



## Full wwPDB EM Validation Report ⓘ

Jun 29, 2026 – 02:25 PM EDT

PDB ID : 9OKB / pdb\_00009okb  
EMDB ID : EMD-70558  
Title : Structure of the dimeric Bombyx mori CCAN bound to DNA  
Authors : Yatskevich, S.; Ciferri, C.  
Deposited on : 2025-05-09  
Resolution : 4.50 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:

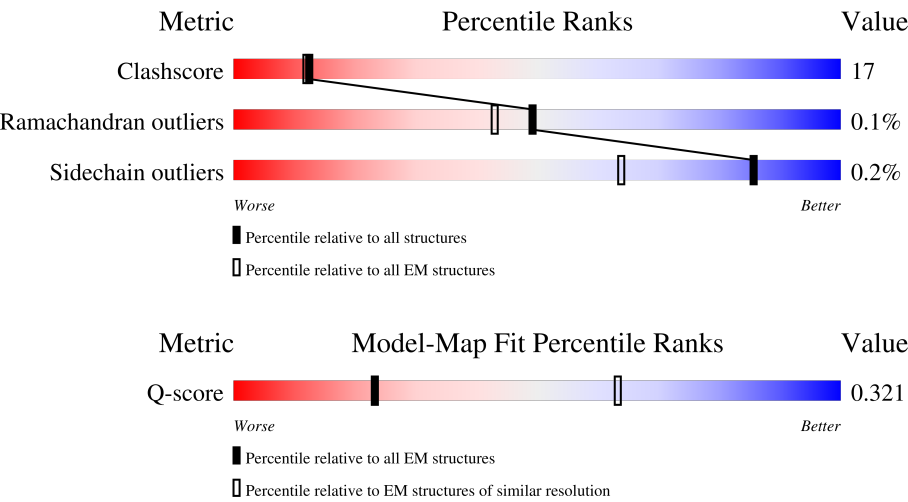
EMDB validation analysis : 0.0.1.dev133  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.50

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 4.50 Å.

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



| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 229148                      | 23984                       | -                                                        |
| Ramachandran outliers | 224038                      | 23583                       | -                                                        |
| Sidechain outliers    | 223484                      | 23102                       | -                                                        |
| Q-score               | -                           | 25397                       | 2937 ( 4.00 - 5.00 )                                     |

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     | 95     |                  |
| 1   | a     | 95     |                  |
| 2   | B     | 82     |                  |
| 2   | b     | 82     |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 3   | C     | 72     |                  |
| 3   | c     | 72     |                  |
| 4   | D     | 81     |                  |
| 4   | d     | 81     |                  |
| 5   | H     | 239    |                  |
| 5   | h     | 239    |                  |
| 6   | I     | 661    |                  |
| 6   | i     | 661    |                  |
| 7   | J     | 180    |                  |
| 7   | M     | 180    |                  |
| 8   | K     | 219    |                  |
| 8   | k     | 219    |                  |
| 9   | L     | 302    |                  |
| 9   | l     | 302    |                  |
| 10  | N     | 328    |                  |
| 10  | n     | 328    |                  |
| 11  | O     | 325    |                  |
| 11  | o     | 325    |                  |
| 12  | P     | 638    |                  |
| 12  | p     | 638    |                  |
| 13  | T     | 1016   |                  |
| 13  | t     | 1016   |                  |
| 14  | X     | 58     |                  |
| 15  | Y     | 58     |                  |

## 2 Entry composition [i](#)

There are 16 unique types of molecules in this entry. The entry contains 84496 atoms, of which 38978 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 CS-1.

| Mol | Chain | Residues | Atoms |     |     |    |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|-----|---|---------|-------|
| 1   | A     | 70       | Total | C   | H   | N  | O   | S | 0       | 0     |
|     |       |          | 1073  | 341 | 527 | 94 | 108 | 3 |         |       |
| 1   | a     | 70       | Total | C   | H   | N  | O   | S | 0       | 0     |
|     |       |          | 1073  | 341 | 527 | 94 | 108 | 3 |         |       |

- Molecule 2 is a protein called CS-2.

| Mol | Chain | Residues | Atoms |     |     |    |    |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|--|---------|-------|
| 2   | B     | 55       | Total | C   | H   | N  | O  |  | 0       | 0     |
|     |       |          | 858   | 280 | 419 | 75 | 84 |  |         |       |
| 2   | b     | 55       | Total | C   | H   | N  | O  |  | 0       | 0     |
|     |       |          | 858   | 280 | 419 | 75 | 84 |  |         |       |

- Molecule 3 is a protein called CS-3.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 3   | C     | 62       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1044  | 323 | 517 | 101 | 100 | 3 |         |       |
| 3   | c     | 62       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1044  | 323 | 517 | 101 | 100 | 3 |         |       |

- Molecule 4 is a protein called CS-4.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 4   | D     | 71       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1135  | 346 | 570 | 108 | 110 | 1 |         |       |
| 4   | d     | 71       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1135  | 346 | 570 | 108 | 110 | 1 |         |       |

- Molecule 5 is a protein called bmCENP-H.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 5   | H     | 228      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3517  | 1170 | 1666 | 326 | 345 | 10 |         |       |
| 5   | h     | 228      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3517  | 1170 | 1666 | 326 | 345 | 10 |         |       |

- Molecule 6 is a protein called Centromere protein I.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 6   | I     | 576      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 9421  | 3033 | 4745 | 782 | 842 | 19 |         |       |
| 6   | i     | 576      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 9421  | 3033 | 4745 | 782 | 842 | 19 |         |       |

- Molecule 7 is a protein called Centromere protein M.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 7   | J     | 163      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2635  | 818 | 1349 | 225 | 240 | 3 |         |       |
| 7   | M     | 163      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2635  | 818 | 1349 | 225 | 240 | 3 |         |       |

- Molecule 8 is a protein called bmCENP-K.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 8   | K     | 209      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3301  | 1030 | 1650 | 273 | 338 | 10 |         |       |
| 8   | k     | 209      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3301  | 1030 | 1650 | 273 | 338 | 10 |         |       |

- Molecule 9 is a protein called Centromere protein L.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 9   | L     | 239      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3880  | 1237 | 1974 | 309 | 353 | 7 |         |       |
| 9   | l     | 239      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3880  | 1237 | 1974 | 309 | 353 | 7 |         |       |

- Molecule 10 is a protein called bmCENP-N.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 10  | N     | 322      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 5125  | 1615 | 2580 | 442 | 476 | 12 |         |       |

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| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 10  | n     | 322      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 5125  | 1615 | 2580 | 442 | 476 | 12 |         |       |

- Molecule 11 is a protein called Centromere protein O.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 11  | O     | 254      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3716  | 1300 | 1666 | 356 | 381 | 13 |         |       |
| 11  | o     | 254      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 3716  | 1300 | 1666 | 356 | 381 | 13 |         |       |

- Molecule 12 is a protein called bmCENP-P.

| Mol | Chain | Residues | Atoms |      |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|----|---------|-------|
| 12  | P     | 281      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 4051  | 1407 | 1826 | 371 | 435 | 12 |         |       |
| 12  | p     | 281      | Total | C    | H    | N   | O   | S  | 0       | 0     |
|     |       |          | 4051  | 1407 | 1826 | 371 | 435 | 12 |         |       |

- Molecule 13 is a protein called bmCENP-T.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | T     | 154      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1304  | 839 | 232 | 228 | 5 |         |       |
| 13  | t     | 154      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1304  | 839 | 232 | 228 | 5 |         |       |

- Molecule 14 is a DNA chain called DNA (58-MER).

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 14  | X     | 58       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1191  | 568 | 218 | 348 | 57 |         |       |

- Molecule 15 is a DNA chain called DNA (58-MER).

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 15  | Y     | 58       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1184  | 564 | 216 | 346 | 58 |         |       |

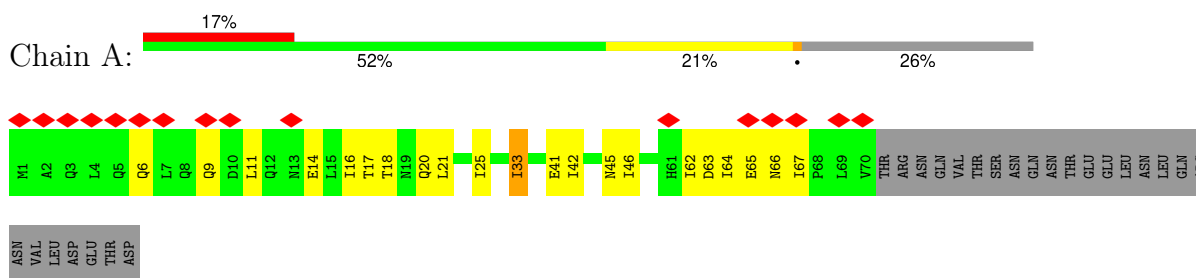
- Molecule 16 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 16  | T     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

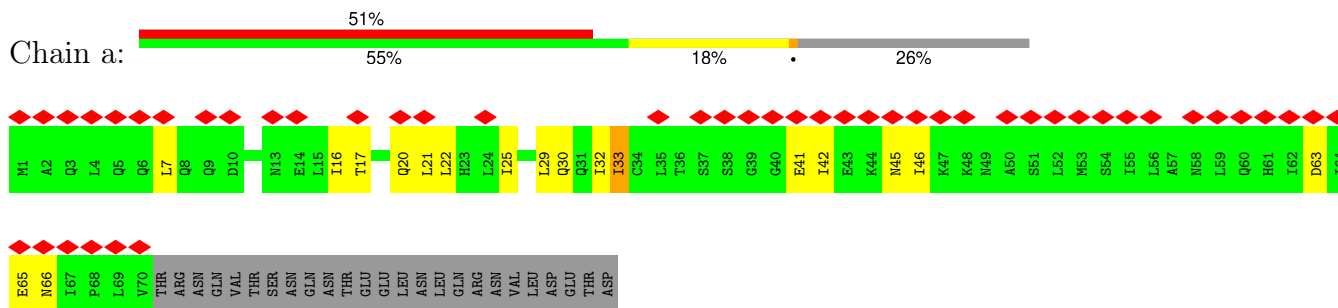
### 3 Residue-property plots [i](#)

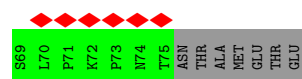
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: CS-1

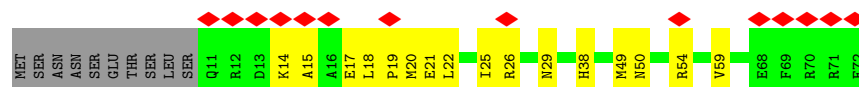


- Molecule 1: CS-1

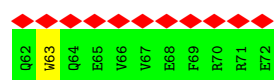
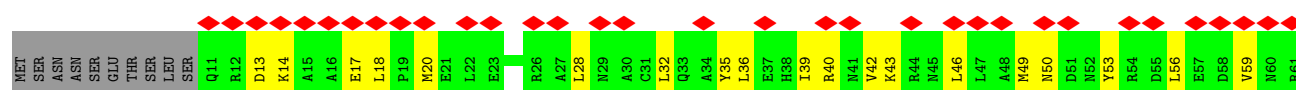




• Molecule 3: CS-3



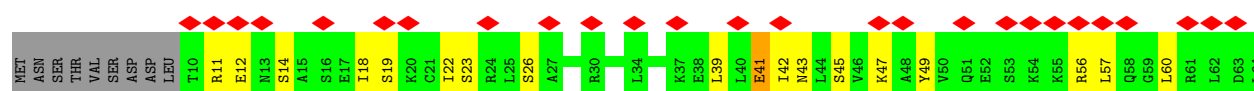
• Molecule 3: CS-3



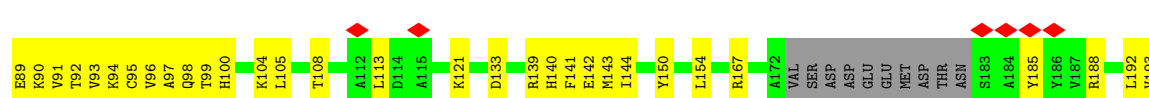
• Molecule 4: CS-4

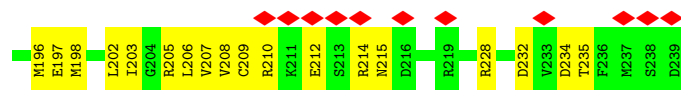


• Molecule 4: CS-4

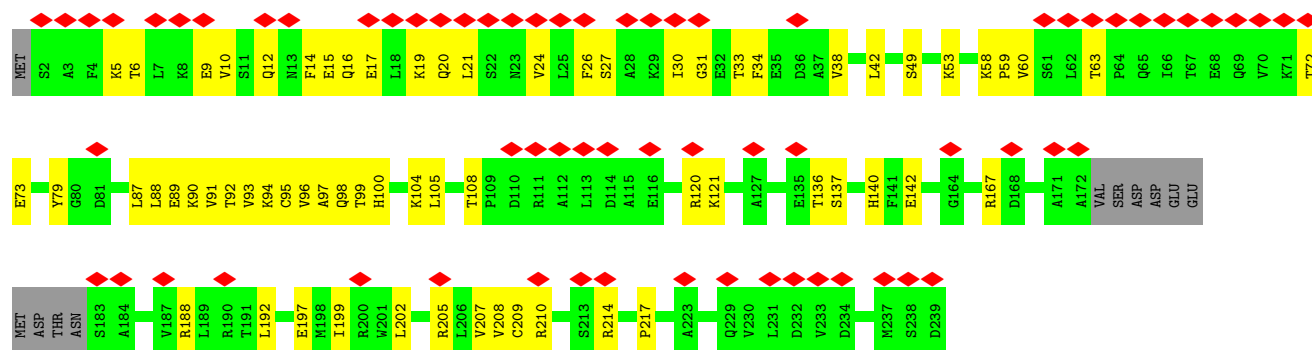


• Molecule 5: bmCENP-H

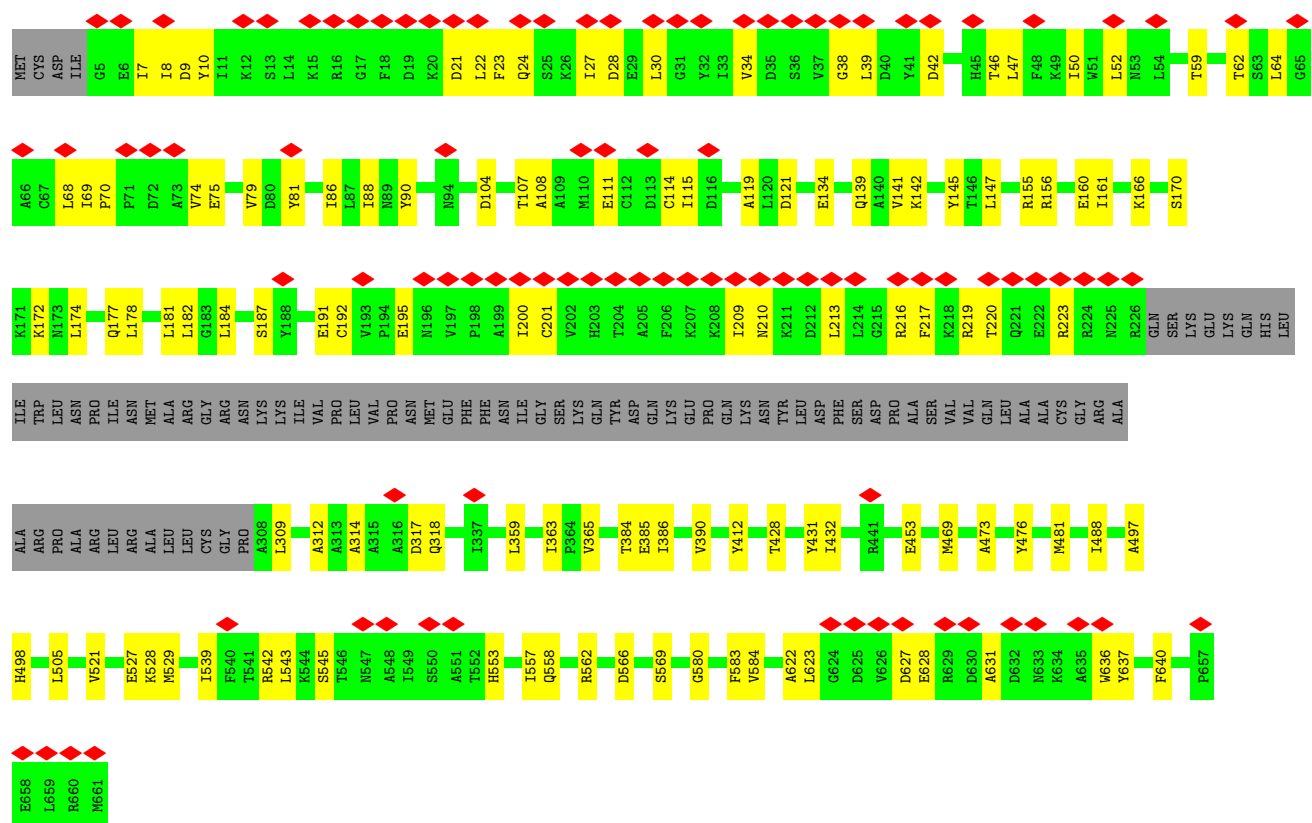




• Molecule 5: bmCENP-H

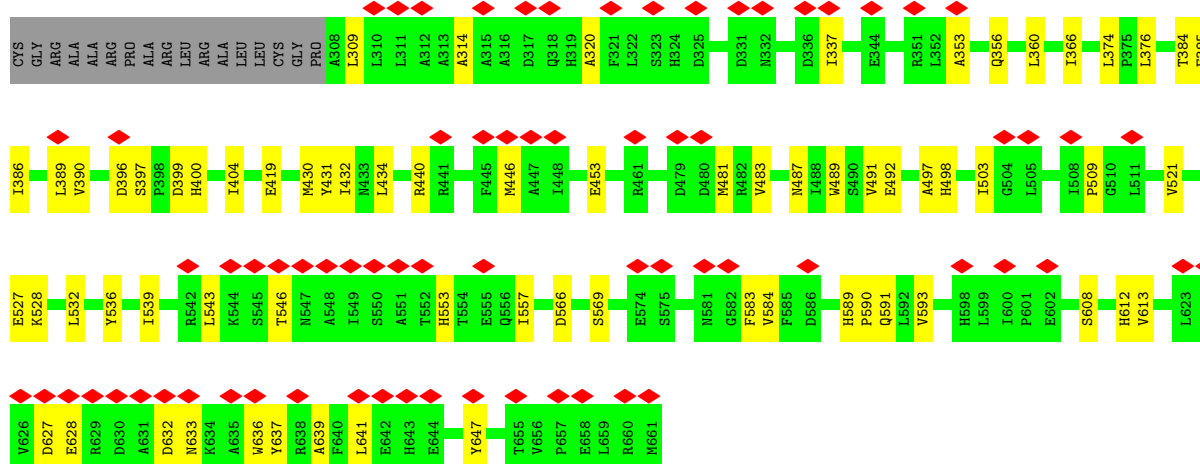
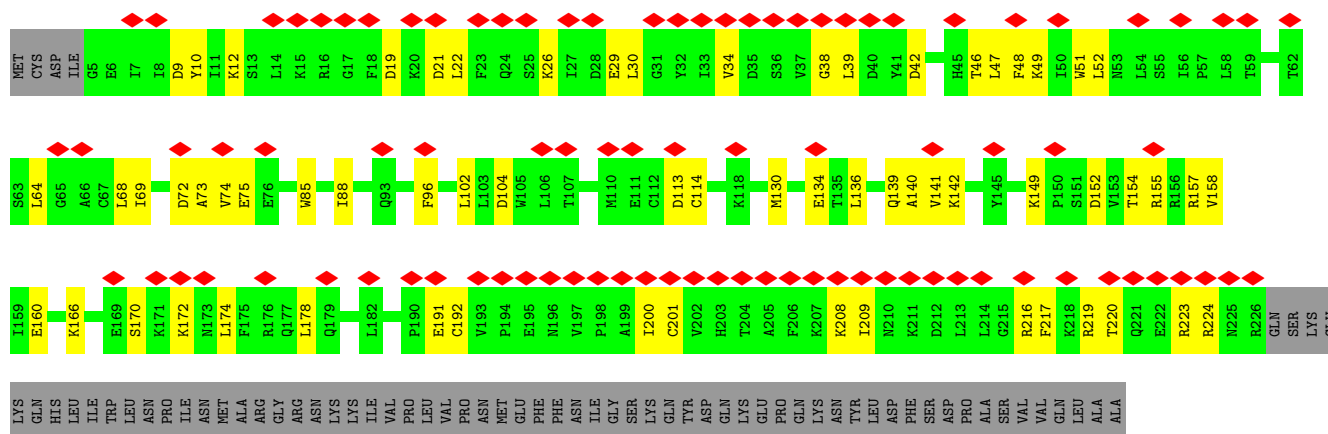


• Molecule 6: Centromere protein I

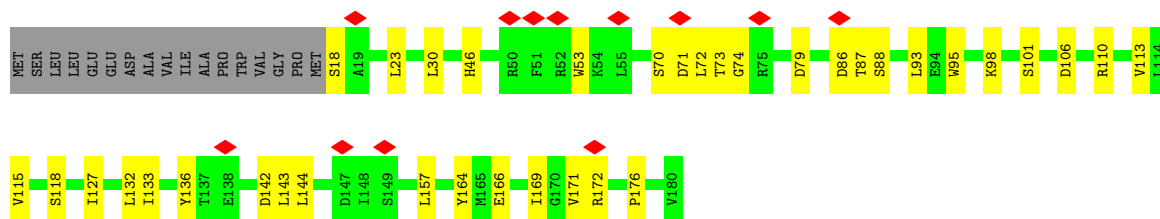


• Molecule 6: Centromere protein I

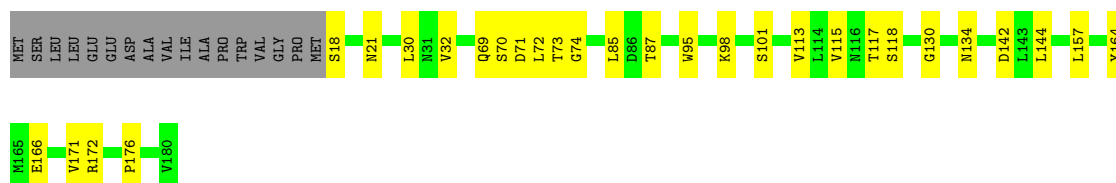
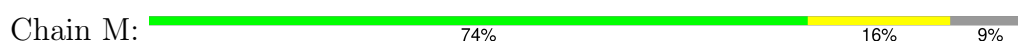




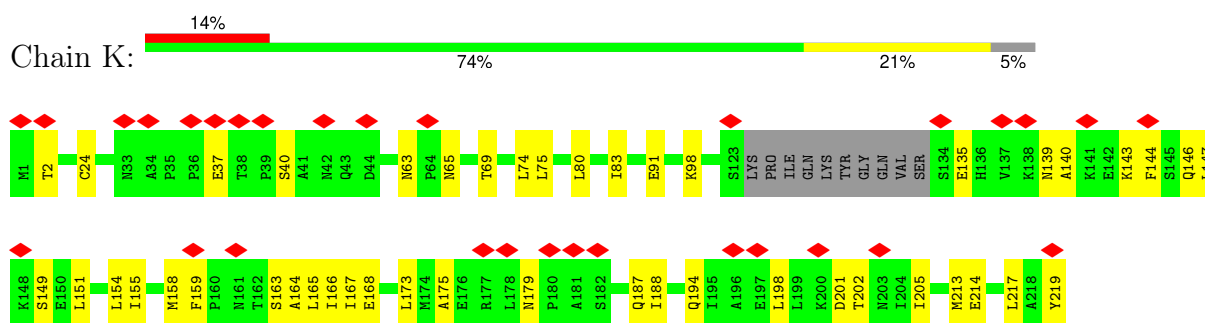
• Molecule 7: Centromere protein M



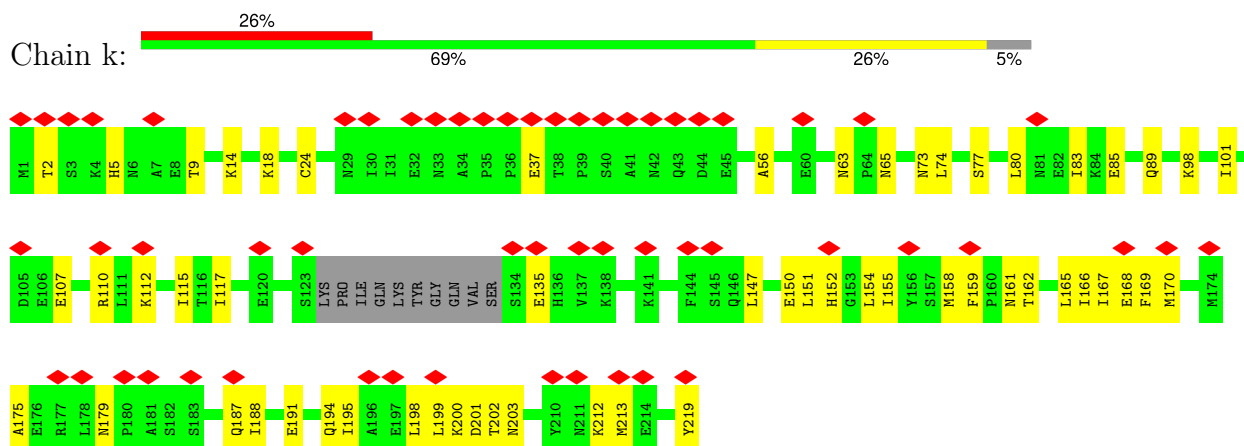
• Molecule 7: Centromere protein M



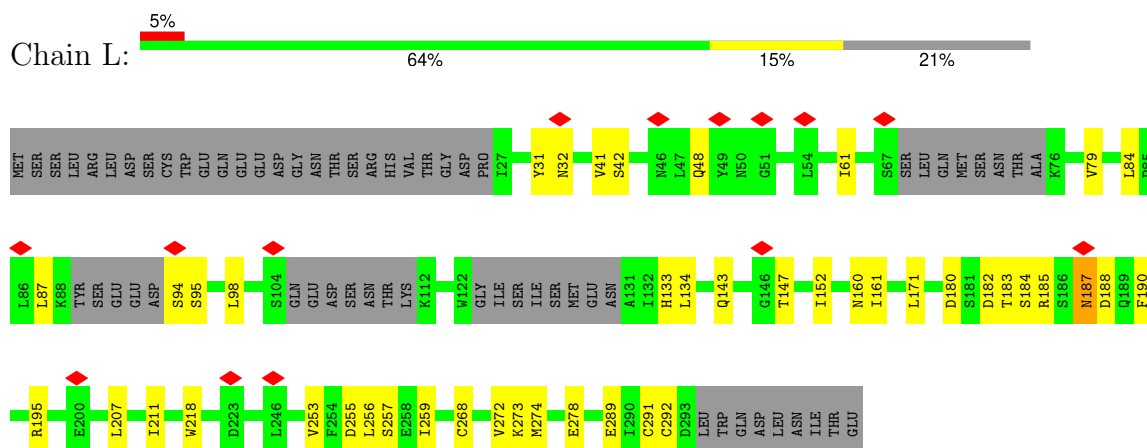
• Molecule 8: bmCENP-K



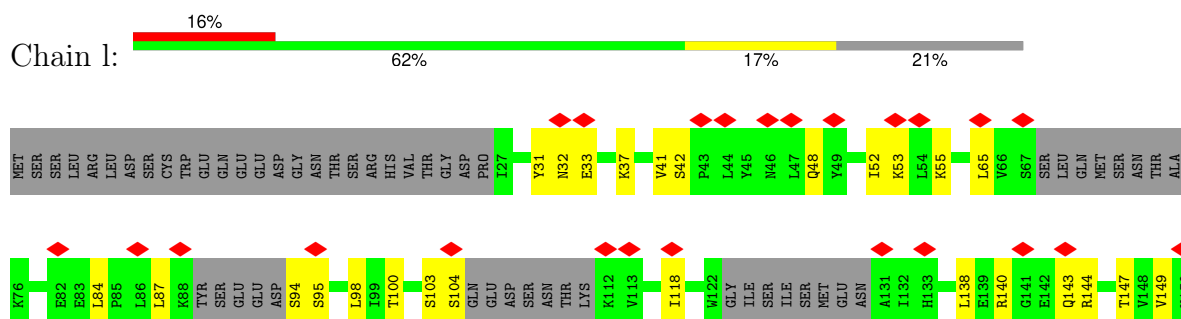
• Molecule 8: bmCENP-K

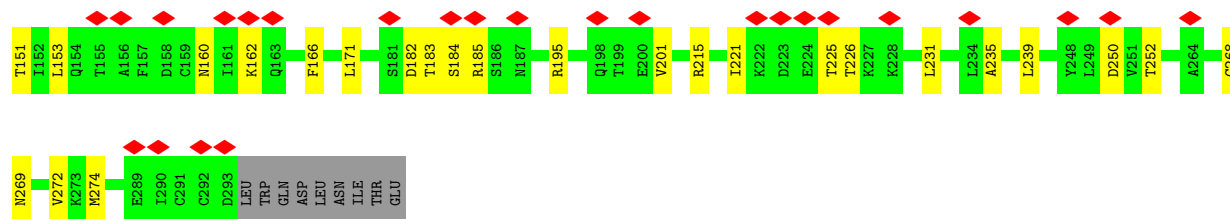


• Molecule 9: Centromere protein L

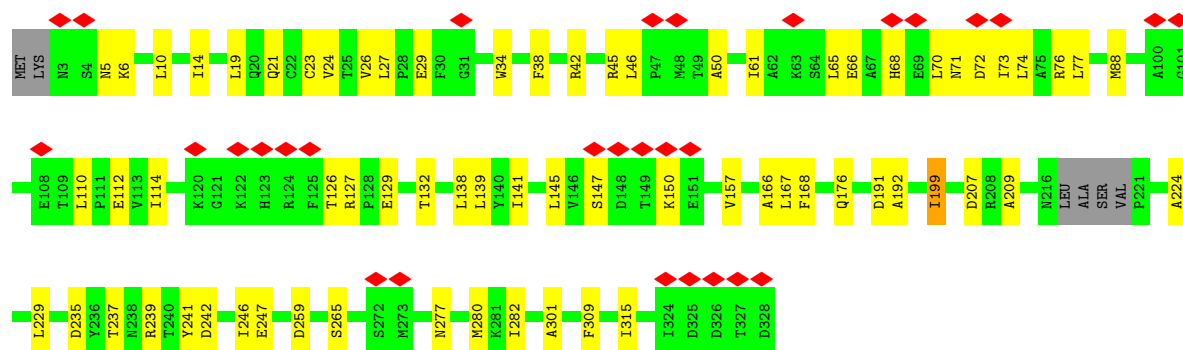
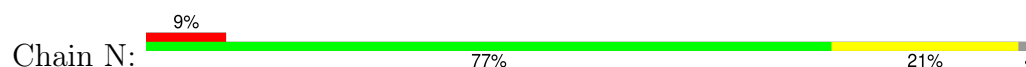


• Molecule 9: Centromere protein L

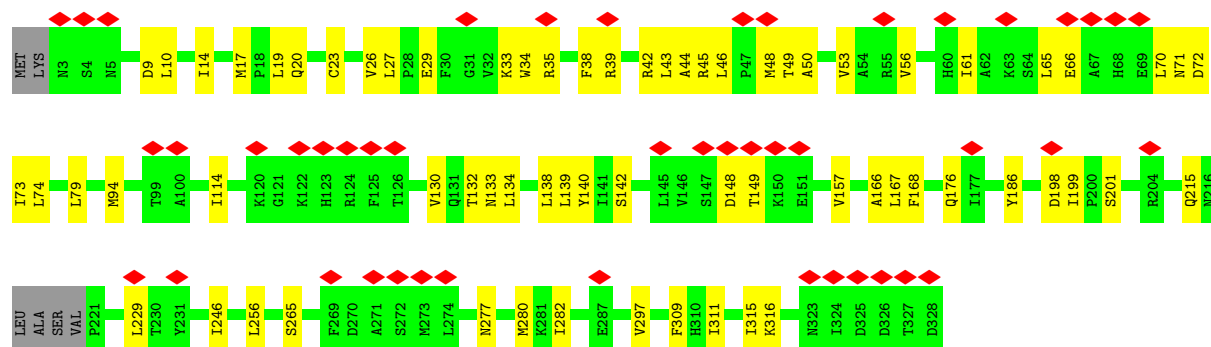
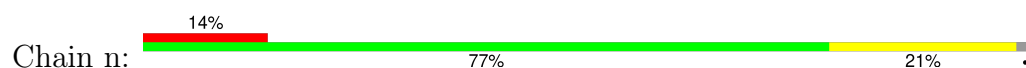




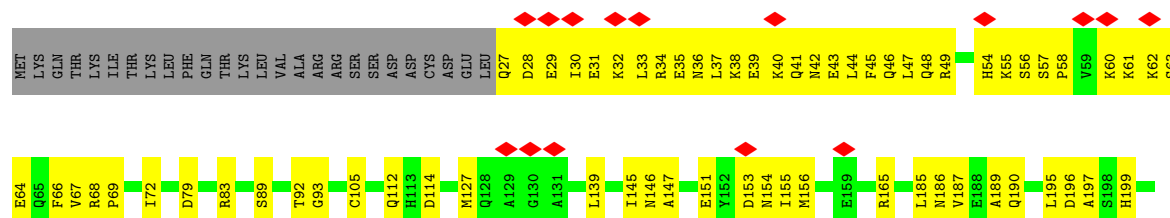
• Molecule 10: bmCENP-N

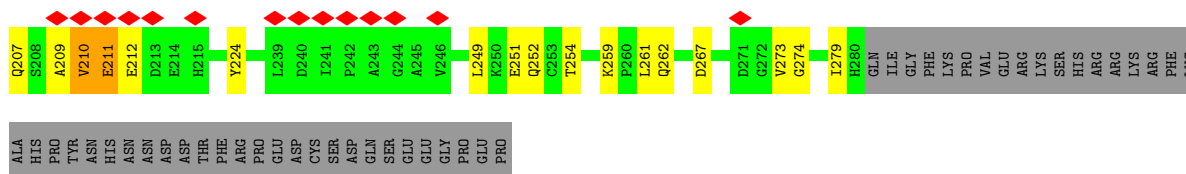


• Molecule 10: bmCENP-N

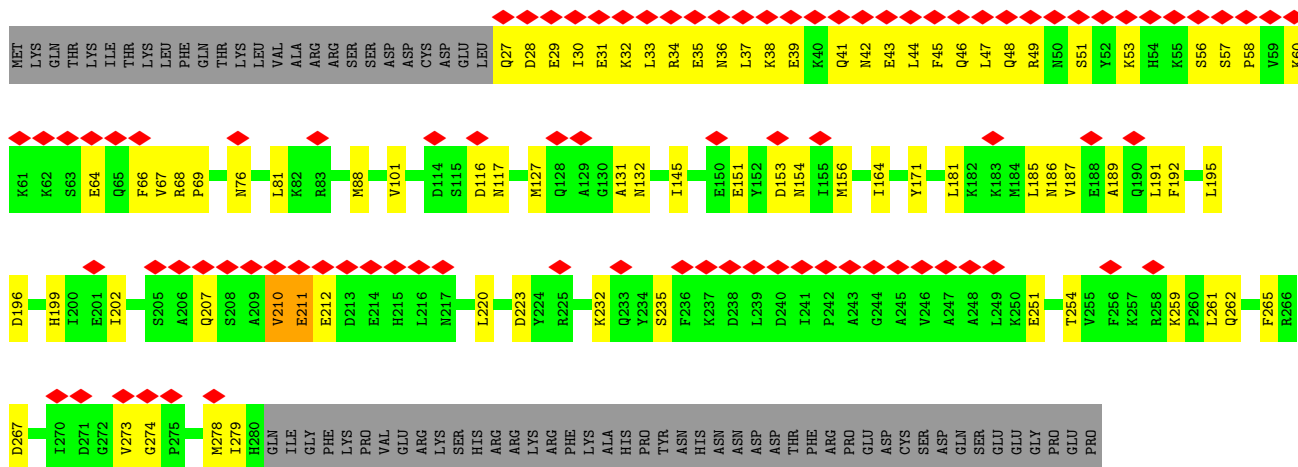


• Molecule 11: Centromere protein O

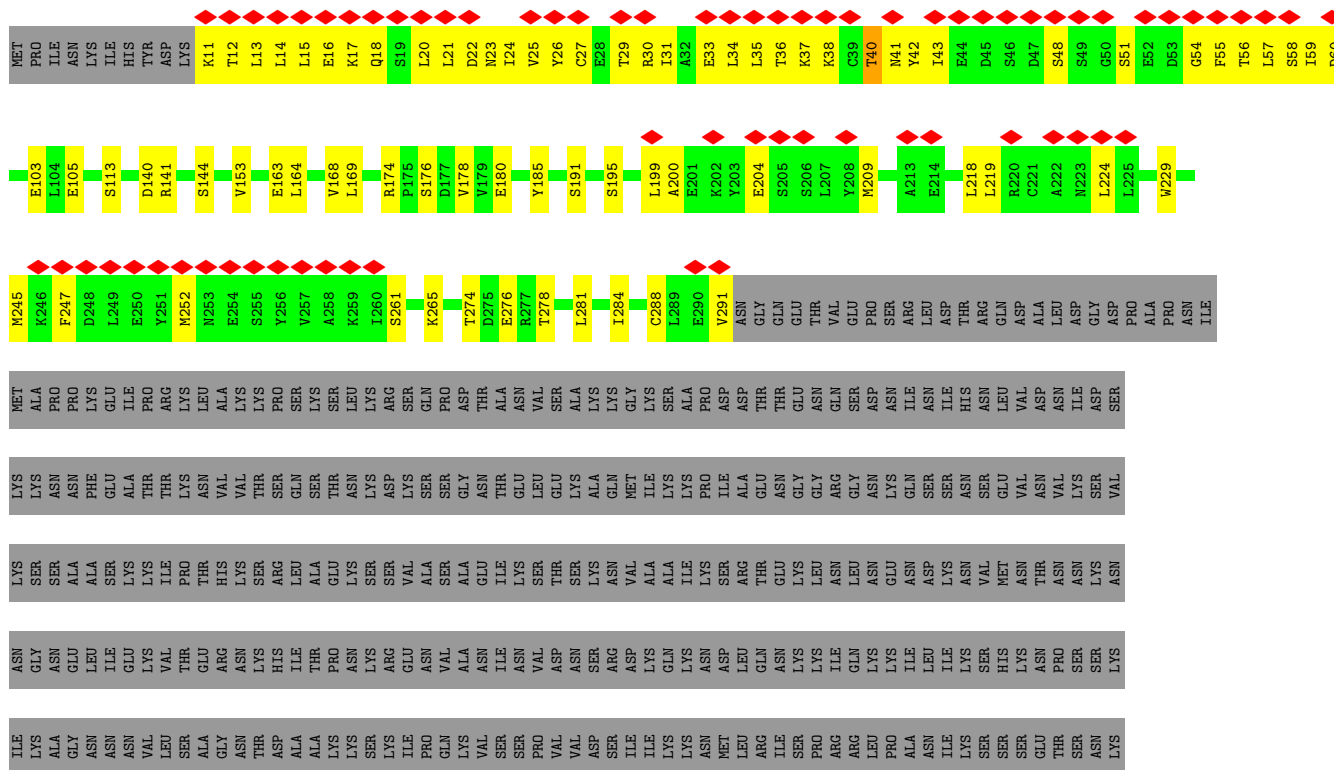
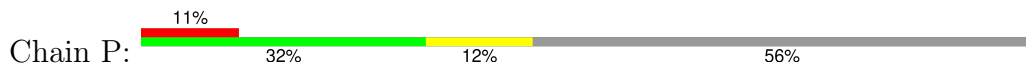




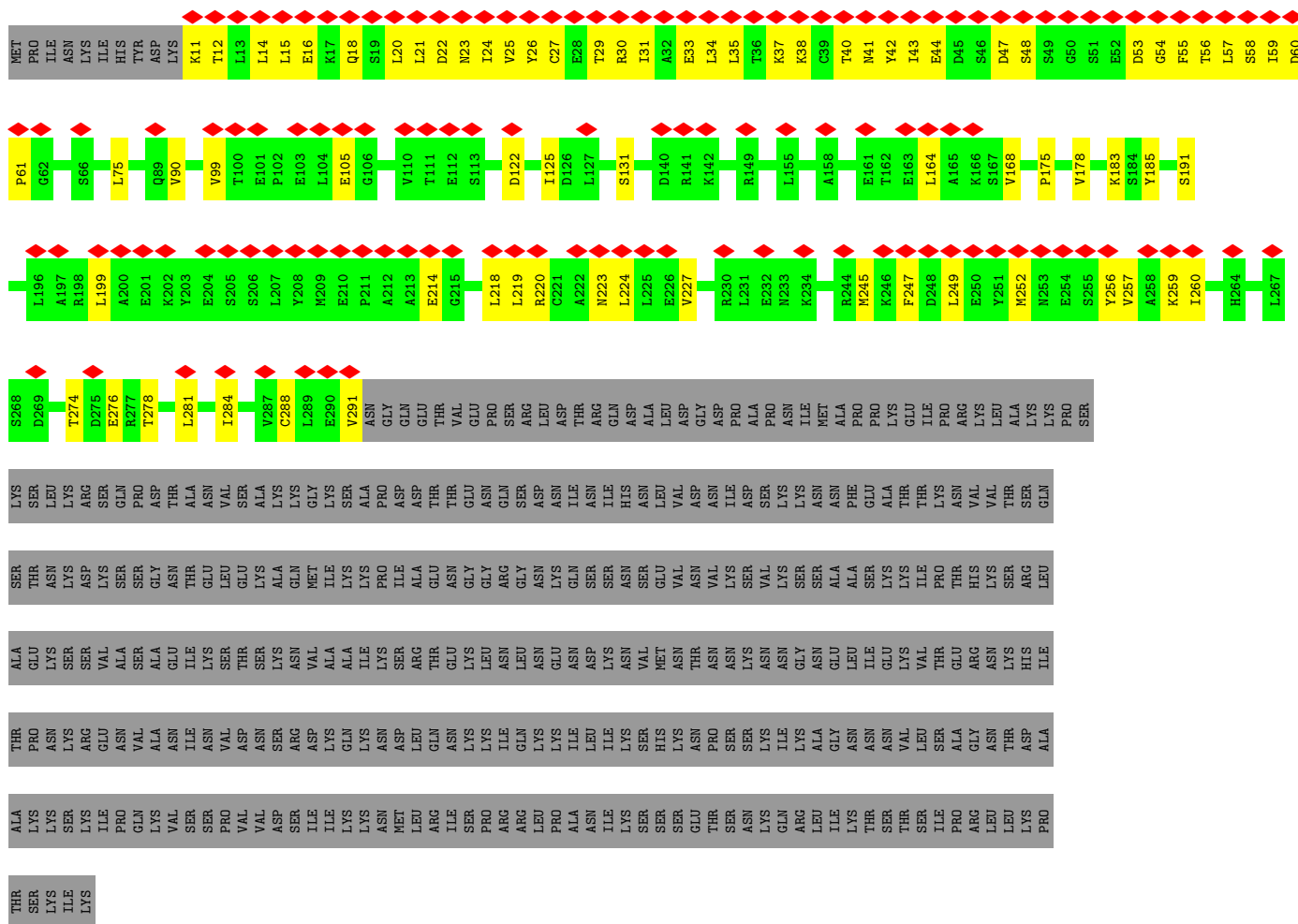
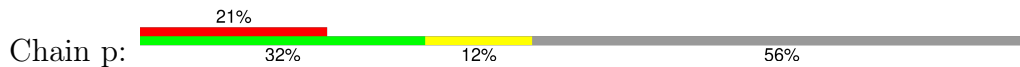
• Molecule 11: Centromere protein O



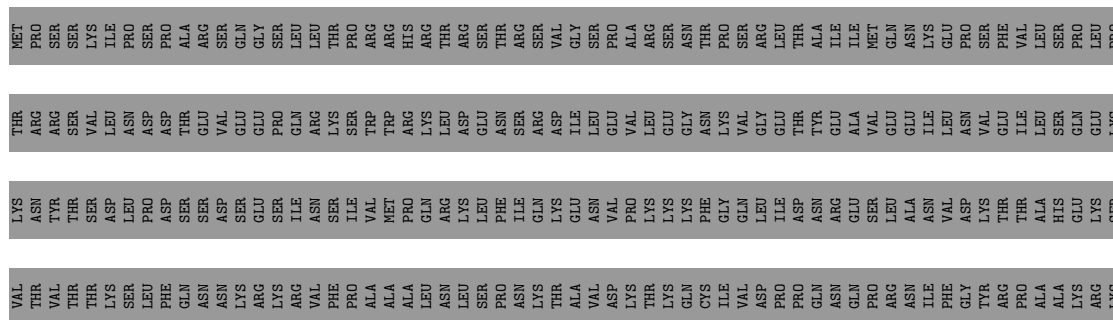
• Molecule 12: bmCENP-P



- Molecule 12: bmCENP-P



- Molecule 13: bmCENP-T



- Molecule 13: bmCENP-T

[illegible]



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| T15 | A16 | A17 | C18 | C19 | G20 | C21 | C22 | A23 | A24 | G25 | G26 | G27 | G28 | A29 | T30 | T31 | A32 | C33 | T34 | C35 | C36 | C37 | T38 | A39 | G40 | T41 | C42 | T43 | C44 | C45 | A46 | G47 | G48 | C49 | A50 | C51 | G52 | T53 | G54 | T55 | C56 | A57 | G58 | A59 | T60 | A61 | T62 | A63 | T64 | A65 | C66 | A67 | T68 | C69 | G70 | A71 | T72 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 23990                                   | 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 ( $e^-/\text{\AA}^2$ ) | 50                                      | Depositor |
| Minimum defocus (nm)                 | 1000                                    | Depositor |
| Maximum defocus (nm)                 | 2500                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 BIOQUANTUM (6k x 4k)           | Depositor |
| Maximum map value                    | 0.019                                   | Depositor |
| Minimum map value                    | -0.002                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.000                                   | Depositor |
| Recommended contour level            | 0.00342                                 | Depositor |
| Map size (Å)                         | 441.525, 441.525, 440.4375              | wwPDB     |
| Map dimensions                       | 406, 406, 405                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.0875, 1.0875, 1.0875                  | Depositor |

## 5 Model quality

### 5.1 Standard geometry

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

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

| Mol | Chain | Bond lengths |         | Bond angles |                |
|-----|-------|--------------|---------|-------------|----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5        |
| 1   | A     | 0.10         | 0/548   | 0.22        | 0/740          |
| 1   | a     | 0.09         | 0/548   | 0.19        | 0/740          |
| 2   | B     | 0.12         | 0/446   | 0.27        | 0/604          |
| 2   | b     | 0.11         | 0/446   | 0.29        | 0/604          |
| 3   | C     | 0.16         | 0/533   | 0.32        | 0/715          |
| 3   | c     | 0.09         | 0/533   | 0.21        | 0/715          |
| 4   | D     | 0.15         | 0/568   | 0.26        | 0/761          |
| 4   | d     | 0.15         | 0/568   | 0.28        | 0/761          |
| 5   | H     | 0.14         | 0/1872  | 0.27        | 0/2508         |
| 5   | h     | 0.12         | 0/1872  | 0.26        | 0/2508         |
| 6   | I     | 0.11         | 0/4784  | 0.24        | 0/6483         |
| 6   | i     | 0.10         | 0/4784  | 0.23        | 0/6483         |
| 7   | J     | 0.10         | 0/1302  | 0.23        | 0/1764         |
| 7   | M     | 0.13         | 0/1302  | 0.25        | 0/1764         |
| 8   | K     | 0.14         | 0/1670  | 0.27        | 0/2253         |
| 8   | k     | 0.14         | 0/1670  | 0.27        | 0/2253         |
| 9   | L     | 0.12         | 0/1935  | 0.29        | 0/2614         |
| 9   | l     | 0.11         | 0/1935  | 0.29        | 1/2614 (0.0%)  |
| 10  | N     | 0.13         | 0/2594  | 0.30        | 1/3516 (0.0%)  |
| 10  | n     | 0.11         | 0/2594  | 0.28        | 0/3516         |
| 11  | O     | 0.13         | 0/2085  | 0.26        | 0/2805         |
| 11  | o     | 0.11         | 0/2085  | 0.26        | 0/2805         |
| 12  | P     | 0.12         | 0/2265  | 0.26        | 0/3074         |
| 12  | p     | 0.10         | 0/2265  | 0.27        | 0/3074         |
| 13  | T     | 0.09         | 0/1334  | 0.22        | 0/1790         |
| 13  | t     | 0.10         | 0/1334  | 0.22        | 0/1790         |
| 14  | X     | 0.19         | 0/1336  | 0.38        | 0/2062         |
| 15  | Y     | 0.18         | 0/1327  | 0.35        | 0/2044         |
| All | All   | 0.12         | 0/46535 | 0.27        | 2/63360 (0.0%) |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms      | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|------|-------------|----------|
| 9   | l     | 221 | ILE  | CG1-CB-CG2 | 5.18 | 126.25      | 110.70   |
| 10  | N     | 199 | ILE  | CG1-CB-CG2 | 5.11 | 126.02      | 110.70   |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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     | 546   | 527      | 572      | 20      | 0            |
| 1   | a     | 546   | 527      | 572      | 21      | 0            |
| 2   | B     | 439   | 419      | 453      | 12      | 0            |
| 2   | b     | 439   | 419      | 453      | 13      | 0            |
| 3   | C     | 527   | 517      | 516      | 19      | 0            |
| 3   | c     | 527   | 517      | 516      | 17      | 0            |
| 4   | D     | 565   | 570      | 587      | 18      | 0            |
| 4   | d     | 565   | 570      | 587      | 19      | 0            |
| 5   | H     | 1851  | 1666     | 1938     | 85      | 0            |
| 5   | h     | 1851  | 1666     | 1938     | 70      | 0            |
| 6   | I     | 4676  | 4745     | 4743     | 86      | 0            |
| 6   | i     | 4676  | 4745     | 4743     | 103     | 0            |
| 7   | J     | 1286  | 1349     | 1348     | 29      | 0            |
| 7   | M     | 1286  | 1349     | 1348     | 19      | 0            |
| 8   | K     | 1651  | 1650     | 1658     | 38      | 0            |
| 8   | k     | 1651  | 1650     | 1658     | 59      | 0            |
| 9   | L     | 1906  | 1974     | 1969     | 33      | 0            |
| 9   | l     | 1906  | 1974     | 1969     | 32      | 0            |
| 10  | N     | 2545  | 2580     | 2597     | 57      | 0            |
| 10  | n     | 2545  | 2580     | 2597     | 59      | 0            |
| 11  | O     | 2050  | 1666     | 2072     | 112     | 0            |
| 11  | o     | 2050  | 1666     | 2072     | 98      | 0            |
| 12  | P     | 2225  | 1826     | 2241     | 104     | 0            |
| 12  | p     | 2225  | 1826     | 2241     | 102     | 0            |
| 13  | T     | 1304  | 0        | 1334     | 167     | 0            |
| 13  | t     | 1304  | 0        | 1334     | 170     | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 14  | X     | 1191  | 0        | 656      | 111     | 0            |
| 15  | Y     | 1184  | 0        | 653      | 99      | 0            |
| 16  | T     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 45518 | 38978    | 45365    | 1530    | 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 17.

All (1530) 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) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:X:-62:DA:H2'   | 14:X:-61:DT:H71    | 1.32                     | 1.07              |
| 11:O:30:ILE:HG22  | 12:P:17:LYS:HE2    | 1.40                     | 1.03              |
| 14:X:-61:DT:H2'   | 14:X:-60:DA:C8     | 2.00                     | 0.96              |
| 11:o:47:LEU:HD12  | 12:p:31:ILE:HD12   | 1.48                     | 0.95              |
| 15:Y:37:DC:H2''   | 15:Y:38:DT:C7      | 1.99                     | 0.92              |
| 13:T:932:LEU:HD21 | 13:T:964:LEU:HD22  | 1.52                     | 0.90              |
| 13:T:996:LYS:HE2  | 13:T:996:LYS:HA    | 1.54                     | 0.90              |
| 6:I:622:ALA:HB1   | 13:T:815:ILE:HG21  | 1.55                     | 0.89              |
| 15:Y:36:DC:H2''   | 15:Y:37:DC:C5      | 2.09                     | 0.88              |
| 12:p:220:ARG:NH2  | 12:p:223:ASN:OD1   | 2.08                     | 0.86              |
| 12:P:37:LYS:NZ    | 12:P:38:LYS:O      | 2.08                     | 0.86              |
| 14:X:-51:DG:C8    | 14:X:-50:DT:H72    | 2.08                     | 0.86              |
| 15:Y:30:DT:H2'    | 15:Y:31:DT:H71     | 1.56                     | 0.86              |
| 13:T:910:TYR:O    | 13:T:914:GLU:HG2   | 1.75                     | 0.86              |
| 14:X:-39:DT:H2''  | 14:X:-38:DA:C8     | 2.10                     | 0.85              |
| 5:h:27:SER:HB2    | 11:o:56:SER:HA     | 1.59                     | 0.85              |
| 13:T:916:LYS:HD2  | 13:T:966:ILE:HG23  | 1.59                     | 0.84              |
| 12:p:122:ASP:OD1  | 12:p:131:SER:OG    | 1.94                     | 0.84              |
| 13:t:978:HIS:HB2  | 13:t:986:ARG:HH21  | 1.43                     | 0.84              |
| 13:T:895:LYS:NZ   | 14:X:-34:DA:OP1    | 2.09                     | 0.83              |
| 13:T:904:TRP:HB3  | 13:T:982:PRO:HD3   | 1.58                     | 0.83              |
| 13:T:947:GLU:HG2  | 13:T:948:VAL:HG23  | 1.61                     | 0.83              |
| 15:Y:47:DG:H5''   | 13:t:900:LYS:HE2   | 1.57                     | 0.83              |
| 5:H:167:ARG:NH1   | 6:I:314:ALA:O      | 2.14                     | 0.81              |
| 13:T:958:LYS:HE3  | 13:T:1008:ILE:HD13 | 1.63                     | 0.81              |
| 11:o:259:LYS:NZ   | 11:o:267:ASP:OD2   | 2.12                     | 0.81              |
| 6:i:155:ARG:NH1   | 6:i:192:CYS:SG     | 2.53                     | 0.81              |
| 11:O:27:GLN:O     | 11:O:30:ILE:HG12   | 1.80                     | 0.81              |
| 13:t:817:LYS:HE2  | 13:t:817:LYS:HA    | 1.62                     | 0.80              |
| 13:t:943:VAL:HG22 | 13:t:988:LYS:HD2   | 1.63                     | 0.80              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 13:T:962:ALA:HB2  | 13:T:1008:ILE:HG21 | 1.63                     | 0.80              |
| 5:H:79:TYR:OH     | 7:M:176:PRO:O      | 1.98                     | 0.80              |
| 15:Y:55:DT:H2''   | 15:Y:56:DC:C5      | 2.17                     | 0.79              |
| 6:i:566:ASP:O     | 6:i:569:SER:OG     | 1.98                     | 0.79              |
| 8:K:187:GLN:NE2   | 8:K:188:ILE:O      | 2.16                     | 0.79              |
| 7:M:166:GLU:OE2   | 7:M:172:ARG:NE     | 2.15                     | 0.79              |
| 11:O:35:GLU:O     | 11:O:38:LYS:HG3    | 1.81                     | 0.79              |
| 14:X:-31:DA:H2''  | 14:X:-30:DA:C8     | 2.18                     | 0.79              |
| 2:b:60:GLU:OE1    | 4:d:42:ILE:HD13    | 1.83                     | 0.79              |
| 15:Y:37:DC:H2''   | 15:Y:38:DT:H71     | 1.63                     | 0.78              |
| 7:J:18:SER:OG     | 8:k:24:CYS:SG      | 2.39                     | 0.78              |
| 14:X:-69:DG:H2''  | 14:X:-68:DA:C8     | 2.18                     | 0.78              |
| 10:n:42:ARG:NH2   | 13:t:890:LYS:O     | 2.16                     | 0.78              |
| 11:O:31:GLU:O     | 11:O:35:GLU:HG2    | 1.83                     | 0.78              |
| 1:A:18:THR:OG1    | 3:C:29:ASN:OD1     | 2.00                     | 0.78              |
| 1:a:42:ILE:O      | 1:a:46:ILE:HG12    | 1.83                     | 0.78              |
| 9:l:33:GLU:OE2    | 9:l:140:ARG:NH2    | 2.17                     | 0.78              |
| 14:X:-37:DG:H2'   | 14:X:-37:DG:OP2    | 1.83                     | 0.77              |
| 11:o:30:ILE:HB    | 11:o:34:ARG:HH21   | 1.50                     | 0.77              |
| 10:N:14:ILE:HD13  | 10:N:26:VAL:HG11   | 1.66                     | 0.77              |
| 6:I:155:ARG:NH1   | 6:I:192:CYS:SG     | 2.58                     | 0.76              |
| 4:D:12:GLU:N      | 4:D:12:GLU:OE1     | 2.18                     | 0.76              |
| 5:h:167:ARG:NH1   | 6:i:314:ALA:O      | 2.19                     | 0.76              |
| 13:T:941:LYS:O    | 13:T:944:LYS:HG2   | 1.84                     | 0.76              |
| 8:k:212:LYS:NZ    | 13:t:975:GLN:HG3   | 2.00                     | 0.76              |
| 13:t:947:GLU:N    | 13:t:947:GLU:OE1   | 2.19                     | 0.76              |
| 10:N:42:ARG:NH2   | 13:T:890:LYS:O     | 2.20                     | 0.75              |
| 13:t:947:GLU:HG2  | 13:t:948:VAL:HG23  | 1.69                     | 0.75              |
| 11:o:36:ASN:O     | 11:o:39:GLU:HG3    | 1.85                     | 0.75              |
| 13:t:905:THR:HG23 | 13:t:910:TYR:HE2   | 1.52                     | 0.74              |
| 8:k:169:PHE:CD2   | 8:k:195:ILE:HD12   | 2.22                     | 0.74              |
| 5:H:16:GLN:HA     | 5:H:19:LYS:HZ3     | 1.51                     | 0.74              |
| 13:T:915:ASP:OD1  | 13:T:916:LYS:N     | 2.21                     | 0.74              |
| 13:T:817:LYS:HE2  | 13:T:817:LYS:HA    | 1.70                     | 0.74              |
| 7:M:87:THR:OG1    | 7:M:118:SER:OG     | 2.06                     | 0.74              |
| 11:O:43:GLU:O     | 11:O:47:LEU:HG     | 1.87                     | 0.74              |
| 12:P:31:ILE:O     | 12:P:35:LEU:HG     | 1.87                     | 0.74              |
| 13:t:916:LYS:HD3  | 13:t:966:ILE:HA    | 1.69                     | 0.74              |
| 13:t:917:LEU:HD11 | 13:t:966:ILE:HD11  | 1.68                     | 0.74              |
| 5:H:212:GLU:N     | 5:H:212:GLU:OE1    | 2.21                     | 0.73              |
| 12:p:214:GLU:OE1  | 12:p:214:GLU:N     | 2.21                     | 0.73              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:H:207:VAL:HG13  | 5:H:208:VAL:HG13  | 1.70                     | 0.73              |
| 8:k:194:GLN:OE1   | 13:t:992:ASP:HA   | 1.87                     | 0.73              |
| 7:J:70:SER:O      | 7:J:74:GLY:N      | 2.22                     | 0.73              |
| 13:t:955:ASP:OD1  | 13:t:958:LYS:NZ   | 2.17                     | 0.73              |
| 10:N:21:GLN:N     | 10:N:21:GLN:OE1   | 2.22                     | 0.73              |
| 11:o:185:LEU:HD12 | 11:o:185:LEU:O    | 1.88                     | 0.73              |
| 5:H:12:GLN:O      | 5:H:16:GLN:HG2    | 1.89                     | 0.73              |
| 12:P:276:GLU:N    | 12:P:276:GLU:OE1  | 2.22                     | 0.73              |
| 14:X:-59:DT:H2''  | 14:X:-58:DC:C5    | 2.24                     | 0.73              |
| 14:X:-24:DT:C6    | 14:X:-23:DT:H72   | 2.23                     | 0.73              |
| 6:i:166:LYS:CE    | 13:t:908:ARG:HD3  | 2.19                     | 0.73              |
| 10:n:29:GLU:N     | 10:n:29:GLU:OE1   | 2.22                     | 0.73              |
| 13:T:818:SER:O    | 13:T:821:GLU:HG3  | 1.89                     | 0.72              |
| 5:H:139:ARG:NH1   | 6:I:527:GLU:OE1   | 2.22                     | 0.72              |
| 14:X:-20:DC:H2''  | 14:X:-19:DG:C8    | 2.23                     | 0.72              |
| 8:k:2:THR:HG21    | 12:p:41:ASN:HB2   | 1.69                     | 0.72              |
| 13:t:1007:GLU:HB2 | 13:t:1010:SER:OG  | 1.88                     | 0.72              |
| 6:I:34:VAL:HG22   | 6:I:39:LEU:HD23   | 1.71                     | 0.72              |
| 14:X:-60:DA:H2'   | 14:X:-59:DT:H71   | 1.71                     | 0.72              |
| 15:Y:45:DC:H2''   | 15:Y:46:DA:C8     | 2.25                     | 0.72              |
| 11:O:42:ASN:O     | 11:O:46:GLN:HG2   | 1.90                     | 0.72              |
| 11:O:207:GLN:HG2  | 11:O:279:ILE:HD12 | 1.72                     | 0.72              |
| 12:P:15:LEU:HD12  | 12:P:16:GLU:N     | 2.05                     | 0.72              |
| 12:P:26:TYR:O     | 12:P:30:ARG:HG2   | 1.90                     | 0.72              |
| 2:b:30:SER:OG     | 11:o:76:ASN:OD1   | 2.07                     | 0.72              |
| 11:o:37:LEU:HD11  | 12:p:23:ASN:OD1   | 1.89                     | 0.72              |
| 5:H:142:GLU:OE1   | 6:I:528:LYS:NZ    | 2.16                     | 0.72              |
| 11:o:37:LEU:HD22  | 12:p:20:LEU:HD13  | 1.71                     | 0.72              |
| 13:t:895:LYS:HG2  | 13:t:896:ARG:H    | 1.55                     | 0.72              |
| 6:i:34:VAL:HG22   | 6:i:39:LEU:HD23   | 1.71                     | 0.71              |
| 1:A:41:GLU:OE1    | 1:A:41:GLU:N      | 2.22                     | 0.71              |
| 5:H:16:GLN:O      | 5:H:20:GLN:HG2    | 1.91                     | 0.71              |
| 10:N:29:GLU:N     | 10:N:29:GLU:OE1   | 2.23                     | 0.71              |
| 10:N:147:SER:OG   | 10:N:150:LYS:O    | 2.03                     | 0.71              |
| 5:H:35:GLU:OE1    | 5:H:35:GLU:N      | 2.23                     | 0.71              |
| 11:O:31:GLU:O     | 11:O:34:ARG:HG2   | 1.90                     | 0.71              |
| 15:Y:21:DC:H2'    | 15:Y:22:DC:C6     | 2.25                     | 0.71              |
| 1:a:30:GLN:O      | 1:a:33:ILE:HG22   | 1.90                     | 0.71              |
| 7:J:176:PRO:O     | 5:h:79:TYR:OH     | 2.09                     | 0.70              |
| 5:h:205:ARG:NH2   | 6:i:160:GLU:OE2   | 2.24                     | 0.70              |
| 11:O:273:VAL:HG13 | 11:O:274:GLY:H    | 1.56                     | 0.70              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 12:P:59:ILE:HG22  | 12:P:60:ASP:H    | 1.56                     | 0.70              |
| 1:a:29:LEU:HD13   | 2:b:41:ASP:OD1   | 1.90                     | 0.70              |
| 6:I:75:GLU:N      | 6:I:75:GLU:OE1   | 2.25                     | 0.70              |
| 11:O:64:GLU:N     | 11:O:64:GLU:OE1  | 2.24                     | 0.70              |
| 11:O:262:GLN:N    | 11:O:262:GLN:OE1 | 2.23                     | 0.70              |
| 15:Y:30:DT:C2'    | 15:Y:31:DT:H71   | 2.19                     | 0.70              |
| 13:t:936:ILE:HD11 | 13:t:961:MET:HE1 | 1.74                     | 0.70              |
| 6:I:139:GLN:N     | 6:I:139:GLN:OE1  | 2.24                     | 0.70              |
| 12:P:163:GLU:OE1  | 12:P:185:TYR:OH  | 2.09                     | 0.70              |
| 15:Y:39:DA:H1'    | 15:Y:40:DG:H5'   | 1.73                     | 0.70              |
| 6:i:360:LEU:O     | 6:i:440:ARG:NH1  | 2.24                     | 0.70              |
| 8:k:212:LYS:CE    | 13:t:975:GLN:HG3 | 2.21                     | 0.70              |
| 11:O:29:GLU:O     | 11:O:32:LYS:HG2  | 1.91                     | 0.70              |
| 11:O:151:GLU:N    | 11:O:151:GLU:OE1 | 2.23                     | 0.70              |
| 13:T:959:HIS:O    | 13:T:963:ARG:HG3 | 1.91                     | 0.70              |
| 11:o:31:GLU:O     | 11:o:34:ARG:HG2  | 1.90                     | 0.70              |
| 8:K:2:THR:CG2     | 12:P:41:ASN:HB2  | 2.22                     | 0.70              |
| 4:d:23:SER:O      | 4:d:26:SER:OG    | 2.09                     | 0.70              |
| 6:i:75:GLU:N      | 6:i:75:GLU:OE1   | 2.25                     | 0.70              |
| 6:i:166:LYS:HE2   | 13:t:908:ARG:HD3 | 1.73                     | 0.70              |
| 11:O:37:LEU:HA    | 12:P:24:ILE:HD11 | 1.74                     | 0.70              |
| 11:O:185:LEU:HD12 | 11:O:185:LEU:O   | 1.92                     | 0.69              |
| 13:T:937:TYR:CE2  | 13:T:941:LYS:HE2 | 2.27                     | 0.69              |
| 13:T:993:ILE:HD12 | 13:T:993:ILE:H   | 1.57                     | 0.69              |
| 11:O:29:GLU:HA    | 11:O:32:LYS:HE2  | 1.73                     | 0.69              |
| 11:O:36:ASN:O     | 11:O:39:GLU:HG3  | 1.92                     | 0.69              |
| 11:O:60:LYS:NZ    | 12:P:51:SER:OG   | 2.17                     | 0.69              |
| 2:b:68:HIS:CE1    | 11:o:41:GLN:HB3  | 2.28                     | 0.69              |
| 6:I:640:PHE:HB3   | 13:T:816:LYS:HE3 | 1.74                     | 0.69              |
| 8:k:63:ASN:ND2    | 8:k:65:ASN:OD1   | 2.25                     | 0.69              |
| 12:P:38:LYS:NZ    | 12:P:40:THR:HA   | 2.05                     | 0.69              |
| 12:P:30:ARG:O     | 12:P:33:GLU:HG2  | 1.91                     | 0.69              |
| 8:k:169:PHE:HZ    | 8:k:199:LEU:HD11 | 1.56                     | 0.69              |
| 13:t:905:THR:HG23 | 13:t:910:TYR:CE2 | 2.26                     | 0.69              |
| 14:X:-28:DC:H2''  | 14:X:-27:DC:C6   | 2.27                     | 0.69              |
| 5:h:60:VAL:O      | 5:h:63:THR:OG1   | 2.05                     | 0.69              |
| 13:t:984:GLU:OE1  | 13:t:984:GLU:N   | 2.24                     | 0.69              |
| 8:k:85:GLU:OE2    | 8:k:89:GLN:NE2   | 2.24                     | 0.69              |
| 6:i:170:SER:OG    | 13:t:903:SER:HA  | 1.92                     | 0.69              |
| 12:p:105:GLU:N    | 12:p:105:GLU:OE1 | 2.26                     | 0.69              |
| 13:t:820:MET:O    | 13:t:824:MET:HG2 | 1.93                     | 0.69              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:t:897:TYR:CE2  | 13:t:899:PRO:HG3  | 2.28                     | 0.69              |
| 5:H:5:LYS:O       | 5:H:8:LYS:HG2     | 1.93                     | 0.68              |
| 5:H:197:GLU:OE1   | 8:K:219:TYR:OH    | 2.10                     | 0.68              |
| 12:P:105:GLU:N    | 12:P:105:GLU:OE1  | 2.26                     | 0.68              |
| 14:X:-50:DT:H2''  | 14:X:-49:DG:OP2   | 1.93                     | 0.68              |
| 14:X:-30:DA:C8    | 14:X:-29:DT:H72   | 2.27                     | 0.68              |
| 8:k:169:PHE:CZ    | 8:k:199:LEU:HD11  | 2.28                     | 0.68              |
| 11:o:151:GLU:N    | 11:o:151:GLU:OE1  | 2.26                     | 0.68              |
| 13:t:908:ARG:O    | 13:t:911:LYS:HG2  | 1.93                     | 0.68              |
| 8:K:2:THR:HG21    | 12:P:41:ASN:HB2   | 1.74                     | 0.68              |
| 11:o:47:LEU:HD12  | 12:p:31:ILE:CD1   | 2.23                     | 0.68              |
| 9:L:182:ASP:OD1   | 9:L:183:THR:N     | 2.25                     | 0.68              |
| 15:Y:42:DC:H2''   | 15:Y:43:DT:O5'    | 1.93                     | 0.68              |
| 5:H:31:GLY:HA3    | 12:P:42:TYR:CD1   | 2.29                     | 0.68              |
| 12:P:18:GLN:O     | 12:P:21:LEU:HG    | 1.93                     | 0.68              |
| 13:T:954:VAL:O    | 13:T:958:LYS:HG3  | 1.94                     | 0.68              |
| 15:Y:45:DC:H2''   | 15:Y:46:DA:N7     | 2.09                     | 0.68              |
| 5:h:5:LYS:O       | 5:h:9:GLU:HG2     | 1.93                     | 0.68              |
| 6:I:23:PHE:CE2    | 6:I:27:ILE:HD11   | 2.29                     | 0.68              |
| 11:o:57:SER:HA    | 12:p:44:GLU:OE2   | 1.94                     | 0.68              |
| 12:p:15:LEU:HD12  | 12:p:16:GLU:N     | 2.09                     | 0.68              |
| 4:d:12:GLU:N      | 4:d:12:GLU:OE1    | 2.26                     | 0.67              |
| 12:p:57:LEU:HD23  | 12:p:58:SER:N     | 2.09                     | 0.67              |
| 9:L:41:VAL:HG22   | 9:L:161:ILE:HD12  | 1.76                     | 0.67              |
| 1:a:22:LEU:O      | 1:a:25:ILE:HG22   | 1.94                     | 0.67              |
| 12:p:16:GLU:O     | 12:p:20:LEU:HD23  | 1.94                     | 0.67              |
| 13:t:952:ASP:O    | 13:t:956:VAL:HG23 | 1.94                     | 0.67              |
| 5:H:60:VAL:O      | 5:H:63:THR:OG1    | 2.05                     | 0.67              |
| 14:X:-63:DT:H2''  | 14:X:-62:DA:C8    | 2.28                     | 0.67              |
| 13:t:916:LYS:CD   | 13:t:966:ILE:HA   | 2.25                     | 0.67              |
| 1:A:20:GLN:NE2    | 11:O:67:VAL:O     | 2.26                     | 0.67              |
| 13:T:985:ILE:O    | 13:T:989:VAL:HG12 | 1.95                     | 0.67              |
| 15:Y:30:DT:H2''   | 15:Y:31:DT:O5'    | 1.94                     | 0.67              |
| 6:i:52:LEU:HD12   | 6:i:85:TRP:CE3    | 2.30                     | 0.67              |
| 14:X:-31:DA:H2''  | 14:X:-30:DA:H8    | 1.57                     | 0.67              |
| 8:k:5:HIS:O       | 8:k:9:THR:HG23    | 1.95                     | 0.67              |
| 13:t:936:ILE:HD11 | 13:t:961:MET:CE   | 2.23                     | 0.67              |
| 14:X:-18:DG:H2'   | 14:X:-18:DG:OP2   | 1.95                     | 0.67              |
| 5:h:16:GLN:O      | 5:h:20:GLN:HG2    | 1.95                     | 0.67              |
| 5:h:34:PHE:H      | 12:p:41:ASN:HD21  | 1.42                     | 0.67              |
| 11:O:47:LEU:CD1   | 12:P:31:ILE:HG23  | 2.25                     | 0.67              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:k:152:HIS:O     | 8:k:155:ILE:HG22   | 1.95                     | 0.67              |
| 11:o:29:GLU:HA    | 11:o:32:LYS:HE2    | 1.76                     | 0.67              |
| 12:P:30:ARG:O     | 12:P:34:LEU:HD23   | 1.94                     | 0.66              |
| 13:T:970:HIS:NE2  | 13:T:1008:ILE:HA   | 2.11                     | 0.66              |
| 11:o:273:VAL:HG13 | 11:o:274:GLY:H     | 1.58                     | 0.66              |
| 12:p:21:LEU:HD12  | 12:p:22:ASP:N      | 2.11                     | 0.66              |
| 8:K:135:GLU:OE1   | 8:K:135:GLU:N      | 2.27                     | 0.66              |
| 11:o:262:GLN:N    | 11:o:262:GLN:OE1   | 2.28                     | 0.66              |
| 11:O:30:ILE:HG21  | 12:P:13:LEU:CD1    | 2.26                     | 0.66              |
| 11:O:105:CYS:SG   | 11:O:156:MET:HE1   | 2.35                     | 0.66              |
| 9:l:182:ASP:OD1   | 9:l:183:THR:N      | 2.29                     | 0.66              |
| 2:B:68:HIS:CE1    | 11:O:41:GLN:HB3    | 2.30                     | 0.66              |
| 13:T:917:LEU:HD21 | 13:T:966:ILE:HD11  | 1.77                     | 0.66              |
| 5:h:207:VAL:HG13  | 5:h:208:VAL:HG13   | 1.76                     | 0.66              |
| 11:o:64:GLU:N     | 11:o:64:GLU:OE1    | 2.25                     | 0.66              |
| 12:P:153:VAL:HG21 | 12:P:178:VAL:HG21  | 1.78                     | 0.66              |
| 14:X:-34:DA:H2''  | 14:X:-33:DG:H8     | 1.61                     | 0.66              |
| 5:H:141:PHE:CZ    | 13:T:830:VAL:HG23  | 2.30                     | 0.66              |
| 15:Y:67:DA:H2'    | 15:Y:68:DT:H71     | 1.77                     | 0.66              |
| 11:O:47:LEU:HD11  | 12:P:31:ILE:HG23   | 1.77                     | 0.66              |
| 14:X:-25:DC:H2''  | 14:X:-24:DT:C6     | 2.31                     | 0.66              |
| 1:a:41:GLU:OE1    | 1:a:41:GLU:N       | 2.29                     | 0.66              |
| 10:n:215:GLN:N    | 10:n:215:GLN:OE1   | 2.27                     | 0.66              |
| 13:t:897:TYR:O    | 13:t:910:TYR:OH    | 2.13                     | 0.66              |
| 10:N:38:PHE:CZ    | 13:T:889:MET:HA    | 2.30                     | 0.65              |
| 11:O:55:LYS:HD3   | 11:O:56:SER:H      | 1.59                     | 0.65              |
| 13:t:970:HIS:CD2  | 13:t:1008:ILE:HG13 | 2.31                     | 0.65              |
| 8:K:194:GLN:HE21  | 13:T:992:ASP:HA    | 1.60                     | 0.65              |
| 11:O:29:GLU:HG2   | 12:P:17:LYS:HZ1    | 1.60                     | 0.65              |
| 13:T:899:PRO:HB2  | 13:T:902:ALA:HB2   | 1.78                     | 0.65              |
| 9:l:250:ASP:OD2   | 9:l:252:THR:OG1    | 2.15                     | 0.65              |
| 6:I:79:VAL:HG11   | 6:I:115:ILE:HD11   | 1.78                     | 0.65              |
| 11:O:259:LYS:NZ   | 11:O:267:ASP:OD2   | 2.27                     | 0.65              |
| 9:l:195:ARG:NH2   | 9:l:268:CYS:SG     | 2.69                     | 0.65              |
| 13:t:918:GLU:OE1  | 13:t:922:ASP:HA    | 1.96                     | 0.65              |
| 1:a:20:GLN:NE2    | 11:o:67:VAL:O      | 2.30                     | 0.65              |
| 5:H:16:GLN:HA     | 5:H:19:LYS:NZ      | 2.11                     | 0.65              |
| 15:Y:26:DG:H2''   | 15:Y:27:DG:C8      | 2.32                     | 0.65              |
| 15:Y:47:DG:H4'    | 13:t:900:LYS:HD3   | 1.79                     | 0.65              |
| 12:p:27:CYS:O     | 12:p:31:ILE:HG12   | 1.97                     | 0.65              |
| 5:H:27:SER:HB2    | 11:O:56:SER:HA     | 1.77                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 11:O:249:LEU:HD12 | 11:O:252:GLN:NE2  | 2.12                     | 0.65              |
| 15:Y:36:DC:H2''   | 15:Y:37:DC:C6     | 2.31                     | 0.65              |
| 13:t:914:GLU:OE2  | 13:t:926:ARG:HA   | 1.97                     | 0.65              |
| 10:n:176:GLN:N    | 10:n:176:GLN:OE1  | 2.30                     | 0.65              |
| 12:P:224:LEU:HD21 | 12:P:252:MET:CG   | 2.27                     | 0.65              |
| 14:X:-34:DA:H2''  | 14:X:-33:DG:C8    | 2.31                     | 0.65              |
| 15:Y:67:DA:C8     | 15:Y:67:DA:H5'    | 2.32                     | 0.65              |
| 10:n:138:LEU:HD11 | 10:n:199:ILE:HG21 | 1.79                     | 0.65              |
| 13:T:929:ALA:O    | 13:T:933:VAL:HG23 | 1.97                     | 0.64              |
| 13:T:947:GLU:N    | 13:T:947:GLU:OE1  | 2.27                     | 0.64              |
| 11:O:29:GLU:HB2   | 11:O:32:LYS:HE2   | 1.79                     | 0.64              |
| 15:Y:15:DT:H2''   | 15:Y:16:DA:C8     | 2.31                     | 0.64              |
| 5:h:19:LYS:HA     | 5:h:19:LYS:HE3    | 1.79                     | 0.64              |
| 12:P:113:SER:OG   | 12:P:140:ASP:OD2  | 2.14                     | 0.64              |
| 14:X:-36:DG:H2''  | 14:X:-35:DG:N7    | 2.13                     | 0.64              |
| 6:I:488:ILE:HD12  | 6:I:529:MET:HE1   | 1.79                     | 0.64              |
| 10:n:9:ASP:OD1    | 10:n:10:LEU:N     | 2.31                     | 0.64              |
| 14:X:-62:DA:H2'   | 14:X:-61:DT:C7    | 2.20                     | 0.64              |
| 13:T:909:LEU:HD23 | 13:T:913:LEU:HG   | 1.80                     | 0.64              |
| 6:I:566:ASP:OD2   | 6:I:584:VAL:N     | 2.30                     | 0.64              |
| 13:T:904:TRP:O    | 13:T:906:THR:HG23 | 1.96                     | 0.64              |
| 5:H:198:MET:CE    | 8:K:217:LEU:HD21  | 2.28                     | 0.64              |
| 10:N:280:MET:HE3  | 10:N:282:ILE:HD11 | 1.78                     | 0.64              |
| 13:T:984:GLU:OE1  | 13:T:984:GLU:N    | 2.24                     | 0.64              |
| 5:h:12:GLN:O      | 5:h:15:GLU:HG2    | 1.97                     | 0.64              |
| 12:p:276:GLU:N    | 12:p:276:GLU:OE1  | 2.30                     | 0.64              |
| 13:t:957:LEU:O    | 13:t:961:MET:HG2  | 1.98                     | 0.64              |
| 8:K:214:GLU:N     | 8:K:214:GLU:OE1   | 2.31                     | 0.64              |
| 11:O:112:GLN:OE1  | 12:P:176:SER:OG   | 2.05                     | 0.64              |
| 5:h:142:GLU:OE1   | 6:i:528:LYS:NZ    | 2.19                     | 0.64              |
| 10:N:42:ARG:CZ    | 13:T:891:TYR:HB2  | 2.28                     | 0.63              |
| 5:h:120:ARG:NH1   | 8:k:77:SER:OG     | 2.30                     | 0.63              |
| 12:p:14:LEU:HD12  | 12:p:15:LEU:N     | 2.13                     | 0.63              |
| 13:t:820:MET:HE3  | 13:t:824:MET:CE   | 2.29                     | 0.63              |
| 11:O:37:LEU:HA    | 12:P:24:ILE:CD1   | 2.29                     | 0.63              |
| 3:c:17:GLU:O      | 3:c:20:MET:N      | 2.30                     | 0.63              |
| 12:p:281:LEU:O    | 12:p:284:ILE:HG22 | 1.98                     | 0.63              |
| 13:t:1003:GLY:O   | 13:t:1006:SER:OG  | 2.15                     | 0.63              |
| 1:A:20:GLN:NE2    | 11:O:66:PHE:HB2   | 2.14                     | 0.63              |
| 6:I:134:GLU:N     | 6:I:134:GLU:OE1   | 2.31                     | 0.63              |
| 7:J:132:LEU:HD21  | 7:J:143:LEU:HD22  | 1.80                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 11:O:249:LEU:HD12 | 11:O:252:GLN:HE21  | 1.63                     | 0.63              |
| 6:i:48:PHE:O      | 6:i:52:LEU:HD23    | 1.98                     | 0.63              |
| 5:H:140:HIS:HB3   | 13:T:830:VAL:HG11  | 1.78                     | 0.63              |
| 12:P:164:LEU:HD23 | 12:P:169:LEU:HD22  | 1.81                     | 0.63              |
| 9:L:143:GLN:OE1   | 9:L:143:GLN:N      | 2.32                     | 0.63              |
| 12:P:14:LEU:HD12  | 12:P:15:LEU:N      | 2.12                     | 0.63              |
| 13:t:993:ILE:HD12 | 13:t:993:ILE:H     | 1.64                     | 0.63              |
| 11:o:27:GLN:N     | 11:o:29:GLU:OE1    | 2.32                     | 0.63              |
| 11:o:42:ASN:O     | 11:o:46:GLN:HG2    | 1.99                     | 0.63              |
| 13:t:970:HIS:HD2  | 13:t:1008:ILE:HG13 | 1.62                     | 0.63              |
| 5:H:133:ASP:OD1   | 13:T:822:LYS:HE3   | 1.99                     | 0.63              |
| 12:P:281:LEU:O    | 12:P:284:ILE:HG22  | 1.98                     | 0.63              |
| 15:Y:54:DG:H2'    | 15:Y:55:DT:H72     | 1.81                     | 0.63              |
| 11:o:29:GLU:O     | 11:o:33:LEU:HD23   | 1.98                     | 0.63              |
| 11:o:185:LEU:HD13 | 11:o:189:ALA:HB3   | 1.80                     | 0.63              |
| 8:k:155:ILE:HD11  | 8:k:166:ILE:HG22   | 1.81                     | 0.63              |
| 1:A:33:ILE:HG13   | 2:B:45:ILE:HG12    | 1.80                     | 0.62              |
| 12:P:40:THR:HG23  | 12:P:42:TYR:CE2    | 2.34                     | 0.62              |
| 15:Y:49:DC:H2''   | 15:Y:50:DA:C8      | 2.34                     | 0.62              |
| 15:Y:61:DA:C8     | 15:Y:62:DT:H72     | 2.34                     | 0.62              |
| 15:Y:64:DT:H2''   | 15:Y:65:DA:C8      | 2.34                     | 0.62              |
| 10:n:17:MET:HE1   | 10:n:26:VAL:HG13   | 1.79                     | 0.62              |
| 2:b:43:LEU:HD12   | 12:p:99:VAL:HG13   | 1.81                     | 0.62              |
| 12:p:58:SER:O     | 12:p:59:ILE:HD13   | 1.99                     | 0.62              |
| 15:Y:29:DA:C8     | 15:Y:30:DT:H72     | 2.34                     | 0.62              |
| 13:t:963:ARG:HG3  | 13:t:964:LEU:CD2   | 2.29                     | 0.62              |
| 11:O:45:PHE:CE2   | 11:O:49:ARG:HD2    | 2.35                     | 0.62              |
| 12:p:30:ARG:O     | 12:p:34:LEU:HD23   | 2.00                     | 0.62              |
| 11:o:27:GLN:N     | 11:o:27:GLN:OE1    | 2.32                     | 0.62              |
| 13:T:1007:GLU:OE1 | 13:T:1009:LEU:N    | 2.29                     | 0.62              |
| 15:Y:49:DC:H2''   | 15:Y:50:DA:H8      | 1.64                     | 0.62              |
| 13:t:910:TYR:O    | 13:t:914:GLU:HG2   | 2.00                     | 0.62              |
| 7:M:70:SER:O      | 7:M:74:GLY:N       | 2.32                     | 0.62              |
| 12:P:15:LEU:O     | 12:P:18:GLN:HG3    | 2.00                     | 0.62              |
| 13:T:896:ARG:HB2  | 13:T:898:GLN:OE1   | 1.99                     | 0.62              |
| 14:X:-17:DT:H3    | 15:Y:17:DA:H61     | 1.48                     | 0.62              |
| 15:Y:35:DC:H2''   | 15:Y:36:DC:C6      | 2.34                     | 0.62              |
| 6:i:636:TRP:O     | 13:t:816:LYS:NZ    | 2.25                     | 0.62              |
| 13:t:986:ARG:O    | 13:t:990:VAL:HG12  | 2.00                     | 0.62              |
| 6:I:566:ASP:OD2   | 6:I:583:PHE:N      | 2.33                     | 0.62              |
| 12:P:58:SER:O     | 12:P:59:ILE:HD13   | 2.00                     | 0.62              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:i:566:ASP:OD2    | 6:i:583:PHE:N     | 2.29                     | 0.62              |
| 13:t:909:LEU:O     | 13:t:913:LEU:HG   | 1.99                     | 0.62              |
| 14:X:-25:DC:C2'    | 14:X:-24:DT:H71   | 2.30                     | 0.62              |
| 13:T:943:VAL:HG12  | 13:T:988:LYS:HD2  | 1.80                     | 0.61              |
| 14:X:-17:DT:H4'    | 14:X:-16:DT:OP1   | 1.99                     | 0.61              |
| 13:T:916:LYS:HD3   | 13:T:966:ILE:HA   | 1.82                     | 0.61              |
| 13:t:1008:ILE:HD12 | 13:t:1008:ILE:H   | 1.65                     | 0.61              |
| 6:I:385:GLU:N      | 6:I:385:GLU:OE1   | 2.33                     | 0.61              |
| 10:N:19:LEU:HD13   | 10:N:50:ALA:HA    | 1.81                     | 0.61              |
| 5:h:188:ARG:O      | 5:h:192:LEU:HD23  | 1.99                     | 0.61              |
| 10:n:79:LEU:HD13   | 10:n:142:SER:OG   | 2.00                     | 0.61              |
| 10:N:66:GLU:OE1    | 10:N:66:GLU:N     | 2.33                     | 0.61              |
| 15:Y:16:DA:H1'     | 15:Y:17:DA:C8     | 2.36                     | 0.61              |
| 4:D:52:GLU:OE2     | 4:D:56:ARG:NE     | 2.33                     | 0.61              |
| 11:O:146:ASN:OD1   | 11:O:147:ALA:N    | 2.34                     | 0.61              |
| 14:X:-25:DC:H2''   | 14:X:-24:DT:H71   | 1.81                     | 0.61              |
| 5:h:136:THR:HG22   | 13:t:826:ILE:HD13 | 1.81                     | 0.61              |
| 6:i:149:LYS:N      | 6:i:152:ASP:OD2   | 2.30                     | 0.61              |
| 6:i:385:GLU:N      | 6:i:385:GLU:OE1   | 2.34                     | 0.61              |
| 12:p:31:ILE:O      | 12:p:35:LEU:HG    | 2.00                     | 0.61              |
| 13:t:928:ARG:HH11  | 13:t:931:LYS:HD3  | 1.66                     | 0.61              |
| 5:H:15:GLU:O       | 5:H:19:LYS:HG3    | 2.00                     | 0.61              |
| 11:O:30:ILE:HG13   | 11:O:34:ARG:HH21  | 1.65                     | 0.61              |
| 11:O:185:LEU:HD13  | 11:O:189:ALA:HB3  | 1.82                     | 0.61              |
| 6:I:412:TYR:CG     | 6:I:469:MET:HE3   | 2.35                     | 0.61              |
| 11:O:54:HIS:NE2    | 12:P:42:TYR:HB3   | 2.16                     | 0.61              |
| 14:X:-33:DG:H2'    | 14:X:-32:DT:H71   | 1.82                     | 0.61              |
| 15:Y:37:DC:H2''    | 15:Y:38:DT:H73    | 1.83                     | 0.61              |
| 11:o:44:LEU:HB2    | 12:p:31:ILE:HD11  | 1.83                     | 0.61              |
| 6:i:134:GLU:OE1    | 6:i:134:GLU:N     | 2.34                     | 0.61              |
| 6:i:419:GLU:N      | 6:i:419:GLU:OE1   | 2.31                     | 0.61              |
| 15:Y:35:DC:H2''    | 15:Y:36:DC:C5     | 2.36                     | 0.60              |
| 11:O:127:MET:SD    | 11:O:156:MET:HE3  | 2.41                     | 0.60              |
| 11:O:153:ASP:OD1   | 11:O:154:ASN:N    | 2.33                     | 0.60              |
| 12:P:54:GLY:O      | 12:P:56:THR:HG22  | 2.01                     | 0.60              |
| 14:X:-19:DG:H2''   | 14:X:-18:DG:C8    | 2.35                     | 0.60              |
| 12:p:191:SER:OG    | 12:p:274:THR:HG22 | 2.01                     | 0.60              |
| 7:M:71:ASP:OD1     | 7:M:72:LEU:N      | 2.33                     | 0.60              |
| 12:p:22:ASP:O      | 12:p:25:VAL:HG12  | 2.02                     | 0.60              |
| 4:D:75:VAL:O       | 4:D:79:THR:OG1    | 2.15                     | 0.60              |
| 11:O:139:LEU:HD11  | 11:O:145:ILE:HD12 | 1.82                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:P:191:SER:OG   | 12:P:274:THR:HG22 | 2.02                     | 0.60              |
| 12:P:247:PHE:CE2  | 12:P:284:ILE:HD13 | 2.35                     | 0.60              |
| 12:p:15:LEU:O     | 12:p:18:GLN:HG3   | 2.00                     | 0.60              |
| 13:t:907:LYS:HA   | 13:t:910:TYR:HD2  | 1.65                     | 0.60              |
| 13:t:983:ARG:O    | 13:t:986:ARG:HG2  | 2.02                     | 0.60              |
| 13:T:822:LYS:O    | 13:T:826:ILE:HG12 | 2.02                     | 0.60              |
| 6:I:453:GLU:OE1   | 6:I:453:GLU:N     | 2.35                     | 0.60              |
| 10:N:176:GLN:N    | 10:N:176:GLN:OE1  | 2.35                     | 0.60              |
| 12:P:12:THR:HA    | 12:P:15:LEU:HD21  | 1.82                     | 0.60              |
| 1:A:45:ASN:ND2    | 3:C:50:ASN:OD1    | 2.34                     | 0.60              |
| 14:X:-24:DT:H2'   | 14:X:-23:DT:H72   | 1.83                     | 0.60              |
| 15:Y:27:DG:H2''   | 15:Y:28:DG:C8     | 2.37                     | 0.60              |
| 13:T:908:ARG:HH11 | 13:T:980:PHE:HZ   | 1.48                     | 0.60              |
| 14:X:-32:DT:H2''  | 14:X:-31:DA:OP2   | 2.02                     | 0.60              |
| 9:L:182:ASP:OD1   | 9:L:184:SER:N     | 2.33                     | 0.59              |
| 11:O:190:GLN:OE1  | 11:O:190:GLN:N    | 2.35                     | 0.59              |
| 12:P:18:GLN:HA    | 12:P:21:LEU:CD2   | 2.32                     | 0.59              |
| 13:T:969:THR:HA   | 13:T:1007:GLU:HA  | 1.83                     | 0.59              |
| 1:a:25:ILE:HD11   | 3:c:35:TYR:CE2    | 2.37                     | 0.59              |
| 13:t:974:TYR:CE1  | 13:t:991:PRO:HD3  | 2.37                     | 0.59              |
| 11:O:114:ASP:OD1  | 12:P:174:ARG:NH2  | 2.35                     | 0.59              |
| 11:O:224:TYR:OH   | 11:O:261:LEU:HD21 | 2.02                     | 0.59              |
| 14:X:-60:DA:C2'   | 14:X:-59:DT:H71   | 2.31                     | 0.59              |
| 8:K:151:LEU:O     | 8:K:155:ILE:HG13  | 2.00                     | 0.59              |
| 13:T:896:ARG:O    | 13:T:898:GLN:NE2  | 2.35                     | 0.59              |
| 14:X:-58:DC:H2''  | 14:X:-57:DT:OP2   | 2.02                     | 0.59              |
| 8:K:63:ASN:ND2    | 8:K:65:ASN:OD1    | 2.35                     | 0.59              |
| 14:X:-46:DT:H2''  | 14:X:-45:DG:C8    | 2.38                     | 0.59              |
| 12:p:57:LEU:HD22  | 12:p:59:ILE:HD11  | 1.84                     | 0.59              |
| 3:C:38:HIS:CG     | 5:H:18:LEU:HD11   | 2.37                     | 0.59              |
| 15:Y:19:DC:H2''   | 15:Y:20:DG:C8     | 2.37                     | 0.59              |
| 13:t:951:ASN:O    | 13:t:954:VAL:HG12 | 2.03                     | 0.59              |
| 4:d:47:LYS:HZ3    | 5:h:30:ILE:HA     | 1.67                     | 0.59              |
| 9:l:182:ASP:O     | 9:l:215:ARG:NH2   | 2.35                     | 0.59              |
| 12:P:12:THR:HA    | 12:P:15:LEU:CD2   | 2.32                     | 0.59              |
| 13:T:896:ARG:HD3  | 13:T:926:ARG:CZ   | 2.32                     | 0.59              |
| 12:p:38:LYS:NZ    | 12:p:40:THR:HA    | 2.18                     | 0.59              |
| 7:M:85:LEU:O      | 7:M:117:THR:OG1   | 2.20                     | 0.59              |
| 11:O:29:GLU:O     | 11:O:33:LEU:HD23  | 2.03                     | 0.59              |
| 11:O:62:LYS:HE3   | 11:O:63:SER:O     | 2.03                     | 0.59              |
| 14:X:-68:DA:H2''  | 14:X:-67:DT:C6    | 2.38                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:H:141:PHE:CE1   | 13:T:830:VAL:HG23 | 2.38                     | 0.58              |
| 2:b:41:ASP:O      | 2:b:45:ILE:HG13   | 2.03                     | 0.58              |
| 5:h:42:LEU:HD21   | 8:k:74:LEU:HD11   | 1.86                     | 0.58              |
| 6:i:521:VAL:HG22  | 6:i:521:VAL:O     | 2.02                     | 0.58              |
| 3:c:49:MET:HE3    | 4:d:43:ASN:HB2    | 1.84                     | 0.58              |
| 6:i:52:LEU:HD11   | 6:i:102:LEU:HD12  | 1.85                     | 0.58              |
| 5:H:193:VAL:HG21  | 5:H:232:ASP:C     | 2.28                     | 0.58              |
| 8:K:24:CYS:HG     | 7:M:18:SER:HG     | 0.60                     | 0.58              |
| 15:Y:67:DA:C2'    | 15:Y:68:DT:H71    | 2.34                     | 0.58              |
| 15:Y:69:DC:H2''   | 15:Y:70:DG:OP2    | 2.03                     | 0.58              |
| 11:O:207:GLN:CG   | 11:O:279:ILE:HD12 | 2.33                     | 0.58              |
| 14:X:-33:DG:C2'   | 14:X:-32:DT:H71   | 2.32                     | 0.58              |
| 13:T:888:ASP:OD1  | 13:T:890:LYS:NZ   | 2.24                     | 0.58              |
| 13:T:904:TRP:HB2  | 13:T:980:PHE:O    | 2.03                     | 0.58              |
| 14:X:-59:DT:H2'   | 14:X:-59:DT:OP2   | 2.03                     | 0.58              |
| 11:o:37:LEU:HA    | 12:p:24:ILE:HD11  | 1.85                     | 0.58              |
| 13:t:825:ARG:O    | 13:t:829:GLU:HG3  | 2.03                     | 0.58              |
| 14:X:-38:DA:H2''  | 14:X:-37:DG:C8    | 2.39                     | 0.58              |
| 11:O:29:GLU:CA    | 11:O:32:LYS:HE2   | 2.34                     | 0.58              |
| 12:p:41:ASN:OD1   | 12:p:42:TYR:N     | 2.37                     | 0.58              |
| 3:C:18:LEU:HB3    | 3:C:19:PRO:HD3    | 1.86                     | 0.57              |
| 15:Y:67:DA:H2''   | 15:Y:68:DT:OP2    | 2.03                     | 0.57              |
| 11:o:29:GLU:HA    | 11:o:32:LYS:HG2   | 1.86                     | 0.57              |
| 13:t:929:ALA:O    | 13:t:933:VAL:HG23 | 2.04                     | 0.57              |
| 13:T:917:LEU:HD13 | 13:T:928:ARG:CG   | 2.34                     | 0.57              |
| 14:X:-55:DA:OP1   | 13:t:892:LYS:NZ   | 2.37                     | 0.57              |
| 15:Y:34:DT:H2''   | 15:Y:35:DC:C6     | 2.39                     | 0.57              |
| 15:Y:43:DT:H2''   | 15:Y:44:DC:OP2    | 2.05                     | 0.57              |
| 6:I:166:LYS:O     | 13:T:906:THR:HG21 | 2.04                     | 0.57              |
| 6:I:170:SER:OG    | 13:T:903:SER:HA   | 2.03                     | 0.57              |
| 9:L:289:GLU:OE1   | 9:L:289:GLU:N     | 2.37                     | 0.57              |
| 11:O:40:LYS:O     | 11:O:43:GLU:HG2   | 2.04                     | 0.57              |
| 12:P:21:LEU:HD12  | 12:P:22:ASP:N     | 2.19                     | 0.57              |
| 15:Y:53:DT:H2''   | 15:Y:54:DG:H8     | 1.69                     | 0.57              |
| 11:o:68:ARG:HE    | 11:o:69:PRO:HD2   | 1.69                     | 0.57              |
| 12:p:12:THR:HA    | 12:p:15:LEU:HD21  | 1.86                     | 0.57              |
| 13:t:906:THR:O    | 13:t:907:LYS:HB2  | 2.05                     | 0.57              |
| 6:I:521:VAL:HG22  | 6:I:521:VAL:O     | 2.05                     | 0.57              |
| 13:T:827:GLU:OE2  | 13:T:831:ARG:NH2  | 2.37                     | 0.57              |
| 14:X:-57:DT:H2''  | 14:X:-56:DG:C8    | 2.39                     | 0.57              |
| 15:Y:29:DA:H2''   | 15:Y:30:DT:OP2    | 2.04                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:i:104:ASP:OD1   | 6:i:209:ILE:HD12  | 2.04                     | 0.57              |
| 13:t:831:ARG:O    | 13:t:834:LEU:HG   | 2.04                     | 0.57              |
| 13:t:963:ARG:HG3  | 13:t:964:LEU:HD23 | 1.86                     | 0.57              |
| 10:N:246:ILE:HD12 | 10:N:309:PHE:CZ   | 2.38                     | 0.57              |
| 11:O:37:LEU:CA    | 12:P:24:ILE:HD11  | 2.35                     | 0.57              |
| 13:T:916:LYS:CD   | 13:T:966:ILE:HA   | 2.34                     | 0.57              |
| 14:X:-22:DG:H2''  | 14:X:-21:DG:H8    | 1.70                     | 0.57              |
| 15:Y:53:DT:H2''   | 15:Y:54:DG:C8     | 2.40                     | 0.57              |
| 11:o:31:GLU:O     | 11:o:35:GLU:HG2   | 2.03                     | 0.57              |
| 13:t:899:PRO:HB2  | 13:t:902:ALA:HB2  | 1.87                     | 0.57              |
| 11:O:30:ILE:HG21  | 12:P:13:LEU:HD11  | 1.87                     | 0.57              |
| 10:n:45:ARG:CD    | 13:t:894:PRO:HD2  | 2.35                     | 0.57              |
| 13:t:993:ILE:HD12 | 13:t:993:ILE:N    | 2.20                     | 0.57              |
| 11:O:31:GLU:HA    | 11:O:34:ARG:HE    | 1.68                     | 0.57              |
| 11:O:165:ARG:NH2  | 12:P:180:GLU:OE1  | 2.38                     | 0.57              |
| 5:H:104:LYS:O     | 5:H:108:THR:OG1   | 2.23                     | 0.57              |
| 11:O:36:ASN:O     | 11:O:40:LYS:HG2   | 2.05                     | 0.57              |
| 13:T:957:LEU:HD22 | 13:T:973:PHE:CZ   | 2.40                     | 0.57              |
| 5:h:15:GLU:O      | 5:h:19:LYS:HG2    | 2.04                     | 0.57              |
| 13:t:960:GLU:O    | 13:t:963:ARG:HG2  | 2.05                     | 0.57              |
| 13:t:990:VAL:O    | 13:t:995:ASN:ND2  | 2.38                     | 0.57              |
| 11:O:211:GLU:OE1  | 11:O:212:GLU:N    | 2.37                     | 0.56              |
| 12:P:11:LYS:O     | 12:P:14:LEU:HG    | 2.05                     | 0.56              |
| 15:Y:42:DC:H2'    | 15:Y:43:DT:H71    | 1.86                     | 0.56              |
| 6:i:566:ASP:OD2   | 6:i:584:VAL:N     | 2.37                     | 0.56              |
| 13:t:937:TYR:O    | 13:t:940:THR:HG22 | 2.04                     | 0.56              |
| 1:A:65:GLU:N      | 1:A:65:GLU:OE1    | 2.38                     | 0.56              |
| 13:T:817:LYS:HE2  | 13:T:817:LYS:CA   | 2.33                     | 0.56              |
| 10:n:19:LEU:HD13  | 10:n:50:ALA:HA    | 1.86                     | 0.56              |
| 11:o:44:LEU:HA    | 12:p:31:ILE:HD11  | 1.88                     | 0.56              |
| 7:J:79:ASP:OD2    | 7:J:169:ILE:HD11  | 2.05                     | 0.56              |
| 15:Y:42:DC:H2'    | 15:Y:43:DT:C6     | 2.40                     | 0.56              |
| 8:k:175:ALA:O     | 8:k:179:ASN:ND2   | 2.38                     | 0.56              |
| 9:l:182:ASP:OD1   | 9:l:184:SER:N     | 2.38                     | 0.56              |
| 12:p:199:LEU:HD11 | 12:p:281:LEU:HD13 | 1.87                     | 0.56              |
| 5:H:188:ARG:O     | 5:H:192:LEU:HD23  | 2.05                     | 0.56              |
| 13:T:928:ARG:HH22 | 13:T:931:LYS:HE2  | 1.68                     | 0.56              |
| 15:Y:48:DG:H2''   | 15:Y:49:DC:C6     | 2.41                     | 0.56              |
| 8:k:187:GLN:NE2   | 8:k:188:ILE:O     | 2.39                     | 0.56              |
| 13:T:932:LEU:O    | 13:T:936:ILE:HG13 | 2.05                     | 0.56              |
| 15:Y:27:DG:H2''   | 15:Y:28:DG:N7     | 2.19                     | 0.56              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 11:o:27:GLN:O      | 11:o:30:ILE:HG12  | 2.06                     | 0.56              |
| 11:o:44:LEU:O      | 11:o:48:GLN:HG2   | 2.05                     | 0.56              |
| 13:t:916:LYS:HD2   | 13:t:966:ILE:HD13 | 1.86                     | 0.56              |
| 4:d:18:ILE:O       | 4:d:22:ILE:HG12   | 2.05                     | 0.56              |
| 13:t:928:ARG:HH11  | 13:t:931:LYS:CD   | 2.19                     | 0.56              |
| 7:M:73:THR:HA      | 12:P:59:ILE:HD12  | 1.86                     | 0.56              |
| 11:O:36:ASN:HD21   | 11:O:40:LYS:HE3   | 1.71                     | 0.56              |
| 6:i:453:GLU:N      | 6:i:453:GLU:OE1   | 2.38                     | 0.56              |
| 10:N:71:ASN:OD1    | 10:N:72:ASP:N     | 2.39                     | 0.56              |
| 15:Y:47:DG:C5'     | 13:t:900:LYS:HE2  | 2.32                     | 0.56              |
| 13:T:906:THR:O     | 13:T:907:LYS:HB3  | 2.05                     | 0.56              |
| 9:l:48:GLN:N       | 9:l:48:GLN:OE1    | 2.39                     | 0.56              |
| 10:n:61:ILE:O      | 10:n:65:LEU:HD22  | 2.05                     | 0.56              |
| 13:t:888:ASP:O     | 13:t:889:MET:HG2  | 2.05                     | 0.56              |
| 1:A:20:GLN:CD      | 11:O:66:PHE:HB2   | 2.31                     | 0.56              |
| 5:H:31:GLY:HA3     | 12:P:42:TYR:CE1   | 2.41                     | 0.56              |
| 8:K:188:ILE:HG22   | 8:K:213:MET:O     | 2.06                     | 0.56              |
| 15:Y:38:DT:H2''    | 15:Y:39:DA:N7     | 2.21                     | 0.56              |
| 6:i:34:VAL:HG12    | 6:i:219:ARG:HH22  | 1.71                     | 0.56              |
| 11:o:186:ASN:OD1   | 11:o:187:VAL:N    | 2.39                     | 0.56              |
| 12:p:12:THR:HA     | 12:p:15:LEU:CD2   | 2.36                     | 0.56              |
| 13:t:827:GLU:O     | 13:t:831:ARG:HG2  | 2.06                     | 0.56              |
| 5:h:136:THR:CG2    | 13:t:826:ILE:HD13 | 2.36                     | 0.55              |
| 10:n:246:ILE:HD12  | 10:n:309:PHE:CZ   | 2.40                     | 0.55              |
| 6:I:317:ASP:OD1    | 6:I:318:GLN:N     | 2.39                     | 0.55              |
| 7:J:73:THR:HA      | 12:p:59:ILE:HD12  | 1.89                     | 0.55              |
| 11:O:28:ASP:HA     | 11:O:31:GLU:OE1   | 2.05                     | 0.55              |
| 11:O:29:GLU:CB     | 11:O:32:LYS:HE2   | 2.36                     | 0.55              |
| 13:T:993:ILE:HD12  | 13:T:993:ILE:N    | 2.20                     | 0.55              |
| 14:X:-19:DG:H22    | 15:Y:19:DC:H42    | 1.52                     | 0.55              |
| 13:t:940:THR:HA    | 13:t:943:VAL:HG12 | 1.87                     | 0.55              |
| 6:I:562:ARG:NH2    | 6:I:580:GLY:O     | 2.39                     | 0.55              |
| 11:o:67:VAL:HG22   | 11:o:68:ARG:H     | 1.71                     | 0.55              |
| 13:t:978:HIS:HB2   | 13:t:986:ARG:NH2  | 2.19                     | 0.55              |
| 13:T:1001:ARG:HH12 | 10:n:33:LYS:NZ    | 2.03                     | 0.55              |
| 11:o:48:GLN:O      | 11:o:51:SER:OG    | 2.21                     | 0.55              |
| 11:O:195:LEU:O     | 11:O:196:ASP:OD1  | 2.24                     | 0.55              |
| 12:P:22:ASP:O      | 12:P:25:VAL:HG12  | 2.06                     | 0.55              |
| 5:h:9:GLU:O        | 5:h:12:GLN:HG3    | 2.07                     | 0.55              |
| 13:t:978:HIS:HA    | 13:t:986:ARG:HE   | 1.70                     | 0.55              |
| 10:N:229:LEU:HD11  | 12:P:59:ILE:HB    | 1.87                     | 0.55              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 15:Y:56:DC:H2''    | 15:Y:57:DA:N7     | 2.21                     | 0.55              |
| 8:k:166:ILE:HA     | 8:k:169:PHE:CE2   | 2.42                     | 0.55              |
| 5:H:31:GLY:HA3     | 12:P:42:TYR:HD1   | 1.71                     | 0.55              |
| 10:n:134:LEU:HD11  | 11:o:192:PHE:CE1  | 2.41                     | 0.55              |
| 3:C:15:ALA:O       | 3:C:19:PRO:HD2    | 2.05                     | 0.55              |
| 11:O:68:ARG:HG3    | 11:O:69:PRO:HD2   | 1.89                     | 0.55              |
| 13:T:939:PHE:CG    | 13:T:957:LEU:HD12 | 2.41                     | 0.55              |
| 13:T:961:MET:HE3   | 13:T:966:ILE:CG2  | 2.37                     | 0.55              |
| 14:X:-39:DT:H2''   | 14:X:-38:DA:N7    | 2.22                     | 0.55              |
| 6:I:220:THR:HG22   | 6:I:223:ARG:HH21  | 1.72                     | 0.55              |
| 14:X:-24:DT:H2'    | 14:X:-23:DT:C7    | 2.37                     | 0.55              |
| 11:o:31:GLU:HA     | 11:o:34:ARG:CD    | 2.37                     | 0.55              |
| 11:o:196:ASP:OD1   | 11:o:196:ASP:O    | 2.25                     | 0.55              |
| 12:p:30:ARG:O      | 12:p:33:GLU:HG2   | 2.06                     | 0.55              |
| 12:p:59:ILE:HG22   | 12:p:60:ASP:N     | 2.22                     | 0.55              |
| 10:N:132:THR:HG23  | 10:N:139:LEU:HD11 | 1.89                     | 0.54              |
| 6:i:528:LYS:O      | 6:i:532:LEU:HD23  | 2.08                     | 0.54              |
| 11:o:44:LEU:CA     | 12:p:31:ILE:HD11  | 2.37                     | 0.54              |
| 12:p:33:GLU:HG3    | 12:p:34:LEU:HD22  | 1.90                     | 0.54              |
| 12:p:274:THR:O     | 12:p:278:THR:HG23 | 2.07                     | 0.54              |
| 11:O:196:ASP:OD1   | 11:O:196:ASP:O    | 2.25                     | 0.54              |
| 13:t:913:LEU:O     | 13:t:917:LEU:HD13 | 2.07                     | 0.54              |
| 13:t:1008:ILE:HD12 | 13:t:1008:ILE:N   | 2.22                     | 0.54              |
| 10:N:45:ARG:CD     | 13:T:894:PRO:HG2  | 2.37                     | 0.54              |
| 13:T:928:ARG:NH2   | 13:T:931:LYS:HB3  | 2.22                     | 0.54              |
| 13:T:957:LEU:HD22  | 13:T:973:PHE:HZ   | 1.73                     | 0.54              |
| 13:T:993:ILE:C     | 13:T:996:LYS:HE3  | 2.32                     | 0.54              |
| 14:X:-56:DG:H2''   | 14:X:-55:DA:N7    | 2.22                     | 0.54              |
| 5:h:49:SER:OG      | 5:h:53:LYS:NZ     | 2.40                     | 0.54              |
| 6:i:10:TYR:OH      | 6:i:19:ASP:OD1    | 2.25                     | 0.54              |
| 6:i:481:MET:N      | 8:k:89:GLN:OE1    | 2.37                     | 0.54              |
| 10:n:166:ALA:C     | 10:n:167:LEU:HD12 | 2.31                     | 0.54              |
| 11:o:195:LEU:O     | 11:o:196:ASP:OD1  | 2.25                     | 0.54              |
| 12:p:11:LYS:O      | 12:p:14:LEU:HG    | 2.06                     | 0.54              |
| 9:L:41:VAL:HG22    | 9:L:161:ILE:CD1   | 2.38                     | 0.54              |
| 13:T:909:LEU:HD23  | 13:T:909:LEU:O    | 2.07                     | 0.54              |
| 10:N:26:VAL:HG12   | 10:N:77:LEU:HD13  | 1.88                     | 0.54              |
| 5:H:21:LEU:HA      | 5:H:24:VAL:HG12   | 1.90                     | 0.54              |
| 6:I:104:ASP:O      | 6:I:107:THR:OG1   | 2.18                     | 0.54              |
| 12:P:103:GLU:OE1   | 12:P:103:GLU:N    | 2.32                     | 0.54              |
| 14:X:-69:DG:H2''   | 14:X:-68:DA:N7    | 2.21                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:X:-51:DG:H2''  | 14:X:-50:DT:OP2   | 2.08                     | 0.54              |
| 14:X:-27:DC:H1'   | 14:X:-26:DC:C5    | 2.43                     | 0.54              |
| 5:h:217:PRO:HD3   | 6:i:88:ILE:HD11   | 1.90                     | 0.54              |
| 6:i:96:PHE:HD1    | 6:i:136:LEU:HD11  | 1.73                     | 0.54              |
| 6:i:521:VAL:HG23  | 6:i:613:VAL:HG12  | 1.89                     | 0.54              |
| 11:o:153:ASP:OD1  | 11:o:154:ASN:N    | 2.41                     | 0.54              |
| 3:C:38:HIS:CB     | 5:H:18:LEU:HD11   | 2.37                     | 0.54              |
| 6:I:488:ILE:HD12  | 6:I:529:MET:CE    | 2.38                     | 0.54              |
| 10:N:166:ALA:C    | 10:N:167:LEU:HD12 | 2.32                     | 0.54              |
| 13:T:937:TYR:CZ   | 13:T:941:LYS:HE2  | 2.42                     | 0.54              |
| 14:X:-52:DC:OP2   | 6:i:172:LYS:NZ    | 2.41                     | 0.54              |
| 15:Y:68:DT:H2''   | 15:Y:69:DC:C5     | 2.43                     | 0.54              |
| 1:a:17:THR:O      | 1:a:21:LEU:HD23   | 2.07                     | 0.54              |
| 13:t:943:VAL:CG2  | 13:t:949:ALA:HB2  | 2.38                     | 0.54              |
| 9:l:42:SER:OG     | 9:l:160:ASN:N     | 2.37                     | 0.54              |
| 11:O:37:LEU:O     | 11:O:41:GLN:HG3   | 2.07                     | 0.54              |
| 14:X:-52:DC:H2''  | 14:X:-51:DG:OP2   | 2.07                     | 0.54              |
| 4:d:56:ARG:O      | 4:d:60:LEU:HD23   | 2.06                     | 0.54              |
| 12:p:249:LEU:HD21 | 12:p:260:ILE:HG21 | 1.90                     | 0.54              |
| 4:D:32:LEU:O      | 4:D:32:LEU:HD23   | 2.08                     | 0.54              |
| 14:X:-61:DT:H2''  | 14:X:-60:DA:H5'   | 1.90                     | 0.54              |
| 15:Y:21:DC:H2''   | 15:Y:22:DC:C5'    | 2.38                     | 0.54              |
| 3:c:63:TRP:CE2    | 4:d:57:LEU:HD21   | 2.42                     | 0.54              |
| 7:J:132:LEU:HD23  | 7:J:136:TYR:CD2   | 2.43                     | 0.53              |
| 10:N:112:GLU:N    | 10:N:112:GLU:OE1  | 2.39                     | 0.53              |
| 15:Y:47:DG:H4'    | 13:t:900:LYS:CD   | 2.38                     | 0.53              |
| 6:i:353:ALA:HB2   | 6:i:389:LEU:HD22  | 1.91                     | 0.53              |
| 6:i:399:ASP:OD1   | 6:i:400:HIS:N     | 2.41                     | 0.53              |
| 5:H:234:ASP:OD1   | 5:H:235:THR:N     | 2.40                     | 0.53              |
| 14:X:-37:DG:H2''  | 14:X:-36:DG:C8    | 2.43                     | 0.53              |
| 9:l:84:LEU:HD22   | 9:l:87:LEU:HD11   | 1.89                     | 0.53              |
| 9:l:143:GLN:O     | 9:l:147:THR:HG23  | 2.09                     | 0.53              |
| 13:t:958:LYS:HG2  | 13:t:973:PHE:CD2  | 2.43                     | 0.53              |
| 13:T:993:ILE:O    | 13:T:996:LYS:HE3  | 2.08                     | 0.53              |
| 13:T:999:ILE:HG23 | 13:T:1000:PRO:HD2 | 1.91                     | 0.53              |
| 15:Y:64:DT:H2''   | 15:Y:65:DA:H8     | 1.72                     | 0.53              |
| 1:a:25:ILE:HD11   | 3:c:35:TYR:HE2    | 1.72                     | 0.53              |
| 10:n:42:ARG:CZ    | 13:t:891:TYR:HB2  | 2.38                     | 0.53              |
| 2:B:60:GLU:OE1    | 4:D:42:ILE:HG12   | 2.08                     | 0.53              |
| 4:D:44:LEU:HD21   | 11:O:49:ARG:O     | 2.09                     | 0.53              |
| 13:T:986:ARG:HA   | 13:T:989:VAL:HG12 | 1.90                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 13:t:1000:PRO:HG2 | 13:t:1004:VAL:HA   | 1.91                     | 0.53              |
| 12:P:224:LEU:HD23 | 12:P:224:LEU:C     | 2.33                     | 0.53              |
| 2:b:68:HIS:ND1    | 11:o:41:GLN:HB3    | 2.22                     | 0.53              |
| 10:n:66:GLU:N     | 10:n:66:GLU:OE1    | 2.41                     | 0.53              |
| 11:o:251:GLU:O    | 11:o:254:THR:HG22  | 2.08                     | 0.53              |
| 12:p:18:GLN:HA    | 12:p:21:LEU:CD2    | 2.39                     | 0.53              |
| 12:p:38:LYS:HZ3   | 12:p:40:THR:HA     | 1.71                     | 0.53              |
| 12:p:54:GLY:O     | 12:p:56:THR:HG22   | 2.08                     | 0.53              |
| 3:C:50:ASN:O      | 3:C:54:ARG:HG3     | 2.08                     | 0.53              |
| 14:X:-22:DG:H2''  | 14:X:-21:DG:C8     | 2.44                     | 0.53              |
| 6:i:21:ASP:OD1    | 6:i:22:LEU:N       | 2.42                     | 0.53              |
| 11:o:29:GLU:O     | 11:o:32:LYS:HG2    | 2.09                     | 0.53              |
| 13:t:966:ILE:HG22 | 13:t:967:VAL:HG13  | 1.91                     | 0.53              |
| 13:t:973:PHE:CZ   | 13:t:977:PHE:HE2   | 2.27                     | 0.53              |
| 7:J:166:GLU:OE2   | 7:J:172:ARG:NH1    | 2.38                     | 0.53              |
| 12:P:57:LEU:HG    | 12:P:59:ILE:HD11   | 1.91                     | 0.53              |
| 13:T:939:PHE:O    | 13:T:943:VAL:HG23  | 2.09                     | 0.53              |
| 13:T:957:LEU:O    | 13:T:957:LEU:HD23  | 2.08                     | 0.53              |
| 12:P:27:CYS:O     | 12:P:31:ILE:HG13   | 2.08                     | 0.53              |
| 8:k:14:LYS:HE2    | 12:p:47:ASP:HB2    | 1.91                     | 0.53              |
| 12:p:26:TYR:OH    | 12:p:30:ARG:NH1    | 2.42                     | 0.53              |
| 13:t:967:VAL:HG12 | 13:t:972:ASP:OD2   | 2.09                     | 0.53              |
| 14:X:-30:DA:H8    | 14:X:-30:DA:OP2    | 1.92                     | 0.53              |
| 13:t:961:MET:CB   | 13:t:967:VAL:HG22  | 2.38                     | 0.53              |
| 11:O:62:LYS:HD2   | 11:O:63:SER:N      | 2.24                     | 0.52              |
| 6:i:26:LYS:NZ     | 6:i:29:GLU:OE2     | 2.42                     | 0.52              |
| 13:T:827:GLU:O    | 13:T:830:VAL:HG12  | 2.09                     | 0.52              |
| 14:X:-20:DC:H2''  | 14:X:-19:DG:N7     | 2.23                     | 0.52              |
| 10:n:39:ARG:O     | 10:n:43:LEU:HD13   | 2.09                     | 0.52              |
| 11:o:32:LYS:HG3   | 11:o:33:LEU:HD22   | 1.91                     | 0.52              |
| 12:p:12:THR:O     | 12:p:15:LEU:HG     | 2.09                     | 0.52              |
| 12:p:224:LEU:HD21 | 12:p:252:MET:HB2   | 1.90                     | 0.52              |
| 13:t:958:LYS:C    | 13:t:1008:ILE:HG21 | 2.33                     | 0.52              |
| 13:t:961:MET:HB3  | 13:t:967:VAL:HG22  | 1.91                     | 0.52              |
| 7:J:87:THR:HG1    | 7:J:118:SER:HG     | 1.48                     | 0.52              |
| 9:L:143:GLN:O     | 9:L:147:THR:HG23   | 2.09                     | 0.52              |
| 11:O:45:PHE:CZ    | 11:O:49:ARG:HD2    | 2.45                     | 0.52              |
| 14:X:-52:DC:OP2   | 14:X:-52:DC:H2'    | 2.09                     | 0.52              |
| 13:t:999:ILE:HG13 | 13:t:1000:PRO:HD2  | 1.91                     | 0.52              |
| 7:J:71:ASP:OD1    | 7:J:72:LEU:N       | 2.42                     | 0.52              |
| 10:N:73:ILE:HG22  | 10:N:76:ARG:HH21   | 1.74                     | 0.52              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 13:T:983:ARG:HG3   | 13:T:986:ARG:CZ   | 2.39                     | 0.52              |
| 15:Y:41:DT:H2''    | 15:Y:42:DC:C6     | 2.45                     | 0.52              |
| 2:b:39:ASN:O       | 2:b:43:LEU:HD23   | 2.10                     | 0.52              |
| 6:i:356:GLN:NE2    | 6:i:366:ILE:HG21  | 2.24                     | 0.52              |
| 4:D:69:ARG:O       | 4:D:70:SER:OG     | 2.11                     | 0.52              |
| 7:J:127:ILE:HD11   | 7:J:132:LEU:HD12  | 1.89                     | 0.52              |
| 8:K:164:ALA:O      | 8:K:167:ILE:HG22  | 2.09                     | 0.52              |
| 13:T:896:ARG:HA    | 13:T:930:GLU:OE2  | 2.09                     | 0.52              |
| 13:T:936:ILE:O     | 13:T:940:THR:HG23 | 2.10                     | 0.52              |
| 13:T:966:ILE:N     | 13:T:966:ILE:HD12 | 2.24                     | 0.52              |
| 15:Y:28:DG:H2''    | 15:Y:29:DA:C8     | 2.44                     | 0.52              |
| 6:i:74:VAL:N       | 6:i:114:CYS:O     | 2.42                     | 0.52              |
| 6:i:166:LYS:HE3    | 13:t:908:ARG:HD3  | 1.90                     | 0.52              |
| 13:t:899:PRO:HB2   | 13:t:902:ALA:CB   | 2.39                     | 0.52              |
| 13:t:932:LEU:O     | 13:t:935:THR:HG22 | 2.09                     | 0.52              |
| 6:I:386:ILE:O      | 6:I:390:VAL:HG23  | 2.10                     | 0.52              |
| 9:L:84:LEU:HD22    | 9:L:87:LEU:HD22   | 1.92                     | 0.52              |
| 7:M:30:LEU:HD21    | 7:M:95:TRP:CD1    | 2.44                     | 0.52              |
| 12:P:12:THR:O      | 12:P:15:LEU:HG    | 2.09                     | 0.52              |
| 14:X:-71:DT:H2''   | 14:X:-70:DC:C6    | 2.45                     | 0.52              |
| 3:c:20:MET:SD      | 5:h:5:LYS:HD3     | 2.48                     | 0.52              |
| 12:p:18:GLN:O      | 12:p:21:LEU:HG    | 2.08                     | 0.52              |
| 6:I:566:ASP:O      | 6:I:569:SER:OG    | 2.10                     | 0.52              |
| 10:N:224:ALA:N     | 10:N:241:TYR:OH   | 2.39                     | 0.52              |
| 13:T:917:LEU:HD13  | 13:T:928:ARG:HG3  | 1.92                     | 0.52              |
| 10:N:5:ASN:OD1     | 10:N:6:LYS:N      | 2.43                     | 0.52              |
| 11:O:154:ASN:OD1   | 11:O:155:ILE:N    | 2.43                     | 0.52              |
| 14:X:-38:DA:OP2    | 14:X:-38:DA:H3'   | 2.10                     | 0.52              |
| 12:p:18:GLN:HA     | 12:p:21:LEU:HG    | 1.91                     | 0.52              |
| 13:t:896:ARG:HD3   | 13:t:926:ARG:NH1  | 2.24                     | 0.52              |
| 13:t:917:LEU:CD1   | 13:t:966:ILE:HD11 | 2.38                     | 0.52              |
| 6:I:481:MET:HA     | 6:I:481:MET:HE2   | 1.91                     | 0.52              |
| 13:T:983:ARG:HG3   | 13:T:986:ARG:NH2  | 2.25                     | 0.52              |
| 13:T:1008:ILE:HG23 | 13:T:1009:LEU:HG  | 1.92                     | 0.52              |
| 15:Y:22:DC:H2''    | 15:Y:23:DA:C8     | 2.45                     | 0.52              |
| 9:l:147:THR:O      | 9:l:151:THR:HG23  | 2.09                     | 0.52              |
| 13:t:955:ASP:HA    | 13:t:958:LYS:NZ   | 2.25                     | 0.52              |
| 12:P:224:LEU:HD21  | 12:P:252:MET:SD   | 2.50                     | 0.52              |
| 14:X:-63:DT:H2''   | 14:X:-62:DA:H8    | 1.74                     | 0.52              |
| 15:Y:25:DG:H2''    | 15:Y:26:DG:N7     | 2.25                     | 0.52              |
| 15:Y:38:DT:H2''    | 15:Y:39:DA:OP2    | 2.10                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:h:21:LEU:HA     | 5:h:24:VAL:HG12   | 1.91                     | 0.52              |
| 10:n:46:LEU:HD11  | 13:t:923:TYR:HB2  | 1.92                     | 0.52              |
| 10:n:70:LEU:O     | 10:n:73:ILE:HG22  | 2.09                     | 0.52              |
| 11:o:37:LEU:CD2   | 12:p:20:LEU:HD13  | 2.40                     | 0.52              |
| 11:O:37:LEU:HD11  | 12:P:23:ASN:HB3   | 1.92                     | 0.51              |
| 5:h:6:THR:O       | 5:h:10:VAL:HG23   | 2.09                     | 0.51              |
| 13:T:990:VAL:O    | 13:T:995:ASN:ND2  | 2.43                     | 0.51              |
| 15:Y:46:DA:H2''   | 15:Y:47:DG:N7     | 2.25                     | 0.51              |
| 9:l:65:LEU:O      | 9:l:144:ARG:NH2   | 2.43                     | 0.51              |
| 12:p:33:GLU:O     | 12:p:37:LYS:N     | 2.41                     | 0.51              |
| 7:M:98:LYS:O      | 7:M:101:SER:OG    | 2.26                     | 0.51              |
| 13:T:910:TYR:HE1  | 13:T:933:VAL:HG21 | 1.75                     | 0.51              |
| 14:X:-26:DC:H2''  | 14:X:-25:DC:C6    | 2.45                     | 0.51              |
| 13:t:960:GLU:HA   | 13:t:963:ARG:HG2  | 1.91                     | 0.51              |
| 4:D:45:SER:HB2    | 11:O:49:ARG:HE    | 1.75                     | 0.51              |
| 5:H:32:GLU:O      | 12:P:43:ILE:HG22  | 2.09                     | 0.51              |
| 9:L:195:ARG:NH2   | 9:L:268:CYS:SG    | 2.81                     | 0.51              |
| 12:P:16:GLU:O     | 12:P:20:LEU:HD13  | 2.11                     | 0.51              |
| 6:i:139:GLN:OE1   | 6:i:139:GLN:N     | 2.41                     | 0.51              |
| 9:l:225:THR:HG22  | 9:l:225:THR:O     | 2.10                     | 0.51              |
| 13:t:953:ALA:O    | 13:t:957:LEU:HD23 | 2.10                     | 0.51              |
| 14:X:-36:DG:H2''  | 14:X:-35:DG:C8    | 2.45                     | 0.51              |
| 13:t:943:VAL:HG22 | 13:t:988:LYS:CD   | 2.38                     | 0.51              |
| 12:P:169:LEU:CD1  | 12:P:178:VAL:HG23 | 2.40                     | 0.51              |
| 15:Y:58:DG:H2''   | 15:Y:59:DA:C8     | 2.46                     | 0.51              |
| 5:h:210:ARG:NH2   | 8:k:198:LEU:HD13  | 2.25                     | 0.51              |
| 6:i:498:HIS:HA    | 6:i:503:ILE:HG22  | 1.93                     | 0.51              |
| 11:o:273:VAL:HG13 | 11:o:274:GLY:N    | 2.26                     | 0.51              |
| 8:K:69:THR:HG23   | 8:K:75:LEU:HD21   | 1.93                     | 0.51              |
| 5:h:202:LEU:HD22  | 8:k:151:LEU:HD21  | 1.92                     | 0.51              |
| 13:t:921:TYR:O    | 13:t:924:LYS:HB2  | 2.10                     | 0.51              |
| 13:t:954:VAL:O    | 13:t:958:LYS:HG3  | 2.11                     | 0.51              |
| 6:I:7:ILE:CD1     | 6:I:30:LEU:HD12   | 2.40                     | 0.51              |
| 7:M:69:GLN:O      | 7:M:73:THR:HG22   | 2.11                     | 0.51              |
| 13:T:926:ARG:O    | 13:T:930:GLU:HG2  | 2.11                     | 0.51              |
| 15:Y:23:DA:H2''   | 15:Y:24:DA:OP2    | 2.08                     | 0.51              |
| 1:a:63:ASP:OD2    | 1:a:66:ASN:ND2    | 2.43                     | 0.51              |
| 5:h:26:PHE:CD1    | 11:o:53:LYS:HE3   | 2.46                     | 0.51              |
| 12:p:224:LEU:C    | 12:p:224:LEU:HD23 | 2.35                     | 0.51              |
| 12:p:245:MET:SD   | 12:p:245:MET:N    | 2.83                     | 0.51              |
| 6:I:623:LEU:HD21  | 6:I:631:ALA:HB2   | 1.93                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:Y:66:DC:H2''   | 15:Y:67:DA:OP2    | 2.10                     | 0.51              |
| 6:i:385:GLU:O     | 6:i:389:LEU:HD23  | 2.11                     | 0.51              |
| 3:C:20:MET:HE1    | 5:H:5:LYS:HE2     | 1.93                     | 0.51              |
| 6:I:432:ILE:HD12  | 6:I:497:ALA:HB2   | 1.93                     | 0.51              |
| 9:L:190:PHE:HB2   | 9:L:211:ILE:HD13  | 1.93                     | 0.51              |
| 11:O:210:VAL:HG12 | 11:O:211:GLU:H    | 1.76                     | 0.51              |
| 15:Y:22:DC:H2''   | 15:Y:23:DA:H8     | 1.75                     | 0.51              |
| 5:h:20:GLN:O      | 5:h:24:VAL:HG12   | 2.11                     | 0.51              |
| 11:o:116:ASP:OD1  | 11:o:117:ASN:N    | 2.44                     | 0.51              |
| 11:O:251:GLU:O    | 11:O:254:THR:HG22 | 2.11                     | 0.50              |
| 8:k:166:ILE:HA    | 8:k:169:PHE:CD2   | 2.46                     | 0.50              |
| 3:C:38:HIS:HB2    | 5:H:18:LEU:HD11   | 1.93                     | 0.50              |
| 5:H:49:SER:OG     | 5:H:53:LYS:NZ     | 2.44                     | 0.50              |
| 6:I:174:LEU:O     | 6:I:178:LEU:HD23  | 2.11                     | 0.50              |
| 10:N:207:ASP:OD1  | 10:N:209:ALA:N    | 2.44                     | 0.50              |
| 13:T:895:LYS:HG2  | 13:T:896:ARG:N    | 2.26                     | 0.50              |
| 15:Y:21:DC:H2''   | 15:Y:22:DC:H5'    | 1.93                     | 0.50              |
| 6:i:216:ARG:O     | 6:i:220:THR:HG23  | 2.11                     | 0.50              |
| 9:l:149:VAL:O     | 9:l:153:LEU:HD23  | 2.10                     | 0.50              |
| 6:I:7:ILE:HD13    | 6:I:30:LEU:HD12   | 1.94                     | 0.50              |
| 6:I:363:ILE:HG22  | 6:I:365:VAL:HG12  | 1.93                     | 0.50              |
| 12:P:200:ALA:O    | 12:P:204:GLU:N    | 2.40                     | 0.50              |
| 12:P:229:TRP:HZ3  | 12:P:281:LEU:HD11 | 1.76                     | 0.50              |
| 14:X:-33:DG:H2'   | 14:X:-33:DG:OP2   | 2.12                     | 0.50              |
| 15:Y:54:DG:C2'    | 15:Y:55:DT:H72    | 2.41                     | 0.50              |
| 6:i:48:PHE:CE1    | 6:i:52:LEU:HD21   | 2.47                     | 0.50              |
| 6:I:64:LEU:C      | 6:I:64:LEU:HD23   | 2.37                     | 0.50              |
| 10:N:46:LEU:HD11  | 13:T:923:TYR:HB2  | 1.93                     | 0.50              |
| 12:P:38:LYS:HZ2   | 12:P:40:THR:HA    | 1.77                     | 0.50              |
| 14:X:-17:DT:H2''  | 14:X:-16:DT:O5'   | 2.12                     | 0.50              |
| 6:i:627:ASP:OD1   | 6:i:628:GLU:N     | 2.44                     | 0.50              |
| 8:k:2:THR:CG2     | 12:p:41:ASN:HB2   | 2.41                     | 0.50              |
| 12:p:40:THR:HG21  | 12:p:42:TYR:CE2   | 2.46                     | 0.50              |
| 12:p:59:ILE:HG22  | 12:p:60:ASP:H     | 1.76                     | 0.50              |
| 6:I:637:TYR:HA    | 6:I:640:PHE:CD2   | 2.47                     | 0.50              |
| 8:k:200:LYS:NZ    | 13:t:975:GLN:OE1  | 2.39                     | 0.50              |
| 6:I:213:LEU:HD11  | 6:I:217:PHE:HE2   | 1.76                     | 0.50              |
| 8:K:194:GLN:NE2   | 13:T:992:ASP:HA   | 2.27                     | 0.50              |
| 11:O:60:LYS:HD3   | 12:P:48:SER:C     | 2.37                     | 0.50              |
| 14:X:-64:DA:C8    | 14:X:-63:DT:H72   | 2.47                     | 0.50              |
| 14:X:-51:DG:N9    | 14:X:-50:DT:H72   | 2.27                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:i:47:LEU:HD23   | 6:i:68:LEU:HD13   | 1.93                     | 0.50              |
| 8:k:188:ILE:HG22  | 8:k:213:MET:O     | 2.12                     | 0.50              |
| 1:A:63:ASP:OD2    | 1:A:66:ASN:ND2    | 2.43                     | 0.50              |
| 9:L:42:SER:OG     | 9:L:160:ASN:N     | 2.41                     | 0.50              |
| 14:X:-27:DC:H2"   | 14:X:-26:DC:C5    | 2.47                     | 0.50              |
| 8:k:18:LYS:O      | 8:k:18:LYS:NZ     | 2.43                     | 0.50              |
| 8:k:107:GLU:OE1   | 8:k:110:ARG:NH2   | 2.43                     | 0.50              |
| 9:l:98:LEU:HD21   | 9:l:100:THR:OG1   | 2.12                     | 0.50              |
| 13:t:967:VAL:HG11 | 13:t:973:PHE:HA   | 1.92                     | 0.50              |
| 12:P:59:ILE:HG22  | 12:P:60:ASP:N     | 2.25                     | 0.50              |
| 13:T:907:LYS:HA   | 13:T:910:TYR:CD2  | 2.46                     | 0.50              |
| 13:T:952:ASP:OD1  | 13:T:953:ALA:N    | 2.44                     | 0.50              |
| 14:X:-35:DG:H2"   | 14:X:-34:DA:H8    | 1.77                     | 0.50              |
| 12:p:26:TYR:O     | 12:p:30:ARG:HG2   | 2.12                     | 0.50              |
| 6:I:38:GLY:C      | 6:I:39:LEU:HD22   | 2.37                     | 0.49              |
| 9:L:187:ASN:O     | 9:L:187:ASN:ND2   | 2.38                     | 0.49              |
| 14:X:-24:DT:H2"   | 14:X:-23:DT:C6    | 2.47                     | 0.49              |
| 5:h:17:GLU:O      | 5:h:21:LEU:HG     | 2.12                     | 0.49              |
| 6:i:22:LEU:HD23   | 6:i:22:LEU:O      | 2.12                     | 0.49              |
| 6:i:51:TRP:HE3    | 6:i:52:LEU:HD22   | 1.77                     | 0.49              |
| 13:t:826:ILE:O    | 13:t:830:VAL:HG23 | 2.12                     | 0.49              |
| 13:t:970:HIS:HE2  | 13:t:1008:ILE:HA  | 1.76                     | 0.49              |
| 10:N:19:LEU:HD23  | 10:N:19:LEU:C     | 2.38                     | 0.49              |
| 11:O:27:GLN:N     | 11:O:29:GLU:OE1   | 2.45                     | 0.49              |
| 8:K:201:ASP:OD1   | 13:T:986:ARG:NH2  | 2.18                     | 0.49              |
| 10:N:70:LEU:O     | 10:N:73:ILE:HG12  | 2.12                     | 0.49              |
| 4:d:19:SER:HB2    | 5:h:10:VAL:HG21   | 1.94                     | 0.49              |
| 2:B:68:HIS:ND1    | 11:O:41:GLN:HB3   | 2.27                     | 0.49              |
| 5:H:30:ILE:HD12   | 5:H:31:GLY:H      | 1.76                     | 0.49              |
| 5:H:198:MET:HE2   | 8:K:217:LEU:HD21  | 1.93                     | 0.49              |
| 6:I:431:TYR:OH    | 6:I:498:HIS:NE2   | 2.40                     | 0.49              |
| 13:T:961:MET:CG   | 13:T:967:VAL:HG22 | 2.42                     | 0.49              |
| 6:i:160:GLU:OE1   | 8:k:203:ASN:ND2   | 2.46                     | 0.49              |
| 12:p:249:LEU:HB3  | 12:p:257:VAL:HG22 | 1.93                     | 0.49              |
| 13:t:958:LYS:HG2  | 13:t:973:PHE:CE2  | 2.48                     | 0.49              |
| 5:H:150:TYR:CZ    | 5:H:154:LEU:HD11  | 2.48                     | 0.49              |
| 6:I:8:ILE:HD11    | 6:I:50:ILE:HD12   | 1.95                     | 0.49              |
| 11:O:38:LYS:HD2   | 11:O:39:GLU:N     | 2.27                     | 0.49              |
| 12:P:12:THR:HA    | 12:P:15:LEU:HG    | 1.95                     | 0.49              |
| 14:X:-38:DA:H2"   | 14:X:-37:DG:OP2   | 2.12                     | 0.49              |
| 6:i:30:LEU:O      | 6:i:34:VAL:HG23   | 2.12                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:t:909:LEU:HB3  | 13:t:980:PHE:CD2  | 2.48                     | 0.49              |
| 1:A:21:LEU:O      | 1:A:25:ILE:HG13   | 2.12                     | 0.49              |
| 6:i:64:LEU:HD23   | 6:i:64:LEU:C      | 2.38                     | 0.49              |
| 2:b:31:VAL:O      | 2:b:35:LEU:HD23   | 2.11                     | 0.49              |
| 5:h:197:GLU:OE1   | 8:k:219:TYR:OH    | 2.18                     | 0.49              |
| 11:O:60:LYS:HE2   | 12:P:48:SER:HA    | 1.94                     | 0.49              |
| 12:P:41:ASN:OD1   | 12:P:42:TYR:N     | 2.45                     | 0.49              |
| 13:T:918:GLU:N    | 13:T:919:PRO:HD2  | 2.28                     | 0.49              |
| 13:T:960:GLU:O    | 13:T:964:LEU:HD13 | 2.12                     | 0.49              |
| 15:Y:19:DC:H2''   | 15:Y:20:DG:H8     | 1.77                     | 0.49              |
| 9:L:273:LYS:NZ    | 15:Y:22:DC:H5''   | 2.28                     | 0.49              |
| 13:T:902:ALA:HA   | 13:T:904:TRP:CZ3  | 2.48                     | 0.49              |
| 6:i:431:TYR:HH    | 6:i:498:HIS:CE1   | 2.28                     | 0.49              |
| 11:o:60:LYS:HD3   | 12:p:48:SER:C     | 2.38                     | 0.49              |
| 11:o:185:LEU:HD11 | 11:o:191:LEU:CD1  | 2.42                     | 0.49              |
| 13:t:909:LEU:HB3  | 13:t:980:PHE:HD2  | 1.78                     | 0.49              |
| 13:T:976:PHE:HA   | 13:T:979:ASP:OD1  | 2.13                     | 0.49              |
| 2:b:67:LEU:HD23   | 11:o:45:PHE:HE1   | 1.77                     | 0.49              |
| 8:k:2:THR:CG2     | 12:p:43:ILE:HD13  | 2.42                     | 0.49              |
| 11:o:44:LEU:HA    | 12:p:31:ILE:CD1   | 2.43                     | 0.49              |
| 11:o:44:LEU:CB    | 12:p:31:ILE:HD11  | 2.41                     | 0.49              |
| 14:X:-49:DG:H2''  | 14:X:-48:DC:C6    | 2.48                     | 0.48              |
| 15:Y:21:DC:H2''   | 15:Y:22:DC:O4'    | 2.13                     | 0.48              |
| 5:h:12:GLN:HA     | 5:h:15:GLU:HG2    | 1.94                     | 0.48              |
| 10:n:19:LEU:C     | 10:n:19:LEU:HD23  | 2.37                     | 0.48              |
| 12:p:218:LEU:C    | 12:p:219:LEU:HD12 | 2.38                     | 0.48              |
| 13:t:907:LYS:HA   | 13:t:910:TYR:CD2  | 2.46                     | 0.48              |
| 13:T:1007:GLU:OE2 | 13:T:1010:SER:N   | 2.47                     | 0.48              |
| 12:p:18:GLN:HA    | 12:p:21:LEU:HD21  | 1.95                     | 0.48              |
| 8:K:37:GLU:OE1    | 8:K:37:GLU:N      | 2.45                     | 0.48              |
| 8:K:159:PHE:O     | 8:K:163:SER:N     | 2.46                     | 0.48              |
| 12:P:245:MET:SD   | 12:P:245:MET:N    | 2.86                     | 0.48              |
| 6:i:130:MET:HG3   | 6:i:136:LEU:HD12  | 1.96                     | 0.48              |
| 10:n:229:LEU:HD11 | 12:p:57:LEU:H     | 1.78                     | 0.48              |
| 13:t:890:LYS:HG3  | 13:t:891:TYR:N    | 2.28                     | 0.48              |
| 1:A:14:GLU:O      | 1:A:17:THR:OG1    | 2.26                     | 0.48              |
| 5:H:20:GLN:O      | 5:H:24:VAL:HG12   | 2.13                     | 0.48              |
| 6:I:195:GLU:OE1   | 6:I:195:GLU:N     | 2.38                     | 0.48              |
| 10:N:127:ARG:NH2  | 10:N:129:GLU:OE2  | 2.45                     | 0.48              |
| 15:Y:28:DG:H2''   | 15:Y:29:DA:H8     | 1.78                     | 0.48              |
| 15:Y:65:DA:H8     | 15:Y:65:DA:OP2    | 1.96                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:a:20:GLN:OE1    | 11:o:66:PHE:HA    | 2.14                     | 0.48              |
| 6:i:38:GLY:C      | 6:i:39:LEU:HD22   | 2.38                     | 0.48              |
| 6:i:374:LEU:CD1   | 6:i:404:ILE:HG23  | 2.43                     | 0.48              |
| 5:H:5:LYS:HA      | 5:H:8:LYS:HE2     | 1.95                     | 0.48              |
| 5:H:210:ARG:NH2   | 13:T:993:ILE:HG21 | 2.29                     | 0.48              |
| 7:J:142:ASP:OD2   | 7:J:164:TYR:OH    | 2.12                     | 0.48              |
| 7:M:142:ASP:OD2   | 7:M:164:TYR:OH    | 2.12                     | 0.48              |
| 5:h:104:LYS:O     | 5:h:108:THR:OG1   | 2.31                     | 0.48              |
| 6:I:627:ASP:OD1   | 6:I:628:GLU:N     | 2.44                     | 0.48              |
| 12:P:12:THR:HA    | 12:P:15:LEU:CG    | 2.44                     | 0.48              |
| 12:P:55:PHE:CE2   | 12:P:57:LEU:HB2   | 2.48                     | 0.48              |
| 3:c:13:ASP:OD1    | 3:c:14:LYS:N      | 2.46                     | 0.48              |
| 6:I:309:LEU:O     | 6:I:309:LEU:HD23  | 2.14                     | 0.48              |
| 13:T:812:LEU:O    | 13:T:815:ILE:HB   | 2.13                     | 0.48              |
| 13:T:902:ALA:HA   | 13:T:904:TRP:CH2  | 2.48                     | 0.48              |
| 14:X:-28:DC:H2'   | 14:X:-28:DC:O5'   | 2.14                     | 0.48              |
| 10:n:132:THR:HG23 | 10:n:139:LEU:HD11 | 1.96                     | 0.48              |
| 3:C:15:ALA:O      | 3:C:18:LEU:N      | 2.47                     | 0.48              |
| 8:K:198:LEU:CD1   | 13:T:993:ILE:HD13 | 2.43                     | 0.48              |
| 11:O:29:GLU:HG2   | 12:P:17:LYS:NZ    | 2.29                     | 0.48              |
| 14:X:-29:DT:H2''  | 14:X:-28:DC:C6    | 2.49                     | 0.48              |
| 5:h:72:THR:OG1    | 5:h:73:GLU:N      | 2.45                     | 0.48              |
| 6:i:637:TYR:O     | 6:i:641:LEU:HD23  | 2.13                     | 0.48              |
| 13:t:905:THR:HG22 | 13:t:905:THR:O    | 2.13                     | 0.48              |
| 13:t:999:ILE:CG1  | 13:t:1000:PRO:HD2 | 2.44                     | 0.48              |
| 7:J:30:LEU:HD11   | 7:J:95:TRP:CG     | 2.49                     | 0.48              |
| 9:L:48:GLN:N      | 9:L:48:GLN:OE1    | 2.47                     | 0.48              |
| 10:N:242:ASP:O    | 10:N:246:ILE:HG12 | 2.14                     | 0.48              |
| 5:h:214:ARG:O     | 6:i:88:ILE:HD13   | 2.14                     | 0.48              |
| 6:i:154:THR:HG22  | 6:i:157:ARG:HD2   | 1.96                     | 0.48              |
| 6:i:639:ALA:HB3   | 13:t:816:LYS:HE2  | 1.95                     | 0.48              |
| 8:k:169:PHE:CD1   | 8:k:169:PHE:C     | 2.90                     | 0.48              |
| 10:n:53:VAL:HA    | 10:n:56:VAL:HG12  | 1.96                     | 0.48              |
| 13:t:943:VAL:HG23 | 13:t:949:ALA:CA   | 2.44                     | 0.48              |
| 9:L:291:CYS:SG    | 9:L:292:CYS:N     | 2.83                     | 0.48              |
| 14:X:-24:DT:H2''  | 14:X:-23:DT:H6    | 1.79                     | 0.48              |
| 2:b:53:ILE:HD11   | 4:d:39:LEU:HB2    | 1.96                     | 0.48              |
| 11:o:210:VAL:HG12 | 11:o:211:GLU:H    | 1.78                     | 0.48              |
| 11:o:211:GLU:OE1  | 11:o:212:GLU:N    | 2.47                     | 0.48              |
| 13:t:812:LEU:O    | 13:t:815:ILE:HG12 | 2.14                     | 0.48              |
| 6:I:121:ASP:HA    | 6:I:147:LEU:HD21  | 1.95                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:I:412:TYR:CD2    | 6:I:469:MET:HE3   | 2.48                     | 0.47              |
| 14:X:-33:DG:H2''   | 14:X:-32:DT:OP2   | 2.12                     | 0.47              |
| 15:Y:18:DC:H2''    | 15:Y:19:DC:C6     | 2.49                     | 0.47              |
| 1:a:7:LEU:HD13     | 3:c:18:LEU:HD22   | 1.96                     | 0.47              |
| 2:b:33:GLU:O       | 2:b:37:LEU:HD23   | 2.13                     | 0.47              |
| 8:k:169:PHE:CD1    | 8:k:170:MET:N     | 2.82                     | 0.47              |
| 13:t:917:LEU:HD21  | 13:t:932:LEU:HD11 | 1.97                     | 0.47              |
| 5:H:21:LEU:HA      | 5:H:24:VAL:CG1    | 2.44                     | 0.47              |
| 5:H:212:GLU:O      | 5:H:215:ASN:ND2   | 2.47                     | 0.47              |
| 7:J:132:LEU:HD23   | 7:J:136:TYR:HD2   | 1.79                     | 0.47              |
| 10:N:27:LEU:HD13   | 10:N:34:TRP:HA    | 1.95                     | 0.47              |
| 10:N:282:ILE:HD12  | 10:N:282:ILE:H    | 1.80                     | 0.47              |
| 14:X:-65:DT:H2''   | 14:X:-64:DA:H8    | 1.78                     | 0.47              |
| 15:Y:35:DC:H6      | 15:Y:35:DC:OP2    | 1.97                     | 0.47              |
| 4:d:41:GLU:N       | 4:d:41:GLU:OE1    | 2.47                     | 0.47              |
| 13:t:895:LYS:HD2   | 13:t:898:GLN:NE2  | 2.29                     | 0.47              |
| 1:A:11:LEU:HD12    | 3:C:22:LEU:HD22   | 1.95                     | 0.47              |
| 5:H:6:THR:O        | 5:H:10:VAL:HG23   | 2.13                     | 0.47              |
| 8:K:198:LEU:HD13   | 13:T:993:ILE:HD13 | 1.96                     | 0.47              |
| 6:i:608:SER:O      | 6:i:612:HIS:N     | 2.45                     | 0.47              |
| 8:k:212:LYS:HZ3    | 13:t:975:GLN:HG3  | 1.77                     | 0.47              |
| 5:H:105:LEU:HD21   | 5:H:121:LYS:HB2   | 1.96                     | 0.47              |
| 10:N:138:LEU:HD11  | 10:N:199:ILE:HG21 | 1.95                     | 0.47              |
| 13:T:953:ALA:O     | 13:T:956:VAL:HG12 | 2.15                     | 0.47              |
| 13:T:1001:ARG:HH12 | 10:n:33:LYS:HZ1   | 1.62                     | 0.47              |
| 6:i:432:ILE:HD12   | 6:i:497:ALA:HB2   | 1.96                     | 0.47              |
| 10:n:199:ILE:H     | 10:n:199:ILE:HD12 | 1.78                     | 0.47              |
| 11:o:58:PRO:HD3    | 12:p:44:GLU:OE2   | 2.15                     | 0.47              |
| 11:O:29:GLU:HG2    | 12:P:17:LYS:CE    | 2.45                     | 0.47              |
| 11:O:30:ILE:CG2    | 12:P:13:LEU:HD11  | 2.44                     | 0.47              |
| 11:O:199:HIS:O     | 11:O:199:HIS:ND1  | 2.46                     | 0.47              |
| 13:T:827:GLU:HA    | 13:T:830:VAL:HG12 | 1.97                     | 0.47              |
| 13:T:921:TYR:O     | 13:T:924:LYS:HB2  | 2.14                     | 0.47              |
| 13:T:1000:PRO:HG2  | 13:T:1004:VAL:HA  | 1.96                     | 0.47              |
| 5:h:38:VAL:O       | 5:h:42:LEU:HD23   | 2.15                     | 0.47              |
| 8:k:150:GLU:O      | 8:k:154:LEU:HD23  | 2.15                     | 0.47              |
| 11:O:30:ILE:CG2    | 12:P:17:LYS:HE2   | 2.28                     | 0.47              |
| 11:O:60:LYS:HD3    | 12:P:48:SER:O     | 2.15                     | 0.47              |
| 12:P:195:SER:O     | 12:P:199:LEU:HD13 | 2.15                     | 0.47              |
| 12:P:219:LEU:HD12  | 12:P:219:LEU:N    | 2.29                     | 0.47              |
| 13:T:984:GLU:O     | 13:T:987:VAL:HG12 | 2.14                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:T:986:ARG:HG3  | 13:T:987:VAL:N    | 2.29                     | 0.47              |
| 15:Y:39:DA:H2''   | 15:Y:40:DG:C8     | 2.49                     | 0.47              |
| 15:Y:40:DG:H1'    | 15:Y:41:DT:H5'    | 1.97                     | 0.47              |
| 1:a:16:ILE:HG23   | 11:o:69:PRO:HB3   | 1.97                     | 0.47              |
| 12:p:164:LEU:HD21 | 12:p:185:TYR:CD1  | 2.49                     | 0.47              |
| 8:K:175:ALA:O     | 8:K:179:ASN:ND2   | 2.47                     | 0.47              |
| 11:O:39:GLU:OE2   | 11:O:40:LYS:HE3   | 2.14                     | 0.47              |
| 12:P:229:TRP:CZ3  | 12:P:281:LEU:HD11 | 2.50                     | 0.47              |
| 12:P:274:THR:O    | 12:P:278:THR:HG23 | 2.15                     | 0.47              |
| 3:c:40:ARG:O      | 3:c:43:LYS:HG2    | 2.15                     | 0.47              |
| 6:i:220:THR:HG22  | 6:i:223:ARG:HH21  | 1.80                     | 0.47              |
| 6:I:86:ILE:O      | 6:I:90:TYR:N      | 2.47                     | 0.47              |
| 11:O:196:ASP:O    | 11:O:196:ASP:CG   | 2.58                     | 0.47              |
| 12:p:30:ARG:HA    | 12:p:33:GLU:HG2   | 1.97                     | 0.47              |
| 12:P:218:LEU:C    | 12:P:219:LEU:HD12 | 2.40                     | 0.47              |
| 13:T:958:LYS:HG2  | 13:T:973:PHE:CE2  | 2.50                     | 0.47              |
| 14:X:-56:DG:H2''  | 14:X:-55:DA:C8    | 2.50                     | 0.47              |
| 9:l:272:VAL:HG22  | 9:l:274:MET:SD    | 2.55                     | 0.47              |
| 11:o:47:LEU:CD1   | 12:p:31:ILE:HG23  | 2.44                     | 0.47              |
| 11:o:202:ILE:O    | 11:o:202:ILE:HG23 | 2.14                     | 0.47              |
| 11:o:220:LEU:HD12 | 11:o:235:SER:O    | 2.14                     | 0.47              |
| 1:A:33:ILE:HG13   | 2:B:45:ILE:CG1    | 2.43                     | 0.46              |
| 3:C:15:ALA:O      | 3:C:19:PRO:CD     | 2.63                     | 0.46              |
| 10:N:45:ARG:HD2   | 13:T:894:PRO:HG2  | 1.97                     | 0.46              |
| 11:O:92:THR:O     | 11:O:165:ARG:NH1  | 2.47                     | 0.46              |
| 6:i:51:TRP:CE3    | 6:i:52:LEU:HD22   | 2.50                     | 0.46              |
| 11:o:202:ILE:HD13 | 11:o:265:PHE:CE1  | 2.49                     | 0.46              |
| 13:t:932:LEU:HA   | 13:t:935:THR:HG22 | 1.97                     | 0.46              |
| 13:t:990:VAL:CG2  | 13:t:991:PRO:HD2  | 2.45                     | 0.46              |
| 5:H:93:VAL:O      | 5:H:94:LYS:C      | 2.58                     | 0.46              |
| 6:I:216:ARG:O     | 6:I:220:THR:HG23  | 2.15                     | 0.46              |
| 8:K:144:PHE:HA    | 8:K:147:LEU:CD2   | 2.46                     | 0.46              |
| 10:N:21:GLN:O     | 10:N:24:VAL:HG22  | 2.15                     | 0.46              |
| 15:Y:24:DA:H2''   | 15:Y:25:DG:C8     | 2.50                     | 0.46              |
| 6:i:30:LEU:C      | 6:i:30:LEU:HD23   | 2.41                     | 0.46              |
| 10:n:246:ILE:HG13 | 10:n:297:VAL:HG11 | 1.97                     | 0.46              |
| 11:o:37:LEU:HA    | 12:p:24:ILE:CD1   | 2.45                     | 0.46              |
| 5:H:33:THR:HA     | 12:P:41:ASN:OD1   | 2.15                     | 0.46              |
| 7:J:46:HIS:NE2    | 7:J:53:TRP:O      | 2.43                     | 0.46              |
| 11:O:186:ASN:OD1  | 11:O:187:VAL:N    | 2.47                     | 0.46              |
| 12:P:38:LYS:HZ1   | 12:P:40:THR:HA    | 1.79                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 13:T:831:ARG:O    | 13:T:835:LYS:HG2   | 2.14                     | 0.46              |
| 15:Y:40:DG:H2'    | 15:Y:41:DT:H71     | 1.97                     | 0.46              |
| 9:l:274:MET:SD    | 9:l:274:MET:N      | 2.89                     | 0.46              |
| 10:n:157:VAL:HG22 | 10:n:168:PHE:CD2   | 2.51                     | 0.46              |
| 11:o:207:GLN:HB2  | 11:o:279:ILE:HB    | 1.97                     | 0.46              |
| 13:t:890:LYS:HG3  | 13:t:891:TYR:H     | 1.80                     | 0.46              |
| 13:t:969:THR:C    | 13:t:1008:ILE:HD11 | 2.40                     | 0.46              |
| 9:L:187:ASN:HD22  | 9:L:187:ASN:C      | 2.22                     | 0.46              |
| 10:N:45:ARG:HD3   | 13:T:894:PRO:HG2   | 1.97                     | 0.46              |
| 11:O:40:LYS:HA    | 11:O:43:GLU:HG2    | 1.96                     | 0.46              |
| 13:T:983:ARG:HA   | 13:T:986:ARG:NH1   | 2.30                     | 0.46              |
| 13:T:1003:GLY:O   | 13:T:1006:SER:OG   | 2.26                     | 0.46              |
| 15:Y:58:DG:H2''   | 15:Y:59:DA:N7      | 2.30                     | 0.46              |
| 6:i:217:PHE:O     | 6:i:220:THR:OG1    | 2.28                     | 0.46              |
| 6:i:590:PRO:O     | 6:i:593:VAL:HG12   | 2.16                     | 0.46              |
| 10:n:71:ASN:OD1   | 10:n:72:ASP:N      | 2.48                     | 0.46              |
| 11:o:28:ASP:HA    | 11:o:31:GLU:OE1    | 2.15                     | 0.46              |
| 11:o:199:HIS:O    | 11:o:199:HIS:ND1   | 2.48                     | 0.46              |
| 5:H:140:HIS:NE2   | 13:T:823:ASN:OD1   | 2.49                     | 0.46              |
| 14:X:-65:DT:H2''  | 14:X:-64:DA:C8     | 2.50                     | 0.46              |
| 6:i:174:LEU:O     | 6:i:178:LEU:HD23   | 2.15                     | 0.46              |
| 10:n:256:LEU:C    | 10:n:256:LEU:HD23  | 2.40                     | 0.46              |
| 12:p:57:LEU:HD22  | 12:p:59:ILE:CD1    | 2.46                     | 0.46              |
| 13:t:962:ALA:CB   | 13:t:1009:LEU:HG   | 2.46                     | 0.46              |
| 6:I:52:LEU:HD12   | 6:I:81:TYR:CE2     | 2.51                     | 0.46              |
| 9:L:256:LEU:HD21  | 9:L:259:ILE:HD11   | 1.97                     | 0.46              |
| 12:P:224:LEU:HD21 | 12:P:252:MET:HG3   | 1.97                     | 0.46              |
| 14:X:-21:DG:H2''  | 14:X:-20:DC:OP2    | 2.15                     | 0.46              |
| 15:Y:25:DG:H2''   | 15:Y:26:DG:C8      | 2.51                     | 0.46              |
| 15:Y:30:DT:H2'    | 15:Y:31:DT:C7      | 2.37                     | 0.46              |
| 5:h:21:LEU:HA     | 5:h:24:VAL:CG1     | 2.45                     | 0.46              |
| 6:i:396:ASP:OD1   | 6:i:397:SER:N      | 2.48                     | 0.46              |
| 8:k:161:ASN:OD1   | 8:k:162:THR:N      | 2.49                     | 0.46              |
| 9:l:166:PHE:HB3   | 9:l:171:LEU:HD22   | 1.97                     | 0.46              |
| 10:n:246:ILE:HG23 | 10:n:309:PHE:CE1   | 2.51                     | 0.46              |
| 12:p:125:ILE:HD12 | 12:p:183:LYS:HA    | 1.97                     | 0.46              |
| 12:p:219:LEU:HD12 | 12:p:219:LEU:N     | 2.31                     | 0.46              |
| 13:T:937:TYR:O    | 13:T:940:THR:OG1   | 2.29                     | 0.46              |
| 13:T:943:VAL:CG1  | 13:T:988:LYS:HD2   | 2.44                     | 0.46              |
| 6:i:69:ILE:HD13   | 6:i:216:ARG:HB3    | 1.96                     | 0.46              |
| 6:i:320:ALA:HA    | 6:i:446:MET:HE1    | 1.97                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:k:169:PHE:CZ    | 8:k:199:LEU:CD1   | 2.98                     | 0.46              |
| 9:l:94:SER:OG     | 9:l:95:SER:N      | 2.49                     | 0.46              |
| 3:c:49:MET:HE1    | 4:d:39:LEU:HD11   | 1.96                     | 0.46              |
| 11:o:37:LEU:CA    | 12:p:24:ILE:HD11  | 2.45                     | 0.46              |
| 13:t:895:LYS:HG2  | 13:t:896:ARG:N    | 2.28                     | 0.46              |
| 13:t:906:THR:H    | 13:t:909:LEU:HD22 | 1.80                     | 0.46              |
| 5:H:206:LEU:HD21  | 8:K:158:MET:HG2   | 1.98                     | 0.46              |
| 7:M:130:GLY:O     | 7:M:134:ASN:ND2   | 2.41                     | 0.46              |
| 12:P:33:GLU:O     | 12:P:37:LYS:HB3   | 2.16                     | 0.46              |
| 13:T:920:LYS:HG3  | 13:T:921:TYR:CD1  | 2.51                     | 0.46              |
| 15:Y:17:DA:H2''   | 15:Y:18:DC:C6     | 2.51                     | 0.46              |
| 15:Y:37:DC:OP2    | 15:Y:37:DC:H2'    | 2.16                     | 0.46              |
| 3:c:42:VAL:O      | 3:c:46:LEU:HD23   | 2.16                     | 0.46              |
| 5:h:105:LEU:HD21  | 5:h:121:LYS:HB2   | 1.98                     | 0.46              |
| 6:i:9:ASP:OD1     | 6:i:10:TYR:N      | 2.49                     | 0.46              |
| 6:i:10:TYR:CZ     | 6:i:22:LEU:HD22   | 2.51                     | 0.46              |
| 5:H:15:GLU:OE1    | 5:H:16:GLN:NE2    | 2.49                     | 0.46              |
| 7:J:86:ASP:OD2    | 7:J:88:SER:OG     | 2.33                     | 0.46              |
| 13:T:909:LEU:HB2  | 13:T:980:PHE:CD1  | 2.51                     | 0.46              |
| 13:T:993:ILE:HA   | 13:T:996:LYS:HZ1  | 1.81                     | 0.46              |
| 1:a:45:ASN:ND2    | 3:c:50:ASN:OD1    | 2.48                     | 0.46              |
| 10:n:265:SER:OG   | 10:n:277:ASN:ND2  | 2.49                     | 0.46              |
| 3:C:14:LYS:O      | 3:C:17:GLU:HG3    | 2.17                     | 0.45              |
| 4:D:66:HIS:O      | 8:K:98:LYS:NZ     | 2.40                     | 0.45              |
| 5:H:42:LEU:HD11   | 8:K:74:LEU:HD11   | 1.98                     | 0.45              |
| 13:T:984:GLU:HA   | 13:T:987:VAL:HG12 | 1.98                     | 0.45              |
| 13:T:993:ILE:O    | 13:T:993:ILE:HG22 | 2.15                     | 0.45              |
| 14:X:-55:DA:H5'   | 10:n:48:MET:CE    | 2.45                     | 0.45              |
| 5:h:140:HIS:NE2   | 13:t:826:ILE:HG23 | 2.32                     | 0.45              |
| 11:o:67:VAL:HG22  | 11:o:68:ARG:N     | 2.31                     | 0.45              |
| 12:p:288:CYS:O    | 12:p:291:VAL:HG22 | 2.16                     | 0.45              |
| 13:t:918:GLU:N    | 13:t:919:PRO:HD2  | 2.31                     | 0.45              |
| 13:t:932:LEU:O    | 13:t:936:ILE:HG12 | 2.16                     | 0.45              |
| 5:H:141:PHE:O     | 5:H:144:ILE:HG22  | 2.16                     | 0.45              |
| 7:J:93:LEU:HD21   | 7:J:127:ILE:CD1   | 2.47                     | 0.45              |
| 10:N:235:ASP:OD1  | 10:N:237:THR:OG1  | 2.20                     | 0.45              |
| 11:O:55:LYS:HD3   | 11:O:56:SER:N     | 2.30                     | 0.45              |
| 13:T:1000:PRO:HG2 | 13:T:1004:VAL:CA  | 2.47                     | 0.45              |
| 7:J:166:GLU:HG3   | 7:J:171:VAL:HG22  | 1.97                     | 0.45              |
| 9:L:185:ARG:N     | 9:L:188:ASP:OD2   | 2.50                     | 0.45              |
| 13:T:982:PRO:HB2  | 13:T:984:GLU:CD   | 2.40                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:X:-60:DA:H2''  | 14:X:-59:DT:OP2   | 2.17                     | 0.45              |
| 6:i:309:LEU:CD1   | 8:k:117:ILE:HG21  | 2.46                     | 0.45              |
| 13:t:977:PHE:O    | 13:t:981:MET:HB2  | 2.16                     | 0.45              |
| 5:H:8:LYS:O       | 5:H:12:GLN:HG2    | 2.15                     | 0.45              |
| 14:X:-53:DA:H2''  | 14:X:-52:DC:OP2   | 2.15                     | 0.45              |
| 5:h:31:GLY:HA3    | 12:p:42:TYR:CE1   | 2.52                     | 0.45              |
| 5:h:199:ILE:HG21  | 8:k:147:LEU:HG    | 1.97                     | 0.45              |
| 12:p:12:THR:O     | 12:p:16:GLU:HG2   | 2.17                     | 0.45              |
| 6:I:9:ASP:OD1     | 6:I:10:TYR:N      | 2.49                     | 0.45              |
| 11:O:31:GLU:HA    | 11:O:34:ARG:NE    | 2.31                     | 0.45              |
| 12:P:288:CYS:O    | 12:P:291:VAL:HG22 | 2.16                     | 0.45              |
| 6:i:536:TYR:HA    | 6:i:539:ILE:HG22  | 1.98                     | 0.45              |
| 9:l:84:LEU:HD22   | 9:l:87:LEU:CD1    | 2.46                     | 0.45              |
| 11:o:210:VAL:HG12 | 11:o:211:GLU:N    | 2.31                     | 0.45              |
| 13:t:812:LEU:HG   | 13:t:815:ILE:HD13 | 1.98                     | 0.45              |
| 6:I:636:TRP:CD1   | 13:T:812:LEU:HB2  | 2.52                     | 0.45              |
| 9:L:94:SER:OG     | 9:L:95:SER:N      | 2.50                     | 0.45              |
| 9:L:278:GLU:OE1   | 9:L:278:GLU:N     | 2.34                     | 0.45              |
| 11:O:30:ILE:CG1   | 11:O:34:ARG:HH21  | 2.30                     | 0.45              |
| 13:T:928:ARG:NH2  | 13:T:931:LYS:HE2  | 2.31                     | 0.45              |
| 13:T:961:MET:HG3  | 13:T:967:VAL:HG22 | 1.98                     | 0.45              |
| 1:a:22:LEU:HA     | 1:a:25:ILE:HG22   | 1.97                     | 0.45              |
| 5:h:33:THR:HA     | 12:p:41:ASN:OD1   | 2.17                     | 0.45              |
| 9:l:98:LEU:C      | 9:l:98:LEU:HD23   | 2.41                     | 0.45              |
| 10:n:133:ASN:O    | 10:n:139:LEU:HD12 | 2.17                     | 0.45              |
| 11:o:185:LEU:HD11 | 11:o:191:LEU:HD13 | 1.98                     | 0.45              |
| 13:t:812:LEU:O    | 13:t:812:LEU:HG   | 2.17                     | 0.45              |
| 11:O:30:ILE:HG21  | 12:P:13:LEU:HD12  | 1.96                     | 0.45              |
| 14:X:-54:DC:H2''  | 14:X:-53:DA:C8    | 2.51                     | 0.45              |
| 4:D:18:ILE:O      | 4:D:22:ILE:HG12   | 2.16                     | 0.45              |
| 5:H:185:TYR:HA    | 5:H:188:ARG:HG2   | 1.99                     | 0.45              |
| 9:L:253:VAL:HG21  | 10:N:301:ALA:HB2  | 1.99                     | 0.45              |
| 11:O:54:HIS:CD2   | 12:P:42:TYR:HB3   | 2.52                     | 0.45              |
| 11:O:273:VAL:HG13 | 11:O:274:GLY:N    | 2.27                     | 0.45              |
| 13:T:932:LEU:HA   | 13:T:935:THR:HG22 | 1.98                     | 0.45              |
| 13:T:996:LYS:HA   | 13:T:996:LYS:CE   | 2.38                     | 0.45              |
| 1:a:30:GLN:HA     | 1:a:33:ILE:HG22   | 1.98                     | 0.45              |
| 5:h:42:LEU:HD21   | 8:k:74:LEU:CD1    | 2.46                     | 0.45              |
| 12:p:18:GLN:HA    | 12:p:21:LEU:CG    | 2.47                     | 0.45              |
| 12:p:55:PHE:CE2   | 12:p:57:LEU:HB2   | 2.52                     | 0.45              |
| 13:t:982:PRO:HB2  | 13:t:984:GLU:CD   | 2.42                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:L:274:MET:SD    | 9:L:274:MET:N     | 2.90                     | 0.45              |
| 7:M:32:VAL:HG21   | 10:N:239:ARG:HG2  | 1.99                     | 0.45              |
| 5:h:210:ARG:HH21  | 8:k:198:LEU:HD13  | 1.82                     | 0.45              |
| 6:i:386:ILE:O     | 6:i:390:VAL:HG23  | 2.17                     | 0.45              |
| 11:o:88:MET:HE1   | 12:p:90:VAL:CG2   | 2.47                     | 0.45              |
| 13:t:917:LEU:HD23 | 13:t:928:ARG:HB3  | 1.99                     | 0.45              |
| 2:B:41:ASP:O      | 2:B:45:ILE:HG13   | 2.16                     | 0.45              |
| 5:H:98:GLN:O      | 5:H:99:THR:C      | 2.59                     | 0.45              |
| 8:K:2:THR:HG22    | 12:P:41:ASN:HB2   | 1.97                     | 0.45              |
| 14:X:-47:DC:H2''  | 14:X:-46:DT:C5    | 2.52                     | 0.45              |
| 3:C:19:PRO:HA     | 3:C:22:LEU:HB2    | 1.99                     | 0.44              |
| 3:C:22:LEU:O      | 3:C:26:ARG:HG3    | 2.16                     | 0.44              |
| 5:H:33:THR:HG23   | 5:H:36:ASP:H      | 1.82                     | 0.44              |
| 6:I:156:ARG:NH2   | 6:I:160:GLU:OE2   | 2.49                     | 0.44              |
| 12:P:58:SER:C     | 12:P:59:ILE:HD13  | 2.42                     | 0.44              |
| 8:k:112:LYS:HA    | 8:k:115:ILE:HG22  | 1.99                     | 0.44              |
| 9:l:31:TYR:O      | 9:l:32:ASN:OD1    | 2.35                     | 0.44              |
| 10:n:20:GLN:OE1   | 13:t:889:MET:HE1  | 2.17                     | 0.44              |
| 10:n:79:LEU:HD11  | 10:n:140:TYR:HB3  | 1.98                     | 0.44              |
| 13:t:926:ARG:HD3  | 13:t:926:ARG:O    | 2.17                     | 0.44              |
| 13:t:971:PHE:O    | 13:t:975:GLN:HG2  | 2.17                     | 0.44              |
| 7:M:166:GLU:HG3   | 7:M:171:VAL:HG22  | 1.99                     | 0.44              |
| 13:T:950:PRO:O    | 13:T:954:VAL:HG12 | 2.17                     | 0.44              |
| 5:h:98:GLN:O      | 5:h:99:THR:C      | 2.60                     | 0.44              |
| 6:i:102:LEU:C     | 6:i:102:LEU:HD23  | 2.42                     | 0.44              |
| 11:o:32:LYS:HG3   | 11:o:33:LEU:CD2   | 2.48                     | 0.44              |
| 11:o:81:LEU:HD23  | 12:p:75:LEU:HB3   | 1.99                     | 0.44              |
| 12:p:25:VAL:O     | 12:p:29:THR:HG23  | 2.16                     | 0.44              |
| 13:t:943:VAL:HG21 | 13:t:949:ALA:HB2  | 1.99                     | 0.44              |
| 6:I:172:LYS:HE2   | 14:X:-36:DG:H5'   | 1.98                     | 0.44              |
| 9:L:133:HIS:C     | 9:L:134:LEU:HD22  | 2.43                     | 0.44              |
| 5:h:93:VAL:O      | 5:h:94:LYS:C      | 2.60                     | 0.44              |
| 1:A:62:ILE:HG13   | 1:A:62:ILE:O      | 2.16                     | 0.44              |
| 4:D:19:SER:HB2    | 5:H:10:VAL:HG21   | 1.99                     | 0.44              |
| 13:T:989:VAL:HG13 | 13:T:990:VAL:N    | 2.33                     | 0.44              |
| 5:h:137:SER:N     | 13:t:826:ILE:HD11 | 2.32                     | 0.44              |
| 5:h:209:CYS:SG    | 5:h:210:ARG:N     | 2.90                     | 0.44              |
| 6:i:72:ASP:OD1    | 6:i:73:ALA:N      | 2.50                     | 0.44              |
| 11:o:30:ILE:HB    | 11:o:34:ARG:NH2   | 2.27                     | 0.44              |
| 11:o:181:LEU:HD22 | 11:o:261:LEU:HG   | 1.99                     | 0.44              |
| 13:t:896:ARG:HA   | 13:t:930:GLU:OE2  | 2.17                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:t:963:ARG:HG3  | 13:t:964:LEU:HD22 | 1.98                     | 0.44              |
| 5:H:228:ARG:O     | 5:H:228:ARG:NH1   | 2.50                     | 0.44              |
| 6:I:178:LEU:O     | 6:I:182:LEU:HD23  | 2.17                     | 0.44              |
| 11:O:44:LEU:O     | 11:O:48:GLN:HG3   | 2.18                     | 0.44              |
| 15:Y:37:DC:OP2    | 15:Y:37:DC:H6     | 2.00                     | 0.44              |
| 5:h:89:GLU:O      | 5:h:90:LYS:C      | 2.60                     | 0.44              |
| 10:n:65:LEU:HD23  | 10:n:65:LEU:H     | 1.82                     | 0.44              |
| 11:o:29:GLU:CA    | 11:o:32:LYS:HE2   | 2.44                     | 0.44              |
| 11:o:34:ARG:CZ    | 11:o:34:ARG:HB3   | 2.48                     | 0.44              |
| 11:o:101:VAL:HG13 | 11:o:101:VAL:O    | 2.18                     | 0.44              |
| 1:A:6:GLN:O       | 1:A:9:GLN:NE2     | 2.50                     | 0.44              |
| 5:H:92:THR:O      | 5:H:93:VAL:C      | 2.61                     | 0.44              |
| 5:H:141:PHE:CE2   | 13:T:830:VAL:HG23 | 2.52                     | 0.44              |
| 6:I:428:THR:O     | 6:I:432:ILE:HG12  | 2.18                     | 0.44              |
| 9:L:31:TYR:O      | 9:L:32:ASN:OD1    | 2.36                     | 0.44              |
| 11:O:32:LYS:HG3   | 11:O:33:LEU:HD22  | 1.98                     | 0.44              |
| 11:O:34:ARG:HB3   | 12:P:20:LEU:HD21  | 1.98                     | 0.44              |
| 11:O:210:VAL:HG12 | 11:O:211:GLU:N    | 2.33                     | 0.44              |
| 13:T:986:ARG:HA   | 13:T:989:VAL:CG1  | 2.48                     | 0.44              |
| 14:X:-48:DC:H2''  | 14:X:-47:DC:C6    | 2.53                     | 0.44              |
| 15:Y:60:DT:H2''   | 15:Y:61:DA:OP2    | 2.18                     | 0.44              |
| 10:n:20:GLN:HE21  | 11:o:187:VAL:HG21 | 1.83                     | 0.44              |
| 10:n:114:ILE:HG23 | 10:n:130:VAL:HG21 | 1.99                     | 0.44              |
| 10:n:311:ILE:O    | 10:n:316:LYS:N    | 2.44                     | 0.44              |
| 11:o:171:TYR:CE2  | 11:o:196:ASP:HA   | 2.53                     | 0.44              |
| 5:H:105:LEU:HD23  | 5:H:105:LEU:C     | 2.43                     | 0.44              |
| 9:L:195:ARG:NE    | 9:L:257:SER:OG    | 2.50                     | 0.44              |
| 7:M:113:VAL:CG2   | 7:M:144:LEU:HD13  | 2.48                     | 0.44              |
| 11:O:57:SER:OG    | 11:O:58:PRO:HD2   | 2.18                     | 0.44              |
| 11:O:67:VAL:CG2   | 11:O:72:ILE:HD11  | 2.48                     | 0.44              |
| 11:O:196:ASP:O    | 11:O:197:ALA:C    | 2.60                     | 0.44              |
| 14:X:-33:DG:H2''  | 14:X:-32:DT:O5'   | 2.18                     | 0.44              |
| 15:Y:54:DG:H8     | 15:Y:54:DG:OP2    | 2.01                     | 0.44              |
| 11:o:29:GLU:CB    | 11:o:32:LYS:HE2   | 2.48                     | 0.44              |
| 6:I:640:PHE:CD1   | 6:I:640:PHE:C     | 2.95                     | 0.44              |
| 14:X:-66:DG:H2'   | 14:X:-65:DT:H72   | 2.00                     | 0.44              |
| 14:X:-41:DA:C5    | 14:X:-40:DC:N4    | 2.85                     | 0.44              |
| 2:b:63:LEU:HD22   | 4:d:49:TYR:CG     | 2.53                     | 0.44              |
| 6:i:553:HIS:O     | 6:i:557:ILE:HG12  | 2.18                     | 0.44              |
| 8:K:165:LEU:O     | 8:K:166:ILE:C     | 2.61                     | 0.44              |
| 10:N:73:ILE:HG22  | 10:N:76:ARG:NH2   | 2.32                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:T:948:VAL:HA   | 13:T:988:LYS:HG3  | 1.99                     | 0.44              |
| 5:h:88:LEU:O      | 5:h:89:GLU:C      | 2.61                     | 0.44              |
| 6:i:491:VAL:HG21  | 6:i:509:PRO:HG3   | 2.00                     | 0.44              |
| 9:l:52:ILE:O      | 9:l:55:LYS:HG3    | 2.18                     | 0.44              |
| 12:p:227:VAL:HG22 | 12:p:247:PHE:HD1  | 1.82                     | 0.44              |
| 13:t:834:LEU:C    | 13:t:834:LEU:HD12 | 2.42                     | 0.44              |
| 13:t:926:ARG:NH1  | 13:t:930:GLU:OE2  | 2.37                     | 0.44              |
| 6:I:42:ASP:O      | 6:I:46:THR:HG23   | 2.18                     | 0.43              |
| 10:N:88:MET:HE1   | 10:N:259:ASP:OD2  | 2.18                     | 0.43              |
| 12:P:168:VAL:HG22 | 12:P:168:VAL:O    | 2.18                     | 0.43              |
| 1:a:65:GLU:OE1    | 1:a:65:GLU:N      | 2.48                     | 0.43              |
| 4:d:72:HIS:CD2    | 6:i:384:THR:HG23  | 2.53                     | 0.43              |
| 5:h:209:CYS:SG    | 8:k:158:MET:HE2   | 2.57                     | 0.43              |
| 6:i:130:MET:HE3   | 6:i:140:ALA:HB2   | 1.99                     | 0.43              |
| 6:i:589:HIS:CD2   | 6:i:591:GLN:HB3   | 2.52                     | 0.43              |
| 9:l:118:ILE:HG22  | 9:l:138:LEU:HB2   | 1.99                     | 0.43              |
| 10:n:38:PHE:CE1   | 13:t:889:MET:HA   | 2.53                     | 0.43              |
| 10:n:280:MET:SD   | 10:n:282:ILE:HD11 | 2.58                     | 0.43              |
| 10:N:10:LEU:HD23  | 10:N:10:LEU:C     | 2.43                     | 0.43              |
| 1:a:30:GLN:C      | 1:a:33:ILE:HG22   | 2.42                     | 0.43              |
| 6:i:46:THR:O      | 6:i:49:LYS:HG2    | 2.18                     | 0.43              |
| 11:o:47:LEU:CD1   | 12:p:31:ILE:HD12  | 2.33                     | 0.43              |
| 13:t:817:LYS:HE2  | 13:t:817:LYS:CA   | 2.41                     | 0.43              |
| 12:P:261:SER:O    | 12:P:265:LYS:HG2  | 2.18                     | 0.43              |
| 13:T:818:SER:C    | 13:T:821:GLU:HG3  | 2.43                     | 0.43              |
| 14:X:-66:DG:C8    | 14:X:-65:DT:H72   | 2.53                     | 0.43              |
| 5:h:99:THR:O      | 5:h:100:HIS:C     | 2.62                     | 0.43              |
| 13:t:937:TYR:HA   | 13:t:940:THR:HG22 | 2.01                     | 0.43              |
| 2:B:67:LEU:C      | 2:B:67:LEU:HD23   | 2.44                     | 0.43              |
| 5:H:58:LYS:HB3    | 5:H:59:PRO:HD3    | 1.99                     | 0.43              |
| 6:I:542:ARG:O     | 6:I:545:SER:OG    | 2.28                     | 0.43              |
| 10:N:157:VAL:HG22 | 10:N:168:PHE:CD2  | 2.54                     | 0.43              |
| 11:O:209:ALA:C    | 11:O:210:VAL:HG23 | 2.43                     | 0.43              |
| 14:X:-42:DG:C6    | 14:X:-41:DA:N6    | 2.86                     | 0.43              |
| 6:i:483:VAL:O     | 6:i:487:ASN:ND2   | 2.50                     | 0.43              |
| 9:l:235:ALA:O     | 9:l:239:LEU:HD23  | 2.18                     | 0.43              |
| 13:t:909:LEU:HD23 | 13:t:910:TYR:H    | 1.82                     | 0.43              |
| 13:t:928:ARG:O    | 13:t:932:LEU:HG   | 2.18                     | 0.43              |
| 5:H:91:VAL:O      | 5:H:92:THR:C      | 2.60                     | 0.43              |
| 5:H:108:THR:HG21  | 5:H:113:LEU:HD21  | 2.01                     | 0.43              |
| 6:I:141:VAL:HG21  | 6:I:177:GLN:HB3   | 2.01                     | 0.43              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 6:I:200:ILE:HG22 | 6:I:201:CYS:N     | 2.33                     | 0.43              |
| 8:k:80:LEU:O     | 8:k:83:ILE:HG22   | 2.19                     | 0.43              |
| 11:o:131:ALA:O   | 11:o:132:ASN:OD1  | 2.37                     | 0.43              |
| 11:o:223:ASP:O   | 11:o:232:LYS:N    | 2.49                     | 0.43              |
| 2:B:38:ILE:O     | 2:B:42:ILE:HG12   | 2.18                     | 0.43              |
| 5:H:89:GLU:O     | 5:H:90:LYS:C      | 2.62                     | 0.43              |
| 5:H:99:THR:O     | 5:H:100:HIS:C     | 2.61                     | 0.43              |
| 5:H:214:ARG:O    | 6:I:88:ILE:HD13   | 2.19                     | 0.43              |
| 6:I:47:LEU:HD23  | 6:I:68:LEU:HD13   | 2.00                     | 0.43              |
| 6:I:209:ILE:HG22 | 6:I:210:ASN:N     | 2.34                     | 0.43              |
| 7:J:98:LYS:O     | 7:J:101:SER:OG    | 2.32                     | 0.43              |
| 8:K:173:LEU:HD21 | 8:K:205:ILE:HG22  | 1.99                     | 0.43              |
| 14:X:-43:DA:H2'' | 14:X:-42:DG:H8    | 1.83                     | 0.43              |
| 3:c:28:LEU:O     | 3:c:32:LEU:HD23   | 2.18                     | 0.43              |
| 10:n:48:MET:H    | 13:t:893:PRO:HG3  | 1.82                     | 0.43              |
| 11:o:60:LYS:HE2  | 12:p:48:SER:HA    | 2.01                     | 0.43              |
| 13:t:905:THR:CG2 | 13:t:910:TYR:HE2  | 2.28                     | 0.43              |
| 5:H:94:LYS:O     | 5:H:95:CYS:C      | 2.60                     | 0.43              |
| 13:T:951:ASN:HA  | 13:T:954:VAL:HG12 | 2.01                     | 0.43              |
| 5:h:14:PHE:HA    | 5:h:17:GLU:HG2    | 1.99                     | 0.43              |
| 6:i:543:LEU:HA   | 6:i:546:THR:HG22  | 2.00                     | 0.43              |
| 10:n:10:LEU:C    | 10:n:10:LEU:HD23  | 2.43                     | 0.43              |
| 12:p:281:LEU:HA  | 12:p:284:ILE:HG22 | 1.99                     | 0.43              |
| 6:I:539:ILE:O    | 6:I:543:LEU:HD23  | 2.18                     | 0.43              |
| 10:N:19:LEU:HD12 | 10:N:50:ALA:O     | 2.19                     | 0.43              |
| 13:T:896:ARG:HD2 | 13:T:930:GLU:OE2  | 2.19                     | 0.43              |
| 13:T:899:PRO:CB  | 13:T:902:ALA:HB2  | 2.48                     | 0.43              |
| 13:T:906:THR:C   | 13:T:908:ARG:H    | 2.26                     | 0.43              |
| 14:X:-60:DA:H2'' | 14:X:-59:DT:C6    | 2.53                     | 0.43              |
| 14:X:-55:DA:H2'' | 14:X:-54:DC:C6    | 2.54                     | 0.43              |
| 15:Y:67:DA:H2'   | 15:Y:68:DT:C7     | 2.48                     | 0.43              |
| 4:d:11:ARG:O     | 4:d:14:SER:OG     | 2.31                     | 0.43              |
| 6:i:320:ALA:CA   | 6:i:446:MET:HE1   | 2.49                     | 0.43              |
| 10:n:26:VAL:HG23 | 10:n:27:LEU:N     | 2.33                     | 0.43              |
| 13:t:940:THR:O   | 13:t:943:VAL:HG12 | 2.19                     | 0.43              |
| 6:I:34:VAL:HG12  | 6:I:219:ARG:HH22  | 1.84                     | 0.43              |
| 10:N:265:SER:OG  | 10:N:277:ASN:ND2  | 2.52                     | 0.43              |
| 13:T:890:LYS:HG3 | 13:T:891:TYR:H    | 1.84                     | 0.43              |
| 5:h:31:GLY:HA3   | 12:p:42:TYR:CZ    | 2.53                     | 0.43              |
| 3:C:21:GLU:O     | 3:C:25:ILE:HG12   | 2.19                     | 0.43              |
| 9:L:180:ASP:OD2  | 9:L:218:TRP:NE1   | 2.46                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:M:21:ASN:O      | 7:M:21:ASN:CG     | 2.61                     | 0.43              |
| 10:N:34:TRP:CH2   | 13:T:889:MET:HE2  | 2.53                     | 0.43              |
| 13:T:992:ASP:OD1  | 13:T:995:ASN:ND2  | 2.51                     | 0.43              |
| 14:X:-62:DA:H8    | 14:X:-62:DA:OP2   | 2.01                     | 0.43              |
| 10:n:27:LEU:HD13  | 10:n:34:TRP:HA    | 1.99                     | 0.43              |
| 13:t:898:GLN:OE1  | 13:t:898:GLN:N    | 2.52                     | 0.43              |
| 13:t:984:GLU:HG2  | 13:t:985:ILE:N    | 2.34                     | 0.43              |
| 6:I:24:GLN:NE2    | 6:I:28:ASP:OD2    | 2.52                     | 0.42              |
| 7:J:133:ILE:HD11  | 6:i:376:LEU:CD2   | 2.49                     | 0.42              |
| 9:L:61:ILE:HD13   | 9:L:152:ILE:HG21  | 2.01                     | 0.42              |
| 10:N:110:LEU:HD21 | 10:N:141:ILE:HD13 | 2.01                     | 0.42              |
| 12:P:22:ASP:HA    | 12:P:25:VAL:HG12  | 2.00                     | 0.42              |
| 13:T:907:LYS:O    | 13:T:907:LYS:HD3  | 2.19                     | 0.42              |
| 14:X:-30:DA:N6    | 15:Y:29:DA:N6     | 2.67                     | 0.42              |
| 5:h:94:LYS:O      | 5:h:95:CYS:C      | 2.61                     | 0.42              |
| 6:i:208:LYS:C     | 6:i:209:ILE:HD13  | 2.44                     | 0.42              |
| 10:n:20:GLN:HG3   | 11:o:187:VAL:HG11 | 2.00                     | 0.42              |
| 10:n:73:ILE:HG23  | 10:n:74:LEU:N     | 2.34                     | 0.42              |
| 13:t:993:ILE:HG22 | 13:t:993:ILE:O    | 2.18                     | 0.42              |
| 3:C:18:LEU:O      | 3:C:22:LEU:HD23   | 2.19                     | 0.42              |
| 10:N:14:ILE:CD1   | 10:N:26:VAL:HG11  | 2.45                     | 0.42              |
| 11:O:29:GLU:OE1   | 11:O:29:GLU:N     | 2.48                     | 0.42              |
| 13:T:831:ARG:O    | 13:T:835:LYS:HE3  | 2.19                     | 0.42              |
| 13:T:942:GLU:OE1  | 13:T:942:GLU:HA   | 2.19                     | 0.42              |
| 2:B:49:LEU:O      | 2:B:53:ILE:HG13   | 2.19                     | 0.42              |
| 5:H:207:VAL:O     | 5:H:207:VAL:HG22  | 2.20                     | 0.42              |
| 7:J:133:ILE:HD13  | 7:J:136:TYR:CE2   | 2.54                     | 0.42              |
| 10:N:23:CYS:HA    | 10:N:27:LEU:HD12  | 2.01                     | 0.42              |
| 11:O:40:LYS:HD3   | 11:O:43:GLU:OE2   | 2.18                     | 0.42              |
| 13:T:995:ASN:OD1  | 13:T:997:ILE:HG13 | 2.19                     | 0.42              |
| 15:Y:22:DC:H2''   | 15:Y:23:DA:OP2    | 2.18                     | 0.42              |
| 15:Y:25:DG:H1'    | 15:Y:26:DG:C8     | 2.54                     | 0.42              |
| 4:d:47:LYS:NZ     | 5:h:30:ILE:HA     | 2.32                     | 0.42              |
| 5:h:60:VAL:HG23   | 8:k:56:ALA:HB1    | 2.00                     | 0.42              |
| 5:h:207:VAL:O     | 5:h:207:VAL:HG22  | 2.18                     | 0.42              |
| 8:k:73:ASN:HD22   | 8:k:73:ASN:N      | 2.17                     | 0.42              |
| 9:l:52:ILE:HG23   | 9:l:53:LYS:N      | 2.34                     | 0.42              |
| 9:l:226:THR:HG21  | 9:l:231:LEU:HD21  | 2.01                     | 0.42              |
| 10:n:198:ASP:OD2  | 10:n:201:SER:OG   | 2.34                     | 0.42              |
| 11:o:195:LEU:O    | 11:o:196:ASP:CG   | 2.63                     | 0.42              |
| 6:I:145:TYR:CD2   | 6:I:184:LEU:HD22  | 2.54                     | 0.42              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 12:P:25:VAL:O    | 12:P:29:THR:HG23  | 2.19                     | 0.42              |
| 13:T:968:LYS:HD2 | 13:T:968:LYS:N    | 2.34                     | 0.42              |
| 1:a:29:LEU:HA    | 1:a:32:ILE:HG22   | 2.01                     | 0.42              |
| 4:d:22:ILE:CG2   | 5:h:10:VAL:HG12   | 2.49                     | 0.42              |
| 13:t:904:TRP:CE2 | 13:t:981:MET:HE1  | 2.55                     | 0.42              |
| 5:H:202:LEU:C    | 5:H:202:LEU:HD23  | 2.44                     | 0.42              |
| 5:H:205:ARG:NH2  | 8:K:202:THR:O     | 2.53                     | 0.42              |
| 8:K:139:ASN:O    | 8:K:143:LYS:HG2   | 2.20                     | 0.42              |
| 14:X:-71:DT:H2'' | 14:X:-70:DC:C5    | 2.54                     | 0.42              |
| 6:i:200:ILE:HG22 | 6:i:201:CYS:N     | 2.34                     | 0.42              |
| 6:i:489:TRP:O    | 6:i:492:GLU:HG2   | 2.19                     | 0.42              |
| 8:k:155:ILE:HD13 | 8:k:167:ILE:HB    | 2.02                     | 0.42              |
| 9:l:103:SER:O    | 9:l:104:SER:OG    | 2.36                     | 0.42              |
| 12:p:12:THR:HA   | 12:p:15:LEU:HG    | 2.00                     | 0.42              |
| 3:C:59:VAL:HG13  | 4:D:57:LEU:HD11   | 2.01                     | 0.42              |
| 5:H:140:HIS:CD2  | 13:T:827:GLU:HA   | 2.55                     | 0.42              |
| 6:I:363:ILE:CG2  | 6:I:365:VAL:HG12  | 2.49                     | 0.42              |
| 8:K:146:GLN:O    | 8:K:149:SER:OG    | 2.32                     | 0.42              |
| 11:O:224:TYR:OH  | 11:O:261:LEU:HD11 | 2.19                     | 0.42              |
| 12:P:57:LEU:CD2  | 12:P:59:ILE:HD11  | 2.50                     | 0.42              |
| 5:h:92:THR:O     | 5:h:93:VAL:C      | 2.61                     | 0.42              |
| 9:l:41:VAL:HG12  | 9:l:42:SER:O      | 2.19                     | 0.42              |
| 10:n:14:ILE:CD1  | 10:n:26:VAL:HG11  | 2.50                     | 0.42              |
| 13:t:983:ARG:O   | 13:t:987:VAL:HG12 | 2.20                     | 0.42              |
| 4:D:11:ARG:HA    | 4:D:11:ARG:NE     | 2.35                     | 0.42              |
| 6:I:69:ILE:HD13  | 6:I:216:ARG:HB3   | 2.02                     | 0.42              |
| 6:I:505:LEU:HD13 | 6:I:539:ILE:HG21  | 2.02                     | 0.42              |
| 12:P:36:THR:O    | 12:P:37:LYS:C     | 2.63                     | 0.42              |
| 13:T:904:TRP:CH2 | 13:T:937:TYR:HD1  | 2.38                     | 0.42              |
| 3:c:56:LEU:HA    | 3:c:59:VAL:HG22   | 2.02                     | 0.42              |
| 5:h:91:VAL:O     | 5:h:92:THR:C      | 2.62                     | 0.42              |
| 8:k:198:LEU:O    | 8:k:201:ASP:HB3   | 2.20                     | 0.42              |
| 6:I:141:VAL:HG13 | 6:I:142:LYS:N     | 2.35                     | 0.42              |
| 14:X:-43:DA:H2'' | 14:X:-42:DG:C8    | 2.54                     | 0.42              |
| 5:h:58:LYS:HB3   | 5:h:59:PRO:HD3    | 2.00                     | 0.42              |
| 5:h:140:HIS:CD2  | 13:t:826:ILE:HG23 | 2.54                     | 0.42              |
| 5:h:209:CYS:HB2  | 8:k:202:THR:HG22  | 2.00                     | 0.42              |
| 13:t:897:TYR:CZ  | 13:t:899:PRO:HG3  | 2.55                     | 0.42              |
| 1:A:64:ILE:HG22  | 2:B:62:GLN:OE1    | 2.20                     | 0.42              |
| 2:B:46:GLU:OE1   | 4:D:32:LEU:HA     | 2.20                     | 0.42              |
| 5:H:196:MET:HE2  | 8:K:140:ALA:O     | 2.19                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 13:T:932:LEU:HD21  | 13:T:964:LEU:CD2  | 2.36                     | 0.42              |
| 14:X:-61:DT:H2''   | 14:X:-60:DA:C5'   | 2.49                     | 0.42              |
| 15:Y:48:DG:OP1     | 13:t:900:LYS:HA   | 2.19                     | 0.42              |
| 8:k:191:GLU:OE1    | 8:k:191:GLU:N     | 2.44                     | 0.42              |
| 12:p:33:GLU:HG3    | 12:p:34:LEU:CD2   | 2.49                     | 0.42              |
| 13:t:992:ASP:OD1   | 13:t:995:ASN:ND2  | 2.53                     | 0.42              |
| 13:t:1014:VAL:HG12 | 13:t:1014:VAL:O   | 2.20                     | 0.42              |
| 1:A:42:ILE:O       | 1:A:46:ILE:HG13   | 2.19                     | 0.42              |
| 4:D:22:ILE:CG2     | 5:H:10:VAL:HG12   | 2.50                     | 0.42              |
| 5:H:79:TYR:O       | 5:H:80:GLY:C      | 2.63                     | 0.42              |
| 5:H:88:LEU:O       | 5:H:89:GLU:C      | 2.61                     | 0.42              |
| 10:N:191:ASP:OD1   | 10:N:192:ALA:N    | 2.53                     | 0.42              |
| 11:O:79:ASP:O      | 11:O:83:ARG:HG2   | 2.20                     | 0.42              |
| 12:P:141:ARG:O     | 12:P:144:SER:OG   | 2.36                     | 0.42              |
| 13:T:832:ASN:HA    | 13:T:835:LYS:HG2  | 2.00                     | 0.42              |
| 14:X:-36:DG:H4'    | 14:X:-35:DG:OP1   | 2.20                     | 0.42              |
| 6:i:166:LYS:O      | 13:t:906:THR:HG21 | 2.19                     | 0.42              |
| 10:n:42:ARG:NH2    | 13:t:891:TYR:HB2  | 2.35                     | 0.42              |
| 10:n:315:ILE:HD12  | 10:n:315:ILE:H    | 1.85                     | 0.42              |
| 12:p:53:ASP:CG     | 12:p:54:GLY:H     | 2.28                     | 0.42              |
| 6:I:21:ASP:OD1     | 6:I:22:LEU:N      | 2.49                     | 0.41              |
| 6:I:217:PHE:O      | 6:I:220:THR:OG1   | 2.29                     | 0.41              |
| 7:M:144:LEU:HD12   | 7:M:144:LEU:N     | 2.35                     | 0.41              |
| 10:N:38:PHE:CE1    | 13:T:889:MET:HA   | 2.54                     | 0.41              |
| 12:P:200:ALA:HB2   | 12:P:209:MET:HE2  | 2.02                     | 0.41              |
| 12:P:281:LEU:HA    | 12:P:284:ILE:HG22 | 2.01                     | 0.41              |
| 13:T:824:MET:HE3   | 13:T:824:MET:HB3  | 1.92                     | 0.41              |
| 13:T:993:ILE:H     | 13:T:993:ILE:CD1  | 2.30                     | 0.41              |
| 6:i:632:ASP:OD1    | 6:i:633:ASN:N     | 2.53                     | 0.41              |
| 10:n:148:ASP:OD1   | 10:n:149:THR:N    | 2.53                     | 0.41              |
| 13:T:818:SER:HA    | 13:T:821:GLU:CG   | 2.50                     | 0.41              |
| 13:T:932:LEU:HD11  | 13:T:964:LEU:CD2  | 2.50                     | 0.41              |
| 13:T:964:LEU:C     | 13:T:966:ILE:HD12 | 2.45                     | 0.41              |
| 13:T:967:VAL:HG21  | 13:T:973:PHE:HD1  | 1.85                     | 0.41              |
| 13:T:984:GLU:HG2   | 13:T:985:ILE:N    | 2.36                     | 0.41              |
| 14:X:-25:DC:H2'    | 14:X:-24:DT:H71   | 1.99                     | 0.41              |
| 5:h:95:CYS:O       | 5:h:96:VAL:C      | 2.63                     | 0.41              |
| 12:p:175:PRO:HA    | 12:p:178:VAL:HG22 | 2.02                     | 0.41              |
| 13:t:890:LYS:C     | 13:t:892:LYS:H    | 2.28                     | 0.41              |
| 13:t:926:ARG:HD3   | 13:t:926:ARG:C    | 2.45                     | 0.41              |
| 3:C:49:MET:CE      | 4:D:40:LEU:HD23   | 2.50                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:I:30:LEU:O      | 6:I:34:VAL:HG23   | 2.20                     | 0.41              |
| 7:J:143:LEU:C     | 7:J:144:LEU:HD12  | 2.46                     | 0.41              |
| 8:K:165:LEU:O     | 8:K:168:GLU:HG3   | 2.20                     | 0.41              |
| 9:L:272:VAL:HG22  | 9:L:274:MET:SD    | 2.61                     | 0.41              |
| 10:N:6:LYS:HE2    | 10:N:74:LEU:HD13  | 2.02                     | 0.41              |
| 15:Y:50:DA:H2''   | 15:Y:51:DC:H6     | 1.85                     | 0.41              |
| 9:l:37:LYS:NZ     | 9:l:269:ASN:O     | 2.47                     | 0.41              |
| 10:n:23:CYS:HA    | 10:n:27:LEU:HD12  | 2.01                     | 0.41              |
| 12:p:168:VAL:HG22 | 12:p:168:VAL:O    | 2.20                     | 0.41              |
| 13:t:825:ARG:NE   | 13:t:829:GLU:OE2  | 2.52                     | 0.41              |
| 13:t:990:VAL:HG22 | 13:t:991:PRO:HD2  | 2.02                     | 0.41              |
| 6:I:108:ALA:O     | 6:I:111:GLU:HG3   | 2.21                     | 0.41              |
| 6:I:312:ALA:HA    | 6:I:359:LEU:HD21  | 2.02                     | 0.41              |
| 7:J:115:VAL:HG11  | 7:J:157:LEU:HD21  | 2.03                     | 0.41              |
| 8:K:80:LEU:O      | 8:K:83:ILE:HG22   | 2.19                     | 0.41              |
| 9:L:61:ILE:HG22   | 9:L:79:VAL:HG21   | 2.03                     | 0.41              |
| 14:X:-32:DT:C2    | 14:X:-31:DA:C5    | 3.08                     | 0.41              |
| 15:Y:31:DT:H2''   | 15:Y:32:DA:C8     | 2.55                     | 0.41              |
| 1:a:20:GLN:HE22   | 11:o:67:VAL:HG12  | 1.84                     | 0.41              |
| 3:c:36:LEU:O      | 3:c:39:ILE:HG22   | 2.21                     | 0.41              |
| 6:i:337:ILE:O     | 9:l:162:LYS:NZ    | 2.45                     | 0.41              |
| 8:k:188:ILE:O     | 8:k:188:ILE:HG23  | 2.20                     | 0.41              |
| 4:D:69:ARG:C      | 4:D:70:SER:HG     | 2.14                     | 0.41              |
| 6:I:59:THR:O      | 6:I:62:THR:HG22   | 2.21                     | 0.41              |
| 6:I:70:PRO:HG3    | 6:I:74:VAL:HG22   | 2.01                     | 0.41              |
| 6:I:79:VAL:HG21   | 6:I:119:ALA:HB1   | 2.02                     | 0.41              |
| 9:L:171:LEU:O     | 9:L:259:ILE:HD12  | 2.20                     | 0.41              |
| 13:T:915:ASP:OD1  | 13:T:915:ASP:C    | 2.63                     | 0.41              |
| 13:T:982:PRO:HB2  | 13:T:984:GLU:OE2  | 2.21                     | 0.41              |
| 15:Y:32:DA:H1'    | 15:Y:33:DC:H5'    | 2.03                     | 0.41              |
| 3:c:49:MET:HE2    | 3:c:53:TYR:HE2    | 1.85                     | 0.41              |
| 5:h:96:VAL:O      | 5:h:97:ALA:C      | 2.63                     | 0.41              |
| 6:i:64:LEU:HD23   | 6:i:64:LEU:O      | 2.20                     | 0.41              |
| 6:i:430:MET:O     | 6:i:434:LEU:HD23  | 2.21                     | 0.41              |
| 8:k:165:LEU:HA    | 8:k:168:GLU:HG3   | 2.02                     | 0.41              |
| 8:k:212:LYS:HE2   | 13:t:975:GLN:HG3  | 1.99                     | 0.41              |
| 13:t:961:MET:HB2  | 13:t:967:VAL:HG22 | 2.03                     | 0.41              |
| 1:A:67:ILE:HG21   | 2:B:62:GLN:HE21   | 1.85                     | 0.41              |
| 6:I:473:ALA:HA    | 6:I:476:TYR:CE2   | 2.56                     | 0.41              |
| 7:J:93:LEU:HD21   | 7:J:127:ILE:HD13  | 2.03                     | 0.41              |
| 7:J:113:VAL:CG2   | 7:J:144:LEU:HD13  | 2.50                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 11:O:89:SER:O      | 11:O:93:GLY:N     | 2.48                     | 0.41              |
| 13:T:1014:VAL:HG12 | 13:T:1014:VAL:O   | 2.21                     | 0.41              |
| 14:X:-47:DC:H2''   | 14:X:-46:DT:C7    | 2.51                     | 0.41              |
| 14:X:-23:DT:C2     | 14:X:-22:DG:C8    | 3.08                     | 0.41              |
| 6:i:51:TRP:CD1     | 6:i:64:LEU:HD22   | 2.55                     | 0.41              |
| 12:p:12:THR:HA     | 12:p:15:LEU:CG    | 2.51                     | 0.41              |
| 12:p:38:LYS:HD2    | 12:p:38:LYS:C     | 2.45                     | 0.41              |
| 5:H:72:THR:OG1     | 5:H:73:GLU:N      | 2.54                     | 0.41              |
| 14:X:-26:DC:H6     | 14:X:-26:DC:H2'   | 1.70                     | 0.41              |
| 4:d:45:SER:HB2     | 11:o:49:ARG:HE    | 1.85                     | 0.41              |
| 6:i:9:ASP:HA       | 6:i:12:LYS:HG2    | 2.02                     | 0.41              |
| 6:i:141:VAL:HG13   | 6:i:142:LYS:N     | 2.36                     | 0.41              |
| 6:i:527:GLU:OE2    | 6:i:647:TYR:N     | 2.49                     | 0.41              |
| 13:t:952:ASP:N     | 13:t:952:ASP:OD1  | 2.54                     | 0.41              |
| 6:I:74:VAL:N       | 6:I:114:CYS:O     | 2.53                     | 0.41              |
| 10:N:110:LEU:O     | 10:N:114:ILE:HG22 | 2.21                     | 0.41              |
| 10:N:315:ILE:HD12  | 10:N:315:ILE:H    | 1.86                     | 0.41              |
| 11:O:38:LYS:HD2    | 11:O:38:LYS:C     | 2.46                     | 0.41              |
| 12:P:21:LEU:HD12   | 12:P:21:LEU:C     | 2.46                     | 0.41              |
| 12:P:169:LEU:HD13  | 12:P:178:VAL:HG23 | 2.01                     | 0.41              |
| 15:Y:22:DC:C2      | 15:Y:23:DA:N7     | 2.89                     | 0.41              |
| 15:Y:48:DG:H2''    | 15:Y:49:DC:H6     | 1.84                     | 0.41              |
| 15:Y:62:DT:H2''    | 15:Y:63:DA:C8     | 2.56                     | 0.41              |
| 8:k:2:THR:HG23     | 12:p:43:ILE:HD13  | 2.01                     | 0.41              |
| 8:k:98:LYS:O       | 8:k:101:ILE:HG22  | 2.21                     | 0.41              |
| 11:o:43:GLU:O      | 11:o:47:LEU:HG    | 2.21                     | 0.41              |
| 11:o:145:ILE:HD12  | 11:o:164:ILE:HD12 | 2.02                     | 0.41              |
| 13:t:915:ASP:OD1   | 13:t:916:LYS:N    | 2.54                     | 0.41              |
| 4:D:72:HIS:CE1     | 6:I:384:THR:HG23  | 2.56                     | 0.41              |
| 6:I:191:GLU:OE1    | 6:I:191:GLU:N     | 2.41                     | 0.41              |
| 6:I:553:HIS:O      | 6:I:557:ILE:HG12  | 2.21                     | 0.41              |
| 7:J:110:ARG:HG3    | 7:J:110:ARG:O     | 2.20                     | 0.41              |
| 9:L:98:LEU:HD23    | 9:L:98:LEU:C      | 2.46                     | 0.41              |
| 9:L:255:ASP:OD1    | 9:L:255:ASP:N     | 2.47                     | 0.41              |
| 7:M:115:VAL:HG11   | 7:M:157:LEU:HD21  | 2.02                     | 0.41              |
| 10:N:26:VAL:HG23   | 10:N:27:LEU:N     | 2.36                     | 0.41              |
| 10:N:42:ARG:NH2    | 13:T:891:TYR:HB2  | 2.35                     | 0.41              |
| 10:N:126:THR:HG21  | 10:N:145:LEU:HB3  | 2.02                     | 0.41              |
| 11:O:67:VAL:HG21   | 11:O:72:ILE:HD11  | 2.02                     | 0.41              |
| 13:T:818:SER:HA    | 13:T:821:GLU:HG3  | 2.02                     | 0.41              |
| 13:T:932:LEU:HD11  | 13:T:964:LEU:HD22 | 2.03                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:X:-72:DA:C2'   | 14:X:-71:DT:H71   | 2.50                     | 0.41              |
| 14:X:-40:DC:H2''  | 14:X:-39:DT:OP2   | 2.21                     | 0.41              |
| 14:X:-38:DA:C2'   | 14:X:-37:DG:C8    | 3.04                     | 0.41              |
| 4:d:22:ILE:HB     | 5:h:10:VAL:HG11   | 2.03                     | 0.41              |
| 6:i:155:ARG:O     | 6:i:158:VAL:HG22  | 2.21                     | 0.41              |
| 11:o:37:LEU:HD13  | 12:p:24:ILE:HG12  | 2.03                     | 0.41              |
| 12:p:60:ASP:N     | 12:p:61:PRO:HD3   | 2.35                     | 0.41              |
| 12:p:256:TYR:HA   | 12:p:259:LYS:HG2  | 2.03                     | 0.41              |
| 13:t:917:LEU:HD23 | 13:t:928:ARG:CG   | 2.51                     | 0.41              |
| 5:H:140:HIS:CB    | 13:T:830:VAL:HG11 | 2.47                     | 0.41              |
| 5:H:203:ILE:HD11  | 8:K:154:LEU:HD22  | 2.03                     | 0.41              |
| 7:J:106:ASP:OD1   | 7:J:106:ASP:N     | 2.54                     | 0.41              |
| 15:Y:56:DC:H1'    | 15:Y:57:DA:C5     | 2.56                     | 0.41              |
| 8:k:37:GLU:OE1    | 8:k:37:GLU:N      | 2.41                     | 0.41              |
| 13:t:909:LEU:HD23 | 13:t:909:LEU:N    | 2.36                     | 0.41              |
| 5:H:209:CYS:HB2   | 8:K:202:THR:HG22  | 2.02                     | 0.40              |
| 6:I:184:LEU:O     | 6:I:187:SER:OG    | 2.31                     | 0.40              |
| 7:J:23:LEU:HD13   | 7:J:169:ILE:CD1   | 2.50                     | 0.40              |
| 7:J:144:LEU:HD12  | 7:J:144:LEU:N     | 2.36                     | 0.40              |
| 8:K:91:GLU:OE1    | 8:K:91:GLU:HA     | 2.21                     | 0.40              |
| 9:L:207:LEU:HD12  | 9:L:207:LEU:N     | 2.36                     | 0.40              |
| 11:O:68:ARG:CG    | 11:O:69:PRO:HD2   | 2.50                     | 0.40              |
| 14:X:-51:DG:C4    | 14:X:-50:DT:C5    | 3.09                     | 0.40              |
| 10:n:73:ILE:HG23  | 10:n:74:LEU:HD12  | 2.02                     | 0.40              |
| 10:n:94:MET:HB3   | 10:n:186:TYR:CG   | 2.57                     | 0.40              |
| 11:o:38:LYS:HE3   | 11:o:38:LYS:HB3   | 1.94                     | 0.40              |
| 1:A:16:ILE:HG12   | 11:O:69:PRO:HB3   | 2.03                     | 0.40              |
| 5:H:95:CYS:O      | 5:H:96:VAL:C      | 2.63                     | 0.40              |
| 5:H:232:ASP:O     | 5:H:235:THR:HG22  | 2.20                     | 0.40              |
| 14:X:-61:DT:H2'   | 14:X:-60:DA:H8    | 1.73                     | 0.40              |
| 6:i:191:GLU:OE1   | 6:i:191:GLU:N     | 2.42                     | 0.40              |
| 9:l:185:ARG:NE    | 9:l:185:ARG:HA    | 2.36                     | 0.40              |
| 10:n:44:ALA:HB3   | 10:n:46:LEU:CD2   | 2.52                     | 0.40              |
| 5:H:140:HIS:O     | 5:H:143:MET:HG2   | 2.22                     | 0.40              |
| 6:I:161:ILE:HG21  | 6:I:181:LEU:HD22  | 2.04                     | 0.40              |
| 10:N:68:HIS:C     | 10:N:68:HIS:HD1   | 2.28                     | 0.40              |
| 11:O:61:LYS:N     | 11:O:61:LYS:HD3   | 2.36                     | 0.40              |
| 13:T:926:ARG:O    | 13:T:926:ARG:HD3  | 2.20                     | 0.40              |
| 14:X:-62:DA:C2'   | 14:X:-61:DT:C6    | 3.04                     | 0.40              |
| 14:X:-50:DT:H2''  | 14:X:-49:DG:H8    | 1.86                     | 0.40              |
| 15:Y:34:DT:H2''   | 15:Y:35:DC:OP2    | 2.21                     | 0.40              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 15:Y:59:DA:C2'   | 15:Y:60:DT:H71    | 2.51                     | 0.40              |
| 8:k:135:GLU:OE1  | 8:k:135:GLU:N     | 2.41                     | 0.40              |
| 10:n:35:ARG:NE   | 10:n:35:ARG:HA    | 2.36                     | 0.40              |
| 11:o:31:GLU:HA   | 11:o:34:ARG:NE    | 2.36                     | 0.40              |
| 11:o:278:MET:SD  | 11:o:278:MET:C    | 3.05                     | 0.40              |
| 10:N:61:ILE:HB   | 10:N:65:LEU:HD13  | 2.04                     | 0.40              |
| 12:P:18:GLN:HA   | 12:P:21:LEU:HG    | 2.03                     | 0.40              |
| 13:T:999:ILE:CG2 | 13:T:1000:PRO:HD2 | 2.50                     | 0.40              |
| 15:Y:67:DA:H1'   | 15:Y:68:DT:O5'    | 2.21                     | 0.40              |
| 1:a:46:ILE:HD12  | 3:c:53:TYR:CZ     | 2.57                     | 0.40              |
| 5:h:210:ARG:CZ   | 8:k:159:PHE:CD1   | 3.04                     | 0.40              |
| 8:k:162:THR:O    | 8:k:166:ILE:HG13  | 2.21                     | 0.40              |
| 11:o:127:MET:SD  | 11:o:156:MET:HE3  | 2.61                     | 0.40              |
| 13:t:957:LEU:HB3 | 13:t:973:PHE:HZ   | 1.87                     | 0.40              |
| 1:A:11:LEU:HD23  | 1:A:11:LEU:C      | 2.46                     | 0.40              |
| 5:H:5:LYS:HA     | 5:H:8:LYS:HG2     | 2.04                     | 0.40              |
| 5:H:96:VAL:O     | 5:H:97:ALA:C      | 2.62                     | 0.40              |
| 15:Y:67:DA:H5'   | 15:Y:67:DA:H8     | 1.83                     | 0.40              |
| 5:h:87:LEU:O     | 5:h:88:LEU:C      | 2.64                     | 0.40              |
| 6:i:42:ASP:O     | 6:i:46:THR:HG23   | 2.22                     | 0.40              |
| 6:i:113:ASP:OD2  | 6:i:224:ARG:NH2   | 2.54                     | 0.40              |
| 10:n:48:MET:O    | 10:n:49:THR:C     | 2.64                     | 0.40              |
| 11:o:131:ALA:O   | 11:o:132:ASN:C    | 2.63                     | 0.40              |
| 13:t:916:LYS:CD  | 13:t:966:ILE:HD13 | 2.49                     | 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     | 68/95 (72%) | 67 (98%) | 1 (2%)  | 0        | <b>100</b> <b>100</b> |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 1   | a     | 68/95 (72%)     | 68 (100%)  | 0        | 0        | 100         | 100 |
| 2   | B     | 53/82 (65%)     | 53 (100%)  | 0        | 0        | 100         | 100 |
| 2   | b     | 53/82 (65%)     | 53 (100%)  | 0        | 0        | 100         | 100 |
| 3   | C     | 60/72 (83%)     | 59 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| 3   | c     | 60/72 (83%)     | 60 (100%)  | 0        | 0        | 100         | 100 |
| 4   | D     | 69/81 (85%)     | 68 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 4   | d     | 69/81 (85%)     | 68 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 5   | H     | 224/239 (94%)   | 210 (94%)  | 14 (6%)  | 0        | 100         | 100 |
| 5   | h     | 224/239 (94%)   | 211 (94%)  | 13 (6%)  | 0        | 100         | 100 |
| 6   | I     | 572/661 (86%)   | 560 (98%)  | 12 (2%)  | 0        | 100         | 100 |
| 6   | i     | 572/661 (86%)   | 560 (98%)  | 12 (2%)  | 0        | 100         | 100 |
| 7   | J     | 161/180 (89%)   | 156 (97%)  | 5 (3%)   | 0        | 100         | 100 |
| 7   | M     | 161/180 (89%)   | 155 (96%)  | 6 (4%)   | 0        | 100         | 100 |
| 8   | K     | 205/219 (94%)   | 201 (98%)  | 4 (2%)   | 0        | 100         | 100 |
| 8   | k     | 205/219 (94%)   | 202 (98%)  | 3 (2%)   | 0        | 100         | 100 |
| 9   | L     | 229/302 (76%)   | 217 (95%)  | 12 (5%)  | 0        | 100         | 100 |
| 9   | l     | 229/302 (76%)   | 216 (94%)  | 12 (5%)  | 1 (0%)   | 30          | 67  |
| 10  | N     | 318/328 (97%)   | 307 (96%)  | 11 (4%)  | 0        | 100         | 100 |
| 10  | n     | 318/328 (97%)   | 306 (96%)  | 12 (4%)  | 0        | 100         | 100 |
| 11  | O     | 252/325 (78%)   | 236 (94%)  | 14 (6%)  | 2 (1%)   | 16          | 53  |
| 11  | o     | 252/325 (78%)   | 236 (94%)  | 14 (6%)  | 2 (1%)   | 16          | 53  |
| 12  | P     | 279/638 (44%)   | 266 (95%)  | 13 (5%)  | 0        | 100         | 100 |
| 12  | p     | 279/638 (44%)   | 259 (93%)  | 20 (7%)  | 0        | 100         | 100 |
| 13  | T     | 150/1016 (15%)  | 140 (93%)  | 10 (7%)  | 0        | 100         | 100 |
| 13  | t     | 150/1016 (15%)  | 138 (92%)  | 12 (8%)  | 0        | 100         | 100 |
| All | All   | 5280/8476 (62%) | 5072 (96%) | 203 (4%) | 5 (0%)   | 49          | 83  |

All (5) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11  | O     | 210 | VAL  |
| 11  | o     | 210 | VAL  |
| 11  | O     | 211 | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11  | o     | 211 | GLU  |
| 9   | l     | 201 | VAL  |

### 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     | 64/89 (72%)   | 63 (98%)   | 1 (2%)   | 55          | 69  |
| 1   | a     | 64/89 (72%)   | 63 (98%)   | 1 (2%)   | 55          | 69  |
| 2   | B     | 52/76 (68%)   | 52 (100%)  | 0        | 100         | 100 |
| 2   | b     | 52/76 (68%)   | 52 (100%)  | 0        | 100         | 100 |
| 3   | C     | 56/66 (85%)   | 56 (100%)  | 0        | 100         | 100 |
| 3   | c     | 56/66 (85%)   | 56 (100%)  | 0        | 100         | 100 |
| 4   | D     | 65/75 (87%)   | 65 (100%)  | 0        | 100         | 100 |
| 4   | d     | 65/75 (87%)   | 64 (98%)   | 1 (2%)   | 57          | 70  |
| 5   | H     | 206/217 (95%) | 206 (100%) | 0        | 100         | 100 |
| 5   | h     | 206/217 (95%) | 206 (100%) | 0        | 100         | 100 |
| 6   | I     | 511/584 (88%) | 510 (100%) | 1 (0%)   | 87          | 85  |
| 6   | i     | 511/584 (88%) | 511 (100%) | 0        | 100         | 100 |
| 7   | J     | 147/161 (91%) | 147 (100%) | 0        | 100         | 100 |
| 7   | M     | 147/161 (91%) | 147 (100%) | 0        | 100         | 100 |
| 8   | K     | 189/198 (96%) | 188 (100%) | 1 (0%)   | 81          | 81  |
| 8   | k     | 189/198 (96%) | 189 (100%) | 0        | 100         | 100 |
| 9   | L     | 218/277 (79%) | 217 (100%) | 1 (0%)   | 81          | 81  |
| 9   | l     | 218/277 (79%) | 218 (100%) | 0        | 100         | 100 |
| 10  | N     | 285/290 (98%) | 284 (100%) | 1 (0%)   | 84          | 82  |
| 10  | n     | 285/290 (98%) | 285 (100%) | 0        | 100         | 100 |
| 11  | O     | 228/295 (77%) | 228 (100%) | 0        | 100         | 100 |
| 11  | o     | 228/295 (77%) | 228 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed        | Rotameric   | Outliers | Percentiles |     |
|-----|-------|-----------------|-------------|----------|-------------|-----|
| 12  | P     | 255/579 (44%)   | 254 (100%)  | 1 (0%)   | 84          | 82  |
| 12  | p     | 255/579 (44%)   | 255 (100%)  | 0        | 100         | 100 |
| 13  | T     | 144/942 (15%)   | 143 (99%)   | 1 (1%)   | 76          | 79  |
| 13  | t     | 144/942 (15%)   | 144 (100%)  | 0        | 100         | 100 |
| All | All   | 4840/7698 (63%) | 4831 (100%) | 9 (0%)   | 85          | 85  |

All (9) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 33  | ILE  |
| 6   | I     | 558 | GLN  |
| 8   | K     | 40  | SER  |
| 9   | L     | 187 | ASN  |
| 10  | N     | 247 | GLU  |
| 12  | P     | 40  | THR  |
| 13  | T     | 889 | MET  |
| 1   | a     | 33  | ILE  |
| 4   | d     | 41  | GLU  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 5   | GLN  |
| 2   | B     | 48  | ASN  |
| 3   | C     | 62  | GLN  |
| 4   | D     | 72  | HIS  |
| 5   | H     | 20  | GLN  |
| 6   | I     | 553 | HIS  |
| 6   | I     | 561 | HIS  |
| 6   | I     | 612 | HIS  |
| 9   | L     | 189 | GLN  |
| 11  | O     | 104 | HIS  |
| 12  | P     | 96  | ASN  |
| 12  | P     | 160 | HIS  |
| 1   | a     | 20  | GLN  |
| 1   | a     | 45  | ASN  |
| 2   | b     | 55  | HIS  |
| 2   | b     | 74  | ASN  |
| 4   | d     | 72  | HIS  |
| 5   | h     | 123 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | h     | 152 | HIS  |
| 5   | h     | 153 | ASN  |
| 6   | i     | 328 | HIS  |
| 6   | i     | 361 | GLN  |
| 6   | i     | 553 | HIS  |
| 6   | i     | 561 | HIS  |
| 6   | i     | 612 | HIS  |
| 8   | k     | 114 | GLN  |
| 9   | l     | 189 | GLN  |
| 9   | l     | 260 | ASN  |
| 11  | o     | 27  | GLN  |
| 11  | o     | 117 | ASN  |
| 13  | t     | 819 | ASN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

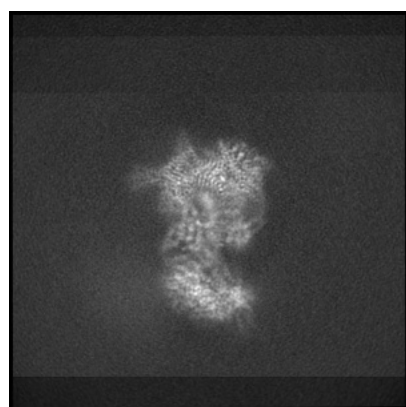
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-70558. These allow visual inspection of the internal detail of the map and identification of artifacts.

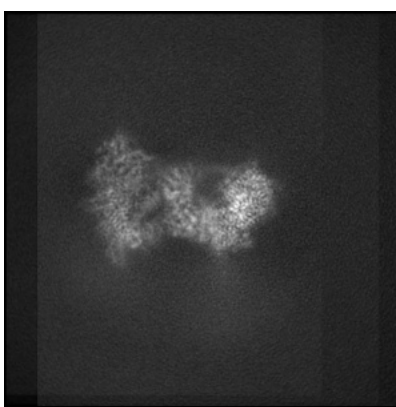
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

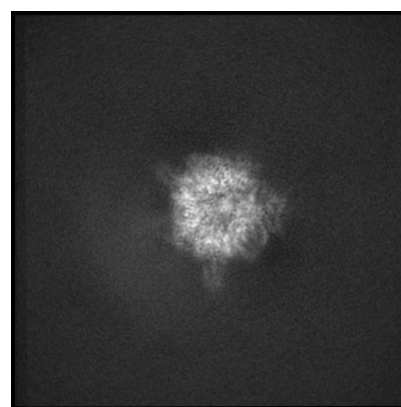
#### 6.1.1 Primary map



X



Y

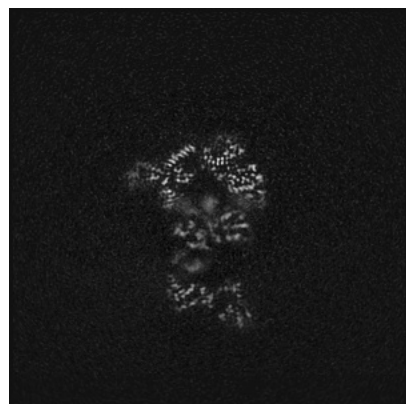


Z

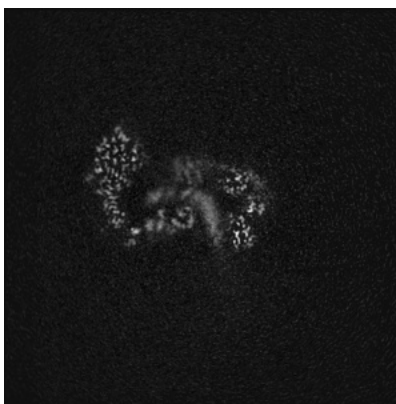
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

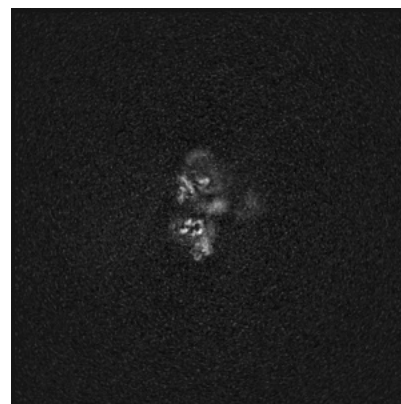
#### 6.2.1 Primary map



X Index: 203



Y Index: 203

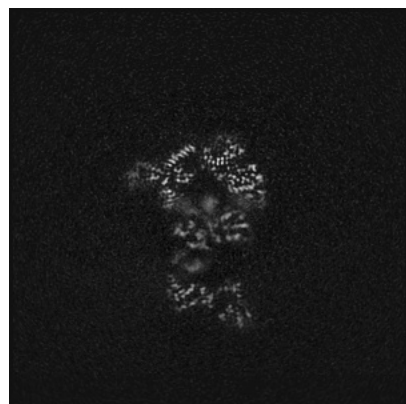


Z Index: 202

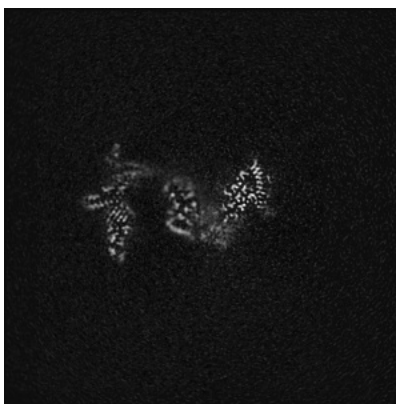
The images above show central slices of the map in three orthogonal directions.

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

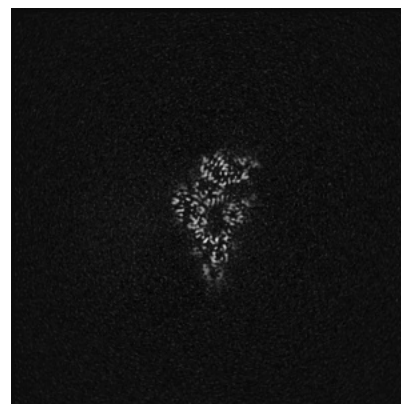
### 6.3.1 Primary map



X Index: 203



Y Index: 233

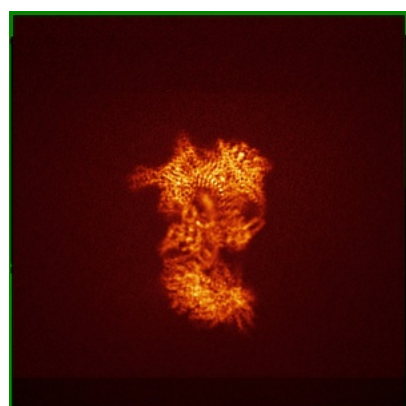


Z Index: 240

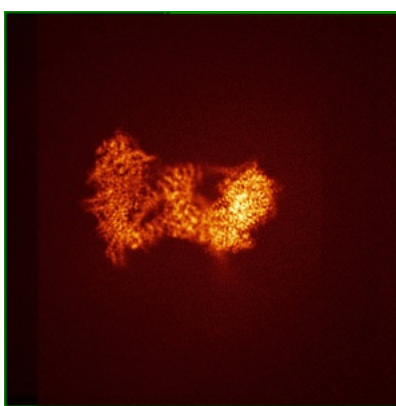
The images above show the largest variance slices of the map in three orthogonal directions.

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

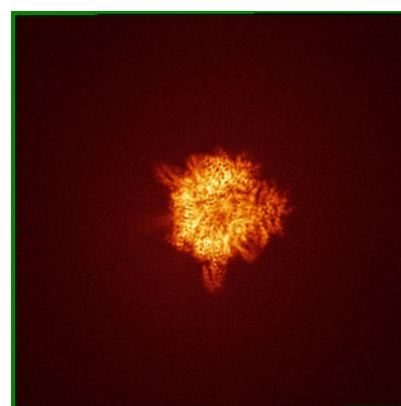
### 6.4.1 Primary map



X



Y

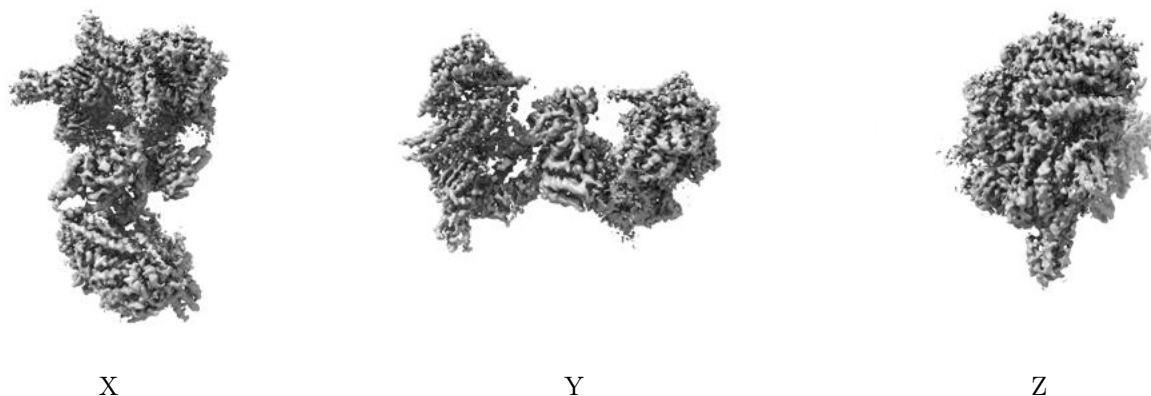


Z

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 0.00342. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

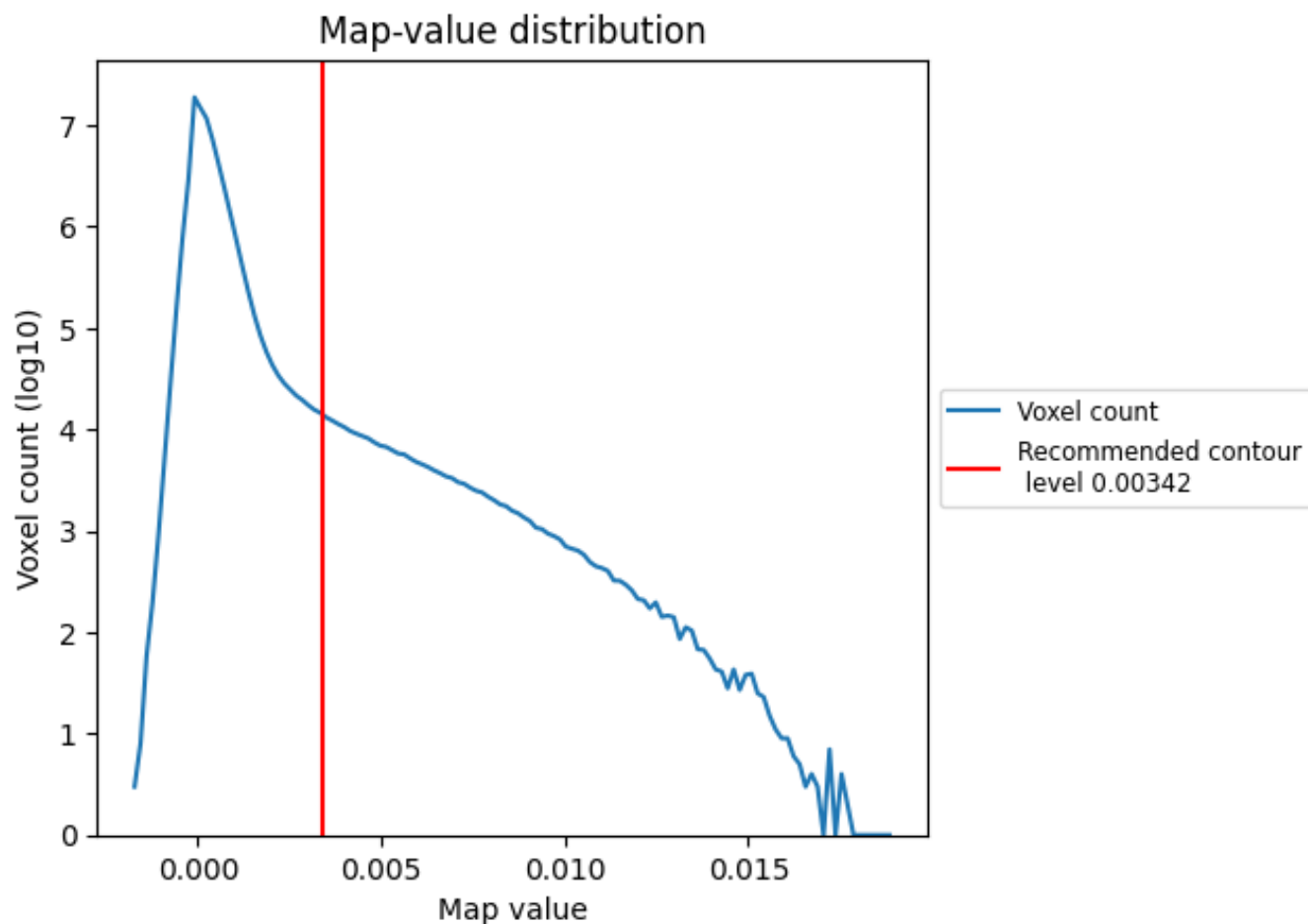
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

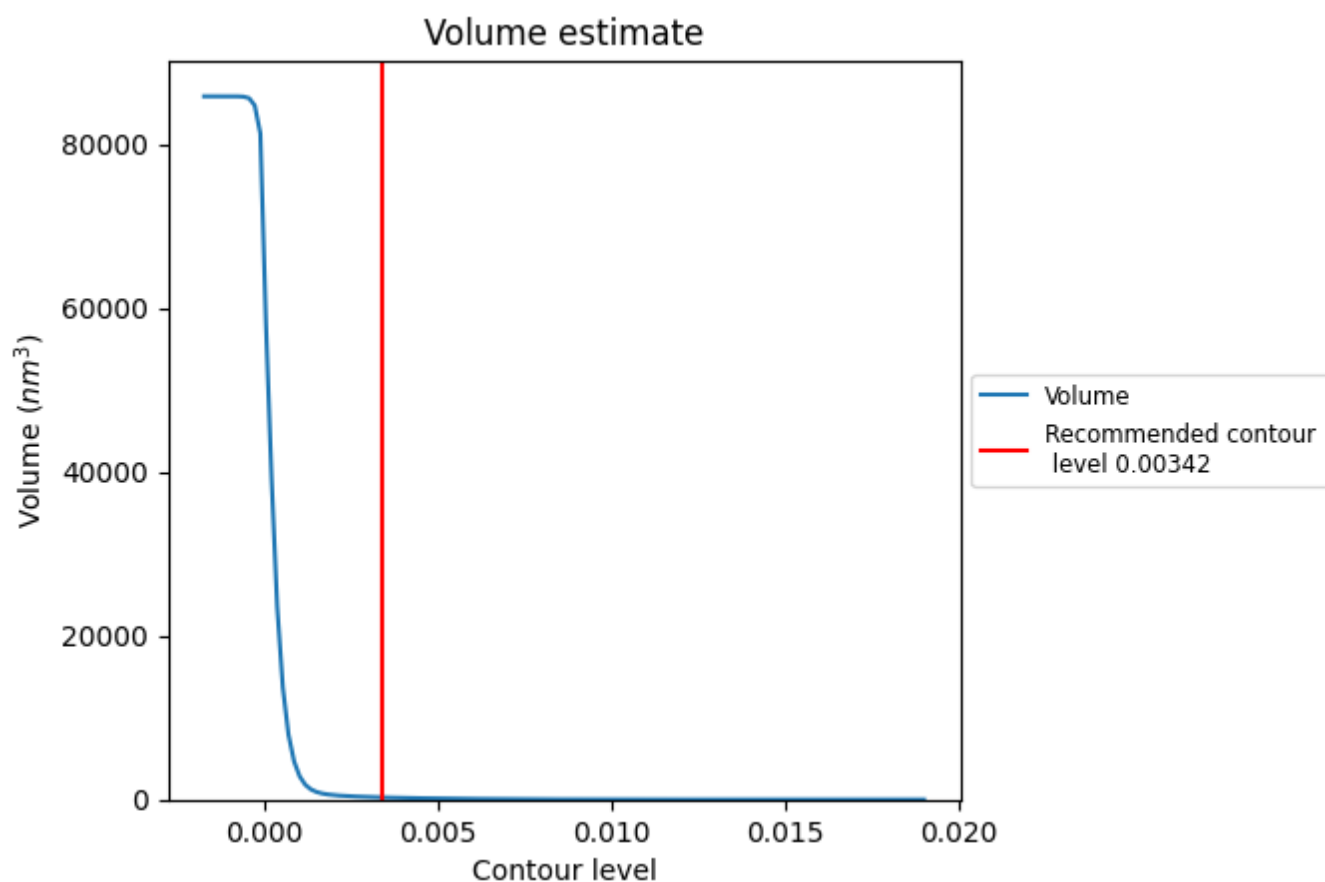
This section contains the results of statistical analysis of the map.

### 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 260 nm<sup>3</sup>; this corresponds to an approximate mass of 235 kDa.

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

## 7.3 Rotationally averaged power spectrum [i](#)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

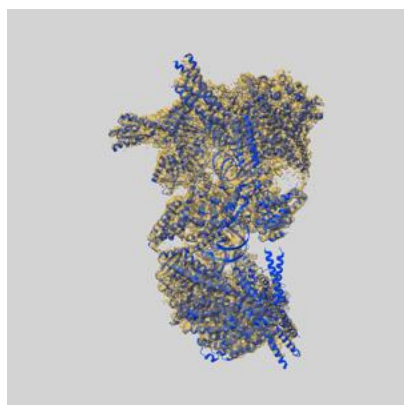
## 8 Fourier-Shell correlation

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

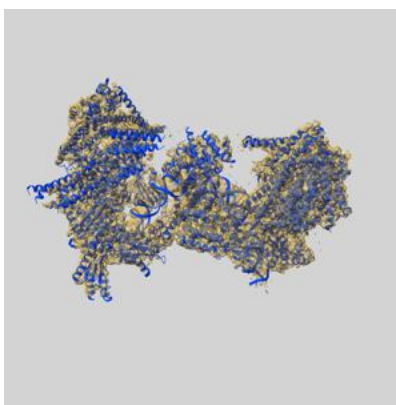
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-70558 and PDB model 9OKB. Per-residue inclusion information can be found in [section 3](#) on [page 8](#).

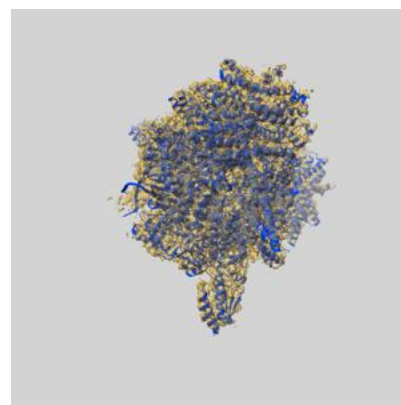
### 9.1 Map-model overlay [i](#)



X



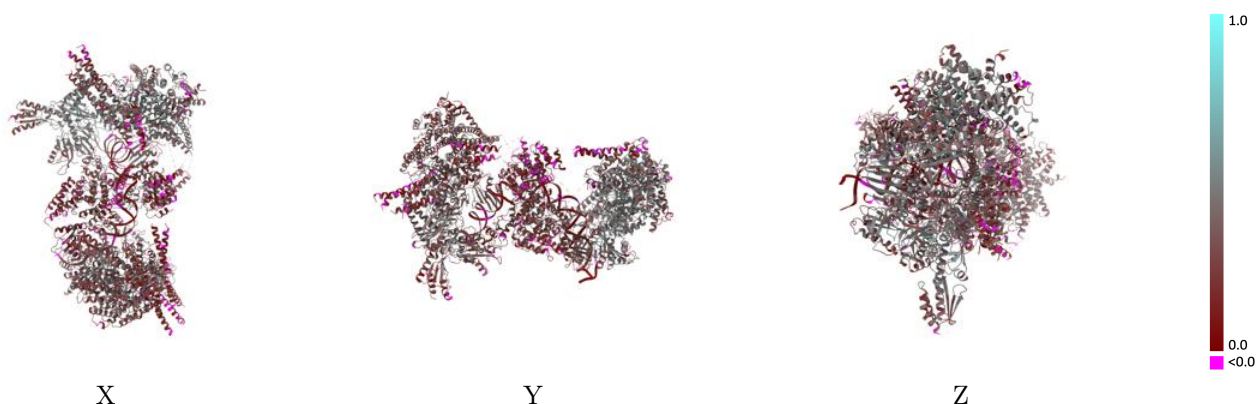
Y



Z

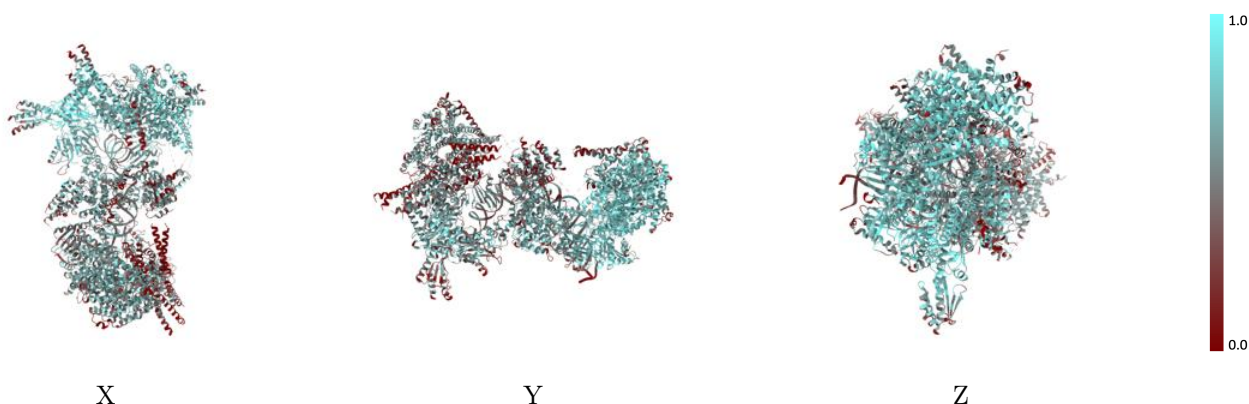
The images above show the 3D surface view of the map at the recommended contour level 0.00342 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



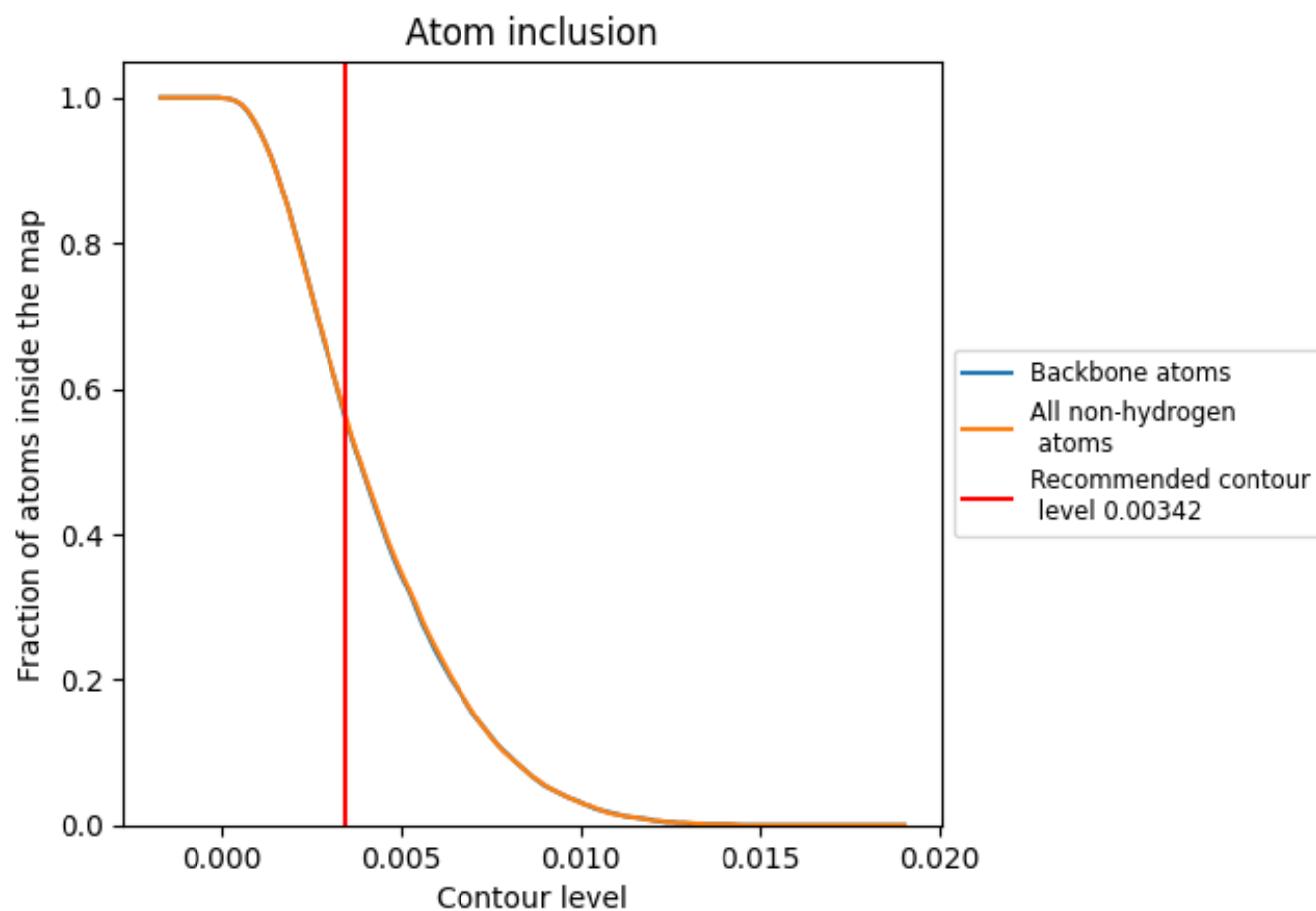
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00342).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 56% of all backbone atoms, 57% 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 (0.00342) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.5670   |  0.3210   |
| A     |  0.6010   |  0.3400   |
| B     |  0.6760   |  0.3920   |
| C     |  0.6100   |  0.3110   |
| D     |  0.7250   |  0.3980   |
| H     |  0.6750   |  0.3610   |
| I     |  0.6410   |  0.3430   |
| J     |  0.6090   |  0.4130   |
| K     |  0.6580   |  0.3240   |
| L     |  0.7390   |  0.3700   |
| M     |  0.8090   |  0.4740   |
| N     |  0.7370   |  0.3760   |
| O     |  0.7190   |  0.3920   |
| P     |  0.6260   |  0.3550   |
| T     |  0.6030  |  0.3130  |
| X     |  0.4740 |  0.1210 |
| Y     |  0.4620 |  0.1160 |
| a     |  0.2490 |  0.2700 |
| b     |  0.3880 |  0.3150 |
| c     |  0.2540 |  0.1940 |
| d     |  0.4060 |  0.3060 |
| h     |  0.4980 |  0.2790 |
| i     |  0.5160 |  0.2780 |
| k     |  0.5220 |  0.2640 |
| l     |  0.5540 |  0.3170 |
| n     |  0.6210 |  0.3300 |
| o     |  0.4810 |  0.3260 |
| p     |  0.4120 |  0.2900 |
| t     |  0.5220 |  0.3030 |

