



# Full wwPDB NMR Structure Validation Report ⓘ

Jun 6, 2023 – 06:04 pm BST

PDB ID : 6Q6E  
BMRB ID : 34336  
Title : Structural and functional insights into the condensin ATPase cycle  
Authors : Simon, B.; Hassler, M.; Haering, C.H.; Hennig, J.  
Deposited on : 2018-12-10

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)  
wwPDB-RCI : v\_1n\_11\_5\_13\_A (Berjanski et al., 2005)  
PANAV : Wang et al. (2010)  
wwPDB-ShiftChecker : v1.2  
BMRB Restraints Analysis : v1.2  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.33

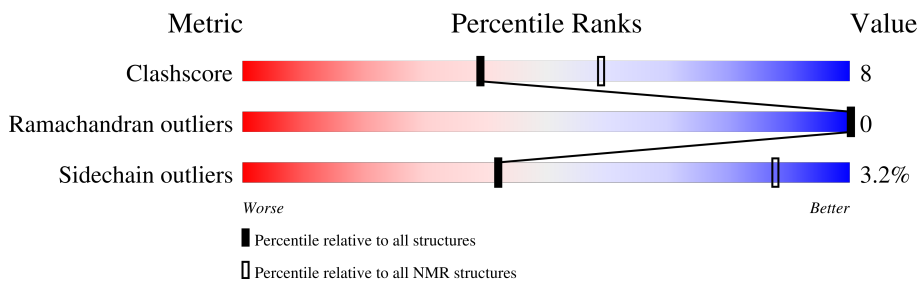
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 73%.

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



| Metric                | Whole archive<br>(#Entries) | NMR archive<br>(#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     | 221    |                  |

## 2 Ensemble composition and analysis

This entry contains 10 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:13-A:82, A:128-A:196<br>(139) | 1.30              | 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 2 clusters and 3 single-model clusters were found.

| Cluster number        | Models        |
|-----------------------|---------------|
| 1                     | 1, 2, 4, 5, 8 |
| 2                     | 3, 6          |
| Single-model clusters | 7; 9; 10      |

### 3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 3564 atoms, of which 1808 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Condensin complex subunit 2,Structural maintenance of chromosomes protein,Structural maintenance of chromosomes protein.

| Mol | Chain | Residues | Atoms |      |      |     |     | Trace |   |
|-----|-------|----------|-------|------|------|-----|-----|-------|---|
|     |       |          | Total | C    | H    | N   | O   |       | S |
| 1   | A     | 221      | 3564  | 1093 | 1808 | 312 | 337 | 14    | 0 |

There are 16 discrepancies between the modelled and reference sequences:

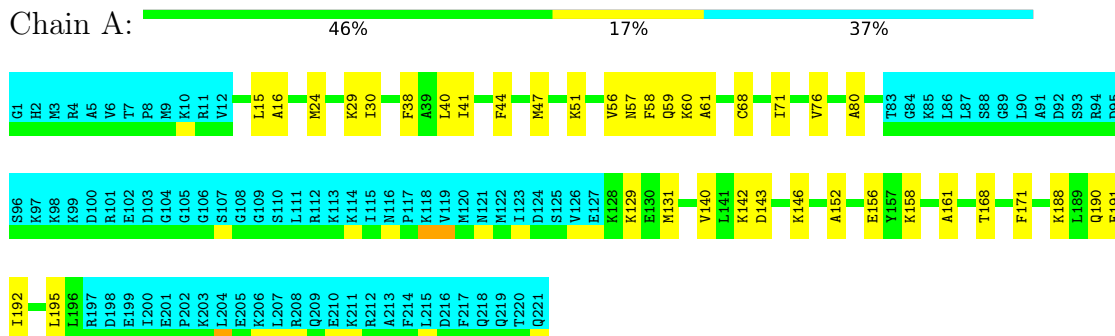
| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 1       | GLY      | -      | expression tag | UNP G0SBJ6 |
| A     | 2       | HIS      | -      | expression tag | UNP G0SBJ6 |
| A     | 3       | MET      | -      | expression tag | UNP G0SBJ6 |
| A     | 102     | GLU      | -      | linker         | UNP G0SBJ6 |
| A     | 103     | ASP      | -      | linker         | UNP G0SBJ6 |
| A     | 104     | GLY      | -      | linker         | UNP G0SBJ6 |
| A     | 105     | GLY      | -      | linker         | UNP G0SBJ6 |
| A     | 106     | GLY      | -      | linker         | UNP G0SBJ6 |
| A     | 107     | SER      | -      | linker         | UNP G0SBJ6 |
| A     | 108     | GLY      | -      | linker         | UNP G0SBJ6 |
| A     | 109     | GLY      | -      | linker         | UNP G0SBJ6 |
| A     | 110     | SER      | -      | linker         | UNP G0SBJ6 |
| A     | 162     | SER      | -      | linker         | UNP G0S5H7 |
| A     | 163     | GLY      | -      | linker         | UNP G0S5H7 |
| A     | 164     | GLY      | -      | linker         | UNP G0S5H7 |
| A     | 165     | SER      | -      | linker         | UNP G0S5H7 |





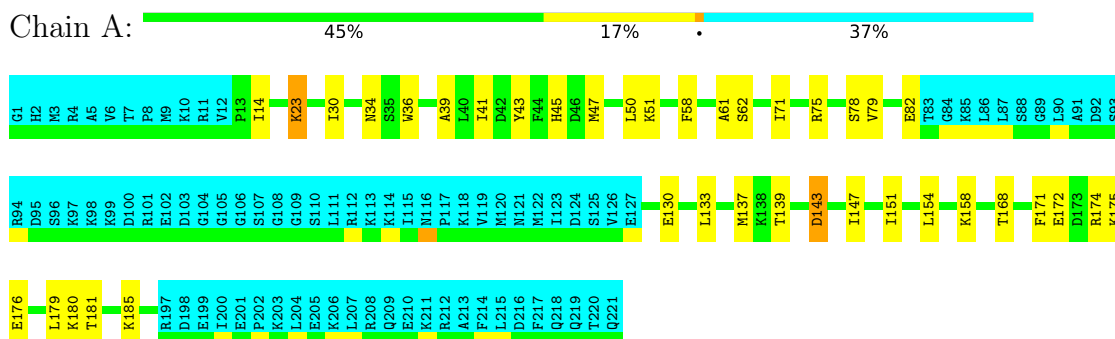
### 4.2.5 Score per residue for model 5

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein



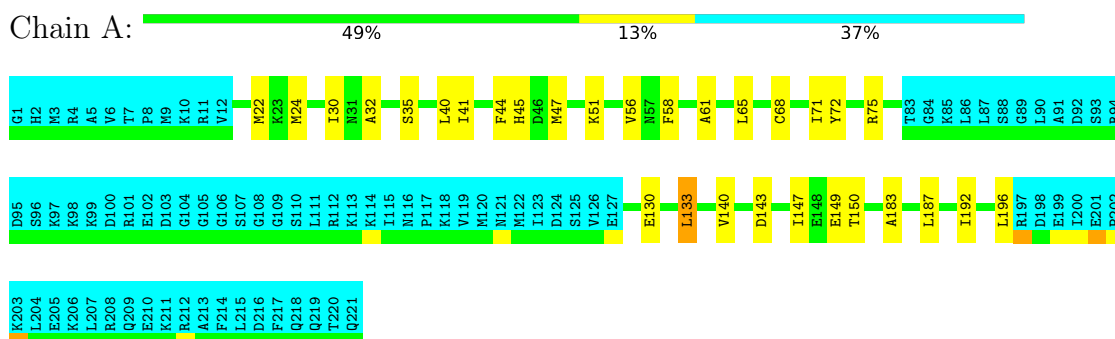
### 4.2.6 Score per residue for model 6

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein



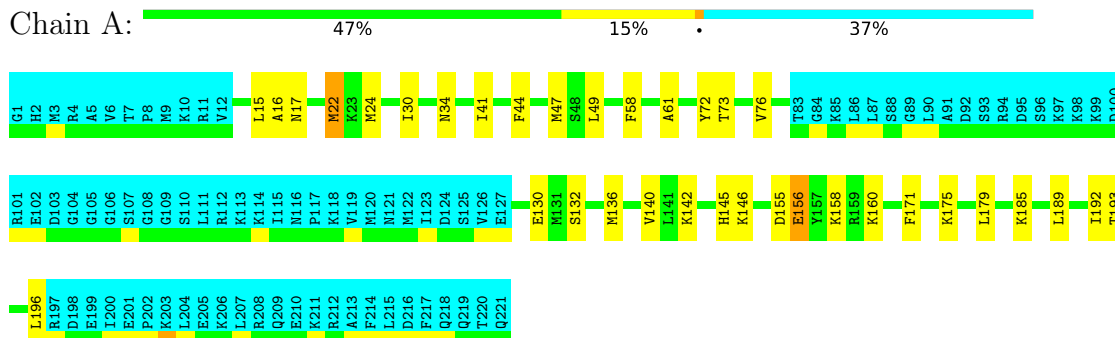
### 4.2.7 Score per residue for model 7

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein



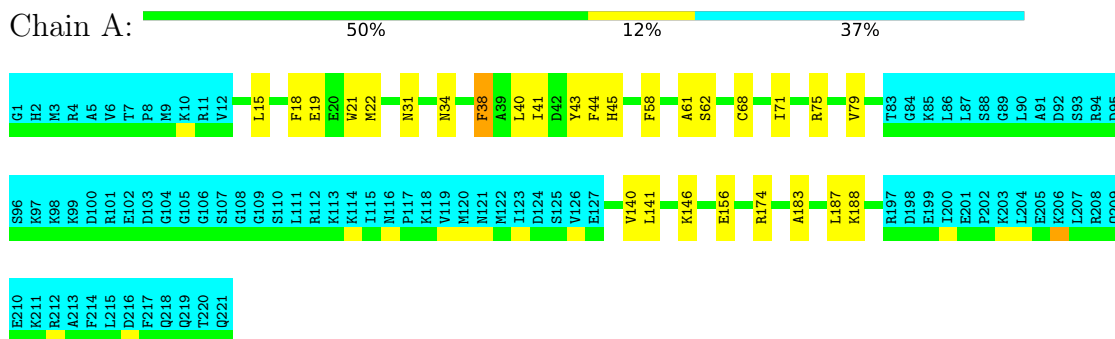
### 4.2.8 Score per residue for model 8

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein



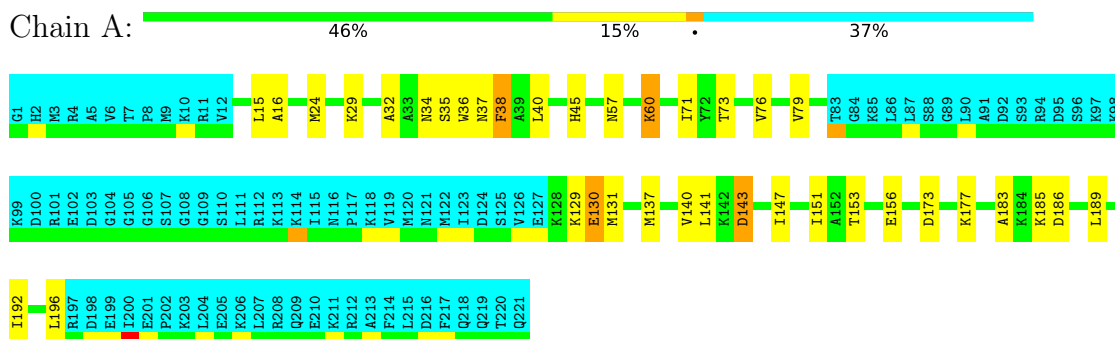
### 4.2.9 Score per residue for model 9

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein



### 4.2.10 Score per residue for model 10

- Molecule 1: Condensin complex subunit 2, Structural maintenance of chromosomes protein, Structural maintenance of chromosomes protein





## 5 Refinement protocol and experimental data overview

The models were refined using the following method: *simulated annealing*.

Of the 100 calculated structures, 10 were deposited, based on the following criterion: *structures with the lowest energy*.

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

| Software name | Classification        | Version |
|---------------|-----------------------|---------|
| CNS           | structure calculation | 1.2     |
| ARIA          | structure calculation |         |
| TALOS         | geometry optimization |         |

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 7 of this report.

| Chemical shift file(s)                       | working_cs.cif |
|--|----------------|
| Number of chemical shift lists               | 1              |
| Total number of shifts                       | 2185           |
| Number of shifts mapped to atoms             | 2185           |
| Number of unparsed shifts                    | 0              |
| Number of shifts with mapping errors         | 0              |
| Number of shifts with mapping warnings       | 0              |
| Assignment completeness (well-defined parts) | 73%            |

## 6 Model quality

### 6.1 Standard geometry

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

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     | 1109  | 1133     | 1133     | 18±4    |
| All | All   | 11090 | 11330    | 11330    | 175     |

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 8.

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

| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:41:ILE:HG21  | 1:A:146:LYS:HB3  | 0.93     | 1.40        | 5      | 2     |
| 1:A:41:ILE:HA    | 1:A:44:PHE:HD2   | 0.90     | 1.27        | 8      | 3     |
| 1:A:192:ILE:HG23 | 1:A:196:LEU:HD12 | 0.83     | 1.51        | 7      | 1     |
| 1:A:24:MET:HG3   | 1:A:29:LYS:HG3   | 0.77     | 1.56        | 10     | 1     |
| 1:A:47:MET:HB3   | 1:A:51:LYS:HB2   | 0.74     | 1.60        | 4      | 2     |
| 1:A:76:VAL:HG12  | 1:A:192:ILE:HG13 | 0.72     | 1.61        | 10     | 1     |
| 1:A:73:THR:HG21  | 1:A:185:LYS:HB3  | 0.71     | 1.61        | 3      | 3     |
| 1:A:76:VAL:HG21  | 1:A:189:LEU:HG   | 0.71     | 1.62        | 1      | 1     |
| 1:A:41:ILE:HA    | 1:A:44:PHE:CD2   | 0.69     | 2.18        | 8      | 2     |
| 1:A:143:ASP:HA   | 1:A:146:LYS:HD3  | 0.68     | 1.64        | 5      | 1     |
| 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 0.65     | 1.67        | 4      | 4     |
| 1:A:153:THR:O    | 1:A:156:GLU:HG2  | 0.65     | 1.92        | 10     | 2     |
| 1:A:58:PHE:HB3   | 1:A:171:PHE:HB2  | 0.65     | 1.69        | 6      | 4     |
| 1:A:38:PHE:HB3   | 1:A:71:ILE:HD11  | 0.64     | 1.68        | 5      | 3     |

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| Atom-1          | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|-----------------|------------------|----------|-------------|--------|-------|
|                 |                  |          |             | Worst  | Total |
| 1:A:82:GLU:HB3  | 1:A:133:LEU:HD21 | 0.64     | 1.69        | 3      | 1     |
| 1:A:24:MET:HA   | 1:A:29:LYS:HB3   | 0.61     | 1.71        | 5      | 2     |
| 1:A:131:MET:HA  | 1:A:134:LYS:HE2  | 0.61     | 1.72        | 3      | 1     |
| 1:A:62:SER:HB3  | 1:A:174:ARG:HD3  | 0.60     | 1.72        | 4      | 1     |
| 1:A:23:LYS:HA   | 1:A:23:LYS:HE2   | 0.59     | 1.74        | 6      | 1     |
| 1:A:76:VAL:HG11 | 1:A:189:LEU:HA   | 0.59     | 1.75        | 10     | 1     |
| 1:A:58:PHE:HA   | 1:A:61:ALA:HB3   | 0.58     | 1.76        | 7      | 6     |
| 1:A:30:ILE:HA   | 1:A:34:ASN:HD21  | 0.58     | 1.58        | 8      | 2     |
| 1:A:82:GLU:HB3  | 1:A:133:LEU:HD11 | 0.57     | 1.74        | 6      | 1     |
| 1:A:24:MET:HG2  | 1:A:30:ILE:HB    | 0.56     | 1.77        | 5      | 1     |
| 1:A:62:SER:HB2  | 1:A:174:ARG:HG2  | 0.56     | 1.78        | 9      | 2     |
| 1:A:76:VAL:O    | 1:A:79:VAL:HG12  | 0.56     | 1.99        | 10     | 1     |
| 1:A:22:MET:CE   | 1:A:22:MET:HA    | 0.56     | 2.31        | 8      | 2     |
| 1:A:65:LEU:HA   | 1:A:68:CYS:SG    | 0.56     | 2.41        | 7      | 1     |
| 1:A:51:LYS:HG3  | 1:A:56:VAL:HB    | 0.55     | 1.77        | 7      | 1     |
| 1:A:155:ASP:O   | 1:A:159:ARG:HG3  | 0.55     | 2.02        | 2      | 1     |
| 1:A:47:MET:O    | 1:A:51:LYS:HB3   | 0.55     | 2.01        | 5      | 2     |
| 1:A:142:LYS:HG2 | 1:A:146:LYS:HE3  | 0.54     | 1.80        | 5      | 1     |
| 1:A:47:MET:HA   | 1:A:51:LYS:HD3   | 0.54     | 1.79        | 7      | 1     |
| 1:A:16:ALA:HA   | 1:A:19:GLU:HG2   | 0.54     | 1.80        | 2      | 1     |
| 1:A:41:ILE:HD11 | 1:A:147:ILE:HA   | 0.54     | 1.79        | 2      | 1     |
| 1:A:75:ARG:O    | 1:A:79:VAL:HG23  | 0.53     | 2.03        | 6      | 2     |
| 1:A:31:ASN:HB2  | 1:A:34:ASN:OD1   | 0.53     | 2.03        | 9      | 1     |
| 1:A:24:MET:HG3  | 1:A:30:ILE:HB    | 0.53     | 1.79        | 8      | 2     |
| 1:A:68:CYS:HA   | 1:A:71:ILE:HG22  | 0.52     | 1.81        | 4      | 4     |
| 1:A:44:PHE:CE2  | 1:A:150:THR:HG21 | 0.52     | 2.39        | 7      | 1     |
| 1:A:62:SER:HB3  | 1:A:174:ARG:HG2  | 0.51     | 1.81        | 1      | 2     |
| 1:A:143:ASP:O   | 1:A:147:ILE:HG13 | 0.51     | 2.06        | 7      | 5     |
| 1:A:15:LEU:O    | 1:A:19:GLU:HG2   | 0.51     | 2.06        | 9      | 2     |
| 1:A:41:ILE:HG12 | 1:A:68:CYS:SG    | 0.50     | 2.46        | 9      | 1     |
| 1:A:32:ALA:HA   | 1:A:35:SER:HB2   | 0.50     | 1.83        | 7      | 1     |
| 1:A:73:THR:HG21 | 1:A:185:LYS:CB   | 0.50     | 2.36        | 10     | 1     |
| 1:A:58:PHE:HZ   | 1:A:157:TYR:HB3  | 0.50     | 1.66        | 4      | 1     |
| 1:A:40:LEU:HD23 | 1:A:71:ILE:HG21  | 0.49     | 1.83        | 5      | 1     |
| 1:A:15:LEU:HA   | 1:A:49:LEU:HD11  | 0.49     | 1.84        | 1      | 2     |
| 1:A:51:LYS:HA   | 1:A:56:VAL:HA    | 0.49     | 1.84        | 5      | 1     |
| 1:A:72:TYR:O    | 1:A:76:VAL:HG23  | 0.49     | 2.07        | 8      | 1     |
| 1:A:44:PHE:O    | 1:A:47:MET:HG3   | 0.49     | 2.08        | 5      | 2     |
| 1:A:173:ASP:O   | 1:A:177:LYS:HG2  | 0.48     | 2.08        | 10     | 1     |
| 1:A:171:PHE:O   | 1:A:175:LYS:HG3  | 0.48     | 2.09        | 8      | 1     |
| 1:A:40:LEU:HD13 | 1:A:71:ILE:HG13  | 0.48     | 1.85        | 9      | 1     |

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| Atom-1          | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|-----------------|------------------|----------|-------------|--------|-------|
|                 |                  |          |             | Worst  | Total |
| 1:A:156:GLU:O   | 1:A:160:LYS:HD3  | 0.47     | 2.09        | 4      | 1     |
| 1:A:73:THR:HG21 | 1:A:185:LYS:HD3  | 0.47     | 1.87        | 8      | 1     |
| 1:A:57:ASN:HB2  | 1:A:60:LYS:HG2   | 0.47     | 1.85        | 10     | 1     |
| 1:A:175:LYS:O   | 1:A:179:LEU:HG   | 0.46     | 2.10        | 8      | 2     |
| 1:A:82:GLU:CB   | 1:A:133:LEU:HD11 | 0.46     | 2.41        | 6      | 1     |
| 1:A:140:VAL:HA  | 1:A:143:ASP:HB2  | 0.46     | 1.88        | 10     | 1     |
| 1:A:152:ALA:O   | 1:A:156:GLU:HG2  | 0.46     | 2.10        | 5      | 1     |
| 1:A:57:ASN:OD1  | 1:A:59:GLN:HB3   | 0.46     | 2.10        | 5      | 1     |
| 1:A:145:HIS:O   | 1:A:149:GLU:HG3  | 0.46     | 2.10        | 4      | 1     |
| 1:A:47:MET:SD   | 1:A:154:LEU:HD11 | 0.46     | 2.51        | 6      | 1     |
| 1:A:18:PHE:O    | 1:A:22:MET:HG2   | 0.46     | 2.11        | 1      | 2     |
| 1:A:141:LEU:O   | 1:A:144:LYS:HB3  | 0.45     | 2.11        | 3      | 1     |
| 1:A:145:HIS:O   | 1:A:149:GLU:HG2  | 0.45     | 2.11        | 3      | 1     |
| 1:A:79:VAL:HA   | 1:A:82:GLU:HB2   | 0.45     | 1.89        | 6      | 1     |
| 1:A:58:PHE:CZ   | 1:A:157:TYR:HB3  | 0.45     | 2.46        | 4      | 1     |
| 1:A:155:ASP:O   | 1:A:158:LYS:HB3  | 0.45     | 2.12        | 8      | 1     |
| 1:A:40:LEU:HD13 | 1:A:71:ILE:HD13  | 0.45     | 1.88        | 10     | 1     |
| 1:A:75:ARG:NH2  | 1:A:140:VAL:HA   | 0.44     | 2.26        | 7      | 1     |
| 1:A:161:ALA:O   | 1:A:168:THR:HG21 | 0.44     | 2.11        | 5      | 1     |
| 1:A:82:GLU:HB3  | 1:A:133:LEU:CD1  | 0.44     | 2.42        | 6      | 1     |
| 1:A:76:VAL:HG22 | 1:A:140:VAL:HG11 | 0.44     | 1.89        | 5      | 1     |
| 1:A:136:MET:O   | 1:A:140:VAL:HG23 | 0.44     | 2.13        | 2      | 3     |
| 1:A:45:HIS:CE1  | 1:A:146:LYS:HG2  | 0.44     | 2.47        | 9      | 1     |
| 1:A:147:ILE:O   | 1:A:151:ILE:HG13 | 0.44     | 2.13        | 10     | 3     |
| 1:A:137:MET:O   | 1:A:140:VAL:HG22 | 0.44     | 2.13        | 3      | 1     |
| 1:A:142:LYS:HG2 | 1:A:146:LYS:HE2  | 0.43     | 1.90        | 1      | 1     |
| 1:A:30:ILE:CD1  | 1:A:71:ILE:HG13  | 0.43     | 2.43        | 6      | 1     |
| 1:A:143:ASP:HA  | 1:A:146:LYS:HD2  | 0.43     | 1.89        | 4      | 1     |
| 1:A:133:LEU:HA  | 1:A:136:MET:HE2  | 0.43     | 1.89        | 3      | 1     |
| 1:A:76:VAL:HG11 | 1:A:189:LEU:HG   | 0.43     | 1.89        | 8      | 1     |
| 1:A:15:LEU:HD12 | 1:A:16:ALA:N     | 0.43     | 2.29        | 8      | 3     |
| 1:A:183:ALA:O   | 1:A:187:LEU:HG   | 0.43     | 2.12        | 7      | 2     |
| 1:A:21:TRP:CZ3  | 1:A:43:TYR:HE1   | 0.43     | 2.32        | 9      | 1     |
| 1:A:142:LYS:HA  | 1:A:145:HIS:ND1  | 0.43     | 2.28        | 8      | 1     |
| 1:A:188:LYS:O   | 1:A:192:ILE:HG13 | 0.43     | 2.13        | 5      | 1     |
| 1:A:173:ASP:O   | 1:A:177:LYS:HB2  | 0.43     | 2.14        | 2      | 1     |
| 1:A:40:LEU:HD12 | 1:A:68:CYS:HA    | 0.43     | 1.89        | 7      | 1     |
| 1:A:41:ILE:HA   | 1:A:44:PHE:HB3   | 0.42     | 1.91        | 7      | 1     |
| 1:A:80:ALA:HB2  | 1:A:192:ILE:CD1  | 0.42     | 2.44        | 5      | 1     |
| 1:A:158:LYS:HD2 | 1:A:171:PHE:HD2  | 0.42     | 1.74        | 5      | 1     |
| 1:A:79:VAL:HG11 | 1:A:137:MET:SD   | 0.42     | 2.55        | 1      | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:158:LYS:HD2  | 1:A:172:GLU:HB2  | 0.42     | 1.90        | 6      | 1     |
| 1:A:191:GLU:O    | 1:A:195:LEU:HG   | 0.42     | 2.15        | 5      | 3     |
| 1:A:183:ALA:O    | 1:A:186:ASP:HB3  | 0.42     | 2.15        | 10     | 1     |
| 1:A:72:TYR:OH    | 1:A:144:LYS:HB2  | 0.42     | 2.14        | 2      | 1     |
| 1:A:181:THR:O    | 1:A:185:LYS:HG2  | 0.42     | 2.14        | 6      | 1     |
| 1:A:47:MET:HB3   | 1:A:51:LYS:CB    | 0.42     | 2.45        | 2      | 1     |
| 1:A:22:MET:HA    | 1:A:22:MET:HE2   | 0.41     | 1.92        | 2      | 1     |
| 1:A:140:VAL:HG13 | 1:A:141:LEU:HD12 | 0.41     | 1.93        | 9      | 1     |
| 1:A:32:ALA:HA    | 1:A:35:SER:OG    | 0.41     | 2.14        | 10     | 1     |
| 1:A:139:THR:HA   | 1:A:142:LYS:HE3  | 0.41     | 1.92        | 3      | 1     |
| 1:A:156:GLU:OE2  | 1:A:160:LYS:HE2  | 0.41     | 2.16        | 8      | 1     |
| 1:A:158:LYS:HG3  | 1:A:168:THR:HB   | 0.41     | 1.92        | 3      | 2     |
| 1:A:176:GLU:O    | 1:A:180:LYS:HG3  | 0.41     | 2.16        | 6      | 1     |
| 1:A:139:THR:O    | 1:A:143:ASP:HB2  | 0.41     | 2.15        | 6      | 1     |
| 1:A:44:PHE:HE2   | 1:A:150:THR:HG21 | 0.41     | 1.73        | 7      | 1     |
| 1:A:36:TRP:CZ2   | 1:A:78:SER:HB2   | 0.41     | 2.51        | 6      | 1     |
| 1:A:39:ALA:HB1   | 1:A:41:ILE:HG22  | 0.41     | 1.92        | 6      | 1     |
| 1:A:76:VAL:HG12  | 1:A:192:ILE:CD1  | 0.41     | 2.46        | 8      | 1     |
| 1:A:137:MET:O    | 1:A:141:LEU:HG   | 0.41     | 2.16        | 10     | 1     |
| 1:A:34:ASN:HD22  | 1:A:34:ASN:C     | 0.40     | 2.18        | 2      | 1     |
| 1:A:14:ILE:HG23  | 1:A:43:TYR:CE2   | 0.40     | 2.51        | 6      | 1     |
| 1:A:15:LEU:HD23  | 1:A:49:LEU:HG    | 0.40     | 1.93        | 4      | 1     |
| 1:A:132:SER:O    | 1:A:136:MET:HG3  | 0.40     | 2.16        | 8      | 1     |
| 1:A:36:TRP:O     | 1:A:37:ASN:HB3   | 0.40     | 2.16        | 10     | 1     |
| 1:A:128:LYS:HA   | 1:A:131:MET:HE2  | 0.40     | 1.94        | 4      | 1     |
| 1:A:51:LYS:HG3   | 1:A:56:VAL:CB    | 0.40     | 2.45        | 7      | 1     |
| 1:A:34:ASN:O     | 1:A:38:PHE:HB2   | 0.40     | 2.16        | 9      | 2     |

## 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     | 139/221 (63%)   | 135±2 (97±1%) | 4±2 (3±1%) | 0±0 (0±0%) | 100         | 100 |
| All | All   | 1390/2210 (63%) | 1346 (97%)    | 44 (3%)    | 0 (0%)     | 100         | 100 |

There are no Ramachandran outliers.

### 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     | 122/193 (63%)   | 118±1 (97±1%) | 4±1 (3±1%) | 42          | 88 |
| All | All   | 1220/1930 (63%) | 1181 (97%)    | 39 (3%)    | 42          | 88 |

All 25 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     | 45  | HIS  | 5              |
| 1   | A     | 60  | LYS  | 3              |
| 1   | A     | 22  | MET  | 3              |
| 1   | A     | 59  | GLN  | 2              |
| 1   | A     | 130 | GLU  | 2              |
| 1   | A     | 137 | MET  | 2              |
| 1   | A     | 143 | ASP  | 2              |
| 1   | A     | 156 | GLU  | 2              |
| 1   | A     | 38  | PHE  | 2              |
| 1   | A     | 27  | ASP  | 1              |
| 1   | A     | 177 | LYS  | 1              |
| 1   | A     | 34  | ASN  | 1              |
| 1   | A     | 65  | LEU  | 1              |
| 1   | A     | 136 | MET  | 1              |
| 1   | A     | 196 | LEU  | 1              |
| 1   | A     | 134 | LYS  | 1              |
| 1   | A     | 157 | TYR  | 1              |
| 1   | A     | 190 | GLN  | 1              |
| 1   | A     | 23  | LYS  | 1              |
| 1   | A     | 50  | LEU  | 1              |
| 1   | A     | 72  | TYR  | 1              |
| 1   | A     | 133 | LEU  | 1              |
| 1   | A     | 149 | GLU  | 1              |
| 1   | A     | 17  | ASN  | 1              |
| 1   | A     | 188 | LYS  | 1              |

### 6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 6.5 Carbohydrates [i](#)

There are no 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 [i](#)

The completeness of assignment taking into account all chemical shift lists is 73% for the well-defined parts and 71% for the entire structure.

### 7.1 Chemical shift list 1

File name: working\_cs.cif

Chemical shift list name: starch\_output

#### 7.1.1 Bookkeeping [i](#)

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

|   |      |
|---|------|
| Total number of shifts                  | 2185 |
| Number of shifts mapped to atoms        | 2185 |
| Number of unparsed shifts               | 0    |
| Number of shifts with mapping errors    | 0    |
| Number of shifts with mapping warnings  | 0    |
| Number of shift outliers (ShiftChecker) | 3    |

#### 7.1.2 Chemical shift referencing [i](#)

The following table shows the suggested chemical shift referencing corrections.

| Nucleus                | # values | Correction $\pm$ precision, ppm | Suggested action           |
|------------------------|----------|---------------------------------|----------------------------|
| $^{13}\text{C}_\alpha$ | 215      | $-0.70 \pm 0.12$                | Should be checked          |
| $^{13}\text{C}_\beta$  | 201      | $0.24 \pm 0.06$                 | None needed ( $< 0.5$ ppm) |
| $^{13}\text{C}'$       | 0        | —                               | None (insufficient data)   |
| $^{15}\text{N}$        | 208      | $-0.31 \pm 0.20$                | None needed ( $< 0.5$ ppm) |

#### 7.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 73%, i.e. 1395 atoms were assigned a chemical shift out of a possible 1917. 0 out of 18 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total          | $^1\text{H}$  | $^{13}\text{C}$ | $^{15}\text{N}$ |
|-----------|----------------|---------------|-----------------|-----------------|
| Backbone  | 533/698 (76%)  | 266/282 (94%) | 135/278 (49%)   | 132/138 (96%)   |
| Sidechain | 792/1097 (72%) | 511/709 (72%) | 273/348 (78%)   | 8/40 (20%)      |

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|          | Total           | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|----------|-----------------|----------------|-----------------|-----------------|
| Aromatic | 70/122 (57%)    | 37/61 (61%)    | 31/56 (55%)     | 2/5 (40%)       |
| Overall  | 1395/1917 (73%) | 814/1052 (77%) | 439/682 (64%)   | 142/183 (78%)   |

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 71%, i.e. 2185 atoms were assigned a chemical shift out of a possible 3061. 0 out of 29 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total           | <sup>1</sup> H  | <sup>13</sup> C | <sup>15</sup> N |
|-----------|-----------------|-----------------|-----------------|-----------------|
| Backbone  | 844/1110 (76%)  | 421/451 (93%)   | 215/442 (49%)   | 208/217 (96%)   |
| Sidechain | 1259/1802 (70%) | 802/1158 (69%)  | 443/563 (79%)   | 14/81 (17%)     |
| Aromatic  | 82/149 (55%)    | 43/75 (57%)     | 37/68 (54%)     | 2/6 (33%)       |
| Overall   | 2185/3061 (71%) | 1266/1684 (75%) | 695/1073 (65%)  | 224/304 (74%)   |

#### 7.1.4 Statistically unusual chemical shifts [i](#)

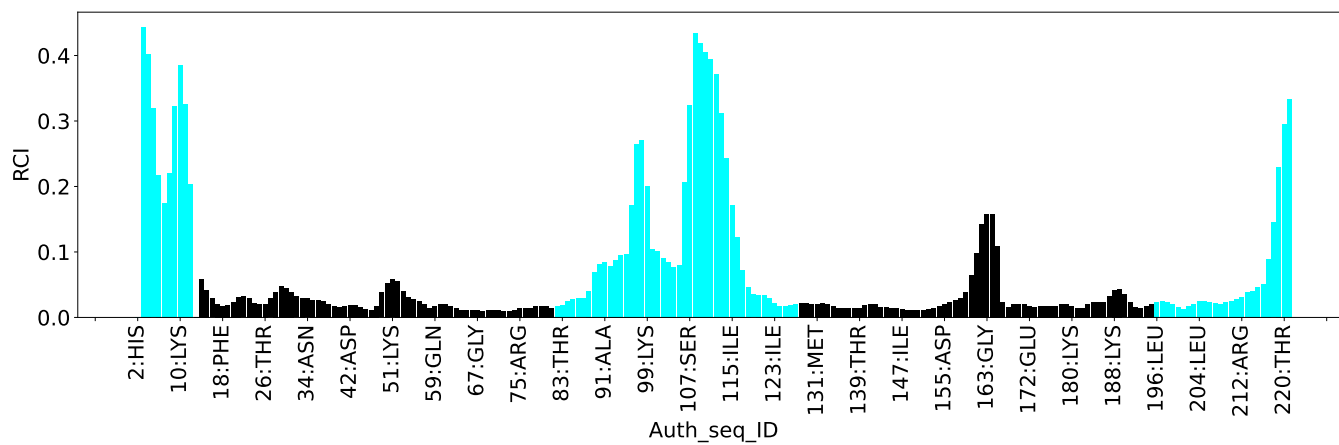
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

| List Id | Chain | Res | Type | Atom | Shift, ppm | Expected range, ppm | Z-score |
|---------|-------|-----|------|------|------------|---------------------|---------|
| 1       | A     | 150 | THR  | HG21 | 0.07       | 0.08 – 2.19         | -5.1    |
| 1       | A     | 150 | THR  | HG22 | 0.07       | 0.08 – 2.19         | -5.1    |
| 1       | A     | 150 | THR  | HG23 | 0.07       | 0.08 – 2.19         | -5.1    |

#### 7.1.5 Random Coil Index (RCI) plots [i](#)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition. If well-defined core and ill-defined regions are not identified then it is shown as gray bars.

Random coil index (RCI) for chain A:



## 8 NMR restraints analysis

### 8.1 Conformationally restricting restraints

The following table provides the summary of experimentally observed NMR restraints in different categories. Restraints are classified into different categories based on the sequence separation of the atoms involved.

| Description  | Value |
|--|-------|
| Total distance restraints                                | 2797  |
| Intra-residue ( $ i-j =0$ )                              | 1302  |
| Sequential ( $ i-j =1$ )                                 | 691   |
| Medium range ( $ i-j >1$ and $ i-j <5$ )                 | 297   |
| Long range ( $ i-j \geq 5$ )                             | 385   |
| Inter-chain  | 0     |
| Hydrogen bond restraints                                 | 122   |
| Disulfide bond restraints                                | 0     |
| Total dihedral-angle restraints                          | 340   |
| Number of unmapped restraints                            | 0     |
| Number of restraints per residue                         | 14.2  |
| Number of long range restraints per residue <sup>1</sup> | 1.7   |

<sup>1</sup>Long range hydrogen bonds and disulfide bonds are counted as long range restraints while calculating the number of long range restraints per residue

### 8.2 Residual restraint violations

This section provides the overview of the restraint violations analysis. The violations are binned as small, medium and large violations based on its absolute value. Average number of violations per model is calculated by dividing the total number of violations in each bin by the size of the ensemble.

#### 8.2.1 Average number of distance violations per model

Distance violations less than 0.1 Å are not included in the calculation.

| Bins (Å)         | Average number of violations per model | Max (Å) |
|------------------|--|---------|
| 0.1-0.2 (Small)  | 24.2                                   | 0.2     |
| 0.2-0.5 (Medium) | 19.2                                   | 0.5     |
| >0.5 (Large)     | 23.5                                   | 2.55    |

### 8.2.2 Average number of dihedral-angle violations per model [i](#)

Dihedral-angle violations less than 1° are not included in the calculation.

| Bins (°)           | Average number of violations per model | Max (°) |
|--------------------|--|---------|
| 1.0-10.0 (Small)   | 21.9                                   | 9.3     |
| 10.0-20.0 (Medium) | 0.3                                    | 18.5    |
| >20.0 (Large)      | 0.1                                    | 20.4    |

## 9 Distance violation analysis

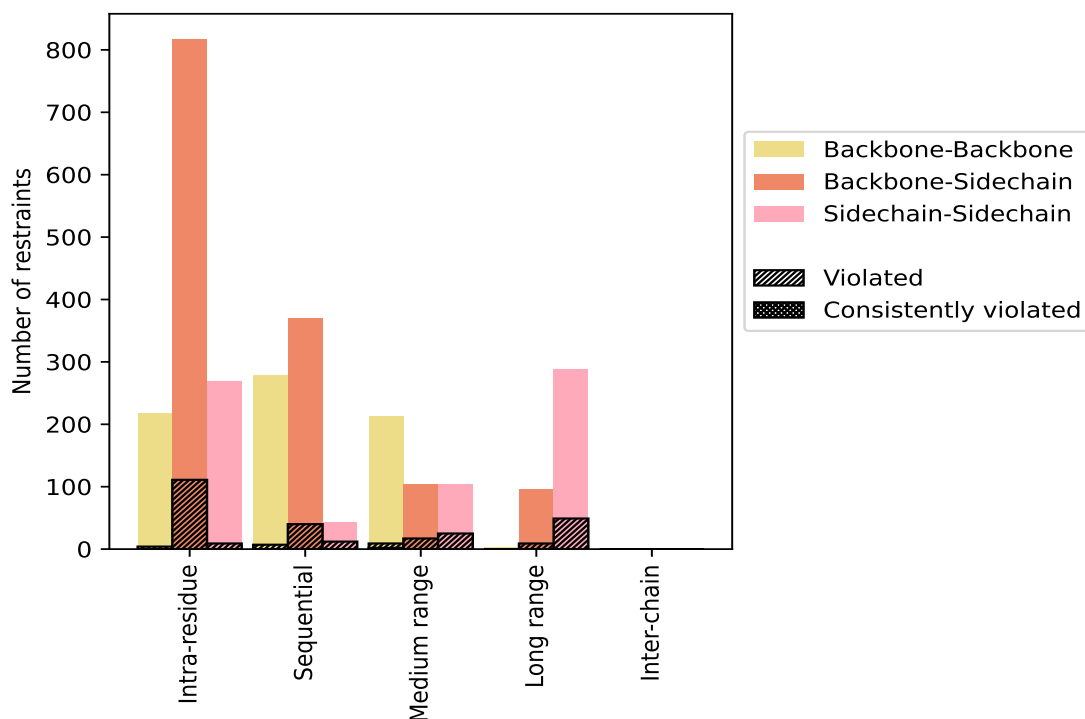
### 9.1 Summary of distance violations

The following table shows the summary of distance violations in different restraint categories based on the sequence separation of the atoms involved. Each category is further sub-divided into three sub-categories based on the atoms involved. Violations less than 0.1 Å are not included in the statistics.

| Restrains type  | Count       | % <sup>1</sup> | Violated <sup>3</sup> |                |                | Consistently Violated <sup>4</sup> |                |                |
|---|-------------|----------------|-----------------------|----------------|----------------|------------------------------------|----------------|----------------|
|   |             |                | Count                 | % <sup>2</sup> | % <sup>1</sup> | Count                              | % <sup>2</sup> | % <sup>1</sup> |
| <b>Intra-residue (<math> i-j =0</math>)</b>                                 | <b>1302</b> | <b>46.5</b>    | <b>124</b>            | <b>9.5</b>     | <b>4.4</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| Backbone-Backbone   | 217         | 7.8            | 4                     | 1.8            | 0.1            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 817         | 29.2           | 111                   | 13.6           | 4.0            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 268         | 9.6            | 9                     | 3.4            | 0.3            | 0                                  | 0.0            | 0.0            |
| <b>Sequential (<math> i-j =1</math>)</b>                                    | <b>691</b>  | <b>24.7</b>    | <b>59</b>             | <b>8.5</b>     | <b>2.1</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| Backbone-Backbone   | 279         | 10.0           | 7                     | 2.5            | 0.3            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 370         | 13.2           | 40                    | 10.8           | 1.4            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 42          | 1.5            | 12                    | 28.6           | 0.4            | 0                                  | 0.0            | 0.0            |
| <b>Medium range (<math> i-j &gt;1</math> &amp; <math> i-j &lt;5</math>)</b> | <b>297</b>  | <b>10.6</b>    | <b>47</b>             | <b>15.8</b>    | <b>1.7</b>     | <b>2</b>                           | <b>0.7</b>     | <b>0.1</b>     |
| Backbone-Backbone   | 91          | 3.3            | 5                     | 5.5            | 0.2            | 2                                  | 2.2            | 0.1            |
| Backbone-Sidechain  | 103         | 3.7            | 17                    | 16.5           | 0.6            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 103         | 3.7            | 25                    | 24.3           | 0.9            | 0                                  | 0.0            | 0.0            |
| <b>Long range (<math> i-j \geq 5</math>)</b>                                | <b>385</b>  | <b>13.8</b>    | <b>58</b>             | <b>15.1</b>    | <b>2.1</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| Backbone-Backbone   | 2           | 0.1            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 95          | 3.4            | 9                     | 9.5            | 0.3            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 288         | 10.3           | 49                    | 17.0           | 1.8            | 0                                  | 0.0            | 0.0            |
| <b>Inter-chain</b>  | <b>0</b>    | <b>0.0</b>     | <b>0</b>              | <b>0.0</b>     | <b>0.0</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| Backbone-Backbone   | 0           | 0.0            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 0           | 0.0            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 0           | 0.0            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| <b>Hydrogen bond</b>  | <b>122</b>  | <b>4.4</b>     | <b>4</b>              | <b>3.3</b>     | <b>0.1</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| <b>Disulfide bond</b>   | <b>0</b>    | <b>0.0</b>     | <b>0</b>              | <b>0.0</b>     | <b>0.0</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| <b>Total</b>  | <b>2797</b> | <b>100.0</b>   | <b>292</b>            | <b>10.4</b>    | <b>10.4</b>    | <b>2</b>                           | <b>0.1</b>     | <b>0.1</b>     |
| Backbone-Backbone   | 711         | 25.4           | 20                    | 2.8            | 0.7            | 2                                  | 0.3            | 0.1            |
| Backbone-Sidechain  | 1385        | 49.5           | 177                   | 12.8           | 6.3            | 0                                  | 0.0            | 0.0            |
| Sidechain-Sidechain   | 701         | 25.1           | 95                    | 13.6           | 3.4            | 0                                  | 0.0            | 0.0            |

<sup>1</sup> percentage calculated with respect to the total number of distance restraints, <sup>2</sup> percentage calculated with respect to the number of restraints in a particular restraint category, <sup>3</sup> violated in at least one model, <sup>4</sup> violated in all the models

### 9.1.1 Bar chart : Distribution of distance restraints and violations [i](#)



Violated and consistently violated restraints are shown using different hatch patterns in their respective categories. The hydrogen bonds and disulfied bonds are counted in their appropriate category on the x-axis

## 9.2 Distance violation statistics for each model [i](#)

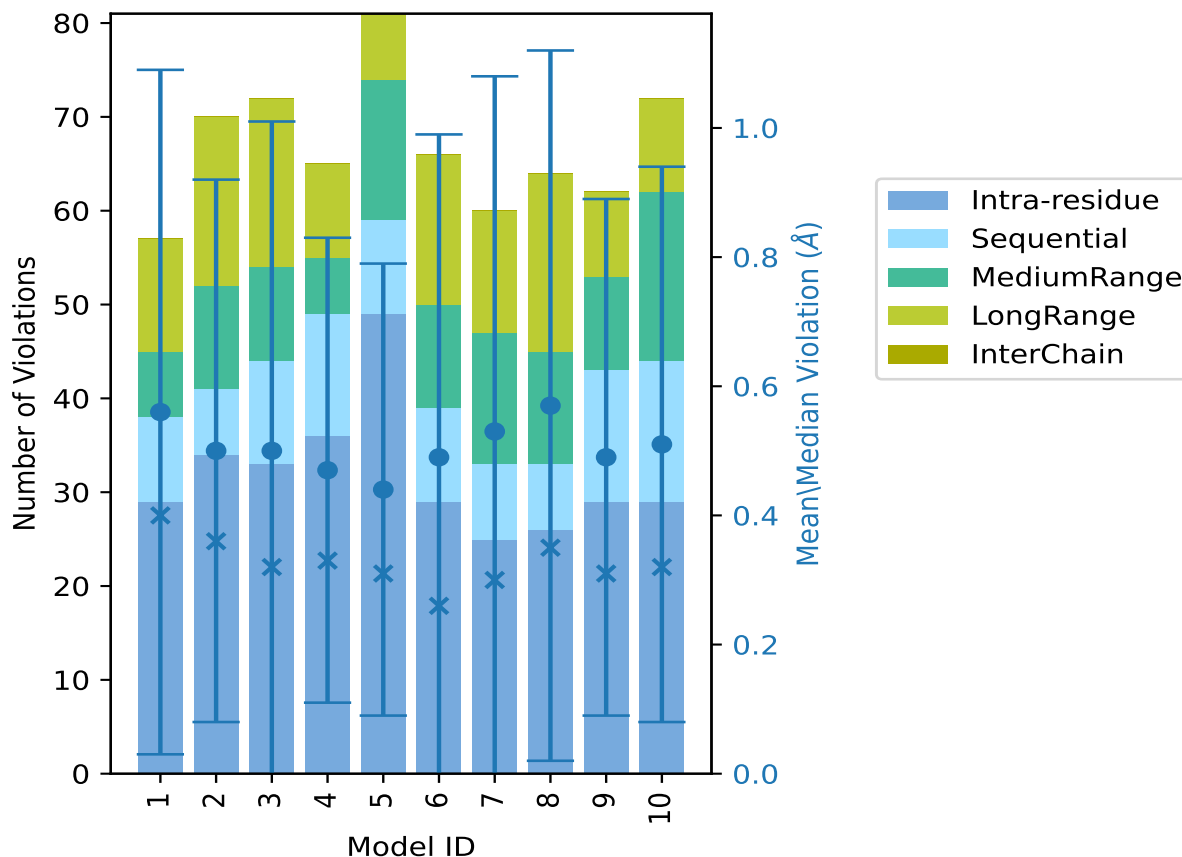
The following table provides the distance violation statistics for each model in the ensemble. Violations less than 0.1 Å are not included in the statistics.

| Model ID | Number of violations |                 |                 |                 |                 |       | Mean (Å) | Max (Å) | SD <sup>6</sup> (Å) | Median (Å) |
|----------|----------------------|-----------------|-----------------|-----------------|-----------------|-------|----------|---------|---------------------|------------|
|          | IR <sup>1</sup>      | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> | Total |          |         |                     |            |
| 1        | 29                   | 9               | 7               | 12              | 0               | 57    | 0.56     | 2.55    | 0.53                | 0.4        |
| 2        | 34                   | 7               | 11              | 18              | 0               | 70    | 0.5      | 2.14    | 0.42                | 0.36       |
| 3        | 33                   | 11              | 10              | 18              | 0               | 72    | 0.5      | 2.48    | 0.51                | 0.32       |
| 4        | 36                   | 13              | 6               | 10              | 0               | 65    | 0.47     | 1.54    | 0.36                | 0.33       |
| 5        | 49                   | 10              | 15              | 7               | 0               | 81    | 0.44     | 1.93    | 0.35                | 0.31       |
| 6        | 29                   | 10              | 11              | 16              | 0               | 66    | 0.49     | 2.3     | 0.5                 | 0.26       |
| 7        | 25                   | 8               | 14              | 13              | 0               | 60    | 0.53     | 2.55    | 0.55                | 0.3        |
| 8        | 26                   | 7               | 12              | 19              | 0               | 64    | 0.57     | 2.53    | 0.55                | 0.35       |
| 9        | 29                   | 14              | 10              | 9               | 0               | 62    | 0.49     | 1.64    | 0.4                 | 0.31       |
| 10       | 29                   | 15              | 18              | 10              | 0               | 72    | 0.51     | 1.77    | 0.43                | 0.32       |

<sup>1</sup>Intra-residue restraints, <sup>2</sup>Sequential restraints, <sup>3</sup>Medium range restraints, <sup>4</sup>Long range restraints,

<sup>5</sup>Inter-chain restraints, <sup>6</sup>Standard deviation

### 9.2.1 Bar graph : Distance Violation statistics for each model [i](#)



The mean(dot),median(x) and the standard deviation are shown in blue with respect to the y axis on the right

### 9.3 Distance violation statistics for the ensemble [i](#)

Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 2387(IR:1178, SQ:632, MR:250, LR:327, IC:0) restraints are not violated in the ensemble.

| Number of violated restraints |                 |                 |                 |                 |       | Fraction of the ensemble |      |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|-------|--------------------------|------|
| IR <sup>1</sup>               | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> | Total | Count <sup>6</sup>       | %    |
| 44                            | 34              | 24              | 31              | 0               | 133   | 1                        | 10.0 |
| 35                            | 13              | 8               | 8               | 0               | 64    | 2                        | 20.0 |
| 17                            | 7               | 7               | 6               | 0               | 37    | 3                        | 30.0 |
| 12                            | 3               | 4               | 6               | 0               | 25    | 4                        | 40.0 |

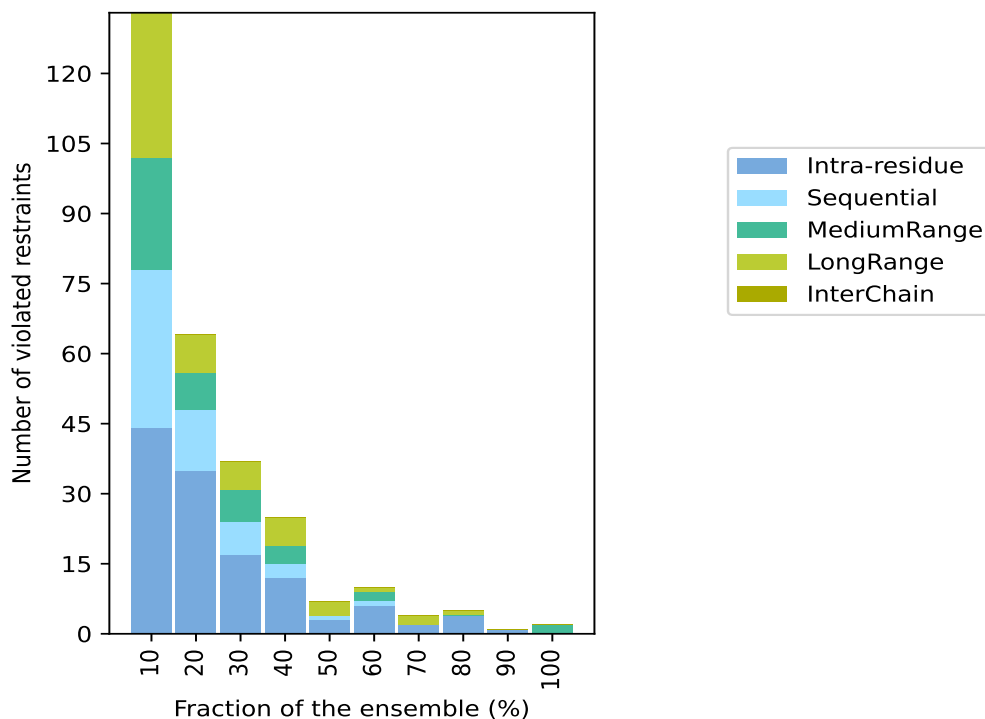
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| Number of violated restraints |                 |                 |                 |                 |       | Fraction of the ensemble |       |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|-------|--------------------------|-------|
| IR <sup>1</sup>               | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> | Total | Count <sup>6</sup>       | %     |
| 3                             | 1               | 0               | 3               | 0               | 7     | 5                        | 50.0  |
| 6                             | 1               | 2               | 1               | 0               | 10    | 6                        | 60.0  |
| 2                             | 0               | 0               | 2               | 0               | 4     | 7                        | 70.0  |
| 4                             | 0               | 0               | 1               | 0               | 5     | 8                        | 80.0  |
| 1                             | 0               | 0               | 0               | 0               | 1     | 9                        | 90.0  |
| 0                             | 0               | 2               | 0               | 0               | 2     | 10                       | 100.0 |

<sup>1</sup>Intra-residue restraints, <sup>2</sup>Sequential restraints, <sup>3</sup>Medium range restraints, <sup>4</sup>Long range restraints, <sup>5</sup>Inter-chain restraints, <sup>6</sup> Number of models with violations

### 9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)

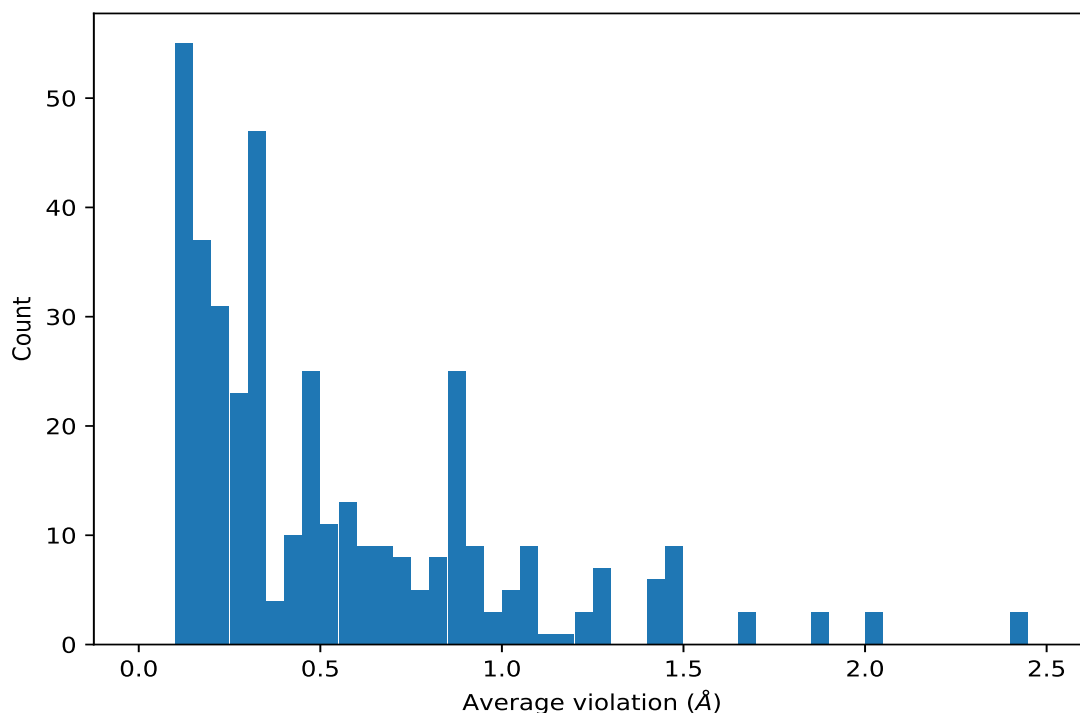


## 9.4 Most violated distance restraints in the ensemble [i](#)

### 9.4.1 Histogram : Distribution of mean distance violations [i](#)

The following histogram shows the distribution of the average value of the violation. The average is calculated for each restraint that is violated in more than one model over all the violated models in the ensemble





#### 9.4.2 Table: Most violated distance restraints [i](#)

The following table provides the mean and the standard deviation of the violation for each restraint sorted by number of violated models and the mean value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 10                  | 0.81     | 0.22                | 0.89       |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 10                  | 0.16     | 0.03                | 0.16       |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 9                   | 0.13     | 0.02                | 0.12       |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 8                   | 1.48     | 0.3                 | 1.53       |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 8                   | 0.83     | 0.38                | 0.9        |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 8                   | 0.48     | 0.02                | 0.48       |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD21 | 8                   | 0.36     | 0.04                | 0.37       |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD22 | 8                   | 0.36     | 0.04                | 0.37       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD23 | 8                   | 0.36     | 0.04                | 0.37       |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 8                   | 0.31     | 0.0                 | 0.31       |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 7                   | 1.21     | 0.49                | 1.37       |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 7                   | 1.21     | 0.49                | 1.37       |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 7                   | 1.21     | 0.49                | 1.37       |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 7                   | 1.08     | 0.45                | 1.33       |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 7                   | 1.08     | 0.45                | 1.33       |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 7                   | 1.08     | 0.45                | 1.33       |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 7                   | 0.79     | 0.28                | 0.9        |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 7                   | 0.54     | 0.16                | 0.55       |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 6                   | 1.25     | 0.1                 | 1.24       |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 6                   | 1.25     | 0.1                 | 1.24       |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 6                   | 1.25     | 0.1                 | 1.24       |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 6                   | 1.0      | 0.16                | 0.98       |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 6                   | 1.0      | 0.16                | 0.98       |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 6                   | 1.0      | 0.16                | 0.98       |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 6                   | 0.82     | 0.03                | 0.81       |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 6                   | 0.68     | 0.03                | 0.7        |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 6                   | 0.43     | 0.21                | 0.44       |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD13 | 6                   | 0.32     | 0.14                | 0.36       |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 6                   | 0.27     | 0.18                | 0.19       |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2    | 6                   | 0.16     | 0.02                | 0.17       |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H    | 6                   | 0.14     | 0.02                | 0.14       |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA   | 6                   | 0.12     | 0.01                | 0.12       |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11  | 5                   | 1.89     | 0.89                | 2.32       |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12  | 5                   | 1.89     | 0.89                | 2.32       |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13  | 5                   | 1.89     | 0.89                | 2.32       |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 5                   | 1.12     | 0.34                | 1.31       |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 5                   | 0.88     | 0.25                | 0.79       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 5                   | 0.88     | 0.25                | 0.79       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 5                   | 0.86     | 0.19                | 0.82       |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 5                   | 0.84     | 0.25                | 0.86       |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 5                   | 0.7      | 0.23                | 0.67       |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 5                   | 0.58     | 0.29                | 0.57       |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD11  | 4                   | 2.44     | 0.11                | 2.45       |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD12  | 4                   | 2.44     | 0.11                | 2.45       |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD13  | 4                   | 2.44     | 0.11                | 2.45       |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD11  | 4                   | 1.68     | 0.15                | 1.72       |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD12  | 4                   | 1.68     | 0.15                | 1.72       |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD13  | 4                   | 1.68     | 0.15                | 1.72       |
| (2,150)  | 1:A:40:LEU:HD11  | 1:A:21:TRP:HD1   | 4                   | 1.28     | 0.29                | 1.3        |
| (2,150)  | 1:A:40:LEU:HD12  | 1:A:21:TRP:HD1   | 4                   | 1.28     | 0.29                | 1.3        |
| (2,150)  | 1:A:40:LEU:HD13  | 1:A:21:TRP:HD1   | 4                   | 1.28     | 0.29                | 1.3        |
| (1,823)  | 1:A:156:GLU:HB2  | 1:A:153:THR:HA   | 4                   | 1.16     | 0.3                 | 1.23       |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD1  | 4                   | 1.0      | 0.53                | 1.2        |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD2  | 4                   | 1.0      | 0.53                | 1.2        |
| (1,618)  | 1:A:112:ARG:HB2  | 1:A:112:ARG:H    | 4                   | 0.88     | 0.05                | 0.88       |
| (1,479)  | 1:A:208:ARG:HD3  | 1:A:209:GLN:H    | 4                   | 0.8      | 0.25                | 0.9        |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD1   | 4                   | 0.74     | 0.62                | 0.64       |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD2   | 4                   | 0.74     | 0.62                | 0.64       |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD1   | 4                   | 0.74     | 0.62                | 0.64       |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD2   | 4                   | 0.74     | 0.62                | 0.64       |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD1   | 4                   | 0.74     | 0.62                | 0.64       |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD2   | 4                   | 0.74     | 0.62                | 0.64       |
| (1,489)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:H    | 4                   | 0.58     | 0.26                | 0.68       |
| (1,541)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:HA    | 4                   | 0.5      | 0.43                | 0.28       |
| (1,1375) | 1:A:156:GLU:H    | 1:A:156:GLU:HB2  | 4                   | 0.48     | 0.19                | 0.58       |
| (1,825)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:HA   | 4                   | 0.48     | 0.21                | 0.46       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD21 | 4                   | 0.47     | 0.15                | 0.45       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD22 | 4                   | 0.47     | 0.15                | 0.45       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD23 | 4                   | 0.47     | 0.15                | 0.45       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD11 | 4                   | 0.47     | 0.15                | 0.45       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD12 | 4                   | 0.47     | 0.15                | 0.45       |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD13 | 4                   | 0.47     | 0.15                | 0.45       |

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| Key      | Atom-1           | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|-----------------|---------------------|----------|---------------------|------------|
| (1,2208) | 1:A:126:VAL:HG21 | 1:A:207:LEU:HA  | 4                   | 0.46     | 0.21                | 0.49       |
| (1,2208) | 1:A:126:VAL:HG22 | 1:A:207:LEU:HA  | 4                   | 0.46     | 0.21                | 0.49       |
| (1,2208) | 1:A:126:VAL:HG23 | 1:A:207:LEU:HA  | 4                   | 0.46     | 0.21                | 0.49       |
| (1,552)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:H    | 4                   | 0.45     | 0.23                | 0.34       |
| (1,631)  | 1:A:110:SER:HB2  | 1:A:110:SER:HA  | 4                   | 0.43     | 0.0                 | 0.43       |
| (1,543)  | 1:A:10:LYS:HB2   | 1:A:10:LYS:HA   | 4                   | 0.41     | 0.01                | 0.41       |
| (1,1206) | 1:A:99:LYS:H     | 1:A:99:LYS:HD2  | 4                   | 0.35     | 0.11                | 0.38       |
| (1,1241) | 1:A:113:LYS:H    | 1:A:113:LYS:HG2 | 4                   | 0.32     | 0.13                | 0.34       |
| (1,1544) | 1:A:217:PHE:H    | 1:A:216:ASP:HB2 | 4                   | 0.27     | 0.11                | 0.26       |
| (1,1240) | 1:A:114:LYS:H    | 1:A:114:LYS:HB2 | 4                   | 0.16     | 0.04                | 0.14       |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB1  | 4                   | 0.16     | 0.03                | 0.16       |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB2  | 4                   | 0.16     | 0.03                | 0.16       |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB3  | 4                   | 0.16     | 0.03                | 0.16       |
| (1,1843) | 1:A:36:TRP:HH2   | 1:A:78:SER:HA   | 4                   | 0.15     | 0.05                | 0.12       |
| (1,1543) | 1:A:217:PHE:H    | 1:A:217:PHE:HA  | 4                   | 0.15     | 0.03                | 0.15       |
| (1,1773) | 1:A:34:ASN:HD21  | 1:A:32:ALA:HA   | 4                   | 0.12     | 0.01                | 0.12       |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE1 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE2 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE1 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE2 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE1 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE2 | 3                   | 1.42     | 0.92                | 2.01       |
| (1,1911) | 1:A:149:GLU:HB2  | 1:A:45:HIS:HD2  | 3                   | 1.25     | 0.53                | 1.57       |
| (1,1935) | 1:A:90:LEU:HD21  | 1:A:90:LEU:HA   | 3                   | 0.99     | 0.08                | 0.97       |
| (1,1935) | 1:A:90:LEU:HD22  | 1:A:90:LEU:HA   | 3                   | 0.99     | 0.08                | 0.97       |
| (1,1935) | 1:A:90:LEU:HD23  | 1:A:90:LEU:HA   | 3                   | 0.99     | 0.08                | 0.97       |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG11 | 3                   | 0.83     | 0.79                | 0.45       |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG12 | 3                   | 0.83     | 0.79                | 0.45       |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG13 | 3                   | 0.83     | 0.79                | 0.45       |
| (2,278)  | 1:A:79:VAL:HG21  | 1:A:75:ARG:HA   | 3                   | 0.77     | 0.03                | 0.77       |
| (2,278)  | 1:A:79:VAL:HG22  | 1:A:75:ARG:HA   | 3                   | 0.77     | 0.03                | 0.77       |
| (2,278)  | 1:A:79:VAL:HG23  | 1:A:75:ARG:HA   | 3                   | 0.77     | 0.03                | 0.77       |
| (1,940)  | 1:A:185:LYS:H    | 1:A:184:LYS:HB2 | 3                   | 0.72     | 0.19                | 0.85       |
| (1,369)  | 1:A:179:LEU:HD21 | 1:A:179:LEU:HA  | 3                   | 0.68     | 0.01                | 0.68       |
| (1,369)  | 1:A:179:LEU:HD22 | 1:A:179:LEU:HA  | 3                   | 0.68     | 0.01                | 0.68       |
| (1,369)  | 1:A:179:LEU:HD23 | 1:A:179:LEU:HA  | 3                   | 0.68     | 0.01                | 0.68       |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG11 | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG12 | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG13 | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG11 | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG12 | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG13 | 3                   | 0.64     | 0.3                 | 0.59       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG11  | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG12  | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG13  | 3                   | 0.64     | 0.3                 | 0.59       |
| (1,472)  | 1:A:206:LYS:HD2  | 1:A:206:LYS:H    | 3                   | 0.58     | 0.41                | 0.46       |
| (1,490)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:HE21 | 3                   | 0.57     | 0.0                 | 0.57       |
| (1,707)  | 1:A:79:VAL:HG21  | 1:A:76:VAL:HA    | 3                   | 0.57     | 0.13                | 0.61       |
| (1,707)  | 1:A:79:VAL:HG22  | 1:A:76:VAL:HA    | 3                   | 0.57     | 0.13                | 0.61       |
| (1,707)  | 1:A:79:VAL:HG23  | 1:A:76:VAL:HA    | 3                   | 0.57     | 0.13                | 0.61       |
| (1,51)   | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 3                   | 0.56     | 0.19                | 0.59       |
| (1,51)   | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 3                   | 0.56     | 0.19                | 0.59       |
| (1,51)   | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 3                   | 0.56     | 0.19                | 0.59       |
| (1,621)  | 1:A:113:LYS:HB2  | 1:A:113:LYS:H    | 3                   | 0.53     | 0.03                | 0.54       |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:220:THR:H    | 3                   | 0.52     | 0.15                | 0.63       |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:219:GLN:H    | 3                   | 0.52     | 0.15                | 0.63       |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG21 | 3                   | 0.52     | 0.11                | 0.51       |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG22 | 3                   | 0.52     | 0.11                | 0.51       |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG23 | 3                   | 0.52     | 0.11                | 0.51       |
| (1,1757) | 1:A:59:GLN:HE21  | 1:A:59:GLN:HG2   | 3                   | 0.49     | 0.01                | 0.49       |
| (1,1168) | 1:A:88:SER:H     | 1:A:88:SER:HB2   | 3                   | 0.47     | 0.01                | 0.47       |
| (1,402)  | 1:A:4:ARG:HB2    | 1:A:4:ARG:HA     | 3                   | 0.42     | 0.0                 | 0.42       |
| (1,498)  | 1:A:218:GLN:HA   | 1:A:218:GLN:HG2  | 3                   | 0.41     | 0.42                | 0.11       |
| (1,468)  | 1:A:205:GLU:HB2  | 1:A:206:LYS:H    | 3                   | 0.38     | 0.09                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD11 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD12 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD13 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD21 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD22 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD23 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD11 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD12 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD13 | 3                   | 0.31     | 0.14                | 0.36       |
| (1,497)  | 1:A:219:GLN:HG2  | 1:A:219:GLN:HA   | 3                   | 0.29     | 0.02                | 0.3        |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG11  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG12  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG13  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG11  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG12  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG13  | 3                   | 0.27     | 0.06                | 0.24       |
| (1,43)   | 1:A:193:THR:HG21 | 1:A:193:THR:H    | 3                   | 0.2      | 0.01                | 0.2        |
| (1,43)   | 1:A:193:THR:HG22 | 1:A:193:THR:H    | 3                   | 0.2      | 0.01                | 0.2        |
| (1,43)   | 1:A:193:THR:HG23 | 1:A:193:THR:H    | 3                   | 0.2      | 0.01                | 0.2        |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG21  | 3                   | 0.19     | 0.01                | 0.18       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG22  | 3                   | 0.19     | 0.01                | 0.18       |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG23  | 3                   | 0.19     | 0.01                | 0.18       |
| (1,424)  | 1:A:184:LYS:HG3  | 1:A:184:LYS:H    | 3                   | 0.19     | 0.08                | 0.14       |
| (1,2357) | 1:A:201:GLU:H    | 1:A:197:ARG:HA   | 3                   | 0.18     | 0.04                | 0.21       |
| (1,2357) | 1:A:201:GLU:H    | 1:A:196:LEU:HA   | 3                   | 0.18     | 0.04                | 0.21       |
| (1,16)   | 1:A:8:PRO:HA     | 1:A:9:MET:H      | 3                   | 0.18     | 0.02                | 0.18       |
| (1,1721) | 1:A:221:GLN:HE21 | 1:A:221:GLN:HG2  | 3                   | 0.18     | 0.02                | 0.18       |
| (1,329)  | 1:A:168:THR:HG21 | 1:A:168:THR:H    | 3                   | 0.17     | 0.0                 | 0.17       |
| (1,329)  | 1:A:168:THR:HG22 | 1:A:168:THR:H    | 3                   | 0.17     | 0.0                 | 0.17       |
| (1,329)  | 1:A:168:THR:HG23 | 1:A:168:THR:H    | 3                   | 0.17     | 0.0                 | 0.17       |
| (1,878)  | 1:A:12:VAL:H     | 1:A:11:ARG:HB2   | 3                   | 0.17     | 0.05                | 0.16       |
| (1,1454) | 1:A:162:SER:H    | 1:A:162:SER:HB2  | 3                   | 0.16     | 0.02                | 0.16       |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD1   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD2   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD1   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD2   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD1   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD2   | 3                   | 0.15     | 0.03                | 0.16       |
| (1,2064) | 1:A:40:LEU:HD21  | 1:A:21:TRP:HE3   | 3                   | 0.14     | 0.02                | 0.14       |
| (1,2064) | 1:A:40:LEU:HD22  | 1:A:21:TRP:HE3   | 3                   | 0.14     | 0.02                | 0.14       |
| (1,2064) | 1:A:40:LEU:HD23  | 1:A:21:TRP:HE3   | 3                   | 0.14     | 0.02                | 0.14       |
| (2,194)  | 1:A:38:PHE:H     | 1:A:30:ILE:HG13  | 3                   | 0.14     | 0.03                | 0.13       |
| (1,1637) | 1:A:20:GLU:H     | 1:A:20:GLU:HB2   | 3                   | 0.12     | 0.0                 | 0.12       |
| (1,1025) | 1:A:59:GLN:H     | 1:A:60:LYS:HB2   | 3                   | 0.12     | 0.01                | 0.11       |
| (1,1939) | 1:A:204:LEU:HD11 | 1:A:208:ARG:HA   | 2                   | 2.04     | 0.5                 | 2.04       |
| (1,1939) | 1:A:204:LEU:HD12 | 1:A:208:ARG:HA   | 2                   | 2.04     | 0.5                 | 2.04       |
| (1,1939) | 1:A:204:LEU:HD13 | 1:A:208:ARG:HA   | 2                   | 2.04     | 0.5                 | 2.04       |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG2   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG2   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG2   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG3   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG3   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG3   | 2                   | 1.06     | 0.26                | 1.06       |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD11 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD12 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD13 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD11 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD12 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD13 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD11 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD12 | 2                   | 0.9      | 0.25                | 0.9        |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD13 | 2                   | 0.9      | 0.25                | 0.9        |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD11 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD12 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD13 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD11 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD12 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD13 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD11 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD12 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD13 | 2                   | 0.87     | 0.0                 | 0.87       |
| (1,525)  | 1:A:212:ARG:HB2  | 1:A:213:ALA:H    | 2                   | 0.76     | 0.05                | 0.76       |
| (1,143)  | 1:A:118:LYS:HB2  | 1:A:118:LYS:H    | 2                   | 0.72     | 0.01                | 0.72       |
| (1,1490) | 1:A:184:LYS:H    | 1:A:184:LYS:HB2  | 2                   | 0.67     | 0.01                | 0.67       |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HG2  | 2                   | 0.67     | 0.1                 | 0.67       |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HD2  | 2                   | 0.67     | 0.1                 | 0.67       |
| (1,1237) | 1:A:115:ILE:H    | 1:A:115:ILE:HG13 | 2                   | 0.65     | 0.0                 | 0.65       |
| (1,652)  | 1:A:98:LYS:HB2   | 1:A:98:LYS:H     | 2                   | 0.58     | 0.07                | 0.58       |
| (1,1609) | 1:A:218:GLN:H    | 1:A:218:GLN:HB2  | 2                   | 0.57     | 0.46                | 0.57       |
| (1,532)  | 1:A:4:ARG:HD2    | 1:A:4:ARG:HA     | 2                   | 0.57     | 0.02                | 0.57       |
| (1,1829) | 1:A:135:HIS:HD2  | 1:A:132:SER:HB2  | 2                   | 0.52     | 0.34                | 0.52       |
| (1,1797) | 1:A:187:LEU:H    | 1:A:187:LEU:HB2  | 2                   | 0.52     | 0.0                 | 0.52       |
| (1,1442) | 1:A:160:LYS:H    | 1:A:160:LYS:HB2  | 2                   | 0.5      | 0.01                | 0.5        |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD11 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD12 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD13 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD11 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD12 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD13 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD11 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD12 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD13 | 2                   | 0.48     | 0.24                | 0.48       |
| (1,487)  | 1:A:221:GLN:HG2  | 1:A:221:GLN:H    | 2                   | 0.47     | 0.01                | 0.47       |
| (2,285)  | 1:A:140:VAL:HG21 | 1:A:75:ARG:HA    | 2                   | 0.44     | 0.32                | 0.44       |
| (2,285)  | 1:A:140:VAL:HG22 | 1:A:75:ARG:HA    | 2                   | 0.44     | 0.32                | 0.44       |
| (2,285)  | 1:A:140:VAL:HG23 | 1:A:75:ARG:HA    | 2                   | 0.44     | 0.32                | 0.44       |
| (1,1249) | 1:A:118:LYS:H    | 1:A:118:LYS:HD2  | 2                   | 0.4      | 0.0                 | 0.4        |
| (1,993)  | 1:A:55:SER:H     | 1:A:55:SER:HB2   | 2                   | 0.4      | 0.28                | 0.4        |
| (1,81)   | 1:A:196:LEU:HD11 | 1:A:196:LEU:HA   | 2                   | 0.35     | 0.21                | 0.35       |
| (1,81)   | 1:A:196:LEU:HD12 | 1:A:196:LEU:HA   | 2                   | 0.35     | 0.21                | 0.35       |
| (1,81)   | 1:A:196:LEU:HD13 | 1:A:196:LEU:HA   | 2                   | 0.35     | 0.21                | 0.35       |
| (1,661)  | 1:A:95:ASP:HB2   | 1:A:95:ASP:H     | 2                   | 0.34     | 0.01                | 0.34       |
| (1,802)  | 1:A:20:GLU:HG2   | 1:A:21:TRP:HD1   | 2                   | 0.34     | 0.19                | 0.34       |
| (1,1368) | 1:A:188:LYS:H    | 1:A:188:LYS:HB2  | 2                   | 0.34     | 0.01                | 0.34       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,138)  | 1:A:128:LYS:HB2  | 1:A:128:LYS:H    | 2                   | 0.32     | 0.01                | 0.32       |
| (1,624)  | 1:A:111:LEU:HB2  | 1:A:111:LEU:H    | 2                   | 0.32     | 0.02                | 0.32       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG21 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG22 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG23 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG21 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG22 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG23 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG21 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG22 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG23 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG11 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG12 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG13 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG11 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG12 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG13 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG11 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG12 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG13 | 2                   | 0.31     | 0.17                | 0.31       |
| (1,1696) | 1:A:121:ASN:HD22 | 1:A:120:MET:HB2  | 2                   | 0.3      | 0.1                 | 0.3        |
| (1,2229) | 1:A:49:LEU:HD21  | 1:A:49:LEU:HA    | 2                   | 0.3      | 0.01                | 0.3        |
| (1,2229) | 1:A:49:LEU:HD22  | 1:A:49:LEU:HA    | 2                   | 0.3      | 0.01                | 0.3        |
| (1,2229) | 1:A:49:LEU:HD23  | 1:A:49:LEU:HA    | 2                   | 0.3      | 0.01                | 0.3        |
| (1,114)  | 1:A:120:MET:HG2  | 1:A:120:MET:H    | 2                   | 0.29     | 0.16                | 0.29       |
| (1,650)  | 1:A:99:LYS:HG2   | 1:A:99:LYS:H     | 2                   | 0.28     | 0.16                | 0.28       |
| (1,347)  | 1:A:206:LYS:HG3  | 1:A:207:LEU:H    | 2                   | 0.27     | 0.06                | 0.27       |
| (1,917)  | 1:A:30:ILE:H     | 1:A:29:LYS:HG3   | 2                   | 0.27     | 0.12                | 0.27       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG21  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG22  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG23  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG11  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG12  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG13  | 2                   | 0.25     | 0.1                 | 0.25       |
| (1,875)  | 1:A:12:VAL:H     | 1:A:13:PRO:HD3   | 2                   | 0.24     | 0.04                | 0.24       |
| (1,443)  | 1:A:202:PRO:HA   | 1:A:206:LYS:H    | 2                   | 0.23     | 0.06                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |

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| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE1  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE2  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE3  | 2                   | 0.23     | 0.07                | 0.23       |
| (1,469)  | 1:A:205:GLU:HG2  | 1:A:205:GLU:H    | 2                   | 0.22     | 0.02                | 0.22       |
| (1,1606) | 1:A:218:GLN:H    | 1:A:217:PHE:HB2  | 2                   | 0.22     | 0.01                | 0.22       |
| (1,658)  | 1:A:96:SER:HB2   | 1:A:96:SER:H     | 2                   | 0.2      | 0.08                | 0.2        |
| (1,259)  | 1:A:149:GLU:HG2  | 1:A:149:GLU:H    | 2                   | 0.2      | 0.04                | 0.2        |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD21 | 2                   | 0.2      | 0.03                | 0.2        |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD22 | 2                   | 0.2      | 0.03                | 0.2        |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD23 | 2                   | 0.2      | 0.03                | 0.2        |
| (1,824)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:H    | 2                   | 0.2      | 0.04                | 0.2        |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE3   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE3   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE3   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 2                   | 0.19     | 0.01                | 0.19       |
| (1,659)  | 1:A:96:SER:HB2   | 1:A:96:SER:HA    | 2                   | 0.18     | 0.01                | 0.18       |
| (1,1242) | 1:A:113:LYS:H    | 1:A:113:LYS:HD2  | 2                   | 0.18     | 0.06                | 0.18       |
| (1,1915) | 1:A:220:THR:HG21 | 1:A:220:THR:HA   | 2                   | 0.18     | 0.01                | 0.18       |
| (1,1915) | 1:A:220:THR:HG22 | 1:A:220:THR:HA   | 2                   | 0.18     | 0.01                | 0.18       |
| (1,1915) | 1:A:220:THR:HG23 | 1:A:220:THR:HA   | 2                   | 0.18     | 0.01                | 0.18       |
| (1,910)  | 1:A:29:LYS:H     | 1:A:29:LYS:HG2   | 2                   | 0.17     | 0.01                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD1   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD2   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD1   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD2   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD1   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD2   | 2                   | 0.17     | 0.02                | 0.17       |
| (1,1115) | 1:A:219:GLN:H    | 1:A:219:GLN:HG2  | 2                   | 0.15     | 0.02                | 0.15       |
| (1,1790) | 1:A:44:PHE:H     | 1:A:45:HIS:HD2   | 2                   | 0.15     | 0.02                | 0.15       |
| (1,593)  | 1:A:19:GLU:HG3   | 1:A:19:GLU:H     | 2                   | 0.15     | 0.0                 | 0.15       |
| (1,809)  | 1:A:188:LYS:HD2  | 1:A:188:LYS:H    | 2                   | 0.15     | 0.0                 | 0.15       |

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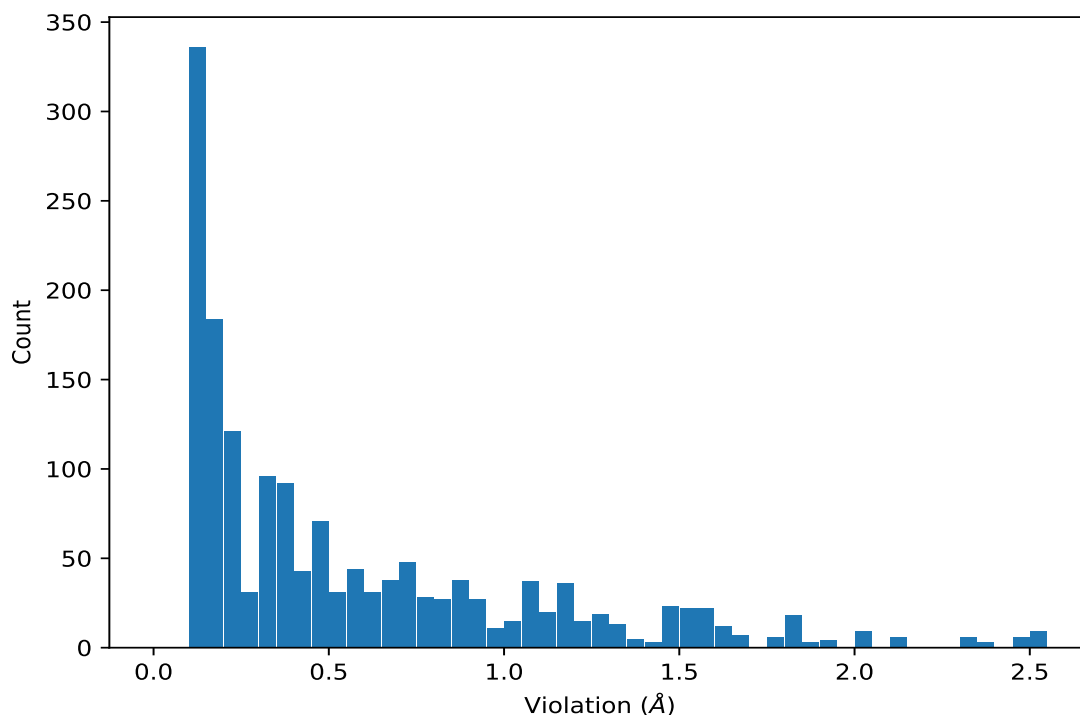
| Key      | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,102)  | 1:A:201:GLU:HB2  | 1:A:202:PRO:HD3  | 2                   | 0.14     | 0.01                | 0.14       |
| (1,233)  | 1:A:141:LEU:HG   | 1:A:141:LEU:H    | 2                   | 0.14     | 0.03                | 0.14       |
| (1,428)  | 1:A:51:LYS:HD2   | 1:A:51:LYS:H     | 2                   | 0.14     | 0.0                 | 0.14       |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD11 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD12 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD13 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD11 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD12 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD13 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD11 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD12 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD13 | 2                   | 0.14     | 0.02                | 0.14       |
| (1,1187) | 1:A:216:ASP:H    | 1:A:216:ASP:HB2  | 2                   | 0.14     | 0.02                | 0.14       |
| (1,348)  | 1:A:206:LYS:HG2  | 1:A:207:LEU:H    | 2                   | 0.13     | 0.02                | 0.13       |
| (1,994)  | 1:A:55:SER:H     | 1:A:56:VAL:HB    | 2                   | 0.13     | 0.01                | 0.13       |
| (1,1605) | 1:A:218:GLN:H    | 1:A:218:GLN:HA   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG21 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG22 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG23 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG21 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG22 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG23 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG21 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG22 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG23 | 2                   | 0.12     | 0.02                | 0.12       |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB2   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB2   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB2   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB3   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB3   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB3   | 2                   | 0.12     | 0.01                | 0.12       |
| (1,76)   | 1:A:200:ILE:HG12 | 1:A:200:ILE:H    | 2                   | 0.11     | 0.0                 | 0.11       |
| (3,121)  | 1:A:197:ARG:H    | 1:A:193:THR:O    | 2                   | 0.11     | 0.0                 | 0.11       |

<sup>1</sup>Number of violated models, <sup>2</sup>Standard deviation

## 9.5 All violated distance restraints [\(i\)](#)

### 9.5.1 Histogram : Distribution of distance violations [\(i\)](#)

The following histogram shows the distribution of the absolute value of the violation for all violated restraints in the ensemble.



### 9.5.2 Table : All distance violations [i](#)

The following table lists the absolute value of the violation for each restraint in the ensemble sorted by its value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

| Key      | Atom-1           | Atom-2          | Model ID | Violation (Å) |
|----------|------------------|-----------------|----------|---------------|
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD11 | 7        | 2.55          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD12 | 7        | 2.55          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD13 | 7        | 2.55          |
| (1,1939) | 1:A:204:LEU:HD11 | 1:A:208:ARG:HA  | 1        | 2.55          |
| (1,1939) | 1:A:204:LEU:HD12 | 1:A:208:ARG:HA  | 1        | 2.55          |
| (1,1939) | 1:A:204:LEU:HD13 | 1:A:208:ARG:HA  | 1        | 2.55          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD11 | 8        | 2.53          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD12 | 8        | 2.53          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD13 | 8        | 2.53          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11 | 8        | 2.49          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12 | 8        | 2.49          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13 | 8        | 2.49          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11 | 3        | 2.48          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12 | 3        | 2.48          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13 | 3        | 2.48          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD11 | 3        | 2.37          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD12  | 3        | 2.37          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD13  | 3        | 2.37          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11  | 7        | 2.32          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12  | 7        | 2.32          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13  | 7        | 2.32          |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD11  | 6        | 2.3           |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD12  | 6        | 2.3           |
| (2,235)  | 1:A:21:TRP:HZ2   | 1:A:40:LEU:HD13  | 6        | 2.3           |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE1  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE2  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE1  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE2  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE1  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE2  | 2        | 2.14          |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE1  | 1        | 2.01          |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE2  | 1        | 2.01          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE1  | 1        | 2.01          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE2  | 1        | 2.01          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE1  | 1        | 2.01          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE2  | 1        | 2.01          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11  | 6        | 2.0           |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12  | 6        | 2.0           |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13  | 6        | 2.0           |
| (1,146)  | 1:A:121:ASN:HB2  | 1:A:118:LYS:HA   | 5        | 1.93          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG11  | 6        | 1.92          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG12  | 6        | 1.92          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG13  | 6        | 1.92          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD11  | 7        | 1.86          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD12  | 7        | 1.86          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD13  | 7        | 1.86          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 3        | 1.84          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 1        | 1.81          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 1        | 1.81          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 1        | 1.81          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 10       | 1.77          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 10       | 1.77          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 10       | 1.77          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD11  | 6        | 1.76          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD12  | 6        | 1.76          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD13  | 6        | 1.76          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 1        | 1.69          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 1        | 1.69          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 1        | 1.69          |
| (1,1911) | 1:A:149:GLU:HB2  | 1:A:45:HIS:HD2   | 2        | 1.68          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD11  | 8        | 1.67          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD12  | 8        | 1.67          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD13  | 8        | 1.67          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 9        | 1.64          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 9        | 1.64          |
| (2,150)  | 1:A:40:LEU:HD11  | 1:A:21:TRP:HD1   | 3        | 1.63          |
| (2,150)  | 1:A:40:LEU:HD12  | 1:A:21:TRP:HD1   | 3        | 1.63          |
| (2,150)  | 1:A:40:LEU:HD13  | 1:A:21:TRP:HD1   | 3        | 1.63          |
| (1,2137) | 1:A:193:THR:HA   | 1:A:196:LEU:HD21 | 7        | 1.58          |
| (1,2137) | 1:A:193:THR:HA   | 1:A:196:LEU:HD22 | 7        | 1.58          |
| (1,2137) | 1:A:193:THR:HA   | 1:A:196:LEU:HD23 | 7        | 1.58          |
| (1,1911) | 1:A:149:GLU:HB2  | 1:A:45:HIS:HD2   | 10       | 1.57          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 2        | 1.56          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 2        | 1.56          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 2        | 1.56          |
| (1,2069) | 1:A:192:ILE:HG21 | 1:A:79:VAL:HG11  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG21 | 1:A:79:VAL:HG12  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG21 | 1:A:79:VAL:HG13  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG22 | 1:A:79:VAL:HG11  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG22 | 1:A:79:VAL:HG12  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG22 | 1:A:79:VAL:HG13  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG23 | 1:A:79:VAL:HG11  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG23 | 1:A:79:VAL:HG12  | 8        | 1.55          |
| (1,2069) | 1:A:192:ILE:HG23 | 1:A:79:VAL:HG13  | 8        | 1.55          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD1   | 4        | 1.54          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD2   | 4        | 1.54          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD1   | 4        | 1.54          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD2   | 4        | 1.54          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD1   | 4        | 1.54          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD2   | 4        | 1.54          |
| (1,1939) | 1:A:204:LEU:HD11 | 1:A:208:ARG:HA   | 3        | 1.54          |
| (1,1939) | 1:A:204:LEU:HD12 | 1:A:208:ARG:HA   | 3        | 1.54          |
| (1,1939) | 1:A:204:LEU:HD13 | 1:A:208:ARG:HA   | 3        | 1.54          |
| (1,823)  | 1:A:156:GLU:HB2  | 1:A:153:THR:HA   | 8        | 1.51          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 6        | 1.51          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 6        | 1.51          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 6        | 1.51          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 10       | 1.5           |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 10       | 1.5           |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD1  | 7        | 1.49          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD2  | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 7        | 1.49          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 7        | 1.49          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 7        | 1.49          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 5        | 1.47          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 5        | 1.47          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 5        | 1.47          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD11  | 3        | 1.45          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD12  | 3        | 1.45          |
| (2,237)  | 1:A:21:TRP:HH2   | 1:A:40:LEU:HD13  | 3        | 1.45          |
| (2,150)  | 1:A:40:LEU:HD11  | 1:A:21:TRP:HD1   | 8        | 1.45          |
| (2,150)  | 1:A:40:LEU:HD12  | 1:A:21:TRP:HD1   | 8        | 1.45          |
| (2,150)  | 1:A:40:LEU:HD13  | 1:A:21:TRP:HD1   | 8        | 1.45          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 1        | 1.45          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 1        | 1.45          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 1        | 1.45          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 9        | 1.44          |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 9        | 1.44          |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 9        | 1.44          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 9        | 1.37          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 9        | 1.37          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 9        | 1.37          |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 4        | 1.37          |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 8        | 1.36          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 9        | 1.33          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 9        | 1.33          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 9        | 1.33          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 10       | 1.33          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 10       | 1.33          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 10       | 1.33          |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG2   | 2        | 1.32          |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG2   | 2        | 1.32          |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG2   | 2        | 1.32          |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG3   | 2        | 1.32          |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG3   | 2        | 1.32          |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG3   | 2        | 1.32          |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 1        | 1.31          |
| (2,86)   | 1:A:179:LEU:HD21 | 1:A:175:LYS:HE2  | 8        | 1.29          |
| (2,86)   | 1:A:179:LEU:HD22 | 1:A:175:LYS:HE2  | 8        | 1.29          |
| (2,86)   | 1:A:179:LEU:HD23 | 1:A:175:LYS:HE2  | 8        | 1.29          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 1        | 1.28          |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 1        | 1.28          |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 1        | 1.28          |
| (1,823)  | 1:A:156:GLU:HB2  | 1:A:153:THR:HA   | 10       | 1.26          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 1        | 1.25          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 1        | 1.25          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 1        | 1.25          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 1        | 1.25          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 5        | 1.24          |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 5        | 1.24          |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 5        | 1.24          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 6        | 1.24          |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 6        | 1.24          |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 6        | 1.24          |
| (1,541)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:HA    | 10       | 1.24          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 3        | 1.22          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 5        | 1.21          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD1  | 9        | 1.21          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD2  | 9        | 1.21          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 10       | 1.2           |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 10       | 1.2           |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 10       | 1.2           |
| (1,823)  | 1:A:156:GLU:HB2  | 1:A:153:THR:HA   | 3        | 1.2           |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD1  | 2        | 1.19          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD2  | 2        | 1.19          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 8        | 1.18          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 8        | 1.18          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 8        | 1.18          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 8        | 1.18          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 8        | 1.18          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 8        | 1.18          |
| (1,2203) | 1:A:119:VAL:HG11 | 1:A:123:ILE:HD11 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG11 | 1:A:123:ILE:HD12 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG11 | 1:A:123:ILE:HD13 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG12 | 1:A:123:ILE:HD11 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG12 | 1:A:123:ILE:HD12 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG12 | 1:A:123:ILE:HD13 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG13 | 1:A:123:ILE:HD11 | 10       | 1.17          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2203) | 1:A:119:VAL:HG13 | 1:A:123:ILE:HD12 | 10       | 1.17          |
| (1,2203) | 1:A:119:VAL:HG13 | 1:A:123:ILE:HD13 | 10       | 1.17          |
| (2,150)  | 1:A:40:LEU:HD11  | 1:A:21:TRP:HD1   | 7        | 1.16          |
| (2,150)  | 1:A:40:LEU:HD12  | 1:A:21:TRP:HD1   | 7        | 1.16          |
| (2,150)  | 1:A:40:LEU:HD13  | 1:A:21:TRP:HD1   | 7        | 1.16          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 2        | 1.16          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD1   | 9        | 1.15          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD2   | 9        | 1.15          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD1   | 9        | 1.15          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD2   | 9        | 1.15          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD1   | 9        | 1.15          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD2   | 9        | 1.15          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD11 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD12 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD13 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD11 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD12 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD13 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD11 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD12 | 10       | 1.15          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD13 | 10       | 1.15          |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 10       | 1.14          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 10       | 1.14          |
| (1,472)  | 1:A:206:LYS:HD2  | 1:A:206:LYS:H    | 8        | 1.14          |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 4        | 1.13          |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 9        | 1.11          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 9        | 1.11          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 9        | 1.11          |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 2        | 1.11          |
| (1,2199) | 1:A:140:VAL:HG21 | 1:A:137:MET:HE1  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG21 | 1:A:137:MET:HE2  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG21 | 1:A:137:MET:HE3  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG22 | 1:A:137:MET:HE1  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG22 | 1:A:137:MET:HE2  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG22 | 1:A:137:MET:HE3  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG23 | 1:A:137:MET:HE1  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG23 | 1:A:137:MET:HE2  | 9        | 1.1           |
| (1,2199) | 1:A:140:VAL:HG23 | 1:A:137:MET:HE3  | 9        | 1.1           |
| (1,1935) | 1:A:90:LEU:HD21  | 1:A:90:LEU:HA    | 5        | 1.1           |
| (1,1935) | 1:A:90:LEU:HD22  | 1:A:90:LEU:HA    | 5        | 1.1           |
| (1,1935) | 1:A:90:LEU:HD23  | 1:A:90:LEU:HA    | 5        | 1.1           |
| (2,85)   | 1:A:179:LEU:HD11 | 1:A:175:LYS:HE2  | 10       | 1.09          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (2,85)   | 1:A:179:LEU:HD12 | 1:A:175:LYS:HE2  | 10       | 1.09          |
| (2,85)   | 1:A:179:LEU:HD13 | 1:A:175:LYS:HE2  | 10       | 1.09          |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 5        | 1.09          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 5        | 1.09          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 5        | 1.09          |
| (1,851)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG2  | 4        | 1.09          |
| (1,851)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG2  | 4        | 1.09          |
| (1,851)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG2  | 4        | 1.09          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 4        | 1.08          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 4        | 1.08          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 4        | 1.08          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 4        | 1.08          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 4        | 1.08          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 4        | 1.08          |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 2        | 1.08          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 4        | 1.07          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 4        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 3        | 1.07          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 3        | 1.07          |
| (2,220)  | 1:A:199:GLU:H    | 1:A:196:LEU:HD11 | 7        | 1.06          |
| (2,220)  | 1:A:199:GLU:H    | 1:A:196:LEU:HD12 | 7        | 1.06          |
| (2,220)  | 1:A:199:GLU:H    | 1:A:196:LEU:HD13 | 7        | 1.06          |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 9        | 1.04          |
| (1,1609) | 1:A:218:GLN:H    | 1:A:218:GLN:HB2  | 5        | 1.03          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG11  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG12  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG13  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG11  | 2        | 1.02          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG12  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG13  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG11  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG12  | 2        | 1.02          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG13  | 2        | 1.02          |
| (1,349)  | 1:A:175:LYS:HG2  | 1:A:176:GLU:H    | 8        | 1.01          |
| (1,498)  | 1:A:218:GLN:HA   | 1:A:218:GLN:HG2  | 5        | 1.0           |
| (1,479)  | 1:A:208:ARG:HD3  | 1:A:209:GLN:H    | 4        | 1.0           |
| (1,1314) | 1:A:134:LYS:H    | 1:A:134:LYS:HD2  | 10       | 1.0           |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 6        | 0.99          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 5        | 0.97          |
| (1,479)  | 1:A:208:ARG:HD3  | 1:A:209:GLN:H    | 6        | 0.97          |
| (1,2200) | 1:A:140:VAL:HG21 | 1:A:137:MET:HA   | 9        | 0.97          |
| (1,2200) | 1:A:140:VAL:HG22 | 1:A:137:MET:HA   | 9        | 0.97          |
| (1,2200) | 1:A:140:VAL:HG23 | 1:A:137:MET:HA   | 9        | 0.97          |
| (1,1935) | 1:A:90:LEU:HD21  | 1:A:90:LEU:HA    | 6        | 0.97          |
| (1,1935) | 1:A:90:LEU:HD22  | 1:A:90:LEU:HA    | 6        | 0.97          |
| (1,1935) | 1:A:90:LEU:HD23  | 1:A:90:LEU:HA    | 6        | 0.97          |
| (1,1444) | 1:A:160:LYS:H    | 1:A:160:LYS:HD2  | 10       | 0.97          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 4        | 0.96          |
| (1,618)  | 1:A:112:ARG:HB2  | 1:A:112:ARG:H    | 3        | 0.94          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 7        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG21 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG22 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD11 | 1:A:123:ILE:HG23 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG21 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG22 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD12 | 1:A:123:ILE:HG23 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG21 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG22 | 6        | 0.94          |
| (1,1961) | 1:A:207:LEU:HD13 | 1:A:123:ILE:HG23 | 6        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 4        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 4        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 4        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 4        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 4        | 0.94          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 4        | 0.94          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 3        | 0.93          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 1        | 0.93          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 8        | 0.93          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 8        | 0.92          |
| (1,871)  | 1:A:11:ARG:H     | 1:A:10:LYS:HD2   | 2        | 0.91          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 4        | 0.9           |
| (1,528)  | 1:A:212:ARG:HD2  | 1:A:212:ARG:H    | 7        | 0.9           |
| (1,1935) | 1:A:90:LEU:HD21  | 1:A:90:LEU:HA    | 4        | 0.9           |
| (1,1935) | 1:A:90:LEU:HD22  | 1:A:90:LEU:HA    | 4        | 0.9           |
| (1,1935) | 1:A:90:LEU:HD23  | 1:A:90:LEU:HA    | 4        | 0.9           |
| (2,150)  | 1:A:40:LEU:HD11  | 1:A:21:TRP:HD1   | 6        | 0.88          |
| (2,150)  | 1:A:40:LEU:HD12  | 1:A:21:TRP:HD1   | 6        | 0.88          |
| (2,150)  | 1:A:40:LEU:HD13  | 1:A:21:TRP:HD1   | 6        | 0.88          |
| (1,618)  | 1:A:112:ARG:HB2  | 1:A:112:ARG:H    | 7        | 0.88          |
| (1,618)  | 1:A:112:ARG:HB2  | 1:A:112:ARG:H    | 9        | 0.88          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 9        | 0.88          |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 4        | 0.87          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 4        | 0.87          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 4        | 0.87          |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 10       | 0.87          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 10       | 0.87          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 10       | 0.87          |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 9        | 0.87          |
| (1,339)  | 1:A:174:ARG:HG3  | 1:A:178:ALA:H    | 7        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD11 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD12 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD13 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD11 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD12 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD13 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD11 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD12 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD13 | 1        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD11 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD12 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG11  | 1:A:154:LEU:HD13 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD11 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD12 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG12  | 1:A:154:LEU:HD13 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD11 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD12 | 2        | 0.87          |
| (1,2178) | 1:A:56:VAL:HG13  | 1:A:154:LEU:HD13 | 2        | 0.87          |
| (1,1829) | 1:A:135:HIS:HD2  | 1:A:132:SER:HB2  | 8        | 0.87          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 2        | 0.86          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 10       | 0.86          |
| (1,940)  | 1:A:185:LYS:H    | 1:A:184:LYS:HB2  | 5        | 0.86          |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 8        | 0.86          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,940)  | 1:A:185:LYS:H    | 1:A:184:LYS:HB2  | 8        | 0.85          |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 2        | 0.84          |
| (1,552)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:H     | 10       | 0.84          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA    | 6        | 0.84          |
| (1,479)  | 1:A:208:ARG:HD3  | 1:A:209:GLN:H    | 7        | 0.84          |
| (1,473)  | 1:A:206:LYS:HE2  | 1:A:206:LYS:H    | 5        | 0.84          |
| (1,489)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:H    | 7        | 0.83          |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 9        | 0.82          |
| (2,187)  | 1:A:133:LEU:HD21 | 1:A:137:MET:HG3  | 6        | 0.82          |
| (2,187)  | 1:A:133:LEU:HD22 | 1:A:137:MET:HG3  | 6        | 0.82          |
| (2,187)  | 1:A:133:LEU:HD23 | 1:A:137:MET:HG3  | 6        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 3        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 3        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 3        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 3        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 3        | 0.82          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 3        | 0.82          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD21 | 6        | 0.81          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD22 | 6        | 0.81          |
| (2,201)  | 1:A:79:VAL:H     | 1:A:133:LEU:HD23 | 6        | 0.81          |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 3        | 0.81          |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 7        | 0.81          |
| (1,618)  | 1:A:112:ARG:HB2  | 1:A:112:ARG:H    | 5        | 0.81          |
| (2,278)  | 1:A:79:VAL:HG21  | 1:A:75:ARG:HA    | 2        | 0.8           |
| (2,278)  | 1:A:79:VAL:HG22  | 1:A:75:ARG:HA    | 2        | 0.8           |
| (2,278)  | 1:A:79:VAL:HG23  | 1:A:75:ARG:HA    | 2        | 0.8           |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 6        | 0.8           |
| (1,525)  | 1:A:212:ARG:HB2  | 1:A:213:ALA:H    | 3        | 0.8           |
| (1,825)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:HA   | 8        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG2   | 1        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG2   | 1        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG2   | 1        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD11 | 1:A:47:MET:HG3   | 1        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD12 | 1:A:47:MET:HG3   | 1        | 0.79          |
| (1,2172) | 1:A:154:LEU:HD13 | 1:A:47:MET:HG3   | 1        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 4        | 0.79          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 4        | 0.79          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 4        | 0.79          |
| (1,649)  | 1:A:99:LYS:HB2   | 1:A:99:LYS:H     | 8        | 0.78          |
| (1,51)   | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 8        | 0.78          |
| (1,51)   | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 8        | 0.78          |
| (1,51)   | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 8        | 0.78          |
| (2,278)  | 1:A:79:VAL:HG21  | 1:A:75:ARG:HA    | 5        | 0.77          |
| (2,278)  | 1:A:79:VAL:HG22  | 1:A:75:ARG:HA    | 5        | 0.77          |
| (2,278)  | 1:A:79:VAL:HG23  | 1:A:75:ARG:HA    | 5        | 0.77          |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HG2  | 2        | 0.77          |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HD2  | 2        | 0.77          |
| (2,285)  | 1:A:140:VAL:HG21 | 1:A:75:ARG:HA    | 3        | 0.76          |
| (2,285)  | 1:A:140:VAL:HG22 | 1:A:75:ARG:HA    | 3        | 0.76          |
| (2,285)  | 1:A:140:VAL:HG23 | 1:A:75:ARG:HA    | 3        | 0.76          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 9        | 0.74          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 9        | 0.74          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 9        | 0.74          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 9        | 0.74          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 9        | 0.74          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 9        | 0.74          |
| (2,278)  | 1:A:79:VAL:HG21  | 1:A:75:ARG:HA    | 10       | 0.73          |
| (2,278)  | 1:A:79:VAL:HG22  | 1:A:75:ARG:HA    | 10       | 0.73          |
| (2,278)  | 1:A:79:VAL:HG23  | 1:A:75:ARG:HA    | 10       | 0.73          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 6        | 0.73          |
| (1,2208) | 1:A:126:VAL:HG21 | 1:A:207:LEU:HA   | 8        | 0.73          |
| (1,2208) | 1:A:126:VAL:HG22 | 1:A:207:LEU:HA   | 8        | 0.73          |
| (1,2208) | 1:A:126:VAL:HG23 | 1:A:207:LEU:HA   | 8        | 0.73          |
| (1,1493) | 1:A:177:LYS:H    | 1:A:176:GLU:HG2  | 10       | 0.73          |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 4        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD11 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD12 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG21  | 1:A:154:LEU:HD13 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD11 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD12 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD13 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD11 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD12 | 1        | 0.72          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD13 | 1        | 0.72          |
| (1,143)  | 1:A:118:LYS:HB2  | 1:A:118:LYS:H    | 6        | 0.72          |
| (1,707)  | 1:A:79:VAL:HG21  | 1:A:76:VAL:HA    | 5        | 0.71          |
| (1,707)  | 1:A:79:VAL:HG22  | 1:A:76:VAL:HA    | 5        | 0.71          |
| (1,707)  | 1:A:79:VAL:HG23  | 1:A:76:VAL:HA    | 5        | 0.71          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 10       | 0.71          |
| (1,525)  | 1:A:212:ARG:HB2  | 1:A:213:ALA:H    | 7        | 0.71          |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 2        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 6        | 0.71          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 6        | 0.71          |
| (1,143)  | 1:A:118:LYS:HB2  | 1:A:118:LYS:H    | 5        | 0.71          |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 10       | 0.71          |
| (1,1110) | 1:A:176:GLU:H    | 1:A:175:LYS:HB3  | 8        | 0.71          |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 7        | 0.7           |
| (1,654)  | 1:A:97:LYS:HB2   | 1:A:97:LYS:H     | 3        | 0.7           |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 1        | 0.7           |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 4        | 0.7           |
| (1,1877) | 1:A:45:HIS:HE1   | 1:A:149:GLU:HG2  | 9        | 0.7           |
| (1,823)  | 1:A:156:GLU:HB2  | 1:A:153:THR:HA   | 9        | 0.69          |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 7        | 0.69          |
| (1,369)  | 1:A:179:LEU:HD21 | 1:A:179:LEU:HA   | 3        | 0.69          |
| (1,369)  | 1:A:179:LEU:HD22 | 1:A:179:LEU:HA   | 3        | 0.69          |
| (1,369)  | 1:A:179:LEU:HD23 | 1:A:179:LEU:HA   | 3        | 0.69          |
| (1,489)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:H    | 2        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD21 | 4        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD22 | 4        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD23 | 4        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD11 | 4        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD12 | 4        | 0.68          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD13 | 4        | 0.68          |
| (1,369)  | 1:A:179:LEU:HD21 | 1:A:179:LEU:HA   | 2        | 0.68          |
| (1,369)  | 1:A:179:LEU:HD22 | 1:A:179:LEU:HA   | 2        | 0.68          |
| (1,369)  | 1:A:179:LEU:HD23 | 1:A:179:LEU:HA   | 2        | 0.68          |
| (1,1490) | 1:A:184:LYS:H    | 1:A:184:LYS:HB2  | 8        | 0.68          |
| (2,90)   | 1:A:69:VAL:HG21  | 1:A:178:ALA:H    | 2        | 0.67          |
| (2,90)   | 1:A:69:VAL:HG22  | 1:A:178:ALA:H    | 2        | 0.67          |
| (2,90)   | 1:A:69:VAL:HG23  | 1:A:178:ALA:H    | 2        | 0.67          |
| (1,993)  | 1:A:55:SER:H     | 1:A:55:SER:HB2   | 1        | 0.67          |
| (1,489)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:H    | 9        | 0.67          |
| (1,369)  | 1:A:179:LEU:HD21 | 1:A:179:LEU:HA   | 4        | 0.67          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,369)  | 1:A:179:LEU:HD22 | 1:A:179:LEU:HA   | 4        | 0.67          |
| (1,369)  | 1:A:179:LEU:HD23 | 1:A:179:LEU:HA   | 4        | 0.67          |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 9        | 0.67          |
| (2,91)   | 1:A:126:VAL:HG11 | 1:A:130:GLU:H    | 8        | 0.66          |
| (2,91)   | 1:A:126:VAL:HG12 | 1:A:130:GLU:H    | 8        | 0.66          |
| (2,91)   | 1:A:126:VAL:HG13 | 1:A:130:GLU:H    | 8        | 0.66          |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 4        | 0.66          |
| (1,1490) | 1:A:184:LYS:H    | 1:A:184:LYS:HB2  | 5        | 0.66          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG21 | 1        | 0.65          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG22 | 1        | 0.65          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG23 | 1        | 0.65          |
| (1,652)  | 1:A:98:LYS:HB2   | 1:A:98:LYS:H     | 2        | 0.65          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 1        | 0.65          |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 8        | 0.65          |
| (1,1237) | 1:A:115:ILE:H    | 1:A:115:ILE:HG13 | 2        | 0.65          |
| (1,1237) | 1:A:115:ILE:H    | 1:A:115:ILE:HG13 | 4        | 0.65          |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 2        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD11 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD12 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD11 | 1:A:200:ILE:HD13 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD11 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD12 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD12 | 1:A:200:ILE:HD13 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD11 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD12 | 7        | 0.64          |
| (1,2096) | 1:A:196:LEU:HD13 | 1:A:200:ILE:HD13 | 7        | 0.64          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 5        | 0.63          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 5        | 0.63          |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 5        | 0.63          |
| (1,484)  | 1:A:221:GLN:HB2  | 1:A:221:GLN:H    | 5        | 0.63          |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:220:THR:H    | 3        | 0.63          |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:219:GLN:H    | 3        | 0.63          |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:220:THR:H    | 9        | 0.63          |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:219:GLN:H    | 9        | 0.63          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 10       | 0.62          |
| (1,1375) | 1:A:156:GLU:H    | 1:A:156:GLU:HB2  | 3        | 0.62          |
| (1,707)  | 1:A:79:VAL:HG21  | 1:A:76:VAL:HA    | 2        | 0.61          |
| (1,707)  | 1:A:79:VAL:HG22  | 1:A:76:VAL:HA    | 2        | 0.61          |
| (1,707)  | 1:A:79:VAL:HG23  | 1:A:76:VAL:HA    | 2        | 0.61          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 9        | 0.61          |
| (1,1375) | 1:A:156:GLU:H    | 1:A:156:GLU:HB2  | 10       | 0.61          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD11 | 2        | 0.61          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD12 | 2        | 0.61          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD13 | 2        | 0.61          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD21 | 2        | 0.61          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD22 | 2        | 0.61          |
| (1,103)  | 1:A:201:GLU:HB3  | 1:A:196:LEU:HD23 | 2        | 0.61          |
| (1,532)  | 1:A:4:ARG:HD2    | 1:A:4:ARG:HA     | 4        | 0.59          |
| (1,51)   | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 9        | 0.59          |
| (1,51)   | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 9        | 0.59          |
| (1,51)   | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 9        | 0.59          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG11  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG12  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG13  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG11  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG12  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG13  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG11  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG12  | 5        | 0.59          |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG13  | 5        | 0.59          |
| (1,490)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:HE21 | 2        | 0.58          |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 2        | 0.57          |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 1        | 0.57          |
| (1,490)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:HE21 | 5        | 0.57          |
| (1,490)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:HE21 | 7        | 0.57          |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HG2  | 1        | 0.57          |
| (1,1274) | 1:A:129:LYS:H    | 1:A:128:LYS:HD2  | 1        | 0.57          |
| (1,81)   | 1:A:196:LEU:HD11 | 1:A:196:LEU:HA   | 7        | 0.56          |
| (1,81)   | 1:A:196:LEU:HD12 | 1:A:196:LEU:HA   | 7        | 0.56          |
| (1,81)   | 1:A:196:LEU:HD13 | 1:A:196:LEU:HA   | 7        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD11 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD12 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HD13 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD11 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD12 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HD13 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD11 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD12 | 2        | 0.56          |
| (1,1959) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HD13 | 2        | 0.56          |
| (1,1699) | 1:A:121:ASN:HD22 | 1:A:118:LYS:HD2  | 10       | 0.56          |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 9        | 0.55          |
| (1,621)  | 1:A:113:LYS:HB2  | 1:A:113:LYS:H    | 5        | 0.55          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 7        | 0.55          |
| (1,532)  | 1:A:4:ARG:HD2    | 1:A:4:ARG:HA     | 6        | 0.55          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD21 | 6        | 0.55          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD22 | 6        | 0.55          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD23 | 6        | 0.55          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD11 | 6        | 0.55          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD12 | 6        | 0.55          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD13 | 6        | 0.55          |
| (1,1375) | 1:A:156:GLU:H    | 1:A:156:GLU:HB2  | 8        | 0.55          |
| (1,621)  | 1:A:113:LYS:HB2  | 1:A:113:LYS:H    | 8        | 0.54          |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 5        | 0.53          |
| (1,620)  | 1:A:112:ARG:HG2  | 1:A:112:ARG:H    | 6        | 0.53          |
| (1,616)  | 1:A:114:LYS:HB3  | 1:A:114:LYS:H    | 3        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 4        | 0.53          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD13 | 4        | 0.53          |
| (1,1693) | 1:A:121:ASN:HD21 | 1:A:121:ASN:HB2  | 5        | 0.53          |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 5        | 0.53          |
| (1,802)  | 1:A:20:GLU:HG2   | 1:A:21:TRP:HD1   | 4        | 0.52          |
| (1,1797) | 1:A:187:LEU:H    | 1:A:187:LEU:HB2  | 6        | 0.52          |
| (1,1797) | 1:A:187:LEU:H    | 1:A:187:LEU:HB2  | 10       | 0.52          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG21 | 6        | 0.51          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG22 | 6        | 0.51          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG23 | 6        | 0.51          |
| (1,652)  | 1:A:98:LYS:HB2   | 1:A:98:LYS:H     | 5        | 0.51          |
| (1,1757) | 1:A:59:GLN:HE21  | 1:A:59:GLN:HG2   | 3        | 0.51          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 1        | 0.51          |
| (1,468)  | 1:A:205:GLU:HB2  | 1:A:206:LYS:H    | 3        | 0.5           |
| (1,388)  | 1:A:69:VAL:HG21  | 1:A:69:VAL:H     | 2        | 0.5           |
| (1,388)  | 1:A:69:VAL:HG22  | 1:A:69:VAL:H     | 2        | 0.5           |
| (1,388)  | 1:A:69:VAL:HG23  | 1:A:69:VAL:H     | 2        | 0.5           |
| (1,1911) | 1:A:149:GLU:HB2  | 1:A:45:HIS:HD2   | 7        | 0.5           |
| (1,1442) | 1:A:160:LYS:H    | 1:A:160:LYS:HB2  | 3        | 0.5           |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 9        | 0.5           |
| (1,621)  | 1:A:113:LYS:HB2  | 1:A:113:LYS:H    | 4        | 0.49          |
| (1,536)  | 1:A:9:MET:HB2    | 1:A:9:MET:H      | 1        | 0.49          |
| (1,2208) | 1:A:126:VAL:HG21 | 1:A:207:LEU:HA   | 1        | 0.49          |
| (1,2208) | 1:A:126:VAL:HG22 | 1:A:207:LEU:HA   | 1        | 0.49          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2208) | 1:A:126:VAL:HG23 | 1:A:207:LEU:HA   | 1        | 0.49          |
| (1,2208) | 1:A:126:VAL:HG21 | 1:A:207:LEU:HA   | 4        | 0.49          |
| (1,2208) | 1:A:126:VAL:HG22 | 1:A:207:LEU:HA   | 4        | 0.49          |
| (1,2208) | 1:A:126:VAL:HG23 | 1:A:207:LEU:HA   | 4        | 0.49          |
| (1,1757) | 1:A:59:GLN:HE21  | 1:A:59:GLN:HG2   | 8        | 0.49          |
| (1,1442) | 1:A:160:LYS:H    | 1:A:160:LYS:HB2  | 5        | 0.49          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 5        | 0.49          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 10       | 0.49          |
| (1,825)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:HA   | 3        | 0.48          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 8        | 0.48          |
| (1,487)  | 1:A:221:GLN:HG2  | 1:A:221:GLN:H    | 3        | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG21 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG22 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG23 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG21 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG22 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG23 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG21 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG22 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG23 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG11 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG12 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG13 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG11 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG12 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG13 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG11 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG12 | 10       | 0.48          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG13 | 10       | 0.48          |
| (1,1757) | 1:A:59:GLN:HE21  | 1:A:59:GLN:HG2   | 4        | 0.48          |
| (1,1256) | 1:A:120:MET:H    | 1:A:120:MET:HB2  | 1        | 0.48          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 2        | 0.48          |
| (1,1168) | 1:A:88:SER:H     | 1:A:88:SER:HB2   | 3        | 0.48          |
| (2,99)   | 1:A:206:LYS:HE2  | 1:A:207:LEU:H    | 10       | 0.47          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 3        | 0.47          |
| (1,1206) | 1:A:99:LYS:H     | 1:A:99:LYS:HD2   | 7        | 0.47          |
| (1,1168) | 1:A:88:SER:H     | 1:A:88:SER:HB2   | 6        | 0.47          |
| (1,487)  | 1:A:221:GLN:HG2  | 1:A:221:GLN:H    | 6        | 0.46          |
| (1,472)  | 1:A:206:LYS:HD2  | 1:A:206:LYS:H    | 5        | 0.46          |
| (1,425)  | 1:A:184:LYS:HG2  | 1:A:184:LYS:H    | 1        | 0.46          |
| (1,355)  | 1:A:177:LYS:HD2  | 1:A:177:LYS:H    | 7        | 0.46          |
| (1,1326) | 1:A:135:HIS:H    | 1:A:134:LYS:HD2  | 6        | 0.46          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1264) | 1:A:121:ASN:H    | 1:A:121:ASN:HB2  | 5        | 0.46          |
| (1,1241) | 1:A:113:LYS:H    | 1:A:113:LYS:HG2  | 3        | 0.46          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 6        | 0.46          |
| (1,1168) | 1:A:88:SER:H     | 1:A:88:SER:HB2   | 4        | 0.46          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG11  | 5        | 0.45          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG12  | 5        | 0.45          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG13  | 5        | 0.45          |
| (1,940)  | 1:A:185:LYS:H    | 1:A:184:LYS:HB2  | 1        | 0.45          |
| (1,825)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:HA   | 10       | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:140:VAL:HG21 | 3        | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:140:VAL:HG22 | 3        | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:140:VAL:HG23 | 3        | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:79:VAL:HG11  | 3        | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:79:VAL:HG12  | 3        | 0.45          |
| (1,2367) | 1:A:36:TRP:HE3   | 1:A:79:VAL:HG13  | 3        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD11 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD12 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD13 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD21 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD22 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD23 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD11 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD12 | 4        | 0.45          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD13 | 4        | 0.45          |
| (1,1209) | 1:A:101:ARG:H    | 1:A:101:ARG:HB3  | 4        | 0.45          |
| (1,1206) | 1:A:99:LYS:H     | 1:A:99:LYS:HD2   | 4        | 0.44          |
| (1,114)  | 1:A:120:MET:HG2  | 1:A:120:MET:H    | 5        | 0.44          |
| (1,650)  | 1:A:99:LYS:HG2   | 1:A:99:LYS:H     | 5        | 0.43          |
| (1,631)  | 1:A:110:SER:HB2  | 1:A:110:SER:HA   | 1        | 0.43          |
| (1,631)  | 1:A:110:SER:HB2  | 1:A:110:SER:HA   | 4        | 0.43          |
| (1,631)  | 1:A:110:SER:HB2  | 1:A:110:SER:HA   | 7        | 0.43          |
| (1,1544) | 1:A:217:PHE:H    | 1:A:216:ASP:HB2  | 5        | 0.43          |
| (2,176)  | 1:A:151:ILE:HG21 | 1:A:175:LYS:HE2  | 8        | 0.42          |
| (2,176)  | 1:A:151:ILE:HG22 | 1:A:175:LYS:HE2  | 8        | 0.42          |
| (2,176)  | 1:A:151:ILE:HG23 | 1:A:175:LYS:HE2  | 8        | 0.42          |
| (1,631)  | 1:A:110:SER:HB2  | 1:A:110:SER:HA   | 8        | 0.42          |
| (1,543)  | 1:A:10:LYS:HB2   | 1:A:10:LYS:HA    | 3        | 0.42          |
| (1,402)  | 1:A:4:ARG:HB2    | 1:A:4:ARG:HA     | 2        | 0.42          |
| (1,402)  | 1:A:4:ARG:HB2    | 1:A:4:ARG:HA     | 7        | 0.42          |
| (1,402)  | 1:A:4:ARG:HB2    | 1:A:4:ARG:HA     | 9        | 0.42          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD21 | 1        | 0.42          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD22 | 1        | 0.42          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD23 | 1        | 0.42          |
| (1,543)  | 1:A:10:LYS:HB2   | 1:A:10:LYS:HA    | 2        | 0.41          |
| (1,543)  | 1:A:10:LYS:HB2   | 1:A:10:LYS:HA    | 5        | 0.41          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 4        | 0.41          |
| (1,194)  | 1:A:47:MET:HE1   | 1:A:154:LEU:HD11 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE1   | 1:A:154:LEU:HD12 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE1   | 1:A:154:LEU:HD13 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE2   | 1:A:154:LEU:HD11 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE2   | 1:A:154:LEU:HD12 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE2   | 1:A:154:LEU:HD13 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE3   | 1:A:154:LEU:HD11 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE3   | 1:A:154:LEU:HD12 | 2        | 0.41          |
| (1,194)  | 1:A:47:MET:HE3   | 1:A:154:LEU:HD13 | 2        | 0.41          |
| (1,1301) | 1:A:131:MET:H    | 1:A:130:GLU:HG2  | 10       | 0.41          |
| (1,1152) | 1:A:85:LYS:H     | 1:A:85:LYS:HG2   | 6        | 0.41          |
| (2,286)  | 1:A:140:VAL:HG21 | 1:A:72:TYR:HA    | 3        | 0.4           |
| (2,286)  | 1:A:140:VAL:HG22 | 1:A:72:TYR:HA    | 3        | 0.4           |
| (2,286)  | 1:A:140:VAL:HG23 | 1:A:72:TYR:HA    | 3        | 0.4           |
| (2,196)  | 1:A:59:GLN:H     | 1:A:56:VAL:HA    | 1        | 0.4           |
| (1,707)  | 1:A:79:VAL:HG21  | 1:A:76:VAL:HA    | 10       | 0.4           |
| (1,707)  | 1:A:79:VAL:HG22  | 1:A:76:VAL:HA    | 10       | 0.4           |
| (1,707)  | 1:A:79:VAL:HG23  | 1:A:76:VAL:HA    | 10       | 0.4           |
| (1,543)  | 1:A:10:LYS:HB2   | 1:A:10:LYS:HA    | 6        | 0.4           |
| (1,1696) | 1:A:121:ASN:HD22 | 1:A:120:MET:HB2  | 1        | 0.4           |
| (1,1249) | 1:A:118:LYS:H    | 1:A:118:LYS:HD2  | 5        | 0.4           |
| (1,1249) | 1:A:118:LYS:H    | 1:A:118:LYS:HD2  | 10       | 0.4           |
| (1,917)  | 1:A:30:ILE:H     | 1:A:29:LYS:HG3   | 3        | 0.39          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG21 | 8        | 0.39          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG22 | 8        | 0.39          |
| (1,841)  | 1:A:158:LYS:HE2  | 1:A:168:THR:HG23 | 8        | 0.39          |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 5        | 0.39          |
| (1,221)  | 1:A:140:VAL:HG21 | 1:A:140:VAL:H    | 9        | 0.39          |
| (1,221)  | 1:A:140:VAL:HG22 | 1:A:140:VAL:H    | 9        | 0.39          |
| (1,221)  | 1:A:140:VAL:HG23 | 1:A:140:VAL:H    | 9        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 3        | 0.39          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 3        | 0.39          |

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| Key      | Atom-1          | Atom-2           | Model ID | Violation (Å) |
|----------|-----------------|------------------|----------|---------------|
| (1,1927) | 1:A:76:VAL:HG13 | 1:A:192:ILE:HD13 | 3        | 0.39          |
| (1,479)  | 1:A:208:ARG:HD3 | 1:A:209:GLN:H    | 10       | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD21 | 7        | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD22 | 7        | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD23 | 7        | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD21 | 10       | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD22 | 10       | 0.38          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD23 | 10       | 0.38          |
| (1,1401) | 1:A:148:GLU:H   | 1:A:148:GLU:HG3  | 5        | 0.38          |
| (1,1241) | 1:A:113:LYS:H   | 1:A:113:LYS:HG2  | 10       | 0.38          |
| (2,196)  | 1:A:59:GLN:H    | 1:A:56:VAL:HA    | 7        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD21 | 2        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD22 | 2        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD23 | 2        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD21 | 9        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD22 | 9        | 0.37          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD23 | 9        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG21 | 1:A:178:ALA:HB1  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG21 | 1:A:178:ALA:HB2  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG21 | 1:A:178:ALA:HB3  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG22 | 1:A:178:ALA:HB1  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG22 | 1:A:178:ALA:HB2  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG22 | 1:A:178:ALA:HB3  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG23 | 1:A:178:ALA:HB1  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG23 | 1:A:178:ALA:HB2  | 2        | 0.37          |
| (1,2194) | 1:A:69:VAL:HG23 | 1:A:178:ALA:HB3  | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG11 | 1:A:192:ILE:HD11 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG11 | 1:A:192:ILE:HD12 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG11 | 1:A:192:ILE:HD13 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG12 | 1:A:192:ILE:HD11 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG12 | 1:A:192:ILE:HD12 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG12 | 1:A:192:ILE:HD13 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG13 | 1:A:192:ILE:HD11 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG13 | 1:A:192:ILE:HD12 | 2        | 0.37          |
| (1,1927) | 1:A:76:VAL:HG13 | 1:A:192:ILE:HD13 | 2        | 0.37          |
| (1,661)  | 1:A:95:ASP:HB2  | 1:A:95:ASP:H     | 2        | 0.36          |
| (1,468)  | 1:A:205:GLU:HB2 | 1:A:206:LYS:H    | 5        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2 | 1:A:192:ILE:HD11 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2 | 1:A:192:ILE:HD12 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2 | 1:A:192:ILE:HD13 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2 | 1:A:195:LEU:HD21 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2 | 1:A:195:LEU:HD22 | 9        | 0.36          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD23 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD11 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD12 | 9        | 0.36          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD13 | 9        | 0.36          |
| (1,1266) | 1:A:121:ASN:H    | 1:A:120:MET:HB2  | 1        | 0.36          |
| (1,645)  | 1:A:101:ARG:HG2  | 1:A:101:ARG:H    | 1        | 0.35          |
| (1,552)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:H     | 3        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD21 | 8        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD22 | 8        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD23 | 8        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD11 | 8        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD12 | 8        | 0.35          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD13 | 8        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG21  | 2        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG22  | 2        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG23  | 2        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG11  | 2        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG12  | 2        | 0.35          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG13  | 2        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 8        | 0.35          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD13 | 8        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG11  | 2        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG12  | 2        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG13  | 2        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG11  | 2        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG12  | 2        | 0.35          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG13  | 2        | 0.35          |
| (1,222)  | 1:A:140:VAL:HG21 | 1:A:36:TRP:HZ3   | 3        | 0.34          |
| (1,222)  | 1:A:140:VAL:HG22 | 1:A:36:TRP:HZ3   | 3        | 0.34          |
| (1,222)  | 1:A:140:VAL:HG23 | 1:A:36:TRP:HZ3   | 3        | 0.34          |
| (1,222)  | 1:A:140:VAL:HG21 | 1:A:36:TRP:HH2   | 3        | 0.34          |
| (1,222)  | 1:A:140:VAL:HG22 | 1:A:36:TRP:HH2   | 3        | 0.34          |
| (1,222)  | 1:A:140:VAL:HG23 | 1:A:36:TRP:HH2   | 3        | 0.34          |
| (1,2192) | 1:A:69:VAL:HG21  | 1:A:178:ALA:HA   | 2        | 0.34          |
| (1,2192) | 1:A:69:VAL:HG22  | 1:A:178:ALA:HA   | 2        | 0.34          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2192) | 1:A:69:VAL:HG23  | 1:A:178:ALA:HA   | 2        | 0.34          |
| (1,1368) | 1:A:188:LYS:H    | 1:A:188:LYS:HB2  | 9        | 0.34          |
| (1,661)  | 1:A:95:ASP:HB2   | 1:A:95:ASP:H     | 4        | 0.33          |
| (1,624)  | 1:A:111:LEU:HB2  | 1:A:111:LEU:H    | 6        | 0.33          |
| (1,552)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:H     | 2        | 0.33          |
| (1,347)  | 1:A:206:LYS:HG3  | 1:A:207:LEU:H    | 10       | 0.33          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD21 | 6        | 0.33          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD22 | 6        | 0.33          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD23 | 6        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD21 | 1:A:127:GLU:HG3  | 3        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD22 | 1:A:127:GLU:HG3  | 3        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD23 | 1:A:127:GLU:HG3  | 3        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD21 | 1:A:127:GLU:HG2  | 3        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD22 | 1:A:127:GLU:HG2  | 3        | 0.33          |
| (1,1945) | 1:A:204:LEU:HD23 | 1:A:127:GLU:HG2  | 3        | 0.33          |
| (1,1368) | 1:A:188:LYS:H    | 1:A:188:LYS:HB2  | 5        | 0.33          |
| (1,1181) | 1:A:91:ALA:H     | 1:A:90:LEU:HB2   | 5        | 0.33          |
| (1,874)  | 1:A:12:VAL:H     | 1:A:11:ARG:HG2   | 10       | 0.32          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 1        | 0.32          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 7        | 0.32          |
| (1,138)  | 1:A:128:LYS:HB2  | 1:A:128:LYS:H    | 10       | 0.32          |
| (2,97)   | 1:A:204:LEU:HD11 | 1:A:207:LEU:H    | 1        | 0.31          |
| (2,97)   | 1:A:204:LEU:HD12 | 1:A:207:LEU:H    | 1        | 0.31          |
| (2,97)   | 1:A:204:LEU:HD13 | 1:A:207:LEU:H    | 1        | 0.31          |
| (1,679)  | 1:A:86:LEU:HG    | 1:A:86:LEU:H     | 8        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 2        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 3        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 5        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 8        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 9        | 0.31          |
| (1,531)  | 1:A:4:ARG:HG2    | 1:A:4:ARG:HD2    | 10       | 0.31          |
| (1,51)   | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 5        | 0.31          |
| (1,51)   | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 5        | 0.31          |
| (1,51)   | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 5        | 0.31          |
| (1,457)  | 1:A:203:LYS:HE2  | 1:A:203:LYS:H    | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD21 | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD22 | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD23 | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD11 | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD12 | 9        | 0.31          |
| (1,436)  | 1:A:191:GLU:HG3  | 1:A:195:LEU:HD13 | 9        | 0.31          |
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:220:THR:H    | 4        | 0.31          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2264) | 1:A:219:GLN:HG2  | 1:A:219:GLN:H    | 4        | 0.31          |
| (1,2229) | 1:A:49:LEU:HD21  | 1:A:49:LEU:HA    | 5        | 0.31          |
| (1,2229) | 1:A:49:LEU:HD22  | 1:A:49:LEU:HA    | 5        | 0.31          |
| (1,2229) | 1:A:49:LEU:HD23  | 1:A:49:LEU:HA    | 5        | 0.31          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD21 | 4        | 0.31          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD22 | 4        | 0.31          |
| (1,2226) | 1:A:207:LEU:HA   | 1:A:207:LEU:HD23 | 4        | 0.31          |
| (1,1694) | 1:A:121:ASN:HD21 | 1:A:120:MET:HB2  | 1        | 0.31          |
| (1,1585) | 1:A:197:ARG:H    | 1:A:197:ARG:HB2  | 4        | 0.31          |
| (1,138)  | 1:A:128:LYS:HB2  | 1:A:128:LYS:H    | 9        | 0.31          |
| (1,1241) | 1:A:113:LYS:H    | 1:A:113:LYS:HG2  | 2        | 0.31          |
| (1,1206) | 1:A:99:LYS:H     | 1:A:99:LYS:HD2   | 6        | 0.31          |
| (1,624)  | 1:A:111:LEU:HB2  | 1:A:111:LEU:H    | 4        | 0.3           |
| (1,497)  | 1:A:219:GLN:HG2  | 1:A:219:GLN:HA   | 4        | 0.3           |
| (1,497)  | 1:A:219:GLN:HG2  | 1:A:219:GLN:HA   | 9        | 0.3           |
| (1,424)  | 1:A:184:LYS:HG3  | 1:A:184:LYS:H    | 1        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE3  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE3  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE3  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE3  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE3  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE1  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE2  | 2        | 0.3           |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE3  | 2        | 0.3           |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG11  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG12  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE1  | 1:A:79:VAL:HG13  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG11  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG12  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE2  | 1:A:79:VAL:HG13  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG11  | 10       | 0.3           |
| (1,2044) | 1:A:136:MET:HE3  | 1:A:79:VAL:HG12  | 10       | 0.3           |

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| Key      | Atom-1          | Atom-2           | Model ID | Violation (Å) |
|----------|-----------------|------------------|----------|---------------|
| (1,2044) | 1:A:136:MET:HE3 | 1:A:79:VAL:HG13  | 10       | 0.3           |
| (1,1865) | 1:A:38:PHE:HD1  | 1:A:24:MET:HB2   | 9        | 0.3           |
| (1,1865) | 1:A:38:PHE:HD2  | 1:A:24:MET:HB2   | 9        | 0.3           |
| (1,1544) | 1:A:217:PHE:H   | 1:A:216:ASP:HB2  | 4        | 0.3           |
| (1,875)  | 1:A:12:VAL:H    | 1:A:13:PRO:HD3   | 10       | 0.29          |
| (1,468)  | 1:A:205:GLU:HB2 | 1:A:206:LYS:H    | 4        | 0.29          |
| (1,443)  | 1:A:202:PRO:HA  | 1:A:206:LYS:H    | 6        | 0.29          |
| (1,153)  | 1:A:132:SER:HB2 | 1:A:132:SER:H    | 5        | 0.29          |
| (2,201)  | 1:A:79:VAL:H    | 1:A:133:LEU:HD21 | 7        | 0.28          |
| (2,201)  | 1:A:79:VAL:H    | 1:A:133:LEU:HD22 | 7        | 0.28          |
| (2,201)  | 1:A:79:VAL:H    | 1:A:133:LEU:HD23 | 7        | 0.28          |
| (1,658)  | 1:A:96:SER:HB2  | 1:A:96:SER:H     | 4        | 0.28          |
| (1,541)  | 1:A:10:LYS:HD2  | 1:A:10:LYS:HA    | 3        | 0.28          |
| (1,541)  | 1:A:10:LYS:HD2  | 1:A:10:LYS:HA    | 5        | 0.28          |
| (1,456)  | 1:A:203:LYS:HD2 | 1:A:203:LYS:H    | 9        | 0.28          |
| (1,360)  | 1:A:176:GLU:HB3 | 1:A:176:GLU:H    | 10       | 0.28          |
| (1,2229) | 1:A:49:LEU:HD21 | 1:A:49:LEU:HA    | 7        | 0.28          |
| (1,2229) | 1:A:49:LEU:HD22 | 1:A:49:LEU:HA    | 7        | 0.28          |
| (1,2229) | 1:A:49:LEU:HD23 | 1:A:49:LEU:HA    | 7        | 0.28          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD21 | 3        | 0.28          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD22 | 3        | 0.28          |
| (1,2226) | 1:A:207:LEU:HA  | 1:A:207:LEU:HD23 | 3        | 0.28          |
| (1,645)  | 1:A:101:ARG:HG2 | 1:A:101:ARG:H    | 3        | 0.27          |
| (1,552)  | 1:A:10:LYS:HD2  | 1:A:10:LYS:H     | 5        | 0.27          |
| (1,483)  | 1:A:221:GLN:HA  | 1:A:221:GLN:HG2  | 5        | 0.27          |
| (1,1325) | 1:A:135:HIS:H   | 1:A:134:LYS:HB3  | 8        | 0.27          |
| (1,497)  | 1:A:219:GLN:HG2 | 1:A:219:GLN:HA   | 3        | 0.26          |
| (1,426)  | 1:A:184:LYS:HD2 | 1:A:184:LYS:H    | 5        | 0.26          |
| (1,151)  | 1:A:125:SER:HB2 | 1:A:125:SER:H    | 2        | 0.26          |
| (1,2290) | 1:A:12:VAL:H    | 1:A:11:ARG:HA    | 10       | 0.25          |
| (1,2290) | 1:A:12:VAL:H    | 1:A:12:VAL:HA    | 10       | 0.25          |
| (1,1845) | 1:A:36:TRP:HZ3  | 1:A:140:VAL:HG21 | 3        | 0.25          |
| (1,1845) | 1:A:36:TRP:HZ3  | 1:A:140:VAL:HG22 | 3        | 0.25          |
| (1,1845) | 1:A:36:TRP:HZ3  | 1:A:140:VAL:HG23 | 3        | 0.25          |
| (1,1242) | 1:A:113:LYS:H   | 1:A:113:LYS:HD2  | 1        | 0.25          |
| (1,878)  | 1:A:12:VAL:H    | 1:A:11:ARG:HB2   | 2        | 0.24          |
| (1,803)  | 1:A:20:GLU:HG2  | 1:A:21:TRP:H     | 8        | 0.24          |
| (1,469)  | 1:A:205:GLU:HG2 | 1:A:205:GLU:H    | 3        | 0.24          |
| (1,259)  | 1:A:149:GLU:HG2 | 1:A:149:GLU:H    | 10       | 0.24          |
| (1,2161) | 1:A:56:VAL:HG21 | 1:A:154:LEU:HD11 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG21 | 1:A:154:LEU:HD12 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG21 | 1:A:154:LEU:HD13 | 2        | 0.24          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD11 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD12 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG22  | 1:A:154:LEU:HD13 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD11 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD12 | 2        | 0.24          |
| (1,2161) | 1:A:56:VAL:HG23  | 1:A:154:LEU:HD13 | 2        | 0.24          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG11  | 10       | 0.24          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG12  | 10       | 0.24          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG13  | 10       | 0.24          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG11  | 10       | 0.24          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG12  | 10       | 0.24          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG13  | 10       | 0.24          |
| (1,1843) | 1:A:36:TRP:HH2   | 1:A:78:SER:HA    | 6        | 0.24          |
| (1,1747) | 1:A:95:ASP:H     | 1:A:94:ARG:HB2   | 9        | 0.24          |
| (1,1050) | 1:A:208:ARG:H    | 1:A:207:LEU:HB3  | 5        | 0.24          |
| (1,824)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:H    | 9        | 0.23          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 3        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG21 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG22 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG23 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG11 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG12 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG13 | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG11  | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG12  | 8        | 0.23          |
| (1,2272) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG13  | 8        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD11 | 1:A:83:THR:HG21  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD11 | 1:A:83:THR:HG22  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD11 | 1:A:83:THR:HG23  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD12 | 1:A:83:THR:HG21  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD12 | 1:A:83:THR:HG22  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD12 | 1:A:83:THR:HG23  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD13 | 1:A:83:THR:HG21  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD13 | 1:A:83:THR:HG22  | 7        | 0.23          |
| (1,2097) | 1:A:196:LEU:HD13 | 1:A:83:THR:HG23  | 7        | 0.23          |
| (1,1606) | 1:A:218:GLN:H    | 1:A:217:PHE:HB2  | 5        | 0.23          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD21 | 9        | 0.23          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD22 | 9        | 0.23          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD23 | 9        | 0.23          |
| (1,1240) | 1:A:114:LYS:H    | 1:A:114:LYS:HB2  | 10       | 0.23          |
| (2,82)   | 1:A:175:LYS:HE2  | 1:A:176:GLU:H    | 3        | 0.22          |
| (2,221)  | 1:A:220:THR:H    | 1:A:221:GLN:HG2  | 4        | 0.22          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2357) | 1:A:201:GLU:H    | 1:A:197:ARG:HA   | 8        | 0.22          |
| (1,2357) | 1:A:201:GLU:H    | 1:A:196:LEU:HA   | 8        | 0.22          |
| (1,2118) | 1:A:7:THR:HB     | 1:A:8:PRO:HD2    | 6        | 0.22          |
| (1,2118) | 1:A:7:THR:HB     | 1:A:8:PRO:HD3    | 6        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG11  | 7        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG12  | 7        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE1   | 1:A:76:VAL:HG13  | 7        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG11  | 7        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG12  | 7        | 0.22          |
| (1,1867) | 1:A:72:TYR:HE2   | 1:A:76:VAL:HG13  | 7        | 0.22          |
| (1,1691) | 1:A:121:ASN:HD22 | 1:A:118:LYS:HA   | 5        | 0.22          |
| (1,1544) | 1:A:217:PHE:H    | 1:A:216:ASP:HB2  | 3        | 0.22          |
| (2,233)  | 1:A:34:ASN:HD22  | 1:A:38:PHE:HE1   | 3        | 0.21          |
| (2,233)  | 1:A:34:ASN:HD22  | 1:A:38:PHE:HE2   | 3        | 0.21          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 1        | 0.21          |
| (1,825)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:HA   | 9        | 0.21          |
| (1,538)  | 1:A:11:ARG:HG2   | 1:A:11:ARG:HA    | 5        | 0.21          |
| (1,43)   | 1:A:193:THR:HG21 | 1:A:193:THR:H    | 4        | 0.21          |
| (1,43)   | 1:A:193:THR:HG22 | 1:A:193:THR:H    | 4        | 0.21          |
| (1,43)   | 1:A:193:THR:HG23 | 1:A:193:THR:H    | 4        | 0.21          |
| (1,347)  | 1:A:206:LYS:HG3  | 1:A:207:LEU:H    | 5        | 0.21          |
| (1,2357) | 1:A:201:GLU:H    | 1:A:197:ARG:HA   | 10       | 0.21          |
| (1,2357) | 1:A:201:GLU:H    | 1:A:196:LEU:HA   | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG11 | 1:A:123:ILE:HG21 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG11 | 1:A:123:ILE:HG22 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG11 | 1:A:123:ILE:HG23 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG12 | 1:A:123:ILE:HG21 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG12 | 1:A:123:ILE:HG22 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG12 | 1:A:123:ILE:HG23 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG13 | 1:A:123:ILE:HG21 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG13 | 1:A:123:ILE:HG22 | 10       | 0.21          |
| (1,1964) | 1:A:126:VAL:HG13 | 1:A:123:ILE:HG23 | 10       | 0.21          |
| (1,1963) | 1:A:126:VAL:HG11 | 1:A:207:LEU:HB2  | 5        | 0.21          |
| (1,1963) | 1:A:126:VAL:HG12 | 1:A:207:LEU:HB2  | 5        | 0.21          |
| (1,1963) | 1:A:126:VAL:HG13 | 1:A:207:LEU:HB2  | 5        | 0.21          |
| (1,1963) | 1:A:126:VAL:HG11 | 1:A:207:LEU:HB3  | 5        | 0.21          |
| (1,1963) | 1:A:126:VAL:HG12 | 1:A:207:LEU:HB3  | 5        | 0.21          |
| (1,1963) | 1:A:126:VAL:HG13 | 1:A:207:LEU:HB3  | 5        | 0.21          |
| (1,1696) | 1:A:121:ASN:HD22 | 1:A:120:MET:HB2  | 5        | 0.21          |
| (1,1606) | 1:A:218:GLN:H    | 1:A:217:PHE:HB2  | 3        | 0.21          |
| (1,1597) | 1:A:201:GLU:H    | 1:A:200:ILE:HG21 | 10       | 0.21          |
| (1,1597) | 1:A:201:GLU:H    | 1:A:200:ILE:HG22 | 10       | 0.21          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1597) | 1:A:201:GLU:H    | 1:A:200:ILE:HG23 | 10       | 0.21          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG21  | 10       | 0.21          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG22  | 10       | 0.21          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG23  | 10       | 0.21          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 5        | 0.2           |
| (1,875)  | 1:A:12:VAL:H     | 1:A:13:PRO:HD3   | 9        | 0.2           |
| (1,73)   | 1:A:195:LEU:HB2  | 1:A:195:LEU:HD11 | 7        | 0.2           |
| (1,73)   | 1:A:195:LEU:HB2  | 1:A:195:LEU:HD12 | 7        | 0.2           |
| (1,73)   | 1:A:195:LEU:HB2  | 1:A:195:LEU:HD13 | 7        | 0.2           |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD21 | 7        | 0.2           |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD22 | 7        | 0.2           |
| (1,700)  | 1:A:79:VAL:HB    | 1:A:133:LEU:HD23 | 7        | 0.2           |
| (1,684)  | 1:A:85:LYS:HE2   | 1:A:85:LYS:H     | 8        | 0.2           |
| (1,469)  | 1:A:205:GLU:HG2  | 1:A:205:GLU:H    | 5        | 0.2           |
| (1,43)   | 1:A:193:THR:HG21 | 1:A:193:THR:H    | 1        | 0.2           |
| (1,43)   | 1:A:193:THR:HG22 | 1:A:193:THR:H    | 1        | 0.2           |
| (1,43)   | 1:A:193:THR:HG23 | 1:A:193:THR:H    | 1        | 0.2           |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB1   | 3        | 0.2           |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB2   | 3        | 0.2           |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB3   | 3        | 0.2           |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE3   | 6        | 0.2           |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE3   | 6        | 0.2           |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE3   | 6        | 0.2           |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2   | 6        | 0.2           |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2   | 6        | 0.2           |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2   | 6        | 0.2           |
| (1,1741) | 1:A:37:ASN:HD22  | 1:A:37:ASN:H     | 8        | 0.2           |
| (1,1721) | 1:A:221:GLN:HE21 | 1:A:221:GLN:HG2  | 5        | 0.2           |
| (1,16)   | 1:A:8:PRO:HA     | 1:A:9:MET:H      | 10       | 0.2           |
| (1,147)  | 1:A:121:ASN:HB2  | 1:A:118:LYS:HB2  | 2        | 0.2           |
| (1,659)  | 1:A:96:SER:HB2   | 1:A:96:SER:HA    | 9        | 0.19          |
| (1,541)  | 1:A:10:LYS:HD2   | 1:A:10:LYS:HA    | 2        | 0.19          |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 1        | 0.19          |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 2        | 0.19          |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 7        | 0.19          |
| (1,43)   | 1:A:193:THR:HG21 | 1:A:193:THR:H    | 9        | 0.19          |
| (1,43)   | 1:A:193:THR:HG22 | 1:A:193:THR:H    | 9        | 0.19          |
| (1,43)   | 1:A:193:THR:HG23 | 1:A:193:THR:H    | 9        | 0.19          |
| (1,225)  | 1:A:79:VAL:HG11  | 1:A:36:TRP:HH2   | 8        | 0.19          |
| (1,225)  | 1:A:79:VAL:HG12  | 1:A:36:TRP:HH2   | 8        | 0.19          |
| (1,225)  | 1:A:79:VAL:HG13  | 1:A:36:TRP:HH2   | 8        | 0.19          |
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD1   | 7        | 0.19          |

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| Key      | Atom-1           | Atom-2          | Model ID | Violation (Å) |
|----------|------------------|-----------------|----------|---------------|
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD2  | 7        | 0.19          |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD1  | 7        | 0.19          |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD2  | 7        | 0.19          |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD1  | 7        | 0.19          |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD2  | 7        | 0.19          |
| (1,1915) | 1:A:220:THR:HG21 | 1:A:220:THR:HA  | 6        | 0.19          |
| (1,1915) | 1:A:220:THR:HG22 | 1:A:220:THR:HA  | 6        | 0.19          |
| (1,1915) | 1:A:220:THR:HG23 | 1:A:220:THR:HA  | 6        | 0.19          |
| (1,1206) | 1:A:99:LYS:H     | 1:A:99:LYS:HD2  | 1        | 0.19          |
| (2,194)  | 1:A:38:PHE:H     | 1:A:30:ILE:HG13 | 6        | 0.18          |
| (1,910)  | 1:A:29:LYS:H     | 1:A:29:LYS:HG2  | 2        | 0.18          |
| (1,659)  | 1:A:96:SER:HB2   | 1:A:96:SER:HA   | 3        | 0.18          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2   | 4        | 0.18          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2   | 8        | 0.18          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB1  | 10       | 0.18          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB2  | 10       | 0.18          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB3  | 10       | 0.18          |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE3  | 3        | 0.18          |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE3  | 3        | 0.18          |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE3  | 3        | 0.18          |
| (1,2088) | 1:A:81:THR:HG21  | 1:A:85:LYS:HE2  | 3        | 0.18          |
| (1,2088) | 1:A:81:THR:HG22  | 1:A:85:LYS:HE2  | 3        | 0.18          |
| (1,2088) | 1:A:81:THR:HG23  | 1:A:85:LYS:HE2  | 3        | 0.18          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD1  | 8        | 0.18          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD2  | 8        | 0.18          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD1  | 8        | 0.18          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD2  | 8        | 0.18          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD1  | 8        | 0.18          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD2  | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG21 | 1:A:207:LEU:HB2 | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG22 | 1:A:207:LEU:HB2 | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG23 | 1:A:207:LEU:HB2 | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG21 | 1:A:207:LEU:HB3 | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG22 | 1:A:207:LEU:HB3 | 8        | 0.18          |
| (1,1952) | 1:A:123:ILE:HG23 | 1:A:207:LEU:HB3 | 8        | 0.18          |
| (1,1915) | 1:A:220:THR:HG21 | 1:A:220:THR:HA  | 5        | 0.18          |
| (1,1915) | 1:A:220:THR:HG22 | 1:A:220:THR:HA  | 5        | 0.18          |
| (1,1915) | 1:A:220:THR:HG23 | 1:A:220:THR:HA  | 5        | 0.18          |
| (1,1829) | 1:A:135:HIS:HD2  | 1:A:132:SER:HB2 | 6        | 0.18          |
| (1,1721) | 1:A:221:GLN:HE21 | 1:A:221:GLN:HG2 | 4        | 0.18          |
| (1,16)   | 1:A:8:PRO:HA     | 1:A:9:MET:H     | 7        | 0.18          |
| (1,1543) | 1:A:217:PHE:H    | 1:A:217:PHE:HA  | 6        | 0.18          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1454) | 1:A:162:SER:H    | 1:A:162:SER:HB2  | 8        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG21  | 2        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG22  | 2        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG23  | 2        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG21  | 5        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG22  | 5        | 0.18          |
| (1,1129) | 1:A:79:VAL:H     | 1:A:79:VAL:HG23  | 5        | 0.18          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 1        | 0.17          |
| (1,630)  | 1:A:110:SER:HB2  | 1:A:110:SER:H    | 5        | 0.17          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2    | 1        | 0.17          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2    | 5        | 0.17          |
| (1,454)  | 1:A:203:LYS:HB2  | 1:A:204:LEU:H    | 6        | 0.17          |
| (1,443)  | 1:A:202:PRO:HA   | 1:A:206:LYS:H    | 10       | 0.17          |
| (1,329)  | 1:A:168:THR:HG21 | 1:A:168:THR:H    | 8        | 0.17          |
| (1,329)  | 1:A:168:THR:HG22 | 1:A:168:THR:H    | 8        | 0.17          |
| (1,329)  | 1:A:168:THR:HG23 | 1:A:168:THR:H    | 8        | 0.17          |
| (1,329)  | 1:A:168:THR:HG21 | 1:A:168:THR:H    | 9        | 0.17          |
| (1,329)  | 1:A:168:THR:HG22 | 1:A:168:THR:H    | 9        | 0.17          |
| (1,329)  | 1:A:168:THR:HG23 | 1:A:168:THR:H    | 9        | 0.17          |
| (1,329)  | 1:A:168:THR:HG21 | 1:A:168:THR:H    | 10       | 0.17          |
| (1,329)  | 1:A:168:THR:HG22 | 1:A:168:THR:H    | 10       | 0.17          |
| (1,329)  | 1:A:168:THR:HG23 | 1:A:168:THR:H    | 10       | 0.17          |
| (1,233)  | 1:A:141:LEU:HG   | 1:A:141:LEU:H    | 9        | 0.17          |
| (1,2064) | 1:A:40:LEU:HD21  | 1:A:21:TRP:HE3   | 8        | 0.17          |
| (1,2064) | 1:A:40:LEU:HD22  | 1:A:21:TRP:HE3   | 8        | 0.17          |
| (1,2064) | 1:A:40:LEU:HD23  | 1:A:21:TRP:HE3   | 8        | 0.17          |
| (1,1790) | 1:A:44:PHE:H     | 1:A:45:HIS:HD2   | 6        | 0.17          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD21 | 4        | 0.17          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD22 | 4        | 0.17          |
| (1,1474) | 1:A:142:LYS:H    | 1:A:141:LEU:HD23 | 4        | 0.17          |
| (1,1115) | 1:A:219:GLN:H    | 1:A:219:GLN:HG2  | 4        | 0.17          |
| (2,225)  | 1:A:121:ASN:HD22 | 1:A:120:MET:HB3  | 5        | 0.16          |
| (2,199)  | 1:A:90:LEU:H     | 1:A:88:SER:HB2   | 2        | 0.16          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 2        | 0.16          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 7        | 0.16          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 8        | 0.16          |
| (1,910)  | 1:A:29:LYS:H     | 1:A:29:LYS:HG2   | 4        | 0.16          |
| (1,878)  | 1:A:12:VAL:H     | 1:A:11:ARG:HB2   | 6        | 0.16          |
| (1,862)  | 1:A:100:ASP:H    | 1:A:99:LYS:HA    | 4        | 0.16          |
| (1,824)  | 1:A:156:GLU:HG2  | 1:A:156:GLU:H    | 1        | 0.16          |
| (1,642)  | 1:A:102:GLU:HG2  | 1:A:102:GLU:H    | 1        | 0.16          |
| (1,259)  | 1:A:149:GLU:HG2  | 1:A:149:GLU:H    | 2        | 0.16          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:137:MET:HE3  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:137:MET:HE3  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:137:MET:HE3  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG11  | 1:A:136:MET:HE3  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG12  | 1:A:136:MET:HE3  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE1  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE2  | 1        | 0.16          |
| (1,2377) | 1:A:79:VAL:HG13  | 1:A:136:MET:HE3  | 1        | 0.16          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD11 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD12 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD13 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD11 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD12 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD13 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD11 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD12 | 10       | 0.16          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD13 | 10       | 0.16          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD1   | 4        | 0.16          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD2   | 4        | 0.16          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD1   | 4        | 0.16          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD2   | 4        | 0.16          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD1   | 4        | 0.16          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD2   | 4        | 0.16          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H    | 2        | 0.16          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H    | 4        | 0.16          |
| (1,1543) | 1:A:217:PHE:H    | 1:A:217:PHE:HA   | 7        | 0.16          |
| (1,1454) | 1:A:162:SER:H    | 1:A:162:SER:HB2  | 5        | 0.16          |
| (1,1375) | 1:A:156:GLU:H    | 1:A:156:GLU:HB2  | 9        | 0.16          |
| (1,130)  | 1:A:119:VAL:HG21 | 1:A:116:ASN:HB2  | 5        | 0.16          |
| (1,130)  | 1:A:119:VAL:HG22 | 1:A:116:ASN:HB2  | 5        | 0.16          |
| (1,130)  | 1:A:119:VAL:HG23 | 1:A:116:ASN:HB2  | 5        | 0.16          |
| (1,1240) | 1:A:114:LYS:H    | 1:A:114:LYS:HB2  | 8        | 0.16          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1239) | 1:A:114:LYS:H    | 1:A:114:LYS:HD2  | 3        | 0.16          |
| (2,211)  | 1:A:137:MET:H    | 1:A:133:LEU:HD11 | 3        | 0.15          |
| (2,211)  | 1:A:137:MET:H    | 1:A:133:LEU:HD12 | 3        | 0.15          |
| (2,211)  | 1:A:137:MET:H    | 1:A:133:LEU:HD13 | 3        | 0.15          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 9        | 0.15          |
| (2,1)    | 1:A:192:ILE:HG21 | 1:A:137:MET:HA   | 3        | 0.15          |
| (2,1)    | 1:A:192:ILE:HG22 | 1:A:137:MET:HA   | 3        | 0.15          |
| (2,1)    | 1:A:192:ILE:HG23 | 1:A:137:MET:HA   | 3        | 0.15          |
| (1,917)  | 1:A:30:ILE:H     | 1:A:29:LYS:HG3   | 7        | 0.15          |
| (1,809)  | 1:A:188:LYS:HD2  | 1:A:188:LYS:H    | 2        | 0.15          |
| (1,802)  | 1:A:20:GLU:HG2   | 1:A:21:TRP:HD1   | 2        | 0.15          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 5        | 0.15          |
| (1,593)  | 1:A:19:GLU:HG3   | 1:A:19:GLU:H     | 1        | 0.15          |
| (1,593)  | 1:A:19:GLU:HG3   | 1:A:19:GLU:H     | 10       | 0.15          |
| (1,504)  | 1:A:217:PHE:HB2  | 1:A:217:PHE:H    | 6        | 0.15          |
| (1,483)  | 1:A:221:GLN:HA   | 1:A:221:GLN:HG2  | 8        | 0.15          |
| (1,472)  | 1:A:206:LYS:HD2  | 1:A:206:LYS:H    | 6        | 0.15          |
| (1,348)  | 1:A:206:LYS:HG2  | 1:A:207:LEU:H    | 8        | 0.15          |
| (1,2208) | 1:A:126:VAL:HG21 | 1:A:207:LEU:HA   | 3        | 0.15          |
| (1,2208) | 1:A:126:VAL:HG22 | 1:A:207:LEU:HA   | 3        | 0.15          |
| (1,2208) | 1:A:126:VAL:HG23 | 1:A:207:LEU:HA   | 3        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG21  | 9        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG22  | 9        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG23  | 9        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG11  | 9        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG12  | 9        | 0.15          |
| (1,2188) | 1:A:51:LYS:HD2   | 1:A:56:VAL:HG13  | 9        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD11 | 1:A:114:LYS:HD2  | 6        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD12 | 1:A:114:LYS:HD2  | 6        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD13 | 1:A:114:LYS:HD2  | 6        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD11 | 1:A:114:LYS:HD3  | 6        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD12 | 1:A:114:LYS:HD3  | 6        | 0.15          |
| (1,1990) | 1:A:115:ILE:HD13 | 1:A:114:LYS:HD3  | 6        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD1   | 2        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG11  | 1:A:72:TYR:HD2   | 2        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD1   | 2        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG12  | 1:A:72:TYR:HD2   | 2        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD1   | 2        | 0.15          |
| (1,1928) | 1:A:76:VAL:HG13  | 1:A:72:TYR:HD2   | 2        | 0.15          |
| (1,1812) | 1:A:21:TRP:HD1   | 1:A:38:PHE:HE1   | 6        | 0.15          |
| (1,1812) | 1:A:21:TRP:HD1   | 1:A:38:PHE:HE2   | 6        | 0.15          |
| (1,1721) | 1:A:221:GLN:HE21 | 1:A:221:GLN:HG2  | 7        | 0.15          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,16)   | 1:A:8:PRO:HA     | 1:A:9:MET:H      | 4        | 0.15          |
| (1,119)  | 1:A:119:VAL:HB   | 1:A:120:MET:H    | 6        | 0.15          |
| (1,1187) | 1:A:216:ASP:H    | 1:A:216:ASP:HB2  | 6        | 0.15          |
| (1,102)  | 1:A:201:GLU:HB2  | 1:A:202:PRO:HD3  | 1        | 0.15          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD11  | 1        | 0.14          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD12  | 1        | 0.14          |
| (2,197)  | 1:A:21:TRP:HE1   | 1:A:40:LEU:HD13  | 1        | 0.14          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 3        | 0.14          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 6        | 0.14          |
| (1,994)  | 1:A:55:SER:H     | 1:A:56:VAL:HB    | 9        | 0.14          |
| (1,81)   | 1:A:196:LEU:HD11 | 1:A:196:LEU:HA   | 3        | 0.14          |
| (1,81)   | 1:A:196:LEU:HD12 | 1:A:196:LEU:HA   | 3        | 0.14          |
| (1,81)   | 1:A:196:LEU:HD13 | 1:A:196:LEU:HA   | 3        | 0.14          |
| (1,809)  | 1:A:188:LYS:HD2  | 1:A:188:LYS:H    | 1        | 0.14          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 6        | 0.14          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 10       | 0.14          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2    | 3        | 0.14          |
| (1,489)  | 1:A:218:GLN:HG2  | 1:A:218:GLN:H    | 6        | 0.14          |
| (1,428)  | 1:A:51:LYS:HD2   | 1:A:51:LYS:H     | 1        | 0.14          |
| (1,428)  | 1:A:51:LYS:HD2   | 1:A:51:LYS:H     | 6        | 0.14          |
| (1,424)  | 1:A:184:LYS:HG3  | 1:A:184:LYS:H    | 5        | 0.14          |
| (1,357)  | 1:A:176:GLU:HG3  | 1:A:176:GLU:H    | 10       | 0.14          |
| (1,2325) | 1:A:114:LYS:H    | 1:A:113:LYS:HA   | 6        | 0.14          |
| (1,2325) | 1:A:114:LYS:H    | 1:A:114:LYS:HA   | 6        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG21 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG22 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG23 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG21 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG22 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG23 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG21 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG22 | 4        | 0.14          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG23 | 4        | 0.14          |
| (1,2107) | 1:A:218:GLN:HA   | 1:A:218:GLN:HG2  | 5        | 0.14          |
| (1,2107) | 1:A:218:GLN:HA   | 1:A:218:GLN:HG3  | 5        | 0.14          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB1   | 5        | 0.14          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB2   | 5        | 0.14          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB3   | 5        | 0.14          |
| (1,2078) | 1:A:79:VAL:HG21  | 1:A:192:ILE:HD11 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG21  | 1:A:192:ILE:HD12 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG21  | 1:A:192:ILE:HD13 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG22  | 1:A:192:ILE:HD11 | 10       | 0.14          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2078) | 1:A:79:VAL:HG22  | 1:A:192:ILE:HD12 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG22  | 1:A:192:ILE:HD13 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG23  | 1:A:192:ILE:HD11 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG23  | 1:A:192:ILE:HD12 | 10       | 0.14          |
| (1,2078) | 1:A:79:VAL:HG23  | 1:A:192:ILE:HD13 | 10       | 0.14          |
| (1,2064) | 1:A:40:LEU:HD21  | 1:A:21:TRP:HE3   | 7        | 0.14          |
| (1,2064) | 1:A:40:LEU:HD22  | 1:A:21:TRP:HE3   | 7        | 0.14          |
| (1,2064) | 1:A:40:LEU:HD23  | 1:A:21:TRP:HE3   | 7        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG21 | 1:A:114:LYS:HD3  | 3        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG22 | 1:A:114:LYS:HD3  | 3        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG23 | 1:A:114:LYS:HD3  | 3        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG21 | 1:A:114:LYS:HD2  | 3        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG22 | 1:A:114:LYS:HD2  | 3        | 0.14          |
| (1,1985) | 1:A:115:ILE:HG23 | 1:A:114:LYS:HD2  | 3        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG21 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG22 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG23 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG21 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG22 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG23 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG21 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG22 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG23 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG11 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG12 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD11 | 1:A:126:VAL:HG13 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG11 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG12 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD12 | 1:A:126:VAL:HG13 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG11 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG12 | 6        | 0.14          |
| (1,1941) | 1:A:204:LEU:HD13 | 1:A:126:VAL:HG13 | 6        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 5        | 0.14          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD13 | 5        | 0.14          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H    | 1        | 0.14          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1773) | 1:A:34:ASN:HD21  | 1:A:32:ALA:HA    | 6        | 0.14          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA   | 1        | 0.14          |
| (1,1543) | 1:A:217:PHE:H    | 1:A:217:PHE:HA   | 4        | 0.14          |
| (1,1454) | 1:A:162:SER:H    | 1:A:162:SER:HB2  | 3        | 0.14          |
| (1,1210) | 1:A:101:ARG:H    | 1:A:102:GLU:H    | 4        | 0.14          |
| (3,39)   | 1:A:80:ALA:H     | 1:A:76:VAL:O     | 10       | 0.13          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD1   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD2   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD1   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD2   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD1   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD2   | 2        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD1   | 8        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD21 | 1:A:72:TYR:HD2   | 8        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD1   | 8        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD22 | 1:A:72:TYR:HD2   | 8        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD1   | 8        | 0.13          |
| (2,39)   | 1:A:141:LEU:HD23 | 1:A:72:TYR:HD2   | 8        | 0.13          |
| (2,194)  | 1:A:38:PHE:H     | 1:A:30:ILE:HG13  | 5        | 0.13          |
| (2,191)  | 1:A:37:ASN:H     | 1:A:36:TRP:HD1   | 9        | 0.13          |
| (1,86)   | 1:A:199:GLU:HG2  | 1:A:199:GLU:H    | 5        | 0.13          |
| (1,658)  | 1:A:96:SER:HB2   | 1:A:96:SER:H     | 3        | 0.13          |
| (1,540)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HE2   | 4        | 0.13          |
| (1,537)  | 1:A:11:ARG:HB2   | 1:A:11:ARG:HD2   | 5        | 0.13          |
| (1,438)  | 1:A:190:GLN:HG2  | 1:A:190:GLN:H    | 7        | 0.13          |
| (1,340)  | 1:A:174:ARG:HD2  | 1:A:174:ARG:HA   | 7        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG21 | 8        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG22 | 8        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:140:VAL:HG23 | 8        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG11  | 8        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG12  | 8        | 0.13          |
| (1,2366) | 1:A:36:TRP:HH2   | 1:A:79:VAL:HG13  | 8        | 0.13          |
| (1,2148) | 1:A:193:THR:HB   | 1:A:137:MET:HG3  | 6        | 0.13          |
| (1,2148) | 1:A:193:THR:HB   | 1:A:137:MET:HG2  | 6        | 0.13          |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB2   | 8        | 0.13          |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB2   | 8        | 0.13          |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB2   | 8        | 0.13          |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB3   | 8        | 0.13          |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB3   | 8        | 0.13          |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB3   | 8        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD11 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD12 | 9        | 0.13          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,1927) | 1:A:76:VAL:HG11  | 1:A:192:ILE:HD13 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD11 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD12 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG12  | 1:A:192:ILE:HD13 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD11 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD12 | 9        | 0.13          |
| (1,1927) | 1:A:76:VAL:HG13  | 1:A:192:ILE:HD13 | 9        | 0.13          |
| (1,1843) | 1:A:36:TRP:HH2   | 1:A:78:SER:HA    | 8        | 0.13          |
| (1,1790) | 1:A:44:PHE:H     | 1:A:45:HIS:HD2   | 1        | 0.13          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H    | 5        | 0.13          |
| (1,1773) | 1:A:34:ASN:HD21  | 1:A:32:ALA:HA    | 5        | 0.13          |
| (1,1705) | 1:A:190:GLN:HE21 | 1:A:190:GLN:HB2  | 3        | 0.13          |
| (1,1690) | 1:A:121:ASN:HD21 | 1:A:118:LYS:HA   | 5        | 0.13          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA   | 7        | 0.13          |
| (1,1637) | 1:A:20:GLU:H     | 1:A:20:GLU:HB2   | 10       | 0.13          |
| (1,1605) | 1:A:218:GLN:H    | 1:A:218:GLN:HA   | 4        | 0.13          |
| (1,1544) | 1:A:217:PHE:H    | 1:A:216:ASP:HB2  | 7        | 0.13          |
| (1,1443) | 1:A:160:LYS:H    | 1:A:160:LYS:HD3  | 8        | 0.13          |
| (1,114)  | 1:A:120:MET:HG2  | 1:A:120:MET:H    | 9        | 0.13          |
| (1,1115) | 1:A:219:GLN:H    | 1:A:219:GLN:HG2  | 3        | 0.13          |
| (1,1025) | 1:A:59:GLN:H     | 1:A:60:LYS:HB2   | 9        | 0.13          |
| (1,102)  | 1:A:201:GLU:HB2  | 1:A:202:PRO:HD3  | 10       | 0.13          |
| (2,287)  | 1:A:119:VAL:HG11 | 1:A:115:ILE:HB   | 7        | 0.12          |
| (2,287)  | 1:A:119:VAL:HG12 | 1:A:115:ILE:HB   | 7        | 0.12          |
| (2,287)  | 1:A:119:VAL:HG13 | 1:A:115:ILE:HB   | 7        | 0.12          |
| (2,285)  | 1:A:140:VAL:HG21 | 1:A:75:ARG:HA    | 10       | 0.12          |
| (2,285)  | 1:A:140:VAL:HG22 | 1:A:75:ARG:HA    | 10       | 0.12          |
| (2,285)  | 1:A:140:VAL:HG23 | 1:A:75:ARG:HA    | 10       | 0.12          |
| (2,252)  | 1:A:72:TYR:HE1   | 1:A:41:ILE:HD11  | 2        | 0.12          |
| (2,252)  | 1:A:72:TYR:HE1   | 1:A:41:ILE:HD12  | 2        | 0.12          |
| (2,252)  | 1:A:72:TYR:HE1   | 1:A:41:ILE:HD13  | 2        | 0.12          |
| (2,252)  | 1:A:72:TYR:HE2   | 1:A:41:ILE:HD11  | 2        | 0.12          |
| (2,252)  | 1:A:72:TYR:HE2   | 1:A:41:ILE:HD12  | 2        | 0.12          |
| (2,252)  | 1:A:72:TYR:HE2   | 1:A:41:ILE:HD13  | 2        | 0.12          |
| (2,194)  | 1:A:38:PHE:H     | 1:A:30:ILE:HG13  | 10       | 0.12          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA    | 4        | 0.12          |
| (2,131)  | 1:A:79:VAL:HG11  | 1:A:36:TRP:HE1   | 6        | 0.12          |
| (2,131)  | 1:A:79:VAL:HG12  | 1:A:36:TRP:HE1   | 6        | 0.12          |
| (2,131)  | 1:A:79:VAL:HG13  | 1:A:36:TRP:HE1   | 6        | 0.12          |
| (1,994)  | 1:A:55:SER:H     | 1:A:56:VAL:HB    | 1        | 0.12          |
| (1,993)  | 1:A:55:SER:H     | 1:A:55:SER:HB2   | 2        | 0.12          |
| (1,756)  | 1:A:56:VAL:HB    | 1:A:154:LEU:HD11 | 1        | 0.12          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,756)  | 1:A:56:VAL:HB    | 1:A:154:LEU:HD12 | 1        | 0.12          |
| (1,756)  | 1:A:56:VAL:HB    | 1:A:154:LEU:HD13 | 1        | 0.12          |
| (1,650)  | 1:A:99:LYS:HG2   | 1:A:99:LYS:H     | 10       | 0.12          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 3        | 0.12          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 4        | 0.12          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H    | 9        | 0.12          |
| (1,615)  | 1:A:114:LYS:HG2  | 1:A:115:ILE:H    | 9        | 0.12          |
| (1,542)  | 1:A:10:LYS:HE2   | 1:A:10:LYS:HA    | 5        | 0.12          |
| (1,530)  | 1:A:4:ARG:HA     | 1:A:4:ARG:HG2    | 6        | 0.12          |
| (1,424)  | 1:A:184:LYS:HG3  | 1:A:184:LYS:H    | 8        | 0.12          |
| (1,2357) | 1:A:201:GLU:H    | 1:A:197:ARG:HA   | 3        | 0.12          |
| (1,2357) | 1:A:201:GLU:H    | 1:A:196:LEU:HA   | 3        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD11  | 1:A:43:TYR:HE1   | 7        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD11  | 1:A:43:TYR:HE2   | 7        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD12  | 1:A:43:TYR:HE1   | 7        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD12  | 1:A:43:TYR:HE2   | 7        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD13  | 1:A:43:TYR:HE1   | 7        | 0.12          |
| (1,2233) | 1:A:49:LEU:HD13  | 1:A:43:TYR:HE2   | 7        | 0.12          |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE1  | 10       | 0.12          |
| (1,2174) | 1:A:154:LEU:HD11 | 1:A:157:TYR:HE2  | 10       | 0.12          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE1  | 10       | 0.12          |
| (1,2174) | 1:A:154:LEU:HD12 | 1:A:157:TYR:HE2  | 10       | 0.12          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE1  | 10       | 0.12          |
| (1,2174) | 1:A:154:LEU:HD13 | 1:A:157:TYR:HE2  | 10       | 0.12          |
| (1,2129) | 1:A:73:THR:HG21  | 1:A:189:LEU:HB2  | 7        | 0.12          |
| (1,2129) | 1:A:73:THR:HG22  | 1:A:189:LEU:HB2  | 7        | 0.12          |
| (1,2129) | 1:A:73:THR:HG23  | 1:A:189:LEU:HB2  | 7        | 0.12          |
| (1,2129) | 1:A:73:THR:HG21  | 1:A:189:LEU:HB3  | 7        | 0.12          |
| (1,2129) | 1:A:73:THR:HG22  | 1:A:189:LEU:HB3  | 7        | 0.12          |
| (1,2129) | 1:A:73:THR:HG23  | 1:A:189:LEU:HB3  | 7        | 0.12          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD11 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD12 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG21  | 1:A:200:ILE:HD13 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD11 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD12 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG22  | 1:A:200:ILE:HD13 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD11 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD12 | 3        | 0.12          |
| (1,2091) | 1:A:83:THR:HG23  | 1:A:200:ILE:HD13 | 3        | 0.12          |
| (1,2064) | 1:A:40:LEU:HD21  | 1:A:21:TRP:HE3   | 3        | 0.12          |
| (1,2064) | 1:A:40:LEU:HD22  | 1:A:21:TRP:HE3   | 3        | 0.12          |
| (1,2064) | 1:A:40:LEU:HD23  | 1:A:21:TRP:HE3   | 3        | 0.12          |

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| Key      | Atom-1           | Atom-2          | Model ID | Violation (Å) |
|----------|------------------|-----------------|----------|---------------|
| (1,1958) | 1:A:123:ILE:HD11 | 1:A:207:LEU:HG  | 6        | 0.12          |
| (1,1958) | 1:A:123:ILE:HD12 | 1:A:207:LEU:HG  | 6        | 0.12          |
| (1,1958) | 1:A:123:ILE:HD13 | 1:A:207:LEU:HG  | 6        | 0.12          |
| (1,1843) | 1:A:36:TRP:HH2   | 1:A:78:SER:HA   | 2        | 0.12          |
| (1,1843) | 1:A:36:TRP:HH2   | 1:A:78:SER:HA   | 5        | 0.12          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H   | 3        | 0.12          |
| (1,179)  | 1:A:128:LYS:HD2  | 1:A:128:LYS:H   | 6        | 0.12          |
| (1,1773) | 1:A:34:ASN:HD21  | 1:A:32:ALA:HA   | 8        | 0.12          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA  | 8        | 0.12          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA  | 9        | 0.12          |
| (1,1637) | 1:A:20:GLU:H     | 1:A:20:GLU:HB2  | 1        | 0.12          |
| (1,1637) | 1:A:20:GLU:H     | 1:A:20:GLU:HB2  | 9        | 0.12          |
| (1,1609) | 1:A:218:GLN:H    | 1:A:218:GLN:HB2 | 6        | 0.12          |
| (1,1605) | 1:A:218:GLN:H    | 1:A:218:GLN:HA  | 7        | 0.12          |
| (1,1242) | 1:A:113:LYS:H    | 1:A:113:LYS:HD2 | 5        | 0.12          |
| (1,1240) | 1:A:114:LYS:H    | 1:A:114:LYS:HB2 | 5        | 0.12          |
| (1,1240) | 1:A:114:LYS:H    | 1:A:114:LYS:HB2 | 6        | 0.12          |
| (1,1187) | 1:A:216:ASP:H    | 1:A:216:ASP:HB2 | 8        | 0.12          |
| (1,107)  | 1:A:10:LYS:HA    | 1:A:11:ARG:H    | 2        | 0.12          |
| (3,31)   | 1:A:76:VAL:H     | 1:A:72:TYR:O    | 7        | 0.11          |
| (3,19)   | 1:A:70:LYS:H     | 1:A:66:ASP:O    | 9        | 0.11          |
| (3,121)  | 1:A:197:ARG:H    | 1:A:193:THR:O   | 3        | 0.11          |
| (3,121)  | 1:A:197:ARG:H    | 1:A:193:THR:O   | 7        | 0.11          |
| (2,193)  | 1:A:37:ASN:H     | 1:A:34:ASN:HA   | 10       | 0.11          |
| (2,192)  | 1:A:37:ASN:H     | 1:A:38:PHE:HD1  | 9        | 0.11          |
| (2,192)  | 1:A:37:ASN:H     | 1:A:38:PHE:HD2  | 9        | 0.11          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG11 | 2        | 0.11          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG12 | 2        | 0.11          |
| (2,181)  | 1:A:60:LYS:HG3   | 1:A:56:VAL:HG13 | 2        | 0.11          |
| (2,133)  | 1:A:79:VAL:HG21  | 1:A:36:TRP:HE1  | 8        | 0.11          |
| (2,133)  | 1:A:79:VAL:HG22  | 1:A:36:TRP:HE1  | 8        | 0.11          |
| (2,133)  | 1:A:79:VAL:HG23  | 1:A:36:TRP:HE1  | 8        | 0.11          |
| (1,878)  | 1:A:12:VAL:H     | 1:A:11:ARG:HB2  | 4        | 0.11          |
| (1,781)  | 1:A:52:GLU:HG2   | 1:A:52:GLU:HA   | 6        | 0.11          |
| (1,76)   | 1:A:200:ILE:HG12 | 1:A:200:ILE:H   | 2        | 0.11          |
| (1,76)   | 1:A:200:ILE:HG12 | 1:A:200:ILE:H   | 9        | 0.11          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H   | 2        | 0.11          |
| (1,644)  | 1:A:101:ARG:HA   | 1:A:101:ARG:H   | 7        | 0.11          |
| (1,539)  | 1:A:10:LYS:HG2   | 1:A:10:LYS:HA   | 2        | 0.11          |
| (1,498)  | 1:A:218:GLN:HA   | 1:A:218:GLN:HG2 | 4        | 0.11          |
| (1,498)  | 1:A:218:GLN:HA   | 1:A:218:GLN:HG2 | 10       | 0.11          |
| (1,348)  | 1:A:206:LYS:HG2  | 1:A:207:LEU:H   | 9        | 0.11          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,303)  | 1:A:154:LEU:HA   | 1:A:154:LEU:HD21 | 2        | 0.11          |
| (1,303)  | 1:A:154:LEU:HA   | 1:A:154:LEU:HD22 | 2        | 0.11          |
| (1,303)  | 1:A:154:LEU:HA   | 1:A:154:LEU:HD23 | 2        | 0.11          |
| (1,233)  | 1:A:141:LEU:HG   | 1:A:141:LEU:H    | 4        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD11 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD12 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:192:ILE:HD13 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD21 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD22 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD23 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD11 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD12 | 3        | 0.11          |
| (1,2237) | 1:A:191:GLU:HB2  | 1:A:195:LEU:HD13 | 3        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG21 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG22 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG21 | 1:A:123:ILE:HG23 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG21 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG22 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG22 | 1:A:123:ILE:HG23 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG21 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG22 | 7        | 0.11          |
| (1,2210) | 1:A:126:VAL:HG23 | 1:A:123:ILE:HG23 | 7        | 0.11          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD1  | 10       | 0.11          |
| (1,2113) | 1:A:218:GLN:HG2  | 1:A:217:PHE:HD2  | 10       | 0.11          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB1   | 2        | 0.11          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB2   | 2        | 0.11          |
| (1,2093) | 1:A:83:THR:HA    | 1:A:80:ALA:HB3   | 2        | 0.11          |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB2   | 5        | 0.11          |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB2   | 5        | 0.11          |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB2   | 5        | 0.11          |
| (1,2058) | 1:A:22:MET:HE1   | 1:A:19:GLU:HB3   | 5        | 0.11          |
| (1,2058) | 1:A:22:MET:HE2   | 1:A:19:GLU:HB3   | 5        | 0.11          |
| (1,2058) | 1:A:22:MET:HE3   | 1:A:19:GLU:HB3   | 5        | 0.11          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD1   | 7        | 0.11          |
| (1,2055) | 1:A:22:MET:HE1   | 1:A:38:PHE:HD2   | 7        | 0.11          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD1   | 7        | 0.11          |
| (1,2055) | 1:A:22:MET:HE2   | 1:A:38:PHE:HD2   | 7        | 0.11          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD1   | 7        | 0.11          |
| (1,2055) | 1:A:22:MET:HE3   | 1:A:38:PHE:HD2   | 7        | 0.11          |
| (1,2043) | 1:A:136:MET:HE1  | 1:A:133:LEU:HD11 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE1  | 1:A:133:LEU:HD12 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE1  | 1:A:133:LEU:HD13 | 8        | 0.11          |

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| Key      | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|----------|------------------|------------------|----------|---------------|
| (1,2043) | 1:A:136:MET:HE2  | 1:A:133:LEU:HD11 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE2  | 1:A:133:LEU:HD12 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE2  | 1:A:133:LEU:HD13 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE3  | 1:A:133:LEU:HD11 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE3  | 1:A:133:LEU:HD12 | 8        | 0.11          |
| (1,2043) | 1:A:136:MET:HE3  | 1:A:133:LEU:HD13 | 8        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG21 | 1:A:114:LYS:HG2  | 3        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG22 | 1:A:114:LYS:HG2  | 3        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG23 | 1:A:114:LYS:HG2  | 3        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG21 | 1:A:114:LYS:HG3  | 3        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG22 | 1:A:114:LYS:HG3  | 3        | 0.11          |
| (1,1984) | 1:A:115:ILE:HG23 | 1:A:114:LYS:HG3  | 3        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD21 | 1:A:123:ILE:HG21 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD21 | 1:A:123:ILE:HG22 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD21 | 1:A:123:ILE:HG23 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD22 | 1:A:123:ILE:HG21 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD22 | 1:A:123:ILE:HG22 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD22 | 1:A:123:ILE:HG23 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD23 | 1:A:123:ILE:HG21 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD23 | 1:A:123:ILE:HG22 | 4        | 0.11          |
| (1,1948) | 1:A:204:LEU:HD23 | 1:A:123:ILE:HG23 | 4        | 0.11          |
| (1,190)  | 1:A:22:MET:HE1   | 1:A:22:MET:HA    | 8        | 0.11          |
| (1,190)  | 1:A:22:MET:HE2   | 1:A:22:MET:HA    | 8        | 0.11          |
| (1,190)  | 1:A:22:MET:HE3   | 1:A:22:MET:HA    | 8        | 0.11          |
| (1,1773) | 1:A:34:ASN:HD21  | 1:A:32:ALA:HA    | 7        | 0.11          |
| (1,1763) | 1:A:59:GLN:HE22  | 1:A:59:GLN:H     | 4        | 0.11          |
| (1,1701) | 1:A:121:ASN:HD22 | 1:A:118:LYS:HB2  | 7        | 0.11          |
| (1,1695) | 1:A:121:ASN:HD21 | 1:A:120:MET:HB3  | 10       | 0.11          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA   | 2        | 0.11          |
| (1,1682) | 1:A:210:GLU:H    | 1:A:209:GLN:HA   | 6        | 0.11          |
| (1,1543) | 1:A:217:PHE:H    | 1:A:217:PHE:HA   | 1        | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HG21 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HG22 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HG23 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HG13 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HD11 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HD12 | 10       | 0.11          |
| (1,1537) | 1:A:200:ILE:H    | 1:A:200:ILE:HD13 | 10       | 0.11          |
| (1,1322) | 1:A:135:HIS:H    | 1:A:131:MET:HA   | 6        | 0.11          |
| (1,129)  | 1:A:126:VAL:HG21 | 1:A:127:GLU:H    | 7        | 0.11          |
| (1,129)  | 1:A:126:VAL:HG22 | 1:A:127:GLU:H    | 7        | 0.11          |
| (1,129)  | 1:A:126:VAL:HG23 | 1:A:127:GLU:H    | 7        | 0.11          |

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| <b>Key</b> | <b>Atom-1</b> | <b>Atom-2</b>   | <b>Model ID</b> | <b>Violation (Å)</b> |
|------------|---------------|-----------------|-----------------|----------------------|
| (1,1241)   | 1:A:113:LYS:H | 1:A:113:LYS:HG2 | 9               | 0.11                 |
| (1,106)    | 1:A:99:LYS:HA | 1:A:99:LYS:H    | 4               | 0.11                 |
| (1,1025)   | 1:A:59:GLN:H  | 1:A:60:LYS:HB2  | 3               | 0.11                 |
| (1,1025)   | 1:A:59:GLN:H  | 1:A:60:LYS:HB2  | 10              | 0.11                 |

## 10 Dihedral-angle violation analysis [i](#)

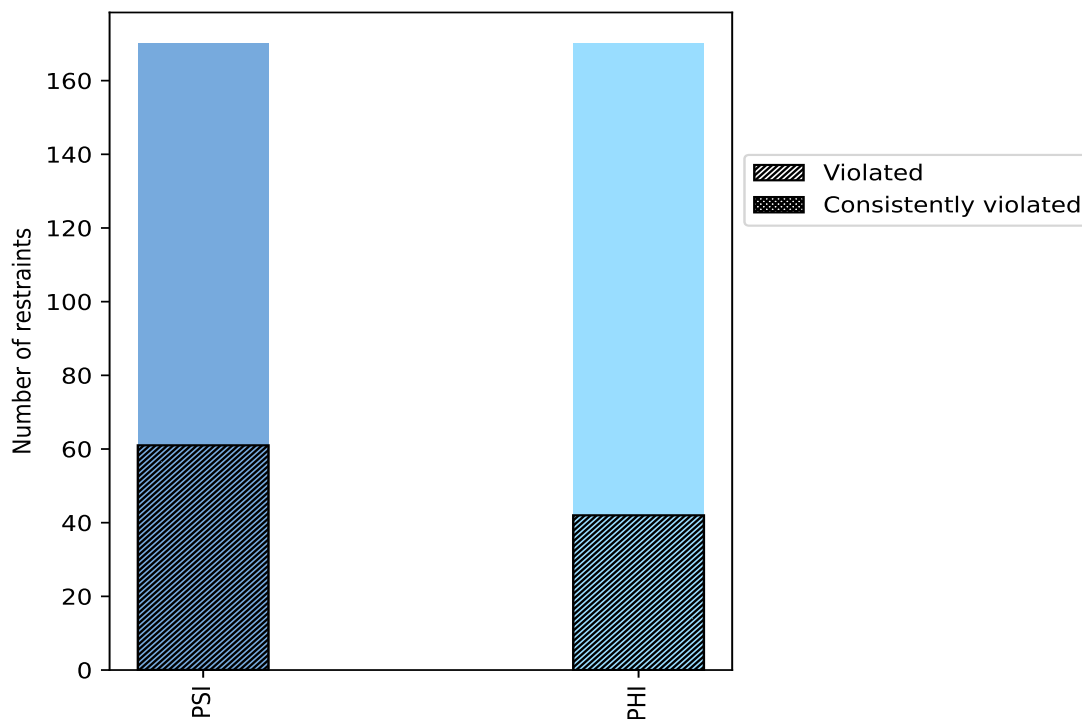
### 10.1 Summary of dihedral-angle violations [i](#)

The following table provides the summary of dihedral-angle violations in different dihedral-angle types. Violations less than 1° are not included in the calculation.

| Angle type | Count | % <sup>1</sup> | Violated <sup>3</sup> |                |                | Consistently Violated <sup>4</sup> |                |                |
|------------|-------|----------------|-----------------------|----------------|----------------|------------------------------------|----------------|----------------|
|            |       |                | Count                 | % <sup>2</sup> | % <sup>1</sup> | Count                              | % <sup>2</sup> | % <sup>1</sup> |
| PSI        | 170   | 50.0           | 61                    | 35.9           | 17.9           | 0                                  | 0.0            | 0.0            |
| PHI        | 170   | 50.0           | 42                    | 24.7           | 12.4           | 0                                  | 0.0            | 0.0            |
| Total      | 340   | 100.0          | 103                   | 30.3           | 30.3           | 0                                  | 0.0            | 0.0            |

<sup>1</sup> percentage calculated with respect to total number of dihedral-angle restraints, <sup>2</sup> percentage calculated with respect to number of restraints in a particular dihedral-angle type, <sup>3</sup> violated in at least one model, <sup>4</sup> violated in all the models

#### 10.1.1 Bar chart : Distribution of dihedral-angles and violations [i](#)



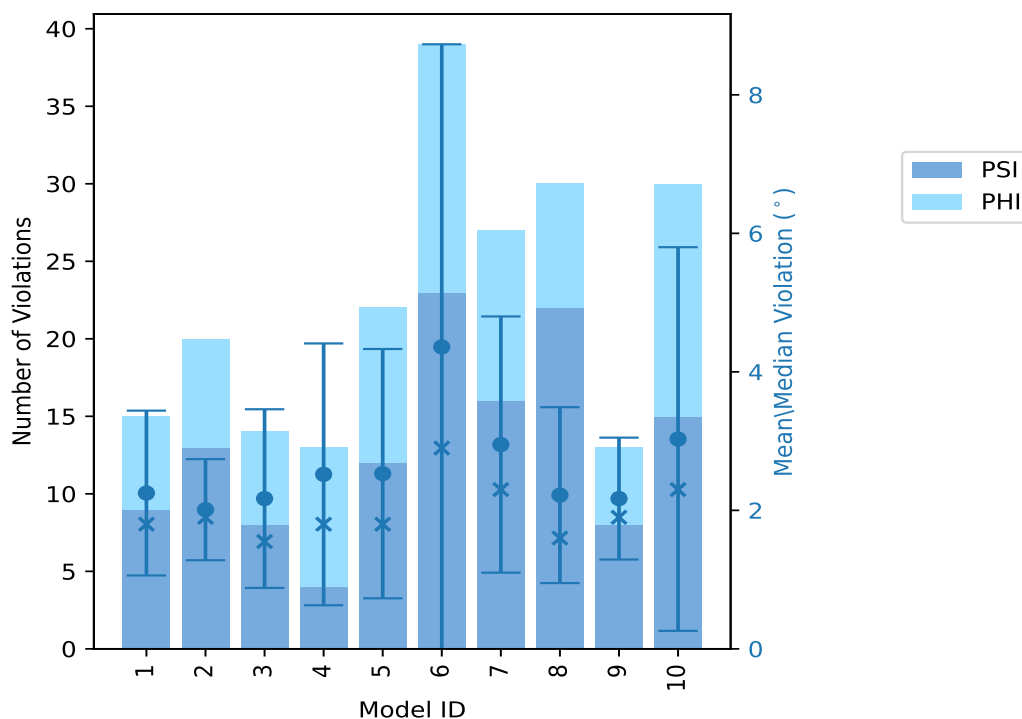
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

## 10.2 Dihedral-angle violation statistics for each model [\(i\)](#)

The following table provides the dihedral-angle violation statistics for each model in the ensemble. Violations less than 1° are not included in the statistics.

| Model ID | Number of violations |     |       | Mean (°) | Max (°) | SD (°) | Median (°) |
|----------|----------------------|-----|-------|----------|---------|--------|------------|
|          | PSI                  | PHI | Total |          |         |        |            |
| 1        | 9                    | 6   | 15    | 2.25     | 5.6     | 1.19   | 1.8        |
| 2        | 13                   | 7   | 20    | 2.01     | 4.2     | 0.73   | 1.9        |
| 3        | 8                    | 6   | 14    | 2.17     | 5.3     | 1.29   | 1.55       |
| 4        | 4                    | 9   | 13    | 2.52     | 7.4     | 1.89   | 1.8        |
| 5        | 12                   | 10  | 22    | 2.53     | 8.4     | 1.8    | 1.8        |
| 6        | 23                   | 16  | 39    | 4.36     | 20.4    | 4.37   | 2.9        |
| 7        | 16                   | 11  | 27    | 2.95     | 8.0     | 1.85   | 2.3        |
| 8        | 22                   | 8   | 30    | 2.22     | 7.0     | 1.27   | 1.6        |
| 9        | 8                    | 5   | 13    | 2.17     | 4.4     | 0.88   | 1.9        |
| 10       | 15                   | 15  | 30    | 3.03     | 15.4    | 2.77   | 2.3        |

### 10.2.1 Bar graph : Dihedral violation statistics for each model [\(i\)](#)



The mean(dot),median(x) and the standard deviation are shown in blue with respect to the y axis on the right

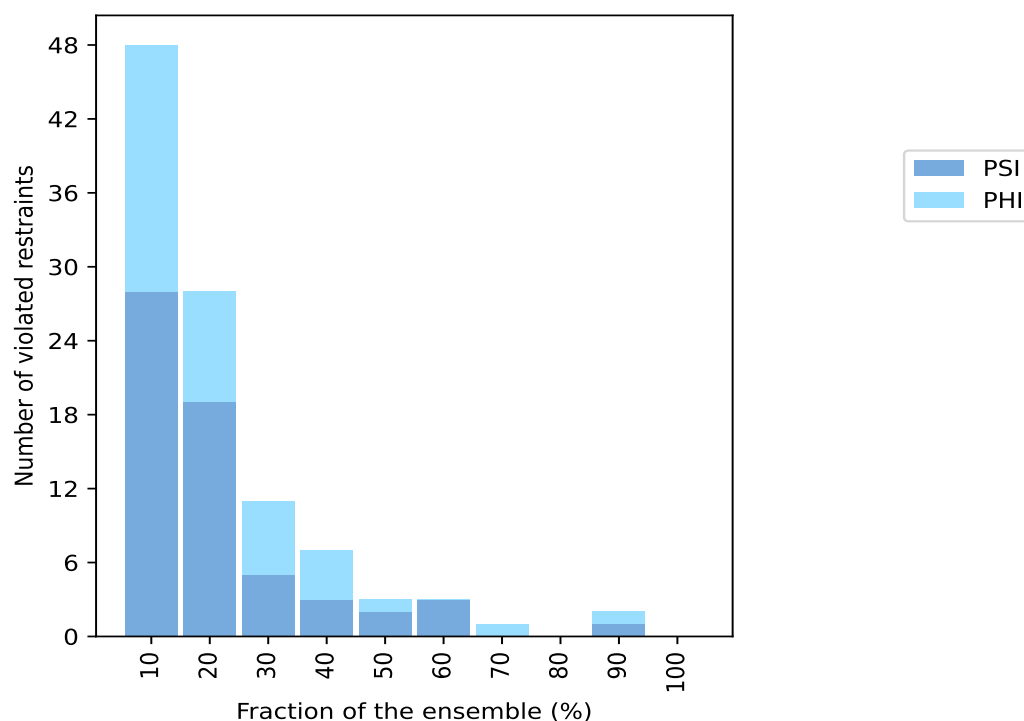
### 10.3 Dihedral-angle violation statistics for the ensemble [i](#)

Violation analysis may find that some restraints are violated in very few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of ensemble.

| Number of violated restraints |     |       | Fraction of the ensemble |       |
|-------------------------------|-----|-------|--------------------------|-------|
| PSI                           | PHI | Total | Count <sup>1</sup>       | %     |
| 28                            | 20  | 48    | 1                        | 10.0  |
| 19                            | 9   | 28    | 2                        | 20.0  |
| 5                             | 6   | 11    | 3                        | 30.0  |
| 3                             | 4   | 7     | 4                        | 40.0  |
| 2                             | 1   | 3     | 5                        | 50.0  |
| 3                             | 0   | 3     | 6                        | 60.0  |
| 0                             | 1   | 1     | 7                        | 70.0  |
| 0                             | 0   | 0     | 8                        | 80.0  |
| 1                             | 1   | 2     | 9                        | 90.0  |
| 0                             | 0   | 0     | 10                       | 100.0 |

<sup>1</sup> Number of models with violations

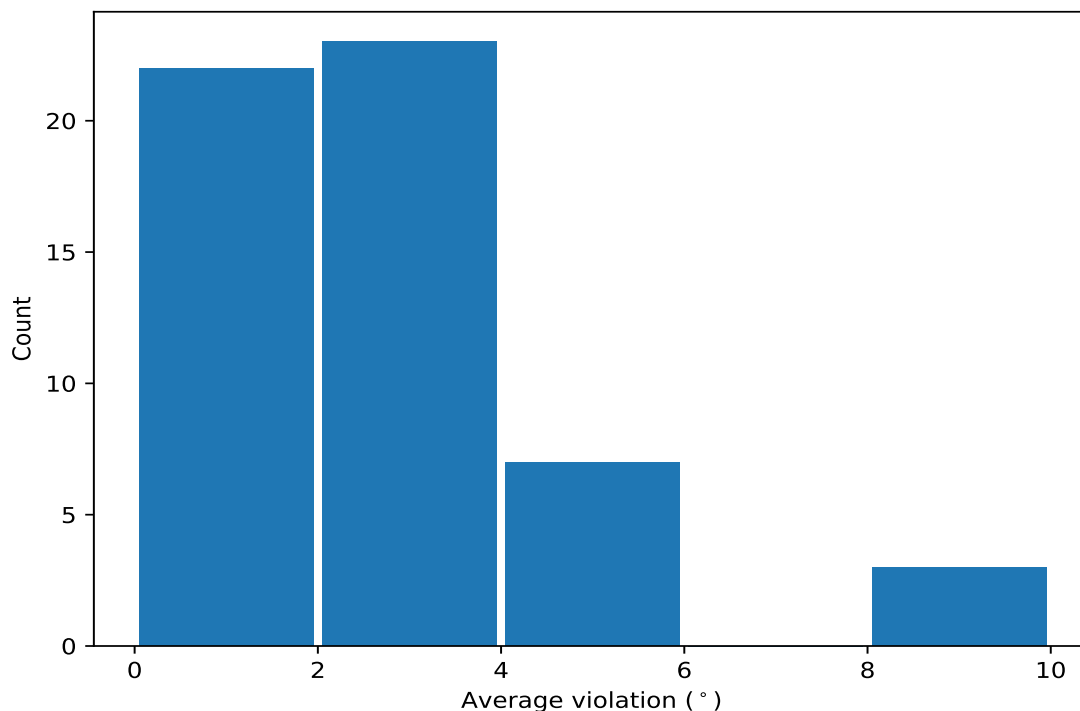
#### 10.3.1 Bar graph : Dihedral-angle Violation statistics for the ensemble [i](#)



## 10.4 Most violated dihedral-angle restraints in the ensemble [i](#)

### 10.4.1 Histogram : Distribution of mean dihedral-angle violations [i](#)

The following histogram shows the distribution of the average value of the violation. The average is calculated for each restraint that is violated in more than one model over all the violated models in the ensemble



### 10.4.2 Table: Most violated dihedral-angle restraints [i](#)

The following table provides the mean and the standard deviation of the violation for each restraint sorted by number of violated models and the mean value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint.

| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Models <sup>1</sup> | Mean | SD <sup>2</sup> | Median |
|---------|---------------|----------------|----------------|---------------|---------------------|------|-----------------|--------|
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 9                   | 5.23 | 1.92            | 5.3    |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 9                   | 2.36 | 0.74            | 2.2    |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 7                   | 4.07 | 1.88            | 4.5    |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 6                   | 2.85 | 1.01            | 2.8    |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 6                   | 2.6  | 1.8             | 1.6    |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 6                   | 2.35 | 0.97            | 2.05   |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 5                   | 3.76 | 2.41            | 3.0    |
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 5                   | 2.4  | 1.03            | 1.9    |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 5                   | 2.12 | 0.48            | 2.3    |
| (1,237) | 1:A:85:LYS:N  | 1:A:85:LYS:CA  | 1:A:85:LYS:C   | 1:A:86:LEU:N  | 4                   | 3.82 | 1.45            | 3.35   |
| (1,252) | 1:A:122:MET:N | 1:A:122:MET:CA | 1:A:122:MET:C  | 1:A:123:ILE:N | 4                   | 3.32 | 1.06            | 3.3    |
| (1,256) | 1:A:126:VAL:N | 1:A:126:VAL:CA | 1:A:126:VAL:C  | 1:A:127:GLU:N | 4                   | 2.35 | 1.05            | 2.35   |
| (1,162) | 1:A:208:ARG:C | 1:A:209:GLN:N  | 1:A:209:GLN:CA | 1:A:209:GLN:C | 4                   | 2.1  | 0.65            | 2.2    |

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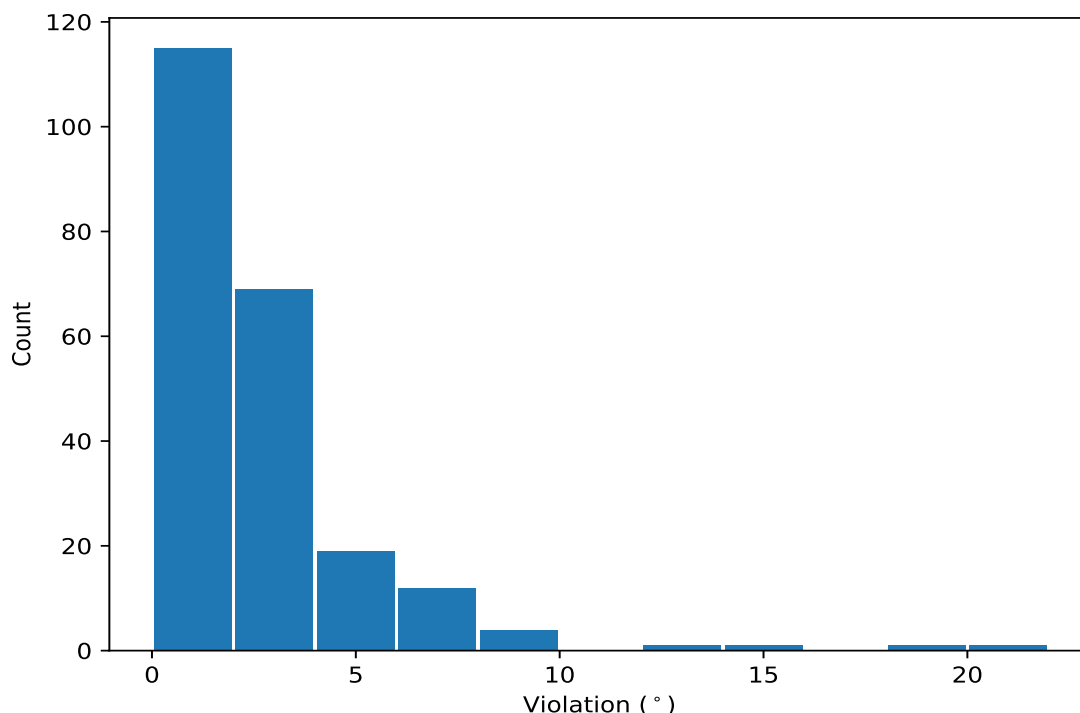
| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Models <sup>1</sup> | Mean | SD <sup>2</sup> | Median |
|---------|---------------|----------------|----------------|---------------|---------------------|------|-----------------|--------|
| (1,68)  | 1:A:85:LYS:C  | 1:A:86:LEU:N   | 1:A:86:LEU:CA  | 1:A:86:LEU:C  | 4                   | 1.67 | 0.38            | 1.7    |
| (1,83)  | 1:A:122:MET:C | 1:A:123:ILE:N  | 1:A:123:ILE:CA | 1:A:123:ILE:C | 4                   | 1.55 | 0.27            | 1.55   |
| (1,28)  | 1:A:42:ASP:C  | 1:A:43:TYR:N   | 1:A:43:TYR:CA  | 1:A:43:TYR:C  | 4                   | 1.35 | 0.11            | 1.35   |
| (1,325) | 1:A:202:PRO:N | 1:A:202:PRO:CA | 1:A:202:PRO:C  | 1:A:203:LYS:N | 3                   | 8.03 | 8.77            | 2.6    |
| (1,259) | 1:A:129:LYS:N | 1:A:129:LYS:CA | 1:A:129:LYS:C  | 1:A:130:GLU:N | 3                   | 3.47 | 1.47            | 3.6    |
| (1,84)  | 1:A:123:ILE:C | 1:A:124:ASP:N  | 1:A:124:ASP:CA | 1:A:124:ASP:C | 3                   | 3.27 | 2.15            | 2.0    |
| (1,160) | 1:A:206:LYS:C | 1:A:207:LEU:N  | 1:A:207:LEU:CA | 1:A:207:LEU:C | 3                   | 2.53 | 0.68            | 2.8    |
| (1,337) | 1:A:214:PHE:N | 1:A:214:PHE:CA | 1:A:214:PHE:C  | 1:A:215:LEU:N | 3                   | 2.4  | 1.1             | 2.3    |
| (1,86)  | 1:A:125:SER:C | 1:A:126:VAL:N  | 1:A:126:VAL:CA | 1:A:126:VAL:C | 3                   | 2.33 | 0.9             | 1.8    |
| (1,196) | 1:A:41:ILE:N  | 1:A:41:ILE:CA  | 1:A:41:ILE:C   | 1:A:42:ASP:N  | 3                   | 1.8  | 0.85            | 1.3    |
| (1,138) | 1:A:184:LYS:C | 1:A:185:LYS:N  | 1:A:185:LYS:CA | 1:A:185:LYS:C | 3                   | 1.5  | 0.22            | 1.4    |
| (1,168) | 1:A:214:PHE:C | 1:A:215:LEU:N  | 1:A:215:LEU:CA | 1:A:215:LEU:C | 3                   | 1.5  | 0.24            | 1.5    |
| (1,90)  | 1:A:129:LYS:C | 1:A:130:GLU:N  | 1:A:130:GLU:CA | 1:A:130:GLU:C | 3                   | 1.4  | 0.08            | 1.4    |
| (1,223) | 1:A:71:ILE:N  | 1:A:71:ILE:CA  | 1:A:71:ILE:C   | 1:A:72:TYR:N  | 3                   | 1.3  | 0.08            | 1.3    |
| (1,156) | 1:A:202:PRO:C | 1:A:203:LYS:N  | 1:A:203:LYS:CA | 1:A:203:LYS:C | 2                   | 9.95 | 8.55            | 9.95   |
| (1,322) | 1:A:199:GLU:N | 1:A:199:GLU:CA | 1:A:199:GLU:C  | 1:A:200:ILE:N | 2                   | 8.45 | 6.95            | 8.45   |
| (1,157) | 1:A:203:LYS:C | 1:A:204:LEU:N  | 1:A:204:LEU:CA | 1:A:204:LEU:C | 2                   | 5.2  | 4.1             | 5.2    |
| (1,255) | 1:A:125:SER:N | 1:A:125:SER:CA | 1:A:125:SER:C  | 1:A:126:VAL:N | 2                   | 4.85 | 1.75            | 4.85   |
| (1,327) | 1:A:204:LEU:N | 1:A:204:LEU:CA | 1:A:204:LEU:C  | 1:A:205:GLU:N | 2                   | 4.5  | 2.3             | 4.5    |
| (1,260) | 1:A:130:GLU:N | 1:A:130:GLU:CA | 1:A:130:GLU:C  | 1:A:131:MET:N | 2                   | 4.0  | 0.2             | 4.0    |
| (1,339) | 1:A:216:ASP:N | 1:A:216:ASP:CA | 1:A:216:ASP:C  | 1:A:217:PHE:N | 2                   | 4.0  | 2.5             | 4.0    |
| (1,234) | 1:A:82:GLU:N  | 1:A:82:GLU:CA  | 1:A:82:GLU:C   | 1:A:83:THR:N  | 2                   | 3.85 | 1.15            | 3.85   |
| (1,231) | 1:A:79:VAL:N  | 1:A:79:VAL:CA  | 1:A:79:VAL:C   | 1:A:80:ALA:N  | 2                   | 3.5  | 1.6             | 3.5    |
| (1,167) | 1:A:213:ALA:C | 1:A:214:PHE:N  | 1:A:214:PHE:CA | 1:A:214:PHE:C | 2                   | 2.65 | 0.45            | 2.65   |
| (1,238) | 1:A:86:LEU:N  | 1:A:86:LEU:CA  | 1:A:86:LEU:C   | 1:A:87:LEU:N  | 2                   | 2.45 | 0.95            | 2.45   |
| (1,319) | 1:A:196:LEU:N | 1:A:196:LEU:CA | 1:A:196:LEU:C  | 1:A:197:ARG:N | 2                   | 2.45 | 1.15            | 2.45   |
| (1,88)  | 1:A:127:GLU:C | 1:A:128:LYS:N  | 1:A:128:LYS:CA | 1:A:128:LYS:C | 2                   | 2.4  | 0.8             | 2.4    |
| (1,191) | 1:A:34:ASN:N  | 1:A:34:ASN:CA  | 1:A:34:ASN:C   | 1:A:35:SER:N  | 2                   | 2.1  | 0.2             | 2.1    |
| (1,89)  | 1:A:128:LYS:C | 1:A:129:LYS:N  | 1:A:129:LYS:CA | 1:A:129:LYS:C | 2                   | 1.9  | 0.6             | 1.9    |
| (1,291) | 1:A:168:THR:N | 1:A:168:THR:CA | 1:A:168:THR:C  | 1:A:169:ARG:N | 2                   | 1.9  | 0.5             | 1.9    |
| (1,213) | 1:A:61:ALA:N  | 1:A:61:ALA:CA  | 1:A:61:ALA:C   | 1:A:62:SER:N  | 2                   | 1.85 | 0.55            | 1.85   |
| (1,159) | 1:A:205:GLU:C | 1:A:206:LYS:N  | 1:A:206:LYS:CA | 1:A:206:LYS:C | 2                   | 1.8  | 0.0             | 1.8    |
| (1,258) | 1:A:128:LYS:N | 1:A:128:LYS:CA | 1:A:128:LYS:C  | 1:A:129:LYS:N | 2                   | 1.75 | 0.15            | 1.75   |
| (1,72)  | 1:A:89:GLY:C  | 1:A:90:LEU:N   | 1:A:90:LEU:CA  | 1:A:90:LEU:C  | 2                   | 1.7  | 0.1             | 1.7    |
| (1,221) | 1:A:69:VAL:N  | 1:A:69:VAL:CA  | 1:A:69:VAL:C   | 1:A:70:LYS:N  | 2                   | 1.5  | 0.1             | 1.5    |
| (1,331) | 1:A:208:ARG:N | 1:A:208:ARG:CA | 1:A:208:ARG:C  | 1:A:209:GLN:N | 2                   | 1.5  | 0.4             | 1.5    |
| (1,333) | 1:A:210:GLU:N | 1:A:210:GLU:CA | 1:A:210:GLU:C  | 1:A:211:LYS:N | 2                   | 1.5  | 0.1             | 1.5    |
| (1,21)  | 1:A:33:ALA:C  | 1:A:34:ASN:N   | 1:A:34:ASN:CA  | 1:A:34:ASN:C  | 2                   | 1.4  | 0.2             | 1.4    |
| (1,195) | 1:A:40:LEU:N  | 1:A:40:LEU:CA  | 1:A:40:LEU:C   | 1:A:41:ILE:N  | 2                   | 1.4  | 0.2             | 1.4    |
| (1,164) | 1:A:210:GLU:C | 1:A:211:LYS:N  | 1:A:211:LYS:CA | 1:A:211:LYS:C | 2                   | 1.35 | 0.25            | 1.35   |
| (1,225) | 1:A:73:THR:N  | 1:A:73:THR:CA  | 1:A:73:THR:C   | 1:A:74:SER:N  | 2                   | 1.3  | 0.2             | 1.3    |
| (1,332) | 1:A:209:GLN:N | 1:A:209:GLN:CA | 1:A:209:GLN:C  | 1:A:210:GLU:N | 2                   | 1.25 | 0.05            | 1.25   |

<sup>1</sup> Number of violated models, <sup>2</sup>Standard deviation, All angle values are in degree (°)

## 10.5 All violated dihedral-angle restraints [i](#)

### 10.5.1 Histogram : Distribution of violations [i](#)

The following histogram shows the distribution of the absolute value of the violation for all violated restraints in the ensemble.



### 10.5.2 Table: All violated dihedral-angle restraints [i](#)

The following table lists the absolute value of the violation for each restraint in the ensemble sorted by its value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint.

| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Model ID | Violation (°) |
|---------|---------------|----------------|----------------|---------------|----------|---------------|
| (1,325) | 1:A:202:PRO:N | 1:A:202:PRO:CA | 1:A:202:PRO:C  | 1:A:203:LYS:N | 6        | 20.4          |
| (1,156) | 1:A:202:PRO:C | 1:A:203:LYS:N  | 1:A:203:LYS:CA | 1:A:203:LYS:C | 6        | 18.5          |
| (1,322) | 1:A:199:GLU:N | 1:A:199:GLU:CA | 1:A:199:GLU:C  | 1:A:200:ILE:N | 10       | 15.4          |
| (1,326) | 1:A:203:LYS:N | 1:A:203:LYS:CA | 1:A:203:LYS:C  | 1:A:204:LEU:N | 6        | 13.4          |
| (1,157) | 1:A:203:LYS:C | 1:A:204:LEU:N  | 1:A:204:LEU:CA | 1:A:204:LEU:C | 6        | 9.3           |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 5        | 8.4           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 7        | 8.0           |
| (1,170) | 1:A:216:ASP:C | 1:A:217:PHE:N  | 1:A:217:PHE:CA | 1:A:217:PHE:C | 6        | 8.0           |
| (1,153) | 1:A:199:GLU:C | 1:A:200:ILE:N  | 1:A:200:ILE:CA | 1:A:200:ILE:C | 10       | 7.7           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 4        | 7.4           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 8        | 7.0           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 7        | 6.9           |
| (1,327) | 1:A:204:LEU:N | 1:A:204:LEU:CA | 1:A:204:LEU:C  | 1:A:205:GLU:N | 6        | 6.8           |
| (1,255) | 1:A:125:SER:N | 1:A:125:SER:CA | 1:A:125:SER:C  | 1:A:126:VAL:N | 7        | 6.6           |

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| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Model ID | Violation (°) |
|---------|---------------|----------------|----------------|---------------|----------|---------------|
| (1,155) | 1:A:201:GLU:C | 1:A:202:PRO:N  | 1:A:202:PRO:CA | 1:A:202:PRO:C | 6        | 6.6           |
| (1,339) | 1:A:216:ASP:N | 1:A:216:ASP:CA | 1:A:216:ASP:C  | 1:A:217:PHE:N | 6        | 6.5           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 10       | 6.4           |
| (1,84)  | 1:A:123:ILE:C | 1:A:124:ASP:N  | 1:A:124:ASP:CA | 1:A:124:ASP:C | 5        | 6.3           |
| (1,237) | 1:A:85:LYS:N  | 1:A:85:LYS:CA  | 1:A:85:LYS:C   | 1:A:86:LEU:N  | 6        | 6.2           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 4        | 6.1           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 1        | 5.6           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 3        | 5.3           |
| (1,259) | 1:A:129:LYS:N | 1:A:129:LYS:CA | 1:A:129:LYS:C  | 1:A:130:GLU:N | 7        | 5.2           |
| (1,231) | 1:A:79:VAL:N  | 1:A:79:VAL:CA  | 1:A:79:VAL:C   | 1:A:80:ALA:N  | 6        | 5.1           |
| (1,234) | 1:A:82:GLU:N  | 1:A:82:GLU:CA  | 1:A:82:GLU:C   | 1:A:83:THR:N  | 6        | 5.0           |
| (1,340) | 1:A:217:PHE:N | 1:A:217:PHE:CA | 1:A:217:PHE:C  | 1:A:218:GLN:N | 6        | 4.8           |
| (1,252) | 1:A:122:MET:N | 1:A:122:MET:CA | 1:A:122:MET:C  | 1:A:123:ILE:N | 5        | 4.8           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 8        | 4.7           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 10       | 4.7           |
| (1,154) | 1:A:200:ILE:C | 1:A:201:GLU:N  | 1:A:201:GLU:CA | 1:A:201:GLU:C | 10       | 4.7           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 3        | 4.5           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 9        | 4.4           |
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 8        | 4.3           |
| (1,260) | 1:A:130:GLU:N | 1:A:130:GLU:CA | 1:A:130:GLU:C  | 1:A:131:MET:N | 7        | 4.2           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 2        | 4.2           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 7        | 4.0           |
| (1,330) | 1:A:207:LEU:N | 1:A:207:LEU:CA | 1:A:207:LEU:C  | 1:A:208:ARG:N | 6        | 4.0           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 1        | 4.0           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 6        | 4.0           |
| (1,337) | 1:A:214:PHE:N | 1:A:214:PHE:CA | 1:A:214:PHE:C  | 1:A:215:LEU:N | 5        | 3.8           |
| (1,260) | 1:A:130:GLU:N | 1:A:130:GLU:CA | 1:A:130:GLU:C  | 1:A:131:MET:N | 10       | 3.8           |
| (1,252) | 1:A:122:MET:N | 1:A:122:MET:CA | 1:A:122:MET:C  | 1:A:123:ILE:N | 7        | 3.7           |
| (1,237) | 1:A:85:LYS:N  | 1:A:85:LYS:CA  | 1:A:85:LYS:C   | 1:A:86:LEU:N  | 3        | 3.7           |
| (1,86)  | 1:A:125:SER:C | 1:A:126:VAL:N  | 1:A:126:VAL:CA | 1:A:126:VAL:C | 7        | 3.6           |
| (1,319) | 1:A:196:LEU:N | 1:A:196:LEU:CA | 1:A:196:LEU:C  | 1:A:197:ARG:N | 10       | 3.6           |
| (1,259) | 1:A:129:LYS:N | 1:A:129:LYS:CA | 1:A:129:LYS:C  | 1:A:130:GLU:N | 8        | 3.6           |
| (1,248) | 1:A:118:LYS:N | 1:A:118:LYS:CA | 1:A:118:LYS:C  | 1:A:119:VAL:N | 6        | 3.6           |
| (1,256) | 1:A:126:VAL:N | 1:A:126:VAL:CA | 1:A:126:VAL:C  | 1:A:127:GLU:N | 7        | 3.5           |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 2        | 3.4           |
| (1,238) | 1:A:86:LEU:N  | 1:A:86:LEU:CA  | 1:A:86:LEU:C   | 1:A:87:LEU:N  | 6        | 3.4           |
| (1,256) | 1:A:126:VAL:N | 1:A:126:VAL:CA | 1:A:126:VAL:C  | 1:A:127:GLU:N | 9        | 3.3           |
| (1,239) | 1:A:87:LEU:N  | 1:A:87:LEU:CA  | 1:A:87:LEU:C   | 1:A:88:SER:N  | 8        | 3.3           |
| (1,158) | 1:A:204:LEU:C | 1:A:205:GLU:N  | 1:A:205:GLU:CA | 1:A:205:GLU:C | 6        | 3.3           |
| (1,88)  | 1:A:127:GLU:C | 1:A:128:LYS:N  | 1:A:128:LYS:CA | 1:A:128:LYS:C | 6        | 3.2           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 7        | 3.2           |
| (1,160) | 1:A:206:LYS:C | 1:A:207:LEU:N  | 1:A:207:LEU:CA | 1:A:207:LEU:C | 10       | 3.2           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 6        | 3.1           |
| (1,255) | 1:A:125:SER:N | 1:A:125:SER:CA | 1:A:125:SER:C  | 1:A:126:VAL:N | 5        | 3.1           |
| (1,167) | 1:A:213:ALA:C | 1:A:214:PHE:N  | 1:A:214:PHE:CA | 1:A:214:PHE:C | 7        | 3.1           |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 1        | 3.0           |
| (1,237) | 1:A:85:LYS:N  | 1:A:85:LYS:CA  | 1:A:85:LYS:C   | 1:A:86:LEU:N  | 8        | 3.0           |
| (1,196) | 1:A:41:ILE:N  | 1:A:41:ILE:CA  | 1:A:41:ILE:C   | 1:A:42:ASP:N  | 7        | 3.0           |
| (1,252) | 1:A:122:MET:N | 1:A:122:MET:CA | 1:A:122:MET:C  | 1:A:123:ILE:N | 6        | 2.9           |
| (1,162) | 1:A:208:ARG:C | 1:A:209:GLN:N  | 1:A:209:GLN:CA | 1:A:209:GLN:C | 10       | 2.9           |
| (1,91)  | 1:A:130:GLU:C | 1:A:131:MET:N  | 1:A:131:MET:CA | 1:A:131:MET:C | 10       | 2.8           |

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| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Model ID | Violation (°) |
|---------|---------------|----------------|----------------|---------------|----------|---------------|
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 10       | 2.8           |
| (1,309) | 1:A:186:ASP:N | 1:A:186:ASP:CA | 1:A:186:ASP:C  | 1:A:187:LEU:N | 5        | 2.8           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 4        | 2.8           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 9        | 2.8           |
| (1,163) | 1:A:209:GLN:C | 1:A:210:GLU:N  | 1:A:210:GLU:CA | 1:A:210:GLU:C | 7        | 2.8           |
| (1,160) | 1:A:206:LYS:C | 1:A:207:LEU:N  | 1:A:207:LEU:CA | 1:A:207:LEU:C | 8        | 2.8           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 1        | 2.7           |
| (1,234) | 1:A:82:GLU:N  | 1:A:82:GLU:CA  | 1:A:82:GLU:C   | 1:A:83:THR:N  | 8        | 2.7           |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 6        | 2.7           |
| (1,325) | 1:A:202:PRO:N | 1:A:202:PRO:CA | 1:A:202:PRO:C  | 1:A:203:LYS:N | 10       | 2.6           |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 9        | 2.6           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 1        | 2.6           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 5        | 2.6           |
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 4        | 2.6           |
| (1,89)  | 1:A:128:LYS:C | 1:A:129:LYS:N  | 1:A:129:LYS:CA | 1:A:129:LYS:C | 10       | 2.5           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 2        | 2.5           |
| (1,324) | 1:A:201:GLU:N | 1:A:201:GLU:CA | 1:A:201:GLU:C  | 1:A:202:PRO:N | 6        | 2.5           |
| (1,251) | 1:A:121:ASN:N | 1:A:121:ASN:CA | 1:A:121:ASN:C  | 1:A:122:MET:N | 2        | 2.5           |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 10       | 2.5           |
| (1,93)  | 1:A:132:SER:C | 1:A:133:LEU:N  | 1:A:133:LEU:CA | 1:A:133:LEU:C | 6        | 2.4           |
| (1,316) | 1:A:193:THR:N | 1:A:193:THR:CA | 1:A:193:THR:C  | 1:A:194:GLU:N | 6        | 2.4           |
| (1,291) | 1:A:168:THR:N | 1:A:168:THR:CA | 1:A:168:THR:C  | 1:A:169:ARG:N | 10       | 2.4           |
| (1,237) | 1:A:85:LYS:N  | 1:A:85:LYS:CA  | 1:A:85:LYS:C   | 1:A:86:LEU:N  | 2        | 2.4           |
| (1,213) | 1:A:61:ALA:N  | 1:A:61:ALA:CA  | 1:A:61:ALA:C   | 1:A:62:SER:N  | 8        | 2.4           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 8        | 2.4           |
| (1,337) | 1:A:214:PHE:N | 1:A:214:PHE:CA | 1:A:214:PHE:C  | 1:A:215:LEU:N | 7        | 2.3           |
| (1,191) | 1:A:34:ASN:N  | 1:A:34:ASN:CA  | 1:A:34:ASN:C   | 1:A:35:SER:N  | 1        | 2.3           |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 5        | 2.3           |
| (1,162) | 1:A:208:ARG:C | 1:A:209:GLN:N  | 1:A:209:GLN:CA | 1:A:209:GLN:C | 9        | 2.3           |
| (1,148) | 1:A:194:GLU:C | 1:A:195:LEU:N  | 1:A:195:LEU:CA | 1:A:195:LEU:C | 7        | 2.3           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 8        | 2.2           |
| (1,327) | 1:A:204:LEU:N | 1:A:204:LEU:CA | 1:A:204:LEU:C  | 1:A:205:GLU:N | 3        | 2.2           |
| (1,270) | 1:A:140:VAL:N | 1:A:140:VAL:CA | 1:A:140:VAL:C  | 1:A:141:LEU:N | 10       | 2.2           |
| (1,167) | 1:A:213:ALA:C | 1:A:214:PHE:N  | 1:A:214:PHE:CA | 1:A:214:PHE:C | 2        | 2.2           |
| (1,68)  | 1:A:85:LYS:C  | 1:A:86:LEU:N   | 1:A:86:LEU:CA  | 1:A:86:LEU:C  | 4        | 2.1           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 9        | 2.1           |
| (1,338) | 1:A:215:LEU:N | 1:A:215:LEU:CA | 1:A:215:LEU:C  | 1:A:216:ASP:N | 5        | 2.1           |
| (1,199) | 1:A:44:PHE:N  | 1:A:44:PHE:CA  | 1:A:44:PHE:C   | 1:A:45:HIS:N  | 6        | 2.1           |
| (1,194) | 1:A:39:ALA:N  | 1:A:39:ALA:CA  | 1:A:39:ALA:C   | 1:A:40:LEU:N  | 2        | 2.1           |
| (1,165) | 1:A:211:LYS:C | 1:A:212:ARG:N  | 1:A:212:ARG:CA | 1:A:212:ARG:C | 1        | 2.1           |
| (1,162) | 1:A:208:ARG:C | 1:A:209:GLN:N  | 1:A:209:GLN:CA | 1:A:209:GLN:C | 2        | 2.1           |
| (1,84)  | 1:A:123:ILE:C | 1:A:124:ASP:N  | 1:A:124:ASP:CA | 1:A:124:ASP:C | 2        | 2.0           |
| (1,68)  | 1:A:85:LYS:C  | 1:A:86:LEU:N   | 1:A:86:LEU:CA  | 1:A:86:LEU:C  | 6        | 2.0           |
| (1,83)  | 1:A:122:MET:C | 1:A:123:ILE:N  | 1:A:123:ILE:CA | 1:A:123:ILE:C | 5        | 1.9           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 4        | 1.9           |
| (1,331) | 1:A:208:ARG:N | 1:A:208:ARG:CA | 1:A:208:ARG:C  | 1:A:209:GLN:N | 9        | 1.9           |
| (1,32)  | 1:A:49:LEU:C  | 1:A:50:LEU:N   | 1:A:50:LEU:CA  | 1:A:50:LEU:C  | 3        | 1.9           |
| (1,258) | 1:A:128:LYS:N | 1:A:128:LYS:CA | 1:A:128:LYS:C  | 1:A:129:LYS:N | 3        | 1.9           |
| (1,252) | 1:A:122:MET:N | 1:A:122:MET:CA | 1:A:122:MET:C  | 1:A:123:ILE:N | 2        | 1.9           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 2        | 1.9           |
| (1,231) | 1:A:79:VAL:N  | 1:A:79:VAL:CA  | 1:A:79:VAL:C   | 1:A:80:ALA:N  | 8        | 1.9           |

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| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Model ID | Violation (°) |
|---------|---------------|----------------|----------------|---------------|----------|---------------|
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 10       | 1.9           |
| (1,191) | 1:A:34:ASN:N  | 1:A:34:ASN:CA  | 1:A:34:ASN:C   | 1:A:35:SER:N  | 7        | 1.9           |
| (1,86)  | 1:A:125:SER:C | 1:A:126:VAL:N  | 1:A:126:VAL:CA | 1:A:126:VAL:C | 5        | 1.8           |
| (1,72)  | 1:A:89:GLY:C  | 1:A:90:LEU:N   | 1:A:90:LEU:CA  | 1:A:90:LEU:C  | 4        | 1.8           |
| (1,281) | 1:A:151:ILE:N | 1:A:151:ILE:CA | 1:A:151:ILE:C  | 1:A:152:ALA:N | 1        | 1.8           |
| (1,25)  | 1:A:39:ALA:C  | 1:A:40:LEU:N   | 1:A:40:LEU:CA  | 1:A:40:LEU:C  | 9        | 1.8           |
| (1,202) | 1:A:50:LEU:N  | 1:A:50:LEU:CA  | 1:A:50:LEU:C   | 1:A:51:LYS:N  | 2        | 1.8           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 1        | 1.8           |
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 6        | 1.8           |
| (1,168) | 1:A:214:PHE:C | 1:A:215:LEU:N  | 1:A:215:LEU:CA | 1:A:215:LEU:C | 10       | 1.8           |
| (1,159) | 1:A:205:GLU:C | 1:A:206:LYS:N  | 1:A:206:LYS:CA | 1:A:206:LYS:C | 6        | 1.8           |
| (1,159) | 1:A:205:GLU:C | 1:A:206:LYS:N  | 1:A:206:LYS:CA | 1:A:206:LYS:C | 10       | 1.8           |
| (1,138) | 1:A:184:LYS:C | 1:A:185:LYS:N  | 1:A:185:LYS:CA | 1:A:185:LYS:C | 5        | 1.8           |
| (1,83)  | 1:A:122:MET:C | 1:A:123:ILE:N  | 1:A:123:ILE:CA | 1:A:123:ILE:C | 10       | 1.7           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 5        | 1.7           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 7        | 1.7           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 2        | 1.7           |
| (1,12)  | 1:A:24:MET:C  | 1:A:25:ALA:N   | 1:A:25:ALA:CA  | 1:A:25:ALA:C  | 4        | 1.7           |
| (1,88)  | 1:A:127:GLU:C | 1:A:128:LYS:N  | 1:A:128:LYS:CA | 1:A:128:LYS:C | 3        | 1.6           |
| (1,86)  | 1:A:125:SER:C | 1:A:126:VAL:N  | 1:A:126:VAL:CA | 1:A:126:VAL:C | 2        | 1.6           |
| (1,72)  | 1:A:89:GLY:C  | 1:A:90:LEU:N   | 1:A:90:LEU:CA  | 1:A:90:LEU:C  | 8        | 1.6           |
| (1,333) | 1:A:210:GLU:N | 1:A:210:GLU:CA | 1:A:210:GLU:C  | 1:A:211:LYS:N | 8        | 1.6           |
| (1,275) | 1:A:145:HIS:N | 1:A:145:HIS:CA | 1:A:145:HIS:C  | 1:A:146:LYS:N | 8        | 1.6           |
| (1,259) | 1:A:129:LYS:N | 1:A:129:LYS:CA | 1:A:129:LYS:C  | 1:A:130:GLU:N | 5        | 1.6           |
| (1,258) | 1:A:128:LYS:N | 1:A:128:LYS:CA | 1:A:128:LYS:C  | 1:A:129:LYS:N | 8        | 1.6           |
| (1,221) | 1:A:69:VAL:N  | 1:A:69:VAL:CA  | 1:A:69:VAL:C   | 1:A:70:LYS:N  | 7        | 1.6           |
| (1,21)  | 1:A:33:ALA:C  | 1:A:34:ASN:N   | 1:A:34:ASN:CA  | 1:A:34:ASN:C  | 6        | 1.6           |
| (1,195) | 1:A:40:LEU:N  | 1:A:40:LEU:CA  | 1:A:40:LEU:C   | 1:A:41:ILE:N  | 5        | 1.6           |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 1        | 1.6           |
| (1,164) | 1:A:210:GLU:C | 1:A:211:LYS:N  | 1:A:211:LYS:CA | 1:A:211:LYS:C | 5        | 1.6           |
| (1,160) | 1:A:206:LYS:C | 1:A:207:LEU:N  | 1:A:207:LEU:CA | 1:A:207:LEU:C | 7        | 1.6           |
| (1,90)  | 1:A:129:LYS:C | 1:A:130:GLU:N  | 1:A:130:GLU:CA | 1:A:130:GLU:C | 8        | 1.5           |
| (1,84)  | 1:A:123:ILE:C | 1:A:124:ASP:N  | 1:A:124:ASP:CA | 1:A:124:ASP:C | 9        | 1.5           |
| (1,35)  | 1:A:52:GLU:C  | 1:A:53:GLY:N   | 1:A:53:GLY:CA  | 1:A:53:GLY:C  | 8        | 1.5           |
| (1,339) | 1:A:216:ASP:N | 1:A:216:ASP:CA | 1:A:216:ASP:C  | 1:A:217:PHE:N | 8        | 1.5           |
| (1,329) | 1:A:206:LYS:N | 1:A:206:LYS:CA | 1:A:206:LYS:C  | 1:A:207:LEU:N | 9        | 1.5           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 3        | 1.5           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 8        | 1.5           |
| (1,322) | 1:A:199:GLU:N | 1:A:199:GLU:CA | 1:A:199:GLU:C  | 1:A:200:ILE:N | 7        | 1.5           |
| (1,321) | 1:A:198:ASP:N | 1:A:198:ASP:CA | 1:A:198:ASP:C  | 1:A:199:GLU:N | 6        | 1.5           |
| (1,31)  | 1:A:48:SER:C  | 1:A:49:LEU:N   | 1:A:49:LEU:CA  | 1:A:49:LEU:C  | 8        | 1.5           |
| (1,298) | 1:A:175:LYS:N | 1:A:175:LYS:CA | 1:A:175:LYS:C  | 1:A:176:GLU:N | 8        | 1.5           |
| (1,28)  | 1:A:42:ASP:C  | 1:A:43:TYR:N   | 1:A:43:TYR:CA  | 1:A:43:TYR:C  | 10       | 1.5           |
| (1,245) | 1:A:94:ARG:N  | 1:A:94:ARG:CA  | 1:A:94:ARG:C   | 1:A:95:ASP:N  | 8        | 1.5           |
| (1,238) | 1:A:86:LEU:N  | 1:A:86:LEU:CA  | 1:A:86:LEU:C   | 1:A:87:LEU:N  | 8        | 1.5           |
| (1,225) | 1:A:73:THR:N  | 1:A:73:THR:CA  | 1:A:73:THR:C   | 1:A:74:SER:N  | 3        | 1.5           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 10       | 1.5           |
| (1,198) | 1:A:43:TYR:N  | 1:A:43:TYR:CA  | 1:A:43:TYR:C   | 1:A:44:PHE:N  | 10       | 1.5           |
| (1,169) | 1:A:215:LEU:C | 1:A:216:ASP:N  | 1:A:216:ASP:CA | 1:A:216:ASP:C | 8        | 1.5           |
| (1,168) | 1:A:214:PHE:C | 1:A:215:LEU:N  | 1:A:215:LEU:CA | 1:A:215:LEU:C | 9        | 1.5           |
| (1,90)  | 1:A:129:LYS:C | 1:A:130:GLU:N  | 1:A:130:GLU:CA | 1:A:130:GLU:C | 4        | 1.4           |

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| Key     | Atom-1        | Atom-2         | Atom-3         | Atom-4        | Model ID | Violation (°) |
|---------|---------------|----------------|----------------|---------------|----------|---------------|
| (1,83)  | 1:A:122:MET:C | 1:A:123:ILE:N  | 1:A:123:ILE:CA | 1:A:123:ILE:C | 3        | 1.4           |
| (1,68)  | 1:A:85:LYS:C  | 1:A:86:LEU:N   | 1:A:86:LEU:CA  | 1:A:86:LEU:C  | 3        | 1.4           |
| (1,62)  | 1:A:79:VAL:C  | 1:A:80:ALA:N   | 1:A:80:ALA:CA  | 1:A:80:ALA:C  | 6        | 1.4           |
| (1,333) | 1:A:210:GLU:N | 1:A:210:GLU:CA | 1:A:210:GLU:C  | 1:A:211:LYS:N | 10       | 1.4           |
| (1,323) | 1:A:200:ILE:N | 1:A:200:ILE:CA | 1:A:200:ILE:C  | 1:A:201:GLU:N | 9        | 1.4           |
| (1,317) | 1:A:194:GLU:N | 1:A:194:GLU:CA | 1:A:194:GLU:C  | 1:A:195:LEU:N | 7        | 1.4           |
| (1,291) | 1:A:168:THR:N | 1:A:168:THR:CA | 1:A:168:THR:C  | 1:A:169:ARG:N | 8        | 1.4           |
| (1,28)  | 1:A:42:ASP:C  | 1:A:43:TYR:N   | 1:A:43:TYR:CA  | 1:A:43:TYR:C  | 7        | 1.4           |
| (1,273) | 1:A:143:ASP:N | 1:A:143:ASP:CA | 1:A:143:ASP:C  | 1:A:144:LYS:N | 5        | 1.4           |
| (1,256) | 1:A:126:VAL:N | 1:A:126:VAL:CA | 1:A:126:VAL:C  | 1:A:127:GLU:N | 2        | 1.4           |
| (1,253) | 1:A:123:ILE:N | 1:A:123:ILE:CA | 1:A:123:ILE:C  | 1:A:124:ASP:N | 6        | 1.4           |
| (1,223) | 1:A:71:ILE:N  | 1:A:71:ILE:CA  | 1:A:71:ILE:C   | 1:A:72:TYR:N  | 2        | 1.4           |
| (1,221) | 1:A:69:VAL:N  | 1:A:69:VAL:CA  | 1:A:69:VAL:C   | 1:A:70:LYS:N  | 2        | 1.4           |
| (1,193) | 1:A:37:ASN:N  | 1:A:37:ASN:CA  | 1:A:37:ASN:C   | 1:A:38:PHE:N  | 1        | 1.4           |
| (1,156) | 1:A:202:PRO:C | 1:A:203:LYS:N  | 1:A:203:LYS:CA | 1:A:203:LYS:C | 7        | 1.4           |
| (1,138) | 1:A:184:LYS:C | 1:A:185:LYS:N  | 1:A:185:LYS:CA | 1:A:185:LYS:C | 10       | 1.4           |
| (1,127) | 1:A:173:ASP:C | 1:A:174:ARG:N  | 1:A:174:ARG:CA | 1:A:174:ARG:C | 4        | 1.4           |
| (1,90)  | 1:A:129:LYS:C | 1:A:130:GLU:N  | 1:A:130:GLU:CA | 1:A:130:GLU:C | 7        | 1.3           |
| (1,89)  | 1:A:128:LYS:C | 1:A:129:LYS:N  | 1:A:129:LYS:CA | 1:A:129:LYS:C | 5        | 1.3           |
| (1,41)  | 1:A:58:PHE:C  | 1:A:59:GLN:N   | 1:A:59:GLN:CA  | 1:A:59:GLN:C  | 3        | 1.3           |
| (1,332) | 1:A:209:GLN:N | 1:A:209:GLN:CA | 1:A:209:GLN:C  | 1:A:210:GLU:N | 2        | 1.3           |
| (1,319) | 1:A:196:LEU:N | 1:A:196:LEU:CA | 1:A:196:LEU:C  | 1:A:197:ARG:N | 8        | 1.3           |
| (1,28)  | 1:A:42:ASP:C  | 1:A:43:TYR:N   | 1:A:43:TYR:CA  | 1:A:43:TYR:C  | 6        | 1.3           |
| (1,223) | 1:A:71:ILE:N  | 1:A:71:ILE:CA  | 1:A:71:ILE:C   | 1:A:72:TYR:N  | 8        | 1.3           |
| (1,222) | 1:A:70:LYS:N  | 1:A:70:LYS:CA  | 1:A:70:LYS:C   | 1:A:71:ILE:N  | 10       | 1.3           |
| (1,213) | 1:A:61:ALA:N  | 1:A:61:ALA:CA  | 1:A:61:ALA:C   | 1:A:62:SER:N  | 1        | 1.3           |
| (1,208) | 1:A:56:VAL:N  | 1:A:56:VAL:CA  | 1:A:56:VAL:C   | 1:A:57:ASN:N  | 5        | 1.3           |
| (1,196) | 1:A:41:ILE:N  | 1:A:41:ILE:CA  | 1:A:41:ILE:C   | 1:A:42:ASP:N  | 10       | 1.3           |
| (1,161) | 1:A:207:LEU:C | 1:A:208:ARG:N  | 1:A:208:ARG:CA | 1:A:208:ARG:C | 6        | 1.3           |
| (1,138) | 1:A:184:LYS:C | 1:A:185:LYS:N  | 1:A:185:LYS:CA | 1:A:185:LYS:C | 6        | 1.3           |
| (1,83)  | 1:A:122:MET:C | 1:A:123:ILE:N  | 1:A:123:ILE:CA | 1:A:123:ILE:C | 1        | 1.2           |
| (1,68)  | 1:A:85:LYS:C  | 1:A:86:LEU:N   | 1:A:86:LEU:CA  | 1:A:86:LEU:C  | 2        | 1.2           |
| (1,38)  | 1:A:55:SER:C  | 1:A:56:VAL:N   | 1:A:56:VAL:CA  | 1:A:56:VAL:C  | 6        | 1.2           |
| (1,332) | 1:A:209:GLN:N | 1:A:209:GLN:CA | 1:A:209:GLN:C  | 1:A:210:GLU:N | 7        | 1.2           |
| (1,28)  | 1:A:42:ASP:C  | 1:A:43:TYR:N   | 1:A:43:TYR:CA  | 1:A:43:TYR:C  | 4        | 1.2           |
| (1,263) | 1:A:133:LEU:N | 1:A:133:LEU:CA | 1:A:133:LEU:C  | 1:A:134:LYS:N | 6        | 1.2           |
| (1,256) | 1:A:126:VAL:N | 1:A:126:VAL:CA | 1:A:126:VAL:C  | 1:A:127:GLU:N | 8        | 1.2           |
| (1,223) | 1:A:71:ILE:N  | 1:A:71:ILE:CA  | 1:A:71:ILE:C   | 1:A:72:TYR:N  | 4        | 1.2           |
| (1,21)  | 1:A:33:ALA:C  | 1:A:34:ASN:N   | 1:A:34:ASN:CA  | 1:A:34:ASN:C  | 10       | 1.2           |
| (1,195) | 1:A:40:LEU:N  | 1:A:40:LEU:CA  | 1:A:40:LEU:C   | 1:A:41:ILE:N  | 2        | 1.2           |
| (1,168) | 1:A:214:PHE:C | 1:A:215:LEU:N  | 1:A:215:LEU:CA | 1:A:215:LEU:C | 1        | 1.2           |
| (1,137) | 1:A:183:ALA:C | 1:A:184:LYS:N  | 1:A:184:LYS:CA | 1:A:184:LYS:C | 5        | 1.2           |
| (1,122) | 1:A:168:THR:C | 1:A:169:ARG:N  | 1:A:169:ARG:CA | 1:A:169:ARG:C | 10       | 1.2           |
| (1,337) | 1:A:214:PHE:N | 1:A:214:PHE:CA | 1:A:214:PHE:C  | 1:A:215:LEU:N | 6        | 1.1           |
| (1,331) | 1:A:208:ARG:N | 1:A:208:ARG:CA | 1:A:208:ARG:C  | 1:A:209:GLN:N | 10       | 1.1           |
| (1,325) | 1:A:202:PRO:N | 1:A:202:PRO:CA | 1:A:202:PRO:C  | 1:A:203:LYS:N | 8        | 1.1           |
| (1,310) | 1:A:187:LEU:N | 1:A:187:LEU:CA | 1:A:187:LEU:C  | 1:A:188:LYS:N | 6        | 1.1           |
| (1,240) | 1:A:88:SER:N  | 1:A:88:SER:CA  | 1:A:88:SER:C   | 1:A:89:GLY:N  | 9        | 1.1           |
| (1,232) | 1:A:80:ALA:N  | 1:A:80:ALA:CA  | 1:A:80:ALA:C   | 1:A:81:THR:N  | 3        | 1.1           |
| (1,225) | 1:A:73:THR:N  | 1:A:73:THR:CA  | 1:A:73:THR:C   | 1:A:74:SER:N  | 5        | 1.1           |
| (1,211) | 1:A:59:GLN:N  | 1:A:59:GLN:CA  | 1:A:59:GLN:C   | 1:A:60:LYS:N  | 7        | 1.1           |

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| <b>Key</b> | <b>Atom-1</b> | <b>Atom-2</b> | <b>Atom-3</b>  | <b>Atom-4</b> | <b>Model ID</b> | <b>Violation (°)</b> |
|------------|---------------|---------------|----------------|---------------|-----------------|----------------------|
| (1,196)    | 1:A:41:ILE:N  | 1:A:41:ILE:CA | 1:A:41:ILE:C   | 1:A:42:ASP:N  | 1               | 1.1                  |
| (1,172)    | 1:A:15:LEU:N  | 1:A:15:LEU:CA | 1:A:15:LEU:C   | 1:A:16:ALA:N  | 3               | 1.1                  |
| (1,164)    | 1:A:210:GLU:C | 1:A:211:LYS:N | 1:A:211:LYS:CA | 1:A:211:LYS:C | 7               | 1.1                  |
| (1,162)    | 1:A:208:ARG:C | 1:A:209:GLN:N | 1:A:209:GLN:CA | 1:A:209:GLN:C | 5               | 1.1                  |
| (1,157)    | 1:A:203:LYS:C | 1:A:204:LEU:N | 1:A:204:LEU:CA | 1:A:204:LEU:C | 4               | 1.1                  |