



# Full wwPDB NMR Structure Validation Report ⓘ

Dec 10, 2022 – 09:09 PM EST

PDB ID : 1MZK  
Title : NMR structure of kinase-interacting FHA domain of kinase associated protein phosphatase, KAPP in Arabidopsis  
Authors : Lee, G.; Ding, Z.; Walker, J.C.; Van Doren, S.R.  
Deposited on : 2002-10-08

This is a Full wwPDB NMR Structure 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/NMRValidationReportHelp>

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:

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 : 2.31.2  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

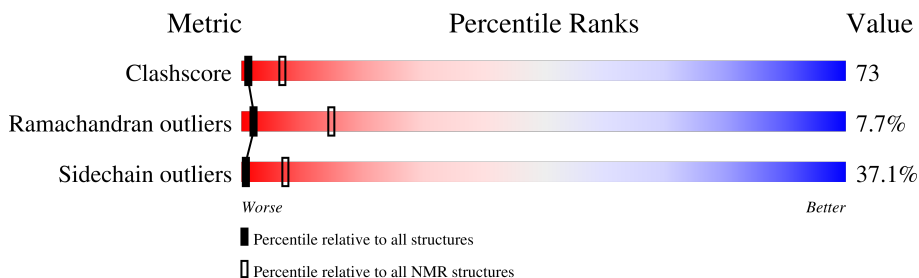
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*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  $\geq 3$ , 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     | 139    |                  |

## 2 Ensemble composition and analysis

This entry contains 30 models. Model 1 is the overall representative, medoid model (most similar to other models).

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:180-A:260, A:268-A:296<br>(110) | 0.38              | 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 3 single-model clusters were found.

| Cluster number        | Models                                     |
|-----------------------|--|
| 1                     | 1, 2, 5, 9, 14, 18, 19, 22, 26, 27, 28, 29 |
| 2                     | 3, 6, 8, 13, 15, 20, 21, 24, 25            |
| 3                     | 4, 7, 10, 11, 12, 16                       |
| Single-model clusters | 17; 23; 30                                 |

### 3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 1854 atoms, of which 930 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called KINASE ASSOCIATED PROTEIN PHOSPHATASE.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|-------|
|     |       |          | Total | C   | H   | N   | O   | S |       |
| 1   | A     | 122      | 1854  | 582 | 930 | 160 | 181 | 1 | 0     |

There are 5 discrepancies between the modelled and reference sequences:

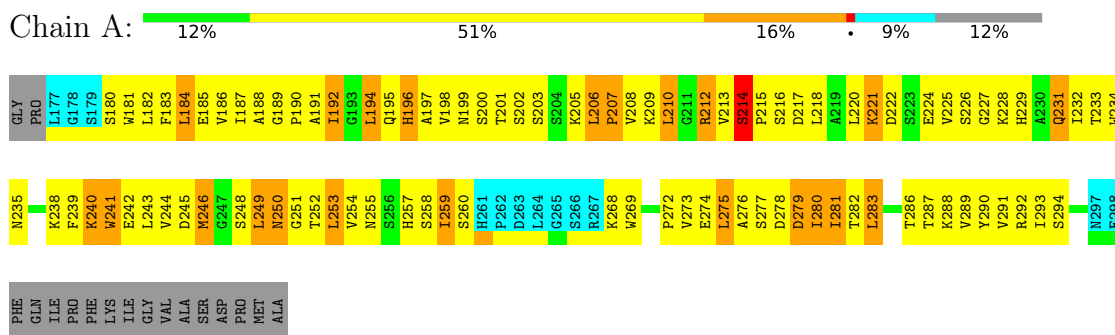
| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 175     | GLY      | -      | expression tag | UNP P46014 |
| A     | 176     | PRO      | -      | expression tag | UNP P46014 |
| A     | 177     | LEU      | -      | expression tag | UNP P46014 |
| A     | 178     | GLY      | -      | expression tag | UNP P46014 |
| A     | 179     | SER      | -      | expression tag | UNP P46014 |

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

### 4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide 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: KINASE ASSOCIATED PROTEIN PHOSPHATASE

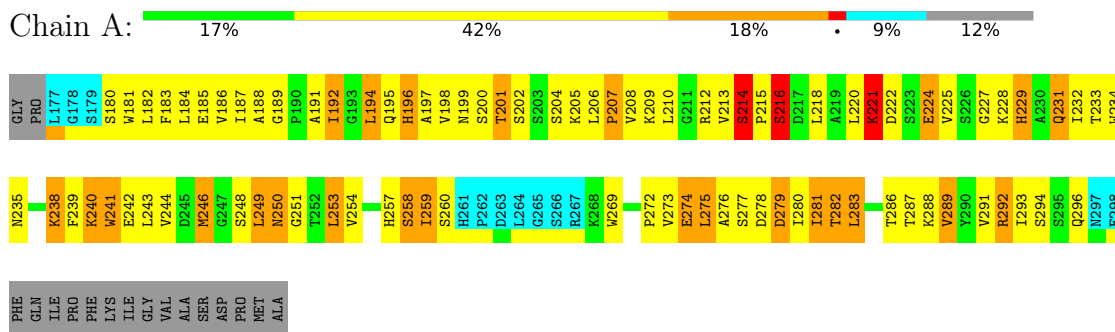


### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

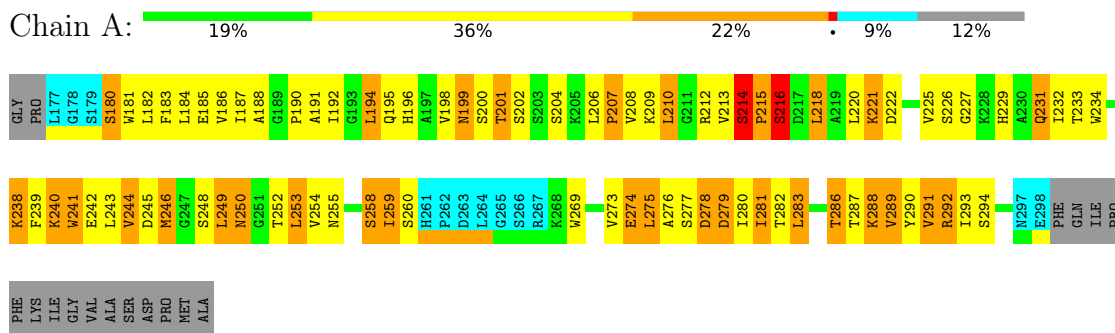
#### 4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



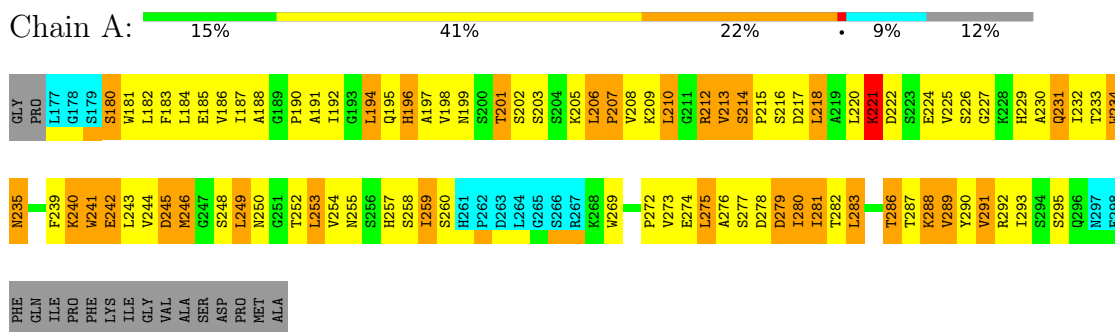
### 4.2.2 Score per residue for model 2

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



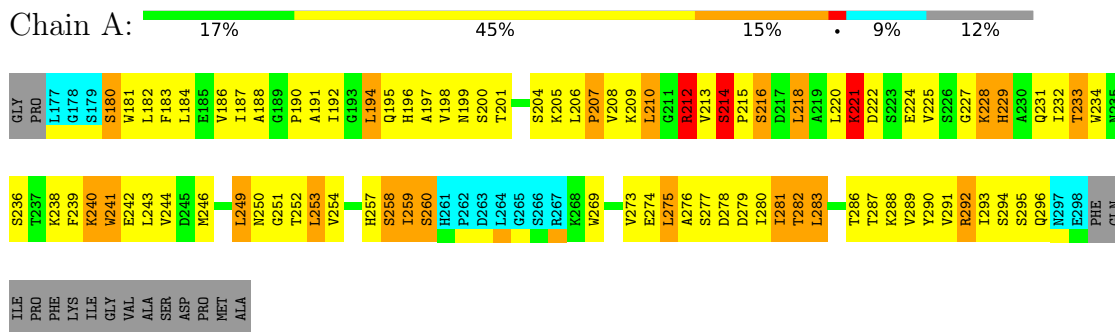
### 4.2.3 Score per residue for model 3

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



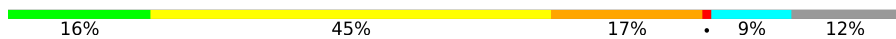
### 4.2.4 Score per residue for model 4

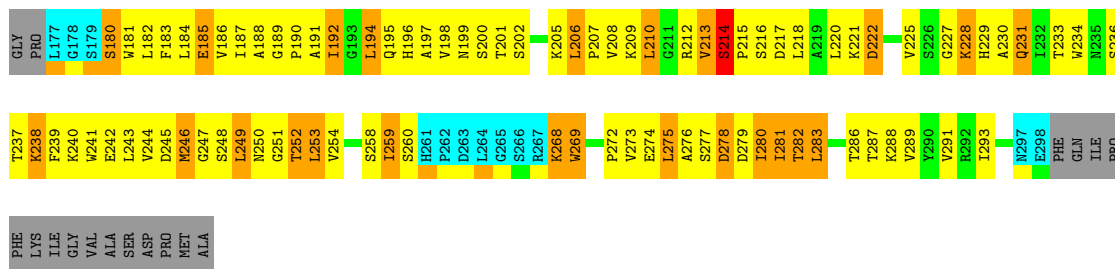
- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



### 4.2.5 Score per residue for model 5

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

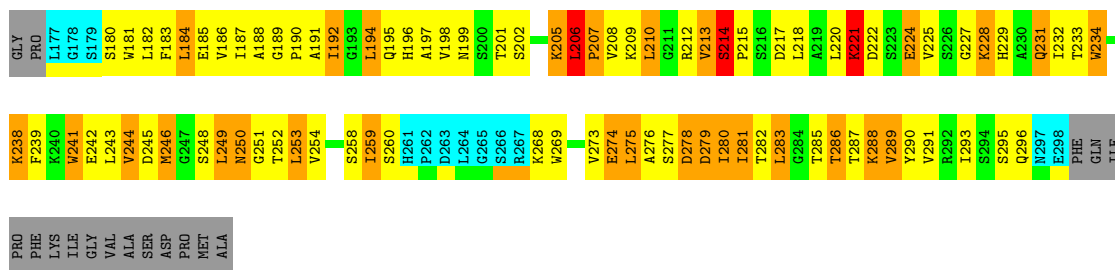
Chain A:  16% 45% 17% 9% 12%



#### 4.2.6 Score per residue for model 6

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

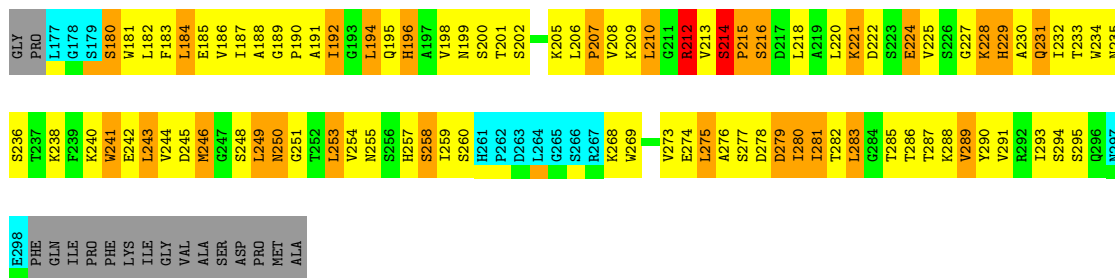
Chain A:  17% 39% 21% 9% 12%



#### 4.2.7 Score per residue for model 7

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A:  14% 44% 19% 9% 12%



#### 4.2.8 Score per residue for model 8

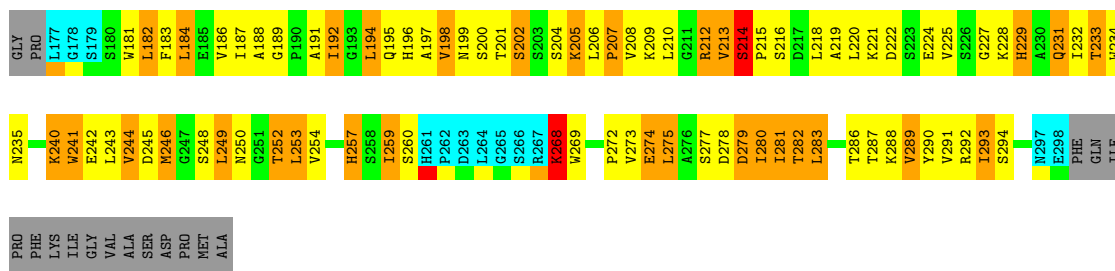
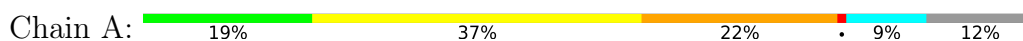
- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A:  18% 37% 24% 9% 12%



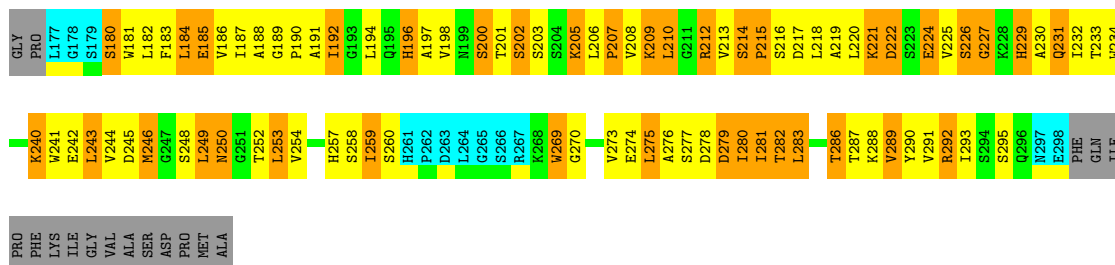
#### 4.2.9 Score per residue for model 9

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



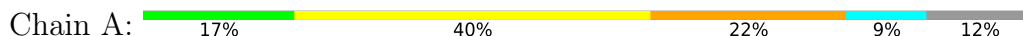
#### 4.2.10 Score per residue for model 10

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

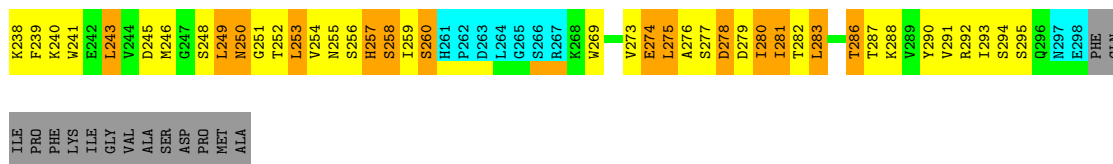


#### 4.2.11 Score per residue for model 11

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



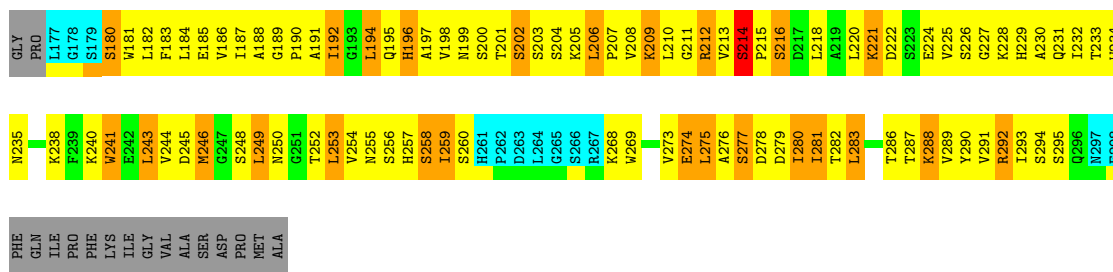




#### 4.2.12 Score per residue for model 12

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

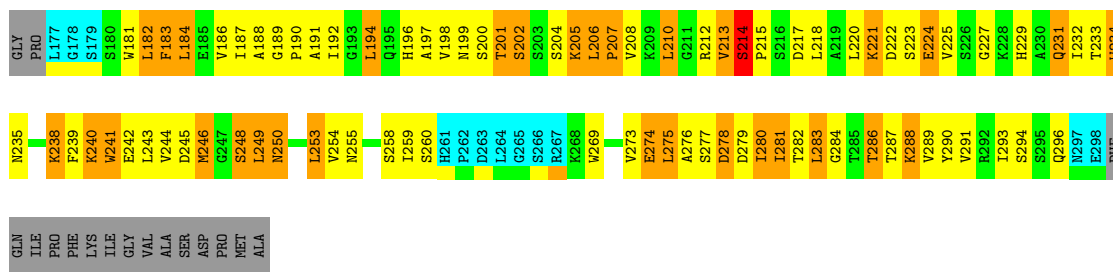
Chain A: 12% 49% 18% 9% 12%



#### 4.2.13 Score per residue for model 13

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

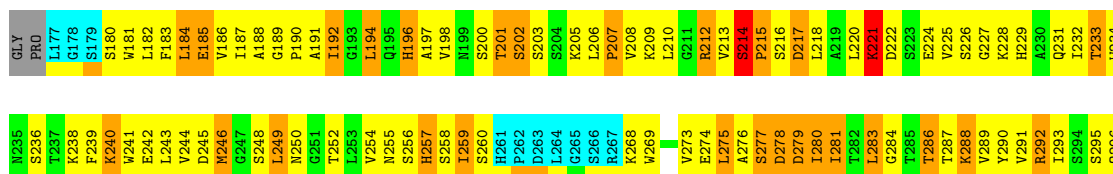
Chain A: 19% 37% 22% 9% 12%

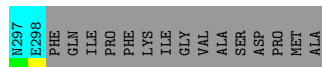


#### 4.2.14 Score per residue for model 14

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 14% 45% 19% 9% 12%

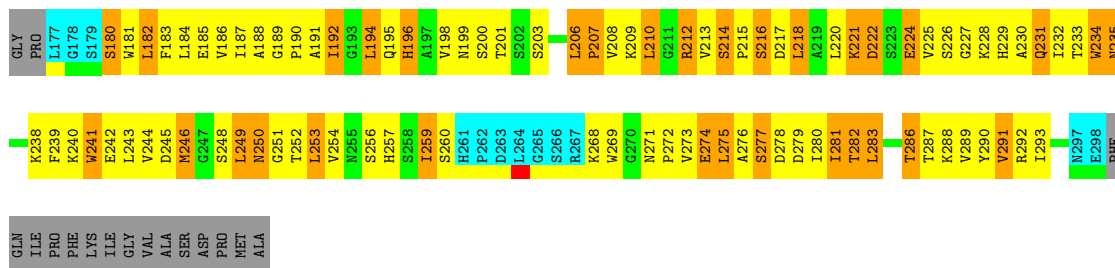




#### 4.2.15 Score per residue for model 15

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

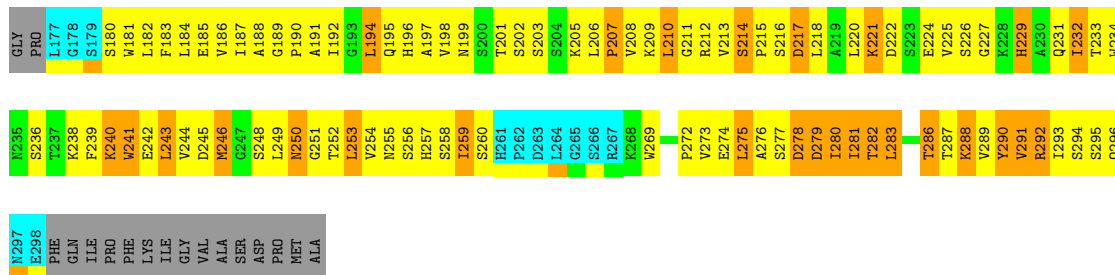
Chain A: 14% 42% 23% 9% 12%



#### 4.2.16 Score per residue for model 16

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

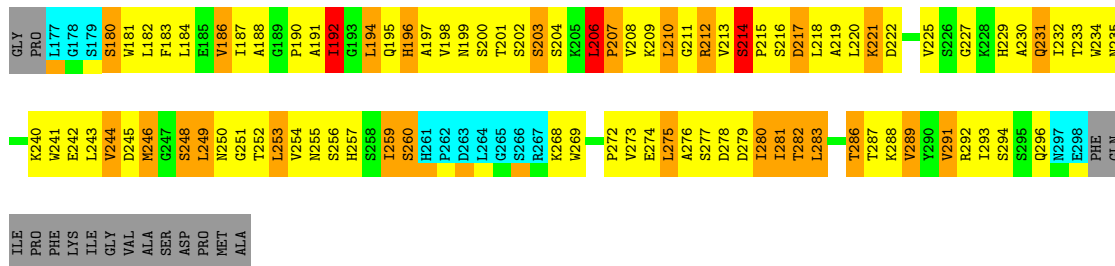
Chain A: 11% 49% 19% 9% 12%



#### 4.2.17 Score per residue for model 17

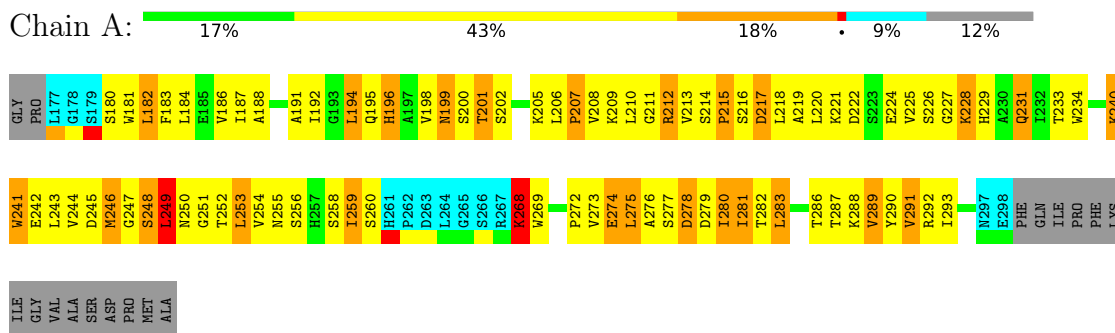
- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 14% 44% 19% 9% 12%



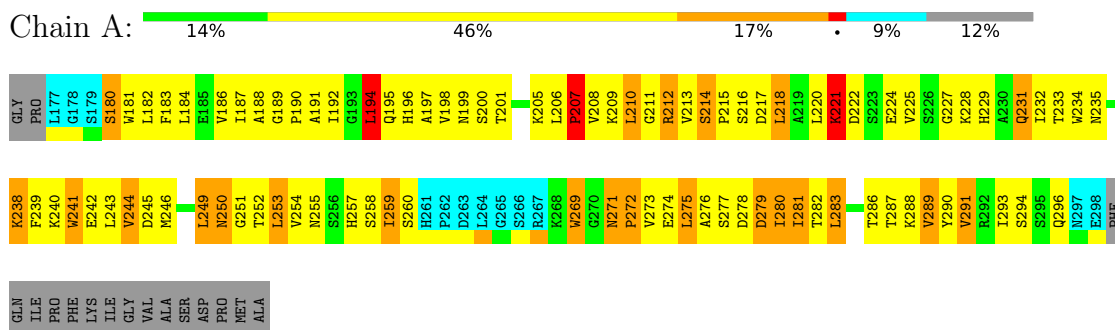
### 4.2.18 Score per residue for model 18

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



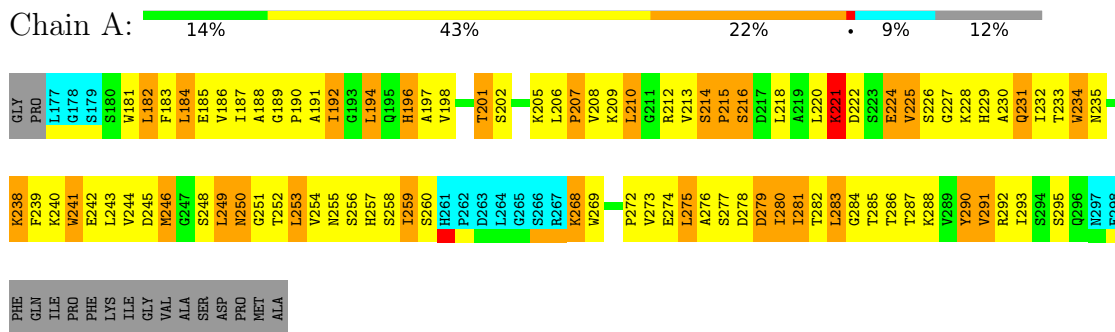
### 4.2.19 Score per residue for model 19

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE




### 4.2.20 Score per residue for model 20

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE



### 4.2.21 Score per residue for model 21

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

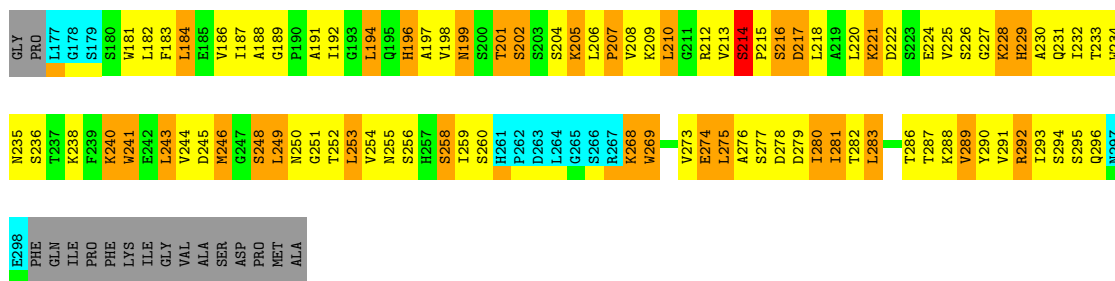
Chain A:  16% 42% 19% 9% 12%



#### 4.2.22 Score per residue for model 22


- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

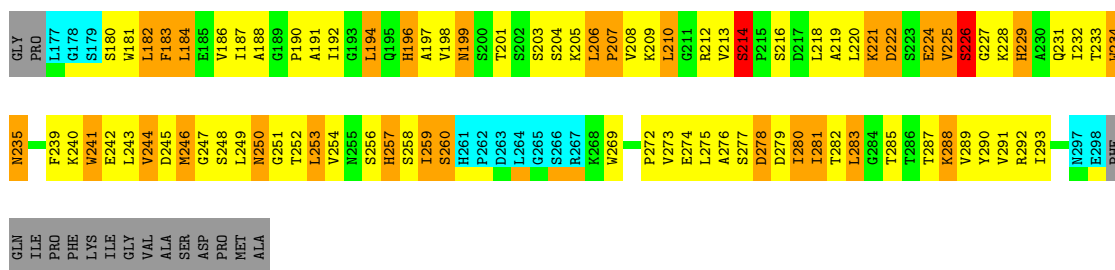
Chain A:  14% 42% 22% 9% 12%



#### 4.2.23 Score per residue for model 23

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

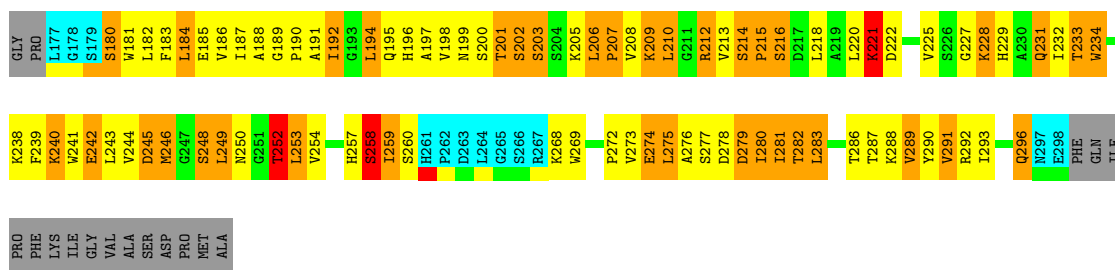
Chain A:  17% 40% 21% 9% 12%



#### 4.2.24 Score per residue for model 24

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A:  16% 35% 27% 9% 12%



#### 4.2.25 Score per residue for model 25

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

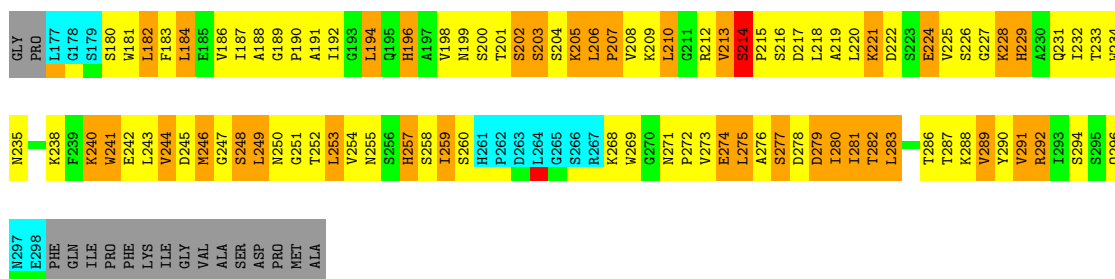
Chain A: 14% 41% 22% 9% 12%



#### 4.2.26 Score per residue for model 26

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 12% 42% 25% 9% 12%

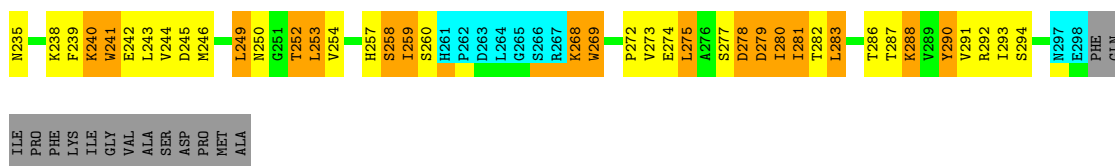


#### 4.2.27 Score per residue for model 27

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 17% 40% 22% 9% 12%

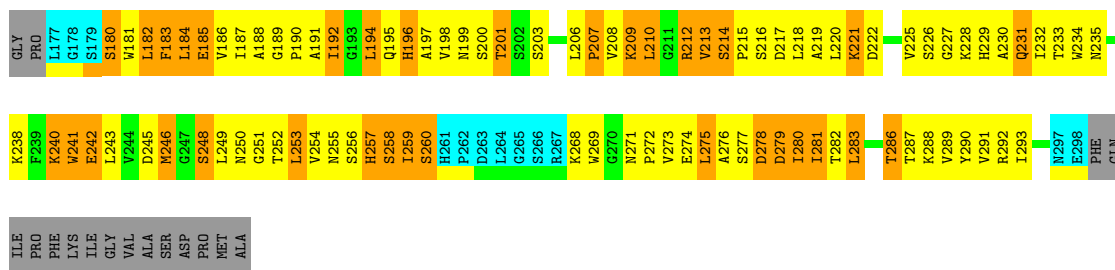




#### 4.2.28 Score per residue for model 28

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

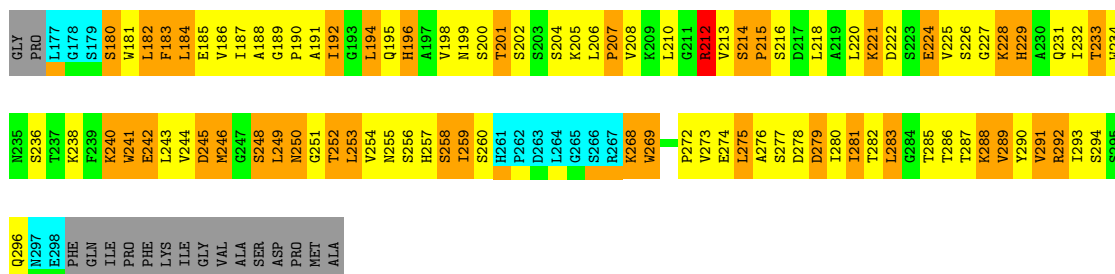
Chain A: 13% 42% 24% 9% 12%



#### 4.2.29 Score per residue for model 29

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 12% 39% 27% 9% 12%



#### 4.2.30 Score per residue for model 30

- Molecule 1: KINASE ASSOCIATED PROTEIN PHOSPHATASE

Chain A: 14% 39% 25% 9% 12%



|      |      |     |
|------|------|-----|
| 0296 | M297 | PHE |
|      | E298 | GLN |
|      |      | ILE |
|      |      | PRO |
|      |      | PHE |
|      |      | LYS |
|      |      | ILE |
|      |      | GLY |
|      |      | VAL |
|      |      | ALA |
|      |      | SER |
|      |      | ASP |
|      |      | PRO |
|      |      | MET |
|      |      | ALA |

## 5 Refinement protocol and experimental data overview

The models were refined using the following method: *torsion angle dynamics and simulated annealing in cartesian space and residual dipolar couplings.*

Of the 100 calculated structures, 30 were deposited, based on the following criterion: *structures with favorable non-bond energy, structures with the least restraint violations, structures with the lowest energy.*

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

| Software name | Classification     | Version |
|---------------|--------------------|---------|
| CNS           | structure solution | 1.0     |
| CNS           | refinement         | 1.0     |

No chemical shift data was provided.



## 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     | 835   | 850      | 847      | 123±12  |
| All | All   | 25050 | 25500    | 25410    | 3694    |

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 73.

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

| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:254:VAL:HG23 | 1:A:259:ILE:HD12 | 1.02     | 1.28        | 2      | 17    |
| 1:A:186:VAL:HG21 | 1:A:194:LEU:HD12 | 0.99     | 1.27        | 15     | 21    |
| 1:A:210:LEU:HD23 | 1:A:218:LEU:HD12 | 0.99     | 1.32        | 10     | 26    |
| 1:A:281:ILE:HG22 | 1:A:289:VAL:HG12 | 0.95     | 1.34        | 8      | 6     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:HG13 | 0.94     | 1.39        | 28     | 20    |
| 1:A:206:LEU:H    | 1:A:207:PRO:HD2  | 0.92     | 1.24        | 17     | 4     |
| 1:A:241:TRP:CE3  | 1:A:293:ILE:HD12 | 0.92     | 1.99        | 23     | 7     |
| 1:A:249:LEU:HD22 | 1:A:250:ASN:N    | 0.92     | 1.80        | 14     | 19    |
| 1:A:184:LEU:HD13 | 1:A:196:HIS:CD2  | 0.91     | 2.00        | 24     | 3     |
| 1:A:241:TRP:CZ3  | 1:A:293:ILE:HG23 | 0.90     | 2.02        | 24     | 5     |
| 1:A:198:VAL:HG21 | 1:A:206:LEU:HA   | 0.90     | 1.44        | 30     | 19    |
| 1:A:252:THR:HG23 | 1:A:283:LEU:HD23 | 0.90     | 1.44        | 20     | 4     |
| 1:A:206:LEU:O    | 1:A:206:LEU:HD22 | 0.90     | 1.66        | 5      | 6     |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:HD11 | 0.90     | 2.02        | 17     | 7     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:196:HIS:ND1  | 1:A:218:LEU:HD21 | 0.89     | 1.82        | 17     | 1     |
| 1:A:184:LEU:HD23 | 1:A:196:HIS:CD2  | 0.89     | 2.01        | 29     | 5     |
| 1:A:212:ARG:HA   | 1:A:220:LEU:O    | 0.89     | 1.68        | 10     | 27    |
| 1:A:184:LEU:HD13 | 1:A:196:HIS:CE1  | 0.88     | 2.03        | 6      | 3     |
| 1:A:275:LEU:HD22 | 1:A:291:VAL:HG11 | 0.87     | 1.47        | 9      | 2     |
| 1:A:244:VAL:HG22 | 1:A:269:TRP:HB2  | 0.86     | 1.46        | 21     | 1     |
| 1:A:244:VAL:HG22 | 1:A:269:TRP:HB3  | 0.86     | 1.46        | 19     | 1     |
| 1:A:231:GLN:O    | 1:A:243:LEU:HD13 | 0.86     | 1.71        | 10     | 6     |
| 1:A:207:PRO:HA   | 1:A:232:ILE:O    | 0.86     | 1.71        | 23     | 28    |
| 1:A:182:LEU:HD11 | 1:A:184:LEU:CD2  | 0.86     | 1.99        | 15     | 8     |
| 1:A:184:LEU:HD22 | 1:A:184:LEU:N    | 0.86     | 1.86        | 14     | 8     |
| 1:A:200:SER:HA   | 1:A:234:TRP:CZ2  | 0.85     | 2.06        | 26     | 18    |
| 1:A:259:ILE:CG1  | 1:A:273:VAL:HG21 | 0.85     | 2.01        | 14     | 13    |
| 1:A:186:VAL:HG21 | 1:A:220:LEU:HD11 | 0.85     | 1.45        | 30     | 9     |
| 1:A:198:VAL:HG13 | 1:A:234:TRP:CH2  | 0.85     | 2.05        | 28     | 18    |
| 1:A:182:LEU:HD12 | 1:A:183:PHE:N    | 0.84     | 1.87        | 22     | 23    |
| 1:A:254:VAL:HG23 | 1:A:259:ILE:CD1  | 0.84     | 2.02        | 29     | 19    |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:HG13 | 0.84     | 1.50        | 29     | 5     |
| 1:A:280:ILE:HD13 | 1:A:280:ILE:N    | 0.84     | 1.88        | 17     | 1     |
| 1:A:281:ILE:CG2  | 1:A:289:VAL:HG12 | 0.84     | 2.00        | 8      | 6     |
| 1:A:206:LEU:HD13 | 1:A:207:PRO:HD3  | 0.84     | 1.45        | 26     | 5     |
| 1:A:279:ASP:O    | 1:A:291:VAL:HG23 | 0.83     | 1.74        | 15     | 6     |
| 1:A:191:ALA:CB   | 1:A:194:LEU:HD11 | 0.83     | 2.02        | 5      | 22    |
| 1:A:234:TRP:HB2  | 1:A:240:LYS:O    | 0.83     | 1.74        | 1      | 20    |
| 1:A:196:HIS:CD2  | 1:A:208:VAL:HG21 | 0.83     | 2.09        | 1      | 1     |
| 1:A:208:VAL:O    | 1:A:231:GLN:HB3  | 0.83     | 1.74        | 16     | 4     |
| 1:A:214:SER:HB2  | 1:A:215:PRO:HD3  | 0.82     | 1.50        | 29     | 2     |
| 1:A:275:LEU:HB2  | 1:A:291:VAL:HG11 | 0.82     | 1.48        | 20     | 21    |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:HD11 | 0.82     | 1.52        | 11     | 1     |
| 1:A:196:HIS:ND1  | 1:A:208:VAL:HG21 | 0.82     | 1.90        | 12     | 2     |
| 1:A:244:VAL:HG13 | 1:A:269:TRP:CZ3  | 0.81     | 2.09        | 29     | 4     |
| 1:A:187:ILE:HG22 | 1:A:288:LYS:O    | 0.81     | 1.74        | 23     | 29    |
| 1:A:191:ALA:HB3  | 1:A:220:LEU:HD13 | 0.81     | 1.51        | 17     | 8     |
| 1:A:243:LEU:HD11 | 1:A:259:ILE:HD11 | 0.81     | 1.51        | 13     | 1     |
| 1:A:224:GLU:O    | 1:A:225:VAL:HG23 | 0.81     | 1.74        | 23     | 1     |
| 1:A:184:LEU:HD13 | 1:A:196:HIS:ND1  | 0.81     | 1.91        | 4      | 3     |
| 1:A:255:ASN:HA   | 1:A:280:ILE:HD12 | 0.81     | 1.49        | 11     | 6     |
| 1:A:196:HIS:CD2  | 1:A:208:VAL:HG11 | 0.81     | 2.11        | 15     | 8     |
| 1:A:184:LEU:HD22 | 1:A:196:HIS:CE1  | 0.80     | 2.11        | 1      | 1     |
| 1:A:206:LEU:HD13 | 1:A:207:PRO:CD   | 0.80     | 2.07        | 17     | 6     |
| 1:A:283:LEU:HD22 | 1:A:287:THR:O    | 0.80     | 1.77        | 14     | 2     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:188:ALA:O    | 1:A:287:THR:HA   | 0.79     | 1.77        | 20     | 30    |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CE3  | 0.79     | 2.13        | 23     | 6     |
| 1:A:213:VAL:HG13 | 1:A:215:PRO:HG2  | 0.79     | 1.54        | 19     | 2     |
| 1:A:191:ALA:HB1  | 1:A:194:LEU:CD1  | 0.79     | 2.08        | 9      | 7     |
| 1:A:202:SER:O    | 1:A:206:LEU:HD12 | 0.79     | 1.78        | 26     | 2     |
| 1:A:206:LEU:HD21 | 1:A:234:TRP:CE3  | 0.79     | 2.13        | 9      | 10    |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CZ2  | 0.78     | 2.13        | 10     | 3     |
| 1:A:182:LEU:HD11 | 1:A:184:LEU:CD1  | 0.78     | 2.08        | 20     | 9     |
| 1:A:186:VAL:HG23 | 1:A:194:LEU:O    | 0.78     | 1.77        | 9      | 11    |
| 1:A:281:ILE:HG22 | 1:A:289:VAL:HG23 | 0.78     | 1.53        | 26     | 5     |
| 1:A:281:ILE:CG2  | 1:A:289:VAL:HG23 | 0.78     | 2.08        | 26     | 4     |
| 1:A:206:LEU:C    | 1:A:206:LEU:HD22 | 0.78     | 2.00        | 25     | 4     |
| 1:A:212:ARG:HB3  | 1:A:226:SER:O    | 0.78     | 1.79        | 23     | 1     |
| 1:A:275:LEU:HD23 | 1:A:293:ILE:HD11 | 0.77     | 1.56        | 4      | 18    |
| 1:A:210:LEU:HD21 | 1:A:230:ALA:HB3  | 0.77     | 1.54        | 28     | 2     |
| 1:A:254:VAL:CG2  | 1:A:259:ILE:HD13 | 0.77     | 2.09        | 13     | 1     |
| 1:A:196:HIS:CG   | 1:A:208:VAL:HG11 | 0.77     | 2.14        | 25     | 5     |
| 1:A:206:LEU:HD22 | 1:A:206:LEU:C    | 0.77     | 1.99        | 5      | 6     |
| 1:A:246:MET:HB2  | 1:A:269:TRP:CZ3  | 0.77     | 2.15        | 26     | 4     |
| 1:A:259:ILE:HB   | 1:A:273:VAL:HG21 | 0.77     | 1.56        | 11     | 19    |
| 1:A:244:VAL:HG11 | 1:A:269:TRP:NE1  | 0.77     | 1.94        | 8      | 15    |
| 1:A:186:VAL:HG11 | 1:A:220:LEU:HD11 | 0.77     | 1.56        | 28     | 7     |
| 1:A:184:LEU:HD23 | 1:A:196:HIS:CG   | 0.77     | 2.14        | 10     | 6     |
| 1:A:184:LEU:HD22 | 1:A:184:LEU:H    | 0.77     | 1.40        | 10     | 8     |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:CG2  | 0.77     | 2.10        | 10     | 4     |
| 1:A:218:LEU:HD13 | 1:A:220:LEU:HD21 | 0.76     | 1.57        | 3      | 16    |
| 1:A:182:LEU:HD13 | 1:A:293:ILE:CD1  | 0.76     | 2.11        | 23     | 1     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:HG12 | 0.76     | 1.56        | 23     | 1     |
| 1:A:182:LEU:HD23 | 1:A:234:TRP:CZ3  | 0.76     | 2.14        | 29     | 11    |
| 1:A:243:LEU:HD23 | 1:A:281:ILE:CD1  | 0.76     | 2.11        | 16     | 1     |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:HG12 | 0.75     | 1.56        | 27     | 6     |
| 1:A:184:LEU:HD23 | 1:A:196:HIS:ND1  | 0.75     | 1.95        | 26     | 1     |
| 1:A:244:VAL:HG21 | 1:A:269:TRP:CD1  | 0.75     | 2.16        | 24     | 15    |
| 1:A:232:ILE:HG12 | 1:A:243:LEU:HD22 | 0.75     | 1.54        | 10     | 2     |
| 1:A:224:GLU:O    | 1:A:249:LEU:HD11 | 0.75     | 1.80        | 6      | 5     |
| 1:A:222:ASP:OD2  | 1:A:287:THR:HG21 | 0.75     | 1.81        | 30     | 2     |
| 1:A:281:ILE:HD12 | 1:A:289:VAL:CG2  | 0.75     | 2.12        | 7      | 6     |
| 1:A:222:ASP:HB3  | 1:A:225:VAL:HG12 | 0.75     | 1.55        | 21     | 5     |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CE2  | 0.75     | 2.17        | 4      | 14    |
| 1:A:275:LEU:H    | 1:A:275:LEU:HD13 | 0.75     | 1.42        | 17     | 26    |
| 1:A:244:VAL:HG22 | 1:A:269:TRP:O    | 0.75     | 1.80        | 9      | 14    |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:218:LEU:HD23 | 1:A:220:LEU:HD21 | 0.75     | 1.59        | 11     | 1     |
| 1:A:191:ALA:HB1  | 1:A:194:LEU:HD21 | 0.74     | 1.57        | 3      | 6     |
| 1:A:191:ALA:HB3  | 1:A:194:LEU:HD11 | 0.74     | 1.59        | 21     | 21    |
| 1:A:246:MET:HG2  | 1:A:269:TRP:CH2  | 0.74     | 2.18        | 5      | 10    |
| 1:A:241:TRP:CH2  | 1:A:293:ILE:HG23 | 0.74     | 2.16        | 10     | 2     |
| 1:A:259:ILE:HG21 | 1:A:273:VAL:HG11 | 0.74     | 1.57        | 6      | 7     |
| 1:A:212:ARG:HD3  | 1:A:213:VAL:HG12 | 0.74     | 1.60        | 29     | 8     |
| 1:A:196:HIS:CE1  | 1:A:208:VAL:HG21 | 0.74     | 2.18        | 12     | 2     |
| 1:A:232:ILE:HG12 | 1:A:243:LEU:HD11 | 0.74     | 1.59        | 16     | 1     |
| 1:A:281:ILE:HD12 | 1:A:289:VAL:HG23 | 0.73     | 1.56        | 18     | 6     |
| 1:A:184:LEU:HB3  | 1:A:196:HIS:CE1  | 0.73     | 2.18        | 15     | 5     |
| 1:A:259:ILE:HG12 | 1:A:273:VAL:HG21 | 0.73     | 1.58        | 28     | 9     |
| 1:A:218:LEU:HB3  | 1:A:220:LEU:CD2  | 0.73     | 2.13        | 16     | 30    |
| 1:A:230:ALA:HB2  | 1:A:252:THR:HG21 | 0.73     | 1.61        | 28     | 3     |
| 1:A:202:SER:HA   | 1:A:205:LYS:HE3  | 0.73     | 1.60        | 6      | 3     |
| 1:A:220:LEU:O    | 1:A:222:ASP:N    | 0.73     | 2.21        | 3      | 29    |
| 1:A:244:VAL:HG21 | 1:A:269:TRP:NE1  | 0.73     | 1.99        | 4      | 9     |
| 1:A:259:ILE:HD12 | 1:A:273:VAL:HB   | 0.73     | 1.59        | 13     | 1     |
| 1:A:206:LEU:H    | 1:A:207:PRO:CD   | 0.73     | 1.96        | 6      | 2     |
| 1:A:259:ILE:HD12 | 1:A:273:VAL:CB   | 0.73     | 2.14        | 13     | 1     |
| 1:A:243:LEU:HD12 | 1:A:243:LEU:O    | 0.72     | 1.83        | 19     | 19    |
| 1:A:249:LEU:HD13 | 1:A:250:ASN:H    | 0.72     | 1.44        | 22     | 19    |
| 1:A:230:ALA:HB3  | 1:A:283:LEU:HD22 | 0.72     | 1.60        | 20     | 1     |
| 1:A:229:HIS:CE1  | 1:A:248:SER:HB3  | 0.72     | 2.20        | 25     | 1     |
| 1:A:281:ILE:CG2  | 1:A:281:ILE:O    | 0.72     | 2.38        | 20     | 3     |
| 1:A:246:MET:O    | 1:A:246:MET:HG3  | 0.71     | 1.85        | 26     | 4     |
| 1:A:243:LEU:HD22 | 1:A:281:ILE:HD12 | 0.71     | 1.62        | 3      | 4     |
| 1:A:259:ILE:HG12 | 1:A:273:VAL:HG11 | 0.71     | 1.61        | 18     | 7     |
| 1:A:212:ARG:HG2  | 1:A:221:LYS:HA   | 0.71     | 1.63        | 14     | 12    |
| 1:A:222:ASP:HB2  | 1:A:225:VAL:HG12 | 0.71     | 1.62        | 30     | 7     |
| 1:A:182:LEU:HD12 | 1:A:292:ARG:O    | 0.70     | 1.86        | 4      | 9     |
| 1:A:198:VAL:HG21 | 1:A:206:LEU:CB   | 0.70     | 2.15        | 8      | 3     |
| 1:A:225:VAL:HG13 | 1:A:229:HIS:CG   | 0.70     | 2.22        | 11     | 1     |
| 1:A:196:HIS:NE2  | 1:A:210:LEU:HD21 | 0.70     | 2.02        | 15     | 6     |
| 1:A:241:TRP:O    | 1:A:274:GLU:HA   | 0.69     | 1.87        | 14     | 29    |
| 1:A:283:LEU:HD13 | 1:A:283:LEU:N    | 0.69     | 2.02        | 23     | 24    |
| 1:A:244:VAL:HG11 | 1:A:269:TRP:CZ2  | 0.69     | 2.22        | 10     | 4     |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:HG23 | 0.69     | 1.64        | 14     | 8     |
| 1:A:184:LEU:HD12 | 1:A:196:HIS:O    | 0.69     | 1.88        | 19     | 7     |
| 1:A:208:VAL:HG12 | 1:A:208:VAL:O    | 0.69     | 1.87        | 14     | 2     |
| 1:A:244:VAL:HG22 | 1:A:269:TRP:CB   | 0.69     | 2.16        | 19     | 2     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:191:ALA:HB1  | 1:A:194:LEU:HD11 | 0.69     | 1.62        | 18     | 18    |
| 1:A:234:TRP:CE3  | 1:A:241:TRP:CE3  | 0.69     | 2.81        | 5      | 6     |
| 1:A:275:LEU:CD2  | 1:A:293:ILE:HD11 | 0.69     | 2.17        | 17     | 20    |
| 1:A:252:THR:CG2  | 1:A:283:LEU:HD23 | 0.69     | 2.18        | 20     | 2     |
| 1:A:196:HIS:ND1  | 1:A:208:VAL:HG11 | 0.69     | 2.02        | 4      | 4     |
| 1:A:210:LEU:HD12 | 1:A:231:GLN:HA   | 0.69     | 1.65        | 22     | 22    |
| 1:A:183:PHE:O    | 1:A:184:LEU:HD12 | 0.68     | 1.87        | 1      | 1     |
| 1:A:259:ILE:HG13 | 1:A:273:VAL:HG11 | 0.68     | 1.64        | 20     | 6     |
| 1:A:214:SER:CB   | 1:A:215:PRO:HD3  | 0.68     | 2.18        | 21     | 3     |
| 1:A:199:ASN:ND2  | 1:A:201:THR:HG22 | 0.68     | 2.02        | 18     | 1     |
| 1:A:224:GLU:O    | 1:A:249:LEU:HD21 | 0.68     | 1.87        | 30     | 1     |
| 1:A:234:TRP:CB   | 1:A:241:TRP:HA   | 0.68     | 2.17        | 14     | 19    |
| 1:A:213:VAL:HG22 | 1:A:214:SER:H    | 0.67     | 1.47        | 3      | 11    |
| 1:A:246:MET:O    | 1:A:248:SER:N    | 0.67     | 2.24        | 25     | 2     |
| 1:A:184:LEU:O    | 1:A:195:GLN:HG2  | 0.67     | 1.90        | 16     | 18    |
| 1:A:206:LEU:HD13 | 1:A:207:PRO:N    | 0.67     | 2.04        | 27     | 4     |
| 1:A:182:LEU:HD11 | 1:A:184:LEU:HD13 | 0.67     | 1.66        | 1      | 9     |
| 1:A:282:THR:C    | 1:A:283:LEU:HD13 | 0.67     | 2.10        | 11     | 2     |
| 1:A:208:VAL:O    | 1:A:231:GLN:HB2  | 0.67     | 1.90        | 5      | 14    |
| 1:A:252:THR:C    | 1:A:253:LEU:HD23 | 0.67     | 2.11        | 21     | 21    |
| 1:A:228:LYS:HB2  | 1:A:246:MET:HG3  | 0.67     | 1.66        | 29     | 2     |
| 1:A:231:GLN:HG2  | 1:A:246:MET:HE1  | 0.67     | 1.67        | 28     | 1     |
| 1:A:228:LYS:O    | 1:A:246:MET:HB3  | 0.67     | 1.90        | 29     | 6     |
| 1:A:253:LEU:N    | 1:A:253:LEU:HD23 | 0.66     | 2.06        | 27     | 22    |
| 1:A:241:TRP:CE3  | 1:A:293:ILE:HD13 | 0.66     | 2.25        | 4      | 5     |
| 1:A:202:SER:OG   | 1:A:206:LEU:HB3  | 0.66     | 1.91        | 8      | 2     |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:HD21 | 0.66     | 2.25        | 17     | 2     |
| 1:A:243:LEU:O    | 1:A:272:PRO:HA   | 0.66     | 1.90        | 29     | 16    |
| 1:A:218:LEU:CD2  | 1:A:220:LEU:HD21 | 0.66     | 2.19        | 11     | 1     |
| 1:A:206:LEU:HG   | 1:A:234:TRP:CZ2  | 0.66     | 2.26        | 25     | 3     |
| 1:A:212:ARG:HD2  | 1:A:225:VAL:HB   | 0.66     | 1.66        | 27     | 1     |
| 1:A:245:ASP:HB2  | 1:A:260:SER:HB3  | 0.66     | 1.67        | 5      | 6     |
| 1:A:243:LEU:HD12 | 1:A:244:VAL:N    | 0.66     | 2.05        | 30     | 1     |
| 1:A:234:TRP:HB3  | 1:A:241:TRP:HA   | 0.66     | 1.68        | 25     | 14    |
| 1:A:243:LEU:HG   | 1:A:281:ILE:HG13 | 0.66     | 1.67        | 11     | 2     |
| 1:A:209:LYS:O    | 1:A:217:ASP:HB2  | 0.66     | 1.90        | 28     | 1     |
| 1:A:184:LEU:HD22 | 1:A:196:HIS:O    | 0.65     | 1.92        | 20     | 8     |
| 1:A:191:ALA:O    | 1:A:194:LEU:HD12 | 0.65     | 1.92        | 23     | 7     |
| 1:A:182:LEU:O    | 1:A:197:ALA:HA   | 0.65     | 1.90        | 9      | 23    |
| 1:A:182:LEU:HD23 | 1:A:234:TRP:HZ3  | 0.65     | 1.51        | 7      | 15    |
| 1:A:198:VAL:HG21 | 1:A:206:LEU:HG   | 0.65     | 1.69        | 3      | 4     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:181:TRP:HB3  | 1:A:183:PHE:CZ   | 0.65     | 2.27        | 8      | 29    |
| 1:A:206:LEU:HD22 | 1:A:207:PRO:N    | 0.65     | 2.07        | 17     | 2     |
| 1:A:228:LYS:O    | 1:A:246:MET:O    | 0.64     | 2.15        | 23     | 1     |
| 1:A:243:LEU:HD21 | 1:A:281:ILE:HG21 | 0.64     | 1.66        | 30     | 1     |
| 1:A:206:LEU:N    | 1:A:207:PRO:HD2  | 0.64     | 2.08        | 8      | 13    |
| 1:A:206:LEU:HD22 | 1:A:233:THR:HA   | 0.64     | 1.69        | 9      | 5     |
| 1:A:184:LEU:N    | 1:A:184:LEU:CD2  | 0.64     | 2.61        | 14     | 9     |
| 1:A:253:LEU:O    | 1:A:281:ILE:HD13 | 0.64     | 1.92        | 11     | 3     |
| 1:A:280:ILE:N    | 1:A:280:ILE:CD1  | 0.64     | 2.60        | 17     | 1     |
| 1:A:231:GLN:NE2  | 1:A:244:VAL:HG12 | 0.64     | 2.08        | 24     | 1     |
| 1:A:242:GLU:HG2  | 1:A:274:GLU:HG3  | 0.64     | 1.70        | 7      | 1     |
| 1:A:213:VAL:HG13 | 1:A:215:PRO:CG   | 0.64     | 2.22        | 19     | 2     |
| 1:A:196:HIS:CE1  | 1:A:210:LEU:HD21 | 0.64     | 2.27        | 6      | 4     |
| 1:A:220:LEU:HD22 | 1:A:220:LEU:N    | 0.64     | 2.08        | 18     | 12    |
| 1:A:253:LEU:HG   | 1:A:282:THR:HB   | 0.64     | 1.69        | 2      | 18    |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:HB3  | 0.64     | 2.28        | 14     | 3     |
| 1:A:252:THR:HG23 | 1:A:283:LEU:HD12 | 0.64     | 1.69        | 14     | 1     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:O    | 0.63     | 1.92        | 12     | 16    |
| 1:A:206:LEU:N    | 1:A:207:PRO:CD   | 0.63     | 2.60        | 12     | 9     |
| 1:A:206:LEU:HD22 | 1:A:206:LEU:O    | 0.63     | 1.93        | 25     | 1     |
| 1:A:246:MET:HE1  | 1:A:269:TRP:CZ2  | 0.63     | 2.29        | 30     | 1     |
| 1:A:206:LEU:HD23 | 1:A:234:TRP:CH2  | 0.63     | 2.28        | 30     | 1     |
| 1:A:196:HIS:NE2  | 1:A:208:VAL:HG21 | 0.63     | 2.08        | 1      | 1     |
| 1:A:259:ILE:CB   | 1:A:273:VAL:HG21 | 0.63     | 2.23        | 4      | 2     |
| 1:A:232:ILE:CG1  | 1:A:243:LEU:HD11 | 0.63     | 2.23        | 16     | 1     |
| 1:A:210:LEU:HB2  | 1:A:230:ALA:O    | 0.63     | 1.92        | 25     | 3     |
| 1:A:243:LEU:O    | 1:A:243:LEU:HD12 | 0.62     | 1.94        | 29     | 4     |
| 1:A:190:PRO:HB2  | 1:A:221:LYS:HG3  | 0.62     | 1.72        | 29     | 6     |
| 1:A:212:ARG:CD   | 1:A:225:VAL:HB   | 0.62     | 2.23        | 27     | 1     |
| 1:A:191:ALA:HB1  | 1:A:194:LEU:HD13 | 0.62     | 1.70        | 9      | 4     |
| 1:A:275:LEU:HD22 | 1:A:291:VAL:CG1  | 0.62     | 2.22        | 23     | 2     |
| 1:A:214:SER:HB3  | 1:A:215:PRO:HD2  | 0.62     | 1.71        | 27     | 6     |
| 1:A:253:LEU:HG   | 1:A:282:THR:O    | 0.62     | 1.93        | 16     | 4     |
| 1:A:243:LEU:HD11 | 1:A:259:ILE:CD1  | 0.62     | 2.22        | 13     | 1     |
| 1:A:231:GLN:O    | 1:A:243:LEU:HB2  | 0.62     | 1.92        | 5      | 23    |
| 1:A:281:ILE:O    | 1:A:288:LYS:HA   | 0.62     | 1.94        | 17     | 19    |
| 1:A:184:LEU:HD23 | 1:A:196:HIS:CE1  | 0.62     | 2.29        | 26     | 1     |
| 1:A:210:LEU:HD13 | 1:A:210:LEU:N    | 0.62     | 2.10        | 17     | 2     |
| 1:A:181:TRP:HB3  | 1:A:183:PHE:CE1  | 0.62     | 2.29        | 13     | 4     |
| 1:A:277:SER:O    | 1:A:278:ASP:HB2  | 0.62     | 1.93        | 22     | 25    |
| 1:A:182:LEU:HD23 | 1:A:234:TRP:CE3  | 0.62     | 2.29        | 29     | 2     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:257:HIS:O    | 1:A:259:ILE:HG23 | 0.62     | 1.95        | 17     | 8     |
| 1:A:282:THR:HG23 | 1:A:288:LYS:CG   | 0.62     | 2.24        | 17     | 7     |
| 1:A:198:VAL:HG13 | 1:A:234:TRP:HH2  | 0.61     | 1.51        | 22     | 10    |
| 1:A:206:LEU:HD23 | 1:A:234:TRP:CZ3  | 0.61     | 2.29        | 5      | 5     |
| 1:A:246:MET:HA   | 1:A:269:TRP:CE3  | 0.61     | 2.30        | 10     | 5     |
| 1:A:184:LEU:HD11 | 1:A:232:ILE:HD12 | 0.61     | 1.71        | 11     | 1     |
| 1:A:281:ILE:HD12 | 1:A:289:VAL:CG1  | 0.61     | 2.24        | 30     | 1     |
| 1:A:276:ALA:O    | 1:A:279:ASP:HB2  | 0.61     | 1.95        | 6      | 26    |
| 1:A:196:HIS:CD2  | 1:A:196:HIS:N    | 0.61     | 2.67        | 29     | 8     |
| 1:A:246:MET:N    | 1:A:246:MET:HE2  | 0.61     | 2.10        | 28     | 1     |
| 1:A:241:TRP:CD1  | 1:A:241:TRP:N    | 0.61     | 2.68        | 21     | 13    |
| 1:A:198:VAL:HG21 | 1:A:206:LEU:HB2  | 0.61     | 1.73        | 8      | 2     |
| 1:A:188:ALA:O    | 1:A:286:THR:O    | 0.61     | 2.18        | 6      | 28    |
| 1:A:184:LEU:CD2  | 1:A:196:HIS:O    | 0.61     | 2.48        | 22     | 12    |
| 1:A:180:SER:O    | 1:A:199:ASN:HA   | 0.61     | 1.94        | 11     | 16    |
| 1:A:196:HIS:CD2  | 1:A:217:ASP:HB3  | 0.60     | 2.31        | 28     | 3     |
| 1:A:229:HIS:CG   | 1:A:283:LEU:HB2  | 0.60     | 2.32        | 26     | 19    |
| 1:A:206:LEU:CD2  | 1:A:233:THR:HA   | 0.60     | 2.25        | 14     | 2     |
| 1:A:249:LEU:C    | 1:A:249:LEU:HD22 | 0.60     | 2.16        | 4      | 4     |
| 1:A:231:GLN:OE1  | 1:A:233:THR:HG22 | 0.60     | 1.95        | 9      | 2     |
| 1:A:242:GLU:HA   | 1:A:273:VAL:O    | 0.60     | 1.96        | 1      | 23    |
| 1:A:218:LEU:HB3  | 1:A:220:LEU:HD23 | 0.60     | 1.74        | 18     | 1     |
| 1:A:208:VAL:O    | 1:A:231:GLN:CB   | 0.60     | 2.49        | 18     | 11    |
| 1:A:249:LEU:HD12 | 1:A:249:LEU:N    | 0.60     | 2.12        | 1      | 1     |
| 1:A:208:VAL:O    | 1:A:231:GLN:HG3  | 0.60     | 1.96        | 13     | 1     |
| 1:A:230:ALA:HB1  | 1:A:243:LEU:HD11 | 0.60     | 1.73        | 30     | 1     |
| 1:A:229:HIS:O    | 1:A:246:MET:N    | 0.60     | 2.35        | 5      | 16    |
| 1:A:254:VAL:HG21 | 1:A:259:ILE:HD13 | 0.60     | 1.73        | 13     | 1     |
| 1:A:249:LEU:C    | 1:A:249:LEU:HD13 | 0.59     | 2.17        | 18     | 2     |
| 1:A:210:LEU:HD23 | 1:A:218:LEU:CD1  | 0.59     | 2.21        | 23     | 8     |
| 1:A:202:SER:O    | 1:A:206:LEU:HB2  | 0.59     | 1.97        | 14     | 3     |
| 1:A:252:THR:N    | 1:A:260:SER:HB3  | 0.59     | 2.11        | 9      | 2     |
| 1:A:218:LEU:HD23 | 1:A:220:LEU:CD2  | 0.59     | 2.27        | 11     | 1     |
| 1:A:184:LEU:CD2  | 1:A:291:VAL:HG13 | 0.59     | 2.27        | 21     | 3     |
| 1:A:275:LEU:CB   | 1:A:291:VAL:HG11 | 0.59     | 2.25        | 20     | 9     |
| 1:A:279:ASP:O    | 1:A:280:ILE:HG23 | 0.59     | 1.97        | 6      | 10    |
| 1:A:190:PRO:HG3  | 1:A:222:ASP:CB   | 0.59     | 2.27        | 14     | 9     |
| 1:A:182:LEU:HB3  | 1:A:234:TRP:CZ3  | 0.59     | 2.32        | 29     | 4     |
| 1:A:254:VAL:HG23 | 1:A:259:ILE:HD11 | 0.59     | 1.74        | 26     | 14    |
| 1:A:194:LEU:HD22 | 1:A:219:ALA:HB3  | 0.59     | 1.74        | 21     | 1     |
| 1:A:212:ARG:HD3  | 1:A:222:ASP:CB   | 0.59     | 2.27        | 27     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:218:LEU:HB3  | 1:A:220:LEU:HD21 | 0.59     | 1.74        | 1      | 3     |
| 1:A:182:LEU:HD11 | 1:A:184:LEU:HD22 | 0.59     | 1.74        | 5      | 6     |
| 1:A:184:LEU:HD23 | 1:A:291:VAL:HG13 | 0.59     | 1.73        | 21     | 3     |
| 1:A:212:ARG:CB   | 1:A:225:VAL:HG12 | 0.59     | 2.25        | 23     | 1     |
| 1:A:282:THR:OG1  | 1:A:288:LYS:HG3  | 0.59     | 1.97        | 9      | 5     |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:CG1  | 0.59     | 2.28        | 15     | 5     |
| 1:A:200:SER:HB2  | 1:A:241:TRP:CZ2  | 0.58     | 2.33        | 25     | 1     |
| 1:A:254:VAL:HG23 | 1:A:259:ILE:CG1  | 0.58     | 2.28        | 24     | 9     |
| 1:A:184:LEU:HB2  | 1:A:196:HIS:CE1  | 0.58     | 2.33        | 21     | 4     |
| 1:A:213:VAL:HG22 | 1:A:215:PRO:HD2  | 0.58     | 1.75        | 18     | 3     |
| 1:A:214:SER:CB   | 1:A:215:PRO:CD   | 0.58     | 2.81        | 15     | 15    |
| 1:A:246:MET:HG2  | 1:A:269:TRP:CZ3  | 0.58     | 2.32        | 5      | 4     |
| 1:A:249:LEU:HD13 | 1:A:250:ASN:N    | 0.58     | 2.13        | 12     | 10    |
| 1:A:259:ILE:HD13 | 1:A:259:ILE:H    | 0.58     | 1.57        | 29     | 14    |
| 1:A:189:GLY:H    | 1:A:192:ILE:HG12 | 0.58     | 1.58        | 19     | 23    |
| 1:A:184:LEU:HD13 | 1:A:290:TYR:O    | 0.58     | 1.99        | 25     | 3     |
| 1:A:212:ARG:HD3  | 1:A:222:ASP:CA   | 0.58     | 2.27        | 27     | 1     |
| 1:A:281:ILE:HG22 | 1:A:289:VAL:CG1  | 0.58     | 2.29        | 9      | 1     |
| 1:A:259:ILE:HD12 | 1:A:260:SER:N    | 0.58     | 2.13        | 3      | 6     |
| 1:A:230:ALA:HB3  | 1:A:283:LEU:CD2  | 0.58     | 2.29        | 10     | 3     |
| 1:A:188:ALA:N    | 1:A:192:ILE:HD11 | 0.58     | 2.13        | 11     | 1     |
| 1:A:243:LEU:HD12 | 1:A:243:LEU:C    | 0.57     | 2.19        | 2      | 22    |
| 1:A:229:HIS:CE1  | 1:A:283:LEU:O    | 0.57     | 2.57        | 25     | 4     |
| 1:A:181:TRP:CB   | 1:A:183:PHE:CZ   | 0.57     | 2.87        | 26     | 3     |
| 1:A:249:LEU:HD12 | 1:A:250:ASN:N    | 0.57     | 2.13        | 30     | 3     |
| 1:A:253:LEU:HD23 | 1:A:253:LEU:N    | 0.57     | 2.14        | 21     | 4     |
| 1:A:245:ASP:HB2  | 1:A:270:GLY:CA   | 0.57     | 2.28        | 30     | 1     |
| 1:A:232:ILE:HD13 | 1:A:275:LEU:CD1  | 0.57     | 2.29        | 23     | 1     |
| 1:A:249:LEU:O    | 1:A:249:LEU:HG   | 0.57     | 1.99        | 25     | 1     |
| 1:A:259:ILE:CG2  | 1:A:273:VAL:HG11 | 0.57     | 2.30        | 22     | 4     |
| 1:A:212:ARG:HA   | 1:A:212:ARG:HE   | 0.57     | 1.58        | 27     | 1     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:HB   | 0.57     | 1.77        | 11     | 2     |
| 1:A:202:SER:HB3  | 1:A:206:LEU:HB2  | 0.57     | 1.76        | 24     | 3     |
| 1:A:246:MET:HB3  | 1:A:269:TRP:CH2  | 0.57     | 2.35        | 15     | 1     |
| 1:A:202:SER:OG   | 1:A:205:LYS:HG2  | 0.57     | 2.00        | 26     | 1     |
| 1:A:212:ARG:NE   | 1:A:225:VAL:HB   | 0.57     | 2.15        | 27     | 1     |
| 1:A:245:ASP:O    | 1:A:269:TRP:CE3  | 0.57     | 2.57        | 28     | 1     |
| 1:A:234:TRP:CH2  | 1:A:241:TRP:CE3  | 0.57     | 2.92        | 21     | 3     |
| 1:A:196:HIS:HE1  | 1:A:289:VAL:HG21 | 0.57     | 1.59        | 16     | 1     |
| 1:A:283:LEU:HD22 | 1:A:283:LEU:H    | 0.57     | 1.59        | 6      | 17    |
| 1:A:196:HIS:HE1  | 1:A:289:VAL:HG11 | 0.57     | 1.60        | 18     | 2     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:282:THR:HG23 | 1:A:288:LYS:HG3  | 0.57     | 1.76        | 17     | 5     |
| 1:A:243:LEU:HD23 | 1:A:281:ILE:HD12 | 0.57     | 1.75        | 16     | 1     |
| 1:A:209:LYS:HB2  | 1:A:217:ASP:HB2  | 0.57     | 1.76        | 17     | 1     |
| 1:A:254:VAL:HG23 | 1:A:259:ILE:HD13 | 0.56     | 1.76        | 13     | 1     |
| 1:A:184:LEU:HD12 | 1:A:289:VAL:HG13 | 0.56     | 1.77        | 17     | 1     |
| 1:A:245:ASP:O    | 1:A:269:TRP:HA   | 0.56     | 2.00        | 23     | 6     |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:CD2  | 0.56     | 2.88        | 18     | 1     |
| 1:A:214:SER:HB2  | 1:A:215:PRO:CD   | 0.56     | 2.31        | 10     | 4     |
| 1:A:186:VAL:N    | 1:A:289:VAL:HG23 | 0.56     | 2.15        | 16     | 4     |
| 1:A:283:LEU:O    | 1:A:287:THR:HB   | 0.56     | 2.01        | 11     | 5     |
| 1:A:184:LEU:CD2  | 1:A:196:HIS:CE1  | 0.56     | 2.88        | 1      | 1     |
| 1:A:206:LEU:C    | 1:A:206:LEU:HD23 | 0.56     | 2.21        | 18     | 14    |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CH2  | 0.56     | 2.35        | 10     | 1     |
| 1:A:254:VAL:HG22 | 1:A:281:ILE:CD1  | 0.56     | 2.30        | 11     | 1     |
| 1:A:225:VAL:HG22 | 1:A:229:HIS:ND1  | 0.56     | 2.14        | 22     | 2     |
| 1:A:281:ILE:O    | 1:A:281:ILE:HG22 | 0.56     | 2.00        | 20     | 3     |
| 1:A:212:ARG:CG   | 1:A:221:LYS:HA   | 0.56     | 2.30        | 26     | 7     |
| 1:A:185:GLU:C    | 1:A:289:VAL:HG23 | 0.56     | 2.21        | 30     | 4     |
| 1:A:184:LEU:HA   | 1:A:290:TYR:O    | 0.56     | 2.01        | 27     | 18    |
| 1:A:182:LEU:C    | 1:A:182:LEU:HD12 | 0.56     | 2.21        | 29     | 3     |
| 1:A:206:LEU:HG   | 1:A:234:TRP:CE2  | 0.56     | 2.35        | 26     | 3     |
| 1:A:196:HIS:CG   | 1:A:218:LEU:HD21 | 0.56     | 2.36        | 17     | 1     |
| 1:A:246:MET:HA   | 1:A:269:TRP:CZ3  | 0.56     | 2.35        | 18     | 1     |
| 1:A:214:SER:CB   | 1:A:215:PRO:HD2  | 0.56     | 2.31        | 2      | 11    |
| 1:A:229:HIS:CE1  | 1:A:250:ASN:HB3  | 0.56     | 2.35        | 4      | 4     |
| 1:A:196:HIS:NE2  | 1:A:208:VAL:HG22 | 0.56     | 2.15        | 5      | 1     |
| 1:A:280:ILE:HG22 | 1:A:290:TYR:HA   | 0.56     | 1.77        | 9      | 1     |
| 1:A:198:VAL:HG11 | 1:A:206:LEU:HD23 | 0.56     | 1.78        | 6      | 1     |
| 1:A:238:LYS:O    | 1:A:240:LYS:HD3  | 0.56     | 2.01        | 29     | 6     |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CZ3  | 0.56     | 2.36        | 15     | 1     |
| 1:A:243:LEU:HB2  | 1:A:275:LEU:HD12 | 0.55     | 1.77        | 10     | 1     |
| 1:A:234:TRP:CH2  | 1:A:241:TRP:CZ3  | 0.55     | 2.94        | 6      | 5     |
| 1:A:253:LEU:O    | 1:A:281:ILE:HA   | 0.55     | 2.00        | 24     | 4     |
| 1:A:230:ALA:CB   | 1:A:252:THR:HG21 | 0.55     | 2.32        | 11     | 3     |
| 1:A:182:LEU:HD11 | 1:A:184:LEU:HD21 | 0.55     | 1.78        | 2      | 4     |
| 1:A:186:VAL:HG11 | 1:A:220:LEU:CD1  | 0.55     | 2.32        | 11     | 5     |
| 1:A:229:HIS:C    | 1:A:246:MET:HG2  | 0.55     | 2.22        | 30     | 1     |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:HB2  | 0.55     | 2.37        | 17     | 14    |
| 1:A:211:GLY:O    | 1:A:218:LEU:O    | 0.55     | 2.24        | 18     | 6     |
| 1:A:186:VAL:HA   | 1:A:289:VAL:HG13 | 0.55     | 1.79        | 24     | 9     |
| 1:A:222:ASP:OD2  | 1:A:287:THR:OG1  | 0.55     | 2.25        | 27     | 3     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:182:LEU:HB2  | 1:A:241:TRP:CZ3  | 0.55     | 2.35        | 10     | 10    |
| 1:A:220:LEU:N    | 1:A:220:LEU:CD2  | 0.55     | 2.70        | 18     | 4     |
| 1:A:186:VAL:CG2  | 1:A:220:LEU:HD11 | 0.55     | 2.32        | 20     | 7     |
| 1:A:184:LEU:CD2  | 1:A:184:LEU:N    | 0.55     | 2.70        | 23     | 3     |
| 1:A:213:VAL:HG13 | 1:A:213:VAL:O    | 0.55     | 2.02        | 1      | 5     |
| 1:A:252:THR:HA   | 1:A:282:THR:O    | 0.55     | 2.02        | 30     | 3     |
| 1:A:231:GLN:CG   | 1:A:246:MET:HE1  | 0.55     | 2.31        | 28     | 1     |
| 1:A:206:LEU:HB3  | 1:A:207:PRO:CD   | 0.54     | 2.32        | 7      | 16    |
| 1:A:208:VAL:HG12 | 1:A:209:LYS:N    | 0.54     | 2.17        | 1      | 14    |
| 1:A:198:VAL:HG13 | 1:A:234:TRP:CZ3  | 0.54     | 2.36        | 9      | 6     |
| 1:A:229:HIS:CE1  | 1:A:250:ASN:OD1  | 0.54     | 2.61        | 17     | 1     |
| 1:A:206:LEU:HD21 | 1:A:233:THR:HA   | 0.54     | 1.80        | 25     | 1     |
| 1:A:241:TRP:CE3  | 1:A:293:ILE:CD1  | 0.54     | 2.89        | 9      | 11    |
| 1:A:259:ILE:O    | 1:A:273:VAL:HG21 | 0.54     | 2.01        | 24     | 3     |
| 1:A:184:LEU:HB2  | 1:A:196:HIS:CD2  | 0.54     | 2.37        | 6      | 6     |
| 1:A:244:VAL:CG1  | 1:A:269:TRP:CZ3  | 0.54     | 2.90        | 29     | 3     |
| 1:A:199:ASN:HB3  | 1:A:201:THR:HG22 | 0.54     | 1.79        | 17     | 2     |
| 1:A:230:ALA:HB2  | 1:A:245:ASP:OD2  | 0.54     | 2.03        | 21     | 1     |
| 1:A:279:ASP:O    | 1:A:291:VAL:CG2  | 0.54     | 2.56        | 30     | 1     |
| 1:A:252:THR:HG22 | 1:A:281:ILE:CD1  | 0.54     | 2.33        | 15     | 4     |
| 1:A:241:TRP:CD2  | 1:A:293:ILE:HD12 | 0.54     | 2.38        | 30     | 3     |
| 1:A:225:VAL:O    | 1:A:225:VAL:HG13 | 0.54     | 2.03        | 15     | 3     |
| 1:A:208:VAL:O    | 1:A:208:VAL:CG1  | 0.54     | 2.56        | 14     | 2     |
| 1:A:206:LEU:C    | 1:A:206:LEU:CD2  | 0.54     | 2.76        | 17     | 7     |
| 1:A:196:HIS:CD2  | 1:A:208:VAL:HG13 | 0.54     | 2.38        | 5      | 1     |
| 1:A:255:ASN:HA   | 1:A:280:ILE:HG13 | 0.54     | 1.79        | 20     | 3     |
| 1:A:182:LEU:HD13 | 1:A:293:ILE:HD13 | 0.54     | 1.79        | 23     | 1     |
| 1:A:246:MET:HB3  | 1:A:269:TRP:CZ3  | 0.54     | 2.38        | 30     | 2     |
| 1:A:231:GLN:CD   | 1:A:244:VAL:HG12 | 0.54     | 2.24        | 24     | 1     |
| 1:A:229:HIS:NE2  | 1:A:251:GLY:O    | 0.54     | 2.41        | 4      | 2     |
| 1:A:210:LEU:HD23 | 1:A:218:LEU:HD22 | 0.54     | 1.78        | 11     | 1     |
| 1:A:255:ASN:N    | 1:A:280:ILE:O    | 0.53     | 2.36        | 16     | 7     |
| 1:A:222:ASP:CB   | 1:A:225:VAL:HG12 | 0.53     | 2.32        | 21     | 3     |
| 1:A:210:LEU:HD22 | 1:A:230:ALA:O    | 0.53     | 2.03        | 17     | 2     |
| 1:A:210:LEU:HD11 | 1:A:232:ILE:HG13 | 0.53     | 1.80        | 29     | 1     |
| 1:A:244:VAL:CG2  | 1:A:269:TRP:CD1  | 0.53     | 2.91        | 3      | 9     |
| 1:A:210:LEU:HD12 | 1:A:231:GLN:CA   | 0.53     | 2.33        | 12     | 8     |
| 1:A:199:ASN:O    | 1:A:206:LEU:HD12 | 0.53     | 2.02        | 24     | 1     |
| 1:A:252:THR:HB   | 1:A:260:SER:OG   | 0.53     | 2.03        | 21     | 2     |
| 1:A:259:ILE:HD12 | 1:A:273:VAL:CG2  | 0.53     | 2.34        | 13     | 1     |
| 1:A:229:HIS:CB   | 1:A:283:LEU:HB2  | 0.53     | 2.34        | 22     | 9     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:243:LEU:CD2  | 1:A:281:ILE:HD12 | 0.53     | 2.34        | 25     | 4     |
| 1:A:206:LEU:HD21 | 1:A:234:TRP:CZ3  | 0.53     | 2.39        | 4      | 2     |
| 1:A:280:ILE:HG23 | 1:A:290:TYR:HD1  | 0.53     | 1.64        | 8      | 7     |
| 1:A:187:ILE:HG22 | 1:A:288:LYS:HB3  | 0.53     | 1.81        | 13     | 3     |
| 1:A:190:PRO:O    | 1:A:221:LYS:HG2  | 0.53     | 2.04        | 7      | 4     |
| 1:A:194:LEU:CD2  | 1:A:219:ALA:HB3  | 0.53     | 2.34        | 21     | 3     |
| 1:A:282:THR:HA   | 1:A:287:THR:O    | 0.53     | 2.03        | 10     | 3     |
| 1:A:196:HIS:CD2  | 1:A:196:HIS:C    | 0.53     | 2.81        | 1      | 1     |
| 1:A:181:TRP:CZ2  | 1:A:199:ASN:OD1  | 0.53     | 2.62        | 30     | 6     |
| 1:A:280:ILE:HG22 | 1:A:290:TYR:HD1  | 0.52     | 1.63        | 20     | 4     |
| 1:A:182:LEU:HD12 | 1:A:182:LEU:C    | 0.52     | 2.24        | 28     | 9     |
| 1:A:221:LYS:O    | 1:A:221:LYS:HG3  | 0.52     | 2.04        | 7      | 1     |
| 1:A:255:ASN:HA   | 1:A:280:ILE:CD1  | 0.52     | 2.34        | 14     | 5     |
| 1:A:191:ALA:HB3  | 1:A:220:LEU:CD1  | 0.52     | 2.33        | 11     | 6     |
| 1:A:254:VAL:HG12 | 1:A:255:ASN:HD22 | 0.52     | 1.64        | 26     | 1     |
| 1:A:245:ASP:O    | 1:A:269:TRP:O    | 0.52     | 2.27        | 6      | 7     |
| 1:A:235:ASN:O    | 1:A:239:PHE:N    | 0.52     | 2.42        | 23     | 7     |
| 1:A:212:ARG:CZ   | 1:A:222:ASP:HB2  | 0.52     | 2.35        | 27     | 1     |
| 1:A:213:VAL:HG22 | 1:A:214:SER:N    | 0.52     | 2.19        | 28     | 8     |
| 1:A:241:TRP:CZ3  | 1:A:293:ILE:CG2  | 0.52     | 2.93        | 8      | 4     |
| 1:A:231:GLN:OE1  | 1:A:269:TRP:CZ2  | 0.52     | 2.63        | 11     | 1     |
| 1:A:275:LEU:HD22 | 1:A:275:LEU:O    | 0.52     | 2.03        | 18     | 17    |
| 1:A:275:LEU:HD13 | 1:A:275:LEU:N    | 0.52     | 2.16        | 3      | 2     |
| 1:A:186:VAL:CG1  | 1:A:220:LEU:HD11 | 0.52     | 2.31        | 28     | 3     |
| 1:A:259:ILE:HG13 | 1:A:273:VAL:HG21 | 0.52     | 1.78        | 14     | 2     |
| 1:A:210:LEU:CD2  | 1:A:218:LEU:HD12 | 0.52     | 2.35        | 25     | 6     |
| 1:A:206:LEU:O    | 1:A:208:VAL:N    | 0.52     | 2.43        | 9      | 4     |
| 1:A:208:VAL:O    | 1:A:231:GLN:HA   | 0.52     | 2.04        | 11     | 4     |
| 1:A:198:VAL:HG22 | 1:A:234:TRP:CH2  | 0.52     | 2.38        | 14     | 1     |
| 1:A:184:LEU:HD21 | 1:A:196:HIS:HB3  | 0.52     | 1.81        | 23     | 1     |
| 1:A:212:ARG:CZ   | 1:A:225:VAL:HB   | 0.52     | 2.35        | 27     | 1     |
| 1:A:184:LEU:CB   | 1:A:196:HIS:CE1  | 0.52     | 2.92        | 24     | 5     |
| 1:A:196:HIS:CE1  | 1:A:289:VAL:HG11 | 0.52     | 2.40        | 15     | 3     |
| 1:A:206:LEU:HD11 | 1:A:234:TRP:CD2  | 0.52     | 2.39        | 20     | 5     |
| 1:A:213:VAL:HG13 | 1:A:214:SER:N    | 0.52     | 2.20        | 6      | 11    |
| 1:A:280:ILE:HG23 | 1:A:290:TYR:CD1  | 0.52     | 2.40        | 11     | 12    |
| 1:A:220:LEU:C    | 1:A:222:ASP:H    | 0.52     | 2.07        | 19     | 5     |
| 1:A:245:ASP:HB3  | 1:A:260:SER:HB3  | 0.52     | 1.82        | 29     | 1     |
| 1:A:212:ARG:HG3  | 1:A:222:ASP:O    | 0.52     | 2.05        | 17     | 3     |
| 1:A:249:LEU:HD22 | 1:A:249:LEU:C    | 0.52     | 2.25        | 20     | 4     |
| 1:A:229:HIS:HA   | 1:A:248:SER:HB3  | 0.52     | 1.81        | 10     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:214:SER:HB3  | 1:A:215:PRO:HD3  | 0.52     | 1.79        | 21     | 2     |
| 1:A:252:THR:O    | 1:A:258:SER:HA   | 0.52     | 2.04        | 29     | 3     |
| 1:A:199:ASN:HD22 | 1:A:201:THR:HG22 | 0.52     | 1.65        | 18     | 1     |
| 1:A:200:SER:HA   | 1:A:234:TRP:CE2  | 0.52     | 2.40        | 24     | 2     |
| 1:A:281:ILE:O    | 1:A:288:LYS:HG2  | 0.52     | 2.05        | 26     | 6     |
| 1:A:210:LEU:HA   | 1:A:218:LEU:HB2  | 0.52     | 1.81        | 28     | 7     |
| 1:A:212:ARG:NE   | 1:A:220:LEU:O    | 0.52     | 2.43        | 27     | 1     |
| 1:A:276:ALA:HB3  | 1:A:279:ASP:OD2  | 0.51     | 2.05        | 4      | 1     |
| 1:A:241:TRP:O    | 1:A:275:LEU:N    | 0.51     | 2.37        | 30     | 2     |
| 1:A:210:LEU:HD23 | 1:A:218:LEU:CD2  | 0.51     | 2.34        | 11     | 1     |
| 1:A:182:LEU:HD13 | 1:A:293:ILE:HG12 | 0.51     | 1.81        | 16     | 3     |
| 1:A:209:LYS:HA   | 1:A:231:GLN:HB3  | 0.51     | 1.83        | 25     | 10    |
| 1:A:186:VAL:N    | 1:A:289:VAL:HG13 | 0.51     | 2.20        | 12     | 1     |
| 1:A:181:TRP:CH2  | 1:A:199:ASN:OD1  | 0.51     | 2.64        | 13     | 1     |
| 1:A:212:ARG:HD3  | 1:A:222:ASP:C    | 0.51     | 2.25        | 27     | 1     |
| 1:A:244:VAL:HG11 | 1:A:269:TRP:HE1  | 0.51     | 1.64        | 6      | 6     |
| 1:A:184:LEU:CB   | 1:A:196:HIS:CD2  | 0.51     | 2.93        | 17     | 6     |
| 1:A:218:LEU:CD1  | 1:A:220:LEU:HD21 | 0.51     | 2.34        | 15     | 2     |
| 1:A:198:VAL:HG22 | 1:A:199:ASN:N    | 0.51     | 2.21        | 16     | 8     |
| 1:A:208:VAL:CG1  | 1:A:209:LYS:N    | 0.51     | 2.74        | 10     | 9     |
| 1:A:276:ALA:HB3  | 1:A:279:ASP:OD1  | 0.51     | 2.06        | 3      | 2     |
| 1:A:275:LEU:CD2  | 1:A:291:VAL:HG11 | 0.51     | 2.31        | 9      | 2     |
| 1:A:246:MET:CE   | 1:A:269:TRP:CZ2  | 0.51     | 2.93        | 30     | 1     |
| 1:A:234:TRP:CE3  | 1:A:241:TRP:CZ3  | 0.51     | 2.99        | 17     | 2     |
| 1:A:224:GLU:CD   | 1:A:284:GLY:HA3  | 0.51     | 2.26        | 14     | 2     |
| 1:A:182:LEU:HD23 | 1:A:198:VAL:CG1  | 0.51     | 2.35        | 15     | 2     |
| 1:A:231:GLN:HG3  | 1:A:244:VAL:HG12 | 0.51     | 1.82        | 26     | 3     |
| 1:A:275:LEU:CD2  | 1:A:275:LEU:C    | 0.51     | 2.80        | 4      | 13    |
| 1:A:243:LEU:HD22 | 1:A:281:ILE:CD1  | 0.51     | 2.35        | 9      | 5     |
| 1:A:229:HIS:HB3  | 1:A:283:LEU:HB2  | 0.51     | 1.83        | 5      | 3     |
| 1:A:241:TRP:CZ3  | 1:A:293:ILE:HD12 | 0.51     | 2.41        | 19     | 5     |
| 1:A:245:ASP:CG   | 1:A:260:SER:HB3  | 0.51     | 2.26        | 28     | 1     |
| 1:A:246:MET:HG3  | 1:A:269:TRP:CH2  | 0.51     | 2.40        | 28     | 1     |
| 1:A:191:ALA:O    | 1:A:194:LEU:HG   | 0.51     | 2.06        | 27     | 13    |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:CD1  | 0.51     | 2.86        | 17     | 2     |
| 1:A:280:ILE:HG22 | 1:A:290:TYR:CD1  | 0.51     | 2.41        | 27     | 4     |
| 1:A:212:ARG:N    | 1:A:225:VAL:HG12 | 0.51     | 2.20        | 23     | 1     |
| 1:A:243:LEU:CD2  | 1:A:281:ILE:HG13 | 0.51     | 2.36        | 20     | 2     |
| 1:A:214:SER:HB2  | 1:A:215:PRO:HD2  | 0.50     | 1.83        | 30     | 3     |
| 1:A:212:ARG:HG3  | 1:A:222:ASP:N    | 0.50     | 2.22        | 23     | 2     |
| 1:A:194:LEU:HD22 | 1:A:219:ALA:H    | 0.50     | 1.66        | 11     | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:225:VAL:HG23 | 1:A:228:LYS:C    | 0.50     | 2.26        | 29     | 3     |
| 1:A:244:VAL:HG21 | 1:A:269:TRP:HD1  | 0.50     | 1.63        | 9      | 3     |
| 1:A:182:LEU:CD1  | 1:A:184:LEU:HD13 | 0.50     | 2.37        | 26     | 6     |
| 1:A:209:LYS:O    | 1:A:217:ASP:CB   | 0.50     | 2.59        | 17     | 2     |
| 1:A:222:ASP:HB3  | 1:A:224:GLU:CG   | 0.50     | 2.37        | 14     | 2     |
| 1:A:180:SER:HB2  | 1:A:200:SER:OG   | 0.50     | 2.06        | 8      | 1     |
| 1:A:198:VAL:CG2  | 1:A:206:LEU:HD23 | 0.50     | 2.36        | 13     | 1     |
| 1:A:224:GLU:HG2  | 1:A:285:THR:HG22 | 0.50     | 1.83        | 20     | 1     |
| 1:A:230:ALA:HA   | 1:A:246:MET:HE3  | 0.50     | 1.84        | 28     | 1     |
| 1:A:243:LEU:HD22 | 1:A:281:ILE:HD11 | 0.50     | 1.83        | 5      | 1     |
| 1:A:249:LEU:HD21 | 1:A:250:ASN:OD1  | 0.50     | 2.05        | 9      | 1     |
| 1:A:259:ILE:HG12 | 1:A:260:SER:N    | 0.50     | 2.22        | 10     | 5     |
| 1:A:230:ALA:HB2  | 1:A:252:THR:CG2  | 0.50     | 2.36        | 11     | 1     |
| 1:A:212:ARG:CA   | 1:A:225:VAL:HG12 | 0.50     | 2.36        | 23     | 1     |
| 1:A:198:VAL:HG21 | 1:A:206:LEU:CA   | 0.50     | 2.36        | 25     | 4     |
| 1:A:180:SER:N    | 1:A:296:GLN:HB3  | 0.50     | 2.22        | 17     | 1     |
| 1:A:196:HIS:ND1  | 1:A:196:HIS:N    | 0.50     | 2.59        | 17     | 3     |
| 1:A:213:VAL:O    | 1:A:214:SER:CB   | 0.50     | 2.60        | 29     | 2     |
| 1:A:229:HIS:CD2  | 1:A:251:GLY:O    | 0.50     | 2.65        | 23     | 1     |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:HG   | 0.50     | 2.42        | 29     | 1     |
| 1:A:198:VAL:CG2  | 1:A:199:ASN:N    | 0.50     | 2.74        | 18     | 6     |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:O    | 0.50     | 2.64        | 29     | 2     |
| 1:A:182:LEU:O    | 1:A:197:ALA:CA   | 0.50     | 2.60        | 24     | 5     |
| 1:A:214:SER:HB3  | 1:A:215:PRO:CD   | 0.50     | 2.36        | 3      | 1     |
| 1:A:281:ILE:HG22 | 1:A:289:VAL:CG2  | 0.50     | 2.35        | 19     | 1     |
| 1:A:224:GLU:O    | 1:A:225:VAL:CG2  | 0.50     | 2.56        | 23     | 1     |
| 1:A:242:GLU:OE1  | 1:A:272:PRO:HB3  | 0.50     | 2.07        | 24     | 1     |
| 1:A:228:LYS:HB2  | 1:A:246:MET:SD   | 0.49     | 2.47        | 6      | 2     |
| 1:A:218:LEU:CG   | 1:A:220:LEU:HD21 | 0.49     | 2.37        | 11     | 2     |
| 1:A:187:ILE:CG2  | 1:A:288:LYS:HG3  | 0.49     | 2.37        | 14     | 4     |
| 1:A:206:LEU:HD21 | 1:A:234:TRP:HE3  | 0.49     | 1.67        | 24     | 2     |
| 1:A:246:MET:CE   | 1:A:269:TRP:CH2  | 0.49     | 2.95        | 30     | 1     |
| 1:A:241:TRP:CH2  | 1:A:293:ILE:CG2  | 0.49     | 2.96        | 24     | 3     |
| 1:A:231:GLN:HG2  | 1:A:246:MET:CE   | 0.49     | 2.36        | 28     | 3     |
| 1:A:252:THR:HG22 | 1:A:253:LEU:N    | 0.49     | 2.22        | 18     | 2     |
| 1:A:181:TRP:O    | 1:A:293:ILE:HG23 | 0.49     | 2.08        | 19     | 1     |
| 1:A:184:LEU:HD11 | 1:A:291:VAL:HG13 | 0.49     | 1.84        | 15     | 3     |
| 1:A:229:HIS:NE2  | 1:A:250:ASN:HB3  | 0.49     | 2.22        | 11     | 1     |
| 1:A:288:LYS:O    | 1:A:289:VAL:HG22 | 0.49     | 2.08        | 19     | 1     |
| 1:A:242:GLU:OE1  | 1:A:242:GLU:O    | 0.49     | 2.30        | 24     | 1     |
| 1:A:190:PRO:HB2  | 1:A:221:LYS:CG   | 0.49     | 2.36        | 29     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:279:ASP:O    | 1:A:291:VAL:HB   | 0.49     | 2.08        | 30     | 1     |
| 1:A:282:THR:OG1  | 1:A:288:LYS:HG2  | 0.49     | 2.07        | 30     | 1     |
| 1:A:246:MET:CE   | 1:A:246:MET:HA   | 0.49     | 2.38        | 5      | 2     |
| 1:A:190:PRO:HB2  | 1:A:221:LYS:HD2  | 0.49     | 1.84        | 19     | 2     |
| 1:A:278:ASP:N    | 1:A:291:VAL:O    | 0.49     | 2.44        | 15     | 3     |
| 1:A:186:VAL:HG21 | 1:A:194:LEU:CD1  | 0.49     | 2.38        | 21     | 1     |
| 1:A:202:SER:CB   | 1:A:205:LYS:HG2  | 0.49     | 2.37        | 26     | 2     |
| 1:A:243:LEU:HG   | 1:A:281:ILE:HG21 | 0.49     | 1.83        | 7      | 2     |
| 1:A:254:VAL:N    | 1:A:259:ILE:HD12 | 0.49     | 2.23        | 28     | 5     |
| 1:A:225:VAL:CG1  | 1:A:229:HIS:HB2  | 0.49     | 2.37        | 20     | 1     |
| 1:A:212:ARG:NH1  | 1:A:225:VAL:HG23 | 0.49     | 2.22        | 27     | 1     |
| 1:A:229:HIS:CE1  | 1:A:249:LEU:CD1  | 0.49     | 2.95        | 1      | 1     |
| 1:A:199:ASN:OD1  | 1:A:201:THR:HG23 | 0.49     | 2.08        | 28     | 1     |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:CB   | 0.48     | 2.96        | 17     | 6     |
| 1:A:224:GLU:HG3  | 1:A:285:THR:HG22 | 0.48     | 1.85        | 6      | 2     |
| 1:A:224:GLU:OE1  | 1:A:285:THR:HG22 | 0.48     | 2.07        | 7      | 2     |
| 1:A:232:ILE:HD13 | 1:A:275:LEU:HD13 | 0.48     | 1.83        | 23     | 1     |
| 1:A:229:HIS:CE1  | 1:A:250:ASN:HB2  | 0.48     | 2.43        | 25     | 3     |
| 1:A:259:ILE:HG13 | 1:A:260:SER:N    | 0.48     | 2.23        | 13     | 1     |
| 1:A:214:SER:HB3  | 1:A:228:LYS:HE2  | 0.48     | 1.85        | 6      | 3     |
| 1:A:224:GLU:HG2  | 1:A:284:GLY:HA2  | 0.48     | 1.85        | 13     | 1     |
| 1:A:245:ASP:C    | 1:A:269:TRP:HB3  | 0.48     | 2.28        | 21     | 1     |
| 1:A:214:SER:C    | 1:A:216:SER:H    | 0.48     | 2.12        | 10     | 9     |
| 1:A:269:TRP:HD1  | 1:A:270:GLY:O    | 0.48     | 1.92        | 10     | 1     |
| 1:A:192:ILE:O    | 1:A:192:ILE:HG22 | 0.48     | 2.07        | 17     | 2     |
| 1:A:268:LYS:HD3  | 1:A:269:TRP:CD1  | 0.48     | 2.44        | 21     | 1     |
| 1:A:282:THR:OG1  | 1:A:288:LYS:HB3  | 0.48     | 2.08        | 2      | 2     |
| 1:A:196:HIS:N    | 1:A:196:HIS:ND1  | 0.48     | 2.61        | 3      | 2     |
| 1:A:198:VAL:CG2  | 1:A:206:LEU:HG   | 0.48     | 2.38        | 20     | 2     |
| 1:A:212:ARG:CB   | 1:A:225:VAL:HG13 | 0.48     | 2.38        | 4      | 1     |
| 1:A:184:LEU:HB3  | 1:A:196:HIS:NE2  | 0.48     | 2.24        | 3      | 5     |
| 1:A:280:ILE:CG2  | 1:A:290:TYR:CD1  | 0.48     | 2.97        | 9      | 7     |
| 1:A:241:TRP:CZ3  | 1:A:293:ILE:CD1  | 0.48     | 2.97        | 9      | 1     |
| 1:A:198:VAL:CG2  | 1:A:206:LEU:HA   | 0.48     | 2.37        | 13     | 2     |
| 1:A:228:LYS:CB   | 1:A:246:MET:HG2  | 0.48     | 2.39        | 4      | 1     |
| 1:A:212:ARG:CB   | 1:A:225:VAL:HB   | 0.48     | 2.38        | 11     | 1     |
| 1:A:196:HIS:ND1  | 1:A:196:HIS:C    | 0.48     | 2.67        | 12     | 2     |
| 1:A:228:LYS:O    | 1:A:246:MET:HG3  | 0.48     | 2.08        | 18     | 2     |
| 1:A:196:HIS:CE1  | 1:A:218:LEU:HD22 | 0.48     | 2.42        | 18     | 1     |
| 1:A:252:THR:CG2  | 1:A:281:ILE:CD1  | 0.48     | 2.92        | 20     | 1     |
| 1:A:229:HIS:HE2  | 1:A:250:ASN:ND2  | 0.48     | 2.06        | 29     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:245:ASP:HB2  | 1:A:260:SER:CB   | 0.48     | 2.39        | 10     | 2     |
| 1:A:190:PRO:HG3  | 1:A:222:ASP:CA   | 0.48     | 2.39        | 20     | 1     |
| 1:A:209:LYS:O    | 1:A:218:LEU:N    | 0.48     | 2.47        | 28     | 1     |
| 1:A:279:ASP:O    | 1:A:291:VAL:CB   | 0.48     | 2.62        | 30     | 1     |
| 1:A:244:VAL:HG11 | 1:A:269:TRP:CE2  | 0.48     | 2.44        | 4      | 2     |
| 1:A:254:VAL:CG2  | 1:A:281:ILE:HD11 | 0.48     | 2.34        | 11     | 1     |
| 1:A:259:ILE:HD13 | 1:A:273:VAL:HG21 | 0.48     | 1.85        | 18     | 2     |
| 1:A:245:ASP:OD2  | 1:A:260:SER:O    | 0.48     | 2.32        | 29     | 1     |
| 1:A:231:GLN:CG   | 1:A:246:MET:CE   | 0.48     | 2.92        | 15     | 1     |
| 1:A:259:ILE:CB   | 1:A:273:VAL:HG11 | 0.48     | 2.38        | 24     | 1     |
| 1:A:269:TRP:CD1  | 1:A:269:TRP:O    | 0.48     | 2.67        | 30     | 1     |
| 1:A:225:VAL:O    | 1:A:225:VAL:HG22 | 0.47     | 2.09        | 21     | 1     |
| 1:A:211:GLY:HA3  | 1:A:228:LYS:HA   | 0.47     | 1.86        | 25     | 1     |
| 1:A:225:VAL:HB   | 1:A:229:HIS:ND1  | 0.47     | 2.24        | 29     | 1     |
| 1:A:283:LEU:N    | 1:A:283:LEU:CD1  | 0.47     | 2.78        | 24     | 7     |
| 1:A:245:ASP:OD2  | 1:A:260:SER:HB3  | 0.47     | 2.09        | 20     | 2     |
| 1:A:251:GLY:O    | 1:A:253:LEU:HD23 | 0.47     | 2.09        | 6      | 1     |
| 1:A:282:THR:HG23 | 1:A:287:THR:O    | 0.47     | 2.09        | 12     | 1     |
| 1:A:212:ARG:NH1  | 1:A:225:VAL:CG2  | 0.47     | 2.78        | 27     | 1     |
| 1:A:246:MET:CG   | 1:A:246:MET:O    | 0.47     | 2.61        | 1      | 2     |
| 1:A:182:LEU:HD12 | 1:A:183:PHE:H    | 0.47     | 1.67        | 12     | 4     |
| 1:A:182:LEU:O    | 1:A:197:ALA:CB   | 0.47     | 2.63        | 1      | 2     |
| 1:A:281:ILE:HD13 | 1:A:282:THR:H    | 0.47     | 1.68        | 2      | 1     |
| 1:A:225:VAL:HG13 | 1:A:225:VAL:O    | 0.47     | 2.08        | 12     | 4     |
| 1:A:259:ILE:HD12 | 1:A:260:SER:H    | 0.47     | 1.68        | 3      | 1     |
| 1:A:244:VAL:CG1  | 1:A:269:TRP:CZ2  | 0.47     | 2.96        | 10     | 3     |
| 1:A:252:THR:HG22 | 1:A:259:ILE:HD11 | 0.47     | 1.85        | 10     | 1     |
| 1:A:189:GLY:HA3  | 1:A:287:THR:HG23 | 0.47     | 1.87        | 15     | 1     |
| 1:A:245:ASP:N    | 1:A:269:TRP:HB3  | 0.47     | 2.23        | 21     | 1     |
| 1:A:280:ILE:HB   | 1:A:288:LYS:HD3  | 0.47     | 1.86        | 26     | 1     |
| 1:A:182:LEU:HB2  | 1:A:241:TRP:HZ3  | 0.47     | 1.68        | 8      | 2     |
| 1:A:184:LEU:HD21 | 1:A:232:ILE:CD1  | 0.47     | 2.39        | 11     | 1     |
| 1:A:206:LEU:CD1  | 1:A:234:TRP:CE3  | 0.47     | 2.97        | 15     | 2     |
| 1:A:190:PRO:HD3  | 1:A:222:ASP:OD2  | 0.47     | 2.10        | 27     | 1     |
| 1:A:229:HIS:NE2  | 1:A:250:ASN:ND2  | 0.47     | 2.63        | 29     | 1     |
| 1:A:181:TRP:CZ3  | 1:A:198:VAL:N    | 0.47     | 2.83        | 13     | 14    |
| 1:A:234:TRP:CD2  | 1:A:241:TRP:CE3  | 0.47     | 3.03        | 1      | 3     |
| 1:A:241:TRP:O    | 1:A:274:GLU:HG2  | 0.47     | 2.09        | 1      | 1     |
| 1:A:229:HIS:CG   | 1:A:248:SER:CB   | 0.47     | 2.98        | 25     | 1     |
| 1:A:278:ASP:HA   | 1:A:290:TYR:CZ   | 0.47     | 2.45        | 2      | 5     |
| 1:A:209:LYS:N    | 1:A:217:ASP:HB2  | 0.47     | 2.25        | 11     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:202:SER:OG   | 1:A:206:LEU:N    | 0.47     | 2.47        | 26     | 1     |
| 1:A:212:ARG:NH1  | 1:A:222:ASP:HB2  | 0.47     | 2.25        | 27     | 1     |
| 1:A:252:THR:HG23 | 1:A:283:LEU:HB3  | 0.47     | 1.86        | 27     | 1     |
| 1:A:228:LYS:HB3  | 1:A:246:MET:HG3  | 0.47     | 1.85        | 30     | 1     |
| 1:A:243:LEU:CB   | 1:A:275:LEU:HD12 | 0.47     | 2.40        | 30     | 1     |
| 1:A:202:SER:O    | 1:A:206:LEU:HB3  | 0.47     | 2.10        | 6      | 1     |
| 1:A:282:THR:HG23 | 1:A:288:LYS:HG2  | 0.47     | 1.87        | 29     | 2     |
| 1:A:246:MET:CA   | 1:A:269:TRP:CZ3  | 0.47     | 2.98        | 27     | 1     |
| 1:A:184:LEU:N    | 1:A:196:HIS:O    | 0.46     | 2.47        | 15     | 5     |
| 1:A:277:SER:O    | 1:A:278:ASP:CB   | 0.46     | 2.63        | 14     | 12    |
| 1:A:281:ILE:O    | 1:A:289:VAL:N    | 0.46     | 2.48        | 23     | 3     |
| 1:A:231:GLN:O    | 1:A:243:LEU:CD1  | 0.46     | 2.62        | 30     | 3     |
| 1:A:281:ILE:CD1  | 1:A:289:VAL:CG1  | 0.46     | 2.94        | 14     | 2     |
| 1:A:242:GLU:HB2  | 1:A:272:PRO:HB2  | 0.46     | 1.86        | 16     | 1     |
| 1:A:230:ALA:HB2  | 1:A:252:THR:OG1  | 0.46     | 2.10        | 11     | 1     |
| 1:A:206:LEU:HB2  | 1:A:234:TRP:CH2  | 0.46     | 2.46        | 25     | 3     |
| 1:A:259:ILE:CD1  | 1:A:259:ILE:H    | 0.46     | 2.22        | 29     | 7     |
| 1:A:245:ASP:O    | 1:A:269:TRP:CD2  | 0.46     | 2.68        | 12     | 4     |
| 1:A:231:GLN:HG2  | 1:A:232:ILE:N    | 0.46     | 2.25        | 29     | 2     |
| 1:A:196:HIS:HE2  | 1:A:210:LEU:HD21 | 0.46     | 1.69        | 3      | 2     |
| 1:A:185:GLU:HA   | 1:A:195:GLN:HG2  | 0.46     | 1.87        | 21     | 4     |
| 1:A:240:LYS:HE2  | 1:A:242:GLU:HG2  | 0.46     | 1.88        | 24     | 1     |
| 1:A:194:LEU:CD1  | 1:A:220:LEU:HD13 | 0.46     | 2.41        | 12     | 3     |
| 1:A:212:ARG:N    | 1:A:225:VAL:CG1  | 0.46     | 2.79        | 23     | 1     |
| 1:A:196:HIS:CE1  | 1:A:208:VAL:HG11 | 0.46     | 2.46        | 1      | 3     |
| 1:A:243:LEU:HD21 | 1:A:254:VAL:CG2  | 0.46     | 2.41        | 5      | 2     |
| 1:A:225:VAL:HA   | 1:A:229:HIS:CE1  | 0.46     | 2.46        | 11     | 1     |
| 1:A:271:ASN:O    | 1:A:273:VAL:HG23 | 0.46     | 2.11        | 19     | 1     |
| 1:A:184:LEU:CD1  | 1:A:291:VAL:HA   | 0.46     | 2.41        | 1      | 1     |
| 1:A:198:VAL:CG1  | 1:A:206:LEU:HD23 | 0.46     | 2.40        | 6      | 1     |
| 1:A:230:ALA:HB1  | 1:A:244:VAL:O    | 0.46     | 2.11        | 7      | 2     |
| 1:A:190:PRO:HD3  | 1:A:287:THR:OG1  | 0.46     | 2.11        | 15     | 1     |
| 1:A:190:PRO:HG3  | 1:A:222:ASP:HB3  | 0.46     | 1.88        | 23     | 1     |
| 1:A:242:GLU:CB   | 1:A:273:VAL:O    | 0.46     | 2.63        | 30     | 1     |
| 1:A:196:HIS:CB   | 1:A:208:VAL:HG11 | 0.46     | 2.40        | 4      | 1     |
| 1:A:181:TRP:CE3  | 1:A:198:VAL:N    | 0.46     | 2.84        | 26     | 3     |
| 1:A:241:TRP:O    | 1:A:274:GLU:CA   | 0.46     | 2.62        | 14     | 1     |
| 1:A:224:GLU:OE1  | 1:A:229:HIS:CE1  | 0.46     | 2.68        | 16     | 1     |
| 1:A:185:GLU:HG3  | 1:A:195:GLN:HG3  | 0.46     | 1.88        | 7      | 3     |
| 1:A:245:ASP:HB3  | 1:A:260:SER:OG   | 0.46     | 2.11        | 9      | 1     |
| 1:A:238:LYS:O    | 1:A:239:PHE:CG   | 0.46     | 2.69        | 11     | 7     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:243:LEU:O    | 1:A:273:VAL:N    | 0.46     | 2.47        | 8      | 4     |
| 1:A:249:LEU:CD2  | 1:A:250:ASN:N    | 0.46     | 2.72        | 20     | 3     |
| 1:A:185:GLU:C    | 1:A:289:VAL:HG12 | 0.46     | 2.32        | 24     | 3     |
| 1:A:282:THR:HA   | 1:A:288:LYS:HA   | 0.46     | 1.87        | 15     | 4     |
| 1:A:185:GLU:C    | 1:A:289:VAL:HG13 | 0.46     | 2.32        | 12     | 1     |
| 1:A:259:ILE:HG13 | 1:A:273:VAL:CG1  | 0.46     | 2.40        | 20     | 1     |
| 1:A:246:MET:SD   | 1:A:269:TRP:CZ2  | 0.46     | 3.09        | 27     | 1     |
| 1:A:181:TRP:CE2  | 1:A:199:ASN:OD1  | 0.45     | 2.69        | 23     | 4     |
| 1:A:196:HIS:NE2  | 1:A:217:ASP:HB3  | 0.45     | 2.25        | 8      | 2     |
| 1:A:238:LYS:O    | 1:A:238:LYS:HG3  | 0.45     | 2.11        | 11     | 1     |
| 1:A:196:HIS:NE2  | 1:A:218:LEU:HD11 | 0.45     | 2.23        | 17     | 1     |
| 1:A:190:PRO:HD2  | 1:A:222:ASP:OD1  | 0.45     | 2.11        | 23     | 1     |
| 1:A:229:HIS:CE1  | 1:A:249:LEU:HD13 | 0.45     | 2.46        | 3      | 1     |
| 1:A:181:TRP:CZ3  | 1:A:198:VAL:CA   | 0.45     | 3.00        | 13     | 5     |
| 1:A:229:HIS:CG   | 1:A:283:LEU:HB3  | 0.45     | 2.46        | 10     | 1     |
| 1:A:200:SER:HA   | 1:A:234:TRP:NE1  | 0.45     | 2.27        | 30     | 3     |
| 1:A:229:HIS:HA   | 1:A:248:SER:HB2  | 0.45     | 1.87        | 16     | 1     |
| 1:A:218:LEU:HG   | 1:A:220:LEU:HD21 | 0.45     | 1.88        | 18     | 1     |
| 1:A:234:TRP:HB2  | 1:A:241:TRP:HA   | 0.45     | 1.89        | 4      | 4     |
| 1:A:253:LEU:HB3  | 1:A:258:SER:HA   | 0.45     | 1.88        | 7      | 1     |
| 1:A:202:SER:OG   | 1:A:205:LYS:HG3  | 0.45     | 2.11        | 30     | 4     |
| 1:A:187:ILE:HG22 | 1:A:288:LYS:CB   | 0.45     | 2.41        | 19     | 1     |
| 1:A:246:MET:HA   | 1:A:246:MET:HE3  | 0.45     | 1.88        | 27     | 1     |
| 1:A:260:SER:O    | 1:A:270:GLY:HA2  | 0.45     | 2.12        | 30     | 1     |
| 1:A:206:LEU:CD2  | 1:A:234:TRP:CE3  | 0.45     | 2.99        | 8      | 2     |
| 1:A:253:LEU:HA   | 1:A:258:SER:HA   | 0.45     | 1.89        | 4      | 6     |
| 1:A:200:SER:HB2  | 1:A:234:TRP:NE1  | 0.45     | 2.27        | 13     | 1     |
| 1:A:224:GLU:CG   | 1:A:250:ASN:HB2  | 0.45     | 2.41        | 21     | 1     |
| 1:A:281:ILE:O    | 1:A:288:LYS:CA   | 0.45     | 2.65        | 22     | 1     |
| 1:A:247:GLY:O    | 1:A:249:LEU:N    | 0.45     | 2.49        | 25     | 1     |
| 1:A:282:THR:CG2  | 1:A:288:LYS:HG2  | 0.45     | 2.41        | 25     | 3     |
| 1:A:190:PRO:CG   | 1:A:222:ASP:OD1  | 0.45     | 2.64        | 5      | 1     |
| 1:A:208:VAL:O    | 1:A:231:GLN:CG   | 0.45     | 2.65        | 13     | 1     |
| 1:A:245:ASP:CB   | 1:A:260:SER:HB3  | 0.45     | 2.42        | 29     | 2     |
| 1:A:209:LYS:O    | 1:A:216:SER:HB3  | 0.45     | 2.11        | 12     | 2     |
| 1:A:181:TRP:CE3  | 1:A:183:PHE:CE2  | 0.45     | 3.05        | 17     | 1     |
| 1:A:191:ALA:CB   | 1:A:219:ALA:O    | 0.45     | 2.64        | 28     | 3     |
| 1:A:245:ASP:CG   | 1:A:260:SER:HA   | 0.45     | 2.32        | 22     | 1     |
| 1:A:229:HIS:O    | 1:A:246:MET:HG2  | 0.45     | 2.10        | 30     | 1     |
| 1:A:205:LYS:O    | 1:A:205:LYS:HG3  | 0.45     | 2.11        | 3      | 2     |
| 1:A:186:VAL:CA   | 1:A:289:VAL:HG23 | 0.45     | 2.42        | 8      | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:245:ASP:O    | 1:A:269:TRP:CG   | 0.45     | 2.69        | 30     | 2     |
| 1:A:232:ILE:HG12 | 1:A:243:LEU:CD1  | 0.45     | 2.42        | 11     | 2     |
| 1:A:245:ASP:O    | 1:A:269:TRP:CA   | 0.45     | 2.64        | 21     | 1     |
| 1:A:186:VAL:CA   | 1:A:289:VAL:HG13 | 0.45     | 2.41        | 24     | 1     |
| 1:A:259:ILE:H    | 1:A:259:ILE:HD12 | 0.45     | 1.71        | 24     | 1     |
| 1:A:209:LYS:HG3  | 1:A:216:SER:HA   | 0.45     | 1.88        | 25     | 1     |
| 1:A:259:ILE:CD1  | 1:A:260:SER:N    | 0.45     | 2.79        | 3      | 4     |
| 1:A:235:ASN:N    | 1:A:240:LYS:O    | 0.45     | 2.43        | 7      | 2     |
| 1:A:244:VAL:CG2  | 1:A:269:TRP:NE1  | 0.45     | 2.80        | 12     | 1     |
| 1:A:219:ALA:C    | 1:A:220:LEU:HD22 | 0.45     | 2.31        | 18     | 1     |
| 1:A:184:LEU:HD13 | 1:A:196:HIS:NE2  | 0.45     | 2.26        | 24     | 1     |
| 1:A:241:TRP:CZ3  | 1:A:293:ILE:HD13 | 0.45     | 2.47        | 2      | 2     |
| 1:A:200:SER:OG   | 1:A:241:TRP:CH2  | 0.45     | 2.71        | 14     | 1     |
| 1:A:243:LEU:C    | 1:A:243:LEU:CD1  | 0.44     | 2.86        | 1      | 12    |
| 1:A:231:GLN:O    | 1:A:243:LEU:CB   | 0.44     | 2.65        | 28     | 10    |
| 1:A:275:LEU:HD22 | 1:A:275:LEU:C    | 0.44     | 2.33        | 22     | 11    |
| 1:A:196:HIS:CD2  | 1:A:218:LEU:HD11 | 0.44     | 2.47        | 6      | 1     |
| 1:A:243:LEU:HD23 | 1:A:275:LEU:HD11 | 0.44     | 1.88        | 9      | 1     |
| 1:A:182:LEU:CD1  | 1:A:184:LEU:CD1  | 0.44     | 2.94        | 29     | 3     |
| 1:A:229:HIS:HD2  | 1:A:283:LEU:HB2  | 0.44     | 1.72        | 11     | 1     |
| 1:A:184:LEU:HD12 | 1:A:289:VAL:CG1  | 0.44     | 2.40        | 17     | 1     |
| 1:A:255:ASN:HA   | 1:A:280:ILE:HD11 | 0.44     | 1.89        | 17     | 1     |
| 1:A:209:LYS:HD2  | 1:A:216:SER:HA   | 0.44     | 1.87        | 30     | 1     |
| 1:A:209:LYS:O    | 1:A:217:ASP:N    | 0.44     | 2.50        | 28     | 4     |
| 1:A:241:TRP:HB2  | 1:A:275:LEU:CD2  | 0.44     | 2.42        | 1      | 3     |
| 1:A:230:ALA:C    | 1:A:246:MET:HE3  | 0.44     | 2.32        | 15     | 1     |
| 1:A:288:LYS:C    | 1:A:289:VAL:CG2  | 0.44     | 2.86        | 19     | 1     |
| 1:A:210:LEU:HD13 | 1:A:210:LEU:H    | 0.44     | 1.72        | 28     | 1     |
| 1:A:181:TRP:CZ3  | 1:A:198:VAL:HA   | 0.44     | 2.48        | 26     | 2     |
| 1:A:280:ILE:HD13 | 1:A:288:LYS:NZ   | 0.44     | 2.27        | 11     | 1     |
| 1:A:259:ILE:CG1  | 1:A:260:SER:N    | 0.44     | 2.81        | 13     | 1     |
| 1:A:268:LYS:HE3  | 1:A:269:TRP:HB2  | 0.44     | 1.88        | 20     | 1     |
| 1:A:238:LYS:HG2  | 1:A:240:LYS:HG2  | 0.44     | 1.89        | 24     | 1     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:CG1  | 0.44     | 2.27        | 16     | 1     |
| 1:A:277:SER:HA   | 1:A:292:ARG:HA   | 0.44     | 1.88        | 25     | 1     |
| 1:A:245:ASP:N    | 1:A:245:ASP:OD1  | 0.44     | 2.51        | 29     | 1     |
| 1:A:184:LEU:HG   | 1:A:196:HIS:CD2  | 0.44     | 2.47        | 18     | 2     |
| 1:A:252:THR:HB   | 1:A:259:ILE:HD11 | 0.44     | 1.88        | 4      | 1     |
| 1:A:251:GLY:CA   | 1:A:260:SER:OG   | 0.44     | 2.65        | 22     | 1     |
| 1:A:273:VAL:HG12 | 1:A:274:GLU:N    | 0.44     | 2.28        | 30     | 1     |
| 1:A:234:TRP:CZ3  | 1:A:241:TRP:CZ3  | 0.44     | 3.05        | 10     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:196:HIS:CG   | 1:A:208:VAL:HG21 | 0.44     | 2.47        | 12     | 1     |
| 1:A:253:LEU:N    | 1:A:253:LEU:CD2  | 0.44     | 2.81        | 26     | 4     |
| 1:A:182:LEU:O    | 1:A:197:ALA:HB1  | 0.44     | 2.12        | 1      | 1     |
| 1:A:180:SER:O    | 1:A:199:ASN:OD1  | 0.44     | 2.35        | 11     | 1     |
| 1:A:209:LYS:HB2  | 1:A:217:ASP:N    | 0.44     | 2.28        | 22     | 1     |
| 1:A:205:LYS:O    | 1:A:205:LYS:CG   | 0.44     | 2.66        | 23     | 2     |
| 1:A:238:LYS:CG   | 1:A:240:LYS:HG2  | 0.44     | 2.43        | 24     | 1     |
| 1:A:211:GLY:HA3  | 1:A:216:SER:OG   | 0.44     | 2.13        | 27     | 1     |
| 1:A:238:LYS:HD2  | 1:A:240:LYS:HE2  | 0.43     | 1.89        | 8      | 1     |
| 1:A:245:ASP:OD2  | 1:A:260:SER:HA   | 0.43     | 2.13        | 13     | 1     |
| 1:A:199:ASN:O    | 1:A:202:SER:HB2  | 0.43     | 2.13        | 30     | 2     |
| 1:A:240:LYS:CD   | 1:A:242:GLU:HG3  | 0.43     | 2.43        | 24     | 1     |
| 1:A:212:ARG:HD3  | 1:A:222:ASP:O    | 0.43     | 2.12        | 27     | 1     |
| 1:A:210:LEU:HD13 | 1:A:231:GLN:HA   | 0.43     | 1.89        | 28     | 1     |
| 1:A:234:TRP:CZ2  | 1:A:241:TRP:CZ3  | 0.43     | 3.06        | 1      | 1     |
| 1:A:184:LEU:CB   | 1:A:196:HIS:NE2  | 0.43     | 2.80        | 18     | 3     |
| 1:A:198:VAL:HG11 | 1:A:206:LEU:HG   | 0.43     | 1.90        | 3      | 3     |
| 1:A:280:ILE:HD13 | 1:A:288:LYS:HD3  | 0.43     | 1.89        | 9      | 1     |
| 1:A:245:ASP:HB3  | 1:A:269:TRP:O    | 0.43     | 2.13        | 10     | 1     |
| 1:A:275:LEU:H    | 1:A:275:LEU:CD1  | 0.43     | 2.22        | 17     | 2     |
| 1:A:186:VAL:HA   | 1:A:289:VAL:CG1  | 0.43     | 2.44        | 18     | 1     |
| 1:A:234:TRP:CZ3  | 1:A:241:TRP:CH2  | 0.43     | 3.06        | 10     | 1     |
| 1:A:229:HIS:HB3  | 1:A:283:LEU:HD22 | 0.43     | 1.90        | 16     | 1     |
| 1:A:249:LEU:HD22 | 1:A:249:LEU:O    | 0.43     | 2.12        | 18     | 1     |
| 1:A:208:VAL:O    | 1:A:210:LEU:HD12 | 0.43     | 2.13        | 25     | 1     |
| 1:A:232:ILE:HG12 | 1:A:243:LEU:HB3  | 0.43     | 1.90        | 9      | 1     |
| 1:A:222:ASP:HB3  | 1:A:224:GLU:HG3  | 0.43     | 1.90        | 20     | 1     |
| 1:A:194:LEU:HD13 | 1:A:219:ALA:O    | 0.43     | 2.13        | 26     | 1     |
| 1:A:259:ILE:CG1  | 1:A:273:VAL:HG11 | 0.43     | 2.39        | 20     | 1     |
| 1:A:184:LEU:CD2  | 1:A:196:HIS:CG   | 0.43     | 2.97        | 26     | 1     |
| 1:A:238:LYS:C    | 1:A:239:PHE:CG   | 0.43     | 2.92        | 11     | 3     |
| 1:A:229:HIS:CG   | 1:A:283:LEU:O    | 0.43     | 2.72        | 20     | 2     |
| 1:A:229:HIS:CE1  | 1:A:250:ASN:CB   | 0.43     | 3.02        | 11     | 1     |
| 1:A:232:ILE:HG12 | 1:A:243:LEU:CD2  | 0.43     | 2.44        | 12     | 1     |
| 1:A:218:LEU:CB   | 1:A:220:LEU:HD21 | 0.43     | 2.44        | 25     | 1     |
| 1:A:229:HIS:CG   | 1:A:248:SER:HB3  | 0.43     | 2.49        | 25     | 1     |
| 1:A:229:HIS:ND1  | 1:A:248:SER:HB3  | 0.43     | 2.28        | 25     | 1     |
| 1:A:235:ASN:HB2  | 1:A:240:LYS:HD2  | 0.43     | 1.91        | 27     | 1     |
| 1:A:180:SER:O    | 1:A:199:ASN:ND2  | 0.43     | 2.51        | 2      | 1     |
| 1:A:235:ASN:CB   | 1:A:240:LYS:CD   | 0.43     | 2.96        | 3      | 1     |
| 1:A:231:GLN:CG   | 1:A:246:MET:HG3  | 0.43     | 2.43        | 7      | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:244:VAL:HG21 | 1:A:269:TRP:HE1  | 0.43     | 1.74        | 14     | 3     |
| 1:A:190:PRO:HG3  | 1:A:222:ASP:HB2  | 0.43     | 1.90        | 14     | 2     |
| 1:A:212:ARG:CZ   | 1:A:225:VAL:CG2  | 0.43     | 2.97        | 27     | 1     |
| 1:A:212:ARG:NH1  | 1:A:222:ASP:CB   | 0.43     | 2.81        | 27     | 1     |
| 1:A:206:LEU:CD2  | 1:A:234:TRP:CZ3  | 0.43     | 3.02        | 30     | 1     |
| 1:A:269:TRP:CD1  | 1:A:270:GLY:O    | 0.43     | 2.71        | 10     | 1     |
| 1:A:212:ARG:HB2  | 1:A:225:VAL:CB   | 0.43     | 2.44        | 20     | 2     |
| 1:A:206:LEU:O    | 1:A:206:LEU:CD2  | 0.43     | 2.57        | 12     | 1     |
| 1:A:180:SER:OG   | 1:A:200:SER:HB3  | 0.43     | 2.13        | 15     | 1     |
| 1:A:283:LEU:N    | 1:A:283:LEU:HD22 | 0.43     | 2.27        | 15     | 1     |
| 1:A:232:ILE:CD1  | 1:A:243:LEU:HD11 | 0.43     | 2.44        | 16     | 1     |
| 1:A:243:LEU:C    | 1:A:243:LEU:HD12 | 0.43     | 2.33        | 25     | 1     |
| 1:A:238:LYS:O    | 1:A:239:PHE:C    | 0.43     | 2.55        | 14     | 9     |
| 1:A:210:LEU:HD12 | 1:A:230:ALA:C    | 0.43     | 2.34        | 3      | 2     |
| 1:A:281:ILE:CD1  | 1:A:289:VAL:HG23 | 0.43     | 2.40        | 6      | 1     |
| 1:A:280:ILE:CG2  | 1:A:290:TYR:HD1  | 0.43     | 2.27        | 11     | 4     |
| 1:A:191:ALA:HB2  | 1:A:219:ALA:O    | 0.43     | 2.14        | 17     | 1     |
| 1:A:224:GLU:CD   | 1:A:225:VAL:HG22 | 0.43     | 2.33        | 20     | 1     |
| 1:A:233:THR:O    | 1:A:242:GLU:OE2  | 0.43     | 2.37        | 24     | 1     |
| 1:A:212:ARG:HG3  | 1:A:220:LEU:O    | 0.43     | 2.14        | 27     | 1     |
| 1:A:281:ILE:HD12 | 1:A:289:VAL:HG21 | 0.43     | 1.88        | 6      | 1     |
| 1:A:229:HIS:CB   | 1:A:283:LEU:HB3  | 0.43     | 2.44        | 10     | 1     |
| 1:A:208:VAL:C    | 1:A:231:GLN:HG3  | 0.43     | 2.34        | 12     | 2     |
| 1:A:281:ILE:O    | 1:A:283:LEU:HD13 | 0.43     | 2.13        | 15     | 1     |
| 1:A:255:ASN:O    | 1:A:255:ASN:OD1  | 0.43     | 2.37        | 19     | 1     |
| 1:A:254:VAL:N    | 1:A:257:HIS:O    | 0.42     | 2.48        | 9      | 1     |
| 1:A:279:ASP:OD2  | 1:A:291:VAL:HB   | 0.42     | 2.14        | 27     | 2     |
| 1:A:210:LEU:HD22 | 1:A:289:VAL:HG21 | 0.42     | 1.91        | 10     | 1     |
| 1:A:254:VAL:HG12 | 1:A:279:ASP:OD1  | 0.42     | 2.13        | 13     | 1     |
| 1:A:246:MET:CE   | 1:A:269:TRP:HZ3  | 0.42     | 2.26        | 15     | 2     |
| 1:A:245:ASP:H    | 1:A:269:TRP:CB   | 0.42     | 2.27        | 21     | 1     |
| 1:A:245:ASP:OD1  | 1:A:252:THR:CB   | 0.42     | 2.67        | 26     | 1     |
| 1:A:213:VAL:HG22 | 1:A:213:VAL:O    | 0.42     | 2.14        | 4      | 3     |
| 1:A:206:LEU:N    | 1:A:207:PRO:HD3  | 0.42     | 2.28        | 12     | 1     |
| 1:A:283:LEU:N    | 1:A:287:THR:O    | 0.42     | 2.48        | 13     | 1     |
| 1:A:281:ILE:O    | 1:A:283:LEU:CD1  | 0.42     | 2.67        | 15     | 2     |
| 1:A:190:PRO:CG   | 1:A:222:ASP:HB2  | 0.42     | 2.44        | 26     | 1     |
| 1:A:278:ASP:O    | 1:A:290:TYR:CE1  | 0.42     | 2.71        | 15     | 2     |
| 1:A:281:ILE:O    | 1:A:288:LYS:CG   | 0.42     | 2.68        | 4      | 1     |
| 1:A:180:SER:OG   | 1:A:295:SER:HA   | 0.42     | 2.15        | 10     | 1     |
| 1:A:200:SER:CB   | 1:A:234:TRP:HZ2  | 0.42     | 2.27        | 10     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:196:HIS:CE1  | 1:A:208:VAL:CG2  | 0.42     | 2.98        | 12     | 1     |
| 1:A:210:LEU:N    | 1:A:210:LEU:CD1  | 0.42     | 2.81        | 17     | 1     |
| 1:A:185:GLU:HB2  | 1:A:195:GLN:HG2  | 0.42     | 1.91        | 28     | 1     |
| 1:A:224:GLU:OE1  | 1:A:225:VAL:N    | 0.42     | 2.52        | 10     | 2     |
| 1:A:199:ASN:OD1  | 1:A:201:THR:HG22 | 0.42     | 2.14        | 3      | 1     |
| 1:A:253:LEU:CG   | 1:A:282:THR:HB   | 0.42     | 2.44        | 15     | 2     |
| 1:A:254:VAL:CG2  | 1:A:259:ILE:HG12 | 0.42     | 2.44        | 22     | 2     |
| 1:A:196:HIS:CE1  | 1:A:289:VAL:HG21 | 0.42     | 2.49        | 17     | 1     |
| 1:A:248:SER:HB3  | 1:A:260:SER:OG   | 0.42     | 2.13        | 24     | 1     |
| 1:A:254:VAL:CG2  | 1:A:259:ILE:CG1  | 0.42     | 2.98        | 1      | 2     |
| 1:A:182:LEU:HA   | 1:A:293:ILE:HG23 | 0.42     | 1.90        | 23     | 1     |
| 1:A:206:LEU:HD23 | 1:A:207:PRO:N    | 0.42     | 2.30        | 24     | 1     |
| 1:A:181:TRP:NE1  | 1:A:199:ASN:OD1  | 0.42     | 2.53        | 2      | 1     |
| 1:A:240:LYS:HG2  | 1:A:241:TRP:N    | 0.42     | 2.30        | 3      | 1     |
| 1:A:181:TRP:HZ3  | 1:A:198:VAL:N    | 0.42     | 2.11        | 13     | 3     |
| 1:A:190:PRO:HG3  | 1:A:222:ASP:HA   | 0.42     | 1.91        | 10     | 1     |
| 1:A:218:LEU:CG   | 1:A:220:LEU:CD2  | 0.42     | 2.97        | 11     | 1     |
| 1:A:254:VAL:O    | 1:A:255:ASN:CG   | 0.42     | 2.58        | 16     | 2     |
| 1:A:182:LEU:N    | 1:A:198:VAL:O    | 0.42     | 2.52        | 20     | 2     |
| 1:A:209:LYS:CB   | 1:A:216:SER:HA   | 0.42     | 2.44        | 30     | 1     |
| 1:A:230:ALA:HA   | 1:A:246:MET:CE   | 0.42     | 2.45        | 15     | 1     |
| 1:A:183:PHE:O    | 1:A:292:ARG:HG3  | 0.42     | 2.14        | 22     | 1     |
| 1:A:242:GLU:CA   | 1:A:273:VAL:O    | 0.42     | 2.68        | 4      | 2     |
| 1:A:240:LYS:C    | 1:A:241:TRP:CD1  | 0.42     | 2.93        | 8      | 1     |
| 1:A:214:SER:O    | 1:A:216:SER:N    | 0.42     | 2.51        | 10     | 2     |
| 1:A:220:LEU:HB3  | 1:A:222:ASP:OD1  | 0.42     | 2.14        | 10     | 1     |
| 1:A:183:PHE:N    | 1:A:183:PHE:CD1  | 0.42     | 2.88        | 13     | 1     |
| 1:A:213:VAL:O    | 1:A:214:SER:HB2  | 0.42     | 2.14        | 29     | 1     |
| 1:A:222:ASP:CG   | 1:A:287:THR:HG1  | 0.42     | 2.17        | 29     | 1     |
| 1:A:187:ILE:CG2  | 1:A:288:LYS:HB3  | 0.42     | 2.44        | 13     | 2     |
| 1:A:210:LEU:HD21 | 1:A:230:ALA:CB   | 0.42     | 2.37        | 28     | 1     |
| 1:A:212:ARG:CB   | 1:A:225:VAL:O    | 0.42     | 2.68        | 2      | 7     |
| 1:A:245:ASP:CG   | 1:A:260:SER:HB2  | 0.42     | 2.35        | 2      | 1     |
| 1:A:196:HIS:CD2  | 1:A:208:VAL:CG1  | 0.42     | 3.02        | 5      | 1     |
| 1:A:232:ILE:HA   | 1:A:243:LEU:HD12 | 0.42     | 1.91        | 16     | 1     |
| 1:A:189:GLY:O    | 1:A:192:ILE:HG13 | 0.42     | 2.15        | 26     | 1     |
| 1:A:212:ARG:HD3  | 1:A:222:ASP:N    | 0.42     | 2.30        | 27     | 1     |
| 1:A:249:LEU:C    | 1:A:249:LEU:CD2  | 0.41     | 2.88        | 4      | 1     |
| 1:A:257:HIS:O    | 1:A:259:ILE:N    | 0.41     | 2.53        | 11     | 3     |
| 1:A:283:LEU:HD13 | 1:A:283:LEU:H    | 0.41     | 1.73        | 9      | 1     |
| 1:A:202:SER:HG   | 1:A:206:LEU:HB3  | 0.41     | 1.75        | 12     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:220:LEU:HG   | 1:A:287:THR:HG21 | 0.41     | 1.91        | 17     | 1     |
| 1:A:249:LEU:C    | 1:A:249:LEU:CD1  | 0.41     | 2.88        | 18     | 1     |
| 1:A:214:SER:N    | 1:A:215:PRO:HD2  | 0.41     | 2.30        | 19     | 1     |
| 1:A:238:LYS:HG3  | 1:A:238:LYS:O    | 0.41     | 2.14        | 26     | 2     |
| 1:A:183:PHE:N    | 1:A:292:ARG:O    | 0.41     | 2.53        | 26     | 2     |
| 1:A:281:ILE:O    | 1:A:281:ILE:HG23 | 0.41     | 2.13        | 27     | 1     |
| 1:A:241:TRP:CE3  | 1:A:275:LEU:O    | 0.41     | 2.73        | 28     | 1     |
| 1:A:241:TRP:O    | 1:A:275:LEU:HD13 | 0.41     | 2.14        | 1      | 1     |
| 1:A:286:THR:O    | 1:A:288:LYS:HD2  | 0.41     | 2.15        | 6      | 2     |
| 1:A:259:ILE:C    | 1:A:259:ILE:CD1  | 0.41     | 2.88        | 5      | 1     |
| 1:A:244:VAL:HG13 | 1:A:246:MET:HE1  | 0.41     | 1.92        | 15     | 1     |
| 1:A:220:LEU:C    | 1:A:222:ASP:N    | 0.41     | 2.73        | 19     | 1     |
| 1:A:271:ASN:O    | 1:A:272:PRO:C    | 0.41     | 2.58        | 19     | 1     |
| 1:A:199:ASN:OD1  | 1:A:199:ASN:N    | 0.41     | 2.52        | 22     | 1     |
| 1:A:187:ILE:CG2  | 1:A:288:LYS:CG   | 0.41     | 2.97        | 23     | 2     |
| 1:A:190:PRO:HG2  | 1:A:222:ASP:OD1  | 0.41     | 2.15        | 23     | 1     |
| 1:A:229:HIS:CD2  | 1:A:248:SER:OG   | 0.41     | 2.73        | 23     | 1     |
| 1:A:184:LEU:CD1  | 1:A:196:HIS:CD2  | 0.41     | 2.90        | 24     | 1     |
| 1:A:200:SER:CB   | 1:A:234:TRP:NE1  | 0.41     | 2.83        | 24     | 1     |
| 1:A:221:LYS:HG3  | 1:A:221:LYS:O    | 0.41     | 2.14        | 29     | 1     |
| 1:A:182:LEU:CD2  | 1:A:234:TRP:HZ3  | 0.41     | 2.27        | 30     | 1     |
| 1:A:209:LYS:HB3  | 1:A:216:SER:HA   | 0.41     | 1.92        | 1      | 2     |
| 1:A:206:LEU:O    | 1:A:208:VAL:HG23 | 0.41     | 2.15        | 9      | 1     |
| 1:A:249:LEU:CD1  | 1:A:249:LEU:H    | 0.41     | 2.29        | 11     | 1     |
| 1:A:248:SER:CB   | 1:A:260:SER:OG   | 0.41     | 2.68        | 24     | 1     |
| 1:A:203:SER:O    | 1:A:206:LEU:CD1  | 0.41     | 2.69        | 26     | 1     |
| 1:A:231:GLN:OE1  | 1:A:269:TRP:CH2  | 0.41     | 2.73        | 7      | 1     |
| 1:A:231:GLN:HG2  | 1:A:246:MET:HG3  | 0.41     | 1.93        | 7      | 1     |
| 1:A:200:SER:OG   | 1:A:241:TRP:CZ2  | 0.41     | 2.73        | 14     | 1     |
| 1:A:245:ASP:OD2  | 1:A:252:THR:HB   | 0.41     | 2.15        | 28     | 2     |
| 1:A:209:LYS:HD2  | 1:A:228:LYS:CD   | 0.41     | 2.45        | 15     | 1     |
| 1:A:259:ILE:HD13 | 1:A:259:ILE:N    | 0.41     | 2.31        | 27     | 3     |
| 1:A:180:SER:O    | 1:A:181:TRP:CG   | 0.41     | 2.74        | 26     | 1     |
| 1:A:200:SER:CA   | 1:A:234:TRP:CZ2  | 0.41     | 2.94        | 26     | 1     |
| 1:A:212:ARG:HE   | 1:A:212:ARG:CA   | 0.41     | 2.28        | 27     | 1     |
| 1:A:189:GLY:C    | 1:A:191:ALA:H    | 0.41     | 2.18        | 30     | 1     |
| 1:A:181:TRP:CD1  | 1:A:199:ASN:OD1  | 0.41     | 2.73        | 1      | 1     |
| 1:A:225:VAL:O    | 1:A:226:SER:C    | 0.41     | 2.59        | 8      | 1     |
| 1:A:198:VAL:CG1  | 1:A:234:TRP:CH2  | 0.41     | 2.97        | 9      | 1     |
| 1:A:194:LEU:HD21 | 1:A:219:ALA:HB3  | 0.41     | 1.92        | 10     | 1     |
| 1:A:225:VAL:CG1  | 1:A:229:HIS:CG   | 0.41     | 3.00        | 11     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:187:ILE:CG2  | 1:A:288:LYS:CB   | 0.41     | 2.98        | 19     | 1     |
| 1:A:229:HIS:O    | 1:A:245:ASP:HA   | 0.41     | 2.15        | 21     | 1     |
| 1:A:235:ASN:CB   | 1:A:240:LYS:HD2  | 0.41     | 2.46        | 28     | 1     |
| 1:A:183:PHE:CD2  | 1:A:197:ALA:CB   | 0.41     | 3.03        | 13     | 1     |
| 1:A:200:SER:HA   | 1:A:234:TRP:HE1  | 0.41     | 1.74        | 14     | 2     |
| 1:A:184:LEU:HB2  | 1:A:196:HIS:NE2  | 0.41     | 2.30        | 4      | 1     |
| 1:A:196:HIS:CD2  | 1:A:208:VAL:HG22 | 0.41     | 2.51        | 5      | 1     |
| 1:A:202:SER:OG   | 1:A:205:LYS:CG   | 0.41     | 2.69        | 9      | 1     |
| 1:A:254:VAL:CG2  | 1:A:259:ILE:HD12 | 0.41     | 2.35        | 14     | 1     |
| 1:A:220:LEU:N    | 1:A:220:LEU:HD22 | 0.41     | 2.30        | 22     | 1     |
| 1:A:225:VAL:CG1  | 1:A:225:VAL:O    | 0.41     | 2.68        | 23     | 1     |
| 1:A:200:SER:OG   | 1:A:234:TRP:NE1  | 0.41     | 2.54        | 24     | 1     |
| 1:A:275:LEU:O    | 1:A:275:LEU:HD22 | 0.41     | 2.14        | 16     | 1     |
| 1:A:230:ALA:CA   | 1:A:246:MET:HE3  | 0.41     | 2.45        | 28     | 1     |
| 1:A:229:HIS:NE2  | 1:A:283:LEU:O    | 0.41     | 2.54        | 29     | 1     |
| 1:A:222:ASP:N    | 1:A:222:ASP:OD1  | 0.41     | 2.53        | 10     | 2     |
| 1:A:239:PHE:O    | 1:A:239:PHE:CD2  | 0.41     | 2.74        | 13     | 1     |
| 1:A:243:LEU:HD12 | 1:A:243:LEU:HA   | 0.41     | 1.74        | 16     | 1     |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:CA   | 0.41     | 3.04        | 20     | 1     |
| 1:A:230:ALA:HA   | 1:A:244:VAL:O    | 0.41     | 2.16        | 21     | 1     |
| 1:A:208:VAL:N    | 1:A:232:ILE:O    | 0.41     | 2.53        | 22     | 2     |
| 1:A:240:LYS:HD3  | 1:A:242:GLU:HG3  | 0.41     | 1.92        | 24     | 1     |
| 1:A:222:ASP:HB3  | 1:A:224:GLU:HG2  | 0.41     | 1.93        | 25     | 1     |
| 1:A:229:HIS:CD2  | 1:A:248:SER:HB3  | 0.41     | 2.51        | 25     | 1     |
| 1:A:184:LEU:H    | 1:A:184:LEU:CD2  | 0.41     | 2.22        | 26     | 1     |
| 1:A:182:LEU:CB   | 1:A:234:TRP:CZ3  | 0.41     | 3.04        | 27     | 1     |
| 1:A:186:VAL:CG2  | 1:A:194:LEU:HD12 | 0.41     | 2.31        | 27     | 1     |
| 1:A:244:VAL:CG2  | 1:A:269:TRP:O    | 0.41     | 2.63        | 27     | 1     |
| 1:A:268:LYS:CG   | 1:A:269:TRP:N    | 0.41     | 2.84        | 30     | 1     |
| 1:A:235:ASN:HB3  | 1:A:240:LYS:HD2  | 0.41     | 1.92        | 8      | 1     |
| 1:A:229:HIS:CD2  | 1:A:283:LEU:C    | 0.41     | 2.94        | 20     | 1     |
| 1:A:213:VAL:O    | 1:A:213:VAL:CG1  | 0.40     | 2.69        | 1      | 1     |
| 1:A:245:ASP:HB3  | 1:A:248:SER:HB2  | 0.40     | 1.93        | 6      | 1     |
| 1:A:225:VAL:O    | 1:A:227:GLY:N    | 0.40     | 2.53        | 10     | 1     |
| 1:A:234:TRP:HB2  | 1:A:241:TRP:CD1  | 0.40     | 2.51        | 10     | 1     |
| 1:A:245:ASP:OD2  | 1:A:252:THR:CB   | 0.40     | 2.69        | 14     | 1     |
| 1:A:249:LEU:HD13 | 1:A:249:LEU:C    | 0.40     | 2.36        | 21     | 2     |
| 1:A:246:MET:CB   | 1:A:269:TRP:CZ3  | 0.40     | 3.04        | 27     | 1     |
| 1:A:250:ASN:HD22 | 1:A:251:GLY:N    | 0.40     | 2.14        | 29     | 1     |
| 1:A:233:THR:O    | 1:A:242:GLU:O    | 0.40     | 2.39        | 14     | 1     |
| 1:A:224:GLU:O    | 1:A:249:LEU:CD1  | 0.40     | 2.64        | 19     | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:238:LYS:HE3  | 1:A:239:PHE:CE1  | 0.40     | 2.51        | 21     | 1     |
| 1:A:199:ASN:HB2  | 1:A:201:THR:HG22 | 0.40     | 1.94        | 25     | 1     |
| 1:A:246:MET:SD   | 1:A:269:TRP:CZ3  | 0.40     | 3.15        | 25     | 2     |
| 1:A:192:ILE:HD12 | 1:A:192:ILE:HA   | 0.40     | 1.75        | 11     | 1     |
| 1:A:235:ASN:ND2  | 1:A:235:ASN:O    | 0.40     | 2.54        | 11     | 1     |
| 1:A:184:LEU:CD2  | 1:A:196:HIS:HB3  | 0.40     | 2.46        | 13     | 1     |
| 1:A:235:ASN:HB3  | 1:A:240:LYS:HB2  | 0.40     | 1.92        | 13     | 1     |
| 1:A:208:VAL:HG13 | 1:A:217:ASP:HB3  | 0.40     | 1.92        | 25     | 1     |
| 1:A:238:LYS:O    | 1:A:238:LYS:HD3  | 0.40     | 2.16        | 20     | 1     |
| 1:A:259:ILE:HD12 | 1:A:259:ILE:N    | 0.40     | 2.31        | 24     | 1     |
| 1:A:235:ASN:O    | 1:A:239:PHE:HA   | 0.40     | 2.16        | 25     | 1     |
| 1:A:184:LEU:CD2  | 1:A:184:LEU:H    | 0.40     | 2.30        | 30     | 1     |
| 1:A:241:TRP:HB2  | 1:A:275:LEU:HD21 | 0.40     | 1.93        | 4      | 1     |
| 1:A:269:TRP:HA   | 1:A:269:TRP:CE3  | 0.40     | 2.51        | 5      | 1     |
| 1:A:246:MET:SD   | 1:A:269:TRP:CH2  | 0.40     | 3.15        | 17     | 1     |
| 1:A:182:LEU:HG   | 1:A:198:VAL:HG12 | 0.40     | 1.92        | 20     | 1     |
| 1:A:211:GLY:HA2  | 1:A:225:VAL:HG21 | 0.40     | 1.93        | 25     | 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     | 110/139 (79%)   | 82±3 (74±3%) | 20±3 (18±3%) | 8±2 (8±2%) | 2           | 15 |
| All | All   | 3300/4170 (79%) | 2447 (74%)   | 598 (18%)    | 255 (8%)   | 2           | 15 |

All 26 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     | 221 | LYS  | 30             |
| 1   | A     | 227 | GLY  | 28             |
| 1   | A     | 207 | PRO  | 27             |
| 1   | A     | 214 | SER  | 25             |
| 1   | A     | 258 | SER  | 25             |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 192 | ILE  | 24             |
| 1   | A     | 215 | PRO  | 11             |
| 1   | A     | 216 | SER  | 10             |
| 1   | A     | 203 | SER  | 10             |
| 1   | A     | 213 | VAL  | 10             |
| 1   | A     | 268 | LYS  | 10             |
| 1   | A     | 248 | SER  | 9              |
| 1   | A     | 212 | ARG  | 8              |
| 1   | A     | 206 | LEU  | 6              |
| 1   | A     | 252 | THR  | 5              |
| 1   | A     | 272 | PRO  | 3              |
| 1   | A     | 226 | SER  | 2              |
| 1   | A     | 247 | GLY  | 2              |
| 1   | A     | 249 | LEU  | 2              |
| 1   | A     | 251 | GLY  | 2              |
| 1   | A     | 223 | SER  | 1              |
| 1   | A     | 186 | VAL  | 1              |
| 1   | A     | 194 | LEU  | 1              |
| 1   | A     | 225 | VAL  | 1              |
| 1   | A     | 279 | ASP  | 1              |
| 1   | A     | 270 | GLY  | 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     | 96/119 (81%)    | 60±3 (63±3%) | 36±3 (37±3%) | <b>1</b> <b>7</b> |
| All | All   | 2880/3570 (81%) | 1812 (63%)   | 1068 (37%)   | <b>1</b> <b>7</b> |

All 81 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     | 233 | THR  | 30             |
| 1   | A     | 281 | ILE  | 30             |
| 1   | A     | 283 | LEU  | 30             |
| 1   | A     | 194 | LEU  | 29             |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 253 | LEU  | 29             |
| 1   | A     | 275 | LEU  | 29             |
| 1   | A     | 280 | ILE  | 29             |
| 1   | A     | 246 | MET  | 27             |
| 1   | A     | 259 | ILE  | 26             |
| 1   | A     | 249 | LEU  | 24             |
| 1   | A     | 292 | ARG  | 24             |
| 1   | A     | 205 | LYS  | 22             |
| 1   | A     | 240 | LYS  | 22             |
| 1   | A     | 241 | TRP  | 22             |
| 1   | A     | 180 | SER  | 21             |
| 1   | A     | 214 | SER  | 21             |
| 1   | A     | 231 | GLN  | 21             |
| 1   | A     | 210 | LEU  | 21             |
| 1   | A     | 202 | SER  | 20             |
| 1   | A     | 196 | HIS  | 19             |
| 1   | A     | 279 | ASP  | 19             |
| 1   | A     | 289 | VAL  | 18             |
| 1   | A     | 257 | HIS  | 17             |
| 1   | A     | 294 | SER  | 17             |
| 1   | A     | 291 | VAL  | 17             |
| 1   | A     | 216 | SER  | 16             |
| 1   | A     | 228 | LYS  | 16             |
| 1   | A     | 217 | ASP  | 16             |
| 1   | A     | 184 | LEU  | 16             |
| 1   | A     | 221 | LYS  | 15             |
| 1   | A     | 224 | GLU  | 15             |
| 1   | A     | 250 | ASN  | 15             |
| 1   | A     | 226 | SER  | 15             |
| 1   | A     | 256 | SER  | 15             |
| 1   | A     | 229 | HIS  | 14             |
| 1   | A     | 248 | SER  | 14             |
| 1   | A     | 274 | GLU  | 14             |
| 1   | A     | 212 | ARG  | 14             |
| 1   | A     | 201 | THR  | 13             |
| 1   | A     | 204 | SER  | 13             |
| 1   | A     | 286 | THR  | 13             |
| 1   | A     | 238 | LYS  | 12             |
| 1   | A     | 282 | THR  | 12             |
| 1   | A     | 278 | ASP  | 12             |
| 1   | A     | 295 | SER  | 12             |
| 1   | A     | 182 | LEU  | 12             |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 235 | ASN  | 11             |
| 1   | A     | 288 | LYS  | 11             |
| 1   | A     | 209 | LYS  | 11             |
| 1   | A     | 185 | GLU  | 10             |
| 1   | A     | 206 | LEU  | 10             |
| 1   | A     | 244 | VAL  | 9              |
| 1   | A     | 234 | TRP  | 9              |
| 1   | A     | 236 | SER  | 9              |
| 1   | A     | 268 | LYS  | 9              |
| 1   | A     | 296 | GLN  | 7              |
| 1   | A     | 199 | ASN  | 7              |
| 1   | A     | 245 | ASP  | 7              |
| 1   | A     | 222 | ASP  | 7              |
| 1   | A     | 269 | TRP  | 7              |
| 1   | A     | 243 | LEU  | 7              |
| 1   | A     | 242 | GLU  | 6              |
| 1   | A     | 203 | SER  | 6              |
| 1   | A     | 218 | LEU  | 5              |
| 1   | A     | 260 | SER  | 5              |
| 1   | A     | 252 | THR  | 5              |
| 1   | A     | 277 | SER  | 4              |
| 1   | A     | 183 | PHE  | 4              |
| 1   | A     | 271 | ASN  | 4              |
| 1   | A     | 255 | ASN  | 3              |
| 1   | A     | 200 | SER  | 3              |
| 1   | A     | 290 | TYR  | 3              |
| 1   | A     | 192 | ILE  | 2              |
| 1   | A     | 225 | VAL  | 2              |
| 1   | A     | 237 | THR  | 1              |
| 1   | A     | 198 | VAL  | 1              |
| 1   | A     | 293 | ILE  | 1              |
| 1   | A     | 232 | ILE  | 1              |
| 1   | A     | 207 | PRO  | 1              |
| 1   | A     | 258 | SER  | 1              |
| 1   | A     | 272 | PRO  | 1              |

### 6.3.3 RNA

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 monosaccharides 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 [i](#)

There are no chain breaks in this entry.

## 7 Chemical shift validation

No chemical shift data were provided