0.76              |
| 1:A:168:ARG:NH2  | 1:A:188:ASP:OD1  | 2.18                     | 0.76              |
| 2:M:127:C:H2'    | 2:M:128:G:C5     | 2.20                     | 0.76              |
| 1:S:196:ILE:O    | 1:S:200:LEU:N    | 2.17                     | 0.76              |
| 1:A:300:PHE:O    | 1:A:304:LEU:N    | 2.19                     | 0.76              |
| 1:Q:148:LEU:O    | 1:Q:152:ARG:N    | 2.18                     | 0.76              |
| 1:Z:180:ARG:NH1  | 1:Z:273:ALA:O    | 2.19                     | 0.76              |
| 1:O:141:ASN:ND2  | 1:O:259:ALA:O    | 2.18                     | 0.76              |
| 2:M:152:C:O5'    | 1:W:150:ARG:NH1  | 2.19                     | 0.75              |
| 1:O:34:GLN:NE2   | 1:O:36:ASP:O     | 2.19                     | 0.75              |
| 1:o:19:LYS:NZ    | 1:o:101:GLY:O    | 2.15                     | 0.75              |
| 2:M:67:C:O2'     | 2:M:68:G:O4'     | 2.04                     | 0.75              |
| 1:N:299:ASP:O    | 1:N:302:THR:OG1  | 2.04                     | 0.75              |
| 1:Q:118:LEU:HD11 | 1:Q:122:ILE:HD11 | 1.66                     | 0.75              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:34:GLN:NE2   | 1:G:36:ASP:O     | 2.19                     | 0.75              |
| 2:M:13:C:O2'     | 2:M:14:G:O4'     | 2.05                     | 0.75              |
| 1:D:148:LEU:O    | 1:D:151:ASN:N    | 2.18                     | 0.75              |
| 1:W:261:ARG:NH1  | 1:W:278:VAL:O    | 2.20                     | 0.75              |
| 1:o:299:ASP:O    | 1:o:302:THR:OG1  | 2.03                     | 0.75              |
| 1:F:141:ASN:ND2  | 1:F:259:ALA:O    | 2.19                     | 0.75              |
| 2:M:30:G:OP2     | 1:i:49:ARG:N     | 2.19                     | 0.75              |
| 1:N:315:MET:N    | 1:N:318:GLN:OE1  | 2.20                     | 0.75              |
| 1:U:24:ASP:OD1   | 1:U:253:SER:N    | 2.19                     | 0.75              |
| 1:A:88:ALA:O     | 1:A:218:ASN:ND2  | 2.20                     | 0.75              |
| 1:J:168:ARG:NH2  | 1:J:188:ASP:OD1  | 2.20                     | 0.75              |
| 2:M:23:A:OP2     | 1:i:261:ARG:NH2  | 2.18                     | 0.75              |
| 1:S:88:ALA:O     | 1:S:218:ASN:ND2  | 2.20                     | 0.75              |
| 2:M:184:C:O2     | 1:f:75:ASN:ND2   | 2.20                     | 0.75              |
| 1:B:24:ASP:OD1   | 1:B:253:SER:N    | 2.20                     | 0.75              |
| 1:H:21:ALA:HB3   | 1:H:98:ARG:HB3   | 1.68                     | 0.75              |
| 1:D:12:SER:O     | 1:D:334:GLU:N    | 2.19                     | 0.75              |
| 2:M:111:A:H2'    | 2:M:112:C:C6     | 2.22                     | 0.75              |
| 2:M:117:A:O2'    | 2:M:118:A:O4'    | 2.05                     | 0.75              |
| 1:H:59:ALA:O     | 1:H:62:SER:OG    | 2.03                     | 0.75              |
| 1:P:261:ARG:NH1  | 1:P:278:VAL:O    | 2.20                     | 0.75              |
| 1:W:192:LEU:HD11 | 1:W:196:ILE:HD11 | 1.67                     | 0.75              |
| 1:Y:299:ASP:OD1  | 1:Y:302:THR:OG1  | 2.05                     | 0.75              |
| 1:B:121:ILE:O    | 1:B:125:TYR:N    | 2.20                     | 0.75              |
| 1:W:24:ASP:OD1   | 1:W:253:SER:N    | 2.19                     | 0.75              |
| 1:G:314:PRO:O    | 1:G:319:GLN:NE2  | 2.19                     | 0.74              |
| 1:U:59:ALA:O     | 1:U:62:SER:OG    | 2.05                     | 0.74              |
| 1:K:267:TYR:OH   | 1:K:274:GLY:O    | 2.05                     | 0.74              |
| 1:H:305:ASP:O    | 1:H:309:ILE:N    | 2.20                     | 0.74              |
| 1:G:287:ARG:NH1  | 1:G:291:TYR:OH   | 2.20                     | 0.74              |
| 2:M:12:G:H5''    | 1:q:49:ARG:HG2   | 1.70                     | 0.74              |
| 2:M:146:G:OP2    | 1:Q:226:GLN:NE2  | 2.20                     | 0.74              |
| 2:M:26:C:H3'     | 2:M:27:A:H8      | 1.52                     | 0.74              |
| 2:M:105:A:OP2    | 1:N:150:ARG:NH2  | 2.19                     | 0.74              |
| 2:M:162:U:O2'    | 2:M:163:U:O5'    | 2.05                     | 0.74              |
| 1:Q:305:ASP:O    | 1:Q:309:ILE:N    | 2.20                     | 0.74              |
| 1:p:119:GLY:O    | 1:p:123:THR:N    | 2.20                     | 0.74              |
| 1:F:45:GLU:OE2   | 1:F:238:LYS:NZ   | 2.20                     | 0.74              |
| 1:a:15:ALA:O     | 1:a:107:SER:OG   | 2.05                     | 0.74              |
| 1:G:88:ALA:O     | 1:G:218:ASN:ND2  | 2.20                     | 0.74              |
| 1:K:278:VAL:O    | 1:K:328:ARG:NH1  | 2.20                     | 0.74              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:Q:24:ASP:OD1  | 1:Q:253:SER:N   | 2.20                     | 0.74              |
| 1:U:125:TYR:O   | 1:U:129:GLN:N   | 2.20                     | 0.74              |
| 2:M:137:A:N3    | 1:Y:255:LYS:NZ  | 2.34                     | 0.74              |
| 1:B:301:TYR:OH  | 1:H:53:SER:O    | 2.04                     | 0.74              |
| 1:S:160:VAL:O   | 1:S:172:PHE:N   | 2.20                     | 0.74              |
| 1:P:305:ASP:O   | 1:P:309:ILE:N   | 2.21                     | 0.74              |
| 1:T:259:ALA:O   | 1:T:262:THR:OG1 | 2.04                     | 0.74              |
| 1:C:32:TRP:O    | 1:C:35:GLN:NE2  | 2.21                     | 0.74              |
| 1:I:314:PRO:O   | 1:I:319:GLN:NE2 | 2.20                     | 0.74              |
| 1:V:325:THR:O   | 1:V:329:GLY:N   | 2.21                     | 0.74              |
| 1:Z:148:LEU:O   | 1:Z:151:ASN:N   | 2.20                     | 0.74              |
| 1:F:314:PRO:O   | 1:F:319:GLN:NE2 | 2.21                     | 0.73              |
| 2:M:89:A:O2'    | 1:P:255:LYS:NZ  | 2.21                     | 0.73              |
| 2:M:141:A:H2'   | 2:M:142:C:C6    | 2.22                     | 0.73              |
| 2:M:171:A:H2'   | 2:M:172:C:C6    | 2.22                     | 0.73              |
| 1:O:24:ASP:OD1  | 1:O:253:SER:N   | 2.20                     | 0.73              |
| 2:M:19:U:H2'    | 2:M:20:G:C5     | 2.24                     | 0.73              |
| 2:M:118:A:O2'   | 1:B:49:ARG:O    | 2.07                     | 0.73              |
| 1:B:148:LEU:O   | 1:B:151:ASN:N   | 2.20                     | 0.73              |
| 1:N:254:GLN:OE1 | 1:N:254:GLN:N   | 2.20                     | 0.73              |
| 1:O:59:ALA:O    | 1:O:62:SER:OG   | 2.04                     | 0.73              |
| 1:S:279:GLU:O   | 1:S:321:TYR:OH  | 2.05                     | 0.73              |
| 1:K:305:ASP:O   | 1:K:309:ILE:N   | 2.19                     | 0.73              |
| 1:N:284:VAL:O   | 1:N:288:GLY:N   | 2.22                     | 0.73              |
| 1:U:34:GLN:NE2  | 1:U:36:ASP:O    | 2.22                     | 0.73              |
| 1:V:24:ASP:OD1  | 1:V:253:SER:N   | 2.22                     | 0.73              |
| 1:o:284:VAL:O   | 1:o:288:GLY:N   | 2.21                     | 0.73              |
| 1:p:148:LEU:O   | 1:p:151:ASN:N   | 2.22                     | 0.73              |
| 1:E:267:TYR:OH  | 1:E:274:GLY:O   | 2.06                     | 0.73              |
| 1:F:321:TYR:O   | 1:F:325:THR:OG1 | 2.06                     | 0.73              |
| 2:M:3:G:O2'     | 1:q:328:ARG:NH2 | 2.22                     | 0.73              |
| 2:M:89:A:O5'    | 1:P:258:ASN:ND2 | 2.22                     | 0.73              |
| 2:M:95:G:OP2    | 1:O:261:ARG:NH2 | 2.21                     | 0.73              |
| 1:Q:267:TYR:OH  | 1:Q:274:GLY:O   | 2.05                     | 0.73              |
| 1:E:139:ALA:O   | 1:E:143:ALA:N   | 2.22                     | 0.73              |
| 1:G:140:GLU:O   | 1:G:143:ALA:N   | 2.22                     | 0.73              |
| 1:B:254:GLN:N   | 1:B:254:GLN:OE1 | 2.21                     | 0.73              |
| 1:P:306:ASN:O   | 1:P:310:LYS:N   | 2.21                     | 0.73              |
| 1:W:254:GLN:N   | 1:W:254:GLN:OE1 | 2.22                     | 0.73              |
| 1:D:328:ARG:NH2 | 2:M:75:A:O2'    | 2.21                     | 0.73              |
| 1:E:300:PHE:O   | 1:E:304:LEU:N   | 2.21                     | 0.73              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:9:A:O2'      | 2:M:10:C:O5'     | 2.05                     | 0.73              |
| 1:W:131:PHE:O    | 1:W:134:LEU:N    | 2.22                     | 0.73              |
| 1:Y:121:ILE:O    | 1:Y:125:TYR:N    | 2.22                     | 0.73              |
| 1:Y:227:GLU:OE2  | 1:Y:243:TYR:N    | 2.22                     | 0.73              |
| 1:Z:305:ASP:O    | 1:Z:309:ILE:N    | 2.22                     | 0.73              |
| 1:a:21:ALA:HB3   | 1:a:98:ARG:HB2   | 1.71                     | 0.73              |
| 1:F:267:TYR:OH   | 1:F:274:GLY:O    | 2.07                     | 0.72              |
| 2:M:147:A:OP1    | 1:W:18:ARG:NH1   | 2.22                     | 0.72              |
| 1:H:121:ILE:O    | 1:H:125:TYR:N    | 2.21                     | 0.72              |
| 1:T:254:GLN:OE1  | 1:U:46:LYS:NZ    | 2.21                     | 0.72              |
| 1:C:105:GLN:OE1  | 1:D:180:ARG:NH2  | 2.23                     | 0.72              |
| 1:F:24:ASP:OD1   | 1:F:253:SER:N    | 2.22                     | 0.72              |
| 1:O:306:ASN:O    | 1:O:310:LYS:N    | 2.22                     | 0.72              |
| 1:b:107:SER:OG   | 1:b:108:VAL:N    | 2.18                     | 0.72              |
| 1:H:32:TRP:N     | 1:H:90:THR:OG1   | 2.22                     | 0.72              |
| 2:M:153:A:O2'    | 2:M:154:C:O4'    | 2.07                     | 0.72              |
| 2:M:162:U:O2'    | 1:U:226:GLN:OE1  | 2.07                     | 0.72              |
| 1:o:24:ASP:OD1   | 1:o:253:SER:OG   | 2.05                     | 0.72              |
| 1:C:125:TYR:O    | 1:C:130:GLY:N    | 2.22                     | 0.72              |
| 2:M:75:A:O2'     | 2:M:76:A:O5'     | 2.06                     | 0.72              |
| 2:M:62:C:O2'     | 2:M:63:A:O5'     | 2.05                     | 0.72              |
| 2:M:113:G:OP2    | 1:B:261:ARG:NH2  | 2.23                     | 0.72              |
| 2:M:168:U:O2     | 1:U:49:ARG:NH1   | 2.23                     | 0.72              |
| 1:H:99:VAL:HG11  | 1:H:196:ILE:HG23 | 1.72                     | 0.72              |
| 1:Z:24:ASP:OD1   | 1:Z:253:SER:N    | 2.22                     | 0.72              |
| 1:C:24:ASP:OD1   | 1:C:253:SER:N    | 2.22                     | 0.72              |
| 1:H:148:LEU:O    | 1:H:152:ARG:N    | 2.23                     | 0.72              |
| 1:O:314:PRO:O    | 1:O:319:GLN:NE2  | 2.23                     | 0.72              |
| 1:V:141:ASN:ND2  | 1:V:262:THR:O    | 2.23                     | 0.72              |
| 1:D:80:ASP:OD1   | 1:D:238:LYS:NZ   | 2.22                     | 0.72              |
| 1:N:244:GLN:OE1  | 1:N:244:GLN:N    | 2.23                     | 0.72              |
| 1:W:245:VAL:O    | 1:W:248:VAL:N    | 2.23                     | 0.72              |
| 1:q:148:LEU:O    | 1:q:151:ASN:N    | 2.23                     | 0.72              |
| 1:D:261:ARG:NH1  | 1:D:278:VAL:O    | 2.23                     | 0.72              |
| 1:F:306:ASN:O    | 1:F:311:GLY:N    | 2.23                     | 0.72              |
| 1:F:13:VAL:O     | 1:F:110:ASN:ND2  | 2.22                     | 0.71              |
| 1:a:14:LEU:O     | 1:a:333:GLY:N    | 2.23                     | 0.71              |
| 2:M:125:G:N3     | 1:a:255:LYS:NZ   | 2.37                     | 0.71              |
| 1:Q:74:ALA:HB1   | 1:Q:76:LEU:HD21  | 1.72                     | 0.71              |
| 1:W:316:PRO:O    | 1:W:320:HIS:N    | 2.23                     | 0.71              |
| 1:o:134:LEU:HD21 | 1:o:320:HIS:HB3  | 1.72                     | 0.71              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:J:267:TYR:OH  | 1:J:274:GLY:O   | 2.06                     | 0.71              |
| 1:O:300:PHE:O   | 1:O:304:LEU:N   | 2.22                     | 0.71              |
| 1:b:91:LEU:N    | 1:b:214:VAL:O   | 2.24                     | 0.71              |
| 1:q:160:VAL:O   | 1:q:172:PHE:N   | 2.23                     | 0.71              |
| 1:A:253:SER:OG  | 1:I:46:LYS:NZ   | 2.24                     | 0.71              |
| 1:D:254:GLN:OE1 | 1:D:254:GLN:N   | 2.23                     | 0.71              |
| 1:D:305:ASP:O   | 1:D:309:ILE:N   | 2.23                     | 0.71              |
| 1:G:14:LEU:O    | 1:G:332:PHE:N   | 2.23                     | 0.71              |
| 1:H:96:THR:OG1  | 1:H:208:PHE:O   | 2.07                     | 0.71              |
| 1:U:89:ASP:OD1  | 1:U:90:THR:OG1  | 2.05                     | 0.71              |
| 1:E:188:ASP:O   | 1:E:192:LEU:N   | 2.24                     | 0.71              |
| 1:F:300:PHE:O   | 1:F:304:LEU:N   | 2.23                     | 0.71              |
| 2:M:96:G:H5''   | 1:P:49:ARG:HG2  | 1.71                     | 0.71              |
| 2:M:130:G:O2'   | 1:a:49:ARG:O    | 2.09                     | 0.71              |
| 1:G:141:ASN:ND2 | 1:G:262:THR:O   | 2.24                     | 0.71              |
| 1:B:137:ARG:NH2 | 1:B:265:ASP:OD1 | 2.23                     | 0.71              |
| 1:H:13:VAL:HG22 | 1:H:110:ASN:ND2 | 2.06                     | 0.71              |
| 1:b:23:SER:OG   | 1:b:96:THR:N    | 2.23                     | 0.71              |
| 2:M:107:A:H3'   | 1:N:49:ARG:HB3  | 1.71                     | 0.71              |
| 2:M:177:G:O2'   | 2:M:178:G:O5'   | 2.08                     | 0.71              |
| 1:W:34:GLN:NE2  | 1:W:36:ASP:O    | 2.23                     | 0.71              |
| 1:Y:279:GLU:O   | 1:Y:321:TYR:OH  | 2.08                     | 0.71              |
| 1:Z:293:GLN:O   | 1:Z:299:ASP:N   | 2.24                     | 0.71              |
| 1:a:178:SER:OG  | 1:a:181:GLN:OE1 | 2.03                     | 0.71              |
| 1:K:30:GLY:O    | 1:K:90:THR:N    | 2.24                     | 0.71              |
| 1:B:139:ALA:O   | 1:B:143:ALA:N   | 2.23                     | 0.71              |
| 1:o:148:LEU:O   | 1:o:151:ASN:N   | 2.23                     | 0.71              |
| 2:M:20:G:H2'    | 2:M:21:A:C5     | 2.26                     | 0.71              |
| 2:M:183:A:H2'   | 2:M:184:C:C6    | 2.24                     | 0.71              |
| 1:Q:254:GLN:OE1 | 1:Q:254:GLN:N   | 2.22                     | 0.71              |
| 1:E:88:ALA:O    | 1:E:218:ASN:ND2 | 2.24                     | 0.70              |
| 2:M:107:A:N3    | 1:H:255:LYS:NZ  | 2.38                     | 0.70              |
| 1:V:21:ALA:HB3  | 1:V:98:ARG:HB2  | 1.73                     | 0.70              |
| 1:b:303:LEU:O   | 1:b:307:TRP:N   | 2.24                     | 0.70              |
| 1:D:18:ARG:NH2  | 2:M:75:A:O3'    | 2.24                     | 0.70              |
| 1:E:264:ASP:OD2 | 1:E:292:ARG:NH2 | 2.24                     | 0.70              |
| 2:M:115:C:H2'   | 2:M:116:G:C4    | 2.26                     | 0.70              |
| 1:a:305:ASP:O   | 1:a:309:ILE:N   | 2.24                     | 0.70              |
| 1:D:14:LEU:O    | 1:D:333:GLY:N   | 2.25                     | 0.70              |
| 1:J:24:ASP:OD1  | 1:J:253:SER:N   | 2.25                     | 0.70              |
| 1:J:148:LEU:O   | 1:J:151:ASN:N   | 2.24                     | 0.70              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:H:12:SER:OG   | 1:H:110:ASN:ND2 | 2.24                     | 0.70              |
| 1:N:245:VAL:O   | 1:N:248:VAL:N   | 2.23                     | 0.70              |
| 1:a:178:SER:OG  | 1:a:179:LEU:N   | 2.24                     | 0.70              |
| 1:G:125:TYR:OH  | 1:G:320:HIS:ND1 | 2.25                     | 0.70              |
| 1:K:125:TYR:O   | 1:K:130:GLY:N   | 2.23                     | 0.70              |
| 1:B:188:ASP:O   | 1:B:192:LEU:N   | 2.25                     | 0.70              |
| 1:i:102:ASN:O   | 1:i:105:GLN:NE2 | 2.24                     | 0.70              |
| 1:G:11:ALA:HB3  | 1:G:14:LEU:HD21 | 1.73                     | 0.70              |
| 1:N:59:ALA:O    | 1:N:62:SER:OG   | 2.03                     | 0.70              |
| 1:O:14:LEU:O    | 1:O:333:GLY:N   | 2.25                     | 0.70              |
| 1:Q:131:PHE:O   | 1:Q:134:LEU:N   | 2.25                     | 0.70              |
| 1:f:32:TRP:N    | 1:f:90:THR:OG1  | 2.25                     | 0.70              |
| 1:o:137:ARG:NH1 | 1:o:265:ASP:OD1 | 2.24                     | 0.70              |
| 1:D:58:ASN:O    | 1:D:61:THR:OG1  | 2.06                     | 0.70              |
| 2:M:90:U:H5'    | 1:P:228:LEU:HB2 | 1.74                     | 0.70              |
| 1:S:325:THR:O   | 1:S:329:GLY:N   | 2.25                     | 0.70              |
| 1:Q:54:ASN:O    | 1:W:281:TYR:OH  | 2.07                     | 0.70              |
| 1:Q:112:GLN:O   | 1:Q:116:THR:N   | 2.24                     | 0.70              |
| 1:D:49:ARG:NH1  | 2:M:84:G:N3     | 2.40                     | 0.70              |
| 1:F:168:ARG:NH2 | 1:F:188:ASP:OD1 | 2.24                     | 0.70              |
| 2:M:31:C:H2'    | 2:M:32:G:C4     | 2.27                     | 0.70              |
| 2:M:102:U:H5''  | 1:N:228:LEU:HB2 | 1.74                     | 0.70              |
| 2:M:145:C:H2'   | 2:M:146:G:C5    | 2.27                     | 0.70              |
| 1:V:23:SER:OG   | 1:V:96:THR:N    | 2.24                     | 0.70              |
| 1:V:122:ILE:O   | 1:V:126:ALA:N   | 2.23                     | 0.70              |
| 1:G:306:ASN:O   | 1:G:311:GLY:N   | 2.24                     | 0.70              |
| 1:S:89:ASP:OD1  | 1:S:90:THR:OG1  | 2.06                     | 0.70              |
| 1:A:58:ASN:O    | 1:A:61:THR:OG1  | 2.05                     | 0.69              |
| 1:F:295:ARG:NH2 | 1:G:62:SER:O    | 2.25                     | 0.69              |
| 1:L:282:GLY:O   | 1:L:291:TYR:N   | 2.25                     | 0.69              |
| 2:M:103:U:H2'   | 2:M:104:G:C5    | 2.27                     | 0.69              |
| 1:P:282:GLY:O   | 1:P:291:TYR:N   | 2.25                     | 0.69              |
| 1:a:148:LEU:O   | 1:a:151:ASN:N   | 2.26                     | 0.69              |
| 1:q:299:ASP:OD1 | 1:q:302:THR:OG1 | 2.09                     | 0.69              |
| 1:G:75:ASN:OD1  | 1:G:77:GLN:NE2  | 2.25                     | 0.69              |
| 1:L:30:GLY:O    | 1:L:90:THR:N    | 2.24                     | 0.69              |
| 2:M:145:C:H2'   | 2:M:146:G:C4    | 2.28                     | 0.69              |
| 1:U:88:ALA:O    | 1:U:218:ASN:ND2 | 2.25                     | 0.69              |
| 1:I:254:GLN:NE2 | 1:J:47:SER:O    | 2.25                     | 0.69              |
| 2:M:22:A:O2'    | 1:o:49:ARG:O    | 2.10                     | 0.69              |
| 2:M:175:C:H2'   | 2:M:176:G:C8    | 2.26                     | 0.69              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:B:279:GLU:OE1  | 1:B:279:GLU:N   | 2.26                     | 0.69              |
| 1:O:178:SER:OG   | 1:O:179:LEU:N   | 2.26                     | 0.69              |
| 1:Q:86:PHE:O     | 1:Q:218:ASN:ND2 | 2.26                     | 0.69              |
| 1:o:148:LEU:O    | 1:o:152:ARG:N   | 2.24                     | 0.69              |
| 1:E:17:GLU:OE2   | 1:F:150:ARG:NE  | 2.25                     | 0.69              |
| 1:o:305:ASP:O    | 1:o:309:ILE:N   | 2.24                     | 0.69              |
| 1:E:49:ARG:N     | 2:M:78:U:OP2    | 2.26                     | 0.69              |
| 1:K:114:TYR:O    | 1:K:118:LEU:N   | 2.25                     | 0.69              |
| 1:B:306:ASN:O    | 1:B:311:GLY:N   | 2.24                     | 0.69              |
| 1:H:257:GLY:O    | 1:H:260:LEU:N   | 2.25                     | 0.69              |
| 1:P:148:LEU:O    | 1:P:152:ARG:N   | 2.23                     | 0.69              |
| 1:W:89:ASP:OD1   | 1:W:90:THR:OG1  | 2.10                     | 0.69              |
| 1:f:46:LYS:N     | 1:f:79:VAL:O    | 2.26                     | 0.69              |
| 1:G:244:GLN:OE1  | 1:G:244:GLN:N   | 2.26                     | 0.69              |
| 2:M:122:C:O2'    | 2:M:123:A:H5'   | 1.92                     | 0.69              |
| 1:Q:148:LEU:O    | 1:Q:151:ASN:N   | 2.26                     | 0.69              |
| 1:A:30:GLY:O     | 1:A:90:THR:OG1  | 2.10                     | 0.69              |
| 1:E:50:GLY:N     | 1:E:75:ASN:O    | 2.26                     | 0.69              |
| 1:L:304:LEU:O    | 1:L:308:VAL:N   | 2.25                     | 0.69              |
| 1:U:29:ALA:N     | 1:U:39:THR:O    | 2.25                     | 0.69              |
| 1:U:93:ILE:HB    | 1:U:212:ALA:HB3 | 1.75                     | 0.69              |
| 1:U:148:LEU:O    | 1:U:152:ARG:N   | 2.25                     | 0.69              |
| 1:V:148:LEU:O    | 1:V:152:ARG:N   | 2.26                     | 0.69              |
| 1:b:30:GLY:O     | 1:b:90:THR:N    | 2.26                     | 0.69              |
| 1:b:146:ARG:NH1  | 1:b:179:LEU:O   | 2.26                     | 0.69              |
| 1:K:255:LYS:NZ   | 2:M:35:A:H1'    | 2.08                     | 0.69              |
| 2:M:26:C:OP1     | 1:i:150:ARG:NH1 | 2.24                     | 0.69              |
| 1:P:118:LEU:O    | 1:P:122:ILE:N   | 2.26                     | 0.69              |
| 1:a:322:VAL:O    | 1:a:325:THR:OG1 | 2.08                     | 0.69              |
| 1:C:321:TYR:O    | 1:C:325:THR:N   | 2.26                     | 0.69              |
| 1:I:227:GLU:N    | 1:I:227:GLU:OE1 | 2.26                     | 0.69              |
| 2:M:7:U:O2'      | 2:M:8:C:OP2     | 2.11                     | 0.69              |
| 2:M:175:C:O2'    | 2:M:176:G:O4'   | 2.07                     | 0.69              |
| 1:W:306:ASN:O    | 1:W:312:ASP:N   | 2.25                     | 0.69              |
| 2:M:149:A:O4'    | 1:W:258:ASN:ND2 | 2.26                     | 0.68              |
| 1:E:255:LYS:HD2  | 2:M:71:C:H1'    | 1.73                     | 0.68              |
| 1:D:228:LEU:HD22 | 2:M:78:U:C5     | 2.27                     | 0.68              |
| 2:M:24:U:OP2     | 1:o:49:ARG:N    | 2.27                     | 0.68              |
| 1:P:290:ALA:O    | 1:P:293:GLN:NE2 | 2.25                     | 0.68              |
| 2:M:99:G:O2'     | 2:M:100:G:O4'   | 2.10                     | 0.68              |
| 1:B:267:TYR:OH   | 1:B:274:GLY:O   | 2.09                     | 0.68              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:195:ALA:O    | 1:N:199:GLY:N    | 2.25                     | 0.68              |
| 1:T:324:ALA:O    | 1:T:328:ARG:N    | 2.26                     | 0.68              |
| 2:M:18:U:O2'     | 2:M:19:U:O4'     | 2.11                     | 0.68              |
| 2:M:99:G:O2'     | 2:M:100:G:O5'    | 2.11                     | 0.68              |
| 1:V:121:ILE:O    | 1:V:125:TYR:N    | 2.26                     | 0.68              |
| 1:o:195:ALA:O    | 1:o:199:GLY:N    | 2.24                     | 0.68              |
| 1:G:30:GLY:O     | 1:G:90:THR:N     | 2.26                     | 0.68              |
| 1:N:316:PRO:O    | 1:N:320:HIS:ND1  | 2.27                     | 0.68              |
| 1:D:306:ASN:O    | 1:D:311:GLY:N    | 2.27                     | 0.68              |
| 1:L:150:ARG:NH1  | 2:M:32:G:O5'     | 2.27                     | 0.68              |
| 1:T:191:ALA:O    | 1:T:195:ALA:N    | 2.27                     | 0.68              |
| 1:C:196:ILE:O    | 1:C:200:LEU:N    | 2.26                     | 0.68              |
| 2:M:62:C:H2'     | 2:M:63:A:C8      | 2.29                     | 0.68              |
| 1:U:32:TRP:N     | 1:U:90:THR:OG1   | 2.26                     | 0.68              |
| 1:b:64:PRO:O     | 1:b:68:ASP:N     | 2.27                     | 0.68              |
| 1:J:118:LEU:O    | 1:J:122:ILE:N    | 2.26                     | 0.67              |
| 1:O:244:GLN:OE1  | 1:O:244:GLN:N    | 2.28                     | 0.67              |
| 1:f:317:GLU:O    | 1:f:321:TYR:N    | 2.27                     | 0.67              |
| 1:G:305:ASP:O    | 1:G:309:ILE:N    | 2.24                     | 0.67              |
| 1:I:21:ALA:HB3   | 1:I:98:ARG:HB2   | 1.76                     | 0.67              |
| 2:M:81:A:H2'     | 2:M:82:C:C6      | 2.29                     | 0.67              |
| 2:M:164:G:H2'    | 2:M:165:A:C8     | 2.29                     | 0.67              |
| 1:N:112:GLN:O    | 1:N:115:GLN:N    | 2.27                     | 0.67              |
| 1:S:261:ARG:NE   | 1:S:279:GLU:OE2  | 2.25                     | 0.67              |
| 1:U:328:ARG:NH1  | 1:U:329:GLY:O    | 2.27                     | 0.67              |
| 1:A:187:GLY:O    | 1:A:191:ALA:N    | 2.27                     | 0.67              |
| 2:M:128:G:O5'    | 1:a:150:ARG:NH1  | 2.27                     | 0.67              |
| 2:M:165:A:O2'    | 2:M:166:A:O5'    | 2.13                     | 0.67              |
| 1:H:148:LEU:O    | 1:H:151:ASN:N    | 2.26                     | 0.67              |
| 1:E:16:PHE:O     | 1:E:330:GLY:N    | 2.27                     | 0.67              |
| 1:G:316:PRO:O    | 1:G:320:HIS:N    | 2.28                     | 0.67              |
| 1:L:220:GLN:OE1  | 1:L:220:GLN:N    | 2.28                     | 0.67              |
| 2:M:90:U:O2'     | 2:M:91:U:OP2     | 2.11                     | 0.67              |
| 1:Q:14:LEU:O     | 1:Q:333:GLY:N    | 2.27                     | 0.67              |
| 1:U:316:PRO:O    | 1:U:320:HIS:N    | 2.27                     | 0.67              |
| 1:E:150:ARG:HH22 | 2:M:74:G:H4'     | 1.60                     | 0.67              |
| 1:B:284:VAL:O    | 1:B:288:GLY:N    | 2.26                     | 0.67              |
| 1:P:168:ARG:NH2  | 1:P:188:ASP:OD1  | 2.28                     | 0.67              |
| 1:f:300:PHE:CE1  | 1:f:322:VAL:HG13 | 2.30                     | 0.67              |
| 1:i:64:PRO:O     | 1:i:68:ASP:N     | 2.26                     | 0.67              |
| 1:E:163:THR:O    | 1:E:209:THR:N    | 2.28                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:129:G:O2'    | 2:M:130:G:O5'    | 2.10                     | 0.67              |
| 2:M:173:G:H3'    | 1:T:49:ARG:O     | 1.94                     | 0.67              |
| 1:V:25:ALA:HB2   | 1:V:95:PHE:HB3   | 1.75                     | 0.67              |
| 1:V:163:THR:OG1  | 1:V:164:LYS:O    | 2.06                     | 0.67              |
| 1:Z:161:VAL:O    | 1:Z:211:GLU:N    | 2.27                     | 0.67              |
| 2:M:3:G:O5'      | 1:q:18:ARG:NH2   | 2.27                     | 0.67              |
| 1:C:49:ARG:HB3   | 2:M:89:A:H3'     | 1.76                     | 0.67              |
| 1:C:123:THR:O    | 1:C:127:GLN:N    | 2.28                     | 0.67              |
| 1:G:163:THR:OG1  | 1:G:209:THR:O    | 2.04                     | 0.67              |
| 1:N:323:ILE:O    | 1:N:327:ILE:N    | 2.27                     | 0.67              |
| 1:T:244:GLN:OE1  | 1:T:244:GLN:N    | 2.27                     | 0.67              |
| 1:p:141:ASN:ND2  | 1:p:259:ALA:O    | 2.27                     | 0.67              |
| 1:F:124:GLY:O    | 1:F:128:GLU:N    | 2.26                     | 0.67              |
| 1:b:25:ALA:HB1   | 1:b:93:ILE:HG23  | 1.76                     | 0.67              |
| 1:p:123:THR:HA   | 1:p:126:ALA:HB3  | 1.77                     | 0.67              |
| 1:G:23:SER:OG    | 1:G:24:ASP:O     | 2.06                     | 0.67              |
| 1:J:150:ARG:NH1  | 2:M:44:G:O5'     | 2.27                     | 0.67              |
| 2:M:88:G:O2'     | 2:M:89:A:H5'     | 1.95                     | 0.67              |
| 2:M:30:G:H5''    | 1:i:49:ARG:HG3   | 1.76                     | 0.66              |
| 1:H:316:PRO:O    | 1:H:320:HIS:N    | 2.28                     | 0.66              |
| 1:o:129:GLN:NE2  | 1:o:319:GLN:OE1  | 2.28                     | 0.66              |
| 1:o:244:GLN:OE1  | 1:o:244:GLN:N    | 2.28                     | 0.66              |
| 1:p:244:GLN:N    | 1:p:244:GLN:OE1  | 2.28                     | 0.66              |
| 1:D:300:PHE:O    | 1:D:304:LEU:N    | 2.27                     | 0.66              |
| 1:F:325:THR:O    | 1:F:329:GLY:N    | 2.28                     | 0.66              |
| 1:V:23:SER:HG    | 1:V:96:THR:H     | 1.43                     | 0.66              |
| 1:o:112:GLN:O    | 1:o:116:THR:N    | 2.29                     | 0.66              |
| 1:o:146:ARG:NH2  | 1:o:179:LEU:O    | 2.27                     | 0.66              |
| 1:A:12:SER:O     | 1:A:334:GLU:N    | 2.28                     | 0.66              |
| 1:C:141:ASN:ND2  | 1:C:259:ALA:O    | 2.27                     | 0.66              |
| 1:I:18:ARG:NH1   | 2:M:45:A:O5'     | 2.29                     | 0.66              |
| 1:P:244:GLN:OE1  | 1:P:244:GLN:N    | 2.28                     | 0.66              |
| 1:b:148:LEU:HD13 | 1:b:214:VAL:HG21 | 1.76                     | 0.66              |
| 1:B:96:THR:OG1   | 1:B:208:PHE:O    | 2.08                     | 0.66              |
| 1:N:140:GLU:O    | 1:N:144:ASN:N    | 2.29                     | 0.66              |
| 1:L:125:TYR:O    | 1:L:130:GLY:N    | 2.28                     | 0.66              |
| 2:M:9:A:O2'      | 2:M:10:C:O4'     | 2.08                     | 0.66              |
| 1:E:316:PRO:O    | 1:E:320:HIS:ND1  | 2.29                     | 0.66              |
| 1:H:269:ALA:HB1  | 1:H:272:GLU:HB2  | 1.78                     | 0.66              |
| 1:N:12:SER:O     | 1:N:334:GLU:N    | 2.29                     | 0.66              |
| 1:O:163:THR:O    | 1:O:209:THR:OG1  | 2.07                     | 0.66              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:Q:300:PHE:O   | 1:Q:304:LEU:N    | 2.28                     | 0.66              |
| 1:i:17:GLU:OE2  | 1:o:150:ARG:NE   | 2.29                     | 0.66              |
| 1:o:157:ALA:HB3 | 1:o:215:GLN:HB3  | 1.78                     | 0.66              |
| 1:A:15:ALA:HB3  | 1:A:108:VAL:HG22 | 1.77                     | 0.66              |
| 1:o:323:ILE:O   | 1:o:327:ILE:N    | 2.28                     | 0.66              |
| 1:q:24:ASP:OD1  | 1:q:253:SER:N    | 2.27                     | 0.66              |
| 1:F:323:ILE:O   | 1:F:327:ILE:N    | 2.28                     | 0.66              |
| 2:M:54:G:H1'    | 2:M:55:C:C6      | 2.31                     | 0.66              |
| 1:H:102:ASN:O   | 1:H:105:GLN:NE2  | 2.27                     | 0.66              |
| 1:S:141:ASN:ND2 | 1:S:259:ALA:O    | 2.29                     | 0.66              |
| 1:T:80:ASP:OD1  | 1:T:238:LYS:NZ   | 2.25                     | 0.66              |
| 1:T:141:ASN:ND2 | 1:T:259:ALA:O    | 2.29                     | 0.66              |
| 1:U:68:ASP:O    | 1:U:72:GLN:N     | 2.29                     | 0.66              |
| 1:U:80:ASP:OD2  | 1:U:242:LEU:N    | 2.29                     | 0.66              |
| 1:f:244:GLN:OE1 | 1:f:244:GLN:N    | 2.28                     | 0.66              |
| 1:i:89:ASP:OD1  | 1:i:218:ASN:N    | 2.28                     | 0.66              |
| 2:M:163:U:H2'   | 2:M:164:G:C4     | 2.31                     | 0.66              |
| 2:M:169:U:H2'   | 1:T:226:GLN:OE1  | 1.96                     | 0.66              |
| 1:B:193:THR:O   | 1:B:197:GLU:N    | 2.27                     | 0.66              |
| 1:Y:98:ARG:NH2  | 1:Z:153:VAL:O    | 2.29                     | 0.66              |
| 1:q:30:GLY:O    | 1:q:90:THR:N     | 2.29                     | 0.66              |
| 2:M:128:G:O2'   | 2:M:129:G:H5'    | 1.95                     | 0.65              |
| 1:F:148:LEU:O   | 1:F:150:ARG:N    | 2.29                     | 0.65              |
| 1:I:12:SER:O    | 1:I:334:GLU:N    | 2.29                     | 0.65              |
| 1:J:43:ILE:O    | 1:J:44:GLN:NE2   | 2.30                     | 0.65              |
| 1:J:293:GLN:O   | 1:J:299:ASP:N    | 2.30                     | 0.65              |
| 1:f:125:TYR:O   | 1:f:129:GLN:N    | 2.28                     | 0.65              |
| 1:A:314:PRO:O   | 1:A:319:GLN:NE2  | 2.29                     | 0.65              |
| 1:F:144:ASN:O   | 1:F:152:ARG:NH1  | 2.29                     | 0.65              |
| 1:F:187:GLY:O   | 1:F:191:ALA:N    | 2.29                     | 0.65              |
| 1:J:189:LEU:O   | 1:J:193:THR:N    | 2.28                     | 0.65              |
| 2:M:67:C:H2'    | 2:M:68:G:C4      | 2.32                     | 0.65              |
| 1:V:59:ALA:O    | 1:V:62:SER:OG    | 2.09                     | 0.65              |
| 2:M:135:A:O2'   | 2:M:136:A:O5'    | 2.15                     | 0.65              |
| 1:C:187:GLY:O   | 1:C:191:ALA:N    | 2.29                     | 0.65              |
| 1:J:29:ALA:N    | 1:J:39:THR:O     | 2.28                     | 0.65              |
| 1:K:118:LEU:O   | 1:K:121:ILE:N    | 2.29                     | 0.65              |
| 1:o:82:ALA:O    | 1:o:222:VAL:N    | 2.28                     | 0.65              |
| 1:A:71:ILE:CD1  | 1:G:290:ALA:HB2  | 2.27                     | 0.65              |
| 1:J:64:PRO:O    | 1:J:68:ASP:N     | 2.29                     | 0.65              |
| 1:Y:148:LEU:O   | 1:Y:151:ASN:N    | 2.29                     | 0.65              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:323:ILE:O    | 1:D:327:ILE:N    | 2.29                     | 0.65              |
| 1:L:254:GLN:NE2  | 2:M:28:C:H3'     | 2.12                     | 0.65              |
| 2:M:74:G:H5'     | 2:M:75:A:OP2     | 1.96                     | 0.65              |
| 2:M:127:C:H5''   | 1:a:226:GLN:OE1  | 1.97                     | 0.65              |
| 2:M:155:G:H3'    | 1:W:49:ARG:O     | 1.96                     | 0.65              |
| 2:M:168:U:OP2    | 1:U:49:ARG:N     | 2.29                     | 0.65              |
| 1:H:299:ASP:OD1  | 1:H:302:THR:N    | 2.30                     | 0.65              |
| 1:L:321:TYR:O    | 1:L:325:THR:N    | 2.30                     | 0.65              |
| 1:S:113:ASP:O    | 1:S:117:ALA:N    | 2.30                     | 0.65              |
| 1:V:192:LEU:HD23 | 1:V:193:THR:HA   | 1.79                     | 0.65              |
| 1:E:195:ALA:O    | 1:E:199:GLY:N    | 2.29                     | 0.65              |
| 2:M:58:A:H3'     | 2:M:59:A:H5''    | 1.79                     | 0.65              |
| 2:M:123:A:H2'    | 2:M:124:C:C6     | 2.32                     | 0.65              |
| 1:U:141:ASN:ND2  | 1:U:259:ALA:O    | 2.30                     | 0.65              |
| 1:p:30:GLY:C     | 1:p:88:ALA:HB1   | 2.22                     | 0.65              |
| 1:D:140:GLU:OE2  | 1:D:183:SER:N    | 2.30                     | 0.65              |
| 2:M:15:G:H2'     | 2:M:16:G:C8      | 2.32                     | 0.65              |
| 1:W:121:ILE:O    | 1:W:125:TYR:N    | 2.29                     | 0.65              |
| 1:Y:32:TRP:N     | 1:Y:90:THR:OG1   | 2.30                     | 0.65              |
| 1:b:193:THR:HA   | 1:b:196:ILE:HD12 | 1.78                     | 0.65              |
| 1:A:118:LEU:HG   | 1:A:122:ILE:HD11 | 1.79                     | 0.64              |
| 1:D:151:ASN:OD1  | 1:D:223:PHE:N    | 2.30                     | 0.64              |
| 1:K:306:ASN:O    | 1:K:311:GLY:N    | 2.31                     | 0.64              |
| 2:M:144:G:H5''   | 1:Y:49:ARG:HB3   | 1.79                     | 0.64              |
| 1:Q:325:THR:O    | 1:Q:329:GLY:N    | 2.30                     | 0.64              |
| 1:T:118:LEU:O    | 1:T:122:ILE:N    | 2.31                     | 0.64              |
| 1:V:144:ASN:O    | 1:V:152:ARG:NH1  | 2.30                     | 0.64              |
| 1:K:300:PHE:O    | 1:K:304:LEU:N    | 2.30                     | 0.64              |
| 2:M:8:C:O5'      | 1:q:150:ARG:NH1  | 2.30                     | 0.64              |
| 2:M:136:A:H1'    | 1:Z:50:GLY:HA3   | 1.79                     | 0.64              |
| 1:U:305:ASP:HB3  | 1:U:309:ILE:HD12 | 1.80                     | 0.64              |
| 1:Y:227:GLU:OE1  | 1:Y:227:GLU:N    | 2.29                     | 0.64              |
| 1:C:262:THR:HG23 | 1:C:276:ILE:C    | 2.22                     | 0.64              |
| 1:G:125:TYR:O    | 1:G:130:GLY:N    | 2.30                     | 0.64              |
| 1:Y:115:GLN:O    | 1:Y:118:LEU:N    | 2.30                     | 0.64              |
| 1:J:18:ARG:NH2   | 2:M:39:G:O5'     | 2.31                     | 0.64              |
| 1:B:229:VAL:O    | 1:B:235:ARG:NH2  | 2.31                     | 0.64              |
| 1:H:112:GLN:O    | 1:H:115:GLN:N    | 2.29                     | 0.64              |
| 1:N:112:GLN:O    | 1:N:116:THR:N    | 2.29                     | 0.64              |
| 1:P:23:SER:OG    | 1:P:24:ASP:O     | 2.09                     | 0.64              |
| 1:Y:65:ALA:O     | 1:Y:69:ALA:N     | 2.30                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:148:LEU:O    | 1:L:151:ASN:N    | 2.29                     | 0.64              |
| 2:M:18:U:O2'     | 2:M:19:U:O5'     | 2.15                     | 0.64              |
| 2:M:29:G:H3'     | 1:i:49:ARG:O     | 1.97                     | 0.64              |
| 1:b:323:ILE:HD13 | 1:b:326:LEU:HD12 | 1.78                     | 0.64              |
| 1:I:146:ARG:HG2  | 1:I:179:LEU:HD22 | 1.79                     | 0.64              |
| 2:M:107:A:OP2    | 1:H:261:ARG:NH2  | 2.31                     | 0.64              |
| 1:N:111:ASP:OD1  | 1:N:112:GLN:N    | 2.30                     | 0.64              |
| 1:S:295:ARG:NH2  | 1:T:62:SER:O     | 2.30                     | 0.64              |
| 1:V:50:GLY:O     | 1:V:75:ASN:N     | 2.31                     | 0.64              |
| 1:V:79:VAL:O     | 1:V:238:LYS:NZ   | 2.29                     | 0.64              |
| 1:V:89:ASP:O     | 1:V:217:GLY:N    | 2.30                     | 0.64              |
| 1:a:64:PRO:O     | 1:a:68:ASP:N     | 2.30                     | 0.64              |
| 1:o:144:ASN:O    | 1:o:152:ARG:NH1  | 2.30                     | 0.64              |
| 1:I:140:GLU:OE1  | 1:I:183:SER:N    | 2.31                     | 0.64              |
| 2:M:9:A:H2'      | 2:M:10:C:C6      | 2.32                     | 0.64              |
| 1:W:256:ILE:O    | 1:W:260:LEU:N    | 2.27                     | 0.64              |
| 1:F:135:ALA:HB2  | 1:F:200:LEU:HD12 | 1.80                     | 0.64              |
| 1:G:300:PHE:O    | 1:G:304:LEU:N    | 2.30                     | 0.64              |
| 2:M:149:A:H1'    | 1:W:255:LYS:NZ   | 2.12                     | 0.64              |
| 2:M:159:G:H2'    | 2:M:160:G:C8     | 2.32                     | 0.64              |
| 1:H:321:TYR:O    | 1:H:325:THR:N    | 2.30                     | 0.64              |
| 1:a:273:ALA:O    | 1:a:287:ARG:NH2  | 2.30                     | 0.64              |
| 1:F:58:ASN:O     | 1:F:61:THR:OG1   | 2.16                     | 0.64              |
| 1:q:196:ILE:O    | 1:q:200:LEU:N    | 2.31                     | 0.64              |
| 1:E:34:GLN:NE2   | 1:E:36:ASP:O     | 2.29                     | 0.64              |
| 1:F:85:PRO:O     | 1:F:219:GLY:N    | 2.30                     | 0.64              |
| 1:b:178:SER:OG   | 1:b:179:LEU:N    | 2.31                     | 0.64              |
| 1:I:99:VAL:HG11  | 1:I:196:ILE:HG23 | 1.79                     | 0.63              |
| 2:M:152:C:H3'    | 2:M:152:C:OP2    | 1.99                     | 0.63              |
| 1:b:196:ILE:HG22 | 1:b:200:LEU:HD11 | 1.80                     | 0.63              |
| 1:i:148:LEU:O    | 1:i:152:ARG:N    | 2.31                     | 0.63              |
| 2:M:23:A:OP1     | 1:o:51:THR:OG1   | 2.16                     | 0.63              |
| 1:B:112:GLN:O    | 1:B:115:GLN:N    | 2.31                     | 0.63              |
| 1:Y:102:ASN:O    | 1:Y:105:GLN:NE2  | 2.31                     | 0.63              |
| 1:I:226:GLN:N    | 2:M:49:U:OP2     | 2.31                     | 0.63              |
| 2:M:2:G:H4'      | 1:q:17:GLU:HG2   | 1.79                     | 0.63              |
| 1:H:98:ARG:NH1   | 1:N:153:VAL:O    | 2.30                     | 0.63              |
| 1:Q:21:ALA:HB3   | 1:Q:98:ARG:HB2   | 1.80                     | 0.63              |
| 1:T:24:ASP:OD1   | 1:T:25:ALA:N     | 2.31                     | 0.63              |
| 1:b:59:ALA:O     | 1:b:62:SER:OG    | 2.12                     | 0.63              |
| 1:b:324:ALA:O    | 1:b:328:ARG:N    | 2.30                     | 0.63              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:f:324:ALA:O   | 1:f:328:ARG:N    | 2.31                     | 0.63              |
| 1:A:18:ARG:NH2  | 2:M:51:A:O5'     | 2.31                     | 0.63              |
| 2:M:144:G:H5'   | 1:Y:49:ARG:CB    | 2.28                     | 0.63              |
| 1:B:293:GLN:O   | 1:B:299:ASP:N    | 2.32                     | 0.63              |
| 1:P:148:LEU:O   | 1:P:151:ASN:N    | 2.30                     | 0.63              |
| 1:b:257:GLY:O   | 1:b:261:ARG:N    | 2.30                     | 0.63              |
| 1:A:71:ILE:HD11 | 1:G:290:ALA:HB2  | 1.81                     | 0.63              |
| 2:M:163:U:H2'   | 2:M:164:G:C5     | 2.33                     | 0.63              |
| 1:T:300:PHE:HE1 | 1:T:322:VAL:HG13 | 1.62                     | 0.63              |
| 1:Y:300:PHE:CE2 | 1:Y:304:LEU:HD22 | 2.33                     | 0.63              |
| 1:b:144:ASN:OD1 | 1:b:145:GLY:N    | 2.32                     | 0.63              |
| 1:H:160:VAL:O   | 1:H:172:PHE:N    | 2.31                     | 0.63              |
| 1:N:114:TYR:O   | 1:N:118:LEU:N    | 2.30                     | 0.63              |
| 1:O:135:ALA:HB1 | 1:O:196:ILE:HG23 | 1.80                     | 0.63              |
| 1:T:254:GLN:OE1 | 1:T:254:GLN:N    | 2.32                     | 0.63              |
| 1:Y:257:GLY:O   | 1:Y:261:ARG:N    | 2.32                     | 0.63              |
| 1:A:141:ASN:ND2 | 1:A:260:LEU:O    | 2.32                     | 0.63              |
| 2:M:25:U:H2'    | 1:i:226:GLN:OE1  | 1.99                     | 0.63              |
| 2:M:33:A:H2'    | 2:M:34:A:C8      | 2.34                     | 0.63              |
| 2:M:116:G:O5'   | 1:B:150:ARG:NH1  | 2.30                     | 0.63              |
| 2:M:167:A:N3    | 1:T:255:LYS:NZ   | 2.47                     | 0.63              |
| 1:B:305:ASP:O   | 1:B:309:ILE:N    | 2.27                     | 0.63              |
| 1:B:314:PRO:O   | 1:B:319:GLN:NE2  | 2.31                     | 0.63              |
| 1:Q:12:SER:O    | 1:Q:334:GLU:N    | 2.31                     | 0.63              |
| 1:S:137:ARG:NH1 | 1:S:265:ASP:OD2  | 2.32                     | 0.63              |
| 1:o:117:ALA:O   | 1:o:121:ILE:N    | 2.29                     | 0.63              |
| 1:C:227:GLU:N   | 1:C:241:ILE:O    | 2.31                     | 0.63              |
| 1:Y:259:ALA:O   | 1:Y:262:THR:OG1  | 2.16                     | 0.63              |
| 1:b:98:ARG:HG2  | 1:b:207:LEU:HD13 | 1.81                     | 0.63              |
| 1:f:46:LYS:O    | 1:f:79:VAL:N     | 2.31                     | 0.63              |
| 1:G:18:ARG:NH2  | 2:M:57:A:O5'     | 2.32                     | 0.63              |
| 1:J:257:GLY:HA2 | 1:J:260:LEU:HD12 | 1.80                     | 0.63              |
| 1:K:80:ASP:OD1  | 1:K:81:VAL:N     | 2.32                     | 0.63              |
| 1:L:30:GLY:N    | 1:L:90:THR:O     | 2.32                     | 0.63              |
| 1:B:97:LEU:O    | 1:B:207:LEU:HD12 | 1.99                     | 0.63              |
| 1:W:68:ASP:OD1  | 1:W:72:GLN:NE2   | 2.32                     | 0.63              |
| 1:D:30:GLY:O    | 1:D:88:ALA:HB1   | 1.99                     | 0.62              |
| 2:M:87:G:O2'    | 1:P:328:ARG:NH2  | 2.32                     | 0.62              |
| 2:M:158:G:O2'   | 2:M:159:G:H5'    | 1.99                     | 0.62              |
| 2:M:160:G:O2'   | 1:V:49:ARG:O     | 2.16                     | 0.62              |
| 2:M:22:A:H3'    | 2:M:23:A:H5'     | 1.80                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:104:G:H5'    | 1:N:150:ARG:NH2  | 2.13                     | 0.62              |
| 1:B:91:LEU:O     | 1:B:214:VAL:N    | 2.32                     | 0.62              |
| 1:N:306:ASN:O    | 1:N:311:GLY:N    | 2.32                     | 0.62              |
| 1:T:254:GLN:H    | 1:U:46:LYS:NZ    | 1.97                     | 0.62              |
| 1:o:160:VAL:O    | 1:o:172:PHE:N    | 2.31                     | 0.62              |
| 2:M:37:C:O2'     | 2:M:38:G:O4'     | 2.04                     | 0.62              |
| 2:M:122:C:H5''   | 1:a:17:GLU:HG2   | 1.81                     | 0.62              |
| 2:M:161:C:H2'    | 1:V:49:ARG:NH2   | 2.14                     | 0.62              |
| 1:a:305:ASP:HB3  | 1:a:309:ILE:HD12 | 1.80                     | 0.62              |
| 1:i:301:TYR:O    | 1:i:305:ASP:N    | 2.32                     | 0.62              |
| 1:C:261:ARG:NH2  | 2:M:83:G:OP2     | 2.32                     | 0.62              |
| 1:E:137:ARG:O    | 1:E:141:ASN:N    | 2.31                     | 0.62              |
| 1:L:23:SER:OG    | 1:L:96:THR:N     | 2.30                     | 0.62              |
| 1:H:88:ALA:N     | 1:H:218:ASN:OD1  | 2.31                     | 0.62              |
| 1:Q:279:GLU:O    | 1:Q:321:TYR:OH   | 2.17                     | 0.62              |
| 1:Q:324:ALA:O    | 1:Q:328:ARG:N    | 2.31                     | 0.62              |
| 1:i:148:LEU:O    | 1:i:151:ASN:N    | 2.32                     | 0.62              |
| 1:C:300:PHE:O    | 1:C:304:LEU:N    | 2.32                     | 0.62              |
| 1:D:264:ASP:OD2  | 1:D:292:ARG:NH2  | 2.31                     | 0.62              |
| 1:G:148:LEU:HD12 | 1:G:152:ARG:CA   | 2.29                     | 0.62              |
| 1:I:14:LEU:O     | 1:I:333:GLY:N    | 2.33                     | 0.62              |
| 1:J:49:ARG:N     | 2:M:48:U:OP2     | 2.28                     | 0.62              |
| 1:a:229:VAL:HG11 | 1:a:235:ARG:HG3  | 1.80                     | 0.62              |
| 1:Z:122:ILE:O    | 1:Z:125:TYR:N    | 2.32                     | 0.62              |
| 1:p:261:ARG:HB2  | 1:p:278:VAL:HG12 | 1.80                     | 0.62              |
| 1:I:228:LEU:HD11 | 1:J:76:LEU:HD13  | 1.80                     | 0.62              |
| 1:K:30:GLY:C     | 1:K:88:ALA:HB1   | 2.24                     | 0.62              |
| 2:M:180:U:H5'    | 1:f:228:LEU:HB2  | 1.81                     | 0.62              |
| 1:H:254:GLN:OE1  | 1:H:254:GLN:N    | 2.30                     | 0.62              |
| 1:f:325:THR:O    | 1:f:329:GLY:N    | 2.32                     | 0.62              |
| 1:I:187:GLY:O    | 1:I:191:ALA:N    | 2.32                     | 0.62              |
| 2:M:147:A:H2'    | 2:M:148:A:C8     | 2.34                     | 0.62              |
| 1:V:97:LEU:O     | 1:V:208:PHE:N    | 2.31                     | 0.62              |
| 1:W:305:ASP:HB3  | 1:W:309:ILE:HD12 | 1.80                     | 0.62              |
| 1:B:187:GLY:O    | 1:B:191:ALA:N    | 2.32                     | 0.62              |
| 1:V:168:ARG:NH2  | 1:V:188:ASP:OD1  | 2.32                     | 0.62              |
| 2:M:72:U:O2'     | 2:M:73:U:O5'     | 2.16                     | 0.62              |
| 2:M:176:G:H4'    | 1:f:17:GLU:HG2   | 1.82                     | 0.62              |
| 1:B:191:ALA:O    | 1:B:195:ALA:N    | 2.32                     | 0.62              |
| 1:O:305:ASP:HB3  | 1:O:309:ILE:HD12 | 1.82                     | 0.62              |
| 1:Y:59:ALA:O     | 1:Y:62:SER:OG    | 2.10                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:f:144:ASN:OD1  | 1:f:145:GLY:N    | 2.33                     | 0.62              |
| 1:D:30:GLY:N     | 1:D:90:THR:O     | 2.31                     | 0.61              |
| 1:E:109:CYS:SG   | 1:E:110:ASN:N    | 2.71                     | 0.61              |
| 1:G:150:ARG:NH2  | 2:M:63:A:OP1     | 2.33                     | 0.61              |
| 1:J:141:ASN:ND2  | 1:J:262:THR:O    | 2.32                     | 0.61              |
| 1:J:144:ASN:O    | 1:J:152:ARG:NH1  | 2.32                     | 0.61              |
| 2:M:153:A:H2'    | 2:M:154:C:C6     | 2.35                     | 0.61              |
| 1:B:82:ALA:C     | 1:B:222:VAL:HG12 | 2.26                     | 0.61              |
| 1:H:189:LEU:O    | 1:H:192:LEU:N    | 2.33                     | 0.61              |
| 1:N:21:ALA:HB3   | 1:N:98:ARG:CG    | 2.29                     | 0.61              |
| 1:O:12:SER:O     | 1:O:334:GLU:N    | 2.33                     | 0.61              |
| 1:A:281:TYR:OH   | 1:I:54:ASN:O     | 2.09                     | 0.61              |
| 1:G:293:GLN:O    | 1:G:299:ASP:N    | 2.33                     | 0.61              |
| 1:K:15:ALA:HB2   | 1:K:331:VAL:HG23 | 1.82                     | 0.61              |
| 2:M:114:G:H5''   | 1:H:49:ARG:HG3   | 1.81                     | 0.61              |
| 1:Z:306:ASN:O    | 1:Z:312:ASP:N    | 2.33                     | 0.61              |
| 1:Z:316:PRO:O    | 1:Z:320:HIS:ND1  | 2.33                     | 0.61              |
| 1:i:12:SER:O     | 1:i:334:GLU:N    | 2.33                     | 0.61              |
| 1:C:296:GLU:OE1  | 1:C:296:GLU:N    | 2.34                     | 0.61              |
| 1:J:19:LYS:NZ    | 1:J:101:GLY:O    | 2.33                     | 0.61              |
| 1:J:74:ALA:HB1   | 1:J:76:LEU:HD11  | 1.82                     | 0.61              |
| 2:M:24:U:H1'     | 2:M:25:U:C6      | 2.35                     | 0.61              |
| 2:M:34:A:H3'     | 2:M:35:A:H5''    | 1.82                     | 0.61              |
| 2:M:97:C:O2'     | 2:M:98:G:O4'     | 2.15                     | 0.61              |
| 2:M:146:G:O2'    | 2:M:147:A:H5'    | 2.00                     | 0.61              |
| 2:M:167:A:O3'    | 2:M:168:U:H4'    | 2.01                     | 0.61              |
| 1:H:26:LEU:HA    | 1:H:250:ALA:HB2  | 1.82                     | 0.61              |
| 1:P:299:ASP:OD1  | 1:P:302:THR:OG1  | 2.10                     | 0.61              |
| 1:S:14:LEU:O     | 1:S:333:GLY:N    | 2.33                     | 0.61              |
| 1:Y:315:MET:N    | 1:Y:318:GLN:OE1  | 2.33                     | 0.61              |
| 1:b:266:TRP:O    | 1:b:318:GLN:NE2  | 2.33                     | 0.61              |
| 1:i:111:ASP:OD1  | 1:i:112:GLN:N    | 2.33                     | 0.61              |
| 1:A:26:LEU:HD23  | 1:A:250:ALA:HB2  | 1.81                     | 0.61              |
| 1:J:187:GLY:O    | 1:J:191:ALA:N    | 2.32                     | 0.61              |
| 1:K:245:VAL:O    | 1:K:248:VAL:N    | 2.33                     | 0.61              |
| 1:L:305:ASP:O    | 1:L:309:ILE:N    | 2.33                     | 0.61              |
| 2:M:103:U:H2'    | 2:M:104:G:C4     | 2.35                     | 0.61              |
| 1:P:254:GLN:OE1  | 1:P:254:GLN:N    | 2.33                     | 0.61              |
| 1:S:227:GLU:N    | 1:S:241:ILE:O    | 2.34                     | 0.61              |
| 1:V:50:GLY:N     | 1:V:75:ASN:O     | 2.33                     | 0.61              |
| 1:Y:118:LEU:HD21 | 1:Y:122:ILE:HD11 | 1.81                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Y:195:ALA:O    | 1:Y:199:GLY:N    | 2.32                     | 0.61              |
| 1:f:259:ALA:O    | 1:f:262:THR:OG1  | 2.18                     | 0.61              |
| 1:A:74:ALA:HB1   | 1:A:76:LEU:HD21  | 1.81                     | 0.61              |
| 1:A:132:SER:O    | 1:A:136:ALA:N    | 2.33                     | 0.61              |
| 1:F:159:ARG:NE   | 1:F:171:GLU:OE2  | 2.33                     | 0.61              |
| 1:G:255:LYS:NZ   | 2:M:59:A:O3'     | 2.29                     | 0.61              |
| 2:M:73:U:H2'     | 2:M:74:G:C4      | 2.35                     | 0.61              |
| 2:M:94:C:H5'     | 1:O:261:ARG:HH12 | 1.66                     | 0.61              |
| 2:M:100:G:O2'    | 1:O:49:ARG:O     | 2.18                     | 0.61              |
| 1:N:190:ALA:O    | 1:N:194:GLN:N    | 2.31                     | 0.61              |
| 1:W:84:LEU:HD12  | 1:W:217:GLY:O    | 1.99                     | 0.61              |
| 1:b:190:ALA:O    | 1:b:193:THR:N    | 2.34                     | 0.61              |
| 1:E:141:ASN:ND2  | 1:E:259:ALA:O    | 2.33                     | 0.61              |
| 1:E:296:GLU:OE1  | 1:E:296:GLU:N    | 2.34                     | 0.61              |
| 1:F:321:TYR:O    | 1:F:325:THR:N    | 2.31                     | 0.61              |
| 1:J:138:TYR:O    | 1:J:142:ILE:HG22 | 2.00                     | 0.61              |
| 2:M:14:G:H5''    | 1:p:150:ARG:NH1  | 2.15                     | 0.61              |
| 2:M:18:U:H5''    | 1:o:228:LEU:HB2  | 1.82                     | 0.61              |
| 2:M:37:C:H2'     | 2:M:38:G:C8      | 2.35                     | 0.61              |
| 2:M:120:U:O2'    | 2:M:121:U:H2'    | 2.01                     | 0.61              |
| 1:a:192:LEU:HD23 | 1:a:193:THR:HA   | 1.83                     | 0.61              |
| 1:i:24:ASP:OD1   | 1:i:25:ALA:N     | 2.34                     | 0.61              |
| 1:F:95:PHE:CE2   | 1:F:210:VAL:HG21 | 2.36                     | 0.61              |
| 1:G:323:ILE:O    | 1:G:327:ILE:N    | 2.33                     | 0.61              |
| 1:B:195:ALA:O    | 1:B:199:GLY:N    | 2.34                     | 0.61              |
| 1:H:257:GLY:O    | 1:H:261:ARG:N    | 2.33                     | 0.61              |
| 1:P:195:ALA:O    | 1:P:199:GLY:N    | 2.33                     | 0.61              |
| 1:P:321:TYR:O    | 1:P:325:THR:N    | 2.33                     | 0.61              |
| 1:J:262:THR:HG23 | 1:J:276:ILE:C    | 2.25                     | 0.61              |
| 2:M:11:G:N3      | 1:p:255:LYS:NZ   | 2.37                     | 0.61              |
| 2:M:57:A:H2'     | 2:M:58:A:C8      | 2.35                     | 0.61              |
| 1:D:148:LEU:O    | 1:D:152:ARG:N    | 2.33                     | 0.61              |
| 1:K:115:GLN:O    | 1:K:119:GLY:N    | 2.33                     | 0.61              |
| 2:M:3:G:H2'      | 2:M:4:G:C4       | 2.36                     | 0.61              |
| 2:M:50:C:H2'     | 2:M:51:A:C8      | 2.36                     | 0.61              |
| 1:Z:46:LYS:O     | 1:Z:79:VAL:N     | 2.32                     | 0.61              |
| 1:a:323:ILE:O    | 1:a:327:ILE:N    | 2.34                     | 0.61              |
| 1:b:196:ILE:HG22 | 1:b:200:LEU:CD1  | 2.31                     | 0.61              |
| 1:A:316:PRO:O    | 1:A:320:HIS:ND1  | 2.34                     | 0.61              |
| 1:D:163:THR:O    | 1:D:209:THR:OG1  | 2.06                     | 0.61              |
| 1:K:18:ARG:HB3   | 2:M:33:A:H5''    | 1.82                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:93:A:O3'     | 1:O:18:ARG:NH2   | 2.33                     | 0.61              |
| 1:U:300:PHE:CE1  | 1:U:322:VAL:HG13 | 2.35                     | 0.61              |
| 1:Y:161:VAL:O    | 1:Y:211:GLU:N    | 2.32                     | 0.61              |
| 1:I:59:ALA:O     | 1:I:62:SER:OG    | 2.15                     | 0.60              |
| 1:N:23:SER:OG    | 1:N:96:THR:O     | 2.10                     | 0.60              |
| 1:U:228:LEU:HD22 | 1:V:49:ARG:HB2   | 1.83                     | 0.60              |
| 1:Y:281:TYR:OH   | 1:Z:54:ASN:O     | 2.10                     | 0.60              |
| 1:D:222:VAL:HG13 | 1:D:224:PRO:HD3  | 1.82                     | 0.60              |
| 2:M:25:U:O2'     | 2:M:26:C:O5'     | 2.18                     | 0.60              |
| 2:M:45:A:H2'     | 2:M:46:A:C8      | 2.36                     | 0.60              |
| 2:M:84:G:O2'     | 2:M:85:C:H5''    | 2.01                     | 0.60              |
| 2:M:138:U:H1'    | 2:M:139:U:H5'    | 1.83                     | 0.60              |
| 2:M:138:U:C6     | 1:Y:228:LEU:HD12 | 2.36                     | 0.60              |
| 1:P:141:ASN:ND2  | 1:P:260:LEU:O    | 2.33                     | 0.60              |
| 1:T:284:VAL:O    | 1:T:288:GLY:N    | 2.33                     | 0.60              |
| 1:W:178:SER:OG   | 1:W:179:LEU:N    | 2.33                     | 0.60              |
| 1:i:191:ALA:O    | 1:i:195:ALA:N    | 2.33                     | 0.60              |
| 1:A:124:GLY:O    | 1:A:128:GLU:N    | 2.33                     | 0.60              |
| 2:M:104:G:H5'    | 1:N:150:ARG:HH22 | 1.65                     | 0.60              |
| 1:N:300:PHE:O    | 1:N:303:LEU:N    | 2.34                     | 0.60              |
| 1:Z:82:ALA:O     | 1:Z:222:VAL:N    | 2.33                     | 0.60              |
| 1:b:173:ASN:OD1  | 1:b:174:GLY:N    | 2.34                     | 0.60              |
| 1:K:147:PHE:O    | 1:K:149:TRP:N    | 2.34                     | 0.60              |
| 1:i:121:ILE:O    | 1:i:125:TYR:N    | 2.31                     | 0.60              |
| 1:G:228:LEU:HB2  | 2:M:60:U:H5'     | 1.81                     | 0.60              |
| 2:M:43:U:H2'     | 2:M:44:G:C4      | 2.36                     | 0.60              |
| 2:M:145:C:H5''   | 1:Q:226:GLN:CD   | 2.27                     | 0.60              |
| 1:a:264:ASP:OD1  | 1:a:266:TRP:N    | 2.33                     | 0.60              |
| 1:I:74:ALA:HB1   | 1:I:76:LEU:HD21  | 1.82                     | 0.60              |
| 1:K:97:LEU:HD12  | 1:K:98:ARG:H     | 1.66                     | 0.60              |
| 2:M:131:C:O3'    | 2:M:132:U:H4'    | 1.99                     | 0.60              |
| 1:H:111:ASP:OD1  | 1:H:112:GLN:N    | 2.33                     | 0.60              |
| 1:N:325:THR:O    | 1:N:329:GLY:N    | 2.33                     | 0.60              |
| 1:W:261:ARG:HG3  | 1:W:277:ALA:HB1  | 1.83                     | 0.60              |
| 1:f:303:LEU:O    | 1:f:307:TRP:N    | 2.32                     | 0.60              |
| 1:F:304:LEU:O    | 1:F:308:VAL:HG23 | 2.02                     | 0.60              |
| 1:J:31:ASN:OD1   | 1:J:89:ASP:N     | 2.31                     | 0.60              |
| 2:M:122:C:O5'    | 1:b:150:ARG:NH1  | 2.33                     | 0.60              |
| 1:B:12:SER:O     | 1:B:334:GLU:N    | 2.34                     | 0.60              |
| 1:b:97:LEU:O     | 1:b:208:PHE:N    | 2.34                     | 0.60              |
| 1:A:23:SER:OG    | 1:A:24:ASP:O     | 2.13                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:178:SER:OG   | 1:F:181:GLN:O    | 2.19                     | 0.60              |
| 1:p:125:TYR:O    | 1:p:129:GLN:N    | 2.34                     | 0.60              |
| 1:A:142:ILE:HG22 | 1:A:160:VAL:HG11 | 1.84                     | 0.60              |
| 2:M:23:A:N3      | 1:i:255:LYS:NZ   | 2.49                     | 0.60              |
| 1:N:269:ALA:O    | 1:N:273:ALA:N    | 2.34                     | 0.60              |
| 1:P:112:GLN:O    | 1:P:115:GLN:N    | 2.34                     | 0.60              |
| 1:Y:147:PHE:C    | 1:Y:148:LEU:HD22 | 2.27                     | 0.60              |
| 1:Y:316:PRO:O    | 1:Y:320:HIS:N    | 2.35                     | 0.60              |
| 1:o:325:THR:O    | 1:o:329:GLY:N    | 2.34                     | 0.60              |
| 1:F:328:ARG:CZ   | 2:M:63:A:H4'     | 2.32                     | 0.59              |
| 1:T:97:LEU:O     | 1:T:208:PHE:N    | 2.33                     | 0.59              |
| 1:i:325:THR:O    | 1:i:329:GLY:N    | 2.35                     | 0.59              |
| 1:F:286:SER:OG   | 1:F:287:ARG:N    | 2.35                     | 0.59              |
| 1:f:160:VAL:O    | 1:f:172:PHE:N    | 2.35                     | 0.59              |
| 1:C:114:TYR:O    | 1:C:118:LEU:N    | 2.34                     | 0.59              |
| 2:M:87:G:O5'     | 1:P:18:ARG:NH2   | 2.35                     | 0.59              |
| 1:V:290:ALA:O    | 1:V:293:GLN:NE2  | 2.35                     | 0.59              |
| 1:Y:277:ALA:HB3  | 1:Y:279:GLU:OE2  | 2.02                     | 0.59              |
| 1:f:172:PHE:CZ   | 1:f:192:LEU:HD22 | 2.37                     | 0.59              |
| 2:M:63:A:O2'     | 2:M:64:C:O5'     | 2.20                     | 0.59              |
| 1:O:123:THR:HA   | 1:O:126:ALA:HB3  | 1.83                     | 0.59              |
| 1:P:192:LEU:O    | 1:P:195:ALA:HB3  | 2.03                     | 0.59              |
| 1:a:32:TRP:N     | 1:a:90:THR:OG1   | 2.35                     | 0.59              |
| 1:J:26:LEU:HD23  | 1:J:250:ALA:HB2  | 1.83                     | 0.59              |
| 1:L:178:SER:OG   | 1:L:179:LEU:N    | 2.33                     | 0.59              |
| 2:M:5:A:N3       | 1:q:255:LYS:NZ   | 2.50                     | 0.59              |
| 2:M:89:A:O4'     | 1:P:258:ASN:ND2  | 2.34                     | 0.59              |
| 1:W:25:ALA:O     | 1:W:250:ALA:HB1  | 2.02                     | 0.59              |
| 1:A:11:ALA:HB3   | 1:A:14:LEU:HD11  | 1.85                     | 0.59              |
| 1:D:118:LEU:HB3  | 1:D:122:ILE:HD11 | 1.84                     | 0.59              |
| 2:M:25:U:O2'     | 2:M:26:C:O4'     | 2.17                     | 0.59              |
| 2:M:111:A:O2'    | 2:M:112:C:O4'    | 2.16                     | 0.59              |
| 2:M:168:U:C5     | 1:T:228:LEU:HD22 | 2.38                     | 0.59              |
| 2:M:179:A:H5''   | 1:S:49:ARG:O     | 2.01                     | 0.59              |
| 1:T:12:SER:O     | 1:T:334:GLU:N    | 2.35                     | 0.59              |
| 1:Y:284:VAL:O    | 1:Y:288:GLY:N    | 2.35                     | 0.59              |
| 1:Z:95:PHE:CZ    | 1:Z:210:VAL:HG21 | 2.37                     | 0.59              |
| 1:f:290:ALA:HB3  | 1:f:293:GLN:NE2  | 2.17                     | 0.59              |
| 1:A:114:TYR:O    | 1:A:118:LEU:N    | 2.36                     | 0.59              |
| 1:F:133:THR:O    | 1:F:136:ALA:N    | 2.35                     | 0.59              |
| 2:M:86:G:H4'     | 1:P:17:GLU:HG2   | 1.83                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:V:18:ARG:NH2   | 1:V:22:ASN:OD1   | 2.36                     | 0.59              |
| 1:Y:188:ASP:O    | 1:Y:192:LEU:N    | 2.36                     | 0.59              |
| 1:i:190:ALA:O    | 1:i:193:THR:OG1  | 2.17                     | 0.59              |
| 1:C:222:VAL:HG23 | 1:C:224:PRO:HD2  | 1.84                     | 0.59              |
| 1:C:304:LEU:O    | 1:C:308:VAL:HG23 | 2.02                     | 0.59              |
| 1:F:253:SER:OG   | 1:F:254:GLN:N    | 2.36                     | 0.59              |
| 2:M:104:G:H4'    | 2:M:105:A:OP1    | 2.01                     | 0.59              |
| 2:M:104:G:H2'    | 2:M:105:A:C4     | 2.37                     | 0.59              |
| 2:M:139:U:H3'    | 2:M:139:U:OP2    | 2.02                     | 0.59              |
| 1:H:175:GLU:OE1  | 1:H:175:GLU:N    | 2.34                     | 0.59              |
| 1:Q:125:TYR:O    | 1:Q:129:GLN:N    | 2.30                     | 0.59              |
| 1:U:12:SER:O     | 1:U:334:GLU:N    | 2.36                     | 0.59              |
| 1:a:59:ALA:O     | 1:a:62:SER:OG    | 2.21                     | 0.59              |
| 2:M:6:U:O2'      | 2:M:7:U:H2'      | 2.02                     | 0.59              |
| 2:M:150:U:O2     | 1:Q:49:ARG:NH1   | 2.35                     | 0.59              |
| 2:M:185:G:H5''   | 1:f:49:ARG:O     | 2.02                     | 0.59              |
| 1:V:316:PRO:O    | 1:V:320:HIS:N    | 2.33                     | 0.59              |
| 1:D:229:VAL:O    | 1:D:235:ARG:NE   | 2.34                     | 0.59              |
| 2:M:81:A:O2'     | 2:M:82:C:O4'     | 2.18                     | 0.59              |
| 1:Q:83:ALA:HB2   | 1:Q:221:GLU:HA   | 1.83                     | 0.59              |
| 1:V:109:CYS:SG   | 1:V:110:ASN:N    | 2.76                     | 0.59              |
| 1:D:258:ASN:ND2  | 2:M:77:A:O4'     | 2.36                     | 0.58              |
| 1:L:28:TYR:CE1   | 1:L:40:ALA:HB2   | 2.38                     | 0.58              |
| 1:L:290:ALA:HB2  | 1:i:71:ILE:CD1   | 2.33                     | 0.58              |
| 2:M:63:A:OP2     | 2:M:63:A:H3'     | 2.03                     | 0.58              |
| 1:T:21:ALA:HB3   | 1:T:98:ARG:HB2   | 1.85                     | 0.58              |
| 1:U:284:VAL:O    | 1:U:288:GLY:N    | 2.36                     | 0.58              |
| 1:A:306:ASN:O    | 1:A:312:ASP:N    | 2.37                     | 0.58              |
| 1:F:28:TYR:O     | 1:F:92:LYS:N     | 2.35                     | 0.58              |
| 1:G:150:ARG:NH1  | 2:M:62:C:O5'     | 2.33                     | 0.58              |
| 1:H:99:VAL:CG1   | 1:H:196:ILE:HG23 | 2.33                     | 0.58              |
| 1:S:32:TRP:N     | 1:S:90:THR:OG1   | 2.36                     | 0.58              |
| 1:Y:305:ASP:O    | 1:Y:308:VAL:N    | 2.36                     | 0.58              |
| 1:Z:163:THR:OG1  | 1:Z:164:LYS:O    | 2.21                     | 0.58              |
| 1:i:32:TRP:N     | 1:i:90:THR:OG1   | 2.36                     | 0.58              |
| 1:C:43:ILE:O     | 1:C:44:GLN:NE2   | 2.36                     | 0.58              |
| 1:C:269:ALA:O    | 1:C:273:ALA:N    | 2.36                     | 0.58              |
| 1:I:24:ASP:OD1   | 1:I:253:SER:N    | 2.36                     | 0.58              |
| 1:I:80:ASP:OD2   | 1:I:242:LEU:N    | 2.36                     | 0.58              |
| 2:M:164:G:H2'    | 2:M:165:A:H8     | 1.68                     | 0.58              |
| 2:M:176:G:H2'    | 2:M:177:G:C8     | 2.38                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:316:PRO:O    | 1:B:320:HIS:N    | 2.35                     | 0.58              |
| 1:N:91:LEU:N     | 1:N:214:VAL:O    | 2.32                     | 0.58              |
| 1:V:12:SER:O     | 1:V:334:GLU:N    | 2.36                     | 0.58              |
| 1:Y:192:LEU:HD23 | 1:Y:193:THR:HA   | 1.85                     | 0.58              |
| 1:i:84:LEU:N     | 1:i:220:GLN:O    | 2.35                     | 0.58              |
| 1:A:54:ASN:O     | 1:G:281:TYR:OH   | 2.14                     | 0.58              |
| 1:D:141:ASN:ND2  | 1:D:259:ALA:O    | 2.36                     | 0.58              |
| 1:F:50:GLY:N     | 1:F:75:ASN:O     | 2.37                     | 0.58              |
| 2:M:101:C:OP2    | 1:N:258:ASN:ND2  | 2.37                     | 0.58              |
| 2:M:133:U:H2'    | 2:M:134:G:C8     | 2.39                     | 0.58              |
| 1:P:74:ALA:HB1   | 1:P:76:LEU:HD21  | 1.86                     | 0.58              |
| 1:U:91:LEU:HD21  | 1:U:93:ILE:HD11  | 1.86                     | 0.58              |
| 1:Z:244:GLN:OE1  | 1:Z:247:ASP:N    | 2.36                     | 0.58              |
| 1:p:178:SER:OG   | 1:p:179:LEU:N    | 2.37                     | 0.58              |
| 1:E:258:ASN:ND2  | 2:M:71:C:O2      | 2.37                     | 0.58              |
| 2:M:42:U:O2'     | 2:M:43:U:O5'     | 2.21                     | 0.58              |
| 2:M:46:A:H3'     | 2:M:47:A:H5''    | 1.83                     | 0.58              |
| 2:M:93:A:H2'     | 2:M:94:C:C6      | 2.38                     | 0.58              |
| 2:M:140:C:H5'    | 1:Y:150:ARG:NH1  | 2.18                     | 0.58              |
| 2:M:161:C:O2'    | 2:M:162:U:H4'    | 2.04                     | 0.58              |
| 2:M:180:U:O2'    | 2:M:181:U:H2'    | 2.03                     | 0.58              |
| 1:P:30:GLY:O     | 1:P:90:THR:N     | 2.35                     | 0.58              |
| 1:Z:175:GLU:OE1  | 1:Z:175:GLU:N    | 2.35                     | 0.58              |
| 1:D:253:SER:O    | 1:D:256:ILE:N    | 2.36                     | 0.58              |
| 1:I:112:GLN:O    | 1:I:115:GLN:N    | 2.36                     | 0.58              |
| 1:J:25:ALA:HB2   | 1:J:95:PHE:HB3   | 1.84                     | 0.58              |
| 1:K:122:ILE:HD12 | 1:K:122:ILE:H    | 1.69                     | 0.58              |
| 2:M:51:A:H2'     | 2:M:52:C:C5      | 2.38                     | 0.58              |
| 1:P:178:SER:OG   | 1:P:179:LEU:N    | 2.37                     | 0.58              |
| 1:Q:114:TYR:O    | 1:Q:118:LEU:N    | 2.36                     | 0.58              |
| 1:a:122:ILE:O    | 1:a:126:ALA:N    | 2.34                     | 0.58              |
| 1:o:30:GLY:O     | 1:o:90:THR:N     | 2.35                     | 0.58              |
| 1:J:58:ASN:O     | 1:J:61:THR:OG1   | 2.14                     | 0.58              |
| 1:J:316:PRO:O    | 1:J:320:HIS:ND1  | 2.37                     | 0.58              |
| 2:M:87:G:OP1     | 1:P:18:ARG:N     | 2.37                     | 0.58              |
| 2:M:145:C:H3'    | 1:Q:226:GLN:HE22 | 1.68                     | 0.58              |
| 2:M:149:A:H1'    | 1:W:255:LYS:HZ1  | 1.69                     | 0.58              |
| 2:M:165:A:H2'    | 2:M:166:A:C8     | 2.39                     | 0.58              |
| 1:B:14:LEU:HD12  | 1:B:108:VAL:O    | 2.04                     | 0.58              |
| 1:T:121:ILE:O    | 1:T:125:TYR:N    | 2.37                     | 0.58              |
| 1:D:255:LYS:HZ2  | 2:M:77:A:H1'     | 1.68                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:28:TYR:O     | 1:I:92:LYS:N     | 2.32                     | 0.58              |
| 1:I:85:PRO:O     | 1:I:219:GLY:N    | 2.37                     | 0.58              |
| 2:M:31:C:H2'     | 2:M:32:G:N9      | 2.19                     | 0.58              |
| 2:M:85:C:H2'     | 2:M:86:G:N9      | 2.19                     | 0.58              |
| 1:O:122:ILE:O    | 1:O:125:TYR:N    | 2.37                     | 0.58              |
| 1:S:93:ILE:HG23  | 1:S:212:ALA:HB3  | 1.86                     | 0.58              |
| 1:S:267:TYR:OH   | 1:S:274:GLY:O    | 2.13                     | 0.58              |
| 1:Z:19:LYS:NZ    | 1:Z:102:ASN:O    | 2.36                     | 0.58              |
| 1:f:131:PHE:O    | 1:f:134:LEU:N    | 2.36                     | 0.58              |
| 1:p:163:THR:HG23 | 1:p:168:ARG:O    | 2.03                     | 0.58              |
| 1:A:254:GLN:O    | 2:M:53:G:H5'     | 2.04                     | 0.58              |
| 1:G:124:GLY:O    | 1:G:128:GLU:N    | 2.35                     | 0.58              |
| 1:H:80:ASP:OD1   | 1:H:81:VAL:N     | 2.36                     | 0.58              |
| 1:S:142:ILE:O    | 1:S:145:GLY:N    | 2.36                     | 0.58              |
| 1:W:11:ALA:HB2   | 1:W:111:ASP:CB   | 2.34                     | 0.58              |
| 1:Y:140:GLU:O    | 1:Y:144:ASN:N    | 2.37                     | 0.58              |
| 1:Z:141:ASN:ND2  | 1:Z:262:THR:O    | 2.37                     | 0.58              |
| 2:M:11:G:O4'     | 1:p:258:ASN:ND2  | 2.37                     | 0.57              |
| 2:M:134:G:H4'    | 2:M:135:A:OP1    | 2.04                     | 0.57              |
| 1:B:28:TYR:N     | 1:B:92:LYS:O     | 2.34                     | 0.57              |
| 1:P:159:ARG:NE   | 1:P:171:GLU:OE2  | 2.37                     | 0.57              |
| 1:S:27:MET:O     | 1:S:41:ILE:N     | 2.37                     | 0.57              |
| 1:V:148:LEU:HD13 | 1:V:214:VAL:HG21 | 1.85                     | 0.57              |
| 1:i:161:VAL:N    | 1:i:211:GLU:O    | 2.37                     | 0.57              |
| 1:D:97:LEU:O     | 1:D:207:LEU:HD12 | 2.04                     | 0.57              |
| 1:D:228:LEU:HD22 | 2:M:78:U:H5      | 1.68                     | 0.57              |
| 1:E:269:ALA:O    | 1:E:273:ALA:N    | 2.36                     | 0.57              |
| 1:F:229:VAL:HG11 | 1:F:235:ARG:HG3  | 1.85                     | 0.57              |
| 1:J:49:ARG:HB2   | 2:M:48:U:H5''    | 1.85                     | 0.57              |
| 1:J:264:ASP:OD2  | 1:J:292:ARG:NH2  | 2.37                     | 0.57              |
| 1:B:125:TYR:O    | 1:B:130:GLY:N    | 2.35                     | 0.57              |
| 1:A:123:THR:O    | 1:A:127:GLN:N    | 2.37                     | 0.57              |
| 1:H:321:TYR:O    | 1:H:325:THR:OG1  | 2.16                     | 0.57              |
| 1:o:196:ILE:O    | 1:o:200:LEU:N    | 2.36                     | 0.57              |
| 1:F:253:SER:O    | 1:F:256:ILE:N    | 2.37                     | 0.57              |
| 2:M:97:C:H5''    | 1:O:226:GLN:NE2  | 2.20                     | 0.57              |
| 1:P:253:SER:OG   | 1:P:254:GLN:OE1  | 2.21                     | 0.57              |
| 1:S:97:LEU:O     | 1:S:208:PHE:N    | 2.37                     | 0.57              |
| 1:U:117:ALA:O    | 1:U:121:ILE:N    | 2.37                     | 0.57              |
| 1:q:23:SER:OG    | 1:q:96:THR:N     | 2.35                     | 0.57              |
| 2:M:138:U:H1'    | 2:M:139:U:H6     | 1.68                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:24:ASP:OD1   | 1:H:25:ALA:N     | 2.37                     | 0.57              |
| 1:O:261:ARG:HB2  | 1:O:278:VAL:HG12 | 1.87                     | 0.57              |
| 1:b:91:LEU:HD13  | 1:b:222:VAL:HG12 | 1.85                     | 0.57              |
| 1:A:21:ALA:O     | 1:I:220:GLN:NE2  | 2.35                     | 0.57              |
| 1:D:18:ARG:NH2   | 2:M:75:A:O5'     | 2.38                     | 0.57              |
| 1:K:96:THR:OG1   | 1:L:220:GLN:NE2  | 2.38                     | 0.57              |
| 2:M:44:G:N7      | 2:M:45:A:N6      | 2.53                     | 0.57              |
| 2:M:98:G:O2'     | 2:M:99:G:H5'     | 2.05                     | 0.57              |
| 1:Q:11:ALA:HB3   | 1:Q:14:LEU:HD11  | 1.86                     | 0.57              |
| 1:S:78:LYS:O     | 1:S:239:SER:N    | 2.34                     | 0.57              |
| 1:C:238:LYS:HB2  | 1:C:241:ILE:HD11 | 1.86                     | 0.57              |
| 1:G:49:ARG:CD    | 2:M:66:G:H5''    | 2.35                     | 0.57              |
| 1:G:196:ILE:O    | 1:G:199:GLY:N    | 2.37                     | 0.57              |
| 1:K:144:ASN:OD1  | 1:K:145:GLY:N    | 2.38                     | 0.57              |
| 1:K:192:LEU:O    | 1:K:196:ILE:N    | 2.36                     | 0.57              |
| 2:M:12:G:O2'     | 1:p:226:GLN:NE2  | 2.37                     | 0.57              |
| 2:M:96:G:H5'     | 1:O:228:LEU:HB2  | 1.85                     | 0.57              |
| 2:M:146:G:O5'    | 1:Q:150:ARG:NH1  | 2.38                     | 0.57              |
| 1:P:26:LEU:HD22  | 1:P:248:VAL:HB   | 1.86                     | 0.57              |
| 1:Q:300:PHE:CE1  | 1:Q:322:VAL:HG13 | 2.39                     | 0.57              |
| 1:C:18:ARG:NH2   | 2:M:81:A:O5'     | 2.37                     | 0.57              |
| 1:I:196:ILE:O    | 1:I:199:GLY:N    | 2.37                     | 0.57              |
| 1:J:18:ARG:NH2   | 2:M:39:G:O3'     | 2.37                     | 0.57              |
| 1:S:11:ALA:HB1   | 1:S:110:ASN:OD1  | 2.04                     | 0.57              |
| 1:o:251:ILE:HG21 | 1:o:256:ILE:HD11 | 1.86                     | 0.57              |
| 1:C:82:ALA:O     | 1:C:222:VAL:HG22 | 2.05                     | 0.57              |
| 1:G:118:LEU:O    | 1:G:121:ILE:N    | 2.38                     | 0.57              |
| 1:G:196:ILE:HG22 | 1:G:200:LEU:HD23 | 1.87                     | 0.57              |
| 2:M:8:C:H5''     | 1:p:17:GLU:OE2   | 2.05                     | 0.57              |
| 1:N:12:SER:OG    | 1:N:110:ASN:ND2  | 2.37                     | 0.57              |
| 1:f:134:LEU:HD23 | 1:f:137:ARG:HD2  | 1.86                     | 0.57              |
| 1:q:163:THR:HG22 | 1:q:164:LYS:O    | 2.05                     | 0.57              |
| 1:q:303:LEU:O    | 1:q:307:TRP:N    | 2.38                     | 0.57              |
| 1:A:284:VAL:HG22 | 1:A:286:SER:H    | 1.70                     | 0.57              |
| 1:G:14:LEU:O     | 1:G:333:GLY:N    | 2.36                     | 0.57              |
| 1:G:121:ILE:HD13 | 1:G:308:VAL:HG22 | 1.86                     | 0.57              |
| 1:L:48:VAL:O     | 1:L:77:GLN:N     | 2.35                     | 0.57              |
| 2:M:85:C:H2'     | 2:M:86:G:C4      | 2.39                     | 0.57              |
| 2:M:127:C:H5''   | 1:a:226:GLN:CD   | 2.29                     | 0.57              |
| 1:Q:229:VAL:O    | 1:Q:235:ARG:NH2  | 2.37                     | 0.57              |
| 1:p:278:VAL:HG13 | 1:p:328:ARG:HD2  | 1.86                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:29:ALA:N     | 1:C:39:THR:O     | 2.37                     | 0.56              |
| 1:I:125:TYR:O    | 1:I:130:GLY:N    | 2.38                     | 0.56              |
| 2:M:87:G:H2'     | 2:M:88:G:C8      | 2.39                     | 0.56              |
| 2:M:126:G:H4'    | 2:M:127:C:OP1    | 2.03                     | 0.56              |
| 1:O:148:LEU:O    | 1:O:152:ARG:N    | 2.37                     | 0.56              |
| 1:S:226:GLN:HA   | 1:S:242:LEU:HD23 | 1.87                     | 0.56              |
| 1:U:30:GLY:O     | 1:U:90:THR:N     | 2.38                     | 0.56              |
| 1:f:27:MET:HE1   | 1:f:222:VAL:HG21 | 1.87                     | 0.56              |
| 1:p:122:ILE:O    | 1:p:125:TYR:N    | 2.38                     | 0.56              |
| 1:p:134:LEU:HD21 | 1:p:320:HIS:HB3  | 1.86                     | 0.56              |
| 1:q:168:ARG:NH2  | 1:q:188:ASP:OD1  | 2.37                     | 0.56              |
| 1:J:19:LYS:O     | 1:J:21:ALA:N     | 2.38                     | 0.56              |
| 1:L:132:SER:O    | 1:L:136:ALA:N    | 2.36                     | 0.56              |
| 2:M:101:C:O2'    | 2:M:102:U:H4'    | 2.05                     | 0.56              |
| 2:M:117:A:H2'    | 2:M:118:A:C8     | 2.39                     | 0.56              |
| 1:S:30:GLY:O     | 1:S:88:ALA:HB1   | 2.05                     | 0.56              |
| 1:S:49:ARG:HB2   | 1:f:228:LEU:HD22 | 1.88                     | 0.56              |
| 1:S:84:LEU:HD12  | 1:S:217:GLY:O    | 2.04                     | 0.56              |
| 1:Z:328:ARG:NE   | 1:Z:329:GLY:O    | 2.38                     | 0.56              |
| 1:q:244:GLN:OE1  | 1:q:244:GLN:N    | 2.38                     | 0.56              |
| 1:q:279:GLU:O    | 1:q:321:TYR:OH   | 2.20                     | 0.56              |
| 1:D:98:ARG:HB3   | 1:D:100:LEU:HD21 | 1.85                     | 0.56              |
| 1:J:157:ALA:HB3  | 1:J:215:GLN:HB3  | 1.87                     | 0.56              |
| 1:L:302:THR:O    | 1:L:306:ASN:ND2  | 2.38                     | 0.56              |
| 2:M:51:A:H2'     | 2:M:52:C:C6      | 2.40                     | 0.56              |
| 2:M:99:G:H2'     | 2:M:100:G:C8     | 2.40                     | 0.56              |
| 1:B:28:TYR:O     | 1:B:92:LYS:N     | 2.35                     | 0.56              |
| 1:B:325:THR:O    | 1:B:329:GLY:N    | 2.36                     | 0.56              |
| 1:P:26:LEU:HD23  | 1:P:250:ALA:HB2  | 1.87                     | 0.56              |
| 1:Q:195:ALA:O    | 1:Q:199:GLY:N    | 2.39                     | 0.56              |
| 1:Y:111:ASP:OD1  | 1:Y:112:GLN:N    | 2.38                     | 0.56              |
| 1:a:137:ARG:O    | 1:a:141:ASN:N    | 2.36                     | 0.56              |
| 1:a:273:ALA:HB1  | 1:a:287:ARG:NE   | 2.20                     | 0.56              |
| 1:b:227:GLU:O    | 1:b:229:VAL:HG23 | 2.04                     | 0.56              |
| 1:o:43:ILE:O     | 1:o:44:GLN:NE2   | 2.39                     | 0.56              |
| 1:o:115:GLN:O    | 1:o:118:LEU:N    | 2.38                     | 0.56              |
| 1:p:68:ASP:O     | 1:p:72:GLN:N     | 2.35                     | 0.56              |
| 1:D:59:ALA:O     | 1:D:62:SER:OG    | 2.13                     | 0.56              |
| 1:G:91:LEU:N     | 1:G:214:VAL:O    | 2.36                     | 0.56              |
| 1:J:16:PHE:HE2   | 1:J:326:LEU:HD22 | 1.69                     | 0.56              |
| 2:M:39:G:H2'     | 2:M:40:G:C8      | 2.41                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:S:149:TRP:HE1  | 1:S:259:ALA:HB2  | 1.70                     | 0.56              |
| 1:S:300:PHE:CZ   | 1:S:325:THR:HG21 | 2.41                     | 0.56              |
| 1:W:14:LEU:O     | 1:W:333:GLY:N    | 2.37                     | 0.56              |
| 1:W:261:ARG:NH2  | 1:W:279:GLU:OE2  | 2.39                     | 0.56              |
| 1:a:21:ALA:O     | 1:a:98:ARG:N     | 2.39                     | 0.56              |
| 1:A:49:ARG:O     | 2:M:58:A:O2'     | 2.23                     | 0.56              |
| 1:G:59:ALA:O     | 1:G:62:SER:OG    | 2.23                     | 0.56              |
| 2:M:66:G:H1'     | 2:M:67:C:C6      | 2.40                     | 0.56              |
| 1:Y:146:ARG:CB   | 1:Y:259:ALA:HB1  | 2.35                     | 0.56              |
| 1:f:316:PRO:O    | 1:f:320:HIS:N    | 2.36                     | 0.56              |
| 1:D:114:TYR:CE2  | 1:D:118:LEU:HD11 | 2.41                     | 0.56              |
| 1:F:256:ILE:O    | 1:F:259:ALA:N    | 2.37                     | 0.56              |
| 1:J:115:GLN:O    | 1:J:118:LEU:N    | 2.38                     | 0.56              |
| 2:M:138:U:H5''   | 1:Z:49:ARG:HB2   | 1.88                     | 0.56              |
| 1:B:98:ARG:HE    | 1:B:100:LEU:HD11 | 1.70                     | 0.56              |
| 1:O:12:SER:OG    | 1:O:110:ASN:ND2  | 2.36                     | 0.56              |
| 1:Q:160:VAL:O    | 1:Q:172:PHE:N    | 2.37                     | 0.56              |
| 1:S:300:PHE:CE1  | 1:S:322:VAL:HG23 | 2.40                     | 0.56              |
| 1:T:92:LYS:O     | 1:T:93:ILE:HD13  | 2.04                     | 0.56              |
| 1:V:159:ARG:NE   | 1:V:171:GLU:OE2  | 2.39                     | 0.56              |
| 1:Z:155:ALA:HB3  | 1:Z:158:ILE:CD1  | 2.34                     | 0.56              |
| 1:o:93:ILE:O     | 1:o:212:ALA:N    | 2.39                     | 0.56              |
| 1:G:112:GLN:O    | 1:G:115:GLN:N    | 2.39                     | 0.56              |
| 1:G:229:VAL:HG11 | 1:G:235:ARG:CG   | 2.35                     | 0.56              |
| 1:J:254:GLN:O    | 2:M:41:C:H5''    | 2.05                     | 0.56              |
| 1:K:141:ASN:ND2  | 1:K:260:LEU:O    | 2.39                     | 0.56              |
| 2:M:14:G:H4'     | 1:o:17:GLU:HG3   | 1.88                     | 0.56              |
| 2:M:121:U:H1'    | 2:M:122:C:C6     | 2.41                     | 0.56              |
| 1:H:245:VAL:N    | 1:H:248:VAL:O    | 2.39                     | 0.56              |
| 1:N:21:ALA:HB3   | 1:N:98:ARG:HG3   | 1.87                     | 0.56              |
| 1:Y:74:ALA:HB1   | 1:Y:76:LEU:HD21  | 1.88                     | 0.56              |
| 1:a:160:VAL:HG22 | 1:a:161:VAL:C    | 2.31                     | 0.56              |
| 1:o:302:THR:O    | 1:o:306:ASN:ND2  | 2.38                     | 0.56              |
| 1:F:97:LEU:HD12  | 1:F:98:ARG:H     | 1.70                     | 0.56              |
| 1:L:96:THR:OG1   | 1:i:220:GLN:NE2  | 2.39                     | 0.56              |
| 1:L:123:THR:O    | 1:L:127:GLN:N    | 2.37                     | 0.56              |
| 2:M:145:C:H5''   | 1:Q:226:GLN:OE1  | 2.06                     | 0.56              |
| 1:B:112:GLN:OE1  | 1:B:112:GLN:N    | 2.38                     | 0.56              |
| 1:V:290:ALA:HB3  | 1:V:293:GLN:NE2  | 2.21                     | 0.56              |
| 1:W:305:ASP:O    | 1:W:309:ILE:N    | 2.32                     | 0.56              |
| 1:Z:119:GLY:O    | 1:Z:123:THR:N    | 2.38                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:a:229:VAL:HG11 | 1:a:235:ARG:CG   | 2.36                     | 0.56              |
| 1:o:253:SER:O    | 1:o:256:ILE:N    | 2.39                     | 0.56              |
| 1:G:229:VAL:HG11 | 1:G:235:ARG:HG3  | 1.87                     | 0.56              |
| 1:J:16:PHE:N     | 1:J:330:GLY:O    | 2.37                     | 0.56              |
| 1:K:118:LEU:HG   | 1:K:122:ILE:HD11 | 1.86                     | 0.56              |
| 2:M:114:G:H5''   | 1:H:49:ARG:CG    | 2.36                     | 0.56              |
| 1:B:263:ILE:N    | 1:B:276:ILE:O    | 2.39                     | 0.56              |
| 1:N:114:TYR:CE2  | 1:N:118:LEU:HD22 | 2.40                     | 0.56              |
| 1:Y:24:ASP:OD1   | 1:Y:253:SER:N    | 2.39                     | 0.56              |
| 1:b:121:ILE:HD13 | 1:b:308:VAL:HG22 | 1.87                     | 0.56              |
| 1:f:261:ARG:NH2  | 1:f:279:GLU:OE2  | 2.39                     | 0.56              |
| 1:i:175:GLU:OE1  | 1:i:175:GLU:N    | 2.38                     | 0.56              |
| 1:C:146:ARG:NH2  | 1:C:179:LEU:O    | 2.38                     | 0.56              |
| 1:K:196:ILE:O    | 1:K:199:GLY:N    | 2.39                     | 0.56              |
| 2:M:19:U:H2'     | 2:M:20:G:C4      | 2.40                     | 0.56              |
| 2:M:125:G:H3'    | 1:b:49:ARG:HG3   | 1.88                     | 0.56              |
| 2:M:174:G:O2'    | 2:M:175:C:H5''   | 2.05                     | 0.56              |
| 1:Z:324:ALA:O    | 1:Z:328:ARG:N    | 2.33                     | 0.56              |
| 1:C:118:LEU:C    | 1:C:122:ILE:HD12 | 2.31                     | 0.55              |
| 2:M:96:G:H5''    | 1:P:49:ARG:CG    | 2.35                     | 0.55              |
| 2:M:116:G:H2'    | 2:M:117:A:C8     | 2.41                     | 0.55              |
| 1:Y:178:SER:OG   | 1:Y:179:LEU:N    | 2.39                     | 0.55              |
| 1:a:12:SER:OG    | 1:a:110:ASN:ND2  | 2.39                     | 0.55              |
| 1:o:301:TYR:OH   | 1:p:53:SER:O     | 2.24                     | 0.55              |
| 1:A:286:SER:OG   | 1:A:287:ARG:N    | 2.38                     | 0.55              |
| 1:I:227:GLU:OE2  | 1:I:243:TYR:N    | 2.40                     | 0.55              |
| 2:M:107:A:H1'    | 1:H:255:LYS:NZ   | 2.21                     | 0.55              |
| 2:M:111:A:O2'    | 2:M:112:C:O5'    | 2.23                     | 0.55              |
| 2:M:149:A:H3'    | 1:Q:49:ARG:O     | 2.06                     | 0.55              |
| 1:U:74:ALA:HB1   | 1:U:76:LEU:HD21  | 1.88                     | 0.55              |
| 1:U:279:GLU:O    | 1:U:321:TYR:OH   | 2.24                     | 0.55              |
| 1:f:140:GLU:OE1  | 1:f:183:SER:N    | 2.39                     | 0.55              |
| 1:I:300:PHE:O    | 1:I:304:LEU:N    | 2.37                     | 0.55              |
| 2:M:5:A:O3'      | 2:M:6:U:H4'      | 2.06                     | 0.55              |
| 1:H:58:ASN:O     | 1:H:62:SER:N     | 2.38                     | 0.55              |
| 1:H:295:ARG:NH1  | 1:N:62:SER:O     | 2.40                     | 0.55              |
| 1:N:121:ILE:HB   | 1:N:122:ILE:HG13 | 1.89                     | 0.55              |
| 1:P:188:ASP:O    | 1:P:192:LEU:N    | 2.35                     | 0.55              |
| 1:Q:261:ARG:HB2  | 1:Q:278:VAL:HG12 | 1.87                     | 0.55              |
| 1:Z:30:GLY:O     | 1:Z:90:THR:N     | 2.36                     | 0.55              |
| 1:D:118:LEU:O    | 1:D:122:ILE:N    | 2.31                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:147:PHE:O    | 1:L:149:TRP:N    | 2.39                     | 0.55              |
| 1:S:123:THR:HA   | 1:S:126:ALA:HB3  | 1.89                     | 0.55              |
| 1:T:261:ARG:HB2  | 1:T:278:VAL:HG12 | 1.89                     | 0.55              |
| 1:K:331:VAL:HG22 | 1:K:333:GLY:H    | 1.70                     | 0.55              |
| 1:S:121:ILE:O    | 1:S:125:TYR:N    | 2.39                     | 0.55              |
| 1:T:26:LEU:HD11  | 1:U:86:PHE:CD1   | 2.41                     | 0.55              |
| 1:W:287:ARG:NH1  | 1:W:291:TYR:OH   | 2.39                     | 0.55              |
| 1:p:168:ARG:NH2  | 1:p:188:ASP:OD1  | 2.39                     | 0.55              |
| 1:C:148:LEU:HD12 | 1:C:151:ASN:HB2  | 1.87                     | 0.55              |
| 1:D:123:THR:O    | 1:D:127:GLN:N    | 2.39                     | 0.55              |
| 1:D:139:ALA:O    | 1:D:143:ALA:N    | 2.33                     | 0.55              |
| 1:I:150:ARG:NH2  | 2:M:51:A:OP1     | 2.37                     | 0.55              |
| 1:P:118:LEU:O    | 1:P:121:ILE:N    | 2.39                     | 0.55              |
| 1:V:119:GLY:O    | 1:V:123:THR:N    | 2.35                     | 0.55              |
| 1:V:146:ARG:NE   | 1:V:262:THR:HG21 | 2.22                     | 0.55              |
| 1:W:244:GLN:OE1  | 1:W:244:GLN:N    | 2.40                     | 0.55              |
| 1:Z:140:GLU:O    | 1:Z:144:ASN:N    | 2.36                     | 0.55              |
| 1:b:15:ALA:O     | 1:b:107:SER:OG   | 2.24                     | 0.55              |
| 1:J:56:LEU:HD12  | 1:J:60:LEU:HB2   | 1.89                     | 0.55              |
| 1:K:98:ARG:HB3   | 1:K:100:LEU:HD21 | 1.89                     | 0.55              |
| 1:B:148:LEU:O    | 1:B:152:ARG:N    | 2.34                     | 0.55              |
| 1:B:324:ALA:HA   | 1:B:327:ILE:HD12 | 1.89                     | 0.55              |
| 1:H:225:SER:OG   | 1:H:252:HIS:N    | 2.40                     | 0.55              |
| 1:S:278:VAL:HG21 | 1:S:324:ALA:HB1  | 1.89                     | 0.55              |
| 1:V:21:ALA:N     | 1:V:98:ARG:O     | 2.39                     | 0.55              |
| 1:o:316:PRO:O    | 1:o:320:HIS:ND1  | 2.40                     | 0.55              |
| 1:H:19:LYS:HG3   | 1:H:103:LEU:HD13 | 1.88                     | 0.55              |
| 1:S:281:TYR:O    | 1:S:290:ALA:HB1  | 2.05                     | 0.55              |
| 1:o:144:ASN:OD1  | 1:o:145:GLY:N    | 2.40                     | 0.55              |
| 1:C:49:ARG:O     | 2:M:89:A:H5''    | 2.06                     | 0.55              |
| 1:F:95:PHE:CE1   | 1:F:210:VAL:HG11 | 2.42                     | 0.55              |
| 1:G:187:GLY:O    | 1:G:190:ALA:N    | 2.40                     | 0.55              |
| 2:M:3:G:H2'      | 2:M:4:G:C8       | 2.42                     | 0.55              |
| 1:N:24:ASP:N     | 1:N:253:SER:OG   | 2.40                     | 0.55              |
| 1:N:32:TRP:CZ3   | 1:N:157:ALA:HB1  | 2.42                     | 0.55              |
| 1:O:192:LEU:O    | 1:O:195:ALA:HB3  | 2.07                     | 0.55              |
| 1:Z:148:LEU:O    | 1:Z:152:ARG:N    | 2.39                     | 0.55              |
| 1:p:95:PHE:CE1   | 1:p:210:VAL:HG11 | 2.42                     | 0.55              |
| 1:A:178:SER:C    | 1:A:179:LEU:HD12 | 2.32                     | 0.55              |
| 1:C:161:VAL:N    | 1:C:211:GLU:O    | 2.38                     | 0.55              |
| 1:G:245:VAL:O    | 1:G:248:VAL:N    | 2.40                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:5:A:H1'      | 1:q:255:LYS:NZ   | 2.21                     | 0.55              |
| 2:M:93:A:O2'     | 2:M:94:C:O5'     | 2.24                     | 0.55              |
| 2:M:161:C:H2'    | 1:V:49:ARG:HH21  | 1.71                     | 0.55              |
| 1:H:142:ILE:O    | 1:H:145:GLY:N    | 2.40                     | 0.55              |
| 1:H:301:TYR:O    | 1:H:304:LEU:N    | 2.40                     | 0.55              |
| 1:Q:88:ALA:O     | 1:Q:218:ASN:ND2  | 2.40                     | 0.55              |
| 1:A:163:THR:O    | 1:A:209:THR:N    | 2.40                     | 0.54              |
| 1:J:244:GLN:OE1  | 1:J:247:ASP:N    | 2.40                     | 0.54              |
| 1:K:162:VAL:HG11 | 1:K:192:LEU:HD11 | 1.89                     | 0.54              |
| 1:K:292:ARG:NH2  | 1:K:298:MET:O    | 2.40                     | 0.54              |
| 2:M:125:G:H2'    | 1:b:49:ARG:HH11  | 1.72                     | 0.54              |
| 2:M:127:C:H2'    | 2:M:128:G:C4     | 2.42                     | 0.54              |
| 2:M:137:A:O2'    | 2:M:138:U:O5'    | 2.24                     | 0.54              |
| 2:M:167:A:H4'    | 2:M:168:U:OP1    | 2.07                     | 0.54              |
| 1:B:21:ALA:O     | 1:B:98:ARG:N     | 2.38                     | 0.54              |
| 1:S:95:PHE:O     | 1:S:210:VAL:N    | 2.36                     | 0.54              |
| 1:U:290:ALA:HB3  | 1:U:293:GLN:OE1  | 2.07                     | 0.54              |
| 1:Z:14:LEU:O     | 1:Z:333:GLY:N    | 2.39                     | 0.54              |
| 1:o:181:GLN:NE2  | 1:o:182:PHE:O    | 2.40                     | 0.54              |
| 1:A:35:GLN:OE1   | 1:A:35:GLN:N     | 2.40                     | 0.54              |
| 1:E:228:LEU:HD13 | 2:M:72:U:C2      | 2.41                     | 0.54              |
| 1:J:124:GLY:O    | 1:J:128:GLU:N    | 2.39                     | 0.54              |
| 1:J:175:GLU:OE1  | 1:J:175:GLU:N    | 2.35                     | 0.54              |
| 2:M:37:C:H2'     | 2:M:38:G:N9      | 2.23                     | 0.54              |
| 1:B:300:PHE:CE1  | 1:B:322:VAL:HG23 | 2.41                     | 0.54              |
| 1:H:133:THR:HG23 | 1:H:134:LEU:HD22 | 1.90                     | 0.54              |
| 1:Z:91:LEU:O     | 1:Z:214:VAL:N    | 2.39                     | 0.54              |
| 1:b:98:ARG:CG    | 1:b:207:LEU:HD13 | 2.37                     | 0.54              |
| 1:f:27:MET:O     | 1:f:41:ILE:N     | 2.40                     | 0.54              |
| 1:q:178:SER:OG   | 1:q:179:LEU:N    | 2.40                     | 0.54              |
| 1:A:196:ILE:O    | 1:A:199:GLY:N    | 2.40                     | 0.54              |
| 1:D:125:TYR:OH   | 1:D:320:HIS:ND1  | 2.39                     | 0.54              |
| 1:L:328:ARG:NH2  | 2:M:27:A:H1'     | 2.22                     | 0.54              |
| 1:O:123:THR:O    | 1:O:127:GLN:N    | 2.39                     | 0.54              |
| 1:V:300:PHE:CE1  | 1:V:322:VAL:HG22 | 2.42                     | 0.54              |
| 1:W:328:ARG:NH1  | 1:W:329:GLY:O    | 2.39                     | 0.54              |
| 1:J:56:LEU:HD21  | 1:J:61:THR:HG22  | 1.89                     | 0.54              |
| 2:M:3:G:H2'      | 2:M:4:G:C5       | 2.42                     | 0.54              |
| 1:Q:150:ARG:O    | 1:Q:153:VAL:HG12 | 2.07                     | 0.54              |
| 1:V:325:THR:O    | 1:V:328:ARG:N    | 2.40                     | 0.54              |
| 1:Y:13:VAL:HG12  | 1:Y:108:VAL:CG1  | 2.37                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:14:LEU:O     | 1:C:332:PHE:N    | 2.40                     | 0.54              |
| 1:C:36:ASP:OD1   | 1:C:36:ASP:N     | 2.38                     | 0.54              |
| 1:E:111:ASP:OD1  | 1:E:112:GLN:N    | 2.40                     | 0.54              |
| 2:M:45:A:H2'     | 2:M:46:A:C4      | 2.42                     | 0.54              |
| 2:M:98:G:H5''    | 1:N:17:GLU:HG2   | 1.90                     | 0.54              |
| 1:H:23:SER:OG    | 1:H:96:THR:O     | 2.22                     | 0.54              |
| 1:Q:95:PHE:O     | 1:Q:210:VAL:N    | 2.36                     | 0.54              |
| 1:S:224:PRO:HG2  | 1:S:242:LEU:HD22 | 1.89                     | 0.54              |
| 1:W:216:LEU:HD12 | 1:W:216:LEU:N    | 2.21                     | 0.54              |
| 1:E:141:ASN:ND2  | 1:E:262:THR:OG1  | 2.39                     | 0.54              |
| 1:E:178:SER:OG   | 1:E:179:LEU:N    | 2.40                     | 0.54              |
| 1:J:134:LEU:HD11 | 1:J:324:ALA:HB2  | 1.88                     | 0.54              |
| 1:N:148:LEU:O    | 1:N:151:ASN:N    | 2.41                     | 0.54              |
| 1:O:256:ILE:HG22 | 1:O:260:LEU:HD23 | 1.88                     | 0.54              |
| 1:G:49:ARG:HD2   | 2:M:66:G:H5''    | 1.90                     | 0.54              |
| 1:J:322:VAL:O    | 1:J:325:THR:OG1  | 2.03                     | 0.54              |
| 2:M:69:G:H2'     | 2:M:70:G:C8      | 2.42                     | 0.54              |
| 1:B:137:ARG:NH1  | 1:B:263:ILE:O    | 2.41                     | 0.54              |
| 1:Q:281:TYR:OH   | 1:Y:54:ASN:O     | 2.25                     | 0.54              |
| 1:S:290:ALA:HB3  | 1:S:293:GLN:HE22 | 1.73                     | 0.54              |
| 1:U:300:PHE:CE2  | 1:U:304:LEU:HD22 | 2.42                     | 0.54              |
| 1:V:300:PHE:CE1  | 1:V:322:VAL:HG13 | 2.43                     | 0.54              |
| 1:C:229:VAL:HG11 | 1:C:235:ARG:HG3  | 1.88                     | 0.54              |
| 2:M:5:A:H1'      | 1:q:255:LYS:HD2  | 1.88                     | 0.54              |
| 2:M:92:C:H5''    | 1:O:17:GLU:OE2   | 2.08                     | 0.54              |
| 2:M:156:G:O2'    | 2:M:157:C:H5''   | 2.07                     | 0.54              |
| 1:B:118:LEU:HD11 | 1:B:122:ILE:HD11 | 1.90                     | 0.54              |
| 1:O:284:VAL:O    | 1:O:288:GLY:N    | 2.40                     | 0.54              |
| 1:S:29:ALA:N     | 1:S:39:THR:O     | 2.41                     | 0.54              |
| 1:Y:139:ALA:HB1  | 1:Y:192:LEU:HD22 | 1.90                     | 0.54              |
| 1:o:144:ASN:OD1  | 1:o:146:ARG:N    | 2.41                     | 0.54              |
| 2:M:121:U:H3'    | 2:M:121:U:OP2    | 2.08                     | 0.54              |
| 1:O:80:ASP:OD1   | 1:O:238:LYS:NZ   | 2.35                     | 0.54              |
| 1:i:80:ASP:OD1   | 1:i:81:VAL:N     | 2.41                     | 0.54              |
| 1:i:264:ASP:OD1  | 1:i:267:TYR:N    | 2.40                     | 0.54              |
| 1:L:135:ALA:O    | 1:L:139:ALA:N    | 2.36                     | 0.54              |
| 2:M:75:A:H2'     | 2:M:76:A:C8      | 2.43                     | 0.54              |
| 1:S:144:ASN:OD1  | 1:S:145:GLY:N    | 2.41                     | 0.54              |
| 1:V:118:LEU:HD23 | 1:V:118:LEU:C    | 2.33                     | 0.54              |
| 1:D:282:GLY:O    | 1:D:291:TYR:N    | 2.40                     | 0.53              |
| 1:J:12:SER:OG    | 1:J:110:ASN:ND2  | 2.41                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:96:G:H4'     | 2:M:97:C:OP1     | 2.08                     | 0.53              |
| 2:M:119:A:H5''   | 1:B:49:ARG:HB2   | 1.89                     | 0.53              |
| 2:M:181:U:H1'    | 2:M:182:C:C6     | 2.43                     | 0.53              |
| 1:B:261:ARG:O    | 1:B:278:VAL:N    | 2.39                     | 0.53              |
| 1:O:293:GLN:O    | 1:O:299:ASP:N    | 2.42                     | 0.53              |
| 1:S:284:VAL:N    | 1:S:289:LYS:O    | 2.41                     | 0.53              |
| 1:W:290:ALA:HB3  | 1:W:293:GLN:HE22 | 1.73                     | 0.53              |
| 1:C:93:ILE:CG2   | 1:C:212:ALA:HB3  | 2.37                     | 0.53              |
| 1:J:15:ALA:O     | 1:J:107:SER:OG   | 2.20                     | 0.53              |
| 2:M:110:C:OP1    | 1:H:150:ARG:NH1  | 2.40                     | 0.53              |
| 1:H:300:PHE:CE2  | 1:H:304:LEU:HD22 | 2.43                     | 0.53              |
| 1:N:318:GLN:O    | 1:N:321:TYR:N    | 2.41                     | 0.53              |
| 1:V:164:LYS:O    | 1:V:166:GLY:N    | 2.39                     | 0.53              |
| 1:b:183:SER:OG   | 1:b:184:GLN:O    | 2.25                     | 0.53              |
| 1:f:238:LYS:O    | 1:f:241:ILE:HD11 | 2.09                     | 0.53              |
| 1:i:325:THR:HG22 | 1:i:332:PHE:CZ   | 2.43                     | 0.53              |
| 1:C:148:LEU:HD12 | 1:C:151:ASN:CB   | 2.38                     | 0.53              |
| 1:E:293:GLN:O    | 1:E:299:ASP:N    | 2.40                     | 0.53              |
| 1:E:306:ASN:O    | 1:E:311:GLY:N    | 2.41                     | 0.53              |
| 1:K:98:ARG:CB    | 1:K:100:LEU:HD21 | 2.39                     | 0.53              |
| 2:M:85:C:H2'     | 2:M:86:G:C8      | 2.43                     | 0.53              |
| 1:N:185:PRO:HB2  | 1:N:190:ALA:HB2  | 1.90                     | 0.53              |
| 1:P:146:ARG:NH1  | 1:P:179:LEU:O    | 2.41                     | 0.53              |
| 1:W:290:ALA:HB3  | 1:W:293:GLN:NE2  | 2.23                     | 0.53              |
| 1:b:264:ASP:OD1  | 1:b:292:ARG:NH2  | 2.38                     | 0.53              |
| 1:i:97:LEU:O     | 1:i:208:PHE:N    | 2.41                     | 0.53              |
| 1:i:254:GLN:OE1  | 1:i:254:GLN:N    | 2.35                     | 0.53              |
| 1:p:163:THR:O    | 1:p:209:THR:OG1  | 2.19                     | 0.53              |
| 1:G:150:ARG:NH1  | 2:M:62:C:O3'     | 2.41                     | 0.53              |
| 2:M:46:A:H3'     | 2:M:47:A:C5'     | 2.38                     | 0.53              |
| 1:N:141:ASN:ND2  | 1:N:262:THR:O    | 2.41                     | 0.53              |
| 1:N:279:GLU:OE1  | 1:O:51:THR:OG1   | 2.25                     | 0.53              |
| 1:Q:161:VAL:O    | 1:Q:211:GLU:N    | 2.35                     | 0.53              |
| 1:S:178:SER:OG   | 1:S:179:LEU:N    | 2.40                     | 0.53              |
| 1:S:325:THR:O    | 1:S:328:ARG:N    | 2.41                     | 0.53              |
| 1:T:138:TYR:O    | 1:T:141:ASN:N    | 2.41                     | 0.53              |
| 1:G:148:LEU:CB   | 1:G:151:ASN:HB2  | 2.35                     | 0.53              |
| 1:I:49:ARG:NH2   | 2:M:54:G:H21     | 2.06                     | 0.53              |
| 2:M:17:C:OP2     | 1:o:258:ASN:ND2  | 2.42                     | 0.53              |
| 1:N:135:ALA:O    | 1:N:139:ALA:N    | 2.34                     | 0.53              |
| 1:O:321:TYR:O    | 1:O:325:THR:HG22 | 2.08                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:i:112:GLN:O    | 1:i:115:GLN:N    | 2.42                     | 0.53              |
| 1:p:320:HIS:O    | 1:p:324:ALA:N    | 2.42                     | 0.53              |
| 1:D:227:GLU:N    | 1:D:241:ILE:O    | 2.38                     | 0.53              |
| 1:K:250:ALA:C    | 1:K:251:ILE:HD12 | 2.33                     | 0.53              |
| 1:L:150:ARG:NH2  | 2:M:33:A:OP1     | 2.40                     | 0.53              |
| 1:L:161:VAL:HG22 | 1:L:171:GLU:OE1  | 2.09                     | 0.53              |
| 2:M:110:C:H5'    | 1:H:150:ARG:HH12 | 1.73                     | 0.53              |
| 2:M:140:C:H2'    | 2:M:141:A:C8     | 2.43                     | 0.53              |
| 1:Q:103:LEU:HD12 | 1:Q:327:ILE:HD11 | 1.91                     | 0.53              |
| 1:b:125:TYR:O    | 1:b:129:GLN:N    | 2.40                     | 0.53              |
| 1:G:318:GLN:O    | 1:G:322:VAL:HG23 | 2.09                     | 0.53              |
| 2:M:146:G:H5''   | 1:W:17:GLU:HG2   | 1.89                     | 0.53              |
| 1:B:229:VAL:HB   | 1:B:235:ARG:HE   | 1.73                     | 0.53              |
| 1:T:118:LEU:HB3  | 1:T:122:ILE:HD12 | 1.90                     | 0.53              |
| 1:Z:137:ARG:O    | 1:Z:141:ASN:ND2  | 2.42                     | 0.53              |
| 1:b:120:ASP:O    | 1:b:124:GLY:N    | 2.42                     | 0.53              |
| 1:i:133:THR:HG23 | 1:i:134:LEU:HD22 | 1.91                     | 0.53              |
| 1:G:148:LEU:HD12 | 1:G:152:ARG:HA   | 1.90                     | 0.53              |
| 1:K:15:ALA:HB3   | 1:K:108:VAL:HG12 | 1.90                     | 0.53              |
| 1:K:105:GLN:NE2  | 1:K:106:PRO:O    | 2.37                     | 0.53              |
| 1:L:26:LEU:HD23  | 1:L:250:ALA:HB2  | 1.90                     | 0.53              |
| 1:L:32:TRP:O     | 1:L:35:GLN:NE2   | 2.36                     | 0.53              |
| 2:M:17:C:H3'     | 1:p:49:ARG:O     | 2.09                     | 0.53              |
| 2:M:128:G:H5''   | 1:Z:17:GLU:OE2   | 2.09                     | 0.53              |
| 2:M:149:A:N3     | 1:W:255:LYS:NZ   | 2.56                     | 0.53              |
| 2:M:152:C:O2'    | 2:M:153:A:O5'    | 2.27                     | 0.53              |
| 1:B:79:VAL:HG12  | 1:B:240:LYS:HB3  | 1.91                     | 0.53              |
| 1:P:30:GLY:C     | 1:P:88:ALA:HB1   | 2.33                     | 0.53              |
| 1:U:168:ARG:NH2  | 1:U:188:ASP:OD1  | 2.42                     | 0.53              |
| 1:Y:254:GLN:OE1  | 1:Y:254:GLN:N    | 2.35                     | 0.53              |
| 1:b:134:LEU:HD23 | 1:b:137:ARG:HD2  | 1.91                     | 0.53              |
| 1:o:91:LEU:N     | 1:o:214:VAL:O    | 2.41                     | 0.53              |
| 1:C:95:PHE:CE1   | 1:C:210:VAL:HG11 | 2.44                     | 0.53              |
| 1:L:84:LEU:N     | 1:L:220:GLN:O    | 2.35                     | 0.53              |
| 2:M:14:G:H4'     | 1:o:17:GLU:CG    | 2.38                     | 0.53              |
| 1:Z:95:PHE:CE2   | 1:Z:210:VAL:HG21 | 2.44                     | 0.53              |
| 1:a:80:ASP:OD1   | 1:a:81:VAL:N     | 2.42                     | 0.53              |
| 1:b:36:ASP:N     | 1:b:36:ASP:OD1   | 2.40                     | 0.53              |
| 1:I:13:VAL:HG12  | 1:I:108:VAL:CG1  | 2.39                     | 0.53              |
| 1:I:112:GLN:O    | 1:I:116:THR:N    | 2.40                     | 0.53              |
| 2:M:157:C:H2'    | 2:M:158:G:C5     | 2.44                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Q:38:TRP:CG    | 1:Q:92:LYS:HZ3   | 2.27                     | 0.53              |
| 1:Q:267:TYR:OH   | 1:Q:273:ALA:HB3  | 2.09                     | 0.53              |
| 1:T:313:VAL:HG12 | 1:T:314:PRO:O    | 2.08                     | 0.53              |
| 1:U:25:ALA:HB1   | 1:U:93:ILE:CG2   | 2.38                     | 0.53              |
| 1:W:89:ASP:O     | 1:W:216:LEU:N    | 2.36                     | 0.53              |
| 1:b:27:MET:HE1   | 1:b:91:LEU:HD12  | 1.91                     | 0.53              |
| 1:E:255:LYS:CD   | 2:M:71:C:H1'     | 2.37                     | 0.52              |
| 1:K:144:ASN:OD1  | 1:K:146:ARG:N    | 2.41                     | 0.52              |
| 2:M:61:U:H1'     | 2:M:62:C:C6      | 2.44                     | 0.52              |
| 2:M:118:A:H3'    | 1:b:254:GLN:NE2  | 2.24                     | 0.52              |
| 2:M:164:G:O5'    | 1:U:150:ARG:NH1  | 2.42                     | 0.52              |
| 1:W:266:TRP:O    | 1:W:292:ARG:NH2  | 2.40                     | 0.52              |
| 1:b:258:ASN:O    | 1:b:262:THR:N    | 2.42                     | 0.52              |
| 1:S:14:LEU:O     | 1:S:332:PHE:N    | 2.42                     | 0.52              |
| 1:S:27:MET:HB3   | 1:S:41:ILE:HD12  | 1.91                     | 0.52              |
| 1:W:227:GLU:N    | 1:W:241:ILE:O    | 2.41                     | 0.52              |
| 1:Y:133:THR:HG23 | 1:Y:134:LEU:HG   | 1.90                     | 0.52              |
| 1:Y:245:VAL:O    | 1:Y:248:VAL:HG22 | 2.09                     | 0.52              |
| 1:C:26:LEU:HD23  | 1:C:250:ALA:HB2  | 1.91                     | 0.52              |
| 2:M:110:C:H3'    | 2:M:111:A:C8     | 2.43                     | 0.52              |
| 1:Q:178:SER:OG   | 1:Q:179:LEU:N    | 2.38                     | 0.52              |
| 1:S:305:ASP:OD1  | 1:S:306:ASN:N    | 2.42                     | 0.52              |
| 1:U:26:LEU:O     | 1:U:93:ILE:HG23  | 2.08                     | 0.52              |
| 1:a:326:LEU:HD23 | 1:a:332:PHE:HE2  | 1.74                     | 0.52              |
| 1:q:256:ILE:O    | 1:q:260:LEU:N    | 2.39                     | 0.52              |
| 1:C:14:LEU:O     | 1:C:333:GLY:N    | 2.42                     | 0.52              |
| 1:C:195:ALA:O    | 1:C:199:GLY:N    | 2.41                     | 0.52              |
| 1:D:118:LEU:O    | 1:D:121:ILE:N    | 2.40                     | 0.52              |
| 1:D:187:GLY:O    | 1:D:191:ALA:N    | 2.41                     | 0.52              |
| 1:E:96:THR:OG1   | 1:F:220:GLN:NE2  | 2.38                     | 0.52              |
| 2:M:3:G:O2'      | 2:M:4:G:O4'      | 2.18                     | 0.52              |
| 1:B:224:PRO:HB2  | 1:B:242:LEU:HD12 | 1.91                     | 0.52              |
| 1:N:134:LEU:HD21 | 1:N:320:HIS:HB3  | 1.91                     | 0.52              |
| 1:Q:15:ALA:HB2   | 1:Q:331:VAL:HA   | 1.92                     | 0.52              |
| 1:Z:299:ASP:OD1  | 1:Z:300:PHE:N    | 2.42                     | 0.52              |
| 1:a:290:ALA:O    | 1:a:293:GLN:NE2  | 2.42                     | 0.52              |
| 1:a:306:ASN:OD1  | 1:a:307:TRP:N    | 2.43                     | 0.52              |
| 1:q:192:LEU:O    | 1:q:195:ALA:HB3  | 2.09                     | 0.52              |
| 1:K:132:SER:O    | 1:K:135:ALA:N    | 2.42                     | 0.52              |
| 2:M:48:U:H1'     | 2:M:49:U:C6      | 2.45                     | 0.52              |
| 2:M:138:U:H5''   | 1:Z:49:ARG:CB    | 2.39                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:168:U:O2'    | 2:M:169:U:H5'    | 2.09                     | 0.52              |
| 1:B:46:LYS:HE2   | 1:B:81:VAL:CB    | 2.40                     | 0.52              |
| 1:H:322:VAL:O    | 1:H:326:LEU:N    | 2.42                     | 0.52              |
| 1:N:229:VAL:O    | 1:N:235:ARG:NH2  | 2.41                     | 0.52              |
| 1:P:151:ASN:OD1  | 1:P:223:PHE:N    | 2.38                     | 0.52              |
| 1:S:138:TYR:O    | 1:S:141:ASN:N    | 2.42                     | 0.52              |
| 1:b:241:ILE:C    | 1:b:242:LEU:HD22 | 2.33                     | 0.52              |
| 1:G:151:ASN:ND2  | 1:G:223:PHE:O    | 2.42                     | 0.52              |
| 1:J:262:THR:HG23 | 1:J:276:ILE:CA   | 2.40                     | 0.52              |
| 2:M:109:U:O2'    | 2:M:110:C:O4'    | 2.22                     | 0.52              |
| 1:B:129:GLN:NE2  | 1:B:319:GLN:OE1  | 2.40                     | 0.52              |
| 1:H:122:ILE:O    | 1:H:126:ALA:N    | 2.41                     | 0.52              |
| 1:S:95:PHE:CE1   | 1:S:210:VAL:HG11 | 2.45                     | 0.52              |
| 1:T:230:LEU:HD21 | 1:U:77:GLN:HA    | 1.91                     | 0.52              |
| 1:W:97:LEU:HD12  | 1:W:98:ARG:H     | 1.73                     | 0.52              |
| 1:W:197:GLU:HA   | 1:W:200:LEU:HD23 | 1.91                     | 0.52              |
| 1:Z:121:ILE:HG22 | 1:Z:307:TRP:CZ2  | 2.44                     | 0.52              |
| 1:A:258:ASN:ND2  | 2:M:53:G:O4'     | 2.41                     | 0.52              |
| 1:F:66:LYS:O     | 1:F:70:GLU:N     | 2.42                     | 0.52              |
| 1:F:97:LEU:O     | 1:F:208:PHE:N    | 2.40                     | 0.52              |
| 1:I:254:GLN:HB2  | 2:M:47:A:H5''    | 1.90                     | 0.52              |
| 1:J:123:THR:O    | 1:J:127:GLN:N    | 2.43                     | 0.52              |
| 2:M:21:A:HO2'    | 2:M:22:A:C1'     | 2.22                     | 0.52              |
| 2:M:54:G:H1'     | 2:M:55:C:C5      | 2.44                     | 0.52              |
| 1:N:68:ASP:O     | 1:N:72:GLN:N     | 2.41                     | 0.52              |
| 1:Q:135:ALA:HB1  | 1:Q:196:ILE:HB   | 1.90                     | 0.52              |
| 1:W:158:ILE:HG12 | 1:W:214:VAL:HG22 | 1.91                     | 0.52              |
| 1:b:27:MET:CE    | 1:b:91:LEU:HD12  | 2.40                     | 0.52              |
| 1:f:113:ASP:O    | 1:f:117:ALA:N    | 2.40                     | 0.52              |
| 1:C:83:ALA:HB2   | 1:C:221:GLU:HA   | 1.91                     | 0.52              |
| 1:E:95:PHE:CE1   | 1:E:210:VAL:HG11 | 2.44                     | 0.52              |
| 1:G:148:LEU:HD12 | 1:G:152:ARG:HB2  | 1.92                     | 0.52              |
| 1:J:142:ILE:HG23 | 1:J:143:ALA:N    | 2.24                     | 0.52              |
| 2:M:27:A:OP1     | 1:i:150:ARG:NH1  | 2.42                     | 0.52              |
| 2:M:53:G:O2'     | 2:M:54:G:H5''    | 2.09                     | 0.52              |
| 1:B:88:ALA:N     | 1:B:218:ASN:OD1  | 2.40                     | 0.52              |
| 1:P:300:PHE:O    | 1:P:304:LEU:N    | 2.37                     | 0.52              |
| 1:S:93:ILE:CG2   | 1:S:212:ALA:HB3  | 2.39                     | 0.52              |
| 1:W:229:VAL:HG11 | 1:W:235:ARG:HG3  | 1.92                     | 0.52              |
| 1:b:91:LEU:HD21  | 1:b:151:ASN:HB3  | 1.91                     | 0.52              |
| 1:p:34:GLN:NE2   | 1:p:36:ASP:O     | 2.43                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:p:193:THR:O    | 1:p:197:GLU:N    | 2.41                     | 0.52              |
| 1:G:17:GLU:HG2   | 2:M:56:G:H5'     | 1.92                     | 0.52              |
| 1:G:188:ASP:O    | 1:G:192:LEU:N    | 2.43                     | 0.52              |
| 2:M:105:A:H2'    | 2:M:106:A:C8     | 2.45                     | 0.52              |
| 2:M:106:A:O2'    | 2:M:107:A:H5'    | 2.10                     | 0.52              |
| 2:M:115:C:H2'    | 2:M:116:G:N9     | 2.24                     | 0.52              |
| 2:M:158:G:O2'    | 1:U:16:PHE:O     | 2.28                     | 0.52              |
| 1:U:228:LEU:HD21 | 1:V:76:LEU:HB2   | 1.90                     | 0.52              |
| 1:Y:115:GLN:O    | 1:Y:119:GLY:N    | 2.36                     | 0.52              |
| 1:a:139:ALA:HB1  | 1:a:192:LEU:HD22 | 1.91                     | 0.52              |
| 1:i:317:GLU:OE2  | 1:i:318:GLN:NE2  | 2.39                     | 0.52              |
| 1:C:64:PRO:O     | 1:C:68:ASP:N     | 2.37                     | 0.52              |
| 1:K:306:ASN:OD1  | 1:K:307:TRP:N    | 2.42                     | 0.52              |
| 1:L:49:ARG:HB3   | 1:L:76:LEU:HD23  | 1.91                     | 0.52              |
| 2:M:75:A:HO2'    | 2:M:76:A:C1'     | 2.23                     | 0.52              |
| 1:U:52:ILE:HG22  | 1:U:54:ASN:H     | 1.74                     | 0.52              |
| 1:f:281:TYR:O    | 1:f:290:ALA:HB1  | 2.10                     | 0.52              |
| 1:G:192:LEU:HA   | 1:G:195:ALA:HB3  | 1.92                     | 0.51              |
| 2:M:84:G:HO2'    | 2:M:85:C:H6      | 1.58                     | 0.51              |
| 2:M:176:G:O2'    | 2:M:177:G:H5'    | 2.10                     | 0.51              |
| 1:H:317:GLU:O    | 1:H:321:TYR:N    | 2.42                     | 0.51              |
| 1:Q:118:LEU:HD12 | 1:Q:121:ILE:HB   | 1.90                     | 0.51              |
| 1:S:133:THR:HB   | 1:S:134:LEU:HD12 | 1.92                     | 0.51              |
| 1:T:178:SER:OG   | 1:T:179:LEU:N    | 2.43                     | 0.51              |
| 1:U:148:LEU:HD13 | 1:U:214:VAL:CG2  | 2.40                     | 0.51              |
| 1:V:158:ILE:HG12 | 1:V:214:VAL:HG22 | 1.92                     | 0.51              |
| 1:b:261:ARG:NH1  | 1:b:277:ALA:HB1  | 2.24                     | 0.51              |
| 1:i:269:ALA:HB1  | 1:i:272:GLU:HB2  | 1.92                     | 0.51              |
| 1:F:31:ASN:O     | 1:F:34:GLN:N     | 2.43                     | 0.51              |
| 1:K:118:LEU:O    | 1:K:122:ILE:HD12 | 2.09                     | 0.51              |
| 1:K:261:ARG:HD2  | 1:K:278:VAL:HG22 | 1.93                     | 0.51              |
| 1:L:254:GLN:HE21 | 2:M:28:C:H3'     | 1.75                     | 0.51              |
| 2:M:124:C:O2'    | 1:b:49:ARG:O     | 2.28                     | 0.51              |
| 2:M:182:C:H5'    | 1:f:150:ARG:NH1  | 2.26                     | 0.51              |
| 1:B:125:TYR:O    | 1:B:129:GLN:N    | 2.40                     | 0.51              |
| 1:N:96:THR:OG1   | 1:O:220:GLN:OE1  | 2.05                     | 0.51              |
| 1:f:122:ILE:O    | 1:f:126:ALA:N    | 2.38                     | 0.51              |
| 1:o:187:GLY:O    | 1:o:191:ALA:N    | 2.36                     | 0.51              |
| 1:o:256:ILE:O    | 1:o:259:ALA:HB3  | 2.10                     | 0.51              |
| 1:D:196:ILE:HG22 | 1:D:200:LEU:CD2  | 2.40                     | 0.51              |
| 1:D:196:ILE:HG22 | 1:D:200:LEU:HD23 | 1.92                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:321:TYR:O    | 1:E:325:THR:OG1  | 2.25                     | 0.51              |
| 1:F:228:LEU:HB2  | 2:M:66:G:H2'     | 1.91                     | 0.51              |
| 1:J:56:LEU:HD12  | 1:J:60:LEU:CB    | 2.40                     | 0.51              |
| 1:J:143:ALA:HA   | 1:J:160:VAL:HG11 | 1.91                     | 0.51              |
| 2:M:102:U:O2     | 2:M:102:U:H2'    | 2.11                     | 0.51              |
| 2:M:125:G:H3'    | 1:b:49:ARG:CG    | 2.40                     | 0.51              |
| 1:B:178:SER:C    | 1:B:179:LEU:HD12 | 2.35                     | 0.51              |
| 1:H:19:LYS:CG    | 1:H:103:LEU:HD13 | 2.40                     | 0.51              |
| 1:N:97:LEU:HD22  | 1:N:260:LEU:HD13 | 1.92                     | 0.51              |
| 1:W:115:GLN:O    | 1:W:118:LEU:N    | 2.43                     | 0.51              |
| 1:p:97:LEU:O     | 1:p:208:PHE:N    | 2.42                     | 0.51              |
| 1:A:142:ILE:O    | 1:A:145:GLY:N    | 2.39                     | 0.51              |
| 1:E:49:ARG:HB2   | 2:M:78:U:H5''    | 1.92                     | 0.51              |
| 1:E:148:LEU:O    | 1:E:150:ARG:N    | 2.44                     | 0.51              |
| 1:E:189:LEU:O    | 1:E:193:THR:HG22 | 2.10                     | 0.51              |
| 1:F:256:ILE:HG22 | 1:F:260:LEU:HD13 | 1.92                     | 0.51              |
| 1:K:255:LYS:HZ2  | 2:M:35:A:H1'     | 1.72                     | 0.51              |
| 2:M:9:A:HO2'     | 2:M:10:C:C4'     | 2.19                     | 0.51              |
| 1:U:95:PHE:O     | 1:U:210:VAL:N    | 2.38                     | 0.51              |
| 1:Z:31:ASN:O     | 1:Z:34:GLN:N     | 2.43                     | 0.51              |
| 1:b:19:LYS:HZ3   | 1:b:103:LEU:HB2  | 1.76                     | 0.51              |
| 1:o:23:SER:OG    | 1:o:96:THR:N     | 2.34                     | 0.51              |
| 1:o:29:ALA:N     | 1:o:39:THR:O     | 2.39                     | 0.51              |
| 1:p:80:ASP:OD1   | 1:p:238:LYS:NZ   | 2.42                     | 0.51              |
| 1:E:148:LEU:O    | 1:E:152:ARG:N    | 2.42                     | 0.51              |
| 1:G:52:ILE:HG22  | 1:G:54:ASN:H     | 1.76                     | 0.51              |
| 1:G:142:ILE:HG23 | 1:G:143:ALA:N    | 2.26                     | 0.51              |
| 2:M:80:C:H2'     | 2:M:81:A:C8      | 2.46                     | 0.51              |
| 2:M:130:G:H1'    | 1:a:50:GLY:HA3   | 1.92                     | 0.51              |
| 1:T:147:PHE:O    | 1:T:149:TRP:N    | 2.43                     | 0.51              |
| 1:b:304:LEU:O    | 1:b:308:VAL:N    | 2.39                     | 0.51              |
| 1:o:28:TYR:HA    | 1:o:40:ALA:HA    | 1.93                     | 0.51              |
| 1:p:251:ILE:HG21 | 1:p:256:ILE:HD11 | 1.91                     | 0.51              |
| 1:D:324:ALA:O    | 1:D:328:ARG:N    | 2.37                     | 0.51              |
| 1:F:123:THR:O    | 1:F:127:GLN:N    | 2.43                     | 0.51              |
| 1:I:258:ASN:ND2  | 2:M:47:A:OP2     | 2.43                     | 0.51              |
| 1:K:17:GLU:HG2   | 2:M:32:G:H5''    | 1.93                     | 0.51              |
| 1:L:328:ARG:NH2  | 2:M:28:C:O4'     | 2.43                     | 0.51              |
| 2:M:8:C:H2'      | 2:M:9:A:C8       | 2.45                     | 0.51              |
| 1:B:80:ASP:O     | 1:B:81:VAL:C     | 2.53                     | 0.51              |
| 1:H:324:ALA:HA   | 1:H:327:ILE:HD12 | 1.92                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:U:192:LEU:HD23 | 1:U:193:THR:N    | 2.26                     | 0.51              |
| 1:W:91:LEU:HD21  | 1:W:93:ILE:HD11  | 1.93                     | 0.51              |
| 1:W:192:LEU:O    | 1:W:195:ALA:N    | 2.43                     | 0.51              |
| 1:f:131:PHE:HD1  | 1:f:134:LEU:HD12 | 1.76                     | 0.51              |
| 1:C:40:ALA:HB1   | 1:C:248:VAL:HG13 | 1.92                     | 0.51              |
| 1:E:314:PRO:O    | 1:E:319:GLN:NE2  | 2.44                     | 0.51              |
| 1:E:315:MET:O    | 1:E:318:GLN:N    | 2.44                     | 0.51              |
| 1:J:306:ASN:OD1  | 1:J:307:TRP:N    | 2.44                     | 0.51              |
| 2:M:147:A:HO2'   | 2:M:148:A:C1'    | 2.20                     | 0.51              |
| 1:P:306:ASN:O    | 1:P:311:GLY:N    | 2.41                     | 0.51              |
| 1:T:68:ASP:O     | 1:T:72:GLN:N     | 2.41                     | 0.51              |
| 1:a:230:LEU:HD21 | 1:b:76:LEU:HB3   | 1.93                     | 0.51              |
| 1:i:189:LEU:O    | 1:i:192:LEU:N    | 2.44                     | 0.51              |
| 1:p:192:LEU:O    | 1:p:195:ALA:HB3  | 2.11                     | 0.51              |
| 1:C:66:LYS:O     | 1:C:70:GLU:N     | 2.39                     | 0.51              |
| 1:J:262:THR:HG23 | 1:J:276:ILE:N    | 2.26                     | 0.51              |
| 2:M:87:G:OP2     | 1:P:18:ARG:NH1   | 2.44                     | 0.51              |
| 2:M:111:A:H3'    | 2:M:111:A:OP2    | 2.11                     | 0.51              |
| 1:O:84:LEU:N     | 1:O:220:GLN:O    | 2.40                     | 0.51              |
| 1:Q:159:ARG:NH2  | 1:Q:171:GLU:OE2  | 2.42                     | 0.51              |
| 1:V:138:TYR:O    | 1:V:141:ASN:N    | 2.44                     | 0.51              |
| 1:W:252:HIS:HB3  | 1:W:254:GLN:OE1  | 2.11                     | 0.51              |
| 1:W:279:GLU:O    | 1:W:321:TYR:OH   | 2.26                     | 0.51              |
| 1:a:140:GLU:O    | 1:a:144:ASN:N    | 2.37                     | 0.51              |
| 1:f:158:ILE:HG12 | 1:f:214:VAL:HG13 | 1.93                     | 0.51              |
| 1:E:112:GLN:O    | 1:E:116:THR:N    | 2.38                     | 0.51              |
| 2:M:45:A:H2'     | 2:M:46:A:N9      | 2.26                     | 0.51              |
| 1:S:12:SER:O     | 1:S:334:GLU:N    | 2.44                     | 0.51              |
| 1:T:162:VAL:HG22 | 1:T:210:VAL:HG22 | 1.92                     | 0.51              |
| 1:o:23:SER:HG    | 1:o:96:THR:H     | 1.54                     | 0.51              |
| 1:A:139:ALA:HA   | 1:A:142:ILE:HD12 | 1.91                     | 0.51              |
| 1:E:49:ARG:HB3   | 2:M:77:A:H3'     | 1.93                     | 0.51              |
| 1:A:136:ALA:O    | 1:A:139:ALA:N    | 2.44                     | 0.50              |
| 1:D:57:LYS:O     | 1:D:61:THR:N     | 2.44                     | 0.50              |
| 1:E:326:LEU:O    | 1:E:329:GLY:N    | 2.43                     | 0.50              |
| 1:F:161:VAL:N    | 1:F:211:GLU:O    | 2.34                     | 0.50              |
| 2:M:12:G:H4'     | 2:M:13:C:OP1     | 2.10                     | 0.50              |
| 2:M:56:G:H2'     | 2:M:57:A:N7      | 2.27                     | 0.50              |
| 2:M:119:A:H3'    | 1:B:49:ARG:HB2   | 1.93                     | 0.50              |
| 1:S:238:LYS:O    | 1:S:241:ILE:HD11 | 2.10                     | 0.50              |
| 1:U:264:ASP:OD2  | 1:U:292:ARG:NH2  | 2.44                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:W:125:TYR:O    | 1:W:129:GLN:N    | 2.38                     | 0.50              |
| 1:Z:125:TYR:O    | 1:Z:130:GLY:N    | 2.41                     | 0.50              |
| 1:b:317:GLU:OE1  | 1:b:317:GLU:N    | 2.39                     | 0.50              |
| 1:f:178:SER:OG   | 1:f:179:LEU:N    | 2.44                     | 0.50              |
| 1:p:147:PHE:HB2  | 1:p:256:ILE:HG23 | 1.93                     | 0.50              |
| 1:C:229:VAL:HG11 | 1:C:235:ARG:CG   | 2.42                     | 0.50              |
| 1:E:150:ARG:O    | 1:E:153:VAL:HG12 | 2.11                     | 0.50              |
| 2:M:51:A:O2'     | 2:M:52:C:O5'     | 2.28                     | 0.50              |
| 2:M:144:G:OP2    | 1:Y:49:ARG:N     | 2.43                     | 0.50              |
| 1:H:304:LEU:O    | 1:H:308:VAL:N    | 2.42                     | 0.50              |
| 1:P:46:LYS:N     | 1:P:79:VAL:O     | 2.44                     | 0.50              |
| 1:Z:125:TYR:O    | 1:Z:129:GLN:N    | 2.41                     | 0.50              |
| 1:p:29:ALA:N     | 1:p:39:THR:O     | 2.44                     | 0.50              |
| 1:D:96:THR:HG22  | 1:D:209:THR:HA   | 1.93                     | 0.50              |
| 1:F:132:SER:O    | 1:F:136:ALA:N    | 2.40                     | 0.50              |
| 1:I:64:PRO:O     | 1:I:68:ASP:N     | 2.42                     | 0.50              |
| 2:M:129:G:H2'    | 2:M:130:G:N7     | 2.26                     | 0.50              |
| 1:B:168:ARG:NH1  | 1:B:169:SER:O    | 2.44                     | 0.50              |
| 1:H:62:SER:OG    | 1:H:63:ASP:N     | 2.44                     | 0.50              |
| 1:T:224:PRO:HB2  | 1:T:242:LEU:HD22 | 1.92                     | 0.50              |
| 1:T:229:VAL:O    | 1:T:235:ARG:NH2  | 2.39                     | 0.50              |
| 1:U:281:TYR:O    | 1:U:290:ALA:HB1  | 2.11                     | 0.50              |
| 1:W:214:VAL:HB   | 1:W:216:LEU:HD11 | 1.92                     | 0.50              |
| 1:Y:228:LEU:HD22 | 1:Z:49:ARG:HB2   | 1.92                     | 0.50              |
| 1:Z:163:THR:OG1  | 1:Z:168:ARG:O    | 2.17                     | 0.50              |
| 1:p:153:VAL:HG23 | 1:p:153:VAL:O    | 2.12                     | 0.50              |
| 1:C:24:ASP:OD1   | 1:C:253:SER:OG   | 2.24                     | 0.50              |
| 1:C:28:TYR:CE1   | 1:C:40:ALA:HB2   | 2.45                     | 0.50              |
| 1:E:112:GLN:O    | 1:E:115:GLN:N    | 2.44                     | 0.50              |
| 2:M:17:C:H6      | 1:o:255:LYS:HE3  | 1.77                     | 0.50              |
| 2:M:23:A:O2'     | 2:M:24:U:O5'     | 2.25                     | 0.50              |
| 2:M:142:C:H1'    | 1:Y:50:GLY:HA3   | 1.93                     | 0.50              |
| 2:M:144:G:O2'    | 1:Q:226:GLN:OE1  | 2.19                     | 0.50              |
| 1:N:157:ALA:HB3  | 1:N:215:GLN:CB   | 2.41                     | 0.50              |
| 1:O:28:TYR:CE1   | 1:O:40:ALA:HB2   | 2.46                     | 0.50              |
| 1:U:115:GLN:O    | 1:U:118:LEU:N    | 2.38                     | 0.50              |
| 1:a:244:GLN:OE1  | 1:a:247:ASP:N    | 2.42                     | 0.50              |
| 1:I:261:ARG:HD2  | 1:I:278:VAL:HG22 | 1.94                     | 0.50              |
| 2:M:92:C:H2'     | 2:M:93:A:C8      | 2.47                     | 0.50              |
| 1:S:303:LEU:O    | 1:S:307:TRP:N    | 2.42                     | 0.50              |
| 1:T:160:VAL:O    | 1:T:172:PHE:N    | 2.42                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:a:150:ARG:O    | 1:a:153:VAL:HG22 | 2.12                     | 0.50              |
| 1:i:139:ALA:O    | 1:i:143:ALA:N    | 2.42                     | 0.50              |
| 1:E:258:ASN:ND2  | 2:M:71:C:O4'     | 2.42                     | 0.50              |
| 1:K:36:ASP:OD1   | 1:K:36:ASP:N     | 2.43                     | 0.50              |
| 1:L:95:PHE:CE1   | 1:L:210:VAL:HG11 | 2.47                     | 0.50              |
| 2:M:151:U:H1'    | 2:M:152:C:C6     | 2.47                     | 0.50              |
| 1:U:163:THR:O    | 1:U:209:THR:OG1  | 2.26                     | 0.50              |
| 1:V:196:ILE:O    | 1:V:199:GLY:N    | 2.44                     | 0.50              |
| 1:Y:258:ASN:HA   | 1:Y:261:ARG:HG2  | 1.94                     | 0.50              |
| 1:Z:16:PHE:N     | 1:Z:330:GLY:O    | 2.44                     | 0.50              |
| 1:q:69:ALA:O     | 1:q:73:LYS:NZ    | 2.44                     | 0.50              |
| 1:q:225:SER:O    | 1:q:243:TYR:N    | 2.45                     | 0.50              |
| 1:A:253:SER:HA   | 1:A:256:ILE:HD12 | 1.92                     | 0.50              |
| 2:M:5:A:H1'      | 1:q:255:LYS:CD   | 2.42                     | 0.50              |
| 2:M:136:A:C8     | 1:Z:48:VAL:HG21  | 2.46                     | 0.50              |
| 2:M:163:U:H2'    | 2:M:164:G:C8     | 2.47                     | 0.50              |
| 1:N:300:PHE:CE1  | 1:N:322:VAL:HG23 | 2.47                     | 0.50              |
| 1:Q:114:TYR:CE2  | 1:Q:118:LEU:HD22 | 2.46                     | 0.50              |
| 1:T:160:VAL:N    | 1:T:172:PHE:O    | 2.43                     | 0.50              |
| 1:Z:26:LEU:HD21  | 1:a:86:PHE:HD2   | 1.77                     | 0.50              |
| 1:F:22:ASN:HB3   | 1:F:97:LEU:HD13  | 1.93                     | 0.50              |
| 2:M:97:C:H2'     | 2:M:98:G:C5      | 2.47                     | 0.50              |
| 2:M:176:G:C2'    | 2:M:177:G:H5'    | 2.42                     | 0.50              |
| 1:V:305:ASP:O    | 1:V:309:ILE:N    | 2.44                     | 0.50              |
| 1:W:304:LEU:O    | 1:W:308:VAL:N    | 2.43                     | 0.50              |
| 1:f:138:TYR:O    | 1:f:141:ASN:N    | 2.45                     | 0.50              |
| 1:i:318:GLN:O    | 1:i:322:VAL:HG23 | 2.12                     | 0.50              |
| 1:p:256:ILE:O    | 1:p:259:ALA:N    | 2.42                     | 0.50              |
| 1:D:163:THR:N    | 1:D:209:THR:O    | 2.40                     | 0.50              |
| 1:D:222:VAL:HG22 | 1:D:223:PHE:N    | 2.27                     | 0.50              |
| 2:M:8:C:H2'      | 2:M:9:A:N7       | 2.26                     | 0.50              |
| 2:M:98:G:H5''    | 1:N:17:GLU:CG    | 2.41                     | 0.50              |
| 1:O:140:GLU:O    | 1:O:143:ALA:N    | 2.45                     | 0.50              |
| 1:Q:316:PRO:O    | 1:Q:320:HIS:ND1  | 2.45                     | 0.50              |
| 1:V:131:PHE:O    | 1:V:134:LEU:N    | 2.45                     | 0.50              |
| 1:Y:28:TYR:O     | 1:Y:91:LEU:HD12  | 2.12                     | 0.50              |
| 1:o:97:LEU:O     | 1:o:208:PHE:N    | 2.39                     | 0.50              |
| 1:A:284:VAL:HG22 | 1:A:286:SER:N    | 2.26                     | 0.49              |
| 1:F:95:PHE:CZ    | 1:F:210:VAL:HG21 | 2.47                     | 0.49              |
| 1:J:36:ASP:OD1   | 1:J:36:ASP:N     | 2.40                     | 0.49              |
| 2:M:57:A:H2'     | 2:M:58:A:C4      | 2.47                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:120:U:O2'    | 2:M:121:U:OP2    | 2.15                     | 0.49              |
| 1:O:147:PHE:C    | 1:O:148:LEU:HD22 | 2.37                     | 0.49              |
| 1:Q:82:ALA:O     | 1:Q:222:VAL:N    | 2.45                     | 0.49              |
| 1:S:74:ALA:HB1   | 1:S:76:LEU:HD21  | 1.94                     | 0.49              |
| 1:S:214:VAL:HB   | 1:S:216:LEU:HD11 | 1.94                     | 0.49              |
| 1:T:19:LYS:NZ    | 1:T:101:GLY:O    | 2.43                     | 0.49              |
| 1:U:122:ILE:O    | 1:U:126:ALA:N    | 2.40                     | 0.49              |
| 1:a:227:GLU:HB2  | 1:a:241:ILE:HG23 | 1.94                     | 0.49              |
| 1:G:95:PHE:O     | 1:G:210:VAL:N    | 2.36                     | 0.49              |
| 1:I:14:LEU:O     | 1:I:332:PHE:N    | 2.43                     | 0.49              |
| 1:I:178:SER:OG   | 1:I:179:LEU:N    | 2.46                     | 0.49              |
| 1:L:95:PHE:O     | 1:L:210:VAL:N    | 2.45                     | 0.49              |
| 1:L:290:ALA:HB2  | 1:i:71:ILE:HD12  | 1.95                     | 0.49              |
| 2:M:90:U:O2'     | 2:M:91:U:H2'     | 2.11                     | 0.49              |
| 2:M:150:U:H5''   | 1:Q:49:ARG:CB    | 2.42                     | 0.49              |
| 1:B:222:VAL:HG13 | 1:B:224:PRO:HD3  | 1.95                     | 0.49              |
| 1:O:306:ASN:O    | 1:O:311:GLY:N    | 2.44                     | 0.49              |
| 1:Q:163:THR:N    | 1:Q:209:THR:O    | 2.43                     | 0.49              |
| 1:S:290:ALA:HB3  | 1:S:293:GLN:NE2  | 2.27                     | 0.49              |
| 1:Y:12:SER:O     | 1:Y:334:GLU:N    | 2.45                     | 0.49              |
| 1:i:254:GLN:O    | 1:i:257:GLY:N    | 2.45                     | 0.49              |
| 1:i:324:ALA:HA   | 1:i:327:ILE:HD12 | 1.93                     | 0.49              |
| 1:o:22:ASN:CA    | 1:o:97:LEU:HD13  | 2.41                     | 0.49              |
| 1:q:19:LYS:NZ    | 1:q:101:GLY:O    | 2.43                     | 0.49              |
| 1:A:83:ALA:HB2   | 1:A:221:GLU:HA   | 1.94                     | 0.49              |
| 1:D:323:ILE:HD13 | 1:D:326:LEU:HD12 | 1.94                     | 0.49              |
| 1:F:163:THR:N    | 1:F:209:THR:O    | 2.40                     | 0.49              |
| 1:J:148:LEU:O    | 1:J:150:ARG:N    | 2.45                     | 0.49              |
| 1:J:253:SER:HA   | 1:J:256:ILE:HD12 | 1.95                     | 0.49              |
| 2:M:39:G:HO2'    | 2:M:40:G:C1'     | 2.20                     | 0.49              |
| 1:O:151:ASN:OD1  | 1:O:223:PHE:N    | 2.36                     | 0.49              |
| 1:T:14:LEU:HD22  | 1:T:332:PHE:HB2  | 1.94                     | 0.49              |
| 1:D:119:GLY:HA2  | 1:D:122:ILE:HD12 | 1.94                     | 0.49              |
| 1:E:30:GLY:C     | 1:E:88:ALA:HB1   | 2.37                     | 0.49              |
| 1:E:253:SER:OG   | 1:E:254:GLN:N    | 2.42                     | 0.49              |
| 1:J:85:PRO:O     | 1:J:219:GLY:N    | 2.45                     | 0.49              |
| 1:J:162:VAL:HG23 | 1:J:170:TRP:HB2  | 1.95                     | 0.49              |
| 1:J:262:THR:HG22 | 1:J:275:PRO:HB3  | 1.95                     | 0.49              |
| 1:K:15:ALA:HB3   | 1:K:108:VAL:CG1  | 2.42                     | 0.49              |
| 1:L:27:MET:HG2   | 1:L:249:ALA:HB3  | 1.94                     | 0.49              |
| 1:L:149:TRP:CG   | 2:M:29:G:H22     | 2.31                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:15:G:OP1     | 1:p:150:ARG:NH2  | 2.37                     | 0.49              |
| 2:M:113:G:O2'    | 2:M:114:G:H4'    | 2.12                     | 0.49              |
| 2:M:139:U:O2'    | 2:M:140:C:O5'    | 2.30                     | 0.49              |
| 1:O:26:LEU:O     | 1:O:93:ILE:HG23  | 2.13                     | 0.49              |
| 1:Q:103:LEU:HD22 | 1:Q:122:ILE:HG21 | 1.94                     | 0.49              |
| 1:U:21:ALA:HB3   | 1:U:98:ARG:CB    | 2.41                     | 0.49              |
| 1:U:99:VAL:HG23  | 1:U:206:ALA:HB3  | 1.94                     | 0.49              |
| 1:i:306:ASN:O    | 1:i:311:GLY:N    | 2.43                     | 0.49              |
| 1:E:36:ASP:OD1   | 1:E:37:ASN:N     | 2.45                     | 0.49              |
| 1:F:30:GLY:C     | 1:F:88:ALA:HB1   | 2.37                     | 0.49              |
| 1:I:261:ARG:HG3  | 1:I:277:ALA:HB1  | 1.94                     | 0.49              |
| 1:J:99:VAL:HG12  | 1:J:199:GLY:C    | 2.38                     | 0.49              |
| 2:M:19:U:H5'     | 2:M:20:G:OP1     | 2.13                     | 0.49              |
| 1:N:31:ASN:O     | 1:N:34:GLN:N     | 2.43                     | 0.49              |
| 1:Q:13:VAL:HG12  | 1:Q:110:ASN:ND2  | 2.27                     | 0.49              |
| 1:S:125:TYR:O    | 1:S:129:GLN:N    | 2.40                     | 0.49              |
| 1:V:322:VAL:O    | 1:V:325:THR:N    | 2.46                     | 0.49              |
| 1:b:84:LEU:N     | 1:b:220:GLN:O    | 2.38                     | 0.49              |
| 1:b:114:TYR:O    | 1:b:117:ALA:HB3  | 2.12                     | 0.49              |
| 1:E:229:VAL:HG11 | 1:E:235:ARG:HG3  | 1.95                     | 0.49              |
| 1:I:99:VAL:HG12  | 1:I:199:GLY:HA3  | 1.94                     | 0.49              |
| 1:P:148:LEU:CD1  | 1:P:214:VAL:HG21 | 2.42                     | 0.49              |
| 1:Q:69:ALA:O     | 1:Q:73:LYS:N     | 2.44                     | 0.49              |
| 1:W:303:LEU:O    | 1:W:307:TRP:N    | 2.45                     | 0.49              |
| 1:i:243:TYR:HB2  | 1:i:252:HIS:HE2  | 1.78                     | 0.49              |
| 1:A:112:GLN:O    | 1:A:116:THR:N    | 2.41                     | 0.49              |
| 1:D:318:GLN:O    | 1:D:321:TYR:N    | 2.45                     | 0.49              |
| 1:E:21:ALA:O     | 1:E:98:ARG:N     | 2.45                     | 0.49              |
| 1:I:281:TYR:HE2  | 1:J:56:LEU:HD22  | 1.78                     | 0.49              |
| 1:J:21:ALA:CB    | 1:J:100:LEU:HD11 | 2.43                     | 0.49              |
| 1:K:178:SER:OG   | 1:K:179:LEU:N    | 2.46                     | 0.49              |
| 1:B:331:VAL:HG23 | 1:B:331:VAL:O    | 2.12                     | 0.49              |
| 1:O:281:TYR:OH   | 1:P:54:ASN:O     | 2.20                     | 0.49              |
| 1:P:119:GLY:HA2  | 1:P:122:ILE:HD12 | 1.94                     | 0.49              |
| 1:Q:13:VAL:HG12  | 1:Q:110:ASN:CG   | 2.38                     | 0.49              |
| 1:Q:26:LEU:HD23  | 1:Q:250:ALA:HB2  | 1.93                     | 0.49              |
| 1:Q:27:MET:HB2   | 1:Q:41:ILE:HG22  | 1.93                     | 0.49              |
| 1:S:122:ILE:O    | 1:S:126:ALA:N    | 2.45                     | 0.49              |
| 1:W:255:LYS:O    | 1:W:259:ALA:N    | 2.42                     | 0.49              |
| 1:a:25:ALA:HB3   | 1:a:251:ILE:HB   | 1.94                     | 0.49              |
| 1:f:141:ASN:ND2  | 1:f:259:ALA:O    | 2.44                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:i:112:GLN:O    | 1:i:116:THR:N    | 2.39                     | 0.49              |
| 1:A:133:THR:HG21 | 1:A:320:HIS:CD2  | 2.47                     | 0.49              |
| 1:A:148:LEU:O    | 1:A:150:ARG:N    | 2.46                     | 0.49              |
| 1:E:255:LYS:HZ3  | 2:M:71:C:H6      | 1.60                     | 0.49              |
| 1:L:32:TRP:N     | 1:L:90:THR:OG1   | 2.45                     | 0.49              |
| 2:M:99:G:H2'     | 2:M:100:G:C5     | 2.47                     | 0.49              |
| 1:O:125:TYR:O    | 1:O:130:GLY:N    | 2.42                     | 0.49              |
| 1:U:97:LEU:O     | 1:U:208:PHE:N    | 2.39                     | 0.49              |
| 1:Y:225:SER:OG   | 1:Y:252:HIS:N    | 2.43                     | 0.49              |
| 1:p:15:ALA:O     | 1:p:108:VAL:N    | 2.42                     | 0.49              |
| 1:N:324:ALA:HA   | 1:N:327:ILE:HD12 | 1.95                     | 0.49              |
| 1:Y:95:PHE:CE1   | 1:Y:210:VAL:HG11 | 2.48                     | 0.49              |
| 1:I:110:ASN:OD1  | 1:I:111:ASP:N    | 2.46                     | 0.49              |
| 2:M:146:G:C2'    | 2:M:147:A:H5'    | 2.43                     | 0.49              |
| 2:M:179:A:H3'    | 1:S:49:ARG:O     | 2.13                     | 0.49              |
| 1:U:178:SER:OG   | 1:U:179:LEU:N    | 2.42                     | 0.49              |
| 1:V:70:GLU:O     | 1:V:73:LYS:N     | 2.44                     | 0.49              |
| 1:Y:52:ILE:HG22  | 1:Y:54:ASN:H     | 1.77                     | 0.49              |
| 1:Z:171:GLU:OE1  | 1:Z:171:GLU:N    | 2.46                     | 0.49              |
| 1:p:148:LEU:O    | 1:p:150:ARG:N    | 2.46                     | 0.49              |
| 1:E:23:SER:OG    | 1:E:24:ASP:N     | 2.46                     | 0.48              |
| 1:F:23:SER:OG    | 1:F:24:ASP:O     | 2.21                     | 0.48              |
| 1:G:13:VAL:C     | 1:G:14:LEU:HD22  | 2.38                     | 0.48              |
| 1:G:253:SER:OG   | 1:G:254:GLN:N    | 2.45                     | 0.48              |
| 2:M:20:G:H2'     | 2:M:21:A:C4      | 2.47                     | 0.48              |
| 2:M:138:U:H1'    | 2:M:139:U:C6     | 2.48                     | 0.48              |
| 2:M:156:G:H5''   | 1:W:49:ARG:CB    | 2.43                     | 0.48              |
| 2:M:177:G:H2'    | 2:M:178:G:N7     | 2.28                     | 0.48              |
| 1:B:300:PHE:CE2  | 1:B:304:LEU:HD22 | 2.48                     | 0.48              |
| 1:O:316:PRO:O    | 1:O:320:HIS:N    | 2.44                     | 0.48              |
| 1:P:305:ASP:HB3  | 1:P:309:ILE:HD12 | 1.94                     | 0.48              |
| 1:Y:146:ARG:HB2  | 1:Y:259:ALA:HB1  | 1.95                     | 0.48              |
| 1:o:261:ARG:O    | 1:o:278:VAL:N    | 2.43                     | 0.48              |
| 1:C:49:ARG:HB2   | 2:M:90:U:H5''    | 1.95                     | 0.48              |
| 1:C:147:PHE:C    | 1:C:148:LEU:HD22 | 2.38                     | 0.48              |
| 1:D:253:SER:N    | 1:D:254:GLN:OE1  | 2.46                     | 0.48              |
| 1:K:15:ALA:HB2   | 1:K:331:VAL:CG2  | 2.43                     | 0.48              |
| 1:K:262:THR:HG23 | 1:K:276:ILE:C    | 2.38                     | 0.48              |
| 1:L:254:GLN:NE2  | 2:M:29:G:H4'     | 2.28                     | 0.48              |
| 1:N:160:VAL:O    | 1:N:172:PHE:N    | 2.45                     | 0.48              |
| 1:P:14:LEU:HA    | 1:P:108:VAL:HG11 | 1.94                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:W:114:TYR:O    | 1:W:118:LEU:N    | 2.42                     | 0.48              |
| 1:W:267:TYR:O    | 1:W:270:ALA:N    | 2.45                     | 0.48              |
| 1:b:241:ILE:O    | 1:b:242:LEU:HD22 | 2.13                     | 0.48              |
| 1:f:52:ILE:HD12  | 1:f:52:ILE:N     | 2.28                     | 0.48              |
| 1:i:136:ALA:HA   | 1:i:193:THR:HG22 | 1.95                     | 0.48              |
| 1:E:305:ASP:O    | 1:E:309:ILE:N    | 2.46                     | 0.48              |
| 1:F:123:THR:O    | 1:F:126:ALA:HB3  | 2.12                     | 0.48              |
| 1:I:226:GLN:O    | 2:M:48:U:H3'     | 2.12                     | 0.48              |
| 1:K:163:THR:O    | 1:K:209:THR:N    | 2.40                     | 0.48              |
| 1:L:149:TRP:CD1  | 2:M:29:G:H1      | 2.31                     | 0.48              |
| 2:M:134:G:O2'    | 2:M:135:A:OP1    | 2.27                     | 0.48              |
| 1:N:14:LEU:O     | 1:N:332:PHE:N    | 2.45                     | 0.48              |
| 1:V:122:ILE:HG13 | 1:V:307:TRP:HH2  | 1.78                     | 0.48              |
| 1:b:118:LEU:HA   | 1:b:121:ILE:HB   | 1.95                     | 0.48              |
| 1:i:125:TYR:OH   | 1:i:320:HIS:ND1  | 2.46                     | 0.48              |
| 1:p:196:ILE:O    | 1:p:200:LEU:N    | 2.39                     | 0.48              |
| 1:D:19:LYS:HA    | 1:D:100:LEU:HD12 | 1.95                     | 0.48              |
| 1:D:228:LEU:HD11 | 1:D:235:ARG:CZ   | 2.43                     | 0.48              |
| 1:F:331:VAL:O    | 1:F:331:VAL:HG13 | 2.12                     | 0.48              |
| 1:L:64:PRO:O     | 1:L:68:ASP:N     | 2.42                     | 0.48              |
| 2:M:16:G:O2'     | 1:p:49:ARG:O     | 2.30                     | 0.48              |
| 2:M:18:U:O2      | 2:M:18:U:H2'     | 2.13                     | 0.48              |
| 2:M:81:A:H2'     | 2:M:82:C:C5      | 2.48                     | 0.48              |
| 1:Q:84:LEU:HD12  | 1:Q:217:GLY:O    | 2.14                     | 0.48              |
| 1:V:192:LEU:HD23 | 1:V:193:THR:CA   | 2.41                     | 0.48              |
| 1:W:95:PHE:CZ    | 1:W:210:VAL:HG21 | 2.48                     | 0.48              |
| 1:a:24:ASP:OD1   | 1:a:253:SER:N    | 2.40                     | 0.48              |
| 1:p:119:GLY:O    | 1:p:122:ILE:N    | 2.47                     | 0.48              |
| 1:J:123:THR:O    | 1:J:126:ALA:HB3  | 2.14                     | 0.48              |
| 1:K:19:LYS:O     | 1:K:21:ALA:N     | 2.45                     | 0.48              |
| 1:K:192:LEU:HA   | 1:K:195:ALA:HB3  | 1.95                     | 0.48              |
| 1:L:256:ILE:O    | 1:L:259:ALA:HB3  | 2.13                     | 0.48              |
| 2:M:27:A:OP1     | 1:i:150:ARG:NH2  | 2.46                     | 0.48              |
| 2:M:32:G:H2'     | 2:M:33:A:C8      | 2.48                     | 0.48              |
| 2:M:95:G:H3'     | 1:P:49:ARG:HG2   | 1.95                     | 0.48              |
| 2:M:109:U:H1'    | 2:M:110:C:C1'    | 2.44                     | 0.48              |
| 1:B:14:LEU:O     | 1:B:333:GLY:N    | 2.43                     | 0.48              |
| 1:B:26:LEU:HD22  | 1:B:248:VAL:HB   | 1.94                     | 0.48              |
| 1:B:122:ILE:O    | 1:B:126:ALA:N    | 2.41                     | 0.48              |
| 1:B:281:TYR:O    | 1:B:290:ALA:HB1  | 2.13                     | 0.48              |
| 1:S:331:VAL:HG13 | 1:S:331:VAL:O    | 2.14                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:U:19:LYS:HD2   | 1:U:100:LEU:HB2  | 1.96                     | 0.48              |
| 1:V:18:ARG:NE    | 1:V:20:LEU:O     | 2.36                     | 0.48              |
| 1:Z:99:VAL:HG21  | 1:Z:196:ILE:HG23 | 1.96                     | 0.48              |
| 1:a:114:TYR:O    | 1:a:118:LEU:N    | 2.47                     | 0.48              |
| 1:p:48:VAL:O     | 1:p:77:GLN:N     | 2.44                     | 0.48              |
| 1:A:112:GLN:O    | 1:A:115:GLN:N    | 2.46                     | 0.48              |
| 1:D:30:GLY:C     | 1:D:88:ALA:HB1   | 2.38                     | 0.48              |
| 1:D:151:ASN:ND2  | 1:D:223:PHE:O    | 2.46                     | 0.48              |
| 1:E:64:PRO:O     | 1:E:68:ASP:N     | 2.44                     | 0.48              |
| 2:M:57:A:H2'     | 2:M:58:A:C5      | 2.48                     | 0.48              |
| 2:M:67:C:H2'     | 2:M:68:G:N9      | 2.28                     | 0.48              |
| 2:M:120:U:OP2    | 1:B:49:ARG:N     | 2.40                     | 0.48              |
| 2:M:136:A:H1'    | 1:Z:50:GLY:CA    | 2.43                     | 0.48              |
| 1:N:32:TRP:CE3   | 1:N:157:ALA:HB1  | 2.48                     | 0.48              |
| 1:N:256:ILE:O    | 1:N:260:LEU:N    | 2.41                     | 0.48              |
| 1:O:95:PHE:CE1   | 1:O:210:VAL:HG11 | 2.48                     | 0.48              |
| 1:O:324:ALA:O    | 1:O:327:ILE:N    | 2.45                     | 0.48              |
| 1:S:89:ASP:O     | 1:S:217:GLY:N    | 2.45                     | 0.48              |
| 1:V:155:ALA:HB1  | 1:V:157:ALA:H    | 1.77                     | 0.48              |
| 1:a:95:PHE:CE1   | 1:a:210:VAL:HG11 | 2.48                     | 0.48              |
| 1:b:29:ALA:N     | 1:b:39:THR:O     | 2.45                     | 0.48              |
| 1:f:123:THR:HA   | 1:f:126:ALA:HB3  | 1.94                     | 0.48              |
| 1:C:30:GLY:O     | 1:C:88:ALA:HB1   | 2.13                     | 0.48              |
| 1:C:262:THR:HG23 | 1:C:276:ILE:N    | 2.28                     | 0.48              |
| 1:D:244:GLN:OE1  | 1:D:244:GLN:N    | 2.46                     | 0.48              |
| 1:I:141:ASN:ND2  | 1:I:260:LEU:O    | 2.46                     | 0.48              |
| 2:M:44:G:H5'     | 2:M:45:A:OP2     | 2.13                     | 0.48              |
| 1:Q:11:ALA:HB1   | 1:Q:110:ASN:OD1  | 2.14                     | 0.48              |
| 1:U:192:LEU:HD23 | 1:U:193:THR:CA   | 2.44                     | 0.48              |
| 1:Z:12:SER:OG    | 1:Z:110:ASN:ND2  | 2.47                     | 0.48              |
| 1:b:91:LEU:O     | 1:b:214:VAL:N    | 2.43                     | 0.48              |
| 1:C:267:TYR:OH   | 1:C:273:ALA:HB3  | 2.14                     | 0.48              |
| 1:C:306:ASN:O    | 1:C:311:GLY:N    | 2.47                     | 0.48              |
| 1:G:95:PHE:CE2   | 1:G:210:VAL:HG21 | 2.49                     | 0.48              |
| 2:M:74:G:O6      | 2:M:75:A:N6      | 2.47                     | 0.48              |
| 2:M:113:G:H21    | 1:B:255:LYS:CE   | 2.26                     | 0.48              |
| 2:M:159:G:H2'    | 2:M:160:G:N9     | 2.29                     | 0.48              |
| 2:M:159:G:H2'    | 2:M:160:G:C4     | 2.48                     | 0.48              |
| 1:B:64:PRO:O     | 1:B:68:ASP:N     | 2.45                     | 0.48              |
| 1:U:296:GLU:OE1  | 1:U:296:GLU:N    | 2.47                     | 0.48              |
| 1:V:52:ILE:HG22  | 1:V:54:ASN:H     | 1.79                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:95:PHE:CE1   | 1:Z:210:VAL:HG11 | 2.48                     | 0.48              |
| 1:a:150:ARG:HG2  | 1:a:223:PHE:HB2  | 1.96                     | 0.48              |
| 1:b:315:MET:SD   | 1:b:315:MET:N    | 2.82                     | 0.48              |
| 1:I:305:ASP:O    | 1:I:308:VAL:N    | 2.47                     | 0.48              |
| 2:M:110:C:H5'    | 2:M:111:A:OP1    | 2.14                     | 0.48              |
| 2:M:185:G:H5''   | 1:f:50:GLY:HA2   | 1.94                     | 0.48              |
| 1:Y:192:LEU:HD23 | 1:Y:193:THR:CA   | 2.44                     | 0.48              |
| 1:a:25:ALA:O     | 1:a:251:ILE:N    | 2.43                     | 0.48              |
| 1:a:192:LEU:HD23 | 1:a:193:THR:CA   | 2.43                     | 0.48              |
| 1:f:121:ILE:HG22 | 1:f:307:TRP:CH2  | 2.49                     | 0.48              |
| 1:i:29:ALA:N     | 1:i:39:THR:O     | 2.44                     | 0.48              |
| 1:o:324:ALA:O    | 1:o:328:ARG:N    | 2.44                     | 0.48              |
| 1:A:140:GLU:OE1  | 1:A:183:SER:OG   | 2.30                     | 0.48              |
| 1:F:116:THR:O    | 1:F:119:GLY:N    | 2.47                     | 0.48              |
| 1:I:105:GLN:NE2  | 1:I:105:GLN:O    | 2.46                     | 0.48              |
| 2:M:135:A:HO2'   | 2:M:136:A:C1'    | 2.27                     | 0.48              |
| 1:B:262:THR:HA   | 1:B:277:ALA:HA   | 1.95                     | 0.48              |
| 1:U:30:GLY:N     | 1:U:90:THR:O     | 2.42                     | 0.48              |
| 1:V:290:ALA:HB3  | 1:V:293:GLN:HE22 | 1.79                     | 0.48              |
| 1:W:52:ILE:HG22  | 1:W:54:ASN:H     | 1.78                     | 0.48              |
| 1:Z:284:VAL:O    | 1:Z:288:GLY:N    | 2.44                     | 0.48              |
| 1:q:300:PHE:CD1  | 1:q:325:THR:HG21 | 2.49                     | 0.48              |
| 1:A:75:ASN:OD1   | 1:A:77:GLN:NE2   | 2.47                     | 0.47              |
| 1:G:11:ALA:CB    | 1:G:14:LEU:HD21  | 2.41                     | 0.47              |
| 1:G:123:THR:O    | 1:G:126:ALA:HB3  | 2.15                     | 0.47              |
| 1:J:306:ASN:O    | 1:J:311:GLY:N    | 2.46                     | 0.47              |
| 2:M:109:U:O2'    | 2:M:110:C:O5'    | 2.32                     | 0.47              |
| 2:M:134:G:O2'    | 2:M:135:A:H5'    | 2.13                     | 0.47              |
| 2:M:152:C:H3'    | 2:M:152:C:P      | 2.54                     | 0.47              |
| 2:M:173:G:H4'    | 2:M:174:G:OP1    | 2.12                     | 0.47              |
| 1:H:13:VAL:HG22  | 1:H:110:ASN:CG   | 2.38                     | 0.47              |
| 1:Q:278:VAL:HG23 | 1:Q:321:TYR:CE1  | 2.48                     | 0.47              |
| 1:U:259:ALA:O    | 1:U:262:THR:OG1  | 2.21                     | 0.47              |
| 1:V:229:VAL:HG11 | 1:V:235:ARG:HG3  | 1.95                     | 0.47              |
| 1:Y:160:VAL:N    | 1:Y:172:PHE:O    | 2.44                     | 0.47              |
| 1:Z:52:ILE:HG22  | 1:Z:54:ASN:H     | 1.78                     | 0.47              |
| 1:f:152:ARG:NH1  | 1:f:179:LEU:HD11 | 2.29                     | 0.47              |
| 1:f:158:ILE:HG23 | 1:f:214:VAL:HG22 | 1.96                     | 0.47              |
| 1:p:147:PHE:C    | 1:p:148:LEU:HD22 | 2.38                     | 0.47              |
| 1:D:99:VAL:HG11  | 1:D:196:ILE:HG23 | 1.95                     | 0.47              |
| 1:G:30:GLY:N     | 1:G:90:THR:O     | 2.39                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:39:THR:OG1   | 1:K:40:ALA:N     | 2.47                     | 0.47              |
| 1:K:262:THR:HG22 | 1:K:275:PRO:HB2  | 1.96                     | 0.47              |
| 2:M:97:C:H2'     | 2:M:98:G:C8      | 2.50                     | 0.47              |
| 2:M:99:G:H2'     | 2:M:100:G:N7     | 2.28                     | 0.47              |
| 2:M:122:C:C2'    | 2:M:123:A:H5'    | 2.44                     | 0.47              |
| 2:M:127:C:H2'    | 2:M:128:G:N7     | 2.29                     | 0.47              |
| 2:M:138:U:C1'    | 2:M:139:U:H5'    | 2.44                     | 0.47              |
| 2:M:173:G:H1'    | 2:M:175:C:OP1    | 2.14                     | 0.47              |
| 2:M:177:G:H2'    | 2:M:178:G:C8     | 2.50                     | 0.47              |
| 1:N:97:LEU:HD12  | 1:N:98:ARG:H     | 1.79                     | 0.47              |
| 1:Z:315:MET:O    | 1:Z:318:GLN:N    | 2.47                     | 0.47              |
| 1:b:26:LEU:HD23  | 1:b:250:ALA:CB   | 2.37                     | 0.47              |
| 1:i:163:THR:HG22 | 1:i:164:LYS:O    | 2.13                     | 0.47              |
| 1:p:20:LEU:HD23  | 1:p:99:VAL:HG23  | 1.96                     | 0.47              |
| 1:A:18:ARG:NH2   | 2:M:51:A:O3'     | 2.43                     | 0.47              |
| 1:E:228:LEU:HD13 | 2:M:72:U:N3      | 2.28                     | 0.47              |
| 1:F:133:THR:O    | 1:F:137:ARG:N    | 2.46                     | 0.47              |
| 1:F:229:VAL:HG11 | 1:F:235:ARG:CG   | 2.44                     | 0.47              |
| 2:M:1:C:H2'      | 2:M:2:G:C8       | 2.50                     | 0.47              |
| 2:M:63:A:H2'     | 2:M:64:C:C5      | 2.50                     | 0.47              |
| 1:Q:26:LEU:HD22  | 1:Q:248:VAL:HB   | 1.95                     | 0.47              |
| 1:U:252:HIS:HB3  | 1:U:254:GLN:CD   | 2.39                     | 0.47              |
| 1:W:173:ASN:OD1  | 1:W:174:GLY:N    | 2.47                     | 0.47              |
| 1:Z:158:ILE:N    | 1:Z:175:GLU:OE2  | 2.43                     | 0.47              |
| 1:i:21:ALA:HB3   | 1:i:98:ARG:HB3   | 1.96                     | 0.47              |
| 1:q:143:ALA:HA   | 1:q:160:VAL:HG11 | 1.95                     | 0.47              |
| 1:A:148:LEU:HD13 | 1:A:214:VAL:HG21 | 1.96                     | 0.47              |
| 1:C:305:ASP:OD1  | 1:C:306:ASN:N    | 2.47                     | 0.47              |
| 1:C:306:ASN:ND2  | 1:C:312:ASP:OD2  | 2.47                     | 0.47              |
| 1:J:32:TRP:N     | 1:J:90:THR:OG1   | 2.48                     | 0.47              |
| 2:M:97:C:H3'     | 1:O:226:GLN:HE22 | 1.79                     | 0.47              |
| 2:M:145:C:H5'    | 2:M:146:G:OP1    | 2.14                     | 0.47              |
| 2:M:156:G:HO2'   | 1:V:226:GLN:CD   | 2.12                     | 0.47              |
| 1:B:98:ARG:HG2   | 1:B:100:LEU:HD21 | 1.97                     | 0.47              |
| 1:H:229:VAL:HG11 | 1:H:235:ARG:HG3  | 1.95                     | 0.47              |
| 1:O:140:GLU:O    | 1:O:144:ASN:N    | 2.42                     | 0.47              |
| 1:V:162:VAL:HG22 | 1:V:210:VAL:HG13 | 1.96                     | 0.47              |
| 1:W:95:PHE:CE1   | 1:W:210:VAL:HG11 | 2.48                     | 0.47              |
| 1:D:255:LYS:HZ3  | 2:M:78:U:P       | 2.33                     | 0.47              |
| 1:I:98:ARG:NH2   | 1:J:153:VAL:O    | 2.39                     | 0.47              |
| 2:M:38:G:H2'     | 2:M:39:G:C5      | 2.50                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:110:C:H3'    | 2:M:111:A:H8     | 1.79                     | 0.47              |
| 2:M:122:C:H2'    | 2:M:123:A:C8     | 2.49                     | 0.47              |
| 2:M:149:A:H5''   | 1:Q:49:ARG:O     | 2.14                     | 0.47              |
| 2:M:158:G:O5'    | 1:V:150:ARG:NH1  | 2.47                     | 0.47              |
| 1:O:148:LEU:HB3  | 1:O:152:ARG:N    | 2.29                     | 0.47              |
| 1:S:112:GLN:NE2  | 1:S:113:ASP:OD1  | 2.46                     | 0.47              |
| 1:S:147:PHE:C    | 1:S:148:LEU:HD22 | 2.40                     | 0.47              |
| 1:V:300:PHE:CZ   | 1:V:325:THR:HG21 | 2.50                     | 0.47              |
| 1:W:11:ALA:HB2   | 1:W:111:ASP:HB2  | 1.96                     | 0.47              |
| 1:W:22:ASN:ND2   | 1:W:260:LEU:HD12 | 2.29                     | 0.47              |
| 1:p:192:LEU:HD23 | 1:p:192:LEU:C    | 2.40                     | 0.47              |
| 1:p:258:ASN:OD1  | 1:p:261:ARG:NH2  | 2.44                     | 0.47              |
| 1:C:112:GLN:NE2  | 1:C:113:ASP:OD1  | 2.47                     | 0.47              |
| 1:E:185:PRO:HA   | 1:E:189:LEU:HD23 | 1.95                     | 0.47              |
| 1:I:258:ASN:HB2  | 2:M:47:A:H5'     | 1.96                     | 0.47              |
| 2:M:21:A:H2'     | 2:M:22:A:C8      | 2.49                     | 0.47              |
| 1:W:189:LEU:O    | 1:W:192:LEU:N    | 2.48                     | 0.47              |
| 1:a:18:ARG:NH1   | 1:a:20:LEU:O     | 2.47                     | 0.47              |
| 1:i:137:ARG:O    | 1:i:141:ASN:N    | 2.41                     | 0.47              |
| 1:A:279:GLU:O    | 1:A:321:TYR:OH   | 2.30                     | 0.47              |
| 1:C:91:LEU:O     | 1:C:214:VAL:N    | 2.44                     | 0.47              |
| 1:D:139:ALA:O    | 1:D:142:ILE:N    | 2.47                     | 0.47              |
| 1:E:151:ASN:OD1  | 1:E:223:PHE:N    | 2.40                     | 0.47              |
| 1:F:255:LYS:CE   | 2:M:65:G:H21     | 2.28                     | 0.47              |
| 1:G:18:ARG:NH2   | 2:M:57:A:H3'     | 2.29                     | 0.47              |
| 1:G:50:GLY:HA3   | 2:M:64:C:H1'     | 1.96                     | 0.47              |
| 1:I:30:GLY:O     | 1:I:90:THR:N     | 2.45                     | 0.47              |
| 1:I:66:LYS:O     | 1:I:70:GLU:N     | 2.40                     | 0.47              |
| 1:J:199:GLY:O    | 1:J:202:GLY:N    | 2.47                     | 0.47              |
| 1:K:286:SER:OG   | 1:K:287:ARG:N    | 2.46                     | 0.47              |
| 1:B:220:GLN:OE1  | 1:b:98:ARG:NE    | 2.47                     | 0.47              |
| 1:B:315:MET:O    | 1:B:318:GLN:N    | 2.46                     | 0.47              |
| 1:H:74:ALA:HB1   | 1:H:76:LEU:HG    | 1.96                     | 0.47              |
| 1:H:82:ALA:O     | 1:H:222:VAL:HG22 | 2.15                     | 0.47              |
| 1:Q:98:ARG:NH1   | 1:Y:153:VAL:O    | 2.47                     | 0.47              |
| 1:U:230:LEU:HD11 | 1:V:77:GLN:HA    | 1.96                     | 0.47              |
| 1:Z:29:ALA:HB1   | 1:Z:84:LEU:HD11  | 1.97                     | 0.47              |
| 1:b:15:ALA:HB3   | 1:b:108:VAL:HB   | 1.97                     | 0.47              |
| 1:D:258:ASN:ND2  | 2:M:77:A:O5'     | 2.48                     | 0.47              |
| 1:I:134:LEU:HD21 | 1:I:320:HIS:HB3  | 1.96                     | 0.47              |
| 1:J:228:LEU:HD11 | 1:K:76:LEU:HD13  | 1.96                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:41:C:O3'     | 2:M:42:U:H4'     | 2.15                     | 0.47              |
| 2:M:93:A:H2'     | 2:M:94:C:N1      | 2.30                     | 0.47              |
| 2:M:127:C:H3'    | 1:a:226:GLN:HE22 | 1.80                     | 0.47              |
| 1:B:19:LYS:O     | 1:B:100:LEU:HD12 | 2.14                     | 0.47              |
| 1:B:26:LEU:HD23  | 1:B:250:ALA:HB2  | 1.97                     | 0.47              |
| 1:H:118:LEU:HD23 | 1:H:118:LEU:C    | 2.40                     | 0.47              |
| 1:P:316:PRO:HA   | 1:P:319:GLN:HB3  | 1.96                     | 0.47              |
| 1:Z:115:GLN:O    | 1:Z:118:LEU:N    | 2.48                     | 0.47              |
| 1:i:141:ASN:ND2  | 1:i:259:ALA:O    | 2.45                     | 0.47              |
| 1:o:95:PHE:O     | 1:o:210:VAL:N    | 2.42                     | 0.47              |
| 1:A:68:ASP:OD1   | 1:A:71:ILE:HD12  | 2.15                     | 0.47              |
| 1:C:18:ARG:NH1   | 2:M:81:A:OP1     | 2.47                     | 0.47              |
| 1:C:305:ASP:HB2  | 1:C:309:ILE:HD12 | 1.96                     | 0.47              |
| 2:M:118:A:H3'    | 1:b:254:GLN:HE21 | 1.78                     | 0.47              |
| 1:Q:258:ASN:HA   | 1:Q:261:ARG:HG2  | 1.97                     | 0.47              |
| 1:U:160:VAL:O    | 1:U:172:PHE:N    | 2.37                     | 0.47              |
| 1:U:243:TYR:HB2  | 1:U:252:HIS:HE2  | 1.80                     | 0.47              |
| 1:Z:257:GLY:O    | 1:Z:261:ARG:N    | 2.47                     | 0.47              |
| 1:o:25:ALA:HB3   | 1:o:251:ILE:H    | 1.80                     | 0.47              |
| 1:p:131:PHE:HB3  | 1:p:200:LEU:HD13 | 1.97                     | 0.47              |
| 1:A:257:GLY:O    | 1:A:261:ARG:N    | 2.45                     | 0.47              |
| 1:F:245:VAL:O    | 1:F:248:VAL:N    | 2.48                     | 0.47              |
| 1:J:21:ALA:HB2   | 1:J:100:LEU:HD11 | 1.98                     | 0.47              |
| 2:M:107:A:H1'    | 1:H:255:LYS:HZ3  | 1.80                     | 0.47              |
| 2:M:108:U:H4'    | 2:M:109:U:OP1    | 2.15                     | 0.47              |
| 2:M:111:A:H2'    | 2:M:112:C:C5     | 2.50                     | 0.47              |
| 2:M:123:A:H2'    | 2:M:124:C:C5     | 2.50                     | 0.47              |
| 2:M:141:A:H2'    | 2:M:142:C:H6     | 1.76                     | 0.47              |
| 1:Z:97:LEU:HD12  | 1:Z:98:ARG:H     | 1.81                     | 0.47              |
| 1:o:95:PHE:CE1   | 1:o:210:VAL:HG11 | 2.50                     | 0.47              |
| 1:A:68:ASP:HA    | 1:A:71:ILE:HD12  | 1.97                     | 0.46              |
| 1:A:245:VAL:N    | 1:A:248:VAL:O    | 2.43                     | 0.46              |
| 1:D:95:PHE:CZ    | 1:D:210:VAL:HG11 | 2.50                     | 0.46              |
| 1:D:226:GLN:OE1  | 2:M:78:U:O2'     | 2.31                     | 0.46              |
| 1:F:28:TYR:N     | 1:F:92:LYS:O     | 2.48                     | 0.46              |
| 1:F:323:ILE:O    | 1:F:326:LEU:N    | 2.48                     | 0.46              |
| 1:L:98:ARG:HG2   | 1:L:207:LEU:HD13 | 1.96                     | 0.46              |
| 1:L:286:SER:OG   | 1:L:287:ARG:N    | 2.48                     | 0.46              |
| 2:M:76:A:H3'     | 2:M:77:A:H5'     | 1.95                     | 0.46              |
| 2:M:149:A:H3'    | 1:Q:49:ARG:HB3   | 1.96                     | 0.46              |
| 1:N:267:TYR:OH   | 1:N:273:ALA:HB3  | 2.14                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:W:325:THR:HG22 | 1:W:332:PHE:CZ   | 2.49                     | 0.46              |
| 1:Z:40:ALA:HB1   | 1:Z:248:VAL:HG13 | 1.97                     | 0.46              |
| 1:f:19:LYS:HD2   | 1:f:100:LEU:HB2  | 1.97                     | 0.46              |
| 1:q:316:PRO:O    | 1:q:320:HIS:N    | 2.48                     | 0.46              |
| 1:C:124:GLY:O    | 1:C:128:GLU:N    | 2.40                     | 0.46              |
| 1:D:191:ALA:O    | 1:D:195:ALA:N    | 2.45                     | 0.46              |
| 1:I:277:ALA:HB3  | 1:I:279:GLU:OE2  | 2.15                     | 0.46              |
| 1:J:140:GLU:O    | 1:J:143:ALA:N    | 2.48                     | 0.46              |
| 1:L:161:VAL:N    | 1:L:211:GLU:O    | 2.42                     | 0.46              |
| 2:M:11:G:OP2     | 1:p:261:ARG:NH2  | 2.49                     | 0.46              |
| 1:O:286:SER:OG   | 1:O:287:ARG:N    | 2.47                     | 0.46              |
| 1:V:134:LEU:HA   | 1:V:137:ARG:HD3  | 1.97                     | 0.46              |
| 1:D:64:PRO:O     | 1:D:68:ASP:N     | 2.37                     | 0.46              |
| 1:J:98:ARG:HB2   | 1:J:100:LEU:HD21 | 1.98                     | 0.46              |
| 2:M:25:U:H1'     | 2:M:26:C:C1'     | 2.45                     | 0.46              |
| 2:M:121:U:H4'    | 2:M:122:C:OP1    | 2.15                     | 0.46              |
| 2:M:127:C:H2'    | 2:M:128:G:C8     | 2.51                     | 0.46              |
| 1:B:189:LEU:O    | 1:B:193:THR:N    | 2.43                     | 0.46              |
| 1:B:222:VAL:HG22 | 1:B:223:PHE:N    | 2.30                     | 0.46              |
| 1:H:28:TYR:O     | 1:H:92:LYS:N     | 2.47                     | 0.46              |
| 1:T:278:VAL:O    | 1:T:278:VAL:HG13 | 2.15                     | 0.46              |
| 1:V:301:TYR:OH   | 1:W:53:SER:O     | 2.34                     | 0.46              |
| 1:a:192:LEU:HD23 | 1:a:192:LEU:C    | 2.40                     | 0.46              |
| 1:a:230:LEU:HD21 | 1:b:76:LEU:HD13  | 1.98                     | 0.46              |
| 1:E:118:LEU:HB3  | 1:E:122:ILE:HD12 | 1.97                     | 0.46              |
| 1:I:28:TYR:CE1   | 1:I:40:ALA:HB2   | 2.51                     | 0.46              |
| 1:K:15:ALA:HB2   | 1:K:331:VAL:CB   | 2.45                     | 0.46              |
| 2:M:27:A:H2'     | 2:M:28:C:C6      | 2.51                     | 0.46              |
| 1:B:196:ILE:O    | 1:B:200:LEU:N    | 2.40                     | 0.46              |
| 1:Q:252:HIS:HB3  | 1:Q:254:GLN:OE1  | 2.15                     | 0.46              |
| 1:U:36:ASP:OD1   | 1:U:37:ASN:N     | 2.48                     | 0.46              |
| 1:V:23:SER:OG    | 1:V:96:THR:O     | 2.32                     | 0.46              |
| 1:V:29:ALA:HB1   | 1:V:90:THR:O     | 2.15                     | 0.46              |
| 1:V:304:LEU:O    | 1:V:308:VAL:N    | 2.40                     | 0.46              |
| 1:W:84:LEU:HD12  | 1:W:217:GLY:C    | 2.41                     | 0.46              |
| 1:Z:118:LEU:HG   | 1:Z:122:ILE:HD11 | 1.98                     | 0.46              |
| 1:Z:160:VAL:O    | 1:Z:172:PHE:N    | 2.47                     | 0.46              |
| 1:Z:267:TYR:HE2  | 1:Z:269:ALA:HB3  | 1.81                     | 0.46              |
| 2:M:36:G:H1'     | 2:M:37:C:C6      | 2.50                     | 0.46              |
| 2:M:65:G:O2'     | 2:M:66:G:O5'     | 2.31                     | 0.46              |
| 2:M:129:G:H2'    | 2:M:130:G:C5     | 2.51                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:96:THR:OG1   | 1:B:207:LEU:HD11 | 2.16                     | 0.46              |
| 1:U:140:GLU:O    | 1:U:144:ASN:N    | 2.45                     | 0.46              |
| 1:V:133:THR:O    | 1:V:136:ALA:N    | 2.47                     | 0.46              |
| 1:W:305:ASP:CB   | 1:W:309:ILE:HD12 | 2.45                     | 0.46              |
| 1:Y:46:LYS:HD3   | 1:Y:81:VAL:HG11  | 1.97                     | 0.46              |
| 1:i:21:ALA:O     | 1:i:97:LEU:HD12  | 2.16                     | 0.46              |
| 1:C:261:ARG:O    | 1:C:278:VAL:N    | 2.43                     | 0.46              |
| 1:G:148:LEU:HD12 | 1:G:152:ARG:CB   | 2.44                     | 0.46              |
| 1:K:111:ASP:O    | 1:K:115:GLN:N    | 2.42                     | 0.46              |
| 2:M:132:U:H2'    | 2:M:132:U:O2     | 2.15                     | 0.46              |
| 2:M:157:C:H2'    | 2:M:158:G:C8     | 2.51                     | 0.46              |
| 1:H:26:LEU:HD11  | 1:N:86:PHE:CD1   | 2.51                     | 0.46              |
| 1:U:238:LYS:HB2  | 1:U:241:ILE:HD11 | 1.97                     | 0.46              |
| 1:a:25:ALA:HB1   | 1:a:93:ILE:CG2   | 2.45                     | 0.46              |
| 1:b:77:GLN:HG3   | 1:b:79:VAL:HG13  | 1.97                     | 0.46              |
| 1:C:83:ALA:HB1   | 1:C:220:GLN:O    | 2.15                     | 0.46              |
| 1:D:188:ASP:HA   | 1:D:191:ALA:HB3  | 1.97                     | 0.46              |
| 1:D:226:GLN:HA   | 1:D:242:LEU:HD23 | 1.96                     | 0.46              |
| 1:D:316:PRO:O    | 1:D:319:GLN:N    | 2.49                     | 0.46              |
| 1:G:149:TRP:CZ2  | 1:G:259:ALA:HB2  | 2.51                     | 0.46              |
| 1:K:192:LEU:O    | 1:K:195:ALA:HB3  | 2.16                     | 0.46              |
| 1:L:262:THR:HG23 | 1:L:262:THR:O    | 2.16                     | 0.46              |
| 2:M:122:C:H5''   | 1:a:17:GLU:CG    | 2.45                     | 0.46              |
| 2:M:156:G:H5''   | 1:W:49:ARG:HB2   | 1.96                     | 0.46              |
| 1:H:211:GLU:OE1  | 1:H:213:TYR:OH   | 2.28                     | 0.46              |
| 1:N:115:GLN:HA   | 1:N:118:LEU:HB3  | 1.97                     | 0.46              |
| 1:P:301:TYR:HA   | 1:P:304:LEU:HB3  | 1.97                     | 0.46              |
| 1:T:300:PHE:CE1  | 1:T:322:VAL:HG13 | 2.49                     | 0.46              |
| 1:V:155:ALA:HB2  | 1:V:214:VAL:HG13 | 1.97                     | 0.46              |
| 1:W:141:ASN:O    | 1:W:145:GLY:N    | 2.45                     | 0.46              |
| 1:Y:122:ILE:O    | 1:Y:126:ALA:N    | 2.42                     | 0.46              |
| 1:Y:142:ILE:HG13 | 1:Y:260:LEU:HD22 | 1.98                     | 0.46              |
| 1:E:68:ASP:O     | 1:E:71:ILE:N     | 2.49                     | 0.46              |
| 1:F:188:ASP:HA   | 1:F:191:ALA:HB3  | 1.97                     | 0.46              |
| 1:I:316:PRO:HA   | 1:I:319:GLN:HB2  | 1.98                     | 0.46              |
| 1:J:257:GLY:O    | 1:J:260:LEU:N    | 2.45                     | 0.46              |
| 2:M:115:C:H2'    | 2:M:116:G:C5     | 2.51                     | 0.46              |
| 1:B:305:ASP:O    | 1:B:308:VAL:N    | 2.48                     | 0.46              |
| 1:P:264:ASP:OD1  | 1:P:292:ARG:NH2  | 2.44                     | 0.46              |
| 1:Q:136:ALA:O    | 1:Q:140:GLU:N    | 2.49                     | 0.46              |
| 1:T:114:TYR:O    | 1:T:118:LEU:HD12 | 2.16                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:U:160:VAL:HG13 | 1:U:172:PHE:HB2  | 1.97                     | 0.46              |
| 1:V:25:ALA:HB1   | 1:V:93:ILE:CG2   | 2.46                     | 0.46              |
| 1:V:193:THR:HA   | 1:V:196:ILE:HG12 | 1.97                     | 0.46              |
| 1:W:160:VAL:HG12 | 1:W:161:VAL:N    | 2.31                     | 0.46              |
| 1:Y:30:GLY:O     | 1:Y:88:ALA:HB1   | 2.15                     | 0.46              |
| 1:Z:262:THR:OG1  | 1:Z:277:ALA:N    | 2.49                     | 0.46              |
| 1:C:118:LEU:O    | 1:C:122:ILE:HD12 | 2.16                     | 0.46              |
| 1:E:163:THR:O    | 1:E:209:THR:OG1  | 2.33                     | 0.46              |
| 1:G:28:TYR:CE1   | 1:G:40:ALA:HB2   | 2.51                     | 0.46              |
| 1:K:227:GLU:HB2  | 1:K:241:ILE:HG23 | 1.96                     | 0.46              |
| 1:L:99:VAL:HB    | 1:L:206:ALA:HB3  | 1.97                     | 0.46              |
| 2:M:101:C:H2'    | 1:O:49:ARG:HD2   | 1.98                     | 0.46              |
| 2:M:104:G:H5'    | 2:M:105:A:OP2    | 2.15                     | 0.46              |
| 1:B:290:ALA:HB3  | 1:B:293:GLN:OE1  | 2.16                     | 0.46              |
| 1:U:83:ALA:HB2   | 1:U:221:GLU:HA   | 1.97                     | 0.46              |
| 1:V:324:ALA:O    | 1:V:328:ARG:N    | 2.43                     | 0.46              |
| 1:Y:26:LEU:HD21  | 1:Z:86:PHE:HD2   | 1.81                     | 0.46              |
| 1:Y:192:LEU:HD23 | 1:Y:193:THR:N    | 2.31                     | 0.46              |
| 1:Z:281:TYR:O    | 1:Z:290:ALA:HB1  | 2.16                     | 0.46              |
| 1:Z:304:LEU:O    | 1:Z:308:VAL:N    | 2.41                     | 0.46              |
| 1:a:27:MET:HB3   | 1:a:41:ILE:HD12  | 1.97                     | 0.46              |
| 1:a:135:ALA:O    | 1:a:193:THR:HG23 | 2.15                     | 0.46              |
| 1:b:46:LYS:N     | 1:b:79:VAL:O     | 2.49                     | 0.46              |
| 1:b:159:ARG:NE   | 1:b:171:GLU:OE2  | 2.48                     | 0.46              |
| 1:i:168:ARG:HE   | 1:i:169:SER:H    | 1.63                     | 0.46              |
| 1:o:32:TRP:N     | 1:o:90:THR:OG1   | 2.49                     | 0.46              |
| 1:o:97:LEU:HD12  | 1:o:98:ARG:H     | 1.80                     | 0.46              |
| 1:p:138:TYR:HE2  | 1:p:327:ILE:HG21 | 1.81                     | 0.46              |
| 1:A:192:LEU:O    | 1:A:195:ALA:HB3  | 2.16                     | 0.46              |
| 1:C:95:PHE:CE2   | 1:C:210:VAL:HG21 | 2.51                     | 0.46              |
| 1:D:196:ILE:O    | 1:D:200:LEU:N    | 2.49                     | 0.46              |
| 1:E:254:GLN:N    | 1:E:254:GLN:OE1  | 2.37                     | 0.46              |
| 1:E:258:ASN:ND2  | 2:M:71:C:OP2     | 2.49                     | 0.46              |
| 1:I:192:LEU:O    | 1:I:195:ALA:HB3  | 2.16                     | 0.46              |
| 1:L:281:TYR:OH   | 1:i:56:LEU:N     | 2.42                     | 0.46              |
| 1:U:82:ALA:O     | 1:U:222:VAL:N    | 2.34                     | 0.46              |
| 1:W:80:ASP:OD1   | 1:W:238:LYS:NZ   | 2.45                     | 0.46              |
| 1:W:115:GLN:O    | 1:W:119:GLY:N    | 2.38                     | 0.46              |
| 1:Y:300:PHE:O    | 1:Y:304:LEU:N    | 2.41                     | 0.46              |
| 1:Z:26:LEU:HD22  | 1:Z:248:VAL:HG11 | 1.98                     | 0.46              |
| 1:Z:272:GLU:N    | 1:Z:272:GLU:OE1  | 2.49                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:137:ARG:O    | 1:C:141:ASN:N    | 2.49                     | 0.45              |
| 1:E:256:ILE:O    | 1:E:259:ALA:N    | 2.49                     | 0.45              |
| 1:J:56:LEU:HD21  | 1:J:61:THR:CG2   | 2.46                     | 0.45              |
| 1:K:96:THR:HG22  | 1:K:209:THR:HA   | 1.98                     | 0.45              |
| 1:K:261:ARG:NE   | 1:K:278:VAL:O    | 2.48                     | 0.45              |
| 1:K:293:GLN:O    | 1:K:299:ASP:N    | 2.48                     | 0.45              |
| 1:L:265:ASP:N    | 1:L:265:ASP:OD1  | 2.47                     | 0.45              |
| 2:M:77:A:O3'     | 2:M:78:U:H4'     | 2.16                     | 0.45              |
| 1:H:131:PHE:O    | 1:H:134:LEU:N    | 2.49                     | 0.45              |
| 1:Q:318:GLN:O    | 1:Q:321:TYR:N    | 2.45                     | 0.45              |
| 1:T:144:ASN:OD1  | 1:T:145:GLY:N    | 2.49                     | 0.45              |
| 1:V:331:VAL:HG13 | 1:V:331:VAL:O    | 2.16                     | 0.45              |
| 1:W:331:VAL:O    | 1:W:331:VAL:HG13 | 2.16                     | 0.45              |
| 1:Y:331:VAL:O    | 1:Y:331:VAL:HG23 | 2.17                     | 0.45              |
| 1:Z:229:VAL:O    | 1:Z:235:ARG:NH2  | 2.47                     | 0.45              |
| 1:a:324:ALA:O    | 1:a:328:ARG:N    | 2.49                     | 0.45              |
| 1:A:142:ILE:HG22 | 1:A:160:VAL:CG1  | 2.47                     | 0.45              |
| 1:D:187:GLY:O    | 1:D:190:ALA:N    | 2.49                     | 0.45              |
| 1:E:30:GLY:O     | 1:E:90:THR:N     | 2.40                     | 0.45              |
| 1:I:26:LEU:HD23  | 1:I:250:ALA:HB2  | 1.99                     | 0.45              |
| 1:J:170:TRP:NE1  | 1:J:188:ASP:O    | 2.49                     | 0.45              |
| 1:J:255:LYS:HA   | 2:M:41:C:H5''    | 1.97                     | 0.45              |
| 1:K:157:ALA:HB3  | 1:K:215:GLN:HB2  | 1.98                     | 0.45              |
| 2:M:10:C:H5'     | 1:p:261:ARG:HH12 | 1.81                     | 0.45              |
| 2:M:12:G:H5''    | 1:q:49:ARG:CG    | 2.44                     | 0.45              |
| 2:M:22:A:H3'     | 2:M:23:A:C5'     | 2.47                     | 0.45              |
| 2:M:55:C:H5'     | 2:M:56:G:OP1     | 2.17                     | 0.45              |
| 2:M:134:G:O3'    | 2:M:135:A:H3'    | 2.16                     | 0.45              |
| 2:M:158:G:C2'    | 2:M:159:G:H5'    | 2.46                     | 0.45              |
| 1:H:97:LEU:O     | 1:H:207:LEU:HD12 | 2.15                     | 0.45              |
| 1:U:141:ASN:O    | 1:U:145:GLY:N    | 2.43                     | 0.45              |
| 1:U:300:PHE:HE2  | 1:U:304:LEU:HD22 | 1.80                     | 0.45              |
| 1:Z:31:ASN:OD1   | 1:Z:89:ASP:N     | 2.48                     | 0.45              |
| 1:a:257:GLY:O    | 1:a:261:ARG:N    | 2.42                     | 0.45              |
| 1:f:172:PHE:CE2  | 1:f:192:LEU:HD22 | 2.52                     | 0.45              |
| 1:p:156:GLU:OE1  | 1:p:215:GLN:NE2  | 2.49                     | 0.45              |
| 1:A:159:ARG:NH1  | 1:A:171:GLU:OE2  | 2.49                     | 0.45              |
| 1:F:187:GLY:O    | 1:F:190:ALA:N    | 2.49                     | 0.45              |
| 1:I:163:THR:N    | 1:I:209:THR:O    | 2.43                     | 0.45              |
| 2:M:63:A:H3'     | 2:M:63:A:P       | 2.56                     | 0.45              |
| 2:M:97:C:H6      | 1:O:226:GLN:NE2  | 2.15                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:101:C:H3'    | 1:O:49:ARG:HB3   | 1.98                     | 0.45              |
| 2:M:103:U:H2'    | 2:M:104:G:C8     | 2.52                     | 0.45              |
| 2:M:162:U:O2'    | 2:M:163:U:O4'    | 2.33                     | 0.45              |
| 2:M:167:A:H3'    | 1:U:49:ARG:O     | 2.16                     | 0.45              |
| 1:B:15:ALA:O     | 1:B:107:SER:N    | 2.40                     | 0.45              |
| 1:N:68:ASP:OD1   | 1:N:72:GLN:NE2   | 2.44                     | 0.45              |
| 1:P:148:LEU:HD13 | 1:P:214:VAL:HG21 | 1.97                     | 0.45              |
| 1:Q:168:ARG:NH2  | 1:Q:188:ASP:OD1  | 2.48                     | 0.45              |
| 1:T:26:LEU:HD11  | 1:U:86:PHE:CG    | 2.51                     | 0.45              |
| 1:W:16:PHE:O     | 1:W:330:GLY:N    | 2.49                     | 0.45              |
| 1:W:36:ASP:N     | 1:W:36:ASP:OD1   | 2.47                     | 0.45              |
| 1:a:18:ARG:NH1   | 1:a:22:ASN:OD1   | 2.41                     | 0.45              |
| 1:o:117:ALA:O    | 1:o:120:ASP:N    | 2.50                     | 0.45              |
| 1:o:140:GLU:O    | 1:o:144:ASN:N    | 2.49                     | 0.45              |
| 1:D:285:THR:HG21 | 1:E:49:ARG:NH2   | 2.31                     | 0.45              |
| 1:E:140:GLU:HA   | 1:E:143:ALA:HB3  | 1.98                     | 0.45              |
| 1:F:223:PHE:N    | 1:F:224:PRO:HD3  | 2.32                     | 0.45              |
| 1:G:254:GLN:N    | 1:G:254:GLN:OE1  | 2.42                     | 0.45              |
| 1:J:304:LEU:O    | 1:J:308:VAL:HG23 | 2.16                     | 0.45              |
| 1:K:31:ASN:OD1   | 1:K:32:TRP:N     | 2.49                     | 0.45              |
| 1:K:107:SER:OG   | 1:K:108:VAL:N    | 2.49                     | 0.45              |
| 2:M:144:G:H4'    | 2:M:145:C:OP1    | 2.16                     | 0.45              |
| 1:B:83:ALA:HB2   | 1:B:221:GLU:HA   | 1.99                     | 0.45              |
| 1:H:159:ARG:O    | 1:H:213:TYR:N    | 2.46                     | 0.45              |
| 1:N:254:GLN:O    | 1:N:258:ASN:N    | 2.42                     | 0.45              |
| 1:Q:52:ILE:HD11  | 1:Q:54:ASN:ND2   | 2.30                     | 0.45              |
| 1:W:89:ASP:O     | 1:W:217:GLY:N    | 2.46                     | 0.45              |
| 1:b:97:LEU:N     | 1:b:208:PHE:O    | 2.44                     | 0.45              |
| 1:A:54:ASN:OD1   | 1:A:54:ASN:N     | 2.50                     | 0.45              |
| 1:C:32:TRP:CH2   | 1:C:159:ARG:HB2  | 2.51                     | 0.45              |
| 1:D:156:GLU:OE1  | 1:D:215:GLN:NE2  | 2.49                     | 0.45              |
| 1:F:118:LEU:O    | 1:F:122:ILE:N    | 2.46                     | 0.45              |
| 1:G:49:ARG:N     | 2:M:66:G:OP2     | 2.49                     | 0.45              |
| 1:G:142:ILE:HG23 | 1:G:143:ALA:H    | 1.81                     | 0.45              |
| 1:I:58:ASN:O     | 1:I:62:SER:N     | 2.49                     | 0.45              |
| 2:M:126:G:H1'    | 2:M:127:C:C6     | 2.52                     | 0.45              |
| 1:P:89:ASP:OD1   | 1:P:89:ASP:N     | 2.48                     | 0.45              |
| 1:P:207:LEU:HD23 | 1:P:208:PHE:N    | 2.32                     | 0.45              |
| 1:S:20:LEU:HD12  | 1:S:97:LEU:HD21  | 1.98                     | 0.45              |
| 1:T:22:ASN:ND2   | 1:T:253:SER:O    | 2.50                     | 0.45              |
| 1:V:155:ALA:HB2  | 1:V:214:VAL:CG1  | 2.46                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:V:300:PHE:CD1  | 1:V:322:VAL:HG22 | 2.51                     | 0.45              |
| 1:W:97:LEU:HD12  | 1:W:98:ARG:N     | 2.32                     | 0.45              |
| 1:b:97:LEU:O     | 1:b:207:LEU:HD12 | 2.16                     | 0.45              |
| 1:f:227:GLU:N    | 1:f:241:ILE:O    | 2.40                     | 0.45              |
| 1:i:125:TYR:O    | 1:i:129:GLN:N    | 2.42                     | 0.45              |
| 1:i:185:PRO:HA   | 1:i:189:LEU:HD23 | 1.98                     | 0.45              |
| 1:o:163:THR:O    | 1:o:209:THR:N    | 2.50                     | 0.45              |
| 1:A:305:ASP:O    | 1:A:309:ILE:N    | 2.35                     | 0.45              |
| 1:C:192:LEU:O    | 1:C:195:ALA:HB3  | 2.17                     | 0.45              |
| 1:E:286:SER:OG   | 1:E:287:ARG:N    | 2.41                     | 0.45              |
| 1:L:137:ARG:O    | 1:L:141:ASN:ND2  | 2.50                     | 0.45              |
| 2:M:36:G:H1'     | 2:M:37:C:C5      | 2.51                     | 0.45              |
| 2:M:81:A:O2'     | 2:M:82:C:O5'     | 2.33                     | 0.45              |
| 2:M:94:C:C6      | 1:P:48:VAL:HG21  | 2.51                     | 0.45              |
| 2:M:110:C:OP1    | 2:M:110:C:H4'    | 2.16                     | 0.45              |
| 2:M:180:U:O2'    | 2:M:181:U:OP2    | 2.26                     | 0.45              |
| 1:H:133:THR:O    | 1:H:136:ALA:HB3  | 2.15                     | 0.45              |
| 1:O:36:ASP:OD1   | 1:O:37:ASN:N     | 2.49                     | 0.45              |
| 1:O:267:TYR:HE2  | 1:O:269:ALA:HB3  | 1.81                     | 0.45              |
| 1:P:79:VAL:HG13  | 1:P:240:LYS:HD3  | 1.99                     | 0.45              |
| 1:Q:38:TRP:CD1   | 1:Q:92:LYS:HZ3   | 2.34                     | 0.45              |
| 1:S:258:ASN:O    | 1:S:262:THR:OG1  | 2.29                     | 0.45              |
| 1:U:173:ASN:OD1  | 1:U:174:GLY:N    | 2.50                     | 0.45              |
| 1:Z:91:LEU:N     | 1:Z:214:VAL:O    | 2.39                     | 0.45              |
| 1:a:265:ASP:N    | 1:a:265:ASP:OD1  | 2.48                     | 0.45              |
| 1:o:46:LYS:N     | 1:o:79:VAL:O     | 2.44                     | 0.45              |
| 1:C:97:LEU:HD12  | 1:C:98:ARG:H     | 1.81                     | 0.45              |
| 1:C:305:ASP:O    | 1:C:309:ILE:N    | 2.49                     | 0.45              |
| 1:E:149:TRP:CE2  | 1:E:259:ALA:HB2  | 2.52                     | 0.45              |
| 1:F:95:PHE:O     | 1:F:210:VAL:N    | 2.37                     | 0.45              |
| 1:F:163:THR:HG23 | 1:F:209:THR:OG1  | 2.17                     | 0.45              |
| 1:G:142:ILE:HD11 | 1:G:162:VAL:HG22 | 1.98                     | 0.45              |
| 1:J:13:VAL:HG12  | 1:J:108:VAL:HG11 | 1.99                     | 0.45              |
| 1:J:74:ALA:HB1   | 1:J:76:LEU:CD1   | 2.45                     | 0.45              |
| 1:K:141:ASN:OD1  | 1:K:146:ARG:NE   | 2.49                     | 0.45              |
| 2:M:85:C:O2'     | 2:M:86:G:O4'     | 2.30                     | 0.45              |
| 1:P:147:PHE:O    | 1:P:149:TRP:N    | 2.48                     | 0.45              |
| 1:T:30:GLY:N     | 1:T:90:THR:O     | 2.48                     | 0.45              |
| 1:Y:29:ALA:N     | 1:Y:39:THR:O     | 2.49                     | 0.45              |
| 1:b:158:ILE:HD13 | 1:b:214:VAL:HG22 | 1.99                     | 0.45              |
| 1:i:284:VAL:O    | 1:i:288:GLY:N    | 2.49                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:o:22:ASN:HA    | 1:o:97:LEU:HD13  | 1.97                     | 0.45              |
| 1:p:36:ASP:OD1   | 1:p:37:ASN:N     | 2.50                     | 0.45              |
| 1:q:104:ALA:HB1  | 1:q:119:GLY:HA2  | 1.98                     | 0.45              |
| 1:A:123:THR:CG2  | 1:A:126:ALA:HB3  | 2.47                     | 0.45              |
| 1:G:13:VAL:HG12  | 1:G:108:VAL:CG1  | 2.47                     | 0.45              |
| 1:G:205:SER:OG   | 1:G:206:ALA:N    | 2.45                     | 0.45              |
| 1:K:112:GLN:O    | 1:K:116:THR:N    | 2.45                     | 0.45              |
| 1:K:254:GLN:OE1  | 2:M:35:A:H5''    | 2.17                     | 0.45              |
| 1:L:148:LEU:HB3  | 1:L:151:ASN:HB2  | 1.98                     | 0.45              |
| 2:M:42:U:O2      | 2:M:42:U:H2'     | 2.15                     | 0.45              |
| 2:M:104:G:N7     | 2:M:105:A:N6     | 2.65                     | 0.45              |
| 2:M:171:A:H2'    | 2:M:172:C:C5     | 2.52                     | 0.45              |
| 1:B:141:ASN:O    | 1:B:146:ARG:N    | 2.48                     | 0.45              |
| 1:U:149:TRP:CD1  | 1:U:255:LYS:HE3  | 2.52                     | 0.45              |
| 1:V:78:LYS:HB3   | 1:V:238:LYS:HZ3  | 1.81                     | 0.45              |
| 1:Z:74:ALA:CB    | 1:Z:76:LEU:HD21  | 2.47                     | 0.45              |
| 1:a:192:LEU:O    | 1:a:195:ALA:HB3  | 2.17                     | 0.45              |
| 1:a:306:ASN:O    | 1:a:311:GLY:N    | 2.50                     | 0.45              |
| 1:i:19:LYS:HG2   | 1:i:103:LEU:HD13 | 1.99                     | 0.45              |
| 1:i:20:LEU:C     | 1:i:97:LEU:HD11  | 2.42                     | 0.45              |
| 1:p:150:ARG:O    | 1:p:153:VAL:HG22 | 2.17                     | 0.45              |
| 1:E:28:TYR:CE1   | 1:E:40:ALA:HB2   | 2.52                     | 0.45              |
| 1:I:25:ALA:HB2   | 1:I:95:PHE:HB3   | 1.99                     | 0.45              |
| 1:I:98:ARG:HB3   | 1:I:100:LEU:HD21 | 1.97                     | 0.45              |
| 1:I:241:ILE:HG22 | 1:I:242:LEU:N    | 2.32                     | 0.45              |
| 1:K:123:THR:O    | 1:K:127:GLN:N    | 2.38                     | 0.45              |
| 1:K:230:LEU:HD22 | 1:L:76:LEU:HD13  | 1.99                     | 0.45              |
| 1:B:19:LYS:HA    | 1:B:100:LEU:HD12 | 1.98                     | 0.45              |
| 1:B:273:ALA:HB1  | 1:B:287:ARG:NH1  | 2.32                     | 0.45              |
| 1:H:142:ILE:HA   | 1:H:260:LEU:HD21 | 1.99                     | 0.45              |
| 1:N:163:THR:N    | 1:N:209:THR:O    | 2.44                     | 0.45              |
| 1:S:163:THR:OG1  | 1:S:168:ARG:O    | 2.32                     | 0.45              |
| 1:U:15:ALA:O     | 1:U:107:SER:N    | 2.36                     | 0.45              |
| 1:V:76:LEU:HD23  | 1:V:76:LEU:H     | 1.81                     | 0.45              |
| 1:V:299:ASP:OD2  | 1:V:302:THR:N    | 2.43                     | 0.45              |
| 1:Y:80:ASP:OD1   | 1:Y:81:VAL:N     | 2.50                     | 0.45              |
| 1:Z:269:ALA:HB1  | 1:Z:272:GLU:HB2  | 1.99                     | 0.45              |
| 1:a:95:PHE:O     | 1:a:210:VAL:N    | 2.40                     | 0.45              |
| 1:a:325:THR:OG1  | 1:a:326:LEU:N    | 2.50                     | 0.45              |
| 1:b:25:ALA:O     | 1:b:251:ILE:N    | 2.49                     | 0.45              |
| 1:o:112:GLN:O    | 1:o:115:GLN:N    | 2.49                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:q:304:LEU:O    | 1:q:308:VAL:N    | 2.50                     | 0.45              |
| 1:F:281:TYR:O    | 1:F:290:ALA:HB1  | 2.17                     | 0.45              |
| 1:I:65:ALA:O     | 1:I:69:ALA:N     | 2.44                     | 0.45              |
| 1:I:293:GLN:O    | 1:I:299:ASP:N    | 2.50                     | 0.45              |
| 2:M:13:C:HO2'    | 2:M:14:G:C1'     | 2.30                     | 0.45              |
| 2:M:17:C:OP2     | 1:o:261:ARG:NH2  | 2.49                     | 0.45              |
| 1:B:84:LEU:HD12  | 1:B:217:GLY:O    | 2.17                     | 0.45              |
| 1:N:305:ASP:O    | 1:N:308:VAL:N    | 2.50                     | 0.45              |
| 1:U:117:ALA:O    | 1:U:120:ASP:N    | 2.50                     | 0.45              |
| 1:V:27:MET:O     | 1:V:41:ILE:N     | 2.42                     | 0.45              |
| 1:Z:64:PRO:O     | 1:Z:68:ASP:N     | 2.44                     | 0.45              |
| 1:a:16:PHE:O     | 1:a:330:GLY:N    | 2.50                     | 0.45              |
| 1:q:251:ILE:HG22 | 1:q:252:HIS:O    | 2.17                     | 0.45              |
| 1:A:49:ARG:HB2   | 2:M:60:U:H5''    | 1.98                     | 0.44              |
| 1:E:125:TYR:O    | 1:E:129:GLN:N    | 2.44                     | 0.44              |
| 1:E:149:TRP:CD1  | 1:E:255:LYS:HZ2  | 2.35                     | 0.44              |
| 1:E:222:VAL:C    | 1:E:224:PRO:HD3  | 2.43                     | 0.44              |
| 1:F:78:LYS:HB2   | 1:F:238:LYS:HD3  | 1.99                     | 0.44              |
| 1:F:307:TRP:CD1  | 1:F:314:PRO:HD3  | 2.52                     | 0.44              |
| 1:I:301:TYR:HA   | 1:I:304:LEU:HB3  | 1.99                     | 0.44              |
| 1:L:90:THR:HA    | 1:L:215:GLN:HA   | 1.98                     | 0.44              |
| 1:H:300:PHE:CZ   | 1:H:304:LEU:HD22 | 2.51                     | 0.44              |
| 1:Z:325:THR:O    | 1:Z:329:GLY:N    | 2.40                     | 0.44              |
| 1:a:38:TRP:CD1   | 1:a:92:LYS:HZ2   | 2.35                     | 0.44              |
| 1:b:262:THR:HG23 | 1:b:262:THR:O    | 2.18                     | 0.44              |
| 1:f:152:ARG:CZ   | 1:f:179:LEU:HD11 | 2.47                     | 0.44              |
| 1:i:192:LEU:O    | 1:i:195:ALA:HB3  | 2.17                     | 0.44              |
| 1:A:123:THR:O    | 1:A:126:ALA:HB3  | 2.17                     | 0.44              |
| 1:C:286:SER:OG   | 1:C:287:ARG:N    | 2.50                     | 0.44              |
| 1:K:262:THR:HG23 | 1:K:276:ILE:CA   | 2.47                     | 0.44              |
| 2:M:7:U:H1'      | 2:M:8:C:C6       | 2.52                     | 0.44              |
| 1:N:157:ALA:HB3  | 1:N:215:GLN:HB3  | 2.00                     | 0.44              |
| 1:Q:316:PRO:O    | 1:Q:320:HIS:N    | 2.48                     | 0.44              |
| 1:S:84:LEU:HD13  | 1:S:88:ALA:O     | 2.17                     | 0.44              |
| 1:a:91:LEU:HB3   | 1:a:214:VAL:HB   | 2.00                     | 0.44              |
| 1:i:190:ALA:C    | 1:i:193:THR:HG1  | 2.20                     | 0.44              |
| 1:p:223:PHE:N    | 1:p:224:PRO:HD3  | 2.32                     | 0.44              |
| 1:A:52:ILE:HG23  | 1:A:52:ILE:O     | 2.16                     | 0.44              |
| 1:I:126:ALA:HB2  | 1:I:131:PHE:HE2  | 1.82                     | 0.44              |
| 1:J:14:LEU:O     | 1:J:333:GLY:N    | 2.50                     | 0.44              |
| 1:L:170:TRP:HE1  | 1:L:191:ALA:HB3  | 1.82                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:170:TRP:HB3  | 1:B:172:PHE:CE2  | 2.53                     | 0.44              |
| 1:N:131:PHE:O    | 1:N:134:LEU:N    | 2.49                     | 0.44              |
| 1:Z:26:LEU:HD21  | 1:a:86:PHE:CD2   | 2.52                     | 0.44              |
| 1:b:91:LEU:CD1   | 1:b:222:VAL:HG12 | 2.47                     | 0.44              |
| 1:f:185:PRO:HA   | 1:f:189:LEU:HD23 | 1.98                     | 0.44              |
| 1:C:306:ASN:O    | 1:C:310:LYS:N    | 2.51                     | 0.44              |
| 1:E:95:PHE:CE2   | 1:E:210:VAL:HG21 | 2.52                     | 0.44              |
| 1:F:76:LEU:HD23  | 1:F:76:LEU:H     | 1.83                     | 0.44              |
| 1:G:55:ARG:C     | 1:G:56:LEU:HD12  | 2.42                     | 0.44              |
| 1:J:49:ARG:CB    | 2:M:48:U:H5''    | 2.46                     | 0.44              |
| 2:M:23:A:H2'     | 1:o:49:ARG:HB3   | 2.00                     | 0.44              |
| 1:B:192:LEU:O    | 1:B:195:ALA:HB3  | 2.18                     | 0.44              |
| 1:H:190:ALA:C    | 1:H:193:THR:HG1  | 2.24                     | 0.44              |
| 1:N:115:GLN:O    | 1:N:118:LEU:N    | 2.50                     | 0.44              |
| 1:O:125:TYR:O    | 1:O:129:GLN:N    | 2.39                     | 0.44              |
| 1:O:163:THR:N    | 1:O:209:THR:O    | 2.44                     | 0.44              |
| 1:P:46:LYS:O     | 1:P:79:VAL:N     | 2.43                     | 0.44              |
| 1:T:316:PRO:O    | 1:T:320:HIS:N    | 2.43                     | 0.44              |
| 1:U:147:PHE:CZ   | 1:U:212:ALA:HB2  | 2.52                     | 0.44              |
| 1:V:163:THR:O    | 1:V:209:THR:N    | 2.44                     | 0.44              |
| 1:W:75:ASN:O     | 1:W:76:LEU:HD23  | 2.16                     | 0.44              |
| 1:Z:119:GLY:HA2  | 1:Z:122:ILE:HD12 | 2.00                     | 0.44              |
| 1:a:52:ILE:HG22  | 1:a:54:ASN:H     | 1.83                     | 0.44              |
| 1:f:29:ALA:N     | 1:f:39:THR:O     | 2.44                     | 0.44              |
| 1:i:28:TYR:HA    | 1:i:40:ALA:HA    | 2.00                     | 0.44              |
| 1:A:98:ARG:NH1   | 1:I:153:VAL:O    | 2.50                     | 0.44              |
| 1:E:161:VAL:N    | 1:E:211:GLU:O    | 2.47                     | 0.44              |
| 1:G:147:PHE:CE1  | 1:G:148:LEU:HD21 | 2.53                     | 0.44              |
| 1:L:21:ALA:O     | 1:L:97:LEU:HD12  | 2.17                     | 0.44              |
| 1:H:255:LYS:O    | 1:H:258:ASN:N    | 2.51                     | 0.44              |
| 1:H:307:TRP:N    | 1:H:312:ASP:OD1  | 2.51                     | 0.44              |
| 1:P:256:ILE:O    | 1:P:259:ALA:N    | 2.50                     | 0.44              |
| 1:S:24:ASP:N     | 1:S:253:SER:OG   | 2.51                     | 0.44              |
| 1:T:99:VAL:HG22  | 1:T:208:PHE:HE2  | 1.83                     | 0.44              |
| 1:T:125:TYR:O    | 1:T:129:GLN:N    | 2.37                     | 0.44              |
| 1:f:114:TYR:O    | 1:f:117:ALA:HB3  | 2.17                     | 0.44              |
| 1:p:68:ASP:OD1   | 1:p:69:ALA:N     | 2.50                     | 0.44              |
| 1:p:117:ALA:O    | 1:p:121:ILE:N    | 2.47                     | 0.44              |
| 1:F:49:ARG:O     | 2:M:71:C:H5'     | 2.17                     | 0.44              |
| 1:G:284:VAL:HG12 | 1:G:286:SER:N    | 2.33                     | 0.44              |
| 1:I:31:ASN:O     | 1:I:34:GLN:N     | 2.50                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:140:C:H5''   | 2:M:141:A:OP2    | 2.17                     | 0.44              |
| 2:M:150:U:H5''   | 1:Q:49:ARG:HB3   | 1.99                     | 0.44              |
| 1:Q:96:THR:HG22  | 1:Q:209:THR:HA   | 2.00                     | 0.44              |
| 1:Z:28:TYR:CE1   | 1:Z:40:ALA:HB2   | 2.52                     | 0.44              |
| 1:f:173:ASN:ND2  | 1:f:176:ASP:OD2  | 2.51                     | 0.44              |
| 1:i:50:GLY:N     | 1:i:75:ASN:O     | 2.48                     | 0.44              |
| 1:o:272:GLU:N    | 1:o:272:GLU:OE1  | 2.50                     | 0.44              |
| 1:C:74:ALA:HB1   | 1:C:76:LEU:HD11  | 2.00                     | 0.44              |
| 1:I:137:ARG:NH1  | 1:I:263:ILE:O    | 2.51                     | 0.44              |
| 1:J:157:ALA:HB3  | 1:J:215:GLN:CB   | 2.47                     | 0.44              |
| 1:K:102:ASN:HB3  | 1:K:105:GLN:HB3  | 1.99                     | 0.44              |
| 1:L:306:ASN:O    | 1:L:312:ASP:N    | 2.50                     | 0.44              |
| 2:M:144:G:H1'    | 2:M:145:C:C6     | 2.53                     | 0.44              |
| 1:N:252:HIS:HB3  | 1:N:254:GLN:OE1  | 2.18                     | 0.44              |
| 1:O:279:GLU:O    | 1:O:321:TYR:OH   | 2.36                     | 0.44              |
| 1:O:298:MET:HA   | 1:O:303:LEU:HD11 | 2.00                     | 0.44              |
| 1:Q:32:TRP:N     | 1:Q:90:THR:HG21  | 2.32                     | 0.44              |
| 1:U:300:PHE:CE2  | 1:U:325:THR:HG21 | 2.53                     | 0.44              |
| 1:W:254:GLN:O    | 1:W:258:ASN:N    | 2.37                     | 0.44              |
| 1:Y:118:LEU:HD21 | 1:Y:122:ILE:CD1  | 2.46                     | 0.44              |
| 1:Z:262:THR:HG23 | 1:Z:276:ILE:C    | 2.42                     | 0.44              |
| 1:f:84:LEU:HD13  | 1:f:88:ALA:O     | 2.17                     | 0.44              |
| 1:q:256:ILE:O    | 1:q:259:ALA:HB3  | 2.18                     | 0.44              |
| 1:C:256:ILE:O    | 1:C:259:ALA:N    | 2.49                     | 0.44              |
| 1:G:301:TYR:HA   | 1:G:304:LEU:HB3  | 2.00                     | 0.44              |
| 2:M:34:A:C3'     | 2:M:35:A:H5''    | 2.48                     | 0.44              |
| 2:M:107:A:H5''   | 1:N:49:ARG:O     | 2.18                     | 0.44              |
| 2:M:138:U:H4'    | 2:M:139:U:O5'    | 2.17                     | 0.44              |
| 2:M:164:G:H5'    | 1:U:150:ARG:HH22 | 1.83                     | 0.44              |
| 1:O:135:ALA:HB3  | 1:O:197:GLU:OE2  | 2.17                     | 0.44              |
| 1:O:180:ARG:HE   | 1:O:274:GLY:HA2  | 1.82                     | 0.44              |
| 1:Q:131:PHE:O    | 1:Q:135:ALA:N    | 2.39                     | 0.44              |
| 1:Q:322:VAL:O    | 1:Q:325:THR:HG22 | 2.18                     | 0.44              |
| 1:T:91:LEU:HD21  | 1:T:93:ILE:HD11  | 2.00                     | 0.44              |
| 1:T:99:VAL:HG23  | 1:T:99:VAL:O     | 2.18                     | 0.44              |
| 1:i:229:VAL:HG11 | 1:i:235:ARG:HG3  | 1.99                     | 0.44              |
| 1:A:148:LEU:O    | 1:A:152:ARG:N    | 2.48                     | 0.44              |
| 1:D:301:TYR:HA   | 1:D:304:LEU:HB3  | 2.00                     | 0.44              |
| 1:E:118:LEU:HB3  | 1:E:122:ILE:CD1  | 2.48                     | 0.44              |
| 1:J:113:ASP:OD1  | 1:J:114:TYR:N    | 2.51                     | 0.44              |
| 1:L:78:LYS:HG3   | 1:L:238:LYS:HA   | 1.99                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:102:U:HO2'   | 2:M:103:U:P      | 2.35                     | 0.44              |
| 2:M:113:G:H2'    | 1:H:49:ARG:HD2   | 2.00                     | 0.44              |
| 1:P:132:SER:O    | 1:P:136:ALA:N    | 2.48                     | 0.44              |
| 1:P:307:TRP:CG   | 1:P:314:PRO:HD3  | 2.53                     | 0.44              |
| 1:V:28:TYR:HA    | 1:V:40:ALA:HA    | 1.99                     | 0.44              |
| 1:W:118:LEU:HD12 | 1:W:121:ILE:HD12 | 1.99                     | 0.44              |
| 1:Z:22:ASN:HB3   | 1:Z:97:LEU:HD13  | 1.99                     | 0.44              |
| 1:b:81:VAL:HG22  | 1:b:82:ALA:C     | 2.42                     | 0.44              |
| 1:i:258:ASN:HA   | 1:i:261:ARG:HG2  | 2.00                     | 0.44              |
| 1:i:269:ALA:HB3  | 1:i:291:TYR:CD1  | 2.52                     | 0.44              |
| 1:p:293:GLN:O    | 1:p:299:ASP:N    | 2.50                     | 0.44              |
| 1:C:222:VAL:HG23 | 1:C:224:PRO:CD   | 2.47                     | 0.43              |
| 1:D:19:LYS:HD2   | 1:D:100:LEU:HB2  | 1.99                     | 0.43              |
| 1:I:123:THR:O    | 1:I:126:ALA:HB3  | 2.18                     | 0.43              |
| 1:K:28:TYR:O     | 1:K:92:LYS:N     | 2.45                     | 0.43              |
| 1:L:284:VAL:HG22 | 1:L:286:SER:H    | 1.81                     | 0.43              |
| 2:M:69:G:HO2'    | 2:M:70:G:C1'     | 2.26                     | 0.43              |
| 2:M:73:U:H2'     | 2:M:74:G:N3      | 2.33                     | 0.43              |
| 2:M:165:A:C5     | 1:T:331:VAL:HG21 | 2.53                     | 0.43              |
| 2:M:168:U:H5     | 1:T:228:LEU:HD13 | 1.81                     | 0.43              |
| 1:H:112:GLN:O    | 1:H:116:THR:N    | 2.43                     | 0.43              |
| 1:H:322:VAL:O    | 1:H:325:THR:N    | 2.51                     | 0.43              |
| 1:N:125:TYR:O    | 1:N:129:GLN:N    | 2.39                     | 0.43              |
| 1:N:144:ASN:OD1  | 1:N:145:GLY:N    | 2.51                     | 0.43              |
| 1:O:26:LEU:HD11  | 1:P:86:PHE:CE2   | 2.53                     | 0.43              |
| 1:S:123:THR:O    | 1:S:127:GLN:N    | 2.44                     | 0.43              |
| 1:W:21:ALA:O     | 1:W:98:ARG:N     | 2.45                     | 0.43              |
| 1:Y:255:LYS:O    | 1:Y:258:ASN:N    | 2.49                     | 0.43              |
| 1:o:32:TRP:CZ3   | 1:o:157:ALA:HB1  | 2.52                     | 0.43              |
| 1:D:295:ARG:NH2  | 1:E:62:SER:O     | 2.44                     | 0.43              |
| 1:G:95:PHE:CE1   | 1:G:210:VAL:HG11 | 2.53                     | 0.43              |
| 1:K:31:ASN:N     | 1:K:88:ALA:HB1   | 2.32                     | 0.43              |
| 1:K:148:LEU:O    | 1:K:150:ARG:N    | 2.51                     | 0.43              |
| 2:M:134:G:O5'    | 1:Z:150:ARG:NH1  | 2.51                     | 0.43              |
| 1:N:68:ASP:O     | 1:N:71:ILE:N     | 2.51                     | 0.43              |
| 1:T:117:ALA:HB3  | 1:T:118:LEU:HG   | 2.00                     | 0.43              |
| 1:W:179:LEU:N    | 1:W:179:LEU:HD12 | 2.33                     | 0.43              |
| 1:Z:23:SER:OG    | 1:Z:96:THR:N     | 2.47                     | 0.43              |
| 1:a:262:THR:HG23 | 1:a:276:ILE:CA   | 2.48                     | 0.43              |
| 1:i:12:SER:HG    | 1:i:110:ASN:HD21 | 1.65                     | 0.43              |
| 1:o:157:ALA:HB3  | 1:o:215:GLN:CB   | 2.47                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:p:89:ASP:O     | 1:p:217:GLY:N    | 2.50                     | 0.43              |
| 1:p:192:LEU:O    | 1:p:196:ILE:N    | 2.42                     | 0.43              |
| 1:A:94:VAL:HG13  | 1:A:211:GLU:HG2  | 1.99                     | 0.43              |
| 1:A:254:GLN:OE1  | 1:I:46:LYS:NZ    | 2.42                     | 0.43              |
| 1:A:262:THR:HA   | 1:A:277:ALA:HA   | 1.99                     | 0.43              |
| 1:C:261:ARG:O    | 1:C:278:VAL:HG23 | 2.18                     | 0.43              |
| 1:D:134:LEU:N    | 1:D:134:LEU:HD12 | 2.34                     | 0.43              |
| 1:K:222:VAL:HG22 | 1:K:223:PHE:N    | 2.34                     | 0.43              |
| 2:M:49:U:O2'     | 2:M:50:C:OP2     | 2.36                     | 0.43              |
| 2:M:88:G:HO2'    | 2:M:89:A:H5'     | 1.83                     | 0.43              |
| 1:H:110:ASN:OD1  | 1:H:111:ASP:N    | 2.51                     | 0.43              |
| 1:H:136:ALA:HB1  | 1:H:182:PHE:CZ   | 2.53                     | 0.43              |
| 1:P:95:PHE:CE1   | 1:P:210:VAL:HG11 | 2.53                     | 0.43              |
| 1:W:109:CYS:SG   | 1:W:110:ASN:N    | 2.91                     | 0.43              |
| 1:Y:122:ILE:HA   | 1:Y:125:TYR:HB3  | 2.00                     | 0.43              |
| 1:Z:123:THR:O    | 1:Z:127:GLN:N    | 2.39                     | 0.43              |
| 1:f:112:GLN:O    | 1:f:116:THR:HG22 | 2.19                     | 0.43              |
| 1:F:222:VAL:C    | 1:F:224:PRO:HD3  | 2.43                     | 0.43              |
| 1:G:147:PHE:CZ   | 1:G:148:LEU:HD21 | 2.53                     | 0.43              |
| 1:L:118:LEU:C    | 1:L:122:ILE:HD12 | 2.43                     | 0.43              |
| 2:M:3:G:H2'      | 2:M:4:G:N9       | 2.33                     | 0.43              |
| 2:M:30:G:H5''    | 1:i:49:ARG:CG    | 2.44                     | 0.43              |
| 2:M:181:U:OP2    | 2:M:181:U:H3'    | 2.18                     | 0.43              |
| 1:H:258:ASN:HA   | 1:H:261:ARG:HG2  | 2.01                     | 0.43              |
| 1:N:15:ALA:HB2   | 1:N:331:VAL:HA   | 1.99                     | 0.43              |
| 1:N:24:ASP:OD1   | 1:N:253:SER:N    | 2.52                     | 0.43              |
| 1:O:148:LEU:O    | 1:O:150:ARG:N    | 2.52                     | 0.43              |
| 1:P:91:LEU:O     | 1:P:214:VAL:N    | 2.49                     | 0.43              |
| 1:T:141:ASN:HD21 | 1:T:262:THR:HG1  | 1.63                     | 0.43              |
| 1:T:150:ARG:HG2  | 1:T:223:PHE:HB2  | 2.00                     | 0.43              |
| 1:T:299:ASP:O    | 1:T:303:LEU:HD23 | 2.19                     | 0.43              |
| 1:U:133:THR:HG22 | 1:U:137:ARG:HE   | 1.83                     | 0.43              |
| 1:a:192:LEU:HD23 | 1:a:193:THR:N    | 2.34                     | 0.43              |
| 1:b:96:THR:HG22  | 1:b:209:THR:HA   | 2.00                     | 0.43              |
| 1:i:230:LEU:HD21 | 1:o:76:LEU:HB3   | 2.01                     | 0.43              |
| 1:i:252:HIS:HB3  | 1:i:254:GLN:OE1  | 2.19                     | 0.43              |
| 1:C:245:VAL:O    | 1:C:248:VAL:N    | 2.51                     | 0.43              |
| 1:I:146:ARG:CG   | 1:I:179:LEU:HD22 | 2.47                     | 0.43              |
| 1:J:180:ARG:NH1  | 1:J:273:ALA:O    | 2.43                     | 0.43              |
| 1:L:28:TYR:O     | 1:L:92:LYS:N     | 2.49                     | 0.43              |
| 1:L:146:ARG:NH1  | 1:L:179:LEU:O    | 2.50                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:134:LEU:N    | 1:B:134:LEU:HD12 | 2.34                     | 0.43              |
| 1:O:300:PHE:CE1  | 1:O:325:THR:HG21 | 2.54                     | 0.43              |
| 1:Q:89:ASP:O     | 1:Q:217:GLY:N    | 2.49                     | 0.43              |
| 1:T:230:LEU:HD21 | 1:U:77:GLN:CA    | 2.48                     | 0.43              |
| 1:U:27:MET:HB3   | 1:U:41:ILE:HD12  | 2.00                     | 0.43              |
| 1:U:98:ARG:NH1   | 1:V:220:GLN:OE1  | 2.51                     | 0.43              |
| 1:Y:142:ILE:O    | 1:Y:145:GLY:N    | 2.51                     | 0.43              |
| 1:Y:192:LEU:HD23 | 1:Y:192:LEU:C    | 2.43                     | 0.43              |
| 1:Y:252:HIS:HB3  | 1:Y:254:GLN:NE2  | 2.34                     | 0.43              |
| 1:b:148:LEU:HB2  | 1:b:152:ARG:HB3  | 2.00                     | 0.43              |
| 1:f:102:ASN:O    | 1:f:105:GLN:N    | 2.48                     | 0.43              |
| 1:E:98:ARG:HA    | 1:E:207:LEU:HD13 | 2.01                     | 0.43              |
| 1:F:261:ARG:HG3  | 1:F:277:ALA:HB1  | 2.01                     | 0.43              |
| 1:J:74:ALA:HB1   | 1:J:76:LEU:CG    | 2.48                     | 0.43              |
| 1:J:136:ALA:HA   | 1:J:139:ALA:HB3  | 2.00                     | 0.43              |
| 1:J:136:ALA:O    | 1:J:139:ALA:HB3  | 2.19                     | 0.43              |
| 1:L:140:GLU:O    | 1:L:143:ALA:N    | 2.50                     | 0.43              |
| 2:M:43:U:H5''    | 2:M:44:G:OP2     | 2.19                     | 0.43              |
| 2:M:96:G:H5''    | 1:P:49:ARG:CD    | 2.48                     | 0.43              |
| 2:M:105:A:H2'    | 2:M:106:A:C4     | 2.53                     | 0.43              |
| 2:M:162:U:H5''   | 1:U:228:LEU:HB2  | 2.00                     | 0.43              |
| 1:H:28:TYR:HA    | 1:H:40:ALA:HA    | 2.00                     | 0.43              |
| 1:P:125:TYR:O    | 1:P:129:GLN:N    | 2.42                     | 0.43              |
| 1:Q:30:GLY:CA    | 1:Q:88:ALA:HB1   | 2.49                     | 0.43              |
| 1:T:189:LEU:HD12 | 1:T:192:LEU:HB3  | 2.01                     | 0.43              |
| 1:U:21:ALA:N     | 1:U:98:ARG:O     | 2.52                     | 0.43              |
| 1:U:25:ALA:O     | 1:U:251:ILE:N    | 2.46                     | 0.43              |
| 1:a:222:VAL:HG22 | 1:a:223:PHE:N    | 2.34                     | 0.43              |
| 1:f:262:THR:CG2  | 1:f:277:ALA:HB2  | 2.49                     | 0.43              |
| 1:q:324:ALA:HA   | 1:q:327:ILE:HD12 | 1.99                     | 0.43              |
| 1:D:150:ARG:NH1  | 2:M:80:C:OP1     | 2.50                     | 0.43              |
| 1:D:253:SER:OG   | 1:D:254:GLN:N    | 2.52                     | 0.43              |
| 1:D:328:ARG:CZ   | 2:M:75:A:H4'     | 2.49                     | 0.43              |
| 1:G:173:ASN:OD1  | 1:G:174:GLY:N    | 2.52                     | 0.43              |
| 1:I:278:VAL:HG12 | 1:I:321:TYR:CE1  | 2.53                     | 0.43              |
| 2:M:26:C:H3'     | 2:M:27:A:C8      | 2.42                     | 0.43              |
| 2:M:39:G:H2'     | 2:M:40:G:C5      | 2.54                     | 0.43              |
| 2:M:101:C:O2     | 1:N:258:ASN:ND2  | 2.52                     | 0.43              |
| 2:M:113:G:N3     | 1:B:255:LYS:HE3  | 2.34                     | 0.43              |
| 2:M:162:U:C2     | 1:U:228:LEU:HD13 | 2.54                     | 0.43              |
| 1:N:185:PRO:HA   | 1:N:189:LEU:HD23 | 2.01                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:P:15:ALA:HB1   | 1:P:330:GLY:HA2  | 2.01                     | 0.43              |
| 1:P:134:LEU:HD22 | 1:P:324:ALA:HB2  | 2.01                     | 0.43              |
| 1:P:293:GLN:O    | 1:P:299:ASP:N    | 2.49                     | 0.43              |
| 1:U:161:VAL:HG22 | 1:U:171:GLU:HA   | 2.01                     | 0.43              |
| 1:V:277:ALA:HB3  | 1:V:279:GLU:CG   | 2.49                     | 0.43              |
| 1:Y:12:SER:OG    | 1:Y:110:ASN:ND2  | 2.46                     | 0.43              |
| 1:a:119:GLY:O    | 1:a:123:THR:N    | 2.47                     | 0.43              |
| 1:a:163:THR:N    | 1:a:209:THR:O    | 2.43                     | 0.43              |
| 1:b:292:ARG:NH1  | 1:b:318:GLN:OE1  | 2.47                     | 0.43              |
| 1:o:300:PHE:O    | 1:o:304:LEU:N    | 2.51                     | 0.43              |
| 1:p:133:THR:O    | 1:p:136:ALA:N    | 2.52                     | 0.43              |
| 1:p:209:THR:OG1  | 1:p:209:THR:O    | 2.36                     | 0.43              |
| 1:D:149:TRP:CZ2  | 1:D:259:ALA:HB2  | 2.54                     | 0.43              |
| 1:G:331:VAL:O    | 1:G:331:VAL:HG13 | 2.19                     | 0.43              |
| 1:L:158:ILE:HD13 | 1:L:214:VAL:HG13 | 2.01                     | 0.43              |
| 2:M:115:C:H2'    | 2:M:116:G:C8     | 2.54                     | 0.43              |
| 2:M:179:A:H3'    | 1:S:49:ARG:HB3   | 2.01                     | 0.43              |
| 1:Q:193:THR:HA   | 1:Q:196:ILE:HG12 | 2.00                     | 0.43              |
| 1:S:196:ILE:O    | 1:S:199:GLY:N    | 2.52                     | 0.43              |
| 1:W:20:LEU:HA    | 1:W:97:LEU:HD11  | 2.01                     | 0.43              |
| 1:a:290:ALA:HB3  | 1:a:293:GLN:HE22 | 1.84                     | 0.43              |
| 1:b:322:VAL:O    | 1:b:326:LEU:N    | 2.47                     | 0.43              |
| 1:o:228:LEU:HD11 | 1:p:76:LEU:HD13  | 2.00                     | 0.43              |
| 1:A:149:TRP:CD1  | 1:A:255:LYS:HZ3  | 2.37                     | 0.43              |
| 1:D:229:VAL:HG11 | 1:D:234:ALA:HB3  | 2.01                     | 0.43              |
| 1:E:228:LEU:HD13 | 2:M:72:U:C4      | 2.53                     | 0.43              |
| 1:I:254:GLN:C    | 2:M:47:A:H4'     | 2.44                     | 0.43              |
| 1:J:139:ALA:HB2  | 1:J:196:ILE:HD12 | 1.99                     | 0.43              |
| 2:M:124:C:H4'    | 1:a:328:ARG:NH2  | 2.34                     | 0.43              |
| 2:M:136:A:O2'    | 1:Z:48:VAL:HG22  | 2.18                     | 0.43              |
| 2:M:137:A:H1'    | 1:Y:255:LYS:HD3  | 2.01                     | 0.43              |
| 1:B:187:GLY:H    | 1:B:190:ALA:HB3  | 1.83                     | 0.43              |
| 1:H:261:ARG:HG3  | 1:H:277:ALA:HB1  | 2.00                     | 0.43              |
| 1:O:193:THR:O    | 1:O:197:GLU:N    | 2.47                     | 0.43              |
| 1:T:254:GLN:H    | 1:U:46:LYS:HZ1   | 1.64                     | 0.43              |
| 1:V:295:ARG:HE   | 1:W:64:PRO:CD    | 2.32                     | 0.43              |
| 1:W:79:VAL:HG12  | 1:W:240:LYS:HB3  | 2.01                     | 0.43              |
| 1:Z:30:GLY:CA    | 1:Z:88:ALA:HB1   | 2.49                     | 0.43              |
| 1:Z:144:ASN:O    | 1:Z:152:ARG:NH1  | 2.42                     | 0.43              |
| 1:a:95:PHE:CE2   | 1:a:210:VAL:HG21 | 2.53                     | 0.43              |
| 1:o:192:LEU:O    | 1:o:195:ALA:HB3  | 2.18                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:13:VAL:C     | 1:A:14:LEU:HD12  | 2.44                     | 0.43              |
| 1:D:148:LEU:O    | 1:D:150:ARG:N    | 2.51                     | 0.43              |
| 1:D:328:ARG:NH1  | 2:M:75:A:H4'     | 2.33                     | 0.43              |
| 1:E:83:ALA:HA    | 1:E:222:VAL:HG23 | 2.01                     | 0.43              |
| 1:E:256:ILE:O    | 1:E:259:ALA:HB3  | 2.18                     | 0.43              |
| 1:G:246:ASN:O    | 1:G:248:VAL:HG23 | 2.18                     | 0.43              |
| 2:M:97:C:H2'     | 2:M:98:G:C4      | 2.54                     | 0.43              |
| 1:H:259:ALA:O    | 1:H:262:THR:OG1  | 2.24                     | 0.43              |
| 1:P:307:TRP:CD1  | 1:P:314:PRO:HD3  | 2.54                     | 0.43              |
| 1:S:228:LEU:HD21 | 1:T:76:LEU:HD22  | 2.00                     | 0.43              |
| 1:T:20:LEU:HD12  | 1:T:97:LEU:HD21  | 2.01                     | 0.43              |
| 1:V:162:VAL:HG22 | 1:V:210:VAL:HG22 | 2.01                     | 0.43              |
| 1:V:300:PHE:CE1  | 1:V:325:THR:HG21 | 2.53                     | 0.43              |
| 1:V:305:ASP:CG   | 1:V:309:ILE:HD12 | 2.43                     | 0.43              |
| 1:Z:30:GLY:O     | 1:Z:89:ASP:N     | 2.50                     | 0.43              |
| 1:Z:123:THR:HA   | 1:Z:126:ALA:HB3  | 2.01                     | 0.43              |
| 1:a:68:ASP:O     | 1:a:71:ILE:HG22  | 2.19                     | 0.43              |
| 1:b:34:GLN:NE2   | 1:b:37:ASN:OD1   | 2.52                     | 0.43              |
| 1:f:137:ARG:C    | 1:f:263:ILE:HG21 | 2.43                     | 0.43              |
| 1:A:223:PHE:N    | 1:A:224:PRO:HD3  | 2.34                     | 0.42              |
| 1:C:95:PHE:O     | 1:C:210:VAL:N    | 2.44                     | 0.42              |
| 1:C:256:ILE:O    | 1:C:259:ALA:HB3  | 2.19                     | 0.42              |
| 1:D:26:LEU:HD11  | 1:E:86:PHE:CD2   | 2.54                     | 0.42              |
| 1:K:207:LEU:HD23 | 1:K:207:LEU:C    | 2.44                     | 0.42              |
| 2:M:75:A:N7      | 2:M:76:A:N6      | 2.67                     | 0.42              |
| 2:M:164:G:H4'    | 1:T:17:GLU:HG2   | 2.00                     | 0.42              |
| 1:B:32:TRP:CH2   | 1:B:159:ARG:HB2  | 2.54                     | 0.42              |
| 1:H:285:THR:HG21 | 1:N:49:ARG:HH22  | 1.84                     | 0.42              |
| 1:S:162:VAL:O    | 1:S:170:TRP:N    | 2.46                     | 0.42              |
| 1:W:158:ILE:HD12 | 1:W:175:GLU:OE2  | 2.19                     | 0.42              |
| 1:a:227:GLU:N    | 1:a:241:ILE:O    | 2.50                     | 0.42              |
| 1:i:254:GLN:O    | 1:i:258:ASN:N    | 2.46                     | 0.42              |
| 1:A:222:VAL:HG23 | 1:A:224:PRO:CD   | 2.48                     | 0.42              |
| 1:D:256:ILE:HG22 | 1:D:260:LEU:HD13 | 2.00                     | 0.42              |
| 1:E:12:SER:O     | 1:E:334:GLU:N    | 2.52                     | 0.42              |
| 1:E:23:SER:N     | 1:E:96:THR:O     | 2.51                     | 0.42              |
| 1:J:255:LYS:NZ   | 2:M:43:U:OP1     | 2.42                     | 0.42              |
| 1:K:28:TYR:HA    | 1:K:40:ALA:HA    | 2.02                     | 0.42              |
| 2:M:90:U:O2'     | 1:P:226:GLN:OE1  | 2.35                     | 0.42              |
| 2:M:176:G:H4'    | 1:f:17:GLU:CG    | 2.46                     | 0.42              |
| 1:H:27:MET:O     | 1:H:41:ILE:N     | 2.49                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:193:THR:HG1  | 1:H:194:GLN:H    | 1.67                     | 0.42              |
| 1:H:228:LEU:HD22 | 1:N:49:ARG:HB2   | 2.00                     | 0.42              |
| 1:N:85:PRO:O     | 1:N:219:GLY:N    | 2.42                     | 0.42              |
| 1:S:24:ASP:OD1   | 1:S:253:SER:OG   | 2.19                     | 0.42              |
| 1:b:240:LYS:CE   | 1:b:242:LEU:HD21 | 2.49                     | 0.42              |
| 1:p:135:ALA:O    | 1:p:139:ALA:N    | 2.44                     | 0.42              |
| 1:A:76:LEU:HD13  | 1:G:228:LEU:HD11 | 2.00                     | 0.42              |
| 1:D:89:ASP:O     | 1:D:216:LEU:N    | 2.46                     | 0.42              |
| 1:J:192:LEU:HA   | 1:J:195:ALA:HB3  | 2.01                     | 0.42              |
| 1:K:97:LEU:HD12  | 1:K:98:ARG:N     | 2.33                     | 0.42              |
| 1:K:324:ALA:HA   | 1:K:327:ILE:HD12 | 2.01                     | 0.42              |
| 2:M:87:G:H2'     | 2:M:88:G:C4      | 2.54                     | 0.42              |
| 1:S:196:ILE:HG22 | 1:S:200:LEU:HB2  | 2.02                     | 0.42              |
| 1:U:227:GLU:N    | 1:U:241:ILE:O    | 2.40                     | 0.42              |
| 1:Y:207:LEU:HD23 | 1:Y:208:PHE:N    | 2.34                     | 0.42              |
| 1:b:27:MET:SD    | 1:b:93:ILE:HD11  | 2.59                     | 0.42              |
| 1:b:259:ALA:HA   | 1:b:262:THR:HG22 | 2.00                     | 0.42              |
| 1:f:66:LYS:HA    | 1:f:69:ALA:HB3   | 2.01                     | 0.42              |
| 1:i:12:SER:OG    | 1:i:110:ASN:ND2  | 2.43                     | 0.42              |
| 1:i:26:LEU:HD11  | 1:o:86:PHE:CD2   | 2.54                     | 0.42              |
| 1:i:27:MET:HE2   | 1:i:251:ILE:HD11 | 2.02                     | 0.42              |
| 1:o:193:THR:O    | 1:o:197:GLU:N    | 2.44                     | 0.42              |
| 1:A:13:VAL:HG22  | 1:A:108:VAL:HG21 | 2.01                     | 0.42              |
| 1:G:222:VAL:HG23 | 1:G:224:PRO:HD3  | 2.02                     | 0.42              |
| 1:L:230:LEU:HD11 | 1:i:77:GLN:HA    | 2.01                     | 0.42              |
| 1:N:224:PRO:HG2  | 1:N:242:LEU:HD13 | 2.00                     | 0.42              |
| 1:Q:115:GLN:O    | 1:Q:118:LEU:N    | 2.53                     | 0.42              |
| 1:Q:141:ASN:O    | 1:Q:145:GLY:N    | 2.52                     | 0.42              |
| 1:S:118:LEU:HG   | 1:S:122:ILE:HD11 | 2.01                     | 0.42              |
| 1:V:216:LEU:HD12 | 1:V:216:LEU:N    | 2.34                     | 0.42              |
| 1:Z:258:ASN:HA   | 1:Z:261:ARG:HG2  | 2.01                     | 0.42              |
| 1:f:103:LEU:HD21 | 1:f:326:LEU:HB3  | 2.00                     | 0.42              |
| 1:i:43:ILE:HD11  | 1:i:80:ASP:OD2   | 2.20                     | 0.42              |
| 1:i:91:LEU:HD23  | 1:i:214:VAL:HB   | 2.01                     | 0.42              |
| 1:A:284:VAL:HG22 | 1:A:285:THR:N    | 2.35                     | 0.42              |
| 1:D:323:ILE:HG22 | 1:D:327:ILE:HG13 | 2.01                     | 0.42              |
| 1:J:142:ILE:HD11 | 1:J:162:VAL:HG12 | 2.02                     | 0.42              |
| 1:J:328:ARG:NE   | 1:J:329:GLY:O    | 2.47                     | 0.42              |
| 1:K:148:LEU:HB3  | 1:K:151:ASN:HB2  | 2.00                     | 0.42              |
| 1:K:251:ILE:HD12 | 1:K:251:ILE:N    | 2.33                     | 0.42              |
| 1:L:97:LEU:N     | 1:L:208:PHE:O    | 2.42                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:229:VAL:HB   | 1:H:235:ARG:HE   | 1.84                     | 0.42              |
| 1:H:269:ALA:O    | 1:H:272:GLU:N    | 2.43                     | 0.42              |
| 1:N:20:LEU:O     | 1:N:22:ASN:N     | 2.52                     | 0.42              |
| 1:N:24:ASP:OD1   | 1:N:253:SER:OG   | 2.31                     | 0.42              |
| 1:S:21:ALA:O     | 1:T:220:GLN:NE2  | 2.52                     | 0.42              |
| 1:S:114:TYR:HA   | 1:S:117:ALA:HB3  | 2.01                     | 0.42              |
| 1:U:99:VAL:HG23  | 1:U:99:VAL:O     | 2.19                     | 0.42              |
| 1:U:189:LEU:HD12 | 1:U:192:LEU:HB3  | 2.01                     | 0.42              |
| 1:Y:141:ASN:HB3  | 1:Y:260:LEU:HD23 | 2.00                     | 0.42              |
| 1:Y:230:LEU:HD11 | 1:Z:77:GLN:N     | 2.35                     | 0.42              |
| 1:Z:121:ILE:HG22 | 1:Z:307:TRP:CH2  | 2.55                     | 0.42              |
| 1:a:94:VAL:HG22  | 1:a:211:GLU:HG2  | 2.01                     | 0.42              |
| 1:a:267:TYR:HB2  | 1:a:268:PRO:HD2  | 2.01                     | 0.42              |
| 1:i:48:VAL:O     | 1:i:77:GLN:N     | 2.53                     | 0.42              |
| 1:E:68:ASP:O     | 1:E:72:GLN:N     | 2.49                     | 0.42              |
| 1:I:30:GLY:N     | 1:I:90:THR:O     | 2.43                     | 0.42              |
| 1:J:299:ASP:OD1  | 1:J:300:PHE:N    | 2.52                     | 0.42              |
| 2:M:15:G:HO2'    | 2:M:16:G:C1'     | 2.20                     | 0.42              |
| 2:M:138:U:H5''   | 1:Z:49:ARG:CD    | 2.50                     | 0.42              |
| 2:M:143:G:H3'    | 1:Y:49:ARG:HB3   | 2.02                     | 0.42              |
| 2:M:148:A:H1'    | 1:Q:50:GLY:HA3   | 2.02                     | 0.42              |
| 1:H:190:ALA:O    | 1:H:193:THR:OG1  | 2.32                     | 0.42              |
| 1:P:150:ARG:HB2  | 1:P:223:PHE:CB   | 2.50                     | 0.42              |
| 1:Q:323:ILE:O    | 1:Q:327:ILE:N    | 2.48                     | 0.42              |
| 1:T:253:SER:N    | 1:U:46:LYS:HZ3   | 2.17                     | 0.42              |
| 1:U:89:ASP:O     | 1:U:217:GLY:N    | 2.43                     | 0.42              |
| 1:U:99:VAL:CG2   | 1:U:206:ALA:HB3  | 2.49                     | 0.42              |
| 1:V:222:VAL:HG22 | 1:V:223:PHE:H    | 1.84                     | 0.42              |
| 1:p:97:LEU:HD12  | 1:p:98:ARG:H     | 1.84                     | 0.42              |
| 1:q:20:LEU:HD23  | 1:q:99:VAL:HG12  | 2.01                     | 0.42              |
| 1:A:36:ASP:N     | 1:A:36:ASP:OD1   | 2.51                     | 0.42              |
| 1:A:96:THR:HG22  | 1:A:209:THR:HG23 | 2.01                     | 0.42              |
| 1:C:51:THR:HG23  | 1:C:53:SER:N     | 2.34                     | 0.42              |
| 1:D:264:ASP:OD1  | 1:D:266:TRP:N    | 2.40                     | 0.42              |
| 1:E:84:LEU:HD12  | 1:E:217:GLY:O    | 2.19                     | 0.42              |
| 1:F:109:CYS:SG   | 1:F:110:ASN:N    | 2.92                     | 0.42              |
| 1:I:185:PRO:HA   | 1:I:189:LEU:HD23 | 2.02                     | 0.42              |
| 1:J:40:ALA:HB1   | 1:J:248:VAL:HG13 | 2.01                     | 0.42              |
| 1:L:15:ALA:HB3   | 1:L:108:VAL:HB   | 2.01                     | 0.42              |
| 2:M:3:G:HO2'     | 1:q:328:ARG:NH2  | 2.16                     | 0.42              |
| 2:M:63:A:H2'     | 2:M:64:C:C6      | 2.55                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:269:ALA:HB3  | 1:N:273:ALA:HB2  | 2.01                     | 0.42              |
| 1:S:148:LEU:HD12 | 1:S:151:ASN:HB2  | 2.02                     | 0.42              |
| 1:T:20:LEU:O     | 1:T:22:ASN:N     | 2.52                     | 0.42              |
| 1:V:25:ALA:HB1   | 1:V:93:ILE:HG23  | 2.01                     | 0.42              |
| 1:Z:256:ILE:O    | 1:Z:259:ALA:HB3  | 2.20                     | 0.42              |
| 1:a:273:ALA:HB1  | 1:a:287:ARG:CZ   | 2.50                     | 0.42              |
| 1:a:324:ALA:HA   | 1:a:327:ILE:HB   | 2.01                     | 0.42              |
| 1:p:222:VAL:C    | 1:p:224:PRO:HD3  | 2.45                     | 0.42              |
| 1:D:84:LEU:HD12  | 1:D:217:GLY:O    | 2.20                     | 0.42              |
| 1:E:149:TRP:CZ2  | 1:E:259:ALA:HB2  | 2.55                     | 0.42              |
| 1:E:162:VAL:HG11 | 1:E:192:LEU:HD11 | 2.01                     | 0.42              |
| 1:F:159:ARG:O    | 1:F:213:TYR:N    | 2.41                     | 0.42              |
| 1:G:49:ARG:HB2   | 2:M:66:G:H5'     | 2.01                     | 0.42              |
| 1:G:163:THR:OG1  | 1:G:163:THR:O    | 2.37                     | 0.42              |
| 1:I:123:THR:O    | 1:I:127:GLN:N    | 2.46                     | 0.42              |
| 1:J:29:ALA:HB1   | 1:J:84:LEU:HD11  | 2.01                     | 0.42              |
| 1:J:228:LEU:HB2  | 2:M:42:U:H5'     | 2.02                     | 0.42              |
| 1:L:148:LEU:O    | 1:L:150:ARG:N    | 2.53                     | 0.42              |
| 2:M:177:G:O3'    | 1:f:18:ARG:NH2   | 2.52                     | 0.42              |
| 1:B:253:SER:OG   | 1:B:254:GLN:N    | 2.52                     | 0.42              |
| 1:N:18:ARG:NE    | 1:N:20:LEU:O     | 2.46                     | 0.42              |
| 1:N:54:ASN:OD1   | 1:N:56:LEU:HD21  | 2.20                     | 0.42              |
| 1:N:157:ALA:HB3  | 1:N:215:GLN:HB2  | 2.01                     | 0.42              |
| 1:N:256:ILE:O    | 1:N:259:ALA:HB3  | 2.20                     | 0.42              |
| 1:O:151:ASN:ND2  | 1:O:223:PHE:O    | 2.53                     | 0.42              |
| 1:O:315:MET:O    | 1:O:318:GLN:N    | 2.53                     | 0.42              |
| 1:T:93:ILE:HG22  | 1:T:94:VAL:N     | 2.34                     | 0.42              |
| 1:U:98:ARG:HE    | 1:U:100:LEU:HD11 | 1.85                     | 0.42              |
| 1:V:277:ALA:HB3  | 1:V:279:GLU:HG2  | 2.01                     | 0.42              |
| 1:W:262:THR:OG1  | 1:W:277:ALA:HB2  | 2.19                     | 0.42              |
| 1:a:230:LEU:HD11 | 1:b:76:LEU:HB3   | 2.00                     | 0.42              |
| 1:b:123:THR:HA   | 1:b:126:ALA:HB3  | 2.01                     | 0.42              |
| 1:b:258:ASN:HA   | 1:b:261:ARG:HG2  | 2.02                     | 0.42              |
| 1:q:134:LEU:HD13 | 1:q:324:ALA:HB2  | 2.02                     | 0.42              |
| 1:C:71:ILE:HG21  | 1:P:283:SER:OG   | 2.19                     | 0.42              |
| 1:D:118:LEU:HB3  | 1:D:122:ILE:CD1  | 2.48                     | 0.42              |
| 1:I:265:ASP:OD1  | 1:I:265:ASP:N    | 2.53                     | 0.42              |
| 2:M:104:G:H2'    | 2:M:105:A:C5     | 2.54                     | 0.42              |
| 2:M:133:U:H2'    | 2:M:134:G:N9     | 2.35                     | 0.42              |
| 1:N:278:VAL:HG11 | 1:N:325:THR:HA   | 2.01                     | 0.42              |
| 1:O:150:ARG:O    | 1:O:153:VAL:HG22 | 2.20                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:U:252:HIS:HB3  | 1:U:254:GLN:NE2  | 2.35                     | 0.42              |
| 1:b:267:TYR:CE2  | 1:b:269:ALA:HB3  | 2.55                     | 0.42              |
| 1:q:160:VAL:HB   | 1:q:172:PHE:HB2  | 2.01                     | 0.42              |
| 1:C:46:LYS:HZ1   | 1:P:254:GLN:CD   | 2.18                     | 0.42              |
| 1:C:142:ILE:O    | 1:C:145:GLY:N    | 2.53                     | 0.42              |
| 1:C:319:GLN:HA   | 1:C:322:VAL:HG12 | 2.02                     | 0.42              |
| 1:E:149:TRP:NE1  | 1:E:255:LYS:O    | 2.46                     | 0.42              |
| 1:G:52:ILE:HG22  | 1:G:53:SER:N     | 2.35                     | 0.42              |
| 1:G:229:VAL:HG11 | 1:G:235:ARG:HG2  | 2.02                     | 0.42              |
| 1:K:255:LYS:HD2  | 2:M:35:A:H4'     | 2.01                     | 0.42              |
| 1:L:149:TRP:CG   | 2:M:29:G:H1      | 2.38                     | 0.42              |
| 2:M:109:U:H2'    | 1:H:226:GLN:OE1  | 2.20                     | 0.42              |
| 2:M:142:C:H3'    | 2:M:143:G:H5'    | 2.01                     | 0.42              |
| 1:H:151:ASN:OD1  | 1:H:223:PHE:N    | 2.49                     | 0.42              |
| 1:O:331:VAL:HG23 | 1:O:331:VAL:O    | 2.20                     | 0.42              |
| 1:T:52:ILE:HG22  | 1:T:54:ASN:H     | 1.85                     | 0.42              |
| 1:W:98:ARG:HA    | 1:W:207:LEU:HA   | 2.02                     | 0.42              |
| 1:Y:228:LEU:HD22 | 1:Z:49:ARG:CA    | 2.50                     | 0.42              |
| 1:Z:244:GLN:HA   | 1:Z:248:VAL:O    | 2.20                     | 0.42              |
| 1:b:117:ALA:C    | 1:b:121:ILE:HD12 | 2.44                     | 0.42              |
| 1:i:25:ALA:O     | 1:i:251:ILE:N    | 2.45                     | 0.42              |
| 1:q:32:TRP:N     | 1:q:90:THR:OG1   | 2.53                     | 0.42              |
| 1:A:222:VAL:HB   | 1:A:224:PRO:HD3  | 2.03                     | 0.41              |
| 1:D:256:ILE:HG22 | 1:D:260:LEU:CD1  | 2.50                     | 0.41              |
| 1:E:115:GLN:O    | 1:E:118:LEU:HB2  | 2.19                     | 0.41              |
| 1:K:178:SER:OG   | 1:K:181:GLN:N    | 2.46                     | 0.41              |
| 2:M:91:U:HO2'    | 2:M:92:C:H6      | 1.66                     | 0.41              |
| 2:M:137:A:HO2'   | 2:M:138:U:P      | 2.42                     | 0.41              |
| 1:H:30:GLY:N     | 1:H:88:ALA:HB1   | 2.35                     | 0.41              |
| 1:N:181:GLN:NE2  | 1:N:182:PHE:O    | 2.52                     | 0.41              |
| 1:Q:148:LEU:HD13 | 1:Q:214:VAL:CG2  | 2.50                     | 0.41              |
| 1:V:85:PRO:HB2   | 1:V:87:GLY:H     | 1.85                     | 0.41              |
| 1:W:267:TYR:CE2  | 1:W:269:ALA:HB3  | 2.54                     | 0.41              |
| 1:Z:146:ARG:NH1  | 1:Z:262:THR:HG21 | 2.35                     | 0.41              |
| 1:A:179:LEU:HD12 | 1:A:179:LEU:N    | 2.34                     | 0.41              |
| 1:C:149:TRP:HE1  | 1:C:259:ALA:HB2  | 1.85                     | 0.41              |
| 1:D:305:ASP:O    | 1:D:309:ILE:HD12 | 2.21                     | 0.41              |
| 1:F:320:HIS:O    | 1:F:323:ILE:N    | 2.53                     | 0.41              |
| 1:K:132:SER:O    | 1:K:136:ALA:N    | 2.47                     | 0.41              |
| 1:K:261:ARG:HG3  | 1:K:277:ALA:HB1  | 2.02                     | 0.41              |
| 1:L:259:ALA:O    | 1:L:262:THR:HG22 | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:299:ASP:OD1  | 1:N:300:PHE:N    | 2.53                     | 0.41              |
| 1:O:74:ALA:HB1   | 1:O:76:LEU:HG    | 2.01                     | 0.41              |
| 1:O:114:TYR:O    | 1:O:118:LEU:N    | 2.52                     | 0.41              |
| 1:P:32:TRP:CH2   | 1:P:157:ALA:HB1  | 2.55                     | 0.41              |
| 1:S:28:TYR:HA    | 1:S:40:ALA:HA    | 2.01                     | 0.41              |
| 1:U:30:GLY:O     | 1:U:88:ALA:HB1   | 2.20                     | 0.41              |
| 1:U:300:PHE:CZ   | 1:U:325:THR:HG21 | 2.55                     | 0.41              |
| 1:W:15:ALA:O     | 1:W:108:VAL:N    | 2.53                     | 0.41              |
| 1:W:300:PHE:CE1  | 1:W:325:THR:HG21 | 2.54                     | 0.41              |
| 1:a:98:ARG:HD3   | 1:a:207:LEU:HD12 | 2.02                     | 0.41              |
| 1:o:163:THR:N    | 1:o:209:THR:O    | 2.52                     | 0.41              |
| 1:p:32:TRP:CZ2   | 1:p:157:ALA:HB1  | 2.55                     | 0.41              |
| 1:q:148:LEU:O    | 1:q:152:ARG:N    | 2.43                     | 0.41              |
| 1:C:28:TYR:HA    | 1:C:40:ALA:HA    | 2.01                     | 0.41              |
| 1:D:161:VAL:N    | 1:D:211:GLU:O    | 2.37                     | 0.41              |
| 1:E:253:SER:HG   | 1:E:254:GLN:H    | 1.69                     | 0.41              |
| 1:G:304:LEU:O    | 1:G:308:VAL:HG23 | 2.20                     | 0.41              |
| 1:J:118:LEU:HG   | 1:J:122:ILE:HD11 | 2.02                     | 0.41              |
| 1:J:142:ILE:O    | 1:J:145:GLY:N    | 2.43                     | 0.41              |
| 1:L:118:LEU:HB3  | 1:L:122:ILE:HD12 | 2.02                     | 0.41              |
| 2:M:114:G:O2'    | 2:M:115:C:H5''   | 2.20                     | 0.41              |
| 2:M:159:G:H2'    | 2:M:160:G:C5     | 2.55                     | 0.41              |
| 1:H:84:LEU:HD12  | 1:H:217:GLY:O    | 2.21                     | 0.41              |
| 1:N:137:ARG:NH1  | 1:N:263:ILE:O    | 2.39                     | 0.41              |
| 1:N:272:GLU:OE1  | 1:N:272:GLU:N    | 2.53                     | 0.41              |
| 1:O:95:PHE:O     | 1:O:210:VAL:N    | 2.41                     | 0.41              |
| 1:P:19:LYS:NZ    | 1:P:101:GLY:O    | 2.43                     | 0.41              |
| 1:Q:41:ILE:HD13  | 1:Q:222:VAL:HG21 | 2.02                     | 0.41              |
| 1:S:135:ALA:HB1  | 1:S:196:ILE:HB   | 2.02                     | 0.41              |
| 1:T:133:THR:HB   | 1:T:134:LEU:HD12 | 2.02                     | 0.41              |
| 1:V:287:ARG:NH2  | 1:V:291:TYR:OH   | 2.51                     | 0.41              |
| 1:W:189:LEU:HD12 | 1:W:192:LEU:HB3  | 2.01                     | 0.41              |
| 1:Z:15:ALA:HB3   | 1:Z:108:VAL:HG12 | 2.02                     | 0.41              |
| 1:o:162:VAL:HG22 | 1:o:163:THR:N    | 2.34                     | 0.41              |
| 1:p:140:GLU:OE2  | 1:p:183:SER:N    | 2.52                     | 0.41              |
| 1:A:170:TRP:HE1  | 1:A:191:ALA:HB3  | 1.85                     | 0.41              |
| 1:C:331:VAL:HG13 | 1:C:331:VAL:O    | 2.20                     | 0.41              |
| 1:F:300:PHE:CE2  | 1:F:325:THR:HG21 | 2.55                     | 0.41              |
| 1:I:157:ALA:HB3  | 1:I:215:GLN:CB   | 2.51                     | 0.41              |
| 1:J:261:ARG:HG3  | 1:J:277:ALA:HB1  | 2.01                     | 0.41              |
| 2:M:97:C:H6      | 1:O:226:GLN:HE22 | 1.67                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:173:G:H22    | 1:S:149:TRP:HB3  | 1.85                     | 0.41              |
| 1:O:39:THR:HG22  | 1:O:40:ALA:N     | 2.35                     | 0.41              |
| 1:V:258:ASN:HA   | 1:V:261:ARG:HG2  | 2.01                     | 0.41              |
| 1:Y:133:THR:HG23 | 1:Y:134:LEU:N    | 2.35                     | 0.41              |
| 1:Y:133:THR:O    | 1:Y:136:ALA:N    | 2.54                     | 0.41              |
| 1:Y:300:PHE:HE2  | 1:Y:304:LEU:HD22 | 1.83                     | 0.41              |
| 1:i:161:VAL:O    | 1:i:211:GLU:N    | 2.44                     | 0.41              |
| 1:q:140:GLU:OE1  | 1:q:183:SER:N    | 2.44                     | 0.41              |
| 1:A:48:VAL:N     | 1:A:77:GLN:O     | 2.46                     | 0.41              |
| 1:A:123:THR:HG22 | 1:A:126:ALA:HB3  | 2.02                     | 0.41              |
| 1:C:32:TRP:CH2   | 1:C:157:ALA:HB1  | 2.56                     | 0.41              |
| 1:C:123:THR:HA   | 1:C:126:ALA:HB3  | 2.03                     | 0.41              |
| 1:C:173:ASN:OD1  | 1:C:174:GLY:N    | 2.53                     | 0.41              |
| 1:E:28:TYR:N     | 1:E:92:LYS:O     | 2.52                     | 0.41              |
| 1:F:246:ASN:O    | 1:F:248:VAL:HG23 | 2.20                     | 0.41              |
| 1:G:282:GLY:O    | 1:G:291:TYR:N    | 2.45                     | 0.41              |
| 1:J:284:VAL:HG12 | 1:J:287:ARG:H    | 1.86                     | 0.41              |
| 1:K:31:ASN:O     | 1:K:34:GLN:NE2   | 2.51                     | 0.41              |
| 1:L:98:ARG:CG    | 1:L:207:LEU:HD13 | 2.50                     | 0.41              |
| 2:M:24:U:H5'     | 1:i:228:LEU:HB2  | 2.03                     | 0.41              |
| 1:H:118:LEU:CD2  | 1:H:122:ILE:HD11 | 2.51                     | 0.41              |
| 1:Q:115:GLN:O    | 1:Q:119:GLY:N    | 2.43                     | 0.41              |
| 1:b:148:LEU:O    | 1:b:151:ASN:N    | 2.54                     | 0.41              |
| 1:i:13:VAL:HG22  | 1:i:110:ASN:CG   | 2.45                     | 0.41              |
| 1:i:49:ARG:HA    | 1:i:76:LEU:HA    | 2.02                     | 0.41              |
| 1:i:305:ASP:O    | 1:i:309:ILE:N    | 2.44                     | 0.41              |
| 1:A:91:LEU:O     | 1:A:214:VAL:N    | 2.42                     | 0.41              |
| 1:A:99:VAL:HG11  | 1:A:199:GLY:HA3  | 2.02                     | 0.41              |
| 1:E:28:TYR:HA    | 1:E:40:ALA:HA    | 2.02                     | 0.41              |
| 1:F:292:ARG:NH2  | 1:F:298:MET:O    | 2.51                     | 0.41              |
| 1:K:122:ILE:HD12 | 1:K:122:ILE:N    | 2.32                     | 0.41              |
| 1:L:328:ARG:HH22 | 2:M:27:A:H1'     | 1.83                     | 0.41              |
| 1:H:254:GLN:HG2  | 1:H:255:LYS:N    | 2.35                     | 0.41              |
| 1:N:254:GLN:O    | 1:N:257:GLY:N    | 2.53                     | 0.41              |
| 1:O:68:ASP:OD1   | 1:O:69:ALA:N     | 2.53                     | 0.41              |
| 1:P:161:VAL:N    | 1:P:211:GLU:O    | 2.41                     | 0.41              |
| 1:P:304:LEU:O    | 1:P:308:VAL:HG23 | 2.20                     | 0.41              |
| 1:T:134:LEU:HD12 | 1:T:134:LEU:N    | 2.35                     | 0.41              |
| 1:W:13:VAL:HB    | 1:W:110:ASN:HB2  | 2.03                     | 0.41              |
| 1:W:29:ALA:HB1   | 1:W:84:LEU:HD22  | 2.03                     | 0.41              |
| 1:Y:26:LEU:O     | 1:Y:93:ILE:HG23  | 2.21                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:a:258:ASN:HA   | 1:a:261:ARG:HG2  | 2.03                     | 0.41              |
| 1:b:31:ASN:O     | 1:b:34:GLN:N     | 2.54                     | 0.41              |
| 1:f:26:LEU:HD23  | 1:f:250:ALA:HB2  | 2.03                     | 0.41              |
| 1:f:118:LEU:HA   | 1:f:121:ILE:HB   | 2.03                     | 0.41              |
| 1:f:131:PHE:O    | 1:f:135:ALA:N    | 2.44                     | 0.41              |
| 1:f:148:LEU:O    | 1:f:151:ASN:N    | 2.54                     | 0.41              |
| 1:G:25:ALA:HB2   | 1:G:95:PHE:HB3   | 2.02                     | 0.41              |
| 1:G:112:GLN:NE2  | 1:G:115:GLN:OE1  | 2.53                     | 0.41              |
| 1:I:99:VAL:O     | 1:I:206:ALA:HB3  | 2.19                     | 0.41              |
| 2:M:9:A:H2'      | 2:M:10:C:N1      | 2.35                     | 0.41              |
| 2:M:31:C:N3      | 2:M:32:G:N1      | 2.68                     | 0.41              |
| 2:M:113:G:H21    | 1:B:255:LYS:HE3  | 1.84                     | 0.41              |
| 2:M:129:G:H2'    | 2:M:130:G:C8     | 2.55                     | 0.41              |
| 2:M:140:C:H2'    | 2:M:141:A:H8     | 1.86                     | 0.41              |
| 1:H:125:TYR:O    | 1:H:129:GLN:N    | 2.40                     | 0.41              |
| 1:H:252:HIS:HB3  | 1:H:254:GLN:OE1  | 2.21                     | 0.41              |
| 1:N:162:VAL:HG22 | 1:N:163:THR:N    | 2.36                     | 0.41              |
| 1:O:142:ILE:HG23 | 1:O:143:ALA:N    | 2.35                     | 0.41              |
| 1:V:321:TYR:O    | 1:V:324:ALA:N    | 2.53                     | 0.41              |
| 1:Z:144:ASN:OD1  | 1:Z:145:GLY:N    | 2.54                     | 0.41              |
| 1:a:52:ILE:HG22  | 1:a:54:ASN:N     | 2.36                     | 0.41              |
| 1:a:323:ILE:O    | 1:a:326:LEU:N    | 2.53                     | 0.41              |
| 1:b:281:TYR:O    | 1:b:290:ALA:HB1  | 2.20                     | 0.41              |
| 1:f:91:LEU:HD21  | 1:f:93:ILE:HD11  | 2.02                     | 0.41              |
| 1:i:120:ASP:O    | 1:i:124:GLY:N    | 2.45                     | 0.41              |
| 1:p:34:GLN:HG2   | 1:p:36:ASP:H     | 1.84                     | 0.41              |
| 1:A:293:GLN:HE22 | 1:I:67:LEU:HD23  | 1.85                     | 0.41              |
| 1:C:238:LYS:CB   | 1:C:241:ILE:HD11 | 2.48                     | 0.41              |
| 1:F:192:LEU:O    | 1:F:195:ALA:N    | 2.53                     | 0.41              |
| 1:G:66:LYS:O     | 1:G:70:GLU:N     | 2.46                     | 0.41              |
| 1:I:16:PHE:O     | 1:I:330:GLY:N    | 2.53                     | 0.41              |
| 1:I:228:LEU:HD12 | 2:M:48:U:C5      | 2.55                     | 0.41              |
| 1:J:301:TYR:HA   | 1:J:304:LEU:HB3  | 2.03                     | 0.41              |
| 2:M:79:U:H1'     | 2:M:80:C:C6      | 2.56                     | 0.41              |
| 2:M:125:G:H5'    | 1:b:49:ARG:O     | 2.21                     | 0.41              |
| 2:M:149:A:O3'    | 2:M:150:U:H4'    | 2.21                     | 0.41              |
| 1:B:267:TYR:HB2  | 1:B:268:PRO:HD2  | 2.02                     | 0.41              |
| 1:H:65:ALA:O     | 1:H:69:ALA:N     | 2.46                     | 0.41              |
| 1:H:313:VAL:HG13 | 1:H:319:GLN:NE2  | 2.36                     | 0.41              |
| 1:O:133:THR:O    | 1:O:136:ALA:N    | 2.53                     | 0.41              |
| 1:Q:192:LEU:HD11 | 1:Q:208:PHE:CE2  | 2.55                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:227:GLU:O    | 1:Z:229:VAL:HG23 | 2.21                     | 0.41              |
| 1:b:24:ASP:OD1   | 1:b:253:SER:N    | 2.42                     | 0.41              |
| 1:p:89:ASP:O     | 1:p:216:LEU:N    | 2.46                     | 0.41              |
| 1:A:122:ILE:HG22 | 1:A:123:THR:N    | 2.36                     | 0.41              |
| 1:D:97:LEU:C     | 1:D:207:LEU:HD12 | 2.46                     | 0.41              |
| 1:E:123:THR:O    | 1:E:127:GLN:N    | 2.36                     | 0.41              |
| 1:F:12:SER:O     | 1:F:334:GLU:N    | 2.41                     | 0.41              |
| 1:F:56:LEU:HD12  | 1:F:57:LYS:O     | 2.21                     | 0.41              |
| 1:F:134:LEU:HD22 | 1:F:324:ALA:HB2  | 2.02                     | 0.41              |
| 1:F:315:MET:N    | 1:F:318:GLN:OE1  | 2.54                     | 0.41              |
| 1:K:244:GLN:OE1  | 1:K:245:VAL:N    | 2.53                     | 0.41              |
| 1:L:49:ARG:CB    | 1:L:76:LEU:HD23  | 2.50                     | 0.41              |
| 1:L:109:CYS:O    | 1:i:287:ARG:NH1  | 2.53                     | 0.41              |
| 2:M:17:C:O2'     | 2:M:18:U:H4'     | 2.20                     | 0.41              |
| 2:M:31:C:H2'     | 2:M:32:G:C8      | 2.56                     | 0.41              |
| 1:B:91:LEU:N     | 1:B:214:VAL:O    | 2.50                     | 0.41              |
| 1:H:168:ARG:HE   | 1:H:169:SER:H    | 1.69                     | 0.41              |
| 1:V:148:LEU:CD1  | 1:V:214:VAL:HG21 | 2.50                     | 0.41              |
| 1:W:279:GLU:HB2  | 1:W:282:GLY:N    | 2.36                     | 0.41              |
| 1:Y:94:VAL:HG22  | 1:Y:211:GLU:HG2  | 2.02                     | 0.41              |
| 1:Y:135:ALA:O    | 1:Y:139:ALA:N    | 2.45                     | 0.41              |
| 1:Y:230:LEU:HD21 | 1:Z:76:LEU:HB3   | 2.03                     | 0.41              |
| 1:Z:139:ALA:HB1  | 1:Z:189:LEU:HD11 | 2.02                     | 0.41              |
| 1:a:257:GLY:O    | 1:a:260:LEU:N    | 2.54                     | 0.41              |
| 1:b:95:PHE:CZ    | 1:b:210:VAL:HG11 | 2.56                     | 0.41              |
| 1:b:146:ARG:HE   | 1:b:262:THR:HG21 | 1.86                     | 0.41              |
| 1:i:196:ILE:HG22 | 1:i:200:LEU:HG   | 2.03                     | 0.41              |
| 1:q:125:TYR:O    | 1:q:129:GLN:N    | 2.46                     | 0.41              |
| 1:q:148:LEU:HB3  | 1:q:151:ASN:HB2  | 2.02                     | 0.41              |
| 1:q:254:GLN:O    | 1:q:258:ASN:ND2  | 2.54                     | 0.41              |
| 1:C:89:ASP:O     | 1:C:217:GLY:N    | 2.53                     | 0.41              |
| 1:F:97:LEU:HD12  | 1:F:98:ARG:N     | 2.35                     | 0.41              |
| 1:G:161:VAL:HG11 | 1:G:169:SER:HB3  | 2.03                     | 0.41              |
| 1:K:137:ARG:HB3  | 1:K:263:ILE:HG22 | 2.03                     | 0.41              |
| 1:L:192:LEU:HA   | 1:L:195:ALA:HB3  | 2.03                     | 0.41              |
| 2:M:2:G:H5''     | 2:M:3:G:OP2      | 2.20                     | 0.41              |
| 1:B:142:ILE:HG22 | 1:B:160:VAL:HG11 | 2.01                     | 0.41              |
| 1:P:284:VAL:HG12 | 1:P:286:SER:H    | 1.85                     | 0.41              |
| 1:V:192:LEU:HD23 | 1:V:193:THR:N    | 2.36                     | 0.41              |
| 1:Z:95:PHE:O     | 1:Z:210:VAL:N    | 2.50                     | 0.41              |
| 1:a:244:GLN:OE1  | 1:a:245:VAL:N    | 2.53                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:89:ASP:OD1   | 1:A:89:ASP:N     | 2.54                     | 0.40              |
| 1:A:178:SER:OG   | 1:A:179:LEU:N    | 2.54                     | 0.40              |
| 1:C:12:SER:O     | 1:C:334:GLU:N    | 2.54                     | 0.40              |
| 1:D:69:ALA:O     | 1:D:73:LYS:N     | 2.53                     | 0.40              |
| 1:G:132:SER:O    | 1:G:135:ALA:N    | 2.54                     | 0.40              |
| 1:G:223:PHE:N    | 1:G:224:PRO:HD3  | 2.36                     | 0.40              |
| 1:G:306:ASN:O    | 1:G:312:ASP:N    | 2.51                     | 0.40              |
| 1:I:148:LEU:HB3  | 1:I:151:ASN:HB2  | 2.02                     | 0.40              |
| 2:M:108:U:H5''   | 1:H:228:LEU:HD22 | 2.02                     | 0.40              |
| 2:M:183:A:H2'    | 2:M:184:C:C5     | 2.55                     | 0.40              |
| 1:B:294:PRO:O    | 1:B:297:LYS:N    | 2.47                     | 0.40              |
| 1:P:27:MET:HE1   | 1:P:222:VAL:HB   | 2.02                     | 0.40              |
| 1:S:66:LYS:HA    | 1:S:69:ALA:HB3   | 2.02                     | 0.40              |
| 1:S:125:TYR:O    | 1:S:130:GLY:N    | 2.51                     | 0.40              |
| 1:S:200:LEU:C    | 1:S:200:LEU:HD23 | 2.46                     | 0.40              |
| 1:U:14:LEU:HD11  | 1:U:16:PHE:CZ    | 2.55                     | 0.40              |
| 1:Y:265:ASP:OD1  | 1:Y:265:ASP:N    | 2.51                     | 0.40              |
| 1:f:89:ASP:OD1   | 1:f:90:THR:N     | 2.54                     | 0.40              |
| 1:f:118:LEU:HD21 | 1:f:308:VAL:HG21 | 2.03                     | 0.40              |
| 1:o:114:TYR:O    | 1:o:118:LEU:N    | 2.53                     | 0.40              |
| 1:p:123:THR:O    | 1:p:127:GLN:N    | 2.44                     | 0.40              |
| 1:E:27:MET:HE1   | 1:E:224:PRO:HB3  | 2.02                     | 0.40              |
| 1:G:49:ARG:O     | 2:M:65:G:H2'     | 2.21                     | 0.40              |
| 1:J:16:PHE:CE2   | 1:J:326:LEU:HD22 | 2.53                     | 0.40              |
| 2:M:157:C:O2'    | 2:M:158:G:O4'    | 2.31                     | 0.40              |
| 1:Q:25:ALA:HB2   | 1:Q:95:PHE:HB3   | 2.02                     | 0.40              |
| 1:Q:41:ILE:HD11  | 1:Q:83:ALA:C     | 2.45                     | 0.40              |
| 1:W:200:LEU:HD22 | 1:W:200:LEU:N    | 2.36                     | 0.40              |
| 1:Y:252:HIS:HB3  | 1:Y:254:GLN:CD   | 2.46                     | 0.40              |
| 1:Z:179:LEU:C    | 1:Z:180:ARG:HE   | 2.29                     | 0.40              |
| 1:i:20:LEU:HA    | 1:i:97:LEU:HD11  | 2.02                     | 0.40              |
| 1:C:122:ILE:HG22 | 1:C:123:THR:N    | 2.36                     | 0.40              |
| 1:D:28:TYR:CE1   | 1:D:40:ALA:HB2   | 2.56                     | 0.40              |
| 1:E:94:VAL:HG11  | 1:F:86:PHE:HE1   | 1.86                     | 0.40              |
| 1:F:51:THR:HG23  | 1:F:53:SER:N     | 2.36                     | 0.40              |
| 1:J:209:THR:HG22 | 1:J:210:VAL:N    | 2.37                     | 0.40              |
| 2:M:138:U:H3'    | 1:Y:226:GLN:O    | 2.20                     | 0.40              |
| 1:B:68:ASP:HA    | 1:B:71:ILE:HD12  | 2.03                     | 0.40              |
| 1:B:115:GLN:O    | 1:B:118:LEU:N    | 2.52                     | 0.40              |
| 1:B:139:ALA:HA   | 1:B:142:ILE:HD12 | 2.03                     | 0.40              |
| 1:P:39:THR:HG22  | 1:P:40:ALA:N     | 2.36                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:P:262:THR:HA   | 1:P:277:ALA:HA   | 2.03                     | 0.40              |
| 1:T:141:ASN:ND2  | 1:T:262:THR:O    | 2.54                     | 0.40              |
| 1:U:25:ALA:HB2   | 1:U:95:PHE:HB3   | 2.04                     | 0.40              |
| 1:W:19:LYS:HD2   | 1:W:100:LEU:HB2  | 2.04                     | 0.40              |
| 1:Y:133:THR:O    | 1:Y:137:ARG:N    | 2.54                     | 0.40              |
| 1:Z:93:ILE:HG22  | 1:Z:94:VAL:N     | 2.35                     | 0.40              |
| 1:a:122:ILE:HA   | 1:a:125:TYR:HB3  | 2.04                     | 0.40              |
| 1:i:22:ASN:ND2   | 1:i:253:SER:O    | 2.54                     | 0.40              |
| 1:i:243:TYR:CB   | 1:i:252:HIS:HE2  | 2.35                     | 0.40              |
| 1:o:228:LEU:HD22 | 1:p:49:ARG:HB2   | 2.03                     | 0.40              |
| 1:A:192:LEU:HA   | 1:A:195:ALA:HB3  | 2.04                     | 0.40              |
| 1:C:324:ALA:O    | 1:C:327:ILE:N    | 2.53                     | 0.40              |
| 1:D:222:VAL:HG22 | 1:D:223:PHE:H    | 1.86                     | 0.40              |
| 1:E:222:VAL:HG12 | 1:E:223:PHE:N    | 2.36                     | 0.40              |
| 1:E:305:ASP:HB3  | 1:E:309:ILE:HD12 | 2.04                     | 0.40              |
| 1:J:326:LEU:O    | 1:J:329:GLY:N    | 2.52                     | 0.40              |
| 2:M:57:A:H2'     | 2:M:58:A:N9      | 2.36                     | 0.40              |
| 2:M:111:A:OP1    | 1:H:150:ARG:NH1  | 2.50                     | 0.40              |
| 2:M:157:C:H2'    | 2:M:158:G:C4     | 2.57                     | 0.40              |
| 1:B:334:GLU:HA   | 1:H:55:ARG:HD2   | 2.03                     | 0.40              |
| 1:N:97:LEU:HD22  | 1:N:260:LEU:CD1  | 2.51                     | 0.40              |
| 1:O:307:TRP:CG   | 1:O:314:PRO:HD3  | 2.57                     | 0.40              |
| 1:S:189:LEU:O    | 1:S:193:THR:HG22 | 2.21                     | 0.40              |
| 1:S:228:LEU:CD2  | 1:T:76:LEU:HD22  | 2.51                     | 0.40              |
| 1:V:30:GLY:O     | 1:V:88:ALA:HB1   | 2.20                     | 0.40              |
| 1:W:25:ALA:HB2   | 1:W:95:PHE:HB3   | 2.03                     | 0.40              |
| 1:a:147:PHE:HZ   | 1:a:212:ALA:HB3  | 1.86                     | 0.40              |
| 1:b:27:MET:HE1   | 1:b:91:LEU:HA    | 2.04                     | 0.40              |
| 1:f:300:PHE:CE2  | 1:f:325:THR:HG21 | 2.56                     | 0.40              |
| 1:f:318:GLN:HA   | 1:f:321:TYR:HB3  | 2.03                     | 0.40              |
| 1:i:144:ASN:OD1  | 1:i:145:GLY:N    | 2.54                     | 0.40              |
| 1:J:19:LYS:HA    | 1:J:100:LEU:HD12 | 2.03                     | 0.40              |
| 1:J:178:SER:OG   | 1:J:179:LEU:N    | 2.53                     | 0.40              |
| 1:K:319:GLN:O    | 1:K:322:VAL:HG22 | 2.22                     | 0.40              |
| 2:M:5:A:H1'      | 1:q:255:LYS:HZ2  | 1.86                     | 0.40              |
| 1:B:50:GLY:N     | 1:B:75:ASN:O     | 2.50                     | 0.40              |
| 1:N:27:MET:HE1   | 1:N:250:ALA:CA   | 2.52                     | 0.40              |
| 1:Q:98:ARG:CG    | 1:Q:207:LEU:HD12 | 2.52                     | 0.40              |
| 1:U:229:VAL:HG11 | 1:U:235:ARG:HG3  | 2.04                     | 0.40              |
| 1:Z:262:THR:HA   | 1:Z:277:ALA:HA   | 2.03                     | 0.40              |
| 1:a:131:PHE:CD1  | 1:a:327:ILE:HD11 | 2.57                     | 0.40              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:i:163:THR:N    | 1:i:209:THR:O   | 2.49                     | 0.40              |
| 1:i:230:LEU:HD21 | 1:o:76:LEU:CB   | 2.52                     | 0.40              |
| 1:q:121:ILE:HG22 | 1:q:307:TRP:CZ2 | 2.55                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 1   | A     | 321/337 (95%) | 279 (87%) | 42 (13%) | 0        | 100         | 100 |
| 1   | B     | 329/337 (98%) | 276 (84%) | 52 (16%) | 1 (0%)   | 37          | 72  |
| 1   | C     | 328/337 (97%) | 290 (88%) | 38 (12%) | 0        | 100         | 100 |
| 1   | D     | 329/337 (98%) | 290 (88%) | 39 (12%) | 0        | 100         | 100 |
| 1   | E     | 330/337 (98%) | 292 (88%) | 37 (11%) | 1 (0%)   | 37          | 72  |
| 1   | F     | 330/337 (98%) | 282 (86%) | 47 (14%) | 1 (0%)   | 37          | 72  |
| 1   | G     | 329/337 (98%) | 284 (86%) | 45 (14%) | 0        | 100         | 100 |
| 1   | H     | 324/337 (96%) | 264 (82%) | 60 (18%) | 0        | 100         | 100 |
| 1   | I     | 329/337 (98%) | 288 (88%) | 41 (12%) | 0        | 100         | 100 |
| 1   | J     | 329/337 (98%) | 284 (86%) | 45 (14%) | 0        | 100         | 100 |
| 1   | K     | 328/337 (97%) | 286 (87%) | 42 (13%) | 0        | 100         | 100 |
| 1   | L     | 315/337 (94%) | 266 (84%) | 49 (16%) | 0        | 100         | 100 |
| 1   | N     | 329/337 (98%) | 289 (88%) | 39 (12%) | 1 (0%)   | 37          | 72  |
| 1   | O     | 328/337 (97%) | 295 (90%) | 33 (10%) | 0        | 100         | 100 |
| 1   | P     | 315/337 (94%) | 276 (88%) | 39 (12%) | 0        | 100         | 100 |
| 1   | Q     | 319/337 (95%) | 286 (90%) | 33 (10%) | 0        | 100         | 100 |
| 1   | S     | 328/337 (97%) | 290 (88%) | 38 (12%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed         | Favoured   | Allowed    | Outliers | Percentiles |     |
|-----|-------|------------------|------------|------------|----------|-------------|-----|
| 1   | T     | 329/337 (98%)    | 289 (88%)  | 40 (12%)   | 0        | 100         | 100 |
| 1   | U     | 330/337 (98%)    | 285 (86%)  | 45 (14%)   | 0        | 100         | 100 |
| 1   | V     | 330/337 (98%)    | 283 (86%)  | 47 (14%)   | 0        | 100         | 100 |
| 1   | W     | 329/337 (98%)    | 283 (86%)  | 46 (14%)   | 0        | 100         | 100 |
| 1   | Y     | 329/337 (98%)    | 289 (88%)  | 40 (12%)   | 0        | 100         | 100 |
| 1   | Z     | 329/337 (98%)    | 285 (87%)  | 44 (13%)   | 0        | 100         | 100 |
| 1   | a     | 328/337 (97%)    | 294 (90%)  | 34 (10%)   | 0        | 100         | 100 |
| 1   | b     | 315/337 (94%)    | 269 (85%)  | 46 (15%)   | 0        | 100         | 100 |
| 1   | f     | 315/337 (94%)    | 281 (89%)  | 34 (11%)   | 0        | 100         | 100 |
| 1   | i     | 318/337 (94%)    | 276 (87%)  | 42 (13%)   | 0        | 100         | 100 |
| 1   | o     | 329/337 (98%)    | 295 (90%)  | 34 (10%)   | 0        | 100         | 100 |
| 1   | p     | 328/337 (97%)    | 298 (91%)  | 30 (9%)    | 0        | 100         | 100 |
| 1   | q     | 315/337 (94%)    | 286 (91%)  | 29 (9%)    | 0        | 100         | 100 |
| All | All   | 9764/10110 (97%) | 8530 (87%) | 1230 (13%) | 4 (0%)   | 100         | 100 |

All (4) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F     | 149 | TRP  |
| 1   | B     | 81  | VAL  |
| 1   | E     | 149 | TRP  |
| 1   | N     | 246 | ASN  |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed      | Rotameric  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 1   | A     | 257/266 (97%) | 257 (100%) | 0        | 100         | 100 |
| 1   | B     | 262/266 (98%) | 261 (100%) | 1 (0%)   | 89          | 90  |
| 1   | C     | 262/266 (98%) | 262 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed        | Rotameric   | Outliers | Percentiles |     |
|-----|-------|-----------------|-------------|----------|-------------|-----|
| 1   | D     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | E     | 264/266 (99%)   | 264 (100%)  | 0        | 100         | 100 |
| 1   | F     | 264/266 (99%)   | 263 (100%)  | 1 (0%)   | 89          | 90  |
| 1   | G     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | H     | 260/266 (98%)   | 260 (100%)  | 0        | 100         | 100 |
| 1   | I     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | J     | 263/266 (99%)   | 262 (100%)  | 1 (0%)   | 89          | 90  |
| 1   | K     | 262/266 (98%)   | 262 (100%)  | 0        | 100         | 100 |
| 1   | L     | 252/266 (95%)   | 252 (100%)  | 0        | 100         | 100 |
| 1   | N     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | O     | 261/266 (98%)   | 261 (100%)  | 0        | 100         | 100 |
| 1   | P     | 252/266 (95%)   | 252 (100%)  | 0        | 100         | 100 |
| 1   | Q     | 255/266 (96%)   | 255 (100%)  | 0        | 100         | 100 |
| 1   | S     | 262/266 (98%)   | 262 (100%)  | 0        | 100         | 100 |
| 1   | T     | 263/266 (99%)   | 262 (100%)  | 1 (0%)   | 89          | 90  |
| 1   | U     | 264/266 (99%)   | 263 (100%)  | 1 (0%)   | 89          | 90  |
| 1   | V     | 264/266 (99%)   | 263 (100%)  | 1 (0%)   | 89          | 90  |
| 1   | W     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | Y     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | Z     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | a     | 262/266 (98%)   | 262 (100%)  | 0        | 100         | 100 |
| 1   | b     | 252/266 (95%)   | 252 (100%)  | 0        | 100         | 100 |
| 1   | f     | 252/266 (95%)   | 252 (100%)  | 0        | 100         | 100 |
| 1   | i     | 254/266 (96%)   | 254 (100%)  | 0        | 100         | 100 |
| 1   | o     | 263/266 (99%)   | 263 (100%)  | 0        | 100         | 100 |
| 1   | p     | 262/266 (98%)   | 262 (100%)  | 0        | 100         | 100 |
| 1   | q     | 252/266 (95%)   | 252 (100%)  | 0        | 100         | 100 |
| All | All   | 7805/7980 (98%) | 7799 (100%) | 6 (0%)   | 92          | 94  |

All (6) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F     | 118 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | J     | 46  | LYS  |
| 1   | B     | 80  | ASP  |
| 1   | T     | 28  | TYR  |
| 1   | U     | 85  | PRO  |
| 1   | V     | 28  | TYR  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (91) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 37  | ASN  |
| 1   | A     | 44  | GLN  |
| 1   | A     | 77  | GLN  |
| 1   | C     | 44  | GLN  |
| 1   | C     | 218 | ASN  |
| 1   | C     | 246 | ASN  |
| 1   | D     | 77  | GLN  |
| 1   | D     | 293 | GLN  |
| 1   | D     | 318 | GLN  |
| 1   | E     | 75  | ASN  |
| 1   | E     | 194 | GLN  |
| 1   | E     | 218 | ASN  |
| 1   | E     | 258 | ASN  |
| 1   | F     | 44  | GLN  |
| 1   | F     | 110 | ASN  |
| 1   | F     | 115 | GLN  |
| 1   | F     | 173 | ASN  |
| 1   | G     | 31  | ASN  |
| 1   | G     | 37  | ASN  |
| 1   | G     | 112 | GLN  |
| 1   | G     | 181 | GLN  |
| 1   | G     | 215 | GLN  |
| 1   | G     | 218 | ASN  |
| 1   | G     | 220 | GLN  |
| 1   | I     | 141 | ASN  |
| 1   | I     | 258 | ASN  |
| 1   | J     | 44  | GLN  |
| 1   | J     | 102 | ASN  |
| 1   | J     | 252 | HIS  |
| 1   | J     | 258 | ASN  |
| 1   | K     | 35  | GLN  |
| 1   | K     | 151 | ASN  |
| 1   | L     | 105 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | L     | 215 | GLN  |
| 1   | L     | 252 | HIS  |
| 1   | L     | 254 | GLN  |
| 1   | B     | 173 | ASN  |
| 1   | H     | 37  | ASN  |
| 1   | H     | 77  | GLN  |
| 1   | H     | 115 | GLN  |
| 1   | H     | 215 | GLN  |
| 1   | H     | 246 | ASN  |
| 1   | H     | 319 | GLN  |
| 1   | N     | 44  | GLN  |
| 1   | N     | 115 | GLN  |
| 1   | N     | 129 | GLN  |
| 1   | N     | 194 | GLN  |
| 1   | N     | 258 | ASN  |
| 1   | O     | 72  | GLN  |
| 1   | O     | 77  | GLN  |
| 1   | O     | 226 | GLN  |
| 1   | P     | 31  | ASN  |
| 1   | Q     | 37  | ASN  |
| 1   | Q     | 218 | ASN  |
| 1   | S     | 215 | GLN  |
| 1   | S     | 220 | GLN  |
| 1   | S     | 252 | HIS  |
| 1   | S     | 254 | GLN  |
| 1   | U     | 75  | ASN  |
| 1   | U     | 112 | GLN  |
| 1   | U     | 218 | ASN  |
| 1   | U     | 244 | GLN  |
| 1   | U     | 319 | GLN  |
| 1   | V     | 34  | GLN  |
| 1   | V     | 320 | HIS  |
| 1   | W     | 37  | ASN  |
| 1   | W     | 141 | ASN  |
| 1   | W     | 218 | ASN  |
| 1   | W     | 252 | HIS  |
| 1   | W     | 320 | HIS  |
| 1   | Y     | 31  | ASN  |
| 1   | Y     | 72  | GLN  |
| 1   | Y     | 102 | ASN  |
| 1   | Z     | 102 | ASN  |
| 1   | Z     | 141 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | a     | 141 | ASN  |
| 1   | b     | 141 | ASN  |
| 1   | b     | 258 | ASN  |
| 1   | b     | 293 | GLN  |
| 1   | f     | 112 | GLN  |
| 1   | f     | 115 | GLN  |
| 1   | f     | 127 | GLN  |
| 1   | f     | 252 | HIS  |
| 1   | i     | 220 | GLN  |
| 1   | o     | 44  | GLN  |
| 1   | p     | 72  | GLN  |
| 1   | p     | 226 | GLN  |
| 1   | p     | 318 | GLN  |
| 1   | q     | 34  | GLN  |
| 1   | q     | 252 | HIS  |
| 1   | q     | 320 | HIS  |

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed      | Backbone Outliers | Pucker Outliers |
|-----|-------|---------------|-------------------|-----------------|
| 2   | M     | 184/185 (99%) | 147 (79%)         | 12 (6%)         |

All (147) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 4   | G    |
| 2   | M     | 5   | A    |
| 2   | M     | 6   | U    |
| 2   | M     | 7   | U    |
| 2   | M     | 8   | C    |
| 2   | M     | 10  | C    |
| 2   | M     | 11  | G    |
| 2   | M     | 12  | G    |
| 2   | M     | 13  | C    |
| 2   | M     | 15  | G    |
| 2   | M     | 17  | C    |
| 2   | M     | 18  | U    |
| 2   | M     | 19  | U    |
| 2   | M     | 20  | G    |
| 2   | M     | 21  | A    |
| 2   | M     | 23  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 24  | U    |
| 2   | M     | 25  | U    |
| 2   | M     | 26  | C    |
| 2   | M     | 27  | A    |
| 2   | M     | 28  | C    |
| 2   | M     | 29  | G    |
| 2   | M     | 30  | G    |
| 2   | M     | 32  | G    |
| 2   | M     | 33  | A    |
| 2   | M     | 35  | A    |
| 2   | M     | 36  | G    |
| 2   | M     | 38  | G    |
| 2   | M     | 39  | G    |
| 2   | M     | 40  | G    |
| 2   | M     | 41  | C    |
| 2   | M     | 42  | U    |
| 2   | M     | 43  | U    |
| 2   | M     | 44  | G    |
| 2   | M     | 45  | A    |
| 2   | M     | 46  | A    |
| 2   | M     | 47  | A    |
| 2   | M     | 48  | U    |
| 2   | M     | 49  | U    |
| 2   | M     | 50  | C    |
| 2   | M     | 51  | A    |
| 2   | M     | 52  | C    |
| 2   | M     | 53  | G    |
| 2   | M     | 54  | G    |
| 2   | M     | 56  | G    |
| 2   | M     | 59  | A    |
| 2   | M     | 60  | U    |
| 2   | M     | 61  | U    |
| 2   | M     | 62  | C    |
| 2   | M     | 63  | A    |
| 2   | M     | 64  | C    |
| 2   | M     | 65  | G    |
| 2   | M     | 66  | G    |
| 2   | M     | 68  | G    |
| 2   | M     | 71  | C    |
| 2   | M     | 72  | U    |
| 2   | M     | 73  | U    |
| 2   | M     | 74  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 75  | A    |
| 2   | M     | 76  | A    |
| 2   | M     | 77  | A    |
| 2   | M     | 78  | U    |
| 2   | M     | 79  | U    |
| 2   | M     | 80  | C    |
| 2   | M     | 81  | A    |
| 2   | M     | 82  | C    |
| 2   | M     | 83  | G    |
| 2   | M     | 84  | G    |
| 2   | M     | 89  | A    |
| 2   | M     | 90  | U    |
| 2   | M     | 91  | U    |
| 2   | M     | 92  | C    |
| 2   | M     | 93  | A    |
| 2   | M     | 94  | C    |
| 2   | M     | 95  | G    |
| 2   | M     | 96  | G    |
| 2   | M     | 97  | C    |
| 2   | M     | 98  | G    |
| 2   | M     | 99  | G    |
| 2   | M     | 100 | G    |
| 2   | M     | 101 | C    |
| 2   | M     | 102 | U    |
| 2   | M     | 103 | U    |
| 2   | M     | 104 | G    |
| 2   | M     | 105 | A    |
| 2   | M     | 106 | A    |
| 2   | M     | 107 | A    |
| 2   | M     | 108 | U    |
| 2   | M     | 109 | U    |
| 2   | M     | 110 | C    |
| 2   | M     | 111 | A    |
| 2   | M     | 112 | C    |
| 2   | M     | 113 | G    |
| 2   | M     | 114 | G    |
| 2   | M     | 116 | G    |
| 2   | M     | 119 | A    |
| 2   | M     | 120 | U    |
| 2   | M     | 121 | U    |
| 2   | M     | 122 | C    |
| 2   | M     | 123 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 125 | G    |
| 2   | M     | 126 | G    |
| 2   | M     | 127 | C    |
| 2   | M     | 128 | G    |
| 2   | M     | 130 | G    |
| 2   | M     | 131 | C    |
| 2   | M     | 132 | U    |
| 2   | M     | 133 | U    |
| 2   | M     | 134 | G    |
| 2   | M     | 135 | A    |
| 2   | M     | 136 | A    |
| 2   | M     | 137 | A    |
| 2   | M     | 138 | U    |
| 2   | M     | 139 | U    |
| 2   | M     | 140 | C    |
| 2   | M     | 143 | G    |
| 2   | M     | 144 | G    |
| 2   | M     | 145 | C    |
| 2   | M     | 146 | G    |
| 2   | M     | 147 | A    |
| 2   | M     | 149 | A    |
| 2   | M     | 150 | U    |
| 2   | M     | 151 | U    |
| 2   | M     | 152 | C    |
| 2   | M     | 155 | G    |
| 2   | M     | 156 | G    |
| 2   | M     | 158 | G    |
| 2   | M     | 162 | U    |
| 2   | M     | 163 | U    |
| 2   | M     | 164 | G    |
| 2   | M     | 165 | A    |
| 2   | M     | 166 | A    |
| 2   | M     | 167 | A    |
| 2   | M     | 168 | U    |
| 2   | M     | 169 | U    |
| 2   | M     | 170 | C    |
| 2   | M     | 171 | A    |
| 2   | M     | 173 | G    |
| 2   | M     | 174 | G    |
| 2   | M     | 177 | G    |
| 2   | M     | 178 | G    |
| 2   | M     | 179 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 180 | U    |
| 2   | M     | 181 | U    |
| 2   | M     | 182 | C    |
| 2   | M     | 183 | A    |
| 2   | M     | 185 | G    |

All (12) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 9   | A    |
| 2   | M     | 40  | G    |
| 2   | M     | 41  | C    |
| 2   | M     | 62  | C    |
| 2   | M     | 76  | A    |
| 2   | M     | 93  | A    |
| 2   | M     | 104 | G    |
| 2   | M     | 134 | G    |
| 2   | M     | 135 | A    |
| 2   | M     | 136 | A    |
| 2   | M     | 138 | U    |
| 2   | M     | 177 | G    |

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides 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 ⓘ

There are no chain breaks in this entry.

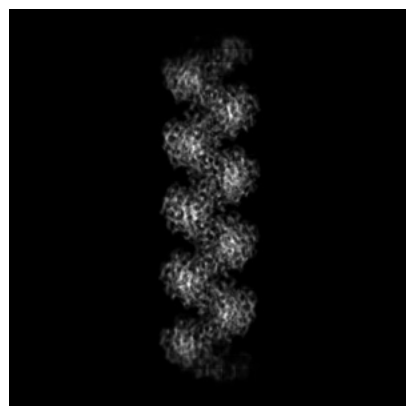
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-66729. These allow visual inspection of the internal detail of the map and identification of artifacts.

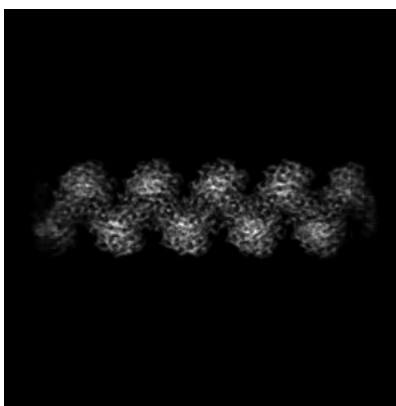
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

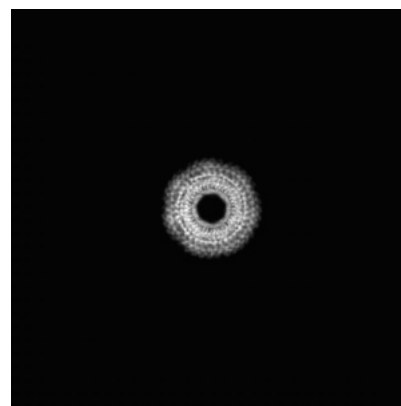
#### 6.1.1 Primary map



X

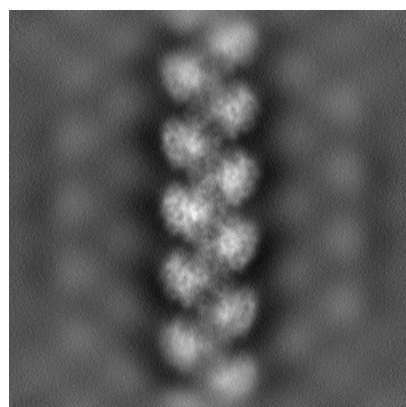


Y

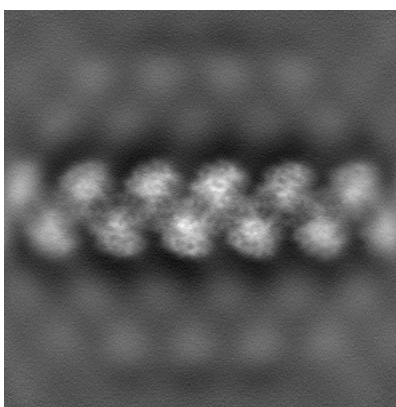


Z

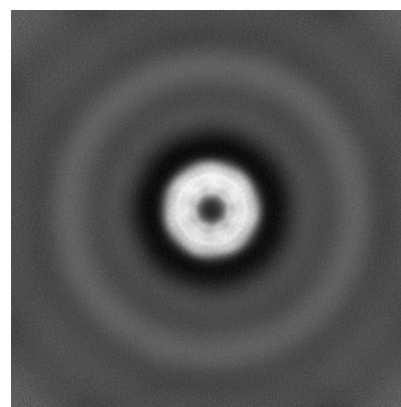
#### 6.1.2 Raw map



X



Y



Z

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

## 6.2 Central slices [i](#)

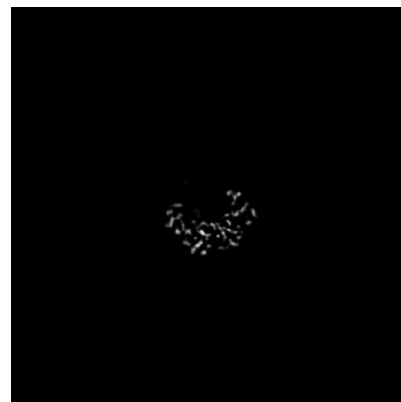
### 6.2.1 Primary map



X Index: 240

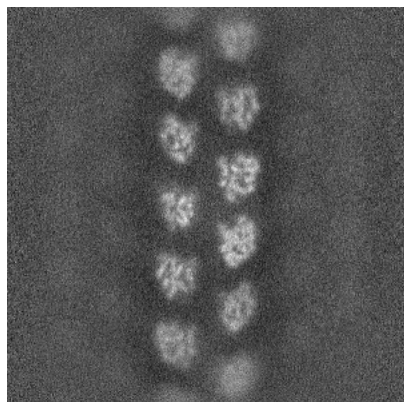


Y Index: 240

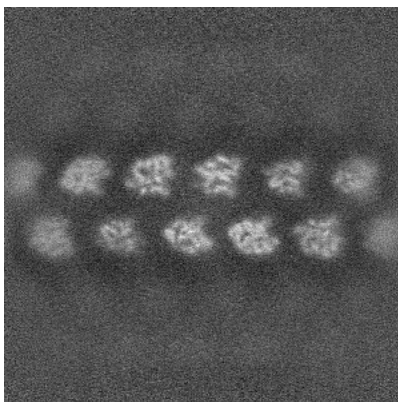


Z Index: 240

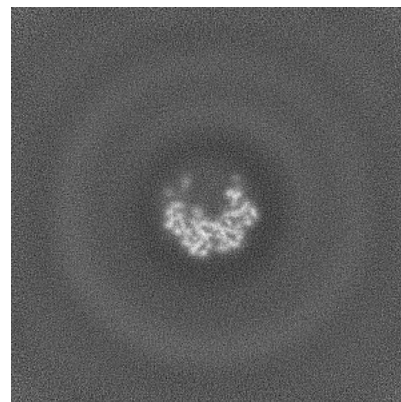
### 6.2.2 Raw map



X Index: 240



Y Index: 240

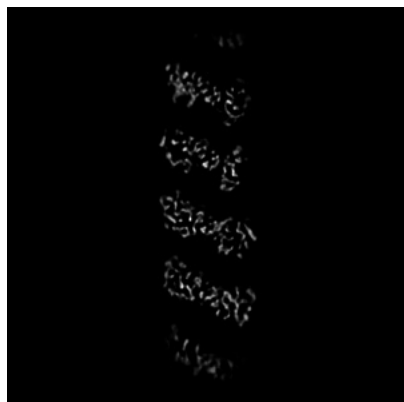


Z Index: 240

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: 221

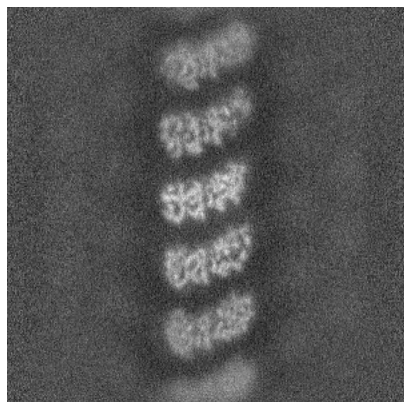


Y Index: 265

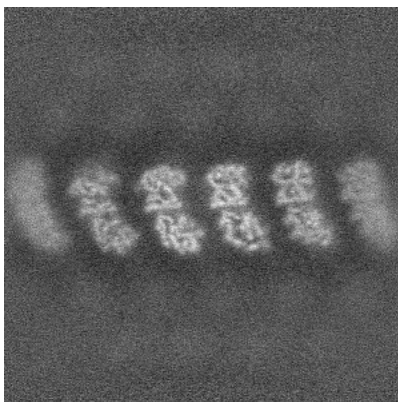


Z Index: 306

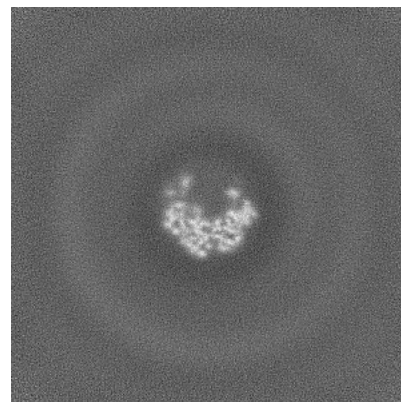
### 6.3.2 Raw map



X Index: 265



Y Index: 266

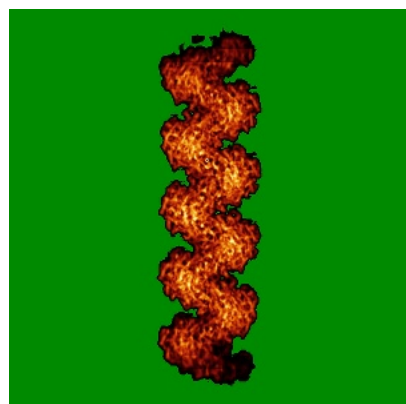


Z Index: 237

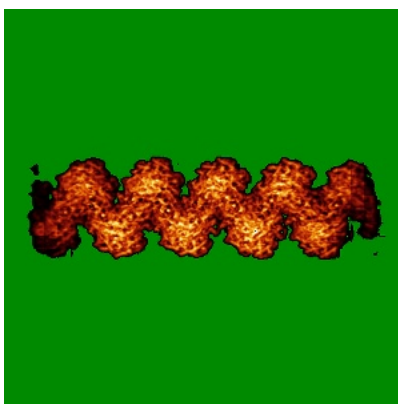
The images above show the largest variance slices of the map in three orthogonal directions.

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

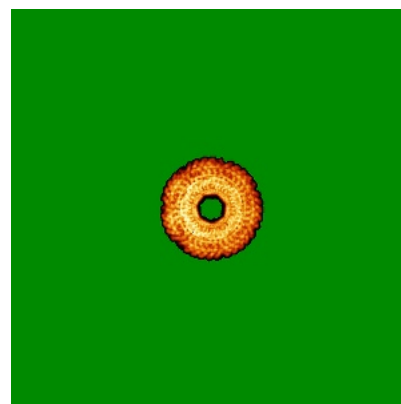
### 6.4.1 Primary map



X

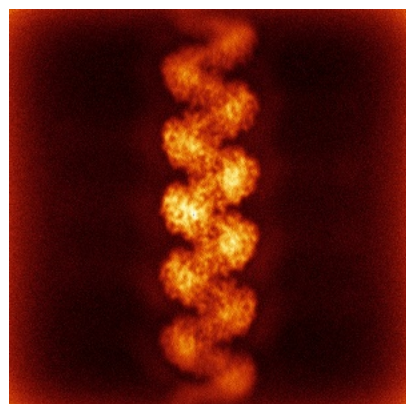


Y

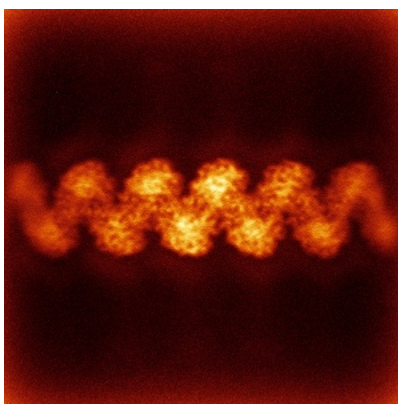


Z

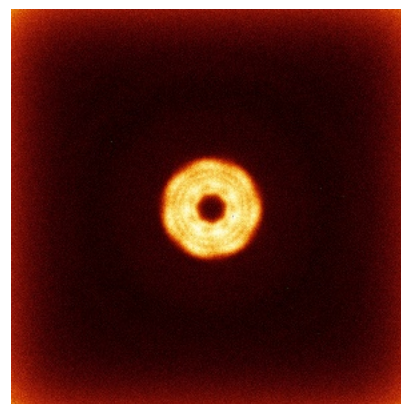
### 6.4.2 Raw map



X



Y

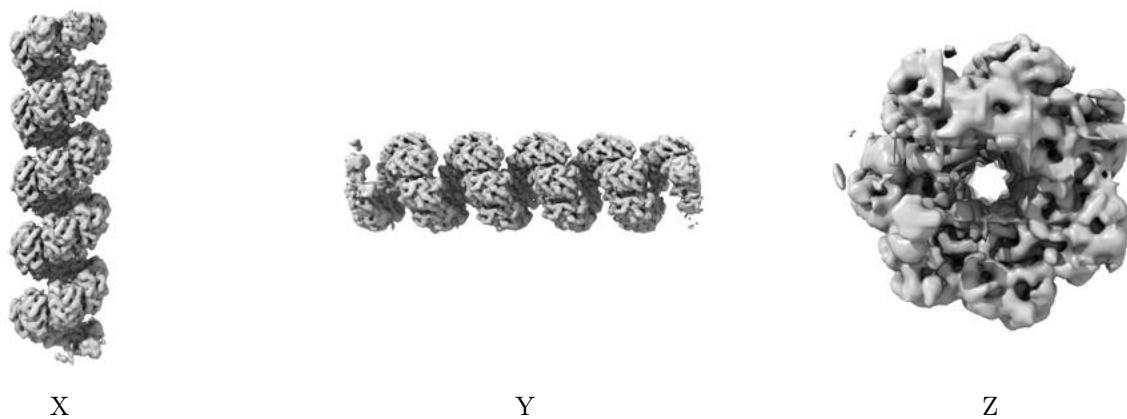


Z

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

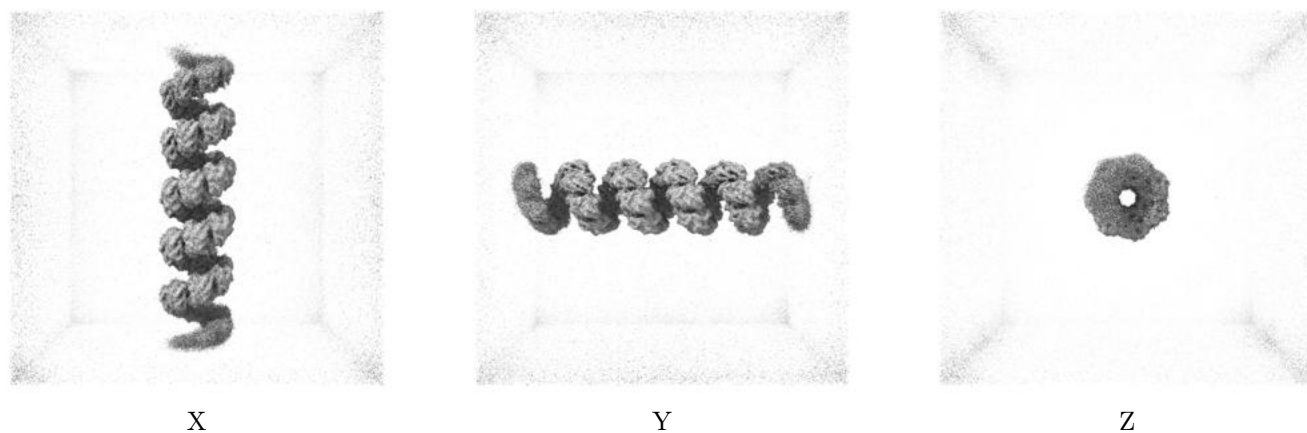
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.005. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



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

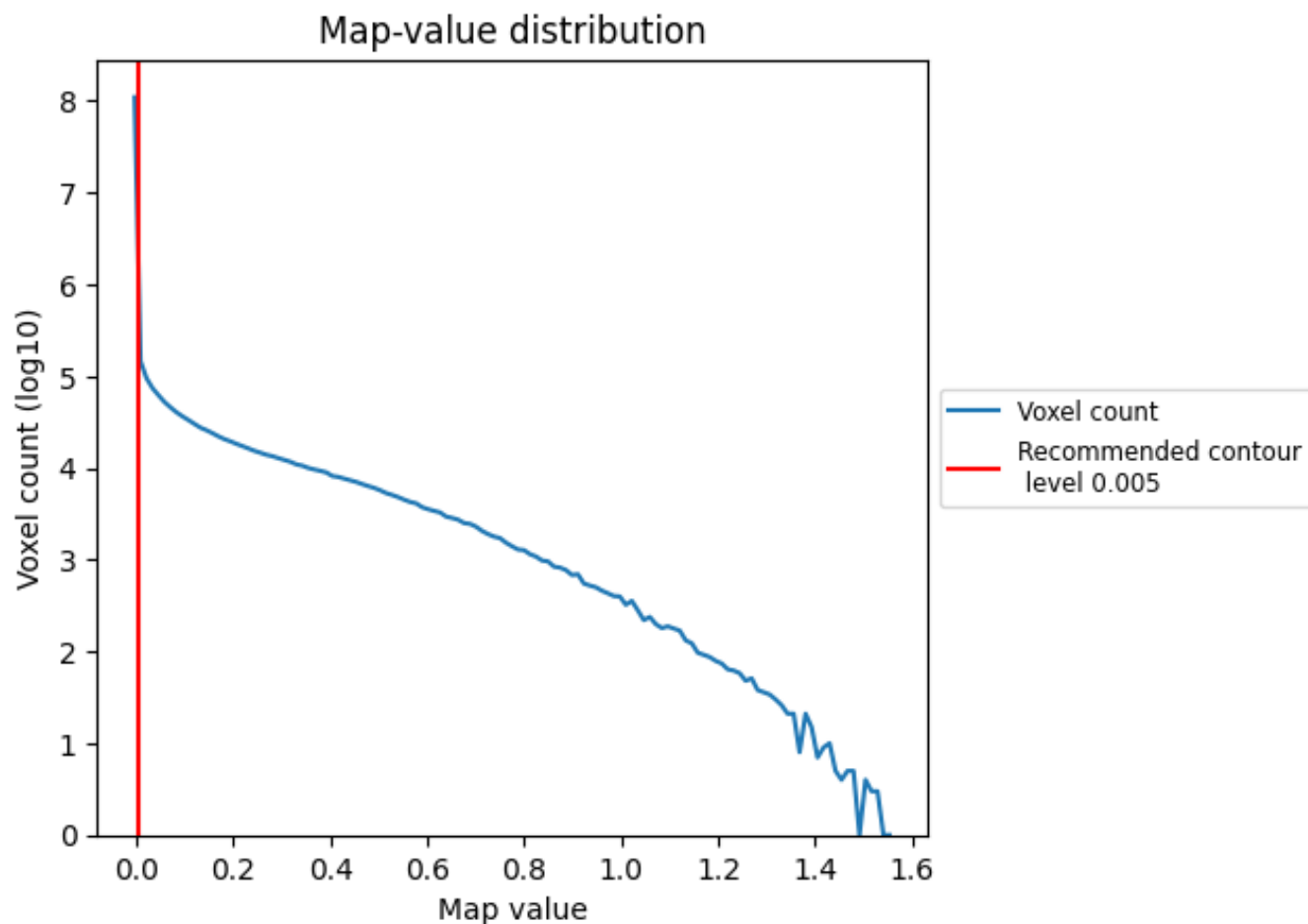
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

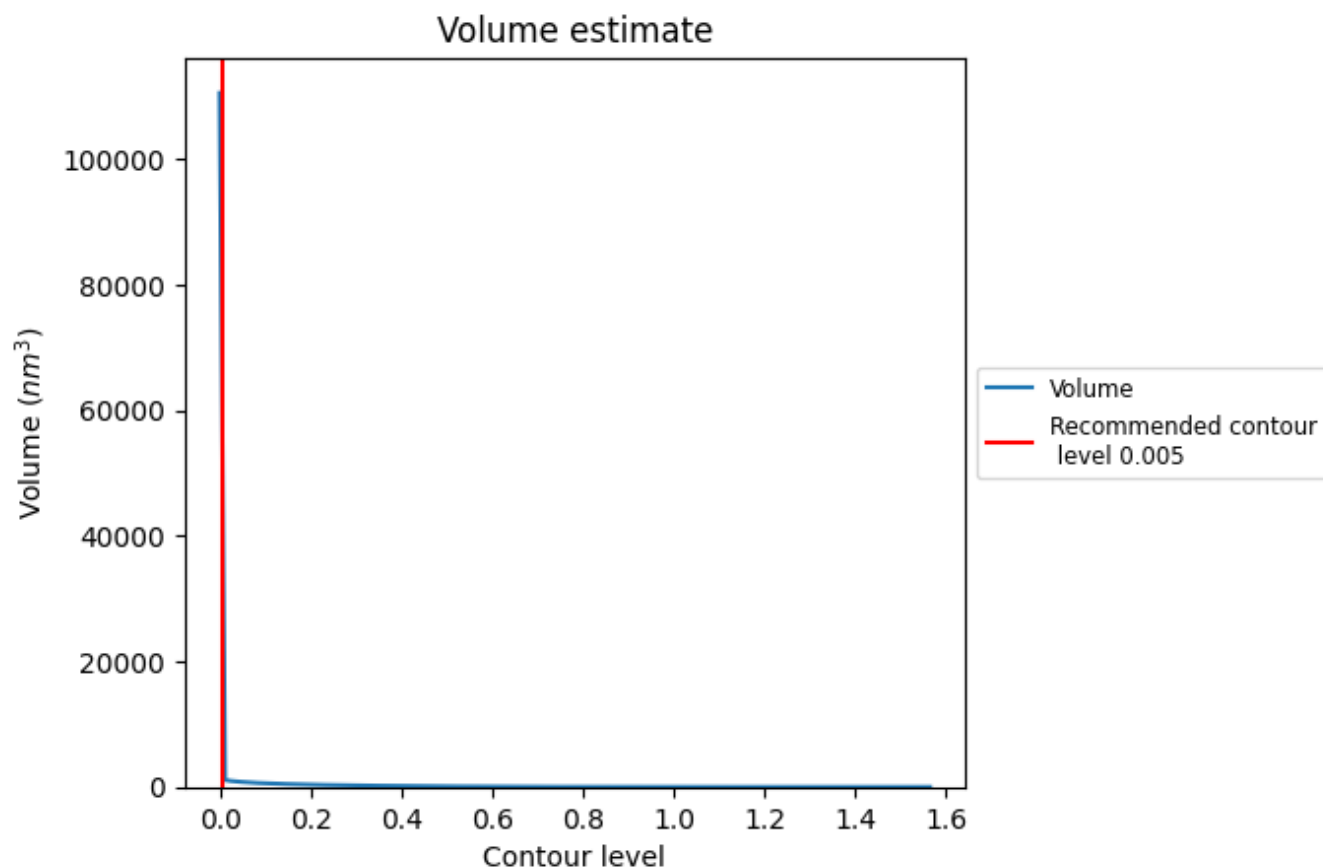
This section contains the results of statistical analysis of the map.

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



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

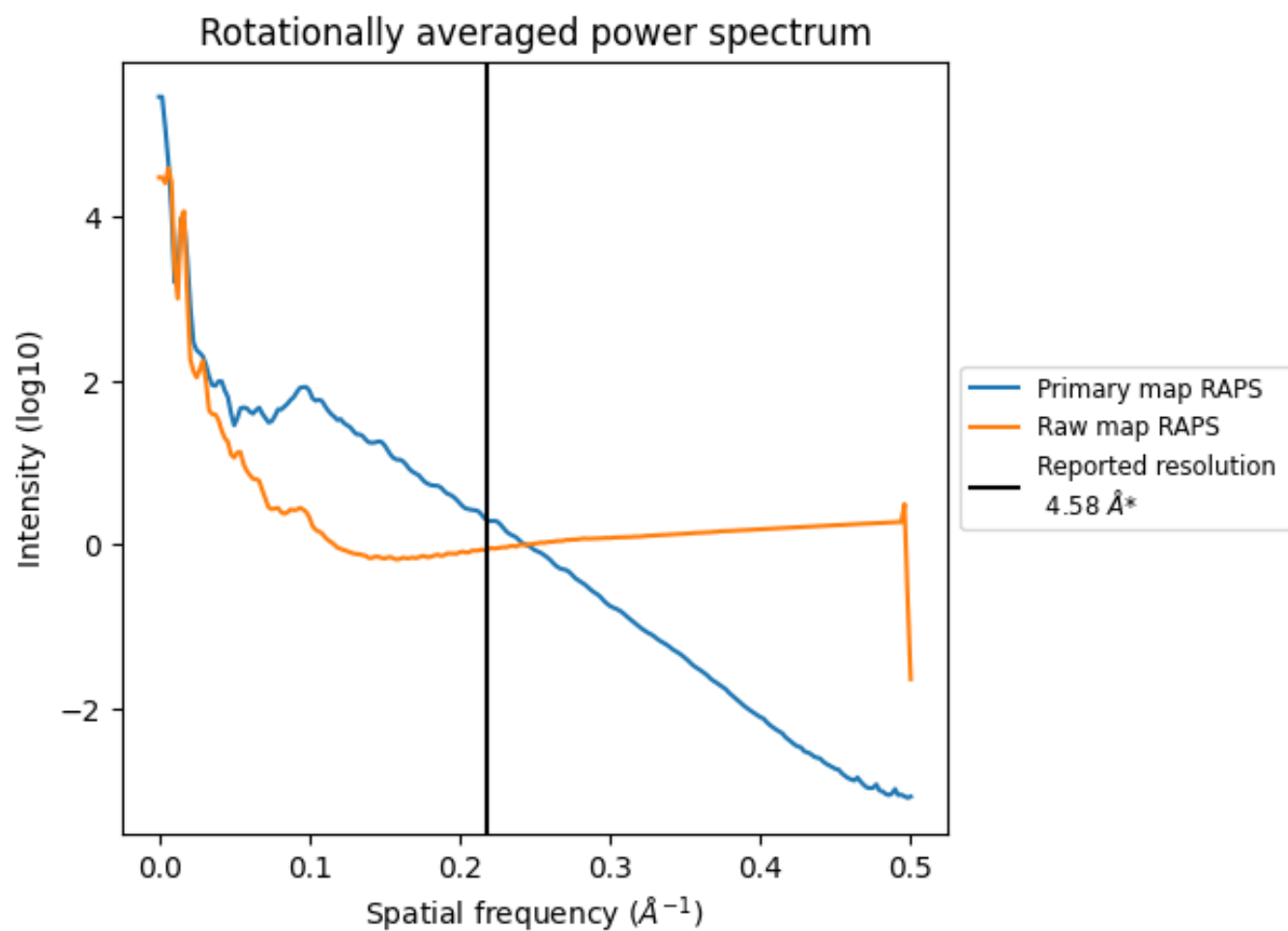
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $35156 \text{ nm}^3$ ; this corresponds to an approximate mass of 31758 kDa.

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

### 7.3 Rotationally averaged power spectrum ⓘ

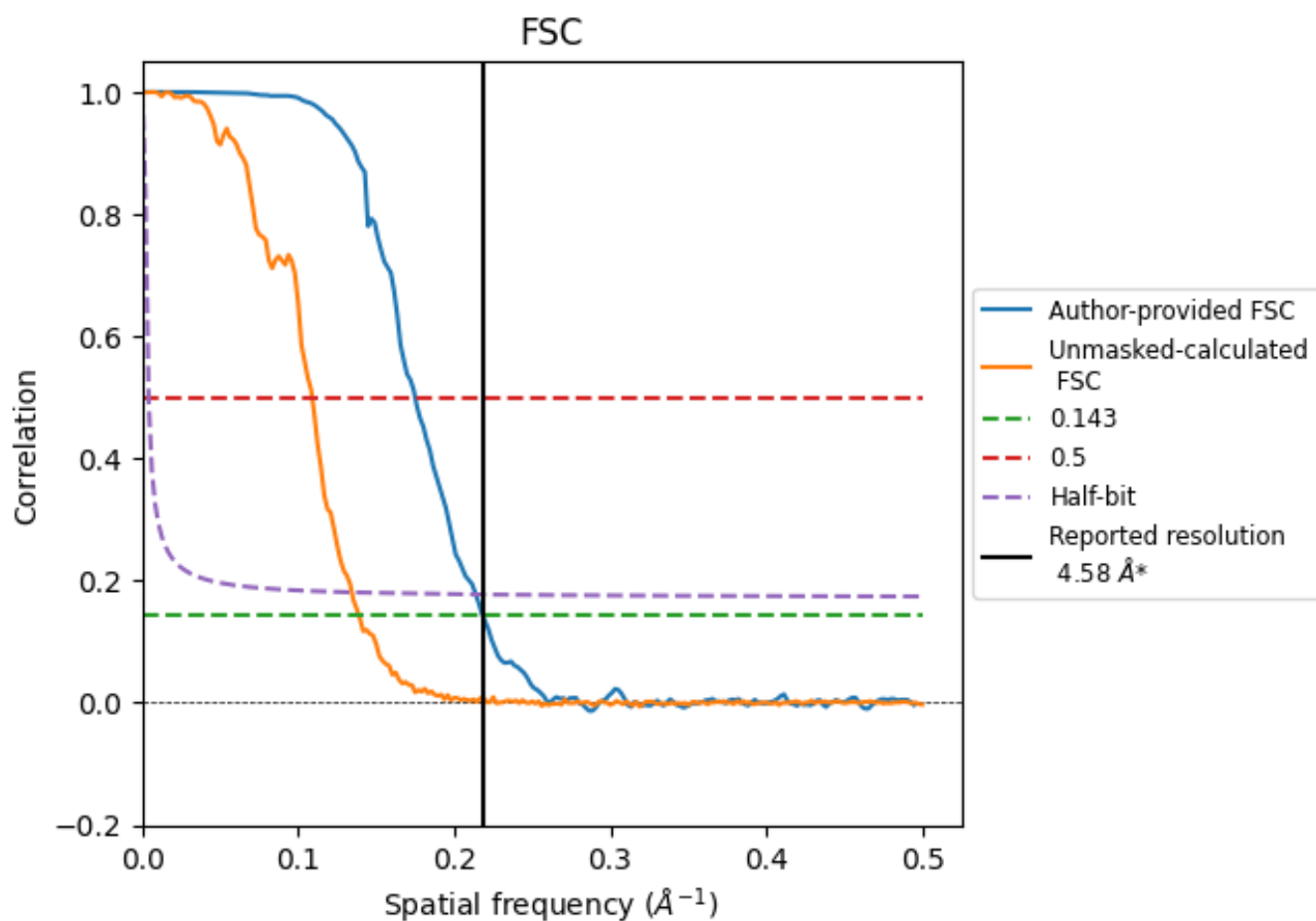


\*Reported resolution corresponds to spatial frequency of  $0.218 \text{ \AA}^{-1}$

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.218 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

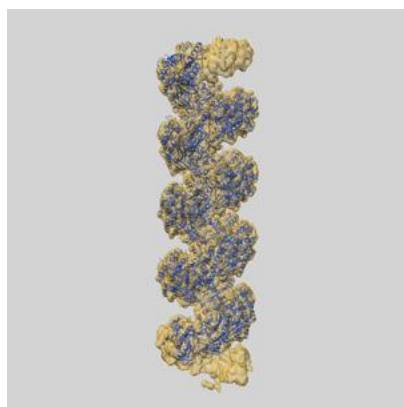
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 4.58                               | -    | -        |
| Author-provided FSC curve | 4.58                               | 5.72 | 4.68     |
| Unmasked-calculated*      | 7.20                               | 9.17 | 7.44     |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.20 differs from the reported value 4.58 by more than 10 %

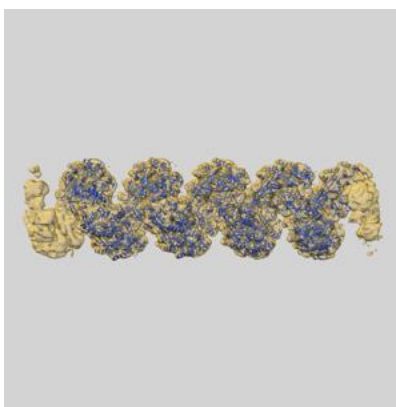
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-66729 and PDB model 9XCF. Per-residue inclusion information can be found in section 3 on page 7.

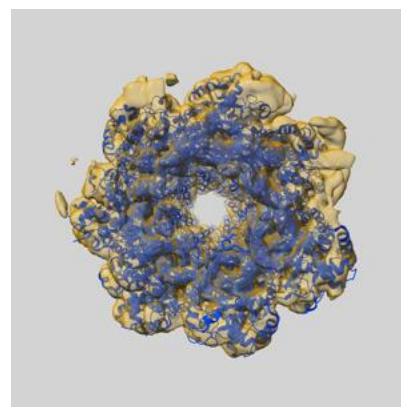
### 9.1 Map-model overlay [i](#)



X



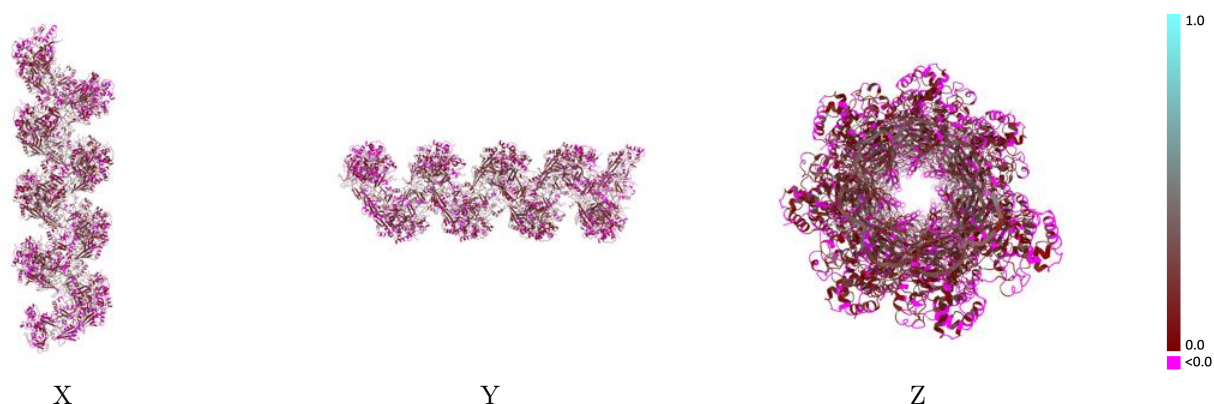
Y



Z

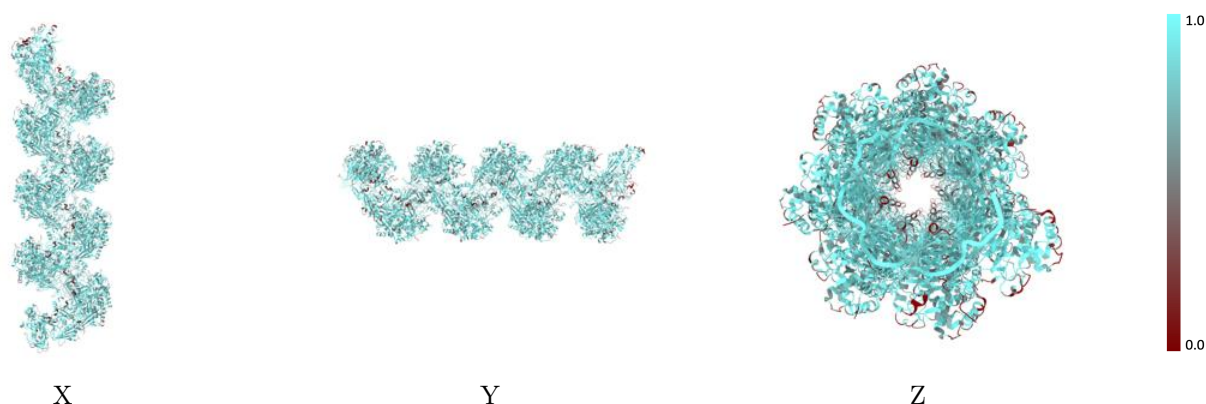
The images above show the 3D surface view of the map at the recommended contour level 0.005 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



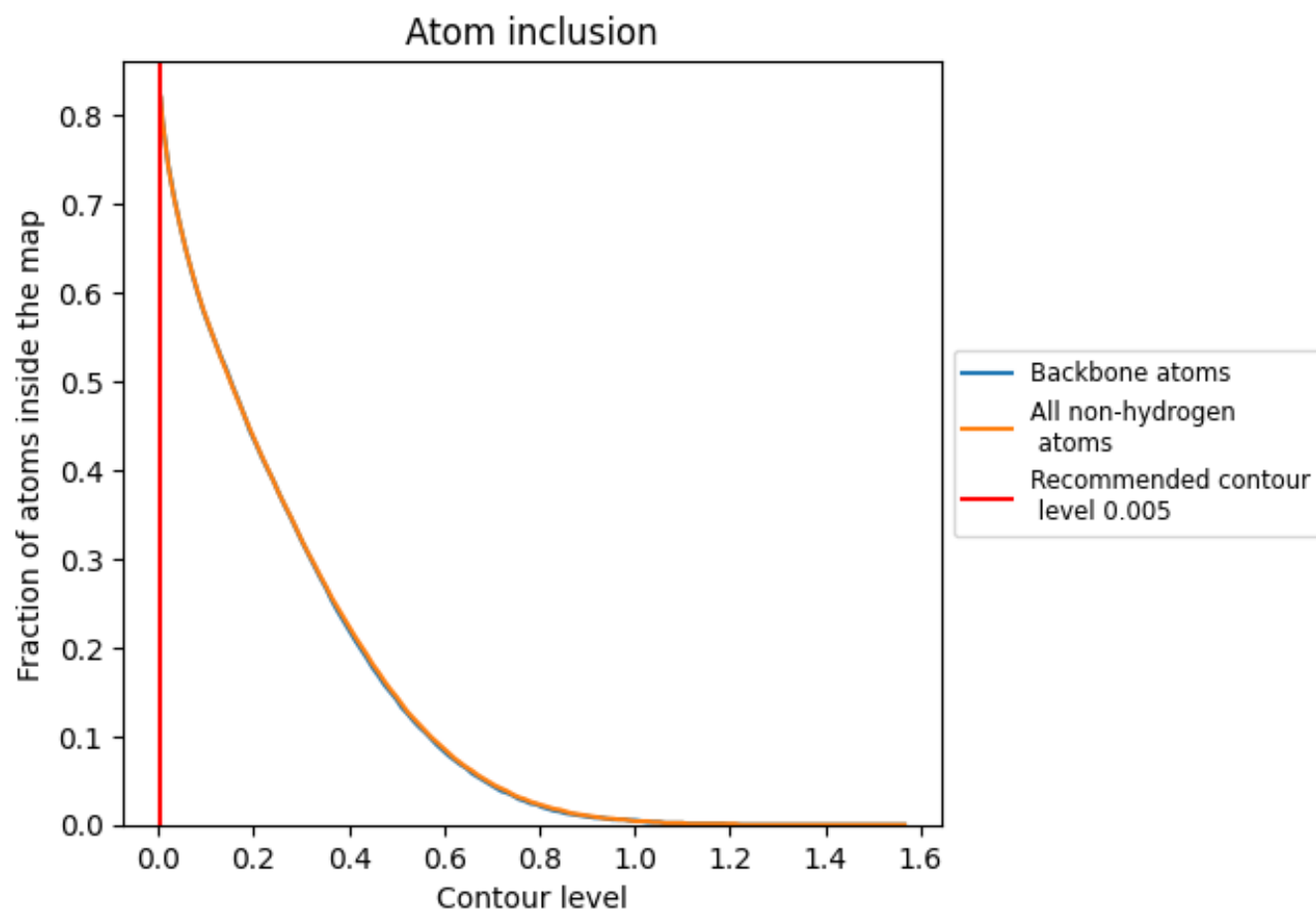
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.005).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 82% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.005) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8200   |  0.1500   |
| A     |  0.8260   |  0.1630   |
| B     |  0.8280   |  0.1540   |
| C     |  0.8270   |  0.1630   |
| D     |  0.8290   |  0.1690   |
| E     |  0.8460   |  0.1700   |
| F     |  0.8420   |  0.1760   |
| G     |  0.8520   |  0.1790   |
| H     |  0.8410   |  0.1460   |
| I     |  0.8190   |  0.1450   |
| J     |  0.8060   |  0.1210   |
| K     |  0.7970   |  0.1210   |
| L     |  0.8130   |  0.1200   |
| M     |  0.9890   |  0.3420   |
| N     |  0.8380  |  0.1690  |
| O     |  0.8280 |  0.1700 |
| P     |  0.8410 |  0.1720 |
| Q     |  0.8290 |  0.1480 |
| S     |  0.7830 |  0.0880 |
| T     |  0.7940 |  0.1060 |
| U     |  0.8070 |  0.1100 |
| V     |  0.8170 |  0.1330 |
| W     |  0.8390 |  0.1470 |
| Y     |  0.8210 |  0.1340 |
| Z     |  0.8210 |  0.1420 |
| a     |  0.8340 |  0.1580 |
| b     |  0.8230 |  0.1380 |
| f     |  0.8200 |  0.0810 |
| i     |  0.8260 |  0.1320 |
| o     |  0.8150 |  0.1360 |
| p     |  0.7890 |  0.1130 |
| q     |  0.7880 |  0.0940 |

