



Full wwPDB NMR Structure Validation Report ⓘ

May 28, 2020 – 08:03 pm BST

PDB ID : 1M4Q
Title : STRUCTURE OF THE TSG101 UEV DOMAIN IN COMPLEX WITH A HIV-1 PTAP "LATE DOMAIN" PEPTIDE, CNS ENSEMBLE
Authors : Pornillos, O.; Alam, S.L.; Davis, D.R.; Sundquist, W.I.
Deposited on : 2002-07-03

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

Cyrange : Kirchner and Güntert (2011)
NmrClust : Kelley et al. (1996)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
ShiftChecker : 2.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

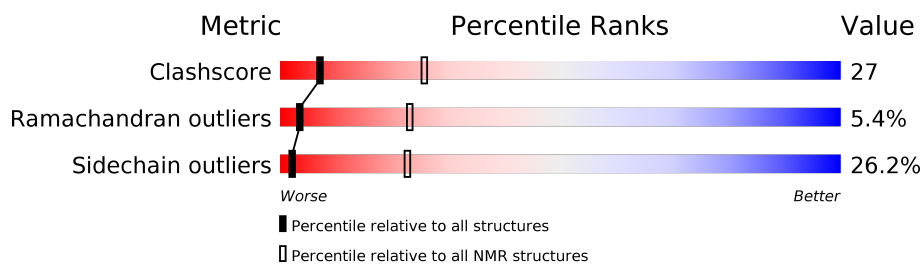
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

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



| Metric | Whole archive (#Entries) | NMR archive (#Entries) |
|-----------------------|-----------------------------|---------------------------|
| Clashscore | 158937 | 12864 |
| Ramachandran outliers | 154571 | 11451 |
| Sidechain outliers | 154315 | 11428 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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 $\leq 5\%$

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 145 | |
| 2 | B | 9 | |

2 Ensemble composition and analysis i

This entry contains 20 models. Model 1 is the overall representative, medoid model (most similar to other models). The authors have identified model 8 as representative, based on the following criterion: *lowest energy*.

The following residues are included in the computation of the global validation metrics.

| Well-defined (core) protein residues | | | |
|--------------------------------------|--|-------------------|--------------|
| Well-defined core | Residue range (total) | Backbone RMSD (Å) | Medoid model |
| 1 | A:4-A:42, A:50-A:78, A:83-A:145, B:205-B:213 (140) | 0.49 | 1 |

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 3 clusters and 1 single-model cluster was found.

| Cluster number | Models |
|-----------------------|---|
| 1 | 1, 3, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20 |
| 2 | 8, 11 |
| 3 | 2, 6 |
| Single-model clusters | 4 |

3 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 2474 atoms, of which 1244 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Tumor Susceptibility gene 101 protein.

| Mol | Chain | Residues | Atoms | | | | | | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|-------|
| | | | Total | C | H | N | O | S | |
| 1 | A | 144 | 2346 | 757 | 1184 | 188 | 211 | 6 | 0 |

- Molecule 2 is a protein called Gag Polyprotein.

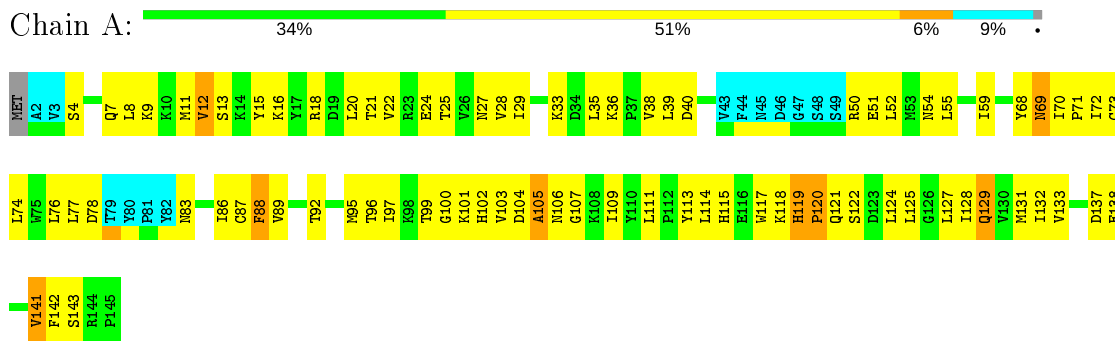
| Mol | Chain | Residues | Atoms | | | | | Trace |
|-----|-------|----------|-------|----|----|---|----|-------|
| | | | Total | C | H | N | O | |
| 2 | B | 9 | 128 | 42 | 60 | 9 | 17 | 0 |

4 Residue-property plots [i](#)

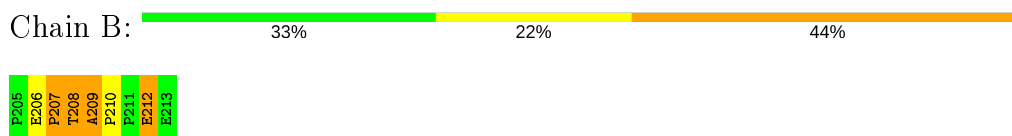
4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA and DNA chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-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. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: Tumor Susceptibility gene 101 protein



- Molecule 2: Gag Polyprotein

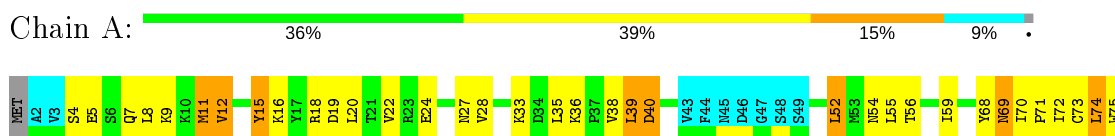


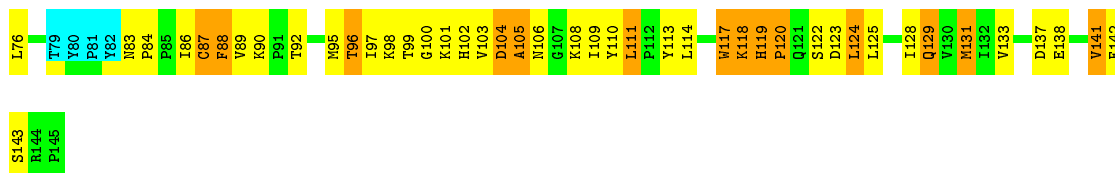
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

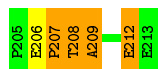
4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Tumor Susceptibility gene 101 protein



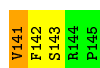
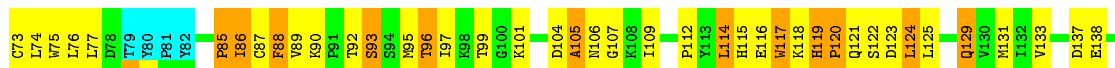
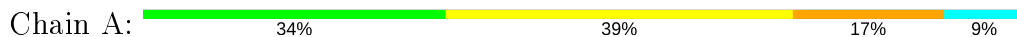


• Molecule 2: Gag Polyprotein

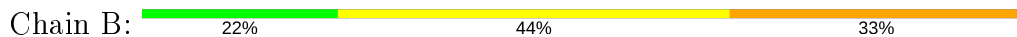


4.2.2 Score per residue for model 2

• Molecule 1: Tumor Susceptibility gene 101 protein

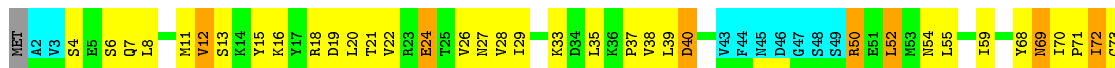


• Molecule 2: Gag Polyprotein



4.2.3 Score per residue for model 3

• Molecule 1: Tumor Susceptibility gene 101 protein



F142
S143
R144
P145

- Molecule 2: Gag Polyprotein

Chain B: 11% 56% 33%

P205
E206
P207
T208
A209
P210
P211
E212
E213

4.2.4 Score per residue for model 4

- Molecule 1: Tumor Susceptibility gene 101 protein

Chain A: 39% 38% 13% 9%

MET A2 V3 L8 M11 V12 M14 K14 Y15 K16 Y17 R18 D19 L20 L21 T22 V23 E24 T25 V26 M27 V28 Y32 K33 K36 P37 V38 L39 D40 V43 F44 M45 D46 G47 S48 S49 R50 E51 L52 M53 M54 L55 I59 R64 N69 I70 I71 I72 C73 L74 W75 L76

L77 D78 Y79 Y80 P81 Y82 M83 P84 P85 I86 C87 F88 V89 T92 N95 T96 I97 K98 T99 H102 V103 D104 A105 M106 G107 I108 I109 Y110 L111 P112 Y113 L114 W117 K118 H119 P120 Q121 S122 D123 L124 L125 G126 L127 I128 Q129 M130 M131 I132 V133 V134 F135 G136 D137 E138 V141

F142
S143
R144
P145

- Molecule 2: Gag Polyprotein

Chain B: 33% 22% 44%

P205
E206
P207
T208
A209
P210
P211
E212
E213

4.2.5 Score per residue for model 5

- Molecule 1: Tumor Susceptibility gene 101 protein

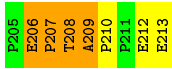
Chain A: 46% 35% 9% 9%

MET A2 V3 S4 E5 S6 Q7 L8 R9 K10 M11 V12 S13 R14 Y15 R18 D19 A105 L20 T21 V22 R23 E24 T25 V28 K33 D34 L35 L39 D40 V43 F44 M45 D46 G47 S48 S49 R50 E51 L52 I59 Y68 M69 I70 P71 I72 C73 L74 W75 L76 L77 I79 Y80

P81 Y82 M83 P84 P85 I86 C87 F88 V89 S94 T99 G100 R101 D104 A105 M106 G107 I108 I109 H115 F116 M117 K118 H119 P120 Q121 S122 D123 L124 L125 G126 L127 I128 Q129 I132 V133 D137 V141 F142 S143 R144 P145

- Molecule 2: Gag Polyprotein

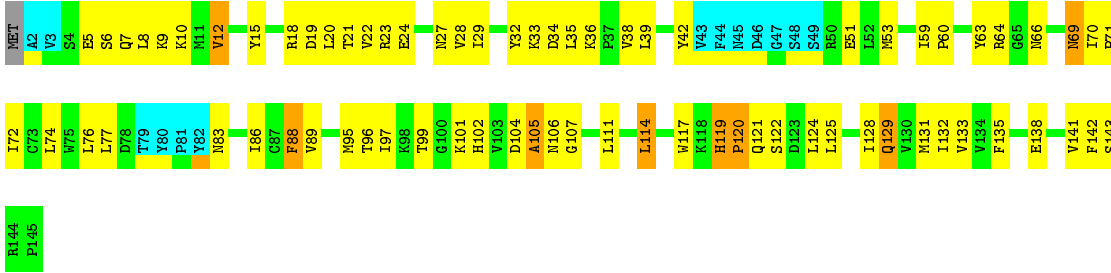
Chain B: 22% 33% 44%



4.2.6 Score per residue for model 6

- Molecule 1: Tumor Susceptibility gene 101 protein

Chain A: 40% 45% 6% 9%



- Molecule 2: Gag Polyprotein

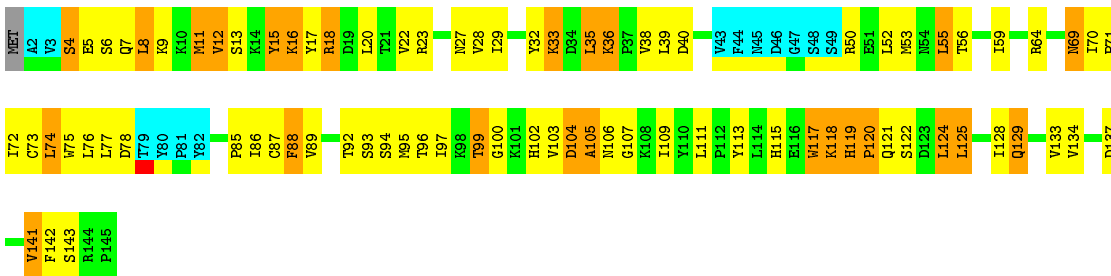
Chain B: 33% 33% 33%



4.2.7 Score per residue for model 7

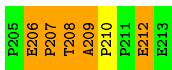
- Molecule 1: Tumor Susceptibility gene 101 protein

Chain A: 34% 39% 17% 9%



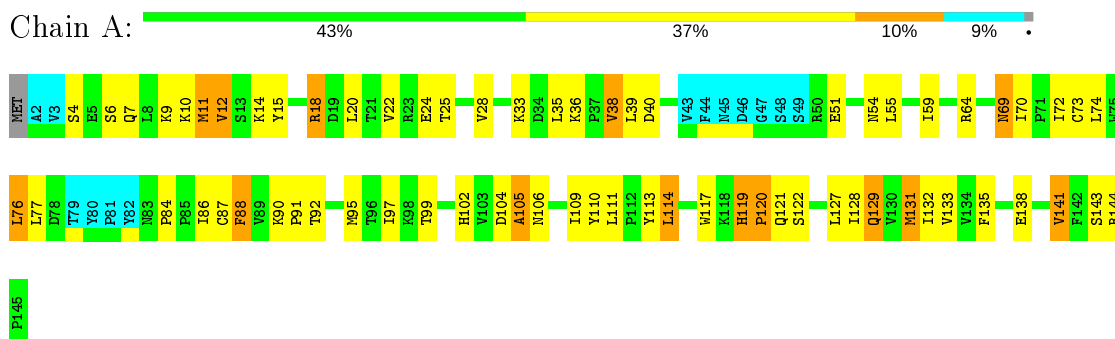
- Molecule 2: Gag Polyprotein

Chain B: 33% 11% 56%

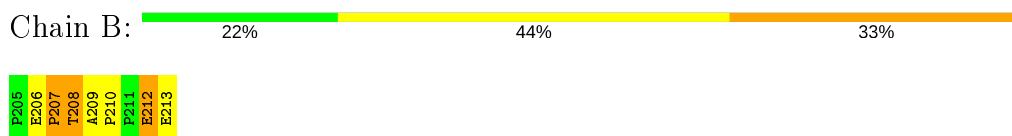


4.2.8 Score per residue for model 8

- Molecule 1: Tumor Susceptibility gene 101 protein

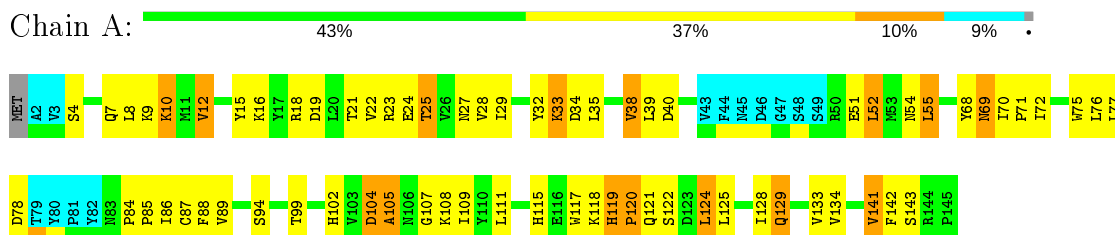


- Molecule 2: Gag Polyprotein

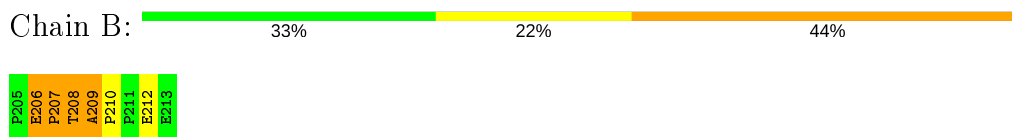


4.2.9 Score per residue for model 9

- Molecule 1: Tumor Susceptibility gene 101 protein



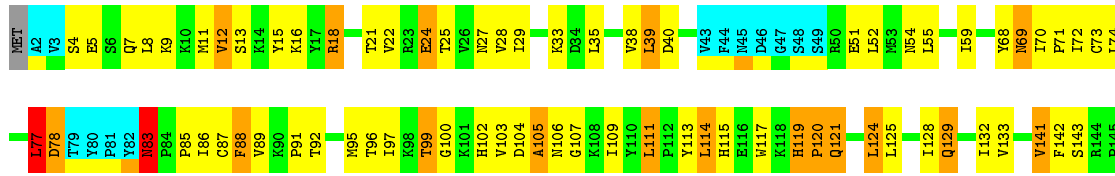
- Molecule 2: Gag Polyprotein



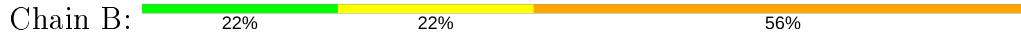
4.2.10 Score per residue for model 10

- Molecule 1: Tumor Susceptibility gene 101 protein



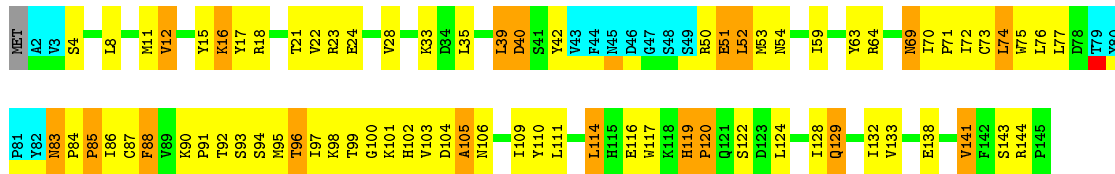


• Molecule 2: Gag Polyprotein



4.2.11 Score per residue for model 11

• Molecule 1: Tumor Susceptibility gene 101 protein

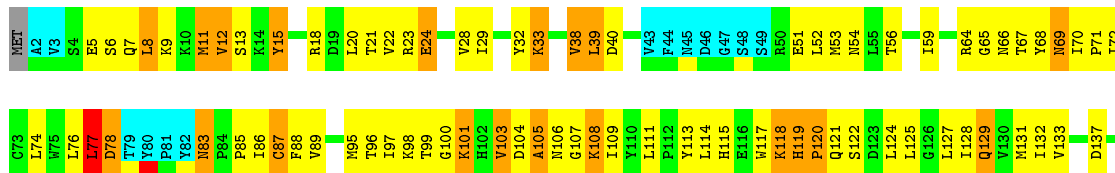


• Molecule 2: Gag Polyprotein

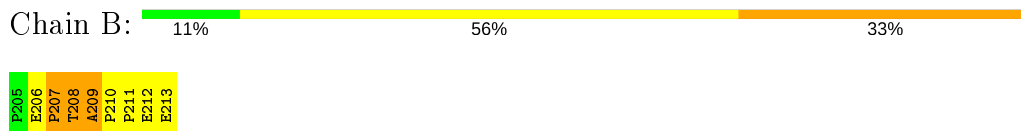


4.2.12 Score per residue for model 12

• Molecule 1: Tumor Susceptibility gene 101 protein

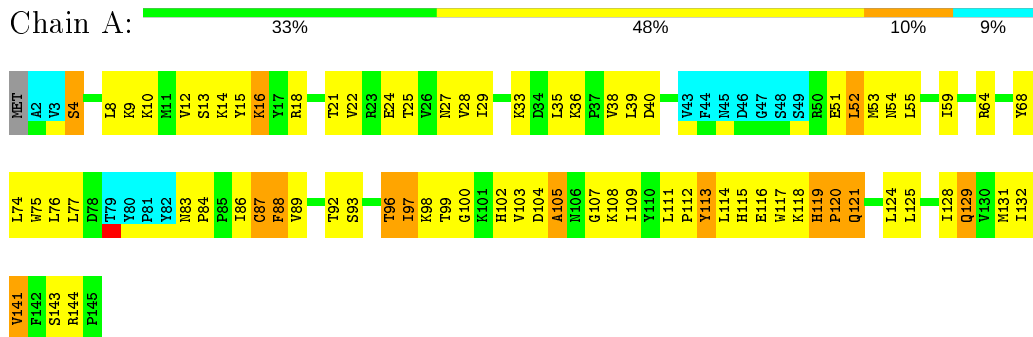


• Molecule 2: Gag Polyprotein

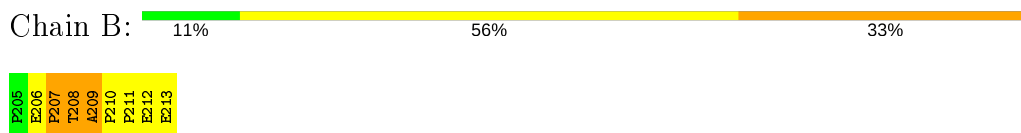


4.2.13 Score per residue for model 13

- Molecule 1: Tumor Susceptibility gene 101 protein

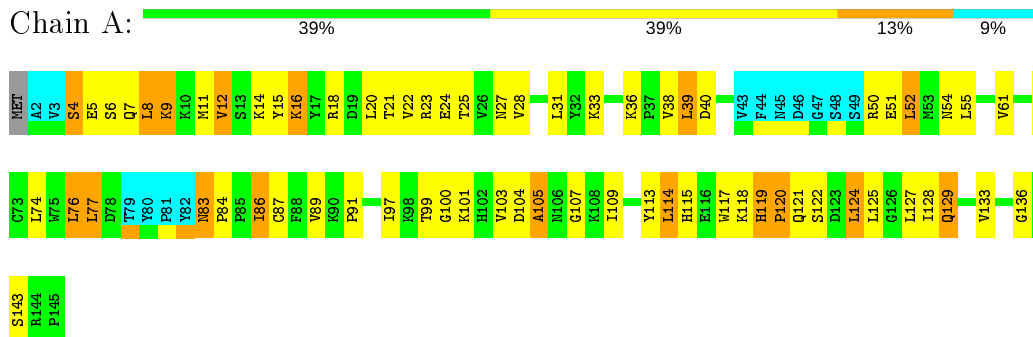


- Molecule 2: Gag Polyprotein

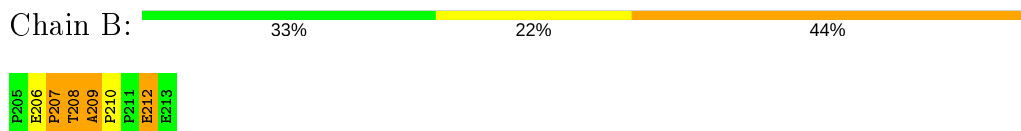


4.2.14 Score per residue for model 14

- Molecule 1: Tumor Susceptibility gene 101 protein

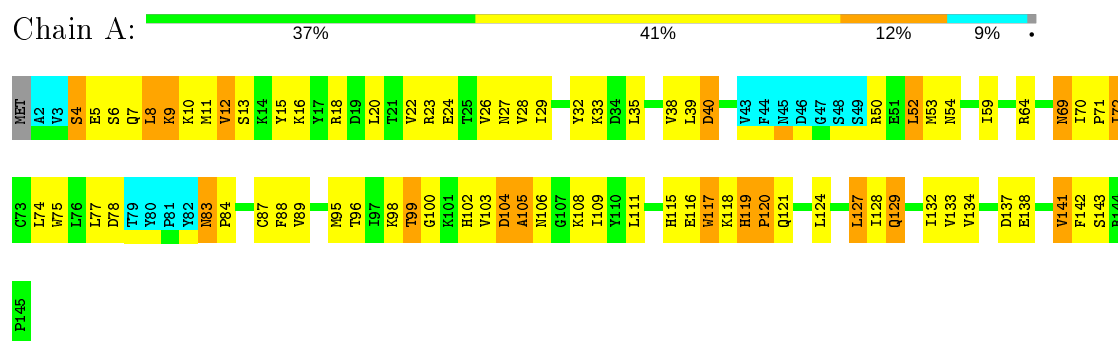


- Molecule 2: Gag Polyprotein

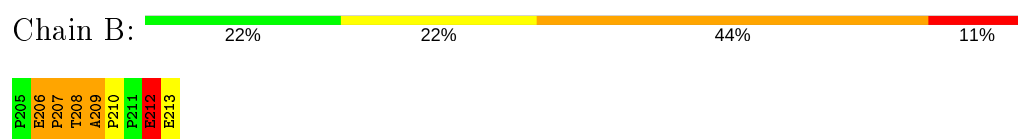


4.2.15 Score per residue for model 15

- Molecule 1: Tumor Susceptibility gene 101 protein

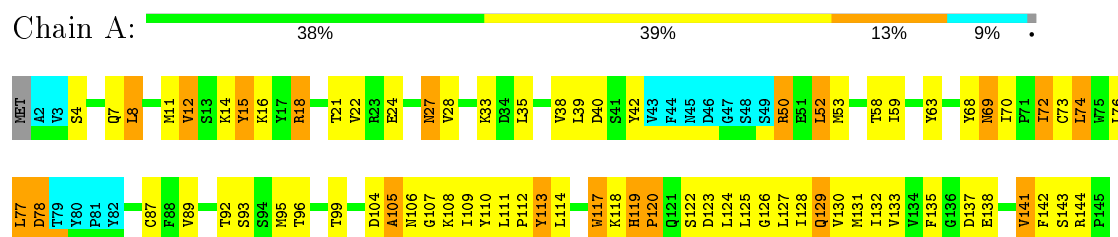


- Molecule 2: Gag Polyprotein

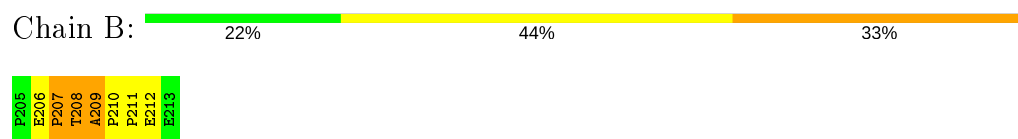


4.2.16 Score per residue for model 16

- Molecule 1: Tumor Susceptibility gene 101 protein



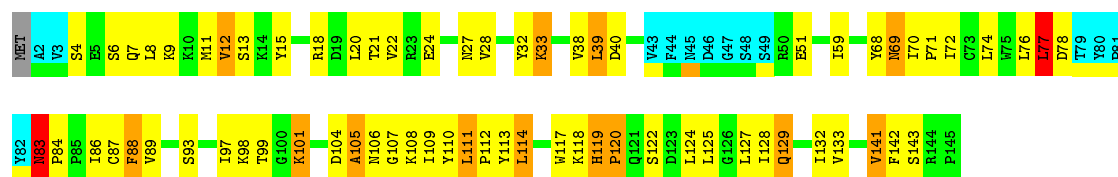
- Molecule 2: Gag Polyprotein



4.2.17 Score per residue for model 17

- Molecule 1: Tumor Susceptibility gene 101 protein





- Molecule 2: Gag Polyprotein



4.2.18 Score per residue for model 18

- Molecule 1: Tumor Susceptibility gene 101 protein

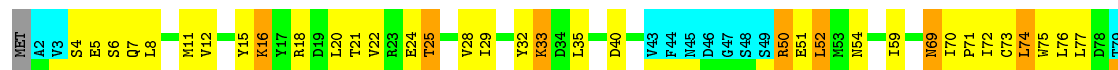


- Molecule 2: Gag Polyprotein



4.2.19 Score per residue for model 19

- Molecule 1: Tumor Susceptibility gene 101 protein



- Molecule 2: Gag Polyprotein

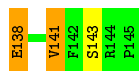
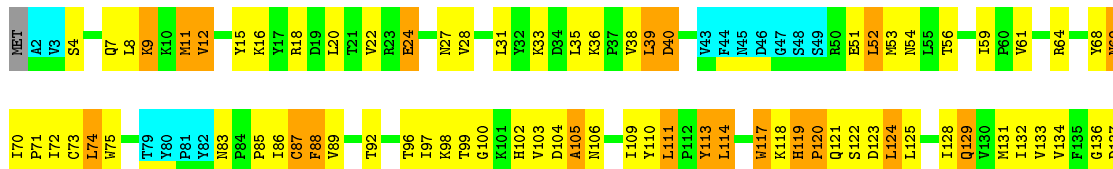




4.2.20 Score per residue for model 20

- Molecule 1: Tumor Susceptibility gene 101 protein

Chain A: 36% 39% 15% 9%



- Molecule 2: Gag Polyprotein

Chain B: 11% 67% 22%



5 Refinement protocol and experimental data overview

The models were refined using the following method: *torsion angle dynamics distance geometry simulated annealing*.

Of the 200 calculated structures, 20 were deposited, based on the following criterion: *structures with the lowest energy*.

The following table shows the software used for structure solution, optimisation and refinement.

| Software name | Classification | Version |
|---------------|--------------------|---------|
| DYANA | structure solution | |
| CNS | refinement | |

No chemical shift data was provided. No validations of the models with respect to experimental NMR restraints is performed at this time.

6 Model quality i

6.1 Standard geometry i

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts i

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each 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 averaged over the ensemble.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|-----|-------|-------|----------|----------|---------|
| 1 | A | 1062 | 1097 | 1094 | 55±8 |
| 2 | B | 68 | 60 | 58 | 15±2 |
| All | All | 22600 | 23140 | 23040 | 1222 |

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 27.

All unique clashes are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|-----------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:76:LEU:HD11 | 1:A:124:LEU:HD11 | 0.92 | 1.41 | 5 | 5 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HD12 | 0.83 | 2.08 | 6 | 1 |
| 1:A:89:VAL:HG12 | 1:A:107:GLY:O | 0.83 | 1.73 | 13 | 11 |
| 1:A:59:ILE:HD12 | 1:A:72:ILE:HD12 | 0.82 | 1.50 | 7 | 2 |
| 1:A:71:PRO:O | 1:A:89:VAL:HG23 | 0.80 | 1.76 | 6 | 12 |
| 1:A:99:THR:HG22 | 1:A:104:ASP:O | 0.80 | 1.77 | 8 | 18 |
| 1:A:39:LEU:HD13 | 1:A:40:ASP:N | 0.79 | 1.91 | 3 | 9 |
| 1:A:129:GLN:O | 1:A:133:VAL:HG23 | 0.79 | 1.77 | 20 | 20 |
| 1:A:59:ILE:HD12 | 1:A:132:ILE:HG12 | 0.79 | 1.55 | 17 | 10 |
| 1:A:24:GLU:O | 1:A:28:VAL:HG23 | 0.78 | 1.78 | 15 | 19 |
| 1:A:15:TYR:CD2 | 1:A:21:THR:HG21 | 0.78 | 2.13 | 10 | 14 |
| 1:A:92:THR:HG21 | 2:B:207:PRO:HG2 | 0.78 | 1.52 | 2 | 10 |
| 1:A:39:LEU:HD23 | 1:A:40:ASP:N | 0.77 | 1.95 | 7 | 1 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:52:LEU:HD13 | 1:A:52:LEU:O | 0.76 | 1.81 | 16 | 2 |
| 1:A:59:ILE:HD12 | 1:A:132:ILE:CG1 | 0.76 | 2.11 | 17 | 8 |
| 1:A:18:ARG:O | 1:A:22:VAL:HG23 | 0.76 | 1.80 | 17 | 20 |
| 1:A:39:LEU:HD23 | 1:A:53:MET:HA | 0.75 | 1.57 | 6 | 1 |
| 1:A:15:TYR:CE2 | 1:A:21:THR:HG21 | 0.74 | 2.17 | 2 | 7 |
| 1:A:12:VAL:HG11 | 1:A:15:TYR:CD2 | 0.73 | 2.18 | 20 | 2 |
| 1:A:124:LEU:O | 1:A:128:ILE:HD12 | 0.73 | 1.83 | 10 | 15 |
| 1:A:8:LEU:HD12 | 1:A:8:LEU:O | 0.73 | 1.83 | 4 | 6 |
| 1:A:87:CYS:HB2 | 1:A:109:ILE:HD12 | 0.72 | 1.61 | 8 | 17 |
| 1:A:101:LYS:O | 1:A:111:LEU:HD23 | 0.72 | 1.85 | 17 | 1 |
| 1:A:119:HIS:N | 1:A:120:PRO:HA | 0.72 | 2.00 | 8 | 20 |
| 1:A:87:CYS:CB | 1:A:109:ILE:HD12 | 0.71 | 2.15 | 16 | 13 |
| 1:A:39:LEU:HD11 | 1:A:51:GLU:HG2 | 0.71 | 1.59 | 11 | 1 |
| 1:A:50:ARG:CD | 1:A:52:LEU:HD12 | 0.71 | 2.16 | 3 | 1 |
| 1:A:111:LEU:HD21 | 1:A:113:TYR:CD2 | 0.70 | 2.21 | 13 | 2 |
| 1:A:141:VAL:O | 2:B:209:ALA:HB1 | 0.70 | 1.86 | 6 | 20 |
| 1:A:53:MET:SD | 1:A:76:LEU:HD22 | 0.70 | 2.26 | 12 | 1 |
| 1:A:59:ILE:HG22 | 1:A:70:ILE:HG22 | 0.70 | 1.62 | 13 | 1 |
| 1:A:109:ILE:HG21 | 1:A:113:TYR:OH | 0.70 | 1.85 | 4 | 1 |
| 2:B:208:THR:O | 2:B:209:ALA:HB3 | 0.69 | 1.87 | 13 | 18 |
| 1:A:74:LEU:HD11 | 1:A:87:CYS:SG | 0.69 | 2.27 | 7 | 3 |
| 1:A:141:VAL:HG13 | 1:A:141:VAL:O | 0.69 | 1.87 | 2 | 13 |
| 1:A:8:LEU:HD21 | 1:A:25:THR:HG21 | 0.69 | 1.62 | 10 | 1 |
| 1:A:59:ILE:CD1 | 1:A:72:ILE:HD12 | 0.69 | 2.17 | 7 | 1 |
| 1:A:27:ASN:HB3 | 1:A:125:LEU:HD21 | 0.69 | 1.63 | 2 | 2 |
| 1:A:11:MET:HG2 | 1:A:39:LEU:HD23 | 0.69 | 1.65 | 4 | 4 |
| 1:A:95:MET:HG2 | 1:A:141:VAL:HG22 | 0.68 | 1.65 | 7 | 11 |
| 1:A:27:ASN:OD1 | 1:A:125:LEU:HD22 | 0.68 | 1.87 | 3 | 1 |
| 1:A:143:SER:HB3 | 2:B:208:THR:O | 0.68 | 1.88 | 20 | 3 |
| 1:A:39:LEU:HD11 | 1:A:51:GLU:CG | 0.68 | 2.18 | 11 | 1 |
| 1:A:128:ILE:HG22 | 1:A:132:ILE:HD11 | 0.68 | 1.65 | 19 | 10 |
| 1:A:141:VAL:O | 2:B:209:ALA:CB | 0.67 | 2.42 | 20 | 20 |
| 1:A:12:VAL:HG12 | 1:A:15:TYR:CE1 | 0.66 | 2.25 | 9 | 9 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HD21 | 0.66 | 2.25 | 11 | 3 |
| 1:A:55:LEU:HD12 | 1:A:76:LEU:HD13 | 0.66 | 1.67 | 14 | 1 |
| 1:A:141:VAL:O | 1:A:141:VAL:HG13 | 0.66 | 1.91 | 20 | 7 |
| 1:A:83:ASN:HB3 | 1:A:114:LEU:HD23 | 0.66 | 1.68 | 19 | 1 |
| 1:A:12:VAL:HG11 | 1:A:15:TYR:CE2 | 0.66 | 2.25 | 20 | 2 |
| 1:A:29:ILE:HG22 | 1:A:35:LEU:O | 0.65 | 1.91 | 3 | 8 |
| 1:A:29:ILE:HG22 | 1:A:35:LEU:HB3 | 0.65 | 1.66 | 7 | 1 |
| 1:A:12:VAL:HG12 | 1:A:15:TYR:CD1 | 0.65 | 2.27 | 2 | 8 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:128:ILE:HG22 | 1:A:132:ILE:CD1 | 0.64 | 2.21 | 19 | 10 |
| 1:A:74:LEU:N | 1:A:74:LEU:HD23 | 0.64 | 2.08 | 1 | 5 |
| 1:A:52:LEU:HD22 | 1:A:52:LEU:O | 0.64 | 1.92 | 19 | 3 |
| 1:A:35:LEU:HD13 | 1:A:59:ILE:HG23 | 0.64 | 1.70 | 8 | 1 |
| 1:A:87:CYS:HB3 | 1:A:109:ILE:HD12 | 0.63 | 1.70 | 4 | 2 |
| 1:A:11:MET:CG | 1:A:39:LEU:HD23 | 0.63 | 2.23 | 4 | 1 |
| 1:A:114:LEU:HD23 | 1:A:118:LYS:HG3 | 0.63 | 1.71 | 17 | 2 |
| 1:A:25:THR:HG23 | 1:A:55:LEU:HD21 | 0.63 | 1.70 | 10 | 4 |
| 1:A:28:VAL:HG22 | 1:A:125:LEU:HD12 | 0.62 | 1.70 | 4 | 6 |
| 1:A:83:ASN:HB3 | 1:A:114:LEU:HD11 | 0.62 | 1.71 | 12 | 2 |
| 1:A:92:THR:HG21 | 2:B:207:PRO:CG | 0.62 | 2.24 | 8 | 4 |
| 1:A:8:LEU:O | 1:A:8:LEU:HD12 | 0.62 | 1.95 | 9 | 5 |
| 1:A:35:LEU:HD13 | 1:A:59:ILE:HG12 | 0.62 | 1.72 | 20 | 1 |
| 1:A:52:LEU:HD21 | 1:A:77:LEU:HD22 | 0.62 | 1.71 | 14 | 1 |
| 1:A:111:LEU:HD13 | 1:A:112:PRO:HD2 | 0.61 | 1.72 | 17 | 1 |
| 1:A:52:LEU:C | 1:A:52:LEU:HD22 | 0.61 | 2.16 | 16 | 2 |
| 2:B:208:THR:O | 2:B:209:ALA:CB | 0.61 | 2.48 | 18 | 18 |
| 1:A:12:VAL:HG12 | 1:A:15:TYR:CG | 0.61 | 2.30 | 4 | 1 |
| 1:A:77:LEU:HD23 | 1:A:84:PRO:HA | 0.61 | 1.72 | 17 | 1 |
| 1:A:97:ILE:HA | 1:A:141:VAL:HG23 | 0.61 | 1.73 | 8 | 9 |
| 1:A:52:LEU:HD11 | 1:A:77:LEU:HD13 | 0.61 | 1.73 | 7 | 1 |
| 1:A:39:LEU:HD23 | 1:A:53:MET:CA | 0.60 | 2.26 | 6 | 1 |
| 1:A:50:ARG:HD3 | 1:A:52:LEU:HD12 | 0.60 | 1.73 | 19 | 1 |
| 1:A:84:PRO:HG3 | 1:A:124:LEU:HD11 | 0.60 | 1.72 | 9 | 1 |
| 1:A:97:ILE:HG21 | 1:A:105:ALA:O | 0.60 | 1.96 | 18 | 1 |
| 1:A:119:HIS:N | 1:A:120:PRO:CA | 0.60 | 2.64 | 10 | 20 |
| 1:A:76:LEU:HD12 | 1:A:84:PRO:HG3 | 0.60 | 1.71 | 13 | 5 |
| 1:A:86:ILE:HG22 | 1:A:88:PHE:CZ | 0.60 | 2.31 | 2 | 9 |
| 1:A:38:VAL:HG13 | 1:A:54:ASN:CG | 0.60 | 2.17 | 8 | 5 |
| 1:A:9:LYS:HG3 | 1:A:22:VAL:HG21 | 0.60 | 1.72 | 12 | 6 |
| 1:A:37:PRO:HA | 1:A:55:LEU:HD23 | 0.60 | 1.74 | 3 | 1 |
| 1:A:35:LEU:HD13 | 1:A:59:ILE:CG2 | 0.60 | 2.26 | 2 | 2 |
| 1:A:101:LYS:O | 1:A:111:LEU:HD21 | 0.60 | 1.97 | 12 | 1 |
| 1:A:143:SER:HB2 | 2:B:208:THR:O | 0.59 | 1.97 | 18 | 18 |
| 1:A:76:LEU:HD11 | 1:A:124:LEU:CD1 | 0.59 | 2.25 | 16 | 2 |
| 1:A:52:LEU:HD13 | 1:A:75:TRP:CE3 | 0.59 | 2.33 | 20 | 4 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HD23 | 0.59 | 2.33 | 10 | 1 |
| 1:A:76:LEU:CD1 | 1:A:124:LEU:HD11 | 0.59 | 2.25 | 16 | 1 |
| 1:A:52:LEU:HD22 | 1:A:52:LEU:C | 0.59 | 2.18 | 19 | 2 |
| 1:A:102:HIS:CE1 | 1:A:134:VAL:HG11 | 0.59 | 2.33 | 9 | 1 |
| 2:B:206:GLU:HB2 | 2:B:207:PRO:CD | 0.58 | 2.28 | 7 | 20 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:89:VAL:HG12 | 1:A:107:GLY:CA | 0.58 | 2.28 | 10 | 6 |
| 1:A:38:VAL:HG13 | 1:A:54:ASN:OD1 | 0.58 | 1.97 | 8 | 2 |
| 1:A:27:ASN:HB3 | 1:A:125:LEU:HD11 | 0.58 | 1.74 | 9 | 10 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HD13 | 0.58 | 2.34 | 13 | 1 |
| 1:A:25:THR:HG21 | 1:A:53:MET:CE | 0.58 | 2.28 | 2 | 1 |
| 1:A:96:THR:C | 1:A:141:VAL:HG23 | 0.57 | 2.19 | 11 | 4 |
| 1:A:89:VAL:HG13 | 1:A:91:PRO:HD3 | 0.57 | 1.75 | 10 | 1 |
| 1:A:52:LEU:HD23 | 1:A:76:LEU:O | 0.57 | 2.00 | 3 | 1 |
| 1:A:70:ILE:HD13 | 2:B:210:PRO:HD3 | 0.57 | 1.76 | 20 | 2 |
| 1:A:36:LYS:O | 1:A:56:THR:HG22 | 0.57 | 1.99 | 1 | 3 |
| 1:A:74:LEU:HD23 | 1:A:74:LEU:N | 0.57 | 2.14 | 15 | 2 |
| 1:A:71:PRO:O | 1:A:72:ILE:HD13 | 0.56 | 2.01 | 13 | 8 |
| 1:A:38:VAL:HG11 | 1:A:56:THR:HG22 | 0.56 | 1.78 | 2 | 1 |
| 1:A:96:THR:O | 1:A:141:VAL:HG23 | 0.56 | 2.00 | 11 | 3 |
| 1:A:35:LEU:HD23 | 1:A:55:LEU:HD12 | 0.56 | 1.78 | 1 | 1 |
| 1:A:38:VAL:CG1 | 1:A:56:THR:HG22 | 0.56 | 2.31 | 2 | 2 |
| 1:A:39:LEU:HD23 | 1:A:40:ASP:H | 0.56 | 1.59 | 7 | 1 |
| 1:A:83:ASN:HB3 | 1:A:114:LEU:HD21 | 0.56 | 1.78 | 17 | 1 |
| 1:A:38:VAL:HG13 | 1:A:54:ASN:ND2 | 0.56 | 2.16 | 10 | 6 |
| 1:A:72:ILE:HG23 | 1:A:73:CYS:N | 0.56 | 2.15 | 2 | 4 |
| 1:A:143:SER:CB | 2:B:208:THR:O | 0.55 | 2.54 | 20 | 17 |
| 1:A:55:LEU:CD1 | 1:A:76:LEU:HD13 | 0.55 | 2.31 | 14 | 1 |
| 1:A:52:LEU:HD11 | 1:A:77:LEU:CD2 | 0.55 | 2.31 | 3 | 1 |
| 1:A:52:LEU:HD11 | 1:A:77:LEU:HD23 | 0.55 | 1.78 | 3 | 1 |
| 1:A:76:LEU:HD21 | 1:A:124:LEU:HD11 | 0.54 | 1.79 | 2 | 1 |
| 1:A:85:PRO:C | 1:A:86:ILE:HG12 | 0.54 | 2.22 | 10 | 2 |
| 1:A:39:LEU:HD13 | 1:A:40:ASP:H | 0.54 | 1.62 | 13 | 7 |
| 1:A:83:ASN:OD1 | 1:A:114:LEU:HD21 | 0.54 | 2.02 | 12 | 1 |
| 1:A:77:LEU:HD12 | 1:A:83:ASN:N | 0.54 | 2.17 | 12 | 1 |
| 1:A:76:LEU:HD11 | 1:A:124:LEU:HD21 | 0.54 | 1.78 | 1 | 2 |
| 1:A:73:CYS:O | 1:A:74:LEU:HD22 | 0.54 | 2.03 | 2 | 2 |
| 1:A:85:PRO:O | 1:A:86:ILE:HD13 | 0.54 | 2.02 | 12 | 2 |
| 1:A:111:LEU:O | 1:A:111:LEU:HD13 | 0.54 | 2.02 | 3 | 1 |
| 1:A:100:GLY:O | 1:A:101:LYS:CB | 0.54 | 2.55 | 12 | 2 |
| 1:A:74:LEU:HD13 | 1:A:86:ILE:O | 0.53 | 2.02 | 2 | 2 |
| 1:A:70:ILE:HG23 | 1:A:72:ILE:HD12 | 0.53 | 1.80 | 15 | 1 |
| 1:A:109:ILE:HD13 | 1:A:131:MET:SD | 0.53 | 2.44 | 13 | 2 |
| 1:A:27:ASN:CB | 1:A:125:LEU:HD11 | 0.53 | 2.34 | 9 | 3 |
| 1:A:91:PRO:HB3 | 1:A:141:VAL:HG21 | 0.53 | 1.80 | 8 | 2 |
| 1:A:102:HIS:HD2 | 1:A:111:LEU:HD21 | 0.53 | 1.62 | 11 | 1 |
| 1:A:52:LEU:HD22 | 1:A:76:LEU:O | 0.53 | 2.04 | 12 | 1 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:99:THR:HG21 | 1:A:104:ASP:O | 0.52 | 2.05 | 5 | 1 |
| 1:A:52:LEU:O | 1:A:52:LEU:HD13 | 0.52 | 2.05 | 19 | 1 |
| 1:A:111:LEU:HD22 | 1:A:112:PRO:N | 0.52 | 2.20 | 3 | 1 |
| 1:A:8:LEU:CD2 | 1:A:25:THR:HG21 | 0.52 | 2.34 | 10 | 1 |
| 1:A:111:LEU:HB2 | 1:A:112:PRO:HD2 | 0.52 | 1.79 | 13 | 2 |
| 1:A:97:ILE:HD11 | 1:A:107:GLY:CA | 0.52 | 2.35 | 2 | 1 |
| 1:A:52:LEU:HD21 | 1:A:77:LEU:HD12 | 0.51 | 1.80 | 13 | 2 |
| 1:A:35:LEU:HD21 | 1:A:59:ILE:HG23 | 0.51 | 1.83 | 11 | 1 |
| 2:B:208:THR:CG2 | 2:B:209:ALA:N | 0.51 | 2.74 | 13 | 18 |
| 1:A:24:GLU:HB3 | 1:A:124:LEU:HD22 | 0.51 | 1.82 | 4 | 2 |
| 1:A:70:ILE:HD13 | 2:B:210:PRO:CD | 0.51 | 2.35 | 20 | 2 |
| 1:A:11:MET:HB3 | 1:A:39:LEU:HD23 | 0.51 | 1.83 | 8 | 2 |
| 1:A:83:ASN:CB | 1:A:114:LEU:HD21 | 0.50 | 2.36 | 17 | 1 |
| 1:A:39:LEU:HD11 | 1:A:51:GLU:HB2 | 0.50 | 1.83 | 4 | 1 |
| 1:A:52:LEU:HD22 | 1:A:75:TRP:CE3 | 0.50 | 2.41 | 7 | 1 |
| 2:B:208:THR:HG22 | 2:B:209:ALA:N | 0.50 | 2.22 | 12 | 6 |
| 1:A:74:LEU:H | 1:A:74:LEU:HD23 | 0.50 | 1.66 | 17 | 5 |
| 1:A:55:LEU:CD2 | 1:A:76:LEU:HD22 | 0.50 | 2.36 | 4 | 1 |
| 1:A:111:LEU:HD13 | 1:A:112:PRO:CD | 0.50 | 2.36 | 17 | 1 |
| 1:A:113:TYR:CE2 | 1:A:114:LEU:HD12 | 0.50 | 2.42 | 3 | 1 |
| 1:A:50:ARG:NH2 | 1:A:77:LEU:HD21 | 0.50 | 2.22 | 19 | 2 |
| 1:A:86:ILE:CG2 | 1:A:88:PHE:CE2 | 0.50 | 2.95 | 11 | 12 |
| 1:A:117:TRP:CH2 | 1:A:119:HIS:CD2 | 0.50 | 3.00 | 16 | 2 |
| 1:A:59:ILE:HD11 | 1:A:132:ILE:HD11 | 0.50 | 1.83 | 13 | 1 |
| 1:A:50:ARG:NH1 | 1:A:77:LEU:HD12 | 0.50 | 2.22 | 11 | 1 |
| 1:A:14:LYS:O | 1:A:15:TYR:CD1 | 0.50 | 2.65 | 18 | 1 |
| 1:A:97:ILE:CA | 1:A:141:VAL:HG23 | 0.49 | 2.37 | 10 | 5 |
| 1:A:111:LEU:CB | 1:A:112:PRO:HD2 | 0.49 | 2.37 | 13 | 2 |
| 1:A:8:LEU:HD21 | 1:A:25:THR:HB | 0.49 | 1.83 | 19 | 2 |
| 1:A:8:LEU:HD21 | 1:A:25:THR:CG2 | 0.49 | 2.35 | 10 | 1 |
| 1:A:32:TYR:O | 1:A:33:LYS:CG | 0.49 | 2.60 | 4 | 6 |
| 1:A:96:THR:O | 1:A:97:ILE:HG12 | 0.49 | 2.07 | 13 | 1 |
| 1:A:113:TYR:CD2 | 1:A:114:LEU:HD12 | 0.49 | 2.42 | 3 | 1 |
| 1:A:85:PRO:HD2 | 1:A:86:ILE:HD12 | 0.49 | 1.84 | 20 | 1 |
| 1:A:9:LYS:O | 1:A:12:VAL:HG23 | 0.49 | 2.07 | 15 | 7 |
| 1:A:111:LEU:C | 1:A:111:LEU:HD22 | 0.49 | 2.28 | 3 | 1 |
| 1:A:11:MET:HG2 | 1:A:39:LEU:HD13 | 0.49 | 1.84 | 7 | 1 |
| 1:A:12:VAL:HG12 | 1:A:15:TYR:CD2 | 0.49 | 2.42 | 4 | 1 |
| 1:A:86:ILE:CG2 | 1:A:88:PHE:CZ | 0.49 | 2.96 | 2 | 9 |
| 1:A:28:VAL:HG22 | 1:A:125:LEU:HD22 | 0.48 | 1.83 | 5 | 1 |
| 1:A:104:ASP:O | 1:A:105:ALA:HB2 | 0.48 | 2.09 | 16 | 20 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:85:PRO:O | 1:A:86:ILE:C | 0.48 | 2.51 | 2 | 1 |
| 1:A:69:ASN:O | 2:B:207:PRO:HA | 0.48 | 2.08 | 7 | 1 |
| 1:A:52:LEU:CD2 | 1:A:54:ASN:OD1 | 0.48 | 2.61 | 11 | 2 |
| 1:A:50:ARG:CZ | 1:A:77:LEU:HD21 | 0.48 | 2.39 | 19 | 1 |
| 1:A:61:VAL:HG13 | 1:A:136:GLY:HA2 | 0.48 | 1.85 | 20 | 2 |
| 1:A:52:LEU:HD11 | 1:A:77:LEU:CD1 | 0.47 | 2.38 | 7 | 1 |
| 1:A:83:ASN:CB | 1:A:114:LEU:HD11 | 0.47 | 2.39 | 12 | 2 |
| 1:A:8:LEU:O | 1:A:11:MET:HG2 | 0.47 | 2.09 | 18 | 1 |
| 1:A:11:MET:SD | 1:A:39:LEU:HD23 | 0.47 | 2.49 | 11 | 1 |
| 1:A:69:ASN:ND2 | 2:B:206:GLU:O | 0.47 | 2.47 | 12 | 18 |
| 1:A:114:LEU:O | 1:A:114:LEU:HD13 | 0.47 | 2.09 | 4 | 1 |
| 1:A:74:LEU:HD23 | 1:A:74:LEU:H | 0.47 | 1.68 | 5 | 3 |
| 1:A:15:TYR:HD2 | 1:A:21:THR:HG21 | 0.47 | 1.69 | 9 | 3 |
| 1:A:38:VAL:HG22 | 1:A:54:ASN:O | 0.47 | 2.09 | 12 | 1 |
| 1:A:14:LYS:O | 1:A:14:LYS:CG | 0.47 | 2.63 | 16 | 1 |
| 1:A:52:LEU:HD13 | 1:A:52:LEU:C | 0.47 | 2.30 | 2 | 1 |
| 1:A:85:PRO:O | 1:A:86:ILE:O | 0.47 | 2.33 | 2 | 1 |
| 1:A:113:TYR:CD1 | 1:A:114:LEU:N | 0.47 | 2.83 | 17 | 1 |
| 1:A:99:THR:CG2 | 1:A:104:ASP:O | 0.47 | 2.63 | 2 | 1 |
| 1:A:68:TYR:CZ | 2:B:211:PRO:CD | 0.47 | 2.98 | 12 | 4 |
| 1:A:86:ILE:HG22 | 1:A:88:PHE:CE2 | 0.47 | 2.45 | 8 | 3 |
| 1:A:59:ILE:O | 1:A:70:ILE:N | 0.47 | 2.46 | 16 | 1 |
| 1:A:11:MET:HE2 | 1:A:39:LEU:HD23 | 0.47 | 1.85 | 18 | 1 |
| 1:A:52:LEU:HD21 | 1:A:75:TRP:CE3 | 0.47 | 2.44 | 19 | 1 |
| 1:A:12:VAL:CG1 | 1:A:15:TYR:CD1 | 0.47 | 2.98 | 17 | 6 |
| 1:A:142:PHE:O | 1:A:142:PHE:CD1 | 0.47 | 2.68 | 18 | 1 |
| 1:A:12:VAL:CG1 | 1:A:15:TYR:CE2 | 0.46 | 2.98 | 20 | 2 |
| 1:A:50:ARG:HH11 | 1:A:52:LEU:HD12 | 0.46 | 1.69 | 7 | 1 |
| 1:A:141:VAL:O | 1:A:141:VAL:CG1 | 0.46 | 2.60 | 2 | 5 |
| 1:A:8:LEU:HD23 | 1:A:26:VAL:HG12 | 0.46 | 1.87 | 18 | 2 |
| 1:A:39:LEU:HD12 | 1:A:53:MET:HG3 | 0.46 | 1.87 | 7 | 1 |
| 1:A:88:PHE:N | 1:A:88:PHE:CD1 | 0.46 | 2.84 | 2 | 2 |
| 1:A:72:ILE:HG22 | 1:A:73:CYS:N | 0.46 | 2.25 | 8 | 7 |
| 1:A:86:ILE:HG23 | 1:A:88:PHE:CZ | 0.46 | 2.46 | 9 | 1 |
| 1:A:114:LEU:HD23 | 1:A:118:LYS:HB3 | 0.46 | 1.88 | 20 | 1 |
| 1:A:12:VAL:HG11 | 1:A:15:TYR:CD1 | 0.46 | 2.46 | 7 | 1 |
| 1:A:85:PRO:O | 1:A:86:ILE:CD1 | 0.46 | 2.64 | 10 | 2 |
| 1:A:35:LEU:CD1 | 1:A:59:ILE:HG23 | 0.46 | 2.41 | 8 | 1 |
| 1:A:86:ILE:HG22 | 1:A:87:CYS:N | 0.46 | 2.26 | 4 | 1 |
| 1:A:53:MET:CE | 1:A:76:LEU:HD23 | 0.46 | 2.41 | 11 | 1 |
| 2:B:207:PRO:O | 2:B:209:ALA:N | 0.45 | 2.48 | 17 | 19 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:100:GLY:O | 1:A:101:LYS:HB2 | 0.45 | 2.10 | 12 | 2 |
| 1:A:84:PRO:CB | 1:A:127:LEU:HD11 | 0.45 | 2.41 | 15 | 1 |
| 1:A:100:GLY:O | 1:A:103:VAL:O | 0.45 | 2.34 | 7 | 10 |
| 1:A:52:LEU:HD21 | 1:A:54:ASN:OD1 | 0.45 | 2.12 | 19 | 1 |
| 1:A:76:LEU:HD21 | 1:A:124:LEU:CD1 | 0.45 | 2.41 | 2 | 1 |
| 1:A:59:ILE:HG13 | 1:A:60:PRO:HD2 | 0.45 | 1.86 | 6 | 1 |
| 1:A:83:ASN:CG | 1:A:114:LEU:HD11 | 0.45 | 2.32 | 10 | 1 |
| 1:A:70:ILE:O | 1:A:70:ILE:CG2 | 0.45 | 2.64 | 20 | 2 |
| 1:A:75:TRP:CD1 | 1:A:88:PHE:CE1 | 0.45 | 3.05 | 11 | 1 |
| 1:A:87:CYS:O | 1:A:88:PHE:CD1 | 0.45 | 2.69 | 9 | 1 |
| 1:A:11:MET:CE | 1:A:39:LEU:HD23 | 0.45 | 2.41 | 1 | 3 |
| 1:A:141:VAL:CG1 | 1:A:141:VAL:O | 0.45 | 2.62 | 8 | 6 |
| 1:A:111:LEU:CB | 1:A:112:PRO:CD | 0.45 | 2.94 | 13 | 2 |
| 1:A:61:VAL:C | 1:A:67:THR:HG23 | 0.45 | 2.32 | 18 | 1 |
| 1:A:52:LEU:CD1 | 1:A:75:TRP:CE3 | 0.45 | 2.99 | 2 | 1 |
| 1:A:31:LEU:HD22 | 1:A:125:LEU:CD2 | 0.45 | 2.42 | 20 | 1 |
| 1:A:83:ASN:HB2 | 1:A:114:LEU:HD11 | 0.45 | 1.87 | 1 | 1 |
| 1:A:38:VAL:CG2 | 1:A:39:LEU:N | 0.45 | 2.80 | 7 | 1 |
| 1:A:70:ILE:CD1 | 2:B:210:PRO:HD3 | 0.45 | 2.42 | 13 | 9 |
| 1:A:111:LEU:CD2 | 1:A:113:TYR:CD2 | 0.45 | 2.99 | 13 | 1 |
| 1:A:28:VAL:CG2 | 1:A:125:LEU:HD12 | 0.45 | 2.42 | 4 | 2 |
| 1:A:16:LYS:CD | 1:A:17:TYR:CZ | 0.45 | 3.00 | 11 | 1 |
| 1:A:114:LEU:HD12 | 1:A:114:LEU:N | 0.45 | 2.27 | 19 | 1 |
| 1:A:54:ASN:N | 1:A:54:ASN:OD1 | 0.44 | 2.49 | 12 | 2 |
| 1:A:84:PRO:HB3 | 1:A:127:LEU:HD11 | 0.44 | 1.90 | 4 | 1 |
| 1:A:92:THR:CG2 | 2:B:207:PRO:HG2 | 0.44 | 2.43 | 1 | 5 |
| 1:A:142:PHE:CB | 2:B:210:PRO:O | 0.44 | 2.65 | 7 | 9 |
| 1:A:52:LEU:HD22 | 1:A:53:MET:O | 0.44 | 2.12 | 16 | 1 |
| 1:A:126:GLY:O | 1:A:130:VAL:HG23 | 0.44 | 2.12 | 19 | 2 |
| 1:A:111:LEU:O | 1:A:113:TYR:CD2 | 0.44 | 2.71 | 17 | 1 |
| 2:B:206:GLU:CB | 2:B:207:PRO:CD | 0.44 | 2.94 | 7 | 16 |
| 1:A:29:ILE:CG2 | 1:A:55:LEU:HD22 | 0.44 | 2.42 | 2 | 1 |
| 1:A:117:TRP:CZ2 | 1:A:119:HIS:CD2 | 0.44 | 3.06 | 6 | 1 |
| 1:A:109:ILE:HD11 | 1:A:131:MET:SD | 0.44 | 2.53 | 1 | 2 |
| 1:A:77:LEU:N | 1:A:77:LEU:HD22 | 0.44 | 2.28 | 7 | 1 |
| 1:A:73:CYS:O | 1:A:88:PHE:CD1 | 0.44 | 2.70 | 10 | 2 |
| 1:A:103:VAL:HG12 | 1:A:108:LYS:O | 0.44 | 2.13 | 12 | 1 |
| 1:A:8:LEU:HD12 | 1:A:8:LEU:C | 0.44 | 2.33 | 2 | 4 |
| 1:A:31:LEU:HD22 | 1:A:125:LEU:HD23 | 0.44 | 1.88 | 14 | 2 |
| 1:A:95:MET:HG2 | 1:A:141:VAL:CG2 | 0.44 | 2.41 | 8 | 2 |
| 1:A:12:VAL:CG1 | 1:A:15:TYR:CD2 | 0.44 | 2.98 | 1 | 3 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:15:TYR:HE2 | 1:A:21:THR:HG21 | 0.44 | 1.68 | 2 | 1 |
| 1:A:12:VAL:CG1 | 1:A:15:TYR:CE1 | 0.44 | 3.00 | 9 | 3 |
| 1:A:70:ILE:CD1 | 2:B:210:PRO:CD | 0.43 | 2.96 | 8 | 7 |
| 1:A:39:LEU:HD13 | 1:A:39:LEU:C | 0.43 | 2.34 | 9 | 1 |
| 1:A:96:THR:HG22 | 1:A:142:PHE:O | 0.43 | 2.13 | 15 | 1 |
| 1:A:73:CYS:N | 1:A:88:PHE:O | 0.43 | 2.52 | 4 | 1 |
| 1:A:32:TYR:CE1 | 1:A:132:ILE:CD1 | 0.43 | 3.01 | 15 | 1 |
| 1:A:112:PRO:O | 1:A:114:LEU:N | 0.43 | 2.52 | 2 | 1 |
| 1:A:55:LEU:HD23 | 1:A:76:LEU:HD22 | 0.43 | 1.89 | 4 | 1 |
| 1:A:83:ASN:CB | 1:A:84:PRO:CD | 0.43 | 2.96 | 11 | 1 |
| 1:A:12:VAL:O | 1:A:14:LYS:N | 0.43 | 2.49 | 4 | 1 |
| 1:A:28:VAL:HG21 | 1:A:124:LEU:HD23 | 0.43 | 1.89 | 13 | 1 |
| 1:A:74:LEU:N | 1:A:74:LEU:CD2 | 0.43 | 2.80 | 20 | 3 |
| 1:A:117:TRP:CD1 | 1:A:120:PRO:O | 0.43 | 2.72 | 15 | 2 |
| 1:A:70:ILE:CG2 | 1:A:70:ILE:O | 0.43 | 2.66 | 3 | 5 |
| 1:A:89:VAL:HG12 | 1:A:107:GLY:HA2 | 0.43 | 1.88 | 4 | 1 |
| 1:A:25:THR:CG2 | 1:A:55:LEU:HD21 | 0.43 | 2.44 | 9 | 1 |
| 1:A:75:TRP:CD1 | 1:A:88:PHE:CZ | 0.43 | 3.07 | 11 | 1 |
| 1:A:52:LEU:HD21 | 1:A:78:ASP:OD1 | 0.43 | 2.14 | 12 | 1 |
| 1:A:12:VAL:HG23 | 1:A:13:SER:H | 0.43 | 1.72 | 18 | 1 |
| 1:A:5:GLU:OE2 | 1:A:29:ILE:HD11 | 0.43 | 2.14 | 12 | 1 |
| 1:A:7:GLN:O | 1:A:10:LYS:CG | 0.43 | 2.67 | 9 | 1 |
| 1:A:32:TYR:CE1 | 1:A:132:ILE:HD13 | 0.43 | 2.49 | 15 | 1 |
| 1:A:52:LEU:HD21 | 1:A:75:TRP:HE3 | 0.43 | 1.74 | 15 | 1 |
| 1:A:128:ILE:HA | 1:A:131:MET:HG3 | 0.43 | 1.90 | 8 | 1 |
| 1:A:35:LEU:HD21 | 1:A:59:ILE:CG2 | 0.43 | 2.44 | 11 | 1 |
| 1:A:97:ILE:CG2 | 1:A:98:LYS:N | 0.43 | 2.82 | 17 | 2 |
| 1:A:37:PRO:CA | 1:A:55:LEU:HD23 | 0.42 | 2.42 | 3 | 1 |
| 1:A:63:TYR:O | 1:A:64:ARG:CB | 0.42 | 2.66 | 11 | 1 |
| 1:A:86:ILE:HG21 | 1:A:88:PHE:CE2 | 0.42 | 2.48 | 11 | 1 |
| 1:A:38:VAL:HG22 | 1:A:54:ASN:ND2 | 0.42 | 2.29 | 15 | 1 |
| 1:A:70:ILE:HG23 | 1:A:70:ILE:O | 0.42 | 2.14 | 4 | 1 |
| 1:A:38:VAL:HG22 | 1:A:39:LEU:N | 0.42 | 2.28 | 7 | 1 |
| 1:A:99:THR:HA | 1:A:103:VAL:HG23 | 0.42 | 1.90 | 12 | 1 |
| 1:A:114:LEU:HD12 | 1:A:118:LYS:HD2 | 0.42 | 1.91 | 12 | 1 |
| 1:A:74:LEU:HD21 | 1:A:131:MET:CE | 0.42 | 2.44 | 16 | 1 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HD11 | 0.42 | 2.49 | 4 | 2 |
| 1:A:95:MET:CE | 2:B:208:THR:N | 0.42 | 2.82 | 7 | 4 |
| 1:A:62:PRO:HA | 1:A:67:THR:HA | 0.42 | 1.91 | 2 | 1 |
| 1:A:92:THR:CG2 | 2:B:207:PRO:CG | 0.42 | 2.97 | 7 | 1 |
| 1:A:15:TYR:CE2 | 1:A:77:LEU:O | 0.42 | 2.72 | 12 | 3 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:68:TYR:CE1 | 2:B:211:PRO:HD3 | 0.42 | 2.50 | 20 | 2 |
| 1:A:83:ASN:CB | 1:A:84:PRO:HD3 | 0.42 | 2.44 | 15 | 1 |
| 1:A:77:LEU:HD22 | 1:A:77:LEU:H | 0.42 | 1.75 | 11 | 1 |
| 1:A:8:LEU:C | 1:A:8:LEU:HD12 | 0.42 | 2.35 | 11 | 3 |
| 1:A:26:VAL:HG23 | 1:A:27:ASN:N | 0.42 | 2.30 | 15 | 2 |
| 1:A:68:TYR:CZ | 2:B:211:PRO:HD3 | 0.42 | 2.50 | 18 | 3 |
| 1:A:120:PRO:O | 1:A:121:GLN:CB | 0.42 | 2.67 | 13 | 4 |
| 1:A:38:VAL:CG1 | 1:A:54:ASN:ND2 | 0.42 | 2.83 | 10 | 1 |
| 1:A:128:ILE:HD12 | 1:A:128:ILE:H | 0.42 | 1.74 | 17 | 1 |
| 1:A:131:MET:O | 1:A:135:PHE:CD2 | 0.42 | 2.72 | 4 | 2 |
| 1:A:84:PRO:O | 1:A:114:LEU:HD11 | 0.42 | 2.15 | 11 | 1 |
| 1:A:102:HIS:CG | 1:A:138:GLU:OE1 | 0.42 | 2.72 | 11 | 1 |
| 1:A:54:ASN:OD1 | 1:A:54:ASN:N | 0.42 | 2.51 | 14 | 1 |
| 1:A:142:PHE:CD1 | 2:B:212:GLU:HG3 | 0.42 | 2.49 | 18 | 1 |
| 1:A:73:CYS:C | 1:A:74:LEU:HD23 | 0.42 | 2.35 | 20 | 1 |
| 1:A:59:ILE:CG1 | 1:A:70:ILE:HG22 | 0.42 | 2.44 | 19 | 2 |
| 1:A:131:MET:O | 1:A:135:PHE:CG | 0.42 | 2.73 | 8 | 1 |
| 1:A:142:PHE:CE1 | 2:B:212:GLU:OE1 | 0.42 | 2.73 | 7 | 7 |
| 1:A:111:LEU:O | 1:A:113:TYR:N | 0.42 | 2.52 | 3 | 1 |
| 1:A:59:ILE:CG2 | 1:A:70:ILE:HG22 | 0.42 | 2.45 | 6 | 1 |
| 1:A:76:LEU:HD21 | 1:A:124:LEU:HD21 | 0.42 | 1.91 | 7 | 1 |
| 1:A:97:ILE:HD13 | 1:A:107:GLY:N | 0.42 | 2.29 | 14 | 1 |
| 1:A:102:HIS:CE1 | 1:A:134:VAL:CG1 | 0.42 | 3.03 | 15 | 1 |
| 1:A:70:ILE:CG2 | 1:A:72:ILE:HD12 | 0.42 | 2.45 | 15 | 1 |
| 1:A:117:TRP:O | 1:A:118:LYS:CG | 0.41 | 2.68 | 7 | 3 |
| 1:A:83:ASN:H | 1:A:84:PRO:CD | 0.41 | 2.28 | 4 | 1 |
| 1:A:128:ILE:H | 1:A:128:ILE:HD12 | 0.41 | 1.75 | 6 | 1 |
| 1:A:76:LEU:HD11 | 1:A:124:LEU:CD2 | 0.41 | 2.44 | 3 | 1 |
| 2:B:206:GLU:HB2 | 2:B:207:PRO:HD2 | 0.41 | 1.93 | 11 | 4 |
| 1:A:16:LYS:HB2 | 1:A:78:ASP:HA | 0.41 | 1.92 | 7 | 1 |
| 1:A:4:SER:O | 1:A:8:LEU:N | 0.41 | 2.53 | 14 | 3 |
| 1:A:114:LEU:HD23 | 1:A:118:LYS:CG | 0.41 | 2.43 | 17 | 1 |
| 1:A:77:LEU:HD23 | 1:A:84:PRO:CA | 0.41 | 2.45 | 17 | 1 |
| 1:A:97:ILE:N | 1:A:141:VAL:HG23 | 0.41 | 2.30 | 10 | 3 |
| 1:A:102:HIS:CD2 | 1:A:134:VAL:HG11 | 0.41 | 2.50 | 7 | 1 |
| 1:A:75:TRP:O | 1:A:85:PRO:CG | 0.41 | 2.69 | 11 | 1 |
| 1:A:99:THR:HG21 | 1:A:105:ALA:HA | 0.41 | 1.92 | 12 | 1 |
| 1:A:113:TYR:CD2 | 1:A:114:LEU:N | 0.41 | 2.89 | 8 | 1 |
| 1:A:15:TYR:O | 1:A:15:TYR:CD1 | 0.41 | 2.73 | 7 | 1 |
| 1:A:68:TYR:CZ | 2:B:211:PRO:HD2 | 0.41 | 2.51 | 16 | 1 |
| 1:A:40:ASP:CB | 1:A:54:ASN:ND2 | 0.41 | 2.83 | 19 | 1 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|------------------|------------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:63:TYR:CE2 | 2:B:211:PRO:O | 0.41 | 2.73 | 18 | 2 |
| 1:A:15:TYR:C | 1:A:15:TYR:CD1 | 0.41 | 2.94 | 7 | 1 |
| 1:A:95:MET:HE2 | 2:B:208:THR:C | 0.41 | 2.35 | 12 | 1 |
| 1:A:104:ASP:OD2 | 1:A:110:TYR:CG | 0.41 | 2.74 | 17 | 1 |
| 1:A:15:TYR:CD1 | 1:A:78:ASP:HA | 0.41 | 2.50 | 18 | 1 |
| 1:A:32:TYR:O | 1:A:33:LYS:HG3 | 0.41 | 2.16 | 19 | 1 |
| 1:A:68:TYR:CD2 | 2:B:209:ALA:O | 0.41 | 2.74 | 1 | 6 |
| 1:A:83:ASN:HB3 | 1:A:84:PRO:HD3 | 0.41 | 1.93 | 11 | 3 |
| 1:A:110:TYR:CD2 | 1:A:110:TYR:O | 0.41 | 2.74 | 16 | 1 |
| 1:A:72:ILE:CG2 | 1:A:73:CYS:N | 0.41 | 2.84 | 3 | 1 |
| 1:A:29:ILE:O | 1:A:33:LYS:N | 0.41 | 2.52 | 9 | 2 |
| 1:A:72:ILE:HG22 | 1:A:73:CYS:H | 0.41 | 1.76 | 7 | 1 |
| 1:A:84:PRO:CG | 1:A:124:LEU:HD11 | 0.41 | 2.43 | 9 | 1 |
| 1:A:102:HIS:CE1 | 1:A:138:GLU:OE1 | 0.41 | 2.74 | 18 | 2 |
| 1:A:28:VAL:CG2 | 1:A:124:LEU:HD23 | 0.41 | 2.46 | 13 | 1 |
| 1:A:142:PHE:CE1 | 2:B:212:GLU:OE2 | 0.41 | 2.73 | 15 | 1 |
| 1:A:50:ARG:HD2 | 1:A:52:LEU:HD12 | 0.41 | 1.93 | 3 | 1 |
| 1:A:38:VAL:HG13 | 1:A:54:ASN:O | 0.41 | 2.16 | 4 | 1 |
| 1:A:63:TYR:CG | 1:A:63:TYR:O | 0.41 | 2.74 | 6 | 1 |
| 1:A:77:LEU:HD12 | 1:A:83:ASN:O | 0.41 | 2.15 | 10 | 1 |
| 1:A:52:LEU:C | 1:A:52:LEU:CD2 | 0.41 | 2.89 | 11 | 1 |
| 1:A:127:LEU:C | 1:A:127:LEU:HD23 | 0.41 | 2.36 | 17 | 1 |
| 1:A:40:ASP:CG | 1:A:75:TRP:CZ3 | 0.41 | 2.94 | 9 | 1 |
| 1:A:111:LEU:HB2 | 1:A:112:PRO:CD | 0.41 | 2.46 | 13 | 1 |
| 1:A:117:TRP:O | 1:A:118:LYS:HG3 | 0.40 | 2.15 | 2 | 1 |
| 1:A:102:HIS:CD2 | 1:A:111:LEU:HG | 0.40 | 2.51 | 9 | 1 |
| 1:A:114:LEU:HD12 | 1:A:118:LYS:CD | 0.40 | 2.46 | 12 | 1 |
| 1:A:114:LEU:CD1 | 1:A:114:LEU:N | 0.40 | 2.83 | 19 | 1 |
| 1:A:102:HIS:ND1 | 1:A:111:LEU:CD1 | 0.40 | 2.84 | 20 | 2 |
| 1:A:117:TRP:NE1 | 1:A:120:PRO:O | 0.40 | 2.55 | 7 | 1 |
| 1:A:15:TYR:O | 1:A:17:TYR:N | 0.40 | 2.53 | 7 | 1 |
| 1:A:53:MET:CE | 1:A:76:LEU:CD2 | 0.40 | 3.00 | 11 | 1 |
| 1:A:40:ASP:OD2 | 1:A:75:TRP:CZ3 | 0.40 | 2.74 | 15 | 1 |
| 1:A:15:TYR:CD1 | 1:A:78:ASP:OD1 | 0.40 | 2.75 | 5 | 1 |
| 1:A:55:LEU:N | 1:A:55:LEU:CD2 | 0.40 | 2.84 | 7 | 1 |
| 1:A:111:LEU:HD12 | 1:A:113:TYR:CD1 | 0.40 | 2.51 | 10 | 1 |
| 1:A:40:ASP:OD2 | 1:A:75:TRP:CH2 | 0.40 | 2.75 | 11 | 1 |
| 1:A:95:MET:CG | 1:A:141:VAL:HG22 | 0.40 | 2.46 | 16 | 2 |
| 1:A:50:ARG:NE | 1:A:52:LEU:HD12 | 0.40 | 2.31 | 3 | 1 |
| 1:A:131:MET:CG | 1:A:135:PHE:CZ | 0.40 | 3.04 | 6 | 1 |
| 1:A:91:PRO:HG3 | 1:A:97:ILE:HD11 | 0.40 | 1.90 | 14 | 1 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) | Models | |
|---------------|----------------|----------|-------------|--------|-------|
| | | | | Worst | Total |
| 1:A:134:VAL:O | 1:A:138:GLU:CG | 0.40 | 2.70 | 20 | 1 |
| 1:A:17:TYR:O | 1:A:21:THR:N | 0.40 | 2.52 | 18 | 1 |

6.3 Torsion angles [\(i\)](#)

6.3.1 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 NMR 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 | 130/145 (90%) | 109±3 (84±2%) | 16±2 (12±2%) | 5±2 (4±1%) | 5 | 30 |
| 2 | B | 7/9 (78%) | 2±0 (31±5%) | 3±1 (41±8%) | 2±0 (28±5%) | 0 | 1 |
| All | All | 2740/3080 (89%) | 2216 (81%) | 376 (14%) | 148 (5%) | 3 | 23 |

All 18 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1 | A | 105 | ALA | 20 |
| 2 | B | 207 | PRO | 20 |
| 1 | A | 120 | PRO | 20 |
| 1 | A | 117 | TRP | 19 |
| 1 | A | 141 | VAL | 18 |
| 2 | B | 209 | ALA | 17 |
| 1 | A | 83 | ASN | 9 |
| 1 | A | 113 | TYR | 4 |
| 1 | A | 85 | PRO | 4 |
| 1 | A | 78 | ASP | 3 |
| 1 | A | 77 | LEU | 3 |
| 2 | B | 212 | GLU | 2 |
| 1 | A | 101 | LYS | 2 |
| 1 | A | 86 | ILE | 2 |
| 1 | A | 93 | SER | 2 |
| 1 | A | 65 | GLY | 1 |
| 1 | A | 100 | GLY | 1 |
| 1 | A | 16 | LYS | 1 |

6.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR 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 | 124/136 (91%) | 92±4 (74±3%) | 32±4 (26±3%) | 2 24 |
| 2 | B | 8/8 (100%) | 5±1 (65±9%) | 3±1 (35±9%) | 1 9 |
| All | All | 2640/2880 (92%) | 1949 (74%) | 691 (26%) | 2 23 |

All 86 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1 | A | 12 | VAL | 20 |
| 1 | A | 119 | HIS | 20 |
| 2 | B | 208 | THR | 20 |
| 1 | A | 69 | ASN | 20 |
| 1 | A | 129 | GLN | 20 |
| 1 | A | 33 | LYS | 19 |
| 2 | B | 212 | GLU | 19 |
| 1 | A | 121 | GLN | 16 |
| 1 | A | 4 | SER | 16 |
| 1 | A | 122 | SER | 16 |
| 1 | A | 106 | ASN | 16 |
| 1 | A | 7 | GLN | 15 |
| 1 | A | 88 | PHE | 14 |
| 1 | A | 51 | GLU | 14 |
| 1 | A | 20 | LEU | 13 |
| 1 | A | 114 | LEU | 13 |
| 1 | A | 52 | LEU | 13 |
| 1 | A | 137 | ASP | 13 |
| 1 | A | 16 | LYS | 12 |
| 1 | A | 115 | HIS | 11 |
| 1 | A | 96 | THR | 11 |
| 1 | A | 138 | GLU | 11 |
| 1 | A | 124 | LEU | 11 |
| 1 | A | 11 | MET | 11 |
| 1 | A | 39 | LEU | 11 |
| 1 | A | 77 | LEU | 11 |
| 1 | A | 13 | SER | 10 |
| 1 | A | 6 | SER | 10 |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1 | A | 74 | LEU | 10 |
| 2 | B | 213 | GLU | 10 |
| 1 | A | 108 | LYS | 9 |
| 1 | A | 50 | ARG | 9 |
| 1 | A | 127 | LEU | 9 |
| 1 | A | 118 | LYS | 9 |
| 1 | A | 64 | ARG | 9 |
| 1 | A | 101 | LYS | 8 |
| 1 | A | 8 | LEU | 8 |
| 1 | A | 23 | ARG | 8 |
| 1 | A | 144 | ARG | 8 |
| 1 | A | 38 | VAL | 7 |
| 1 | A | 40 | ASP | 7 |
| 1 | A | 9 | LYS | 7 |
| 1 | A | 111 | LEU | 7 |
| 2 | B | 206 | GLU | 7 |
| 1 | A | 36 | LYS | 7 |
| 1 | A | 93 | SER | 7 |
| 1 | A | 116 | GLU | 6 |
| 1 | A | 98 | LYS | 6 |
| 1 | A | 5 | GLU | 6 |
| 1 | A | 18 | ARG | 6 |
| 1 | A | 123 | ASP | 6 |
| 1 | A | 72 | ILE | 6 |
| 1 | A | 78 | ASP | 5 |
| 1 | A | 14 | LYS | 5 |
| 1 | A | 35 | LEU | 5 |
| 1 | A | 104 | ASP | 5 |
| 1 | A | 19 | ASP | 5 |
| 1 | A | 10 | LYS | 5 |
| 1 | A | 24 | GLU | 5 |
| 1 | A | 87 | CYS | 5 |
| 1 | A | 94 | SER | 4 |
| 1 | A | 76 | LEU | 4 |
| 1 | A | 53 | MET | 4 |
| 1 | A | 90 | LYS | 4 |
| 1 | A | 15 | TYR | 4 |
| 1 | A | 110 | TYR | 4 |
| 1 | A | 113 | TYR | 4 |
| 1 | A | 83 | ASN | 3 |
| 1 | A | 27 | ASN | 3 |
| 1 | A | 99 | THR | 3 |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1 | A | 55 | LEU | 3 |
| 1 | A | 25 | THR | 3 |
| 1 | A | 131 | MET | 3 |
| 1 | A | 66 | ASN | 2 |
| 1 | A | 34 | ASP | 2 |
| 1 | A | 67 | THR | 2 |
| 1 | A | 70 | ILE | 2 |
| 1 | A | 86 | ILE | 1 |
| 1 | A | 58 | THR | 1 |
| 1 | A | 103 | VAL | 1 |
| 1 | A | 32 | TYR | 1 |
| 1 | A | 97 | ILE | 1 |
| 1 | A | 42 | TYR | 1 |
| 1 | A | 95 | MET | 1 |
| 1 | A | 125 | LEU | 1 |
| 1 | A | 63 | TYR | 1 |

6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided