



# Full wwPDB NMR Structure Validation Report ⓘ

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PDB ID : 9IJW  
BMRB ID : 36676  
Title : Serine protease inhibitor HCIQ2c1 from Heteractis crispa with TRPA1 mediated antinociceptive activity  
Authors : Oreshkov, S.D.; Mironov, P.A.; Menshov, A.S.; Paramonov, A.S.; Leychenko, E.V.; Shenkarev, Z.O.; Lyukmanova, E.N.  
Deposited on : 2024-06-25

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 : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
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) : 2.40

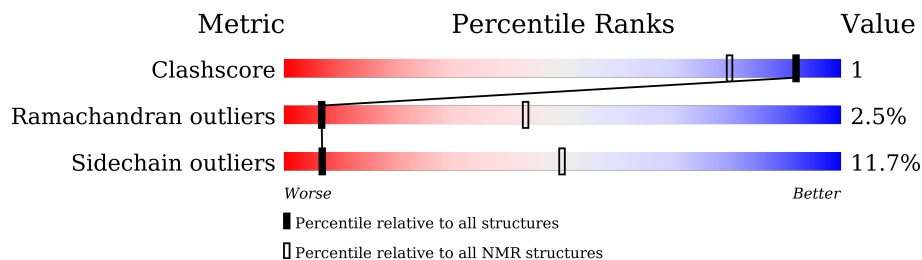
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 80%.

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            | 210492                      | 14027                     |
| Ramachandran outliers | 207382                      | 12486                     |
| Sidechain outliers    | 206894                      | 12463                     |

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     | 58     | <br>83% 10% 7%   |

## 2 Ensemble composition and analysis

This entry contains 20 models. Model 2 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *target function*.

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:5-A:58 (54)         | 0.46              | 2            |

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. No single-model clusters were found.

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

### 3 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 856 atoms, of which 415 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called PI-stichotoxin-Hcr2i.


| Mol | Chain | Residues | Atoms |     |     |    |    |   | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|-------|
|     |       |          | Total | C   | H   | N  | O  | S |       |
| 1   | A     | 58       | 856   | 273 | 415 | 83 | 79 | 6 | 0     |

## 4 Residue-property plots

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

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: PI-stichotoxin-Hcr2i

Chain A: 




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

Colouring as in section 4.1 above.

#### 4.2.1 Score per residue for model 1


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A: 



#### 4.2.2 Score per residue for model 2 (medoid)

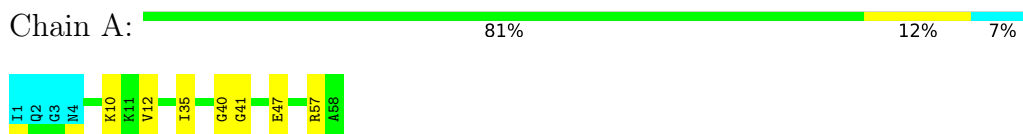
- Molecule 1: PI-stichotoxin-Hcr2i

Chain A: 



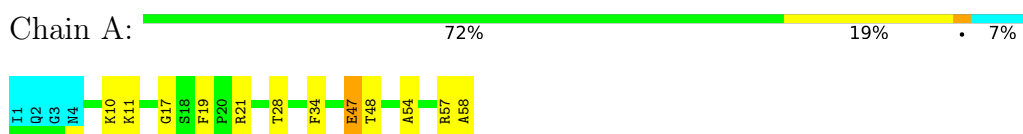
### 4.2.3 Score per residue for model 3

- Molecule 1: PI-stichotoxin-Hcr2i



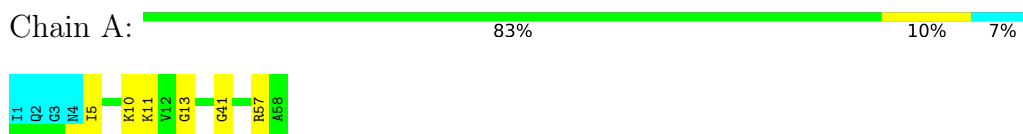
### 4.2.4 Score per residue for model 4

- Molecule 1: PI-stichotoxin-Hcr2i



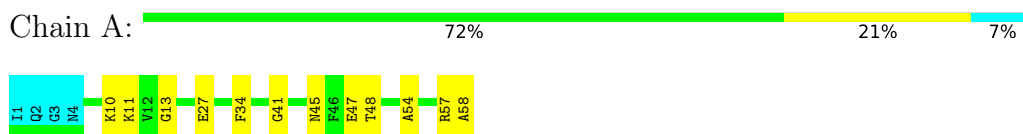
### 4.2.5 Score per residue for model 5

- Molecule 1: PI-stichotoxin-Hcr2i



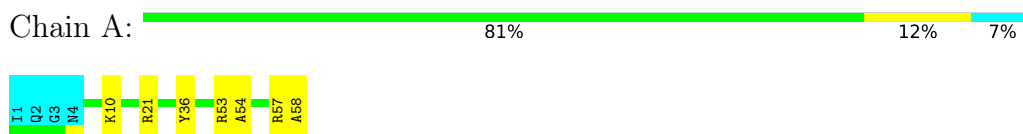
### 4.2.6 Score per residue for model 6

- Molecule 1: PI-stichotoxin-Hcr2i



### 4.2.7 Score per residue for model 7

- Molecule 1: PI-stichotoxin-Hcr2i



#### 4.2.8 Score per residue for model 8


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  72% 19% 7%



#### 4.2.9 Score per residue for model 9


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  76% 17% 7%



#### 4.2.10 Score per residue for model 10


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  79% 14% 7%



#### 4.2.11 Score per residue for model 11


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  84% 9% 7%



#### 4.2.12 Score per residue for model 12


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  78% 16% 7%



#### 4.2.13 Score per residue for model 13


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  83% 10% 7%



#### 4.2.14 Score per residue for model 14


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  84% 9% 7%



#### 4.2.15 Score per residue for model 15


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  78% 14% 7%



#### 4.2.16 Score per residue for model 16


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  76% 17% 7%



#### 4.2.17 Score per residue for model 17

- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  78% 14% 7%





#### 4.2.18 Score per residue for model 18


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  72% 21% 7%



#### 4.2.19 Score per residue for model 19


- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  81% 12% 7%



#### 4.2.20 Score per residue for model 20

- Molecule 1: PI-stichotoxin-Hcr2i

Chain A:  83% 10% 7%



## 5 Refinement protocol and experimental data overview

The models were refined using the following method: *torsion angle dynamics*.

Of the 200 calculated structures, 20 were deposited, based on the following criterion: *structures with the least restraint violations*.

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

| Software name | Classification        | Version |
|---------------|-----------------------|---------|
| CYANA         | refinement            | 3.98.13 |
| CYANA         | structure calculation | 3.98.13 |

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                       | 600            |
| Number of shifts mapped to atoms             | 600            |
| Number of unparsed shifts                    | 0              |
| Number of shifts with mapping errors         | 0              |
| Number of shifts with mapping warnings       | 0              |
| Assignment completeness (well-defined parts) | 80%            |

## 6 Model quality [i](#)

### 6.1 Standard geometry [i](#)

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes averaged over the ensemble.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|-----|-------|-------|----------|----------|---------|
| 1   | A     | 412   | 387      | 387      | 1±1     |
| All | All   | 8240  | 7740     | 7740     | 23      |

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 1.

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

| Atom-1          | Atom-2          | Clash(Å) | Distance(Å) | Models |       |
|-----------------|-----------------|----------|-------------|--------|-------|
|                 |                 |          |             | Worst  | Total |
| 1:A:54:ALA:HA   | 1:A:58:ALA:HB2  | 0.64     | 1.70        | 9      | 3     |
| 1:A:12:VAL:HG12 | 1:A:35:ILE:O    | 0.61     | 1.96        | 16     | 3     |
| 1:A:47:GLU:HG3  | 1:A:48:THR:HG23 | 0.60     | 1.73        | 8      | 8     |
| 1:A:12:VAL:HG22 | 1:A:35:ILE:O    | 0.55     | 2.02        | 3      | 2     |
| 1:A:54:ALA:HA   | 1:A:58:ALA:HB3  | 0.52     | 1.81        | 7      | 5     |
| 1:A:12:VAL:HG23 | 1:A:13:GLY:N    | 0.41     | 2.30        | 15     | 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     | 53/58 (91%)     | 44±2 (83±4%) | 8±2 (15±5%) | 1±1 (2±2%) | 7           | 43 |
| All | All   | 1060/1160 (91%) | 876 (83%)    | 158 (15%)   | 26 (2%)    | 7           | 43 |

All 4 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 41  | GLY  | 11             |
| 1   | A     | 13  | GLY  | 11             |
| 1   | A     | 40  | GLY  | 2              |
| 1   | A     | 17  | GLY  | 2              |

### 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     | 43/46 (93%)   | 38±2 (88±4%) | 5±2 (12±4%) | 7           | 50 |
| All | All   | 860/920 (93%) | 759 (88%)    | 101 (12%)   | 7           | 50 |

All 23 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     | 10  | LYS  | 20             |
| 1   | A     | 57  | ARG  | 14             |
| 1   | A     | 21  | ARG  | 13             |
| 1   | A     | 11  | LYS  | 10             |
| 1   | A     | 34  | PHE  | 6              |
| 1   | A     | 36  | TYR  | 6              |
| 1   | A     | 28  | THR  | 3              |
| 1   | A     | 47  | GLU  | 3              |
| 1   | A     | 16  | ARG  | 3              |
| 1   | A     | 30  | LYS  | 2              |
| 1   | A     | 5   | ILE  | 2              |
| 1   | A     | 27  | GLU  | 2              |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 45  | ASN  | 2              |
| 1   | A     | 53  | ARG  | 2              |
| 1   | A     | 49  | LEU  | 2              |
| 1   | A     | 42  | ASN  | 2              |
| 1   | A     | 14  | ARG  | 2              |
| 1   | A     | 55  | ILE  | 2              |
| 1   | A     | 8   | GLU  | 1              |
| 1   | A     | 19  | PHE  | 1              |
| 1   | A     | 56  | CYS  | 1              |
| 1   | A     | 26  | SER  | 1              |
| 1   | A     | 12  | VAL  | 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 oligosaccharides 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 80% for the well-defined parts and 80% for the entire structure.

### 7.1 Chemical shift list 1

File name: working\_cs.cif

Chemical shift list name: *assigned\_chem\_shift\_list\_1*

#### 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                  | 600 |
| Number of shifts mapped to atoms        | 600 |
| Number of unparsed shifts               | 0   |
| Number of shifts with mapping errors    | 0   |
| Number of shifts with mapping warnings  | 0   |
| Number of shift outliers (ShiftChecker) | 9   |

#### 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         |
|------------------------|----------|---------------------------------|--------------------------|
| $^{13}\text{C}_\alpha$ | 37       | $-0.41 \pm 0.46$                | None needed (< 0.5 ppm)  |
| $^{13}\text{C}_\beta$  | 47       | $-0.16 \pm 0.21$                | None needed (< 0.5 ppm)  |
| $^{13}\text{C}'$       | 0        | —                               | None (insufficient data) |
| $^{15}\text{N}$        | 53       | $0.29 \pm 0.63$                 | 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 80%, i.e. 557 atoms were assigned a chemical shift out of a possible 692. 0 out of 2 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total         | $^1\text{H}$  | $^{13}\text{C}$ | $^{15}\text{N}$ |
|-----------|---------------|---------------|-----------------|-----------------|
| Backbone  | 196/272 (72%) | 112/113 (99%) | 34/108 (31%)    | 50/51 (98%)     |
| Sidechain | 310/345 (90%) | 209/221 (95%) | 89/103 (86%)    | 12/21 (57%)     |

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|          | Total         | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|----------|---------------|----------------|-----------------|-----------------|
| Aromatic | 51/75 (68%)   | 34/37 (92%)    | 17/37 (46%)     | 0/1 (0%)        |
| Overall  | 557/692 (80%) | 355/371 (96%)  | 140/248 (56%)   | 62/73 (85%)     |

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 80%, i.e. 597 atoms were assigned a chemical shift out of a possible 743. 0 out of 2 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total         | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|-----------|---------------|----------------|-----------------|-----------------|
| Backbone  | 210/293 (72%) | 120/122 (98%)  | 37/116 (32%)    | 53/55 (96%)     |
| Sidechain | 336/375 (90%) | 227/240 (95%)  | 95/112 (85%)    | 14/23 (61%)     |
| Aromatic  | 51/75 (68%)   | 34/37 (92%)    | 17/37 (46%)     | 0/1 (0%)        |
| Overall   | 597/743 (80%) | 381/399 (95%)  | 149/265 (56%)   | 67/79 (85%)     |

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

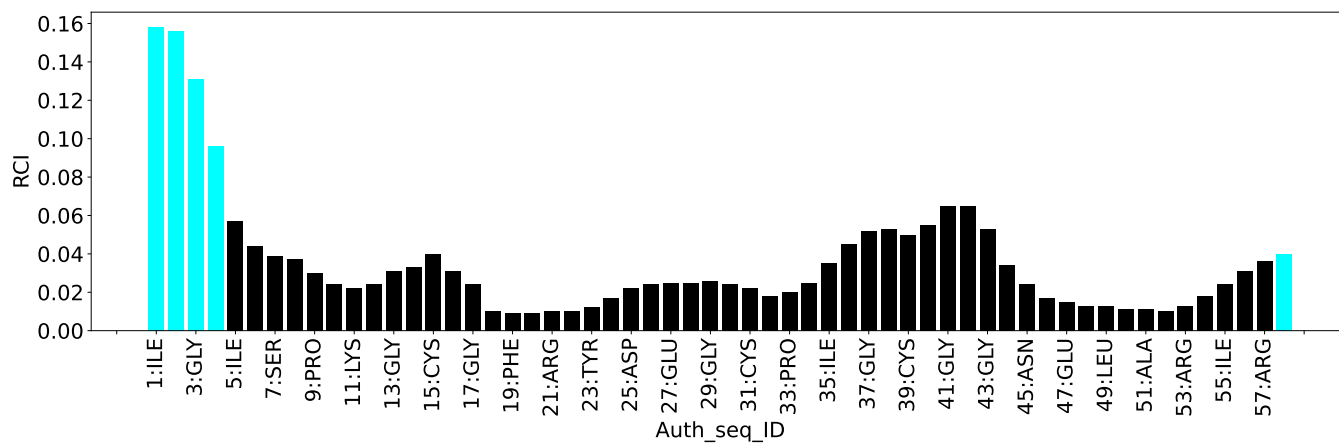
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

| List Id | Chain | Res | Type | Atom | Shift, ppm | Expected range, ppm | Z-score |
|---------|-------|-----|------|------|------------|---------------------|---------|
| 1       | A     | 57  | ARG  | HH22 | 3.87       | 5.04 – 8.54         | -8.3    |
| 1       | A     | 45  | ASN  | HD22 | 3.12       | 4.69 – 9.61         | -8.2    |
| 1       | A     | 10  | LYS  | HG2  | -0.47      | 0.13 – 2.61         | -7.4    |
| 1       | A     | 2   | GLN  | NE2  | 100.01     | 103.38 – 120.35     | -7.0    |
| 1       | A     | 20  | PRO  | CD   | 57.36      | 45.11 – 55.58       | 6.7     |
| 1       | A     | 2   | GLN  | CA   | 42.76      | 46.17 – 66.97       | -6.6    |
| 1       | A     | 18  | SER  | CA   | 71.93      | 48.46 – 68.96       | 6.5     |
| 1       | A     | 10  | LYS  | HB2  | 0.30       | 0.58 – 2.97         | -6.2    |
| 1       | A     | 57  | ARG  | NH2  | 90.78      | 57.68 – 87.89       | 6.0     |

#### 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                                | 574   |
| Intra-residue ( $ i-j =0$ )                              | 78    |
| Sequential ( $ i-j =1$ )                                 | 159   |
| Medium range ( $ i-j >1$ and $ i-j <5$ )                 | 78    |
| Long range ( $ i-j \geq 5$ )                             | 194   |
| Inter-chain  | 0     |
| Hydrogen bond restraints                                 | 62    |
| Disulfide bond restraints                                | 3     |
| Total dihedral-angle restraints                          | 158   |
| Number of unmapped restraints                            | 0     |
| Number of restraints per residue                         | 12.6  |
| Number of long range restraints per residue <sup>1</sup> | 4.0   |

<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)  | 8.9                                    | 0.2     |
| 0.2-0.5 (Medium) | 14.6                                   | 0.5     |
| >0.5 (Large)     | 25.9                                   | 5.07    |

### 8.2.2 Average number of dihedral-angle violations per model

Dihedral-angle violations less than  $1^\circ$  are not included in the calculation. There are no dihedral-angle violations

## 9 Distance violation analysis

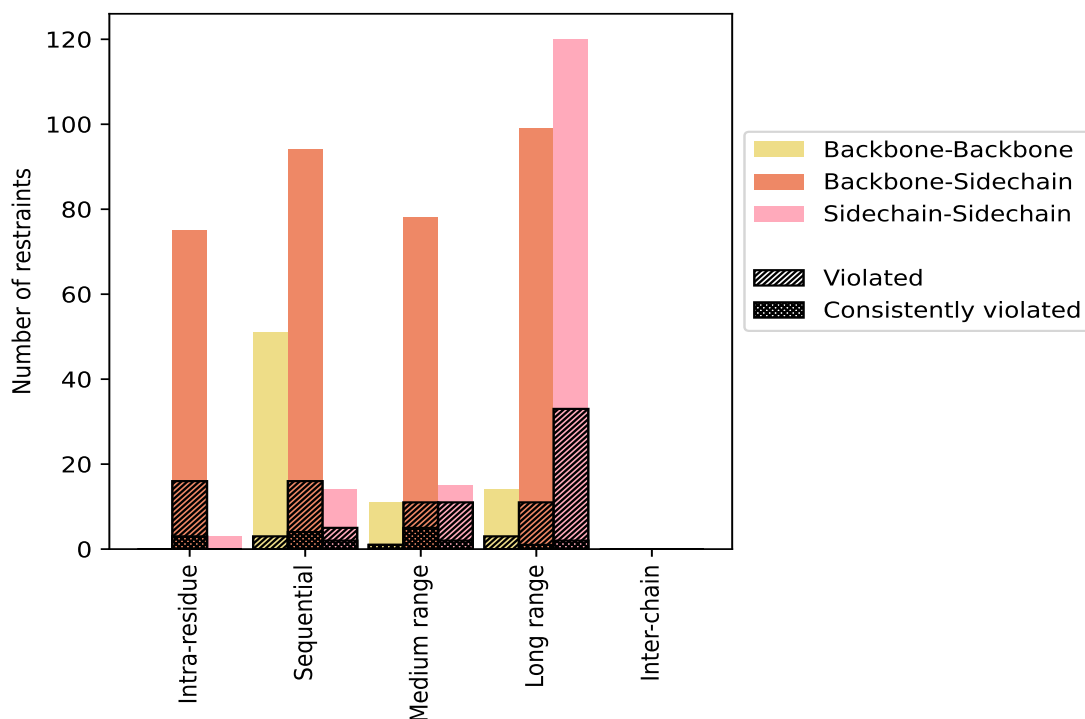
### 9.1 Summary of distance violations

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>78</b>  | <b>13.6</b>    | <b>16</b>             | <b>20.5</b>    | <b>2.8</b>     | <b>3</b>                           | <b>3.8</b>     | <b>0.5</b>     |
| Backbone-Backbone   | 0          | 0.0            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 75         | 13.1           | 16                    | 21.3           | 2.8            | 3                                  | 4.0            | 0.5            |
| Sidechain-Sidechain   | 3          | 0.5            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| <b>Sequential (<math> i-j =1</math>)</b>                                    | <b>159</b> | <b>27.7</b>    | <b>24</b>             | <b>15.1</b>    | <b>4.2</b>     | <b>6</b>                           | <b>3.8</b>     | <b>1.0</b>     |
| Backbone-Backbone   | 51         | 8.9            | 3                     | 5.9            | 0.5            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 94         | 16.4           | 16                    | 17.0           | 2.8            | 4                                  | 4.3            | 0.7            |
| Sidechain-Sidechain   | 14         | 2.4            | 5                     | 35.7           | 0.9            | 2                                  | 14.3           | 0.3            |
| <b>Medium range (<math> i-j &gt;1</math> &amp; <math> i-j &lt;5</math>)</b> | <b>78</b>  | <b>13.6</b>    | <b>20</b>             | <b>25.6</b>    | <b>3.5</b>     | <b>8</b>                           | <b>10.3</b>    | <b>1.4</b>     |
| Backbone-Backbone   | 11         | 1.9            | 1                     | 9.1            | 0.2            | 1                                  | 9.1            | 0.2            |
| Backbone-Sidechain  | 52         | 9.1            | 8                     | 15.4           | 1.4            | 5                                  | 9.6            | 0.9            |
| Sidechain-Sidechain   | 15         | 2.6            | 11                    | 73.3           | 1.9            | 2                                  | 13.3           | 0.3            |
| <b>Long range (<math> i-j \geq 5</math>)</b>                                | <b>194</b> | <b>33.8</b>    | <b>41</b>             | <b>21.1</b>    | <b>7.1</b>     | <b>3</b>                           | <b>1.5</b>     | <b>0.5</b>     |
| Backbone-Backbone   | 14         | 2.4            | 3                     | 21.4           | 0.5            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 73         | 12.7           | 6                     | 8.2            | 1.0            | 1                                  | 1.4            | 0.2            |
| Sidechain-Sidechain   | 107        | 18.6           | 32                    | 29.9           | 5.6            | 2                                  | 1.9            | 0.3            |
| <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>62</b>  | <b>10.8</b>    | <b>9</b>              | <b>14.5</b>    | <b>1.6</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| <b>Disulfide bond</b>   | <b>3</b>   | <b>0.5</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>574</b> | <b>100.0</b>   | <b>110</b>            | <b>19.2</b>    | <b>19.2</b>    | <b>20</b>                          | <b>3.5</b>     | <b>3.5</b>     |
| Backbone-Backbone   | 76         | 13.2           | 7                     | 9.2            | 1.2            | 1                                  | 1.3            | 0.2            |
| Backbone-Sidechain  | 346        | 60.3           | 54                    | 15.6           | 9.4            | 13                                 | 3.8            | 2.3            |
| Sidechain-Sidechain   | 152        | 26.5           | 49                    | 32.2           | 8.5            | 6                                  | 3.9            | 1.0            |

<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 disulfid 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        | 9                    | 11              | 11              | 17              | 0               | 48    | 0.85     | 3.93    | 0.92                | 0.46       |
| 2        | 8                    | 12              | 13              | 9               | 0               | 42    | 0.89     | 3.88    | 0.87                | 0.54       |
| 3        | 10                   | 10              | 12              | 16              | 0               | 48    | 0.88     | 3.95    | 0.86                | 0.62       |
| 4        | 7                    | 10              | 15              | 18              | 0               | 50    | 0.93     | 3.94    | 0.93                | 0.69       |
| 5        | 10                   | 13              | 13              | 16              | 0               | 52    | 0.85     | 3.87    | 0.97                | 0.49       |
| 6        | 10                   | 12              | 13              | 20              | 0               | 55    | 0.86     | 3.9     | 0.89                | 0.51       |
| 7        | 9                    | 12              | 15              | 18              | 0               | 54    | 0.81     | 4.39    | 0.96                | 0.42       |
| 8        | 9                    | 13              | 15              | 15              | 0               | 52    | 0.8      | 4.13    | 0.96                | 0.48       |
| 9        | 8                    | 14              | 16              | 10              | 0               | 48    | 0.87     | 4.28    | 0.84                | 0.54       |
| 10       | 8                    | 11              | 13              | 19              | 0               | 51    | 0.85     | 3.92    | 0.89                | 0.55       |

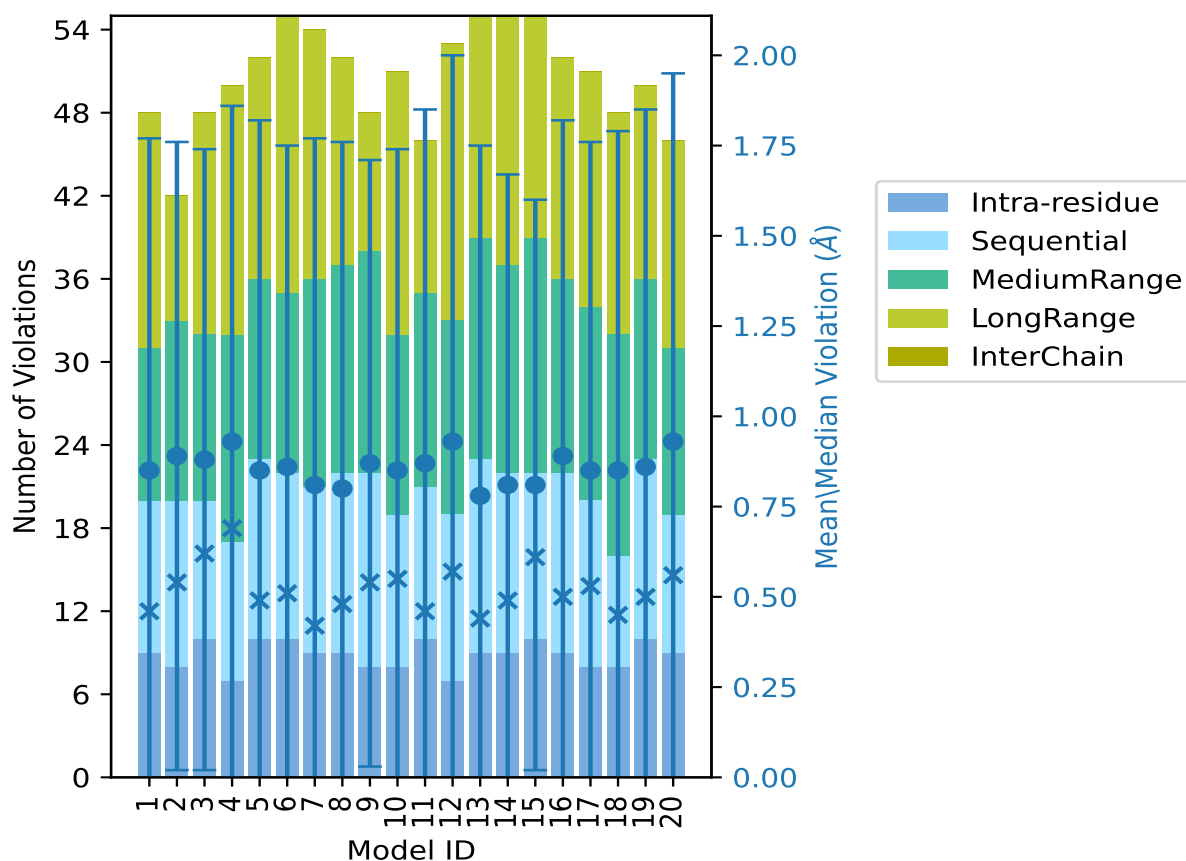
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| Model ID | Number of violations |                 |                 |                 |                 | Total | Mean (Å) | Max (Å) | SD <sup>6</sup> (Å) | Median (Å) |
|----------|----------------------|-----------------|-----------------|-----------------|-----------------|-------|----------|---------|---------------------|------------|
|          | IR <sup>1</sup>      | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> |       |          |         |                     |            |
| 11       | 10                   | 11              | 14              | 11              | 0               | 46    | 0.87     | 4.06    | 0.98                | 0.46       |
| 12       | 7                    | 12              | 14              | 20              | 0               | 53    | 0.93     | 5.07    | 1.07                | 0.57       |
| 13       | 9                    | 14              | 16              | 16              | 0               | 55    | 0.78     | 4.11    | 0.97                | 0.44       |
| 14       | 9                    | 13              | 15              | 18              | 0               | 55    | 0.81     | 3.83    | 0.86                | 0.49       |
| 15       | 10                   | 12              | 17              | 16              | 0               | 55    | 0.81     | 4.06    | 0.79                | 0.61       |
| 16       | 9                    | 13              | 14              | 16              | 0               | 52    | 0.89     | 3.63    | 0.93                | 0.5        |
| 17       | 8                    | 12              | 14              | 17              | 0               | 51    | 0.85     | 3.99    | 0.91                | 0.53       |
| 18       | 8                    | 8               | 16              | 16              | 0               | 48    | 0.85     | 4.24    | 0.94                | 0.45       |
| 19       | 10                   | 13              | 13              | 14              | 0               | 50    | 0.86     | 4.07    | 0.99                | 0.5        |
| 20       | 9                    | 10              | 12              | 15              | 0               | 46    | 0.93     | 4.1     | 1.02                | 0.56       |

<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

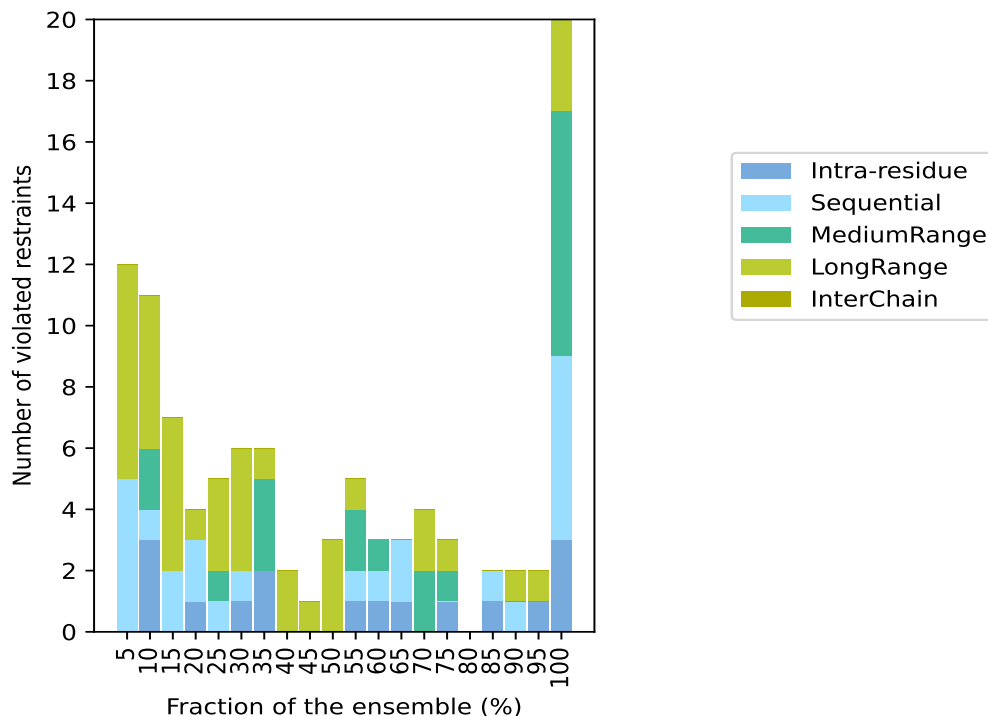
### 9.3 Distance violation statistics for the ensemble

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, 408(IR:62, SQ:135, MR:58, LR:153, 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>       | %     |
| 0                             | 5               | 0               | 7               | 0               | 12    | 1                        | 5.0   |
| 3                             | 1               | 2               | 5               | 0               | 11    | 2                        | 10.0  |
| 0                             | 2               | 0               | 5               | 0               | 7     | 3                        | 15.0  |
| 1                             | 2               | 0               | 1               | 0               | 4     | 4                        | 20.0  |
| 0                             | 1               | 1               | 3               | 0               | 5     | 5                        | 25.0  |
| 1                             | 1               | 0               | 4               | 0               | 6     | 6                        | 30.0  |
| 2                             | 0               | 3               | 1               | 0               | 6     | 7                        | 35.0  |
| 0                             | 0               | 0               | 2               | 0               | 2     | 8                        | 40.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 9                        | 45.0  |
| 0                             | 0               | 0               | 3               | 0               | 3     | 10                       | 50.0  |
| 1                             | 1               | 2               | 1               | 0               | 5     | 11                       | 55.0  |
| 1                             | 1               | 1               | 0               | 0               | 3     | 12                       | 60.0  |
| 1                             | 2               | 0               | 0               | 0               | 3     | 13                       | 65.0  |
| 0                             | 0               | 2               | 2               | 0               | 4     | 14                       | 70.0  |
| 1                             | 0               | 1               | 1               | 0               | 3     | 15                       | 75.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 16                       | 80.0  |
| 1                             | 1               | 0               | 0               | 0               | 2     | 17                       | 85.0  |
| 0                             | 1               | 0               | 1               | 0               | 2     | 18                       | 90.0  |
| 1                             | 0               | 0               | 1               | 0               | 2     | 19                       | 95.0  |
| 3                             | 6               | 8               | 3               | 0               | 20    | 20                       | 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

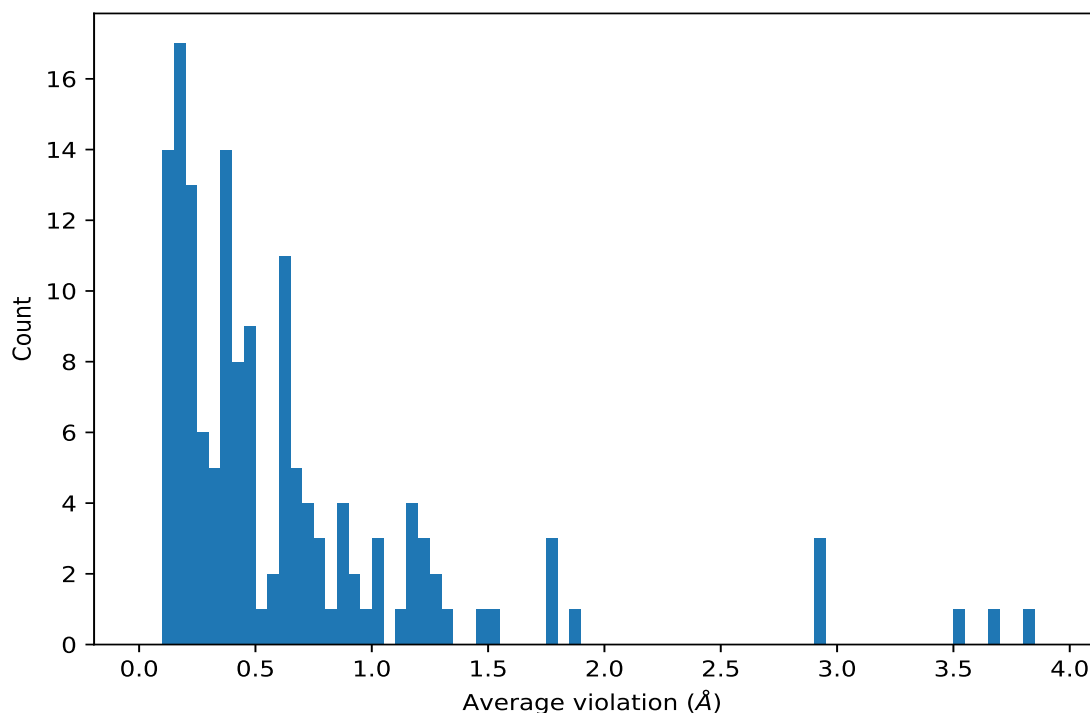
### 9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)



## 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) |
|---------|----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 20                  | 3.84     | 0.26                | 3.85       |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 20                  | 3.65     | 0.6                 | 3.86       |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 20                  | 3.52     | 0.1                 | 3.56       |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 20                  | 2.9      | 0.97                | 2.86       |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 20                  | 2.9      | 0.97                | 2.86       |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 20                  | 2.9      | 0.97                | 2.86       |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 20                  | 1.87     | 0.24                | 1.84       |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 20                  | 1.53     | 0.46                | 1.6        |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 20                  | 1.33     | 0.08                | 1.34       |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 20                  | 1.26     | 0.09                | 1.27       |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 20                  | 1.18     | 0.47                | 1.28       |
| (1,299) | 1:22:A:PHE:HB3 | 1:46:A:PHE:H    | 20                  | 0.95     | 0.16                | 0.98       |
| (1,198) | 1:9:A:PRO:HB2  | 1:42:A:ASN:HD22 | 20                  | 0.77     | 0.2                 | 0.73       |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 20                  | 0.7      | 0.22                | 0.66       |
| (1,151) | 1:34:A:PHE:HE1 | 1:36:A:TYR:HB3  | 20                  | 0.68     | 0.15                | 0.67       |
| (1,151) | 1:34:A:PHE:HE2 | 1:36:A:TYR:HB3  | 20                  | 0.68     | 0.15                | 0.67       |

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| Key     | Atom-1          | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 20                  | 0.64     | 0.06                | 0.64       |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 20                  | 0.64     | 0.06                | 0.64       |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 20                  | 0.64     | 0.06                | 0.64       |
| (1,66)  | 1:32:A:THR:HA   | 1:33:A:PRO:HB2  | 20                  | 0.52     | 0.01                | 0.52       |
| (1,339) | 1:10:A:LYS:HB3  | 1:11:A:LYS:H    | 20                  | 0.48     | 0.05                | 0.49       |
| (1,415) | 1:47:A:GLU:H    | 1:47:A:GLU:HB2  | 20                  | 0.43     | 0.01                | 0.43       |
| (1,48)  | 1:20:A:PRO:HG3  | 1:21:A:ARG:H    | 20                  | 0.42     | 0.09                | 0.42       |
| (1,410) | 1:8:A:GLU:H     | 1:8:A:GLU:HB3   | 20                  | 0.38     | 0.03                | 0.37       |
| (1,396) | 1:8:A:GLU:H     | 1:8:A:GLU:HG2   | 20                  | 0.36     | 0.08                | 0.38       |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 19                  | 0.93     | 0.27                | 0.85       |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 19                  | 0.93     | 0.27                | 0.85       |
| (1,389) | 1:10:A:LYS:H    | 1:10:A:LYS:HB2  | 19                  | 0.17     | 0.03                | 0.16       |
| (1,175) | 1:23:A:TYR:HE1  | 1:44:A:ASN:HD22 | 18                  | 0.34     | 0.12                | 0.36       |
| (1,175) | 1:23:A:TYR:HE2  | 1:44:A:ASN:HD22 | 18                  | 0.34     | 0.12                | 0.36       |
| (1,368) | 1:49:A:LEU:HB2  | 1:50:A:HIS:H    | 18                  | 0.31     | 0.14                | 0.38       |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 17                  | 0.83     | 0.41                | 0.7        |
| (1,288) | 1:53:A:ARG:HG2  | 1:54:A:ALA:H    | 17                  | 0.36     | 0.3                 | 0.21       |
| (1,260) | 1:50:A:HIS:HD2  | 1:53:A:ARG:HB2  | 15                  | 1.48     | 0.15                | 1.53       |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 15                  | 0.46     | 0.17                | 0.44       |
| (1,172) | 1:10:A:LYS:HG2  | 1:34:A:PHE:HB3  | 15                  | 0.32     | 0.12                | 0.29       |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG21 | 14                  | 1.75     | 0.81                | 1.35       |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG22 | 14                  | 1.75     | 0.81                | 1.35       |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG23 | 14                  | 1.75     | 0.81                | 1.35       |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 14                  | 1.17     | 0.53                | 1.28       |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 14                  | 0.65     | 0.09                | 0.63       |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 14                  | 0.65     | 0.09                | 0.63       |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 14                  | 0.57     | 0.14                | 0.61       |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 13                  | 1.25     | 0.58                | 1.27       |
| (1,301) | 1:55:A:ILE:H    | 1:55:A:ILE:HG13 | 13                  | 0.35     | 0.07                | 0.33       |
| (1,50)  | 1:11:A:LYS:HG3  | 1:12:A:VAL:H    | 13                  | 0.31     | 0.13                | 0.3        |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 12                  | 1.02     | 0.14                | 1.07       |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 12                  | 1.02     | 0.14                | 1.07       |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 12                  | 1.02     | 0.14                | 1.07       |
| (1,408) | 1:41:A:GLY:HA2  | 1:42:A:ASN:H    | 12                  | 0.23     | 0.08                | 0.3        |
| (1,19)  | 1:21:A:ARG:H    | 1:21:A:ARG:HD3  | 12                  | 0.21     | 0.03                | 0.21       |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG21 | 11                  | 1.24     | 0.55                | 1.41       |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG22 | 11                  | 1.24     | 0.55                | 1.41       |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG23 | 11                  | 1.24     | 0.55                | 1.41       |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 11                  | 0.68     | 0.23                | 0.64       |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 11                  | 0.64     | 0.12                | 0.67       |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 11                  | 0.64     | 0.12                | 0.67       |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 11                  | 0.64     | 0.12                | 0.67       |

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| Key     | Atom-1         | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD11 | 11                  | 0.64     | 0.12                | 0.67       |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD12 | 11                  | 0.64     | 0.12                | 0.67       |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD13 | 11                  | 0.64     | 0.12                | 0.67       |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 11                  | 0.46     | 0.35                | 0.31       |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 11                  | 0.35     | 0.11                | 0.41       |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 11                  | 0.35     | 0.11                | 0.41       |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 11                  | 0.35     | 0.11                | 0.41       |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 10                  | 1.12     | 0.83                | 1.76       |
| (1,180) | 1:5:A:ILE:HG21 | 1:46:A:PHE:HZ   | 10                  | 0.74     | 0.15                | 0.74       |
| (1,180) | 1:5:A:ILE:HG22 | 1:46:A:PHE:HZ   | 10                  | 0.74     | 0.15                | 0.74       |
| (1,180) | 1:5:A:ILE:HG23 | 1:46:A:PHE:HZ   | 10                  | 0.74     | 0.15                | 0.74       |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 10                  | 0.36     | 0.06                | 0.36       |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 9                   | 0.43     | 0.2                 | 0.43       |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 9                   | 0.43     | 0.2                 | 0.43       |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 9                   | 0.13     | 0.02                | 0.12       |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 8                   | 0.47     | 0.13                | 0.48       |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 8                   | 0.29     | 0.19                | 0.19       |
| (1,134) | 1:1:A:ILE:HG21 | 1:4:A:ASN:HB3   | 7                   | 0.87     | 0.36                | 0.85       |
| (1,134) | 1:1:A:ILE:HG22 | 1:4:A:ASN:HB3   | 7                   | 0.87     | 0.36                | 0.85       |
| (1,134) | 1:1:A:ILE:HG23 | 1:4:A:ASN:HB3   | 7                   | 0.87     | 0.36                | 0.85       |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 7                   | 0.35     | 0.09                | 0.35       |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 7                   | 0.23     | 0.06                | 0.25       |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 7                   | 0.19     | 0.07                | 0.2        |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 7                   | 0.17     | 0.04                | 0.16       |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 7                   | 0.14     | 0.04                | 0.12       |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 7                   | 0.14     | 0.04                | 0.12       |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 7                   | 0.13     | 0.0                 | 0.13       |
| (1,283) | 1:21:A:ARG:HG2 | 1:34:A:PHE:HE1  | 6                   | 0.76     | 0.03                | 0.76       |
| (1,283) | 1:21:A:ARG:HG2 | 1:34:A:PHE:HE2  | 6                   | 0.76     | 0.03                | 0.76       |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD1  | 6                   | 0.46     | 0.31                | 0.3        |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD2  | 6                   | 0.46     | 0.31                | 0.3        |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 6                   | 0.38     | 0.22                | 0.29       |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 6                   | 0.38     | 0.22                | 0.29       |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 6                   | 0.22     | 0.05                | 0.2        |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 6                   | 0.15     | 0.03                | 0.16       |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 6                   | 0.13     | 0.02                | 0.13       |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 6                   | 0.13     | 0.02                | 0.12       |
| (1,165) | 1:53:A:ARG:HE  | 1:57:A:ARG:HB3  | 5                   | 0.89     | 0.44                | 0.95       |
| (1,199) | 1:30:A:LYS:HD3 | 1:31:A:CYS:H    | 5                   | 0.43     | 0.17                | 0.34       |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 5                   | 0.21     | 0.09                | 0.21       |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 5                   | 0.21     | 0.09                | 0.21       |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 5                   | 0.16     | 0.04                | 0.16       |

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| Key     | Atom-1         | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 5                   | 0.16     | 0.04                | 0.16       |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 5                   | 0.15     | 0.03                | 0.17       |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 5                   | 0.13     | 0.02                | 0.12       |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG21 | 4                   | 0.38     | 0.12                | 0.34       |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG22 | 4                   | 0.38     | 0.12                | 0.34       |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG23 | 4                   | 0.38     | 0.12                | 0.34       |
| (1,244) | 1:33:A:PRO:HB3 | 1:34:A:PHE:H    | 4                   | 0.19     | 0.02                | 0.18       |
| (2,45)  | 1:21:A:ARG:O   | 1:34:A:PHE:H    | 4                   | 0.16     | 0.03                | 0.16       |
| (1,160) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA2  | 4                   | 0.15     | 0.02                | 0.15       |
| (1,160) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA2  | 4                   | 0.15     | 0.02                | 0.15       |
| (1,192) | 1:57:A:ARG:H   | 1:57:A:ARG:HG2  | 4                   | 0.15     | 0.06                | 0.12       |
| (2,37)  | 1:22:A:PHE:H   | 1:46:A:PHE:O    | 4                   | 0.12     | 0.0                 | 0.12       |
| (2,52)  | 1:8:A:GLU:OE1  | 1:44:A:ASN:H    | 4                   | 0.11     | 0.02                | 0.11       |
| (1,241) | 1:11:A:LYS:HD2 | 1:42:A:ASN:HD21 | 3                   | 1.15     | 0.1                 | 1.21       |
| (1,241) | 1:11:A:LYS:HD3 | 1:42:A:ASN:HD21 | 3                   | 1.15     | 0.1                 | 1.21       |
| (1,99)  | 1:57:A:ARG:HG3 | 1:58:A:ALA:H    | 3                   | 0.62     | 0.07                | 0.57       |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG21 | 3                   | 0.43     | 0.22                | 0.33       |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG22 | 3                   | 0.43     | 0.22                | 0.33       |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG23 | 3                   | 0.43     | 0.22                | 0.33       |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE1  | 3                   | 0.28     | 0.06                | 0.24       |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE2  | 3                   | 0.28     | 0.06                | 0.24       |
| (1,184) | 1:34:A:PHE:HE1 | 1:45:A:ASN:HD22 | 3                   | 0.28     | 0.17                | 0.17       |
| (1,184) | 1:34:A:PHE:HE2 | 1:45:A:ASN:HD22 | 3                   | 0.28     | 0.17                | 0.17       |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD11 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD12 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD13 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD11 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD12 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD13 | 3                   | 0.22     | 0.13                | 0.16       |
| (1,44)  | 1:45:A:ASN:H   | 1:46:A:PHE:HZ   | 3                   | 0.18     | 0.12                | 0.1        |
| (2,49)  | 1:37:A:GLY:O   | 1:39:A:CYS:H    | 3                   | 0.11     | 0.01                | 0.11       |
| (1,74)  | 1:19:A:PHE:HZ  | 1:21:A:ARG:HD2  | 2                   | 0.64     | 0.38                | 0.64       |
| (1,281) | 1:11:A:LYS:HB2 | 1:42:A:ASN:HD21 | 2                   | 0.59     | 0.02                | 0.59       |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG21 | 2                   | 0.48     | 0.0                 | 0.48       |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG22 | 2                   | 0.48     | 0.0                 | 0.48       |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG23 | 2                   | 0.48     | 0.0                 | 0.48       |
| (1,275) | 1:35:A:ILE:H   | 1:35:A:ILE:HG12 | 2                   | 0.28     | 0.02                | 0.28       |
| (4,63)  | 1:6:A:CYS:SG   | 1:56:A:CYS:SG   | 2                   | 0.2      | 0.09                | 0.2        |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD1  | 2                   | 0.18     | 0.02                | 0.18       |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD2  | 2                   | 0.18     | 0.02                | 0.18       |
| (1,336) | 1:42:A:ASN:HB3 | 1:43:A:GLY:H    | 2                   | 0.16     | 0.04                | 0.16       |
| (1,193) | 1:29:A:GLY:HA3 | 1:57:A:ARG:HE   | 2                   | 0.15     | 0.02                | 0.15       |

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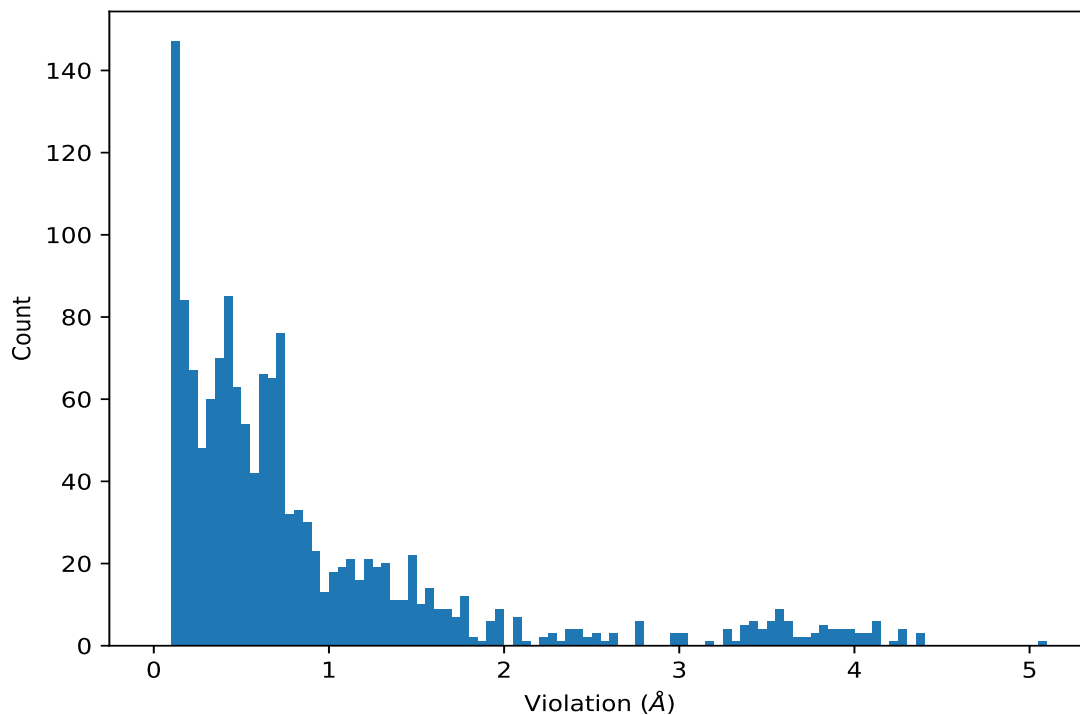
| Key     | Atom-1         | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,223) | 1:55:A:ILE:H   | 1:55:A:ILE:HG12 | 2                   | 0.14     | 0.01                | 0.14       |
| (1,229) | 1:53:A:ARG:HA  | 1:58:A:ALA:H    | 2                   | 0.12     | 0.01                | 0.12       |
| (1,270) | 1:23:A:TYR:HE1 | 1:25:A:ASP:HB3  | 2                   | 0.11     | 0.0                 | 0.11       |
| (1,270) | 1:23:A:TYR:HE2 | 1:25:A:ASP:HB3  | 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) |
|---------|----------------|----------------|----------|---------------|
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 12       | 5.07          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 7        | 4.39          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 7        | 4.39          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 7        | 4.39          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 9        | 4.28          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 12       | 4.26          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 12       | 4.26          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 12       | 4.26          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 18       | 4.24          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 8        | 4.13          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 13       | 4.11          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 13       | 4.1           |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 13       | 4.1           |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 13       | 4.1           |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 20       | 4.1           |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 19       | 4.07          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 15       | 4.06          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 11       | 4.06          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 20       | 4.03          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 20       | 4.03          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 20       | 4.03          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 17       | 3.99          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 7        | 3.98          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 19       | 3.96          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 3        | 3.95          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 4        | 3.94          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 1        | 3.93          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 10       | 3.92          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 6        | 3.9           |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 2        | 3.88          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 17       | 3.87          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 5        | 3.87          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 8        | 3.86          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 14       | 3.83          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 20       | 3.81          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 5        | 3.8           |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 5        | 3.8           |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 5        | 3.8           |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H    | 19       | 3.79          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H    | 19       | 3.79          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H    | 19       | 3.79          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H   | 12       | 3.74          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3 | 14       | 3.72          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 1        | 3.68          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 6        | 3.65          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 16       | 3.63          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 4        | 3.63          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 5        | 3.62          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 14       | 3.62          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 17       | 3.61          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 19       | 3.61          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 8        | 3.59          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 9        | 3.59          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 20       | 3.59          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 11       | 3.58          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 18       | 3.57          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 16       | 3.56          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 13       | 3.56          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 15       | 3.56          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 5        | 3.55          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 10       | 3.54          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 6        | 3.54          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 1        | 3.52          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 13       | 3.5           |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 7        | 3.5           |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 12       | 3.5           |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 10       | 3.47          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 8        | 3.46          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 8        | 3.46          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 8        | 3.46          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 3        | 3.41          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 18       | 3.41          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 16       | 3.4           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 4        | 3.4           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 4        | 3.4           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 4        | 3.4           |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 16       | 3.37          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 16       | 3.37          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 16       | 3.37          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 11       | 3.36          |
| (1,416) | 1:36:A:TYR:HE1 | 1:39:A:CYS:H    | 2        | 3.35          |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 3        | 3.3           |
| (1,289) | 1:36:A:TYR:HB2 | 1:39:A:CYS:H    | 2        | 3.28          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 4        | 3.27          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 4        | 3.27          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 4        | 3.27          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 7        | 3.18          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 11       | 3.0           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 11       | 3.0           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 11       | 3.0           |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 10       | 2.97          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 10       | 2.97          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 10       | 2.97          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 11       | 2.76          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 11       | 2.76          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 11       | 2.76          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 5        | 2.75          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 5        | 2.75          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 5        | 2.75          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 3        | 2.62          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 3        | 2.62          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 3        | 2.62          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 15       | 2.56          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 18       | 2.53          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 18       | 2.53          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 18       | 2.53          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 9        | 2.49          |
| (1,338) | 1:53:A:ARG:H   | 1:57:A:ARG:HB3  | 4        | 2.48          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 16       | 2.43          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 16       | 2.4           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 16       | 2.4           |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 16       | 2.4           |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 15       | 2.38          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 15       | 2.38          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 15       | 2.38          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 12       | 2.35          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 18       | 2.32          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 6        | 2.29          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 6        | 2.29          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 6        | 2.29          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 12       | 2.21          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 9        | 2.2           |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 8        | 2.12          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 13       | 2.09          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 15       | 2.09          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 19       | 2.09          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 5        | 2.07          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 5        | 2.07          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 5        | 2.07          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 17       | 2.05          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 17       | 1.97          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 1        | 1.96          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 1        | 1.96          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 1        | 1.96          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 1        | 1.96          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 6        | 1.96          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 6        | 1.96          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 6        | 1.96          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 1        | 1.95          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 14       | 1.94          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 9        | 1.94          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 9        | 1.94          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 9        | 1.94          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 10       | 1.91          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 20       | 1.9           |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 14       | 1.87          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 20       | 1.81          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 6        | 1.8           |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 7        | 1.79          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 3        | 1.79          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 2        | 1.78          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 2        | 1.78          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 2        | 1.78          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 12       | 1.78          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 6        | 1.77          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 6        | 1.77          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 6        | 1.77          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 17       | 1.76          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 1        | 1.75          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 16       | 1.75          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 14       | 1.74          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 4        | 1.74          |
| (1,269) | 1:46:A:PHE:HD1 | 1:55:A:ILE:HG12 | 6        | 1.73          |
| (1,269) | 1:46:A:PHE:HD2 | 1:55:A:ILE:HG12 | 6        | 1.73          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 6        | 1.72          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 11       | 1.71          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 19       | 1.7           |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 16       | 1.69          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 20       | 1.69          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 17       | 1.68          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 1        | 1.67          |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 17       | 1.66          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 17       | 1.66          |
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 17       | 1.66          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 18       | 1.66          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 7        | 1.65          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 3        | 1.64          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 7        | 1.64          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 19       | 1.64          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 6        | 1.64          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 13       | 1.63          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 15       | 1.63          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 6        | 1.61          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 8        | 1.6           |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 16       | 1.6           |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 4        | 1.59          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 18       | 1.59          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 18       | 1.59          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 18       | 1.59          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 3        | 1.58          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 7        | 1.58          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 20       | 1.58          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 10       | 1.57          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 11       | 1.56          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 5        | 1.56          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 1        | 1.55          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 13       | 1.55          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 10       | 1.55          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 13       | 1.55          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 5        | 1.54          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 2        | 1.54          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 18       | 1.54          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 2        | 1.53          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 3        | 1.52          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 2        | 1.51          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 12       | 1.51          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 17       | 1.51          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 14       | 1.51          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 8        | 1.5           |
| (1,373) | 1:1:A:ILE:HD11 | 1:5:A:ILE:H     | 9        | 1.49          |
| (1,373) | 1:1:A:ILE:HD12 | 1:5:A:ILE:H     | 9        | 1.49          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,373) | 1:1:A:ILE:HD13 | 1:5:A:ILE:H     | 9        | 1.49          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 3        | 1.49          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 12       | 1.48          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 14       | 1.48          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 1        | 1.48          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 18       | 1.47          |
| (1,352) | 1:36:A:TYR:HE2 | 1:39:A:CYS:H    | 4        | 1.47          |
| (1,165) | 1:53:A:ARG:HE  | 1:57:A:ARG:HB3  | 12       | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 4        | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 4        | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 4        | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 9        | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 9        | 1.47          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 9        | 1.47          |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 6        | 1.46          |
| (1,134) | 1:1:A:ILE:HG21 | 1:4:A:ASN:HB3   | 19       | 1.46          |
| (1,134) | 1:1:A:ILE:HG22 | 1:4:A:ASN:HB3   | 19       | 1.46          |
| (1,134) | 1:1:A:ILE:HG23 | 1:4:A:ASN:HB3   | 19       | 1.46          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 6        | 1.45          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 16       | 1.45          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 7        | 1.44          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 2        | 1.44          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 4        | 1.41          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 17       | 1.41          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 11       | 1.41          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 11       | 1.41          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 11       | 1.41          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 2        | 1.41          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 11       | 1.4           |
| (1,260) | 1:50:A:HIS:HD2 | 1:53:A:ARG:HB2  | 18       | 1.4           |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 7        | 1.4           |
| (1,269) | 1:46:A:PHE:HD1 | 1:55:A:ILE:HG12 | 15       | 1.39          |
| (1,269) | 1:46:A:PHE:HD2 | 1:55:A:ILE:HG12 | 15       | 1.39          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 10       | 1.36          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 15       | 1.36          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 14       | 1.36          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 14       | 1.36          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 14       | 1.36          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 14       | 1.36          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 14       | 1.36          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 14       | 1.35          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 20       | 1.35          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 13       | 1.34          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 1        | 1.34          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 10       | 1.34          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 12       | 1.34          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 12       | 1.34          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 12       | 1.34          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 1        | 1.33          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 2        | 1.33          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 10       | 1.33          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 5        | 1.32          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 18       | 1.32          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 2        | 1.32          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 5        | 1.31          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 9        | 1.31          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 20       | 1.31          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 11       | 1.31          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 2        | 1.31          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 2        | 1.31          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 2        | 1.31          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 9        | 1.31          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 13       | 1.29          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 4        | 1.29          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 16       | 1.28          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 17       | 1.28          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 8        | 1.28          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 12       | 1.28          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 19       | 1.28          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG21 | 18       | 1.27          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG22 | 18       | 1.27          |
| (1,169) | 1:10:A:LYS:HE3 | 1:12:A:VAL:HG23 | 18       | 1.27          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 16       | 1.27          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 16       | 1.27          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 16       | 1.27          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 4        | 1.27          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 6        | 1.26          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 9        | 1.26          |
| (1,299) | 1:22:A:PHE:HB3 | 1:46:A:PHE:H    | 6        | 1.25          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 2        | 1.25          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 15       | 1.25          |
| (1,403) | 1:24:A:PHE:HB2 | 1:44:A:ASN:HD21 | 19       | 1.24          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 11       | 1.24          |
| (1,215) | 1:46:A:PHE:H   | 1:48:A:THR:H    | 12       | 1.24          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,182) | 1:53:A:ARG:HG2  | 1:57:A:ARG:HH21 | 9        | 1.24          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG21 | 17       | 1.24          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG22 | 17       | 1.24          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG23 | 17       | 1.24          |
| (1,403) | 1:24:A:PHE:HB2  | 1:44:A:ASN:HD21 | 3        | 1.23          |
| (1,403) | 1:24:A:PHE:HB2  | 1:44:A:ASN:HD21 | 8        | 1.23          |
| (1,241) | 1:11:A:LYS:HD2  | 1:42:A:ASN:HD21 | 10       | 1.23          |
| (1,241) | 1:11:A:LYS:HD3  | 1:42:A:ASN:HD21 | 10       | 1.23          |
| (1,260) | 1:50:A:HIS:HD2  | 1:53:A:ARG:HB2  | 10       | 1.22          |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 3        | 1.22          |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 3        | 1.22          |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 3        | 1.22          |
| (1,241) | 1:11:A:LYS:HD2  | 1:42:A:ASN:HD21 | 12       | 1.21          |
| (1,241) | 1:11:A:LYS:HD3  | 1:42:A:ASN:HD21 | 12       | 1.21          |
| (1,215) | 1:46:A:PHE:H    | 1:48:A:THR:H    | 7        | 1.21          |
| (1,403) | 1:24:A:PHE:HB2  | 1:44:A:ASN:HD21 | 17       | 1.2           |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 14       | 1.2           |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 14       | 1.2           |
| (1,215) | 1:46:A:PHE:H    | 1:48:A:THR:H    | 19       | 1.18          |
| (1,55)  | 1:9:A:PRO:HG2   | 1:10:A:LYS:HD2  | 14       | 1.18          |
| (1,403) | 1:24:A:PHE:HB2  | 1:44:A:ASN:HD21 | 16       | 1.17          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 8        | 1.17          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 16       | 1.17          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 16       | 1.17          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 16       | 1.17          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 3        | 1.16          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 3        | 1.16          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 3        | 1.16          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 9        | 1.16          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 9        | 1.16          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 9        | 1.16          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 4        | 1.16          |
| (1,165) | 1:53:A:ARG:HE   | 1:57:A:ARG:HB3  | 6        | 1.16          |
| (1,55)  | 1:9:A:PRO:HG2   | 1:10:A:LYS:HD2  | 10       | 1.16          |
| (1,373) | 1:1:A:ILE:HD11  | 1:5:A:ILE:H     | 14       | 1.14          |
| (1,373) | 1:1:A:ILE:HD12  | 1:5:A:ILE:H     | 14       | 1.14          |
| (1,373) | 1:1:A:ILE:HD13  | 1:5:A:ILE:H     | 14       | 1.14          |
| (1,215) | 1:46:A:PHE:H    | 1:48:A:THR:H    | 3        | 1.14          |
| (1,215) | 1:46:A:PHE:H    | 1:48:A:THR:H    | 8        | 1.14          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG21 | 13       | 1.14          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG22 | 13       | 1.14          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG23 | 13       | 1.14          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 15       | 1.13          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 15       | 1.13          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 15       | 1.13          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 11       | 1.12          |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 4        | 1.12          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 7        | 1.11          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 9        | 1.11          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 9        | 1.11          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 12       | 1.11          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 12       | 1.11          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 12       | 1.11          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 7        | 1.11          |
| (1,55)  | 1:9:A:PRO:HG2   | 1:10:A:LYS:HD2  | 15       | 1.1           |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 4        | 1.08          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 10       | 1.08          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 10       | 1.08          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 10       | 1.08          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 2        | 1.07          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 2        | 1.07          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 9        | 1.06          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 11       | 1.06          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 17       | 1.06          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 17       | 1.06          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 17       | 1.06          |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 20       | 1.06          |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 20       | 1.06          |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 20       | 1.06          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 13       | 1.05          |
| (1,260) | 1:50:A:HIS:HD2  | 1:53:A:ARG:HB2  | 15       | 1.05          |
| (1,55)  | 1:9:A:PRO:HG2   | 1:10:A:LYS:HD2  | 20       | 1.05          |
| (1,54)  | 1:10:A:LYS:HE2  | 1:34:A:PHE:HD1  | 10       | 1.05          |
| (1,54)  | 1:10:A:LYS:HE2  | 1:34:A:PHE:HD2  | 10       | 1.05          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 2        | 1.04          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 19       | 1.04          |
| (1,288) | 1:53:A:ARG:HG2  | 1:54:A:ALA:H    | 5        | 1.03          |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 9        | 1.03          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 14       | 1.02          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 14       | 1.02          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 14       | 1.02          |
| (1,74)  | 1:19:A:PHE:HZ   | 1:21:A:ARG:HD2  | 4        | 1.02          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 1        | 1.01          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 8        | 1.01          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 13       | 1.01          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 1        | 1.01          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 1        | 1.01          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 15       | 1.01          |
| (1,241) | 1:11:A:LYS:HD2  | 1:42:A:ASN:HD21 | 17       | 1.0           |
| (1,241) | 1:11:A:LYS:HD3  | 1:42:A:ASN:HD21 | 17       | 1.0           |
| (1,215) | 1:46:A:PHE:H    | 1:48:A:THR:H    | 4        | 1.0           |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 7        | 1.0           |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 15       | 0.99          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 11       | 0.99          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 15       | 0.98          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 15       | 0.98          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 15       | 0.98          |
| (1,288) | 1:53:A:ARG:HG2  | 1:54:A:ALA:H    | 9        | 0.97          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 8        | 0.97          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 8        | 0.97          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 16       | 0.97          |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 16       | 0.97          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 17       | 0.96          |
| (1,349) | 1:16:A:ARG:H    | 1:16:A:ARG:HG3  | 15       | 0.95          |
| (1,165) | 1:53:A:ARG:HE   | 1:57:A:ARG:HB3  | 5        | 0.95          |
| (1,349) | 1:16:A:ARG:H    | 1:16:A:ARG:HG3  | 7        | 0.94          |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 15       | 0.94          |
| (1,349) | 1:16:A:ARG:H    | 1:16:A:ARG:HG3  | 3        | 0.93          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 20       | 0.93          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 20       | 0.93          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 20       | 0.92          |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 16       | 0.92          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 9        | 0.92          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 9        | 0.92          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 10       | 0.92          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 10       | 0.92          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 20       | 0.92          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 18       | 0.91          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 1        | 0.91          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 1        | 0.91          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 1        | 0.91          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 10       | 0.9           |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 17       | 0.9           |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 5        | 0.9           |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 5        | 0.9           |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 5        | 0.9           |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 18       | 0.9           |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 18       | 0.9           |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 3        | 0.89          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 1        | 0.89          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 18       | 0.89          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG21 | 8        | 0.89          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG22 | 8        | 0.89          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG23 | 8        | 0.89          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 14       | 0.88          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 19       | 0.88          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 15       | 0.88          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 15       | 0.88          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 5        | 0.87          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 12       | 0.87          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 12       | 0.87          |
| (1,1)   | 1:5:A:ILE:HG12  | 1:46:A:PHE:HE1  | 12       | 0.87          |
| (1,1)   | 1:5:A:ILE:HG12  | 1:46:A:PHE:HE2  | 12       | 0.87          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 4        | 0.86          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 4        | 0.86          |
| (1,190) | 1:11:A:LYS:HB2  | 1:13:A:GLY:H    | 8        | 0.86          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 1        | 0.86          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 1        | 0.86          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 1        | 0.86          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 18       | 0.86          |
| (1,349) | 1:16:A:ARG:H    | 1:16:A:ARG:HG3  | 11       | 0.85          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 4        | 0.85          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 4        | 0.85          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 13       | 0.85          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 13       | 0.85          |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 13       | 0.85          |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 13       | 0.85          |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 13       | 0.85          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 5        | 0.84          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 5        | 0.84          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG21 | 8        | 0.84          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG22 | 8        | 0.84          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG23 | 8        | 0.84          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 20       | 0.83          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 16       | 0.83          |
| (1,273) | 1:17:A:GLY:HA3  | 1:38:A:GLY:HA2  | 4        | 0.83          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 19       | 0.83          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 19       | 0.83          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 19       | 0.83          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 10       | 0.83          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 10       | 0.83          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 10       | 0.83          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 7        | 0.82          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 7        | 0.82          |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 6        | 0.82          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 18       | 0.81          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 18       | 0.81          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 6        | 0.81          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 6        | 0.81          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 6        | 0.81          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG21 | 15       | 0.81          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG22 | 15       | 0.81          |
| (1,59)  | 1:10:A:LYS:HG3  | 1:12:A:VAL:HG23 | 15       | 0.81          |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 14       | 0.81          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 9        | 0.81          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 5        | 0.8           |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 16       | 0.8           |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 16       | 0.8           |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 12       | 0.8           |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 12       | 0.8           |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 13       | 0.8           |
| (1,288) | 1:53:A:ARG:HG2  | 1:54:A:ALA:H    | 3        | 0.79          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 17       | 0.79          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 17       | 0.79          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 18       | 0.79          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 19       | 0.79          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 19       | 0.79          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 3        | 0.78          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 3        | 0.78          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 11       | 0.78          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 11       | 0.78          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 2        | 0.78          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 3        | 0.77          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 7        | 0.77          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 7        | 0.77          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 7        | 0.77          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 7        | 0.77          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 7        | 0.77          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 7        | 0.77          |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 4        | 0.77          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 7        | 0.76          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 7        | 0.76          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 9        | 0.76          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 6        | 0.75          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 6        | 0.75          |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 2        | 0.75          |
| (1,224) | 1:28:A:THR:HG21 | 1:30:A:LYS:HB2  | 4        | 0.75          |
| (1,224) | 1:28:A:THR:HG22 | 1:30:A:LYS:HB2  | 4        | 0.75          |
| (1,224) | 1:28:A:THR:HG23 | 1:30:A:LYS:HB2  | 4        | 0.75          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 17       | 0.75          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 17       | 0.75          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 17       | 0.75          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 9        | 0.75          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 8        | 0.74          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 8        | 0.74          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 8        | 0.74          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 12       | 0.74          |
| (1,288) | 1:53:A:ARG:HG2  | 1:54:A:ALA:H    | 15       | 0.74          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 20       | 0.74          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 20       | 0.74          |
| (1,236) | 1:18:A:SER:HB2  | 1:35:A:ILE:HG21 | 12       | 0.74          |
| (1,236) | 1:18:A:SER:HB2  | 1:35:A:ILE:HG22 | 12       | 0.74          |
| (1,236) | 1:18:A:SER:HB2  | 1:35:A:ILE:HG23 | 12       | 0.74          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 20       | 0.74          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 6        | 0.74          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 6        | 0.74          |
| (1,124) | 1:22:A:PHE:HD1  | 1:33:A:PRO:HB2  | 5        | 0.74          |
| (1,124) | 1:22:A:PHE:HD2  | 1:33:A:PRO:HB2  | 5        | 0.74          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 5        | 0.74          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 9        | 0.73          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 9        | 0.73          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 9        | 0.73          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 5        | 0.73          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 5        | 0.73          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 5        | 0.73          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 5        | 0.73          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 5        | 0.73          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 5        | 0.73          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 7        | 0.73          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 7        | 0.73          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 7        | 0.73          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 4        | 0.72          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 4        | 0.72          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 4        | 0.72          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 4        | 0.72          |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 13       | 0.72          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 6        | 0.72          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 5        | 0.72          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 5        | 0.72          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 5        | 0.72          |
| (1,99)  | 1:57:A:ARG:HG3  | 1:58:A:ALA:H    | 4        | 0.72          |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 13       | 0.72          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 8        | 0.72          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 18       | 0.71          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 18       | 0.71          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 16       | 0.71          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE1  | 14       | 0.71          |
| (1,283) | 1:21:A:ARG:HG2  | 1:34:A:PHE:HE2  | 14       | 0.71          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 10       | 0.71          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 10       | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 1        | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 6        | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 6        | 0.71          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 6        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 6        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 6        | 0.71          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 6        | 0.71          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 17       | 0.71          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 11       | 0.71          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 11       | 0.71          |
| (1,18)  | 1:21:A:ARG:HE   | 1:47:A:GLU:HG3  | 3        | 0.71          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 12       | 0.7           |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 12       | 0.7           |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 12       | 0.7           |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 18       | 0.7           |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 18       | 0.7           |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 18       | 0.7           |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 14       | 0.7           |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 16       | 0.7           |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 15       | 0.69          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 15       | 0.69          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 15       | 0.69          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 19       | 0.69          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 19       | 0.69          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 19       | 0.69          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 10       | 0.69          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 10       | 0.69          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 3        | 0.69          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 3        | 0.69          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 5        | 0.69          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 3        | 0.69          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 3        | 0.69          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 3        | 0.69          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 12       | 0.69          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 13       | 0.68          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 13       | 0.68          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 13       | 0.68          |
| (1,182) | 1:53:A:ARG:HG2  | 1:57:A:ARG:HH21 | 15       | 0.68          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG21 | 15       | 0.68          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG22 | 15       | 0.68          |
| (1,169) | 1:10:A:LYS:HE3  | 1:12:A:VAL:HG23 | 15       | 0.68          |
| (1,165) | 1:53:A:ARG:HE   | 1:57:A:ARG:HB3  | 14       | 0.68          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 16       | 0.68          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 16       | 0.68          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 13       | 0.68          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 7        | 0.68          |
| (1,12)  | 1:1:A:ILE:HG12  | 1:2:A:GLN:HE22  | 9        | 0.68          |
| (1,322) | 1:8:A:GLU:HB2   | 1:42:A:ASN:HD21 | 3        | 0.67          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 7        | 0.67          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 17       | 0.67          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 17       | 0.67          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 17       | 0.67          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 17       | 0.67          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 17       | 0.67          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 17       | 0.67          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 10       | 0.67          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,54)  | 1:10:A:LYS:HE2  | 1:34:A:PHE:HD1  | 8        | 0.67          |
| (1,54)  | 1:10:A:LYS:HE2  | 1:34:A:PHE:HD2  | 8        | 0.67          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 13       | 0.66          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 13       | 0.66          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 20       | 0.66          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 20       | 0.66          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 20       | 0.66          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 20       | 0.66          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 20       | 0.66          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 20       | 0.66          |
| (1,199) | 1:30:A:LYS:HD3  | 1:31:A:CYS:H    | 12       | 0.66          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 3        | 0.66          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 4        | 0.66          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 4        | 0.66          |
| (1,124) | 1:22:A:PHE:HD1  | 1:33:A:PRO:HB2  | 16       | 0.66          |
| (1,124) | 1:22:A:PHE:HD2  | 1:33:A:PRO:HB2  | 16       | 0.66          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 1        | 0.65          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 1        | 0.65          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 1        | 0.65          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 15       | 0.65          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 15       | 0.65          |
| (1,299) | 1:22:A:PHE:HB3  | 1:46:A:PHE:H    | 19       | 0.65          |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 6        | 0.65          |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 6        | 0.65          |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 6        | 0.65          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 17       | 0.65          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 17       | 0.65          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 15       | 0.65          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 6        | 0.64          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 6        | 0.64          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 6        | 0.64          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 20       | 0.64          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 20       | 0.64          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 20       | 0.64          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 1        | 0.64          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 15       | 0.64          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 19       | 0.64          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 20       | 0.64          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 10       | 0.63          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 10       | 0.63          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 10       | 0.63          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 1        | 0.63          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 1        | 0.63          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 9        | 0.63          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 9        | 0.63          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 11       | 0.63          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 11       | 0.63          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 12       | 0.63          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 15       | 0.63          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 5        | 0.62          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 5        | 0.62          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 5        | 0.62          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 2        | 0.62          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 2        | 0.62          |
| (1,199) | 1:30:A:LYS:HD3  | 1:31:A:CYS:H    | 3        | 0.62          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 14       | 0.62          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 14       | 0.62          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 10       | 0.62          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 2        | 0.61          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 2        | 0.61          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 2        | 0.61          |
| (1,281) | 1:11:A:LYS:HB2  | 1:42:A:ASN:HD21 | 12       | 0.61          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 16       | 0.61          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 16       | 0.61          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 15       | 0.61          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 15       | 0.61          |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 15       | 0.61          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 15       | 0.61          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 15       | 0.61          |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 15       | 0.61          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 8        | 0.61          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 3        | 0.61          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 3        | 0.61          |
| (1,120) | 1:30:A:LYS:H    | 1:30:A:LYS:HD3  | 3        | 0.61          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 2        | 0.61          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 11       | 0.61          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 17       | 0.6           |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 17       | 0.6           |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 17       | 0.6           |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 19       | 0.6           |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 19       | 0.6           |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD11 | 12       | 0.6           |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD12 | 12       | 0.6           |
| (1,264) | 1:22:A:PHE:HE1  | 1:49:A:LEU:HD13 | 12       | 0.6           |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD11 | 12       | 0.6           |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD12 | 12       | 0.6           |
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 12       | 0.6           |
| (1,180) | 1:5:A:ILE:HG21  | 1:46:A:PHE:HZ   | 4        | 0.6           |
| (1,180) | 1:5:A:ILE:HG22  | 1:46:A:PHE:HZ   | 4        | 0.6           |
| (1,180) | 1:5:A:ILE:HG23  | 1:46:A:PHE:HZ   | 4        | 0.6           |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 4        | 0.6           |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 4        | 0.6           |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 4        | 0.6           |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 14       | 0.6           |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 3        | 0.59          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 3        | 0.59          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 3        | 0.59          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 6        | 0.59          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 2        | 0.59          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 2        | 0.59          |
| (1,7)   | 1:17:A:GLY:HA2  | 1:19:A:PHE:HZ   | 10       | 0.59          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 7        | 0.58          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 7        | 0.58          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 7        | 0.58          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 11       | 0.58          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 11       | 0.58          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 11       | 0.58          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 14       | 0.58          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 14       | 0.58          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 14       | 0.58          |
| (1,269) | 1:46:A:PHE:HD1  | 1:55:A:ILE:HG12 | 19       | 0.58          |
| (1,269) | 1:46:A:PHE:HD2  | 1:55:A:ILE:HG12 | 19       | 0.58          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 19       | 0.58          |
| (1,339) | 1:10:A:LYS:HB3  | 1:11:A:LYS:H    | 7        | 0.57          |
| (1,281) | 1:11:A:LYS:HB2  | 1:42:A:ASN:HD21 | 10       | 0.57          |
| (1,198) | 1:9:A:PRO:HB2   | 1:42:A:ASN:HD22 | 12       | 0.57          |
| (1,172) | 1:10:A:LYS:HG2  | 1:34:A:PHE:HB3  | 20       | 0.57          |
| (1,107) | 1:27:A:GLU:HG3  | 1:28:A:THR:HG21 | 5        | 0.57          |
| (1,107) | 1:27:A:GLU:HG3  | 1:28:A:THR:HG22 | 5        | 0.57          |
| (1,107) | 1:27:A:GLU:HG3  | 1:28:A:THR:HG23 | 5        | 0.57          |
| (1,99)  | 1:57:A:ARG:HG3  | 1:58:A:ALA:H    | 15       | 0.57          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD1  | 12       | 0.56          |
| (1,344) | 1:21:A:ARG:HD2  | 1:36:A:TYR:HD2  | 12       | 0.56          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 20       | 0.56          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 20       | 0.56          |
| (1,99)  | 1:57:A:ARG:HG3  | 1:58:A:ALA:H    | 9        | 0.56          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,79)  | 1:21:A:ARG:HG3 | 1:36:A:TYR:HB3  | 18       | 0.56          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 19       | 0.56          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 10       | 0.55          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 16       | 0.55          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 10       | 0.55          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 17       | 0.55          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 17       | 0.55          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 3        | 0.55          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 17       | 0.55          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 20       | 0.55          |
| (1,344) | 1:21:A:ARG:HD2 | 1:36:A:TYR:HD1  | 8        | 0.54          |
| (1,344) | 1:21:A:ARG:HD2 | 1:36:A:TYR:HD2  | 8        | 0.54          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 14       | 0.54          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 18       | 0.54          |
| (1,198) | 1:9:A:PRO:HB2  | 1:42:A:ASN:HD22 | 19       | 0.54          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 19       | 0.54          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 20       | 0.54          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 20       | 0.54          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 5        | 0.54          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 10       | 0.53          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 3        | 0.53          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 3        | 0.53          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 11       | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 3        | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 4        | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 6        | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 14       | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 17       | 0.53          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 18       | 0.53          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 13       | 0.53          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 6        | 0.53          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 14       | 0.53          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 15       | 0.53          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 8        | 0.52          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 9        | 0.52          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 17       | 0.52          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 12       | 0.52          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 10       | 0.52          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 12       | 0.52          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 16       | 0.52          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 20       | 0.52          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 8        | 0.52          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,344) | 1:21:A:ARG:HD2 | 1:36:A:TYR:HD1  | 5        | 0.51          |
| (1,344) | 1:21:A:ARG:HD2 | 1:36:A:TYR:HD2  | 5        | 0.51          |
| (1,184) | 1:34:A:PHE:HE1 | 1:45:A:ASN:HD22 | 6        | 0.51          |
| (1,184) | 1:34:A:PHE:HE2 | 1:45:A:ASN:HD22 | 6        | 0.51          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 6        | 0.51          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 6        | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 1        | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 7        | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 11       | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 13       | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 15       | 0.51          |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 19       | 0.51          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 20       | 0.51          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 2        | 0.5           |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 12       | 0.5           |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 19       | 0.5           |
| (1,79)  | 1:21:A:ARG:HG3 | 1:36:A:TYR:HB3  | 8        | 0.5           |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 2        | 0.5           |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 8        | 0.5           |
| (1,66)  | 1:32:A:THR:HA  | 1:33:A:PRO:HB2  | 9        | 0.5           |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 9        | 0.5           |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 13       | 0.5           |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 3        | 0.49          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 4        | 0.49          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 15       | 0.49          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 15       | 0.49          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 14       | 0.49          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 14       | 0.49          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG21 | 4        | 0.48          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG22 | 4        | 0.48          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG23 | 4        | 0.48          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG21 | 9        | 0.48          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG22 | 9        | 0.48          |
| (1,407) | 1:12:A:VAL:H   | 1:12:A:VAL:HG23 | 9        | 0.48          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 13       | 0.48          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 19       | 0.48          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 17       | 0.48          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD11 | 14       | 0.48          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD12 | 14       | 0.48          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD13 | 14       | 0.48          |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD11 | 14       | 0.48          |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD12 | 14       | 0.48          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,264) | 1:22:A:PHE:HE2  | 1:49:A:LEU:HD13 | 14       | 0.48          |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 1        | 0.48          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 13       | 0.48          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 13       | 0.48          |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 8        | 0.48          |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 8        | 0.48          |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 8        | 0.48          |
| (1,79)  | 1:21:A:ARG:HG3  | 1:36:A:TYR:HB3  | 13       | 0.48          |
| (1,397) | 1:48:A:THR:HG21 | 1:49:A:LEU:H    | 16       | 0.47          |
| (1,397) | 1:48:A:THR:HG22 | 1:49:A:LEU:H    | 16       | 0.47          |
| (1,397) | 1:48:A:THR:HG23 | 1:49:A:LEU:H    | 16       | 0.47          |
| (1,396) | 1:8:A:GLU:H     | 1:8:A:GLU:HG2   | 9        | 0.47          |
| (1,339) | 1:10:A:LYS:HB3  | 1:11:A:LYS:H    | 14       | 0.47          |
| (1,284) | 1:7:A:SER:HB3   | 1:8:A:GLU:HG2   | 2        | 0.47          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 7        | 0.47          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 7        | 0.47          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 8        | 0.47          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 8        | 0.47          |
| (1,114) | 1:24:A:PHE:HZ   | 1:57:A:ARG:HB2  | 5        | 0.47          |
| (1,368) | 1:49:A:LEU:HB2  | 1:50:A:HIS:H    | 2        | 0.46          |
| (1,368) | 1:49:A:LEU:HB2  | 1:50:A:HIS:H    | 11       | 0.46          |
| (1,339) | 1:10:A:LYS:HB3  | 1:11:A:LYS:H    | 6        | 0.46          |
| (1,322) | 1:8:A:GLU:HB2   | 1:42:A:ASN:HD21 | 19       | 0.46          |
| (1,301) | 1:55:A:ILE:H    | 1:55:A:ILE:HG13 | 9        | 0.46          |
| (1,172) | 1:10:A:LYS:HG2  | 1:34:A:PHE:HB3  | 14       | 0.46          |
| (1,151) | 1:34:A:PHE:HE1  | 1:36:A:TYR:HB3  | 1        | 0.46          |
| (1,151) | 1:34:A:PHE:HE2  | 1:36:A:TYR:HB3  | 1        | 0.46          |
| (1,48)  | 1:20:A:PRO:HG3  | 1:21:A:ARG:H    | 4        | 0.46          |
| (1,4)   | 1:10:A:LYS:HG3  | 1:34:A:PHE:HZ   | 1        | 0.46          |
| (1,415) | 1:47:A:GLU:H    | 1:47:A:GLU:HB2  | 4        | 0.45          |
| (1,415) | 1:47:A:GLU:H    | 1:47:A:GLU:HB2  | 12       | 0.45          |
| (1,415) | 1:47:A:GLU:H    | 1:47:A:GLU:HB2  | 17       | 0.45          |
| (1,415) | 1:47:A:GLU:H    | 1:47:A:GLU:HB2  | 18       | 0.45          |
| (1,396) | 1:8:A:GLU:H     | 1:8:A:GLU:HG2   | 2        | 0.45          |
| (1,396) | 1:8:A:GLU:H     | 1:8:A:GLU:HG2   | 15       | 0.45          |
| (1,368) | 1:49:A:LEU:HB2  | 1:50:A:HIS:H    | 3        | 0.45          |
| (1,368) | 1:49:A:LEU:HB2  | 1:50:A:HIS:H    | 18       | 0.45          |
| (1,339) | 1:10:A:LYS:HB3  | 1:11:A:LYS:H    | 11       | 0.45          |
| (1,233) | 1:30:A:LYS:H    | 1:30:A:LYS:HG3  | 14       | 0.45          |
| (1,134) | 1:1:A:ILE:HG21  | 1:4:A:ASN:HB3   | 11       | 0.45          |
| (1,134) | 1:1:A:ILE:HG22  | 1:4:A:ASN:HB3   | 11       | 0.45          |
| (1,134) | 1:1:A:ILE:HG23  | 1:4:A:ASN:HB3   | 11       | 0.45          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 18       | 0.45          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 6        | 0.44          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 8        | 0.44          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 13       | 0.44          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 20       | 0.44          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 10       | 0.44          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 19       | 0.44          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 5        | 0.44          |
| (1,180) | 1:5:A:ILE:HG21 | 1:46:A:PHE:HZ   | 20       | 0.44          |
| (1,180) | 1:5:A:ILE:HG22 | 1:46:A:PHE:HZ   | 20       | 0.44          |
| (1,180) | 1:5:A:ILE:HG23 | 1:46:A:PHE:HZ   | 20       | 0.44          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 20       | 0.44          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 20       | 0.44          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 18       | 0.44          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 19       | 0.44          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 6        | 0.44          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 17       | 0.44          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 12       | 0.44          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 1        | 0.43          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 3        | 0.43          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 15       | 0.43          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 16       | 0.43          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 19       | 0.43          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 9        | 0.43          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 15       | 0.43          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 9        | 0.43          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 15       | 0.43          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 15       | 0.43          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 14       | 0.43          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 14       | 0.43          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 2        | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 5        | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 7        | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 9        | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 10       | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 11       | 0.42          |
| (1,415) | 1:47:A:GLU:H   | 1:47:A:GLU:HB2  | 14       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 7        | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 7        | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 7        | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 10       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 10       | 0.42          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 10       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 11       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 11       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 11       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 16       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 16       | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 16       | 0.42          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 2        | 0.42          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 4        | 0.42          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 18       | 0.42          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 18       | 0.42          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 20       | 0.42          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 4        | 0.42          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 2        | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 2        | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 2        | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 14       | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 14       | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 14       | 0.41          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 9        | 0.41          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 9        | 0.41          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG21 | 2        | 0.41          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG22 | 2        | 0.41          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG23 | 2        | 0.41          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 7        | 0.41          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 9        | 0.4           |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 9        | 0.4           |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 9        | 0.4           |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 4        | 0.4           |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 8        | 0.4           |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 11       | 0.4           |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD11 | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD12 | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD13 | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD11 | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD12 | 6        | 0.4           |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD13 | 6        | 0.4           |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 14       | 0.4           |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 1        | 0.4           |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 1        | 0.4           |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 1        | 0.4           |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 5        | 0.4           |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 8        | 0.4           |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 11       | 0.39          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 16       | 0.39          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 17       | 0.39          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 18       | 0.39          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 19       | 0.39          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 17       | 0.39          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 5        | 0.39          |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 16       | 0.39          |
| (1,79)  | 1:21:A:ARG:HG3 | 1:36:A:TYR:HB3  | 1        | 0.39          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 8        | 0.39          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 11       | 0.39          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 15       | 0.39          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 7        | 0.39          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 5        | 0.38          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 5        | 0.38          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 5        | 0.38          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 8        | 0.38          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 14       | 0.38          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 20       | 0.38          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 15       | 0.38          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 16       | 0.38          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 16       | 0.38          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 2        | 0.38          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 7        | 0.37          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 10       | 0.37          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 19       | 0.37          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 13       | 0.37          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 20       | 0.37          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 12       | 0.37          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 16       | 0.37          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 4        | 0.37          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 4        | 0.37          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 18       | 0.37          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 18       | 0.37          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 19       | 0.37          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 19       | 0.37          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE1  | 17       | 0.37          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE2  | 17       | 0.37          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 9        | 0.37          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 6        | 0.37          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 5        | 0.36          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 13       | 0.36          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 7        | 0.36          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 10       | 0.36          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 14       | 0.36          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD11 | 16       | 0.36          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD12 | 16       | 0.36          |
| (1,264) | 1:22:A:PHE:HE1 | 1:49:A:LEU:HD13 | 16       | 0.36          |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD11 | 16       | 0.36          |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD12 | 16       | 0.36          |
| (1,264) | 1:22:A:PHE:HE2 | 1:49:A:LEU:HD13 | 16       | 0.36          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 3        | 0.36          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 7        | 0.36          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 12       | 0.36          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 12       | 0.36          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 6        | 0.36          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 6        | 0.36          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 14       | 0.36          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 14       | 0.36          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 1        | 0.36          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 15       | 0.36          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 12       | 0.35          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 7        | 0.35          |
| (1,339) | 1:10:A:LYS:HB3 | 1:11:A:LYS:H    | 1        | 0.35          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 8        | 0.35          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 4        | 0.35          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 7        | 0.35          |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 6        | 0.35          |
| (1,44)  | 1:45:A:ASN:H   | 1:46:A:PHE:HZ   | 6        | 0.35          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 3        | 0.35          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 1        | 0.34          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 6        | 0.34          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 16       | 0.34          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 17       | 0.34          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 1        | 0.34          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 5        | 0.34          |
| (1,284) | 1:7:A:SER:HB3  | 1:8:A:GLU:HG2   | 9        | 0.34          |
| (1,199) | 1:30:A:LYS:HD3 | 1:31:A:CYS:H    | 15       | 0.34          |
| (1,198) | 1:9:A:PRO:HB2  | 1:42:A:ASN:HD22 | 13       | 0.34          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 10       | 0.34          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 10       | 0.34          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 3        | 0.34          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 3        | 0.34          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD1  | 20       | 0.34          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD2  | 20       | 0.34          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 10       | 0.34          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 16       | 0.34          |
| (1,410) | 1:8:A:GLU:H    | 1:8:A:GLU:HB3   | 3        | 0.33          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 5        | 0.33          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 12       | 0.33          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 20       | 0.33          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 17       | 0.33          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 11       | 0.33          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 13       | 0.33          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG21 | 7        | 0.33          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG22 | 7        | 0.33          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG23 | 7        | 0.33          |
| (1,199) | 1:30:A:LYS:HD3 | 1:31:A:CYS:H    | 5        | 0.33          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 15       | 0.33          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 15       | 0.33          |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 18       | 0.33          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 17       | 0.33          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 1        | 0.32          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 2        | 0.32          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 6        | 0.32          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 14       | 0.32          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 16       | 0.32          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 9        | 0.32          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 9        | 0.32          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 13       | 0.31          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 17       | 0.31          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 17       | 0.31          |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 6        | 0.31          |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 8        | 0.31          |
| (1,12)  | 1:1:A:ILE:HG12 | 1:2:A:GLN:HE22  | 19       | 0.31          |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 16       | 0.31          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 8        | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 9        | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 14       | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 15       | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 16       | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 19       | 0.3           |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 20       | 0.3           |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 20       | 0.3           |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,275) | 1:35:A:ILE:H   | 1:35:A:ILE:HG12 | 1        | 0.3           |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 4        | 0.3           |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 5        | 0.3           |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 10       | 0.3           |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 13       | 0.3           |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 13       | 0.3           |
| (4,63)  | 1:6:A:CYS:SG   | 1:56:A:CYS:SG   | 7        | 0.29          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 19       | 0.29          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 8        | 0.29          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 10       | 0.29          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG21 | 19       | 0.29          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG22 | 19       | 0.29          |
| (1,59)  | 1:10:A:LYS:HG3 | 1:12:A:VAL:HG23 | 19       | 0.29          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 12       | 0.29          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 11       | 0.29          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 12       | 0.29          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 12       | 0.29          |
| (1,18)  | 1:21:A:ARG:HE  | 1:47:A:GLU:HG3  | 18       | 0.29          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 10       | 0.29          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 13       | 0.29          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 20       | 0.28          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 5        | 0.28          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 5        | 0.28          |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 1        | 0.28          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 16       | 0.27          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 12       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG21 | 13       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG22 | 13       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG23 | 13       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG21 | 19       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG22 | 19       | 0.27          |
| (1,107) | 1:27:A:GLU:HG3 | 1:28:A:THR:HG23 | 19       | 0.27          |
| (1,74)  | 1:19:A:PHE:HZ  | 1:21:A:ARG:HD2  | 7        | 0.27          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 19       | 0.27          |
| (1,48)  | 1:20:A:PRO:HG3 | 1:21:A:ARG:H    | 2        | 0.27          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 5        | 0.27          |
| (1,4)   | 1:10:A:LYS:HG3 | 1:34:A:PHE:HZ   | 16       | 0.27          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 14       | 0.27          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 14       | 0.27          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 19       | 0.27          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 19       | 0.27          |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 3        | 0.26          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD1  | 7        | 0.26          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD2  | 7        | 0.26          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE1  | 16       | 0.26          |
| (1,1)   | 1:5:A:ILE:HG12 | 1:46:A:PHE:HE2  | 16       | 0.26          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 13       | 0.25          |
| (1,275) | 1:35:A:ILE:H   | 1:35:A:ILE:HG12 | 19       | 0.25          |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 9        | 0.25          |
| (1,192) | 1:57:A:ARG:H   | 1:57:A:ARG:HG2  | 7        | 0.25          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 3        | 0.25          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD1  | 3        | 0.25          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD2  | 3        | 0.25          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 18       | 0.25          |
| (1,301) | 1:55:A:ILE:H   | 1:55:A:ILE:HG13 | 7        | 0.24          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE1  | 11       | 0.24          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE2  | 11       | 0.24          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 12       | 0.24          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 12       | 0.24          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 17       | 0.24          |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 14       | 0.24          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 6        | 0.23          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 2        | 0.23          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 2        | 0.23          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 9        | 0.23          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE1  | 2        | 0.23          |
| (1,126) | 1:10:A:LYS:HD3 | 1:23:A:TYR:HE2  | 2        | 0.23          |
| (2,51)  | 1:9:A:PRO:O    | 1:42:A:ASN:HD21 | 10       | 0.22          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 5        | 0.22          |
| (2,45)  | 1:21:A:ARG:O   | 1:34:A:PHE:H    | 13       | 0.22          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 6        | 0.22          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 20       | 0.22          |
| (1,244) | 1:33:A:PRO:HB3 | 1:34:A:PHE:H    | 8        | 0.22          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG21 | 10       | 0.22          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG22 | 10       | 0.22          |
| (1,236) | 1:18:A:SER:HB2 | 1:35:A:ILE:HG23 | 10       | 0.22          |
| (1,199) | 1:30:A:LYS:HD3 | 1:31:A:CYS:H    | 16       | 0.22          |
| (1,182) | 1:53:A:ARG:HG2 | 1:57:A:ARG:HH21 | 5        | 0.22          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 6        | 0.22          |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 9        | 0.22          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 9        | 0.22          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 10       | 0.22          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 12       | 0.22          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 15       | 0.22          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 18       | 0.21          |
| (1,423) | 1:6:A:CYS:CB   | 1:56:A:CYS:SG   | 7        | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 1        | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 1        | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 1        | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 13       | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 13       | 0.21          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 13       | 0.21          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 13       | 0.21          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 11       | 0.21          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 11       | 0.21          |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 11       | 0.21          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 1        | 0.21          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 1        | 0.21          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 13       | 0.21          |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 3        | 0.21          |
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 3        | 0.21          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 13       | 0.21          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 13       | 0.21          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 1        | 0.21          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 2        | 0.21          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 8        | 0.21          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 11       | 0.21          |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 20       | 0.21          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 5        | 0.2           |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 14       | 0.2           |
| (1,336) | 1:42:A:ASN:HB3 | 1:43:A:GLY:H    | 5        | 0.2           |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 8        | 0.2           |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 7        | 0.2           |
| (1,239) | 1:2:A:GLN:H    | 1:3:A:GLY:HA3   | 3        | 0.2           |
| (1,120) | 1:30:A:LYS:H   | 1:30:A:LYS:HD3  | 8        | 0.2           |
| (1,114) | 1:24:A:PHE:HZ  | 1:57:A:ARG:HB2  | 12       | 0.2           |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 7        | 0.2           |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 10       | 0.2           |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD1  | 8        | 0.2           |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD2  | 8        | 0.2           |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 17       | 0.2           |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 9        | 0.19          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 10       | 0.19          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 2        | 0.19          |
| (1,244) | 1:33:A:PRO:HB3 | 1:34:A:PHE:H    | 1        | 0.19          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 2        | 0.19          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 2        | 0.19          |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 17       | 0.19          |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 6        | 0.19          |
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 6        | 0.19          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD1  | 19       | 0.19          |
| (1,54)  | 1:10:A:LYS:HE2 | 1:34:A:PHE:HD2  | 19       | 0.19          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 19       | 0.19          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 1        | 0.18          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 15       | 0.18          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 8        | 0.18          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 18       | 0.18          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 19       | 0.18          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 20       | 0.18          |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 13       | 0.18          |
| (1,244) | 1:33:A:PRO:HB3 | 1:34:A:PHE:H    | 13       | 0.18          |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 16       | 0.18          |
| (1,160) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA2  | 17       | 0.18          |
| (1,160) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA2  | 17       | 0.18          |
| (1,79)  | 1:21:A:ARG:HG3 | 1:36:A:TYR:HB3  | 4        | 0.18          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 18       | 0.18          |
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 6        | 0.18          |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 15       | 0.17          |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 18       | 0.17          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 17       | 0.17          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 12       | 0.17          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 13       | 0.17          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 6        | 0.17          |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 1        | 0.17          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 8        | 0.17          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 14       | 0.17          |
| (1,244) | 1:33:A:PRO:HB3 | 1:34:A:PHE:H    | 7        | 0.17          |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 20       | 0.17          |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 12       | 0.17          |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 19       | 0.17          |
| (1,193) | 1:29:A:GLY:HA3 | 1:57:A:ARG:HE   | 12       | 0.17          |
| (1,184) | 1:34:A:PHE:HE1 | 1:45:A:ASN:HD22 | 10       | 0.17          |
| (1,184) | 1:34:A:PHE:HE2 | 1:45:A:ASN:HD22 | 10       | 0.17          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 5        | 0.17          |
| (1,172) | 1:10:A:LYS:HG2 | 1:34:A:PHE:HB3  | 17       | 0.17          |
| (1,165) | 1:53:A:ARG:HE  | 1:57:A:ARG:HB3  | 18       | 0.17          |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD1  | 13       | 0.17          |
| (1,13)  | 1:10:A:LYS:HD3 | 1:34:A:PHE:HD2  | 13       | 0.17          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,8)   | 1:21:A:ARG:H   | 1:21:A:ARG:HD2  | 3        | 0.17          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 13       | 0.16          |
| (2,45)  | 1:21:A:ARG:O   | 1:34:A:PHE:H    | 7        | 0.16          |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 5        | 0.16          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 7        | 0.16          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 11       | 0.16          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 15       | 0.16          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 16       | 0.16          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 4        | 0.16          |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 9        | 0.16          |
| (1,160) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA2  | 4        | 0.16          |
| (1,160) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA2  | 4        | 0.16          |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD11 | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD12 | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD13 | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD11 | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD12 | 15       | 0.16          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD13 | 15       | 0.16          |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 16       | 0.16          |
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 16       | 0.16          |
| (1,19)  | 1:21:A:ARG:H   | 1:21:A:ARG:HD3  | 13       | 0.16          |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 9        | 0.15          |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 18       | 0.15          |
| (2,45)  | 1:21:A:ARG:O   | 1:34:A:PHE:H    | 8        | 0.15          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 2        | 0.15          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 4        | 0.15          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 7        | 0.15          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 9        | 0.15          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 1        | 0.15          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 8        | 0.15          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 19       | 0.15          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 1        | 0.15          |
| (1,184) | 1:34:A:PHE:HE1 | 1:45:A:ASN:HD22 | 18       | 0.15          |
| (1,184) | 1:34:A:PHE:HE2 | 1:45:A:ASN:HD22 | 18       | 0.15          |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 4        | 0.15          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 6        | 0.15          |
| (2,52)  | 1:8:A:GLU:OE1  | 1:44:A:ASN:H    | 1        | 0.14          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 4        | 0.14          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 10       | 0.14          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 8        | 0.14          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 11       | 0.14          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 6        | 0.14          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 16       | 0.14          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 14       | 0.14          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 17       | 0.14          |
| (1,233) | 1:30:A:LYS:H   | 1:30:A:LYS:HG3  | 11       | 0.14          |
| (1,223) | 1:55:A:ILE:H   | 1:55:A:ILE:HG12 | 18       | 0.14          |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 7        | 0.14          |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 7        | 0.14          |
| (1,168) | 1:18:A:SER:H   | 1:19:A:PHE:HE1  | 17       | 0.14          |
| (1,168) | 1:18:A:SER:H   | 1:19:A:PHE:HE2  | 17       | 0.14          |
| (1,160) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA2  | 14       | 0.14          |
| (1,160) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA2  | 14       | 0.14          |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 18       | 0.14          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 19       | 0.14          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 19       | 0.14          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 5        | 0.14          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 5        | 0.14          |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 10       | 0.13          |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 7        | 0.13          |
| (2,49)  | 1:37:A:GLY:O   | 1:39:A:CYS:H    | 17       | 0.13          |
| (2,45)  | 1:21:A:ARG:O   | 1:34:A:PHE:H    | 1        | 0.13          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 20       | 0.13          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 11       | 0.13          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 12       | 0.13          |
| (1,396) | 1:8:A:GLU:H    | 1:8:A:GLU:HG2   | 3        | 0.13          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 5        | 0.13          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 6        | 0.13          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 15       | 0.13          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 16       | 0.13          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 14       | 0.13          |
| (1,336) | 1:42:A:ASN:HB3 | 1:43:A:GLY:H    | 10       | 0.13          |
| (1,288) | 1:53:A:ARG:HG2 | 1:54:A:ALA:H    | 6        | 0.13          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 16       | 0.13          |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 16       | 0.13          |
| (1,229) | 1:53:A:ARG:HA  | 1:58:A:ALA:H    | 9        | 0.13          |
| (1,223) | 1:55:A:ILE:H   | 1:55:A:ILE:HG12 | 10       | 0.13          |
| (1,193) | 1:29:A:GLY:HA3 | 1:57:A:ARG:HE   | 18       | 0.13          |
| (1,192) | 1:57:A:ARG:H   | 1:57:A:ARG:HG2  | 16       | 0.13          |
| (1,82)  | 1:45:A:ASN:H   | 1:46:A:PHE:HD1  | 6        | 0.13          |
| (1,82)  | 1:45:A:ASN:H   | 1:46:A:PHE:HD2  | 6        | 0.13          |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 17       | 0.13          |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 8        | 0.13          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 2        | 0.12          |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 15       | 0.12          |
| (2,37)  | 1:22:A:PHE:H   | 1:46:A:PHE:O    | 15       | 0.12          |
| (2,37)  | 1:22:A:PHE:H   | 1:46:A:PHE:O    | 18       | 0.12          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 13       | 0.12          |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 14       | 0.12          |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 4        | 0.12          |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 10       | 0.12          |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 18       | 0.12          |
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 3        | 0.12          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 8        | 0.12          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 11       | 0.12          |
| (1,372) | 1:12:A:VAL:H   | 1:12:A:VAL:HB   | 18       | 0.12          |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 4        | 0.12          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 12       | 0.12          |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 12       | 0.12          |
| (1,232) | 1:14:A:ARG:H   | 1:14:A:ARG:HG3  | 1        | 0.12          |
| (1,229) | 1:53:A:ARG:HA  | 1:58:A:ALA:H    | 4        | 0.12          |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 5        | 0.12          |
| (1,160) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA2  | 20       | 0.12          |
| (1,160) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA2  | 20       | 0.12          |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 17       | 0.12          |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 2        | 0.12          |
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 2        | 0.12          |
| (1,124) | 1:22:A:PHE:HD1 | 1:33:A:PRO:HB2  | 11       | 0.12          |
| (1,124) | 1:22:A:PHE:HD2 | 1:33:A:PRO:HB2  | 11       | 0.12          |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 11       | 0.12          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 4        | 0.12          |
| (4,66)  | 1:15:A:CYS:SG  | 1:39:A:CYS:SG   | 15       | 0.11          |
| (2,61)  | 1:51:A:ALA:O   | 1:55:A:ILE:H    | 12       | 0.11          |
| (2,55)  | 1:43:A:GLY:O   | 1:45:A:ASN:H    | 13       | 0.11          |
| (2,52)  | 1:8:A:GLU:OE1  | 1:44:A:ASN:H    | 6        | 0.11          |
| (2,49)  | 1:37:A:GLY:O   | 1:39:A:CYS:H    | 14       | 0.11          |
| (2,48)  | 1:12:A:VAL:O   | 1:37:A:GLY:H    | 6        | 0.11          |
| (2,37)  | 1:22:A:PHE:H   | 1:46:A:PHE:O    | 4        | 0.11          |
| (2,37)  | 1:22:A:PHE:H   | 1:46:A:PHE:O    | 12       | 0.11          |
| (1,436) | 1:8:A:GLU:H    | 1:44:A:ASN:HB2  | 7        | 0.11          |
| (1,422) | 1:6:A:CYS:SG   | 1:56:A:CYS:CB   | 7        | 0.11          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG21 | 8        | 0.11          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG22 | 8        | 0.11          |
| (1,414) | 1:47:A:GLU:HG2 | 1:48:A:THR:HG23 | 8        | 0.11          |
| (1,408) | 1:41:A:GLY:HA2 | 1:42:A:ASN:H    | 13       | 0.11          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,389) | 1:10:A:LYS:H   | 1:10:A:LYS:HB2  | 17       | 0.11          |
| (1,349) | 1:16:A:ARG:H   | 1:16:A:ARG:HG3  | 8        | 0.11          |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 7        | 0.11          |
| (1,305) | 1:21:A:ARG:HB2 | 1:22:A:PHE:H    | 5        | 0.11          |
| (1,270) | 1:23:A:TYR:HE1 | 1:25:A:ASP:HB3  | 17       | 0.11          |
| (1,270) | 1:23:A:TYR:HE2 | 1:25:A:ASP:HB3  | 17       | 0.11          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 7        | 0.11          |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 7        | 0.11          |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 13       | 0.11          |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 13       | 0.11          |
| (1,214) | 1:40:A:GLY:H   | 1:41:A:GLY:H    | 5        | 0.11          |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 14       | 0.11          |
| (1,192) | 1:57:A:ARG:H   | 1:57:A:ARG:HG2  | 3        | 0.11          |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD11 | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD12 | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE1 | 1:55:A:ILE:HD13 | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD11 | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD12 | 14       | 0.11          |
| (1,133) | 1:46:A:PHE:HE2 | 1:55:A:ILE:HD13 | 14       | 0.11          |
| (1,132) | 1:19:A:PHE:HD1 | 1:38:A:GLY:HA3  | 1        | 0.11          |
| (1,132) | 1:19:A:PHE:HD2 | 1:38:A:GLY:HA3  | 1        | 0.11          |
| (1,87)  | 1:22:A:PHE:HD1 | 1:46:A:PHE:HB3  | 16       | 0.11          |
| (1,87)  | 1:22:A:PHE:HD2 | 1:46:A:PHE:HB3  | 16       | 0.11          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE1  | 16       | 0.11          |
| (1,78)  | 1:10:A:LYS:HE3 | 1:23:A:TYR:HE2  | 16       | 0.11          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 1        | 0.11          |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 5        | 0.11          |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 13       | 0.11          |
| (1,23)  | 1:36:A:TYR:HE2 | 1:38:A:GLY:HA3  | 15       | 0.11          |
| (1,16)  | 1:10:A:LYS:HD3 | 1:23:A:TYR:HD1  | 17       | 0.11          |
| (1,16)  | 1:10:A:LYS:HD3 | 1:23:A:TYR:HD2  | 17       | 0.11          |
| (1,7)   | 1:17:A:GLY:HA2 | 1:19:A:PHE:HZ   | 3        | 0.11          |
| (4,63)  | 1:6:A:CYS:SG   | 1:56:A:CYS:SG   | 14       | 0.1           |
| (2,52)  | 1:8:A:GLU:OE1  | 1:44:A:ASN:H    | 3        | 0.1           |
| (2,52)  | 1:8:A:GLU:OE1  | 1:44:A:ASN:H    | 13       | 0.1           |
| (2,49)  | 1:37:A:GLY:O   | 1:39:A:CYS:H    | 5        | 0.1           |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 10       | 0.1           |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 12       | 0.1           |
| (2,35)  | 1:19:A:PHE:H   | 1:36:A:TYR:O    | 18       | 0.1           |
| (1,368) | 1:49:A:LEU:HB2 | 1:50:A:HIS:H    | 12       | 0.1           |
| (1,322) | 1:8:A:GLU:HB2  | 1:42:A:ASN:HD21 | 6        | 0.1           |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,270) | 1:23:A:TYR:HE1 | 1:25:A:ASP:HB3  | 11       | 0.1           |
| (1,270) | 1:23:A:TYR:HE2 | 1:25:A:ASP:HB3  | 11       | 0.1           |
| (1,234) | 1:23:A:TYR:HD1 | 1:25:A:ASP:HB2  | 20       | 0.1           |
| (1,234) | 1:23:A:TYR:HD2 | 1:25:A:ASP:HB2  | 20       | 0.1           |
| (1,206) | 1:5:A:ILE:HG13 | 1:6:A:CYS:H     | 8        | 0.1           |
| (1,192) | 1:57:A:ARG:H   | 1:57:A:ARG:HG2  | 19       | 0.1           |
| (1,190) | 1:11:A:LYS:HB2 | 1:13:A:GLY:H    | 13       | 0.1           |
| (1,175) | 1:23:A:TYR:HE1 | 1:44:A:ASN:HD22 | 11       | 0.1           |
| (1,175) | 1:23:A:TYR:HE2 | 1:44:A:ASN:HD22 | 11       | 0.1           |
| (1,136) | 1:19:A:PHE:H   | 1:37:A:GLY:HA2  | 19       | 0.1           |
| (1,121) | 1:36:A:TYR:HE1 | 1:41:A:GLY:HA2  | 11       | 0.1           |
| (1,55)  | 1:9:A:PRO:HG2  | 1:10:A:LYS:HD2  | 2        | 0.1           |
| (1,50)  | 1:11:A:LYS:HG3 | 1:12:A:VAL:H    | 7        | 0.1           |
| (1,47)  | 1:21:A:ARG:HG2 | 1:36:A:TYR:HE1  | 8        | 0.1           |
| (1,44)  | 1:45:A:ASN:H   | 1:46:A:PHE:HZ   | 14       | 0.1           |
| (1,44)  | 1:45:A:ASN:H   | 1:46:A:PHE:HZ   | 20       | 0.1           |

## 10 Dihedral-angle violation analysis (i)

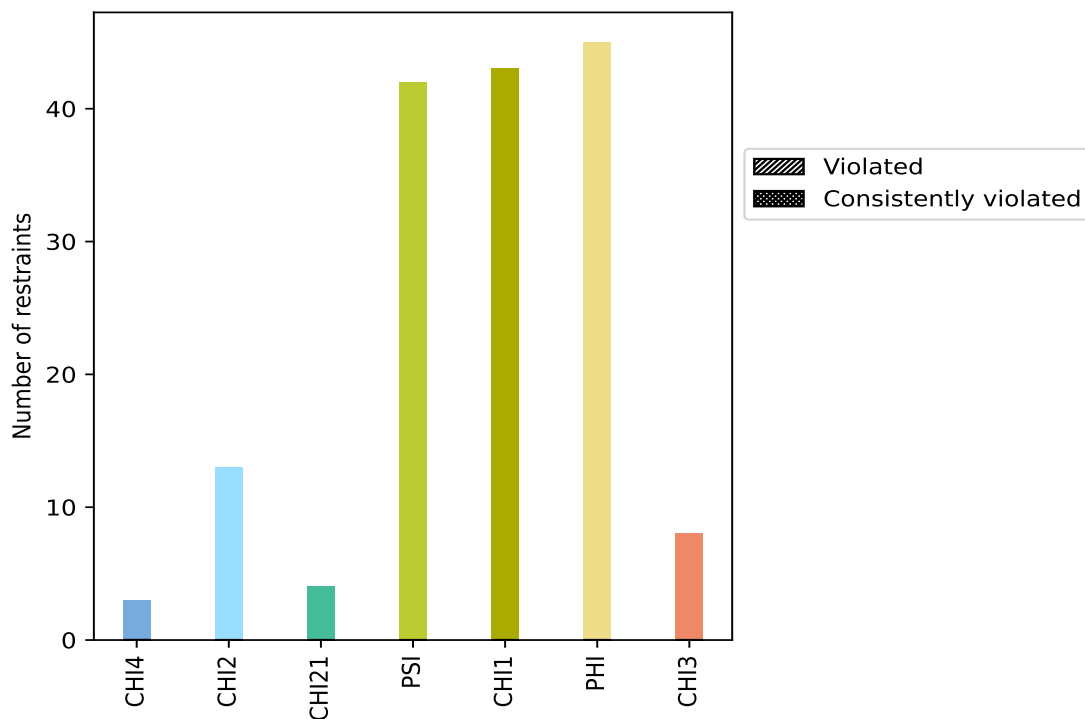
### 10.1 Summary of dihedral-angle violations (i)

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> |
| CHI4       | 3     | 1.9            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| CHI2       | 13    | 8.2            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| CHI21      | 4     | 2.5            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| PSI        | 42    | 26.6           | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| CHI1       | 43    | 27.2           | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| PHI        | 45    | 28.5           | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| CHI3       | 8     | 5.1            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Total      | 158   | 100.0          | 0                     | 0.0            | 0.0            | 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](#)

No violations found

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

No violations found

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

No violations found

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

No violations found