



# Full wwPDB NMR Structure Validation Report ⓘ

Jun 6, 2023 – 04:51 AM EDT

PDB ID : 2MJB  
BMRB ID : 6457  
Title : Solution nmr structure of ubiquitin refined against dipolar couplings in 4 media  
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Deposited on : 2014-01-02

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at  
<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
wwPDB-RCI : v\_1n\_11\_5\_13\_A (Berjanski et al., 2005)  
PANAV : Wang et al. (2010)  
wwPDB-ShiftChecker : v1.2  
BMRB Restraints Analysis : v1.2  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.33

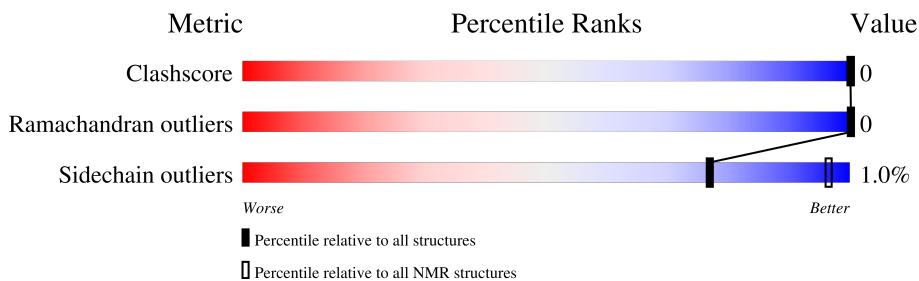
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 87%.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and a grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 76     | 96% .            |

## 2 Ensemble composition and analysis i

This entry contains 20 models. Model 11 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *closest to the average*.

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:1-A:73 (73)         | 0.11              | 11           |

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

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

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

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

### 3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 1231 atoms, of which 629 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Ubiquitin-60S ribosomal protein L40.

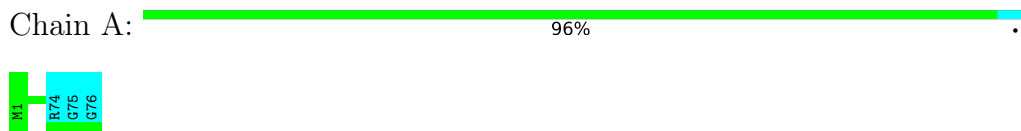
| Mol | Chain | Residues | Atoms |     |     |     |     |   | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|-------|
|     |       |          | Total | C   | H   | N   | O   | S |       |
| 1   | A     | 76       | 1231  | 378 | 629 | 105 | 118 | 1 | 0     |

## 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: Ubiquitin-60S ribosomal protein L40

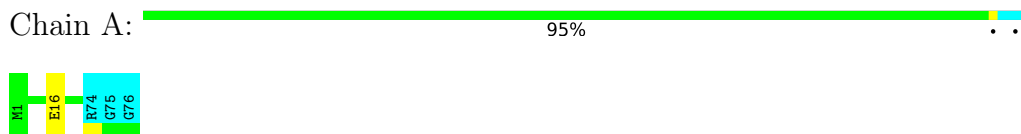


### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

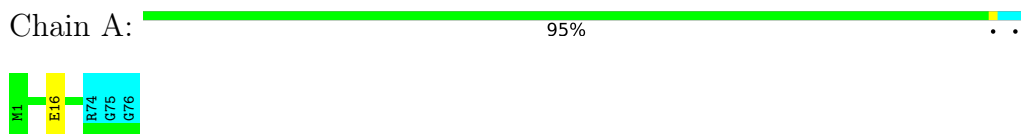
#### 4.2.1 Score per residue for model 1

- Molecule 1: Ubiquitin-60S ribosomal protein L40



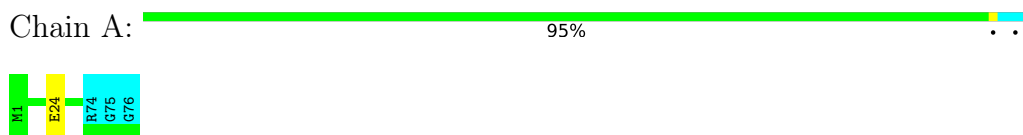
#### 4.2.2 Score per residue for model 2

- Molecule 1: Ubiquitin-60S ribosomal protein L40



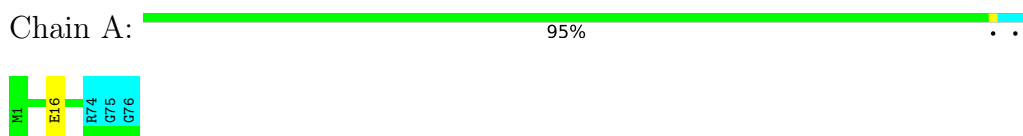
### 4.2.3 Score per residue for model 3

- Molecule 1: Ubiquitin-60S ribosomal protein L40



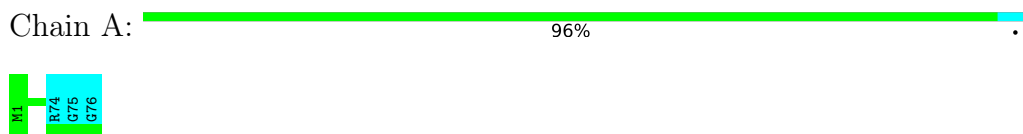
### 4.2.4 Score per residue for model 4

- Molecule 1: Ubiquitin-60S ribosomal protein L40



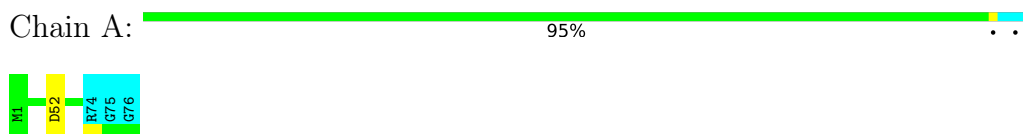
### 4.2.5 Score per residue for model 5

- Molecule 1: Ubiquitin-60S ribosomal protein L40



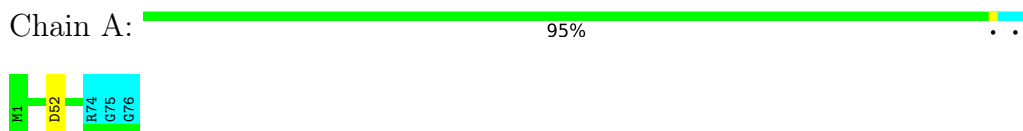
### 4.2.6 Score per residue for model 6

- Molecule 1: Ubiquitin-60S ribosomal protein L40



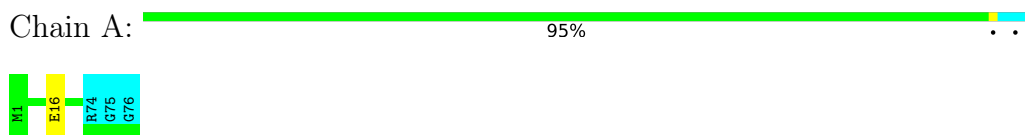
### 4.2.7 Score per residue for model 7

- Molecule 1: Ubiquitin-60S ribosomal protein L40



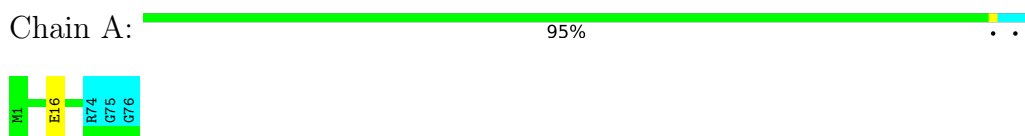
#### 4.2.8 Score per residue for model 8

- Molecule 1: Ubiquitin-60S ribosomal protein L40



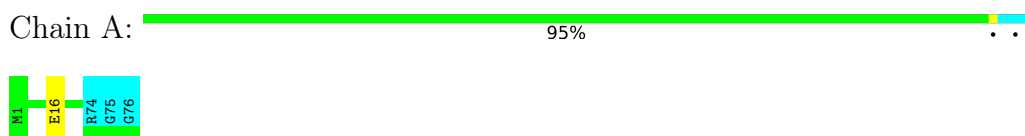
#### 4.2.9 Score per residue for model 9

- Molecule 1: Ubiquitin-60S ribosomal protein L40



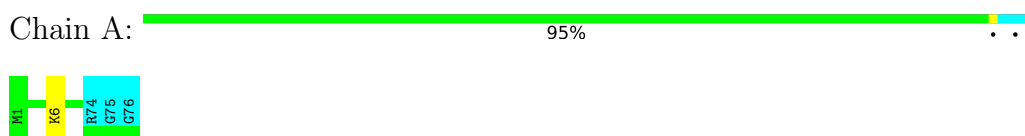
#### 4.2.10 Score per residue for model 10

- Molecule 1: Ubiquitin-60S ribosomal protein L40



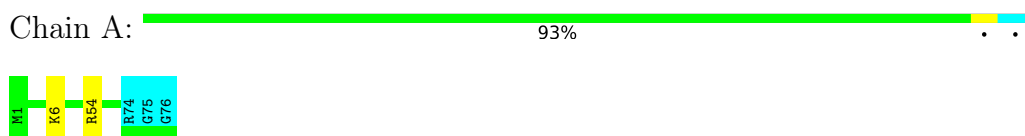
#### 4.2.11 Score per residue for model 11 (medoid)

- Molecule 1: Ubiquitin-60S ribosomal protein L40



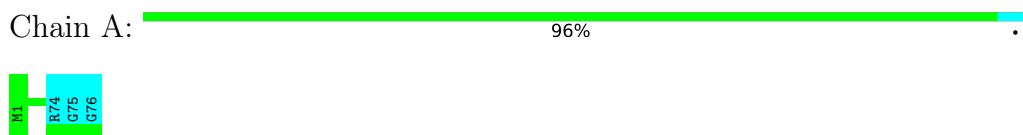
#### 4.2.12 Score per residue for model 12

- Molecule 1: Ubiquitin-60S ribosomal protein L40



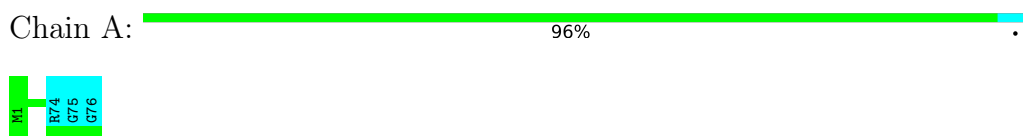
#### 4.2.13 Score per residue for model 13

- Molecule 1: Ubiquitin-60S ribosomal protein L40



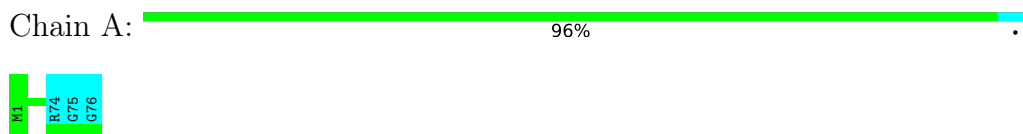
#### 4.2.14 Score per residue for model 14

- Molecule 1: Ubiquitin-60S ribosomal protein L40



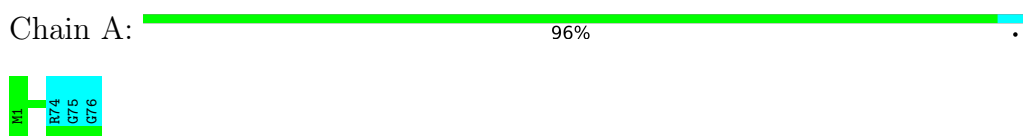
#### 4.2.15 Score per residue for model 15

- Molecule 1: Ubiquitin-60S ribosomal protein L40



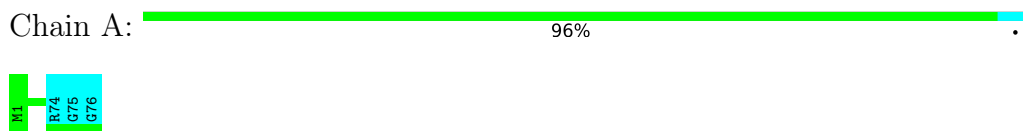
#### 4.2.16 Score per residue for model 16

- Molecule 1: Ubiquitin-60S ribosomal protein L40



#### 4.2.17 Score per residue for model 17

- Molecule 1: Ubiquitin-60S ribosomal protein L40





#### 4.2.18 Score per residue for model 18

- Molecule 1: Ubiquitin-60S ribosomal protein L40

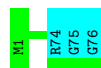
Chain A:  93%



#### 4.2.19 Score per residue for model 19

- Molecule 1: Ubiquitin-60S ribosomal protein L40

Chain A:  96%



#### 4.2.20 Score per residue for model 20

- Molecule 1: Ubiquitin-60S ribosomal protein L40

Chain A:  96%



## 5 Refinement protocol and experimental data overview

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

Of the 20 calculated structures, 20 were deposited, based on the following criterion: *all calculated structures submitted*.

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

| Software name | Classification | Version |
|---------------|----------------|---------|
| X-PLOR NIH    | refinement     |         |

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                       | 922            |
| Number of shifts mapped to atoms             | 922            |
| Number of unparsed shifts                    | 0              |
| Number of shifts with mapping errors         | 0              |
| Number of shifts with mapping warnings       | 0              |
| Assignment completeness (well-defined parts) | 87%            |

## 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 |
|-----|-------|-------|----------|----------|---------|
| All | All   | 11640 | 12200    | 12200    | -       |

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 -.

There are no clashes.

### 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     | 72/76 (95%)     | 72±0 (100±0%) | 0±0 (0±0%) | 0±0 (0±0%) | 100         | 100 |
| All | All   | 1440/1520 (95%) | 1440 (100%)   | 0 (0%)     | 0 (0%)     | 100         | 100 |

There are no Ramachandran outliers.

### 6.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

| Mol | Chain | Analysed        | Rotameric    | Outliers   | Percentiles |    |
|-----|-------|-----------------|--------------|------------|-------------|----|
| 1   | A     | 67/68 (99%)     | 66±1 (99±1%) | 1±1 (1±1%) | 77          | 96 |
| All | All   | 1340/1360 (99%) | 1326 (99%)   | 14 (1%)    | 77          | 96 |

All 6 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     | 16  | GLU  | 6              |
| 1   | A     | 6   | LYS  | 3              |
| 1   | A     | 52  | ASP  | 2              |
| 1   | A     | 24  | GLU  | 1              |
| 1   | A     | 54  | ARG  | 1              |
| 1   | A     | 73  | LEU  | 1              |

### 6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

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

There are no ligands in this entry.

### 6.7 Other polymers [i](#)

There are no such molecules in this entry.

## 6.8 Polymer linkage issues

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 87% for the well-defined parts and 86% 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                  | 922 |
| Number of shifts mapped to atoms        | 922 |
| Number of unparsed shifts               | 0   |
| Number of shifts with mapping errors    | 0   |
| Number of shifts with mapping warnings  | 0   |
| Number of shift outliers (ShiftChecker) | 1   |

#### 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           |
|------------------------|----------|---------------------------------|----------------------------|
| $^{13}\text{C}_\alpha$ | 76       | $-0.22 \pm 0.15$                | None needed ( $< 0.5$ ppm) |
| $^{13}\text{C}_\beta$  | 70       | $0.15 \pm 0.18$                 | None needed ( $< 0.5$ ppm) |
| $^{13}\text{C}'$       | 76       | $-0.33 \pm 0.11$                | None needed ( $< 0.5$ ppm) |
| $^{15}\text{N}$        | 75       | $1.02 \pm 0.42$                 | Should be applied          |

#### 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 87%, i.e. 897 atoms were assigned a chemical shift out of a possible 1036. 0 out of 13 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total         | $^1\text{H}$  | $^{13}\text{C}$ | $^{15}\text{N}$ |
|-----------|---------------|---------------|-----------------|-----------------|
| Backbone  | 357/363 (98%) | 142/147 (97%) | 146/146 (100%)  | 69/70 (99%)     |
| Sidechain | 524/637 (82%) | 337/412 (82%) | 179/201 (89%)   | 8/24 (33%)      |

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|          | <b>Total</b>   | <b><sup>1</sup>H</b> | <b><sup>13</sup>C</b> | <b><sup>15</sup>N</b> |
|----------|----------------|----------------------|-----------------------|-----------------------|
| Aromatic | 16/36 (44%)    | 8/18 (44%)           | 8/17 (47%)            | 0/1 (0%)              |
| Overall  | 897/1036 (87%) | 487/577 (84%)        | 333/364 (91%)         | 77/95 (81%)           |

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 86%, i.e. 919 atoms were assigned a chemical shift out of a possible 1071. 0 out of 13 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | <b>Total</b>   | <b><sup>1</sup>H</b> | <b><sup>13</sup>C</b> | <b><sup>15</sup>N</b> |
|-----------|----------------|----------------------|-----------------------|-----------------------|
| Backbone  | 372/380 (98%)  | 148/155 (95%)        | 152/152 (100%)        | 72/73 (99%)           |
| Sidechain | 531/655 (81%)  | 341/423 (81%)        | 182/205 (89%)         | 8/27 (30%)            |
| Aromatic  | 16/36 (44%)    | 8/18 (44%)           | 8/17 (47%)            | 0/1 (0%)              |
| Overall   | 919/1071 (86%) | 497/596 (83%)        | 342/374 (91%)         | 80/101 (79%)          |

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

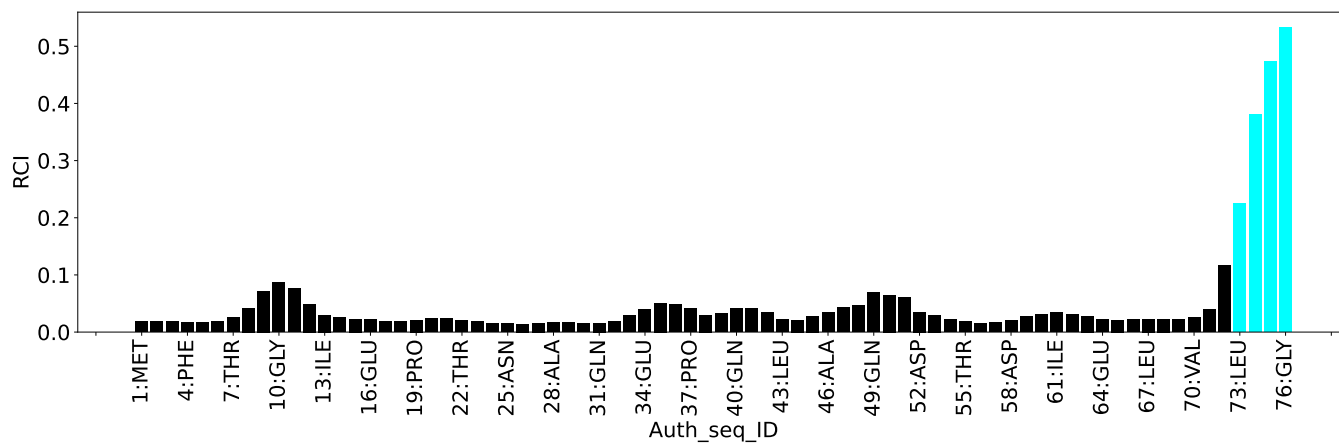
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

| List Id | Chain | Res | Type | Atom | Shift, ppm | Expected range, ppm | Z-score |
|---------|-------|-----|------|------|------------|---------------------|---------|
| 1       | A     | 68  | HIS  | CE1  | 119.48     | 126.08 – 149.12     | -7.9    |

#### 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                                | 2764  |
| Intra-residue ( $ i-j =0$ )                              | 652   |
| Sequential ( $ i-j =1$ )                                 | 446   |
| Medium range ( $ i-j >1$ and $ i-j <5$ )                 | 441   |
| Long range ( $ i-j \geq 5$ )                             | 1188  |
| Inter-chain  | 0     |
| Hydrogen bond restraints                                 | 37    |
| Disulfide bond restraints                                | 0     |
| Total dihedral-angle restraints                          | 0     |
| Number of unmapped restraints                            | 1     |
| Number of restraints per residue                         | 36.4  |
| Number of long range restraints per residue <sup>1</sup> | 15.9  |

<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)  | 12.8                                   | 0.2     |
| 0.2-0.5 (Medium) | 11.2                                   | 0.5     |
| >0.5 (Large)     | 0.1                                    | 0.51    |

### 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 [i](#)

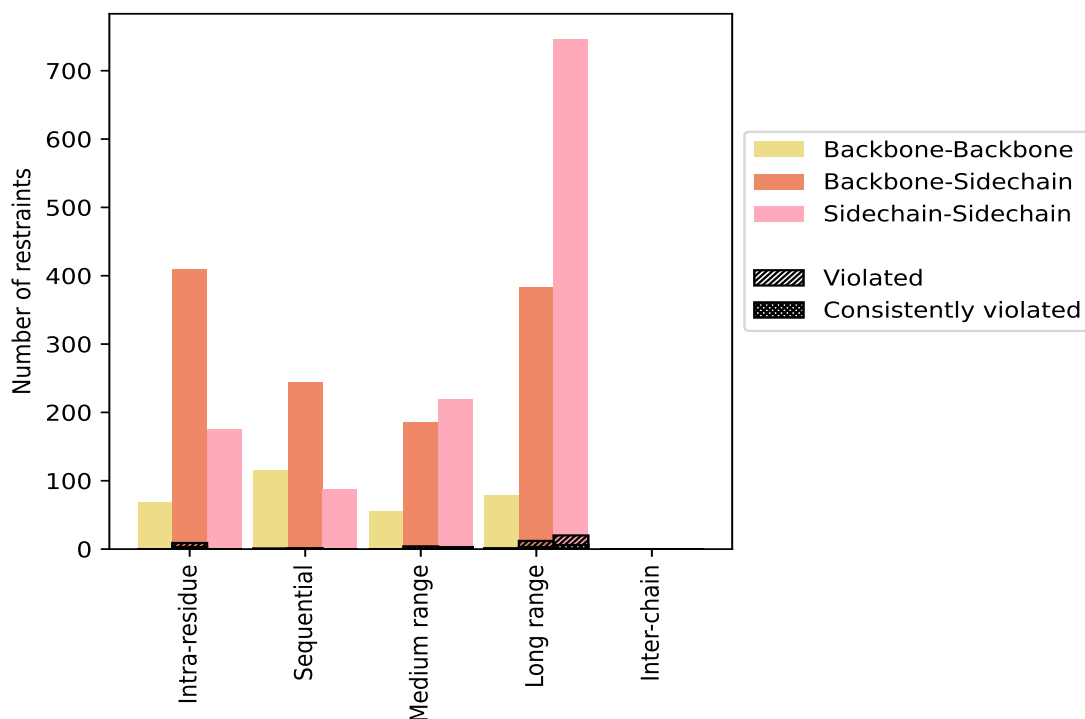
### 9.1 Summary of distance violations [i](#)

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 ( i-j =0)</b>                    | <b>652</b>  | <b>23.6</b>    | <b>9</b>              | <b>1.4</b>     | <b>0.3</b>     | <b>3</b>                           | <b>0.5</b>     | <b>0.1</b>     |
| Backbone-Backbone                                 | 68          | 2.5            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain                                | 409         | 14.8           | 9                     | 2.2            | 0.3            | 3                                  | 0.7            | 0.1            |
| Sidechain-Sidechain                               | 175         | 6.3            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| <b>Sequential ( i-j =1)</b>                       | <b>446</b>  | <b>16.1</b>    | <b>2</b>              | <b>0.4</b>     | <b>0.1</b>     | <b>1</b>                           | <b>0.2</b>     | <b>0.0</b>     |
| Backbone-Backbone                                 | 115         | 4.2            | 1                     | 0.9            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain                                | 244         | 8.8            | 1                     | 0.4            | 0.0            | 1                                  | 0.4            | 0.0            |
| Sidechain-Sidechain                               | 87          | 3.1            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| <b>Medium range ( i-j &gt;1 &amp;  i-j &lt;5)</b> | <b>441</b>  | <b>16.0</b>    | <b>7</b>              | <b>1.6</b>     | <b>0.3</b>     | <b>2</b>                           | <b>0.5</b>     | <b>0.1</b>     |
| Backbone-Backbone                                 | 37          | 1.3            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain                                | 185         | 6.7            | 4                     | 2.2            | 0.1            | 1                                  | 0.5            | 0.0            |
| Sidechain-Sidechain                               | 219         | 7.9            | 3                     | 1.4            | 0.1            | 1                                  | 0.5            | 0.0            |
| <b>Long range ( i-j ≥5)</b>                       | <b>1188</b> | <b>43.0</b>    | <b>33</b>             | <b>2.8</b>     | <b>1.2</b>     | <b>10</b>                          | <b>0.8</b>     | <b>0.4</b>     |
| Backbone-Backbone                                 | 59          | 2.1            | 1                     | 1.7            | 0.0            | 1                                  | 1.7            | 0.0            |
| Backbone-Sidechain                                | 383         | 13.9           | 12                    | 3.1            | 0.4            | 3                                  | 0.8            | 0.1            |
| Sidechain-Sidechain                               | 746         | 27.0           | 20                    | 2.7            | 0.7            | 6                                  | 0.8            | 0.2            |
| <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>37</b>   | <b>1.3</b>     | <b>0</b>              | <b>0.0</b>     | <b>0.0</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| <b>Disulfide bond</b>                             | <b>0</b>    | <b>0.0</b>     | <b>0</b>              | <b>0.0</b>     | <b>0.0</b>     | <b>0</b>                           | <b>0.0</b>     | <b>0.0</b>     |
| <b>Total</b>                                      | <b>2764</b> | <b>100.0</b>   | <b>51</b>             | <b>1.8</b>     | <b>1.8</b>     | <b>16</b>                          | <b>0.6</b>     | <b>0.6</b>     |
| Backbone-Backbone                                 | 316         | 11.4           | 2                     | 0.6            | 0.1            | 1                                  | 0.3            | 0.0            |
| Backbone-Sidechain                                | 1221        | 44.2           | 26                    | 2.1            | 0.9            | 8                                  | 0.7            | 0.3            |
| Sidechain-Sidechain                               | 1227        | 44.4           | 23                    | 1.9            | 0.8            | 7                                  | 0.6            | 0.3            |

<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        | 3                    | 1               | 4               | 13              | 0               | 21    | 0.23     | 0.46    | 0.09                | 0.21       |
| 2        | 5                    | 1               | 3               | 17              | 0               | 26    | 0.22     | 0.47    | 0.09                | 0.18       |
| 3        | 4                    | 1               | 3               | 17              | 0               | 25    | 0.21     | 0.5     | 0.1                 | 0.17       |
| 4        | 6                    | 2               | 5               | 16              | 0               | 29    | 0.23     | 0.49    | 0.09                | 0.19       |
| 5        | 3                    | 1               | 4               | 13              | 0               | 21    | 0.23     | 0.47    | 0.1                 | 0.21       |
| 6        | 5                    | 1               | 4               | 14              | 0               | 24    | 0.22     | 0.49    | 0.1                 | 0.2        |
| 7        | 5                    | 1               | 3               | 16              | 0               | 25    | 0.22     | 0.48    | 0.09                | 0.19       |
| 8        | 5                    | 1               | 4               | 14              | 0               | 24    | 0.24     | 0.47    | 0.1                 | 0.2        |
| 9        | 4                    | 1               | 5               | 17              | 0               | 27    | 0.22     | 0.46    | 0.1                 | 0.21       |
| 10       | 4                    | 1               | 3               | 17              | 0               | 25    | 0.22     | 0.5     | 0.09                | 0.19       |
| 11       | 4                    | 1               | 4               | 16              | 0               | 25    | 0.21     | 0.46    | 0.09                | 0.2        |

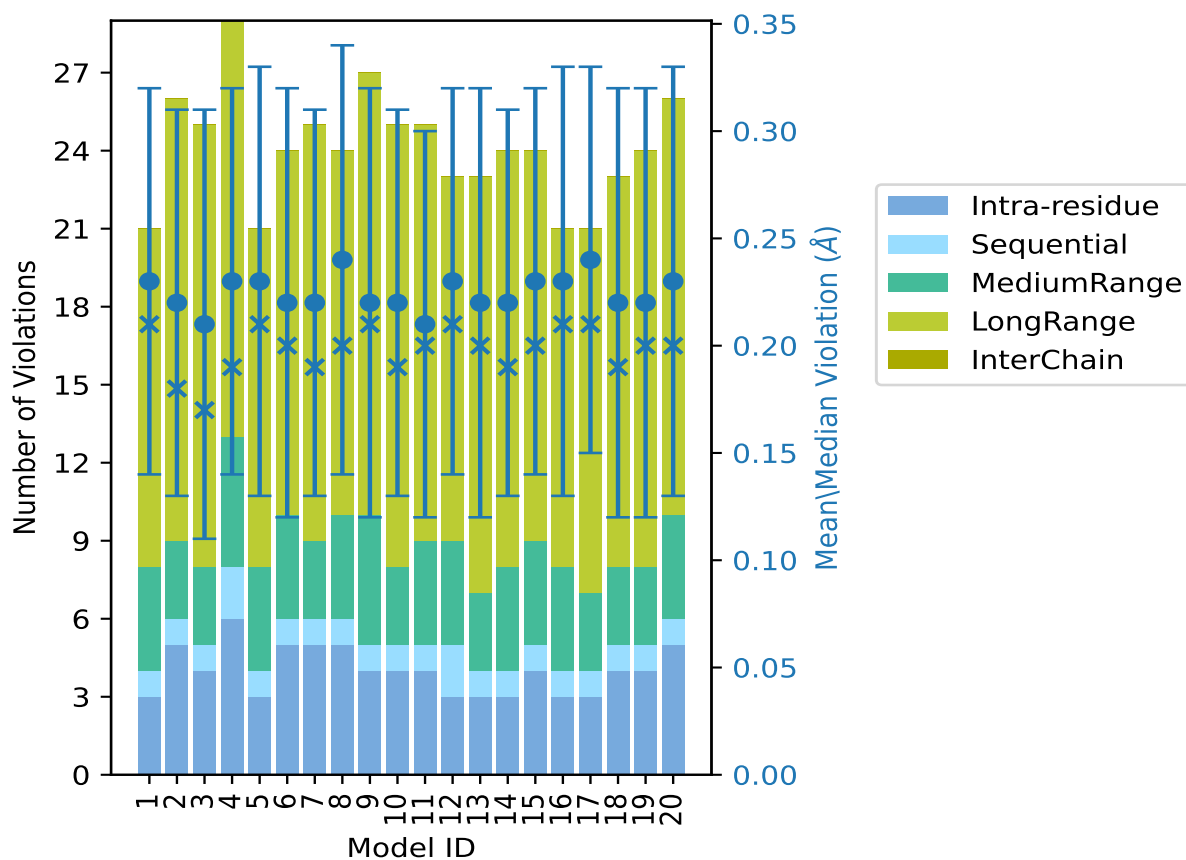
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| Model ID | Number of violations |                 |                 |                 |                 | Total | Mean (Å) | Max (Å) | SD <sup>6</sup> (Å) | Median (Å) |
|----------|----------------------|-----------------|-----------------|-----------------|-----------------|-------|----------|---------|---------------------|------------|
|          | IR <sup>1</sup>      | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> |       |          |         |                     |            |
| 12       | 3                    | 2               | 4               | 14              | 0               | 23    | 0.23     | 0.49    | 0.09                | 0.21       |
| 13       | 3                    | 1               | 3               | 16              | 0               | 23    | 0.22     | 0.47    | 0.1                 | 0.2        |
| 14       | 3                    | 1               | 4               | 16              | 0               | 24    | 0.22     | 0.48    | 0.09                | 0.19       |
| 15       | 4                    | 1               | 4               | 15              | 0               | 24    | 0.23     | 0.46    | 0.09                | 0.2        |
| 16       | 3                    | 1               | 4               | 13              | 0               | 21    | 0.23     | 0.47    | 0.1                 | 0.21       |
| 17       | 3                    | 1               | 3               | 14              | 0               | 21    | 0.24     | 0.45    | 0.09                | 0.21       |
| 18       | 4                    | 1               | 3               | 15              | 0               | 23    | 0.22     | 0.5     | 0.1                 | 0.19       |
| 19       | 4                    | 1               | 3               | 16              | 0               | 24    | 0.22     | 0.47    | 0.1                 | 0.2        |
| 20       | 5                    | 1               | 4               | 16              | 0               | 26    | 0.23     | 0.51    | 0.1                 | 0.2        |

<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



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

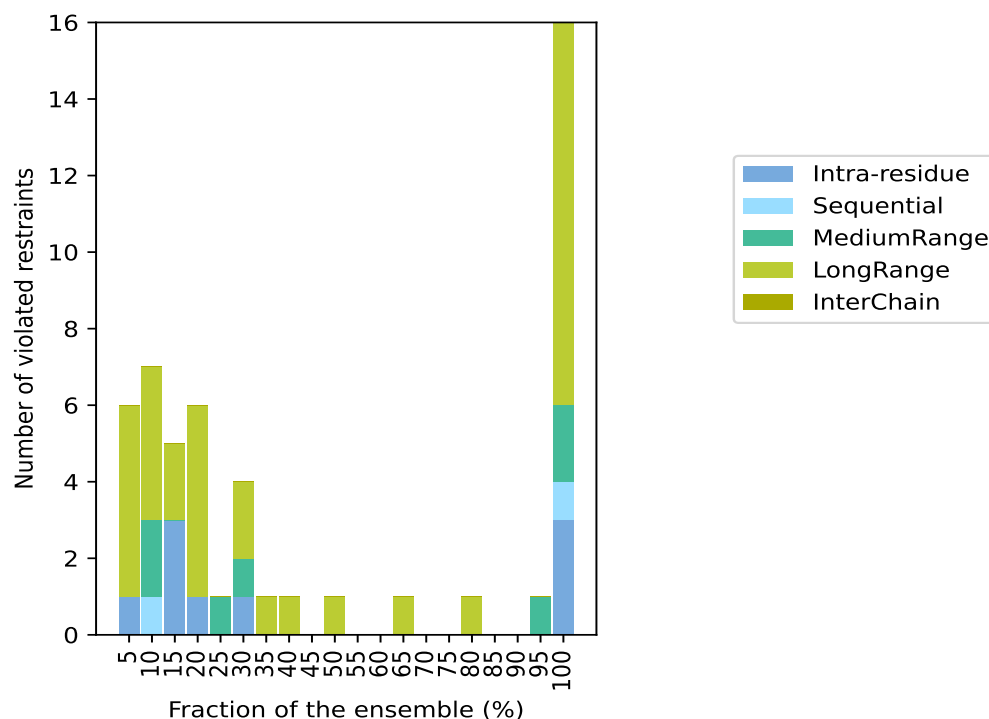
### 9.3 Distance violation statistics for the ensemble

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, 2676(IR:643, SQ:444, MR:434, LR:1155, 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>       | %     |
| 1                             | 0               | 0               | 5               | 0               | 6     | 1                        | 5.0   |
| 0                             | 1               | 2               | 4               | 0               | 7     | 2                        | 10.0  |
| 3                             | 0               | 0               | 2               | 0               | 5     | 3                        | 15.0  |
| 1                             | 0               | 0               | 5               | 0               | 6     | 4                        | 20.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 5                        | 25.0  |
| 1                             | 0               | 1               | 2               | 0               | 4     | 6                        | 30.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 7                        | 35.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 8                        | 40.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 9                        | 45.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 10                       | 50.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 11                       | 55.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 12                       | 60.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 13                       | 65.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 14                       | 70.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 15                       | 75.0  |
| 0                             | 0               | 0               | 1               | 0               | 1     | 16                       | 80.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 17                       | 85.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 18                       | 90.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 19                       | 95.0  |
| 3                             | 1               | 2               | 10              | 0               | 16    | 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

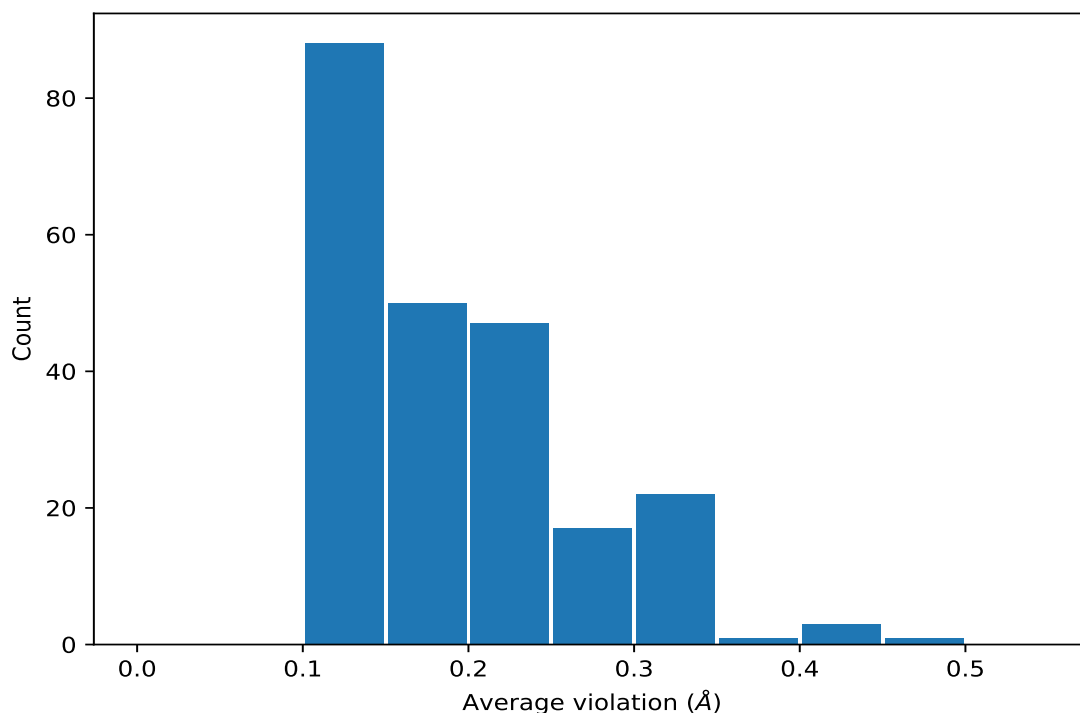
### 9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)



## 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) |
|----------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,2547) | 1:A:70:VAL:HB   | 1:A:71:LEU:H    | 20                  | 0.48     | 0.02                | 0.47       |
| (1,1758) | 1:A:42:ARG:HA   | 1:A:70:VAL:HG21 | 20                  | 0.44     | 0.02                | 0.44       |
| (1,1758) | 1:A:42:ARG:HA   | 1:A:70:VAL:HG22 | 20                  | 0.44     | 0.02                | 0.44       |
| (1,1758) | 1:A:42:ARG:HA   | 1:A:70:VAL:HG23 | 20                  | 0.44     | 0.02                | 0.44       |
| (1,551)  | 1:A:8:LEU:HG    | 1:A:70:VAL:HA   | 20                  | 0.36     | 0.03                | 0.35       |
| (1,292)  | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 20                  | 0.29     | 0.02                | 0.29       |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 20                  | 0.28     | 0.03                | 0.27       |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 20                  | 0.28     | 0.03                | 0.27       |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 20                  | 0.28     | 0.03                | 0.27       |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 20                  | 0.26     | 0.02                | 0.26       |
| (1,387)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 20                  | 0.26     | 0.01                | 0.26       |

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| Key      | Atom-1          | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,387)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 20                  | 0.26     | 0.01                | 0.26       |
| (1,387)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 20                  | 0.26     | 0.01                | 0.26       |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 20                  | 0.26     | 0.01                | 0.26       |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 20                  | 0.24     | 0.02                | 0.24       |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 20                  | 0.24     | 0.02                | 0.24       |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21  | 20                  | 0.2      | 0.01                | 0.2        |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22  | 20                  | 0.2      | 0.01                | 0.2        |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23  | 20                  | 0.2      | 0.01                | 0.2        |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 20                  | 0.18     | 0.01                | 0.18       |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 20                  | 0.18     | 0.01                | 0.18       |
| (1,386)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 20                  | 0.18     | 0.01                | 0.18       |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 20                  | 0.18     | 0.01                | 0.17       |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA   | 20                  | 0.16     | 0.0                 | 0.16       |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD11 | 20                  | 0.16     | 0.01                | 0.16       |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD12 | 20                  | 0.16     | 0.01                | 0.16       |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD13 | 20                  | 0.16     | 0.01                | 0.16       |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 20                  | 0.15     | 0.0                 | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 20                  | 0.15     | 0.01                | 0.15       |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 19                  | 0.22     | 0.02                | 0.21       |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 19                  | 0.22     | 0.02                | 0.21       |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 19                  | 0.22     | 0.02                | 0.21       |

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| Key      | Atom-1          | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 19                  | 0.22     | 0.02                | 0.21       |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 19                  | 0.22     | 0.02                | 0.21       |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 19                  | 0.22     | 0.02                | 0.21       |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 16                  | 0.17     | 0.02                | 0.18       |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 16                  | 0.17     | 0.02                | 0.18       |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 16                  | 0.17     | 0.02                | 0.18       |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 13                  | 0.12     | 0.01                | 0.12       |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 13                  | 0.12     | 0.01                | 0.12       |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 13                  | 0.12     | 0.01                | 0.12       |
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 10                  | 0.25     | 0.05                | 0.26       |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 10                  | 0.25     | 0.05                | 0.26       |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 8                   | 0.12     | 0.01                | 0.12       |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG21 | 7                   | 0.17     | 0.02                | 0.18       |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG22 | 7                   | 0.17     | 0.02                | 0.18       |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG23 | 7                   | 0.17     | 0.02                | 0.18       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG21 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG22 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG23 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG11 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG12 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG13 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG21 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG22 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG23 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG11 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG12 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG13 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG21 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG22 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG23 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG11 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG12 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG13 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG21 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG22 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG23 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG11 | 6                   | 0.21     | 0.0                 | 0.21       |

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| Key      | Atom-1          | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG12 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG13 | 6                   | 0.21     | 0.0                 | 0.21       |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 6                   | 0.12     | 0.01                | 0.12       |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 6                   | 0.12     | 0.0                 | 0.12       |
| (1,562)  | 1:A:9:THR:HG21  | 1:A:11:LYS:HD2  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,562)  | 1:A:9:THR:HG21  | 1:A:11:LYS:HD3  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD2  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD3  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD2  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD3  | 6                   | 0.11     | 0.0                 | 0.11       |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA2  | 5                   | 0.13     | 0.02                | 0.14       |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA3  | 5                   | 0.13     | 0.02                | 0.14       |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA2  | 5                   | 0.13     | 0.02                | 0.14       |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA3  | 5                   | 0.13     | 0.02                | 0.14       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG21 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG22 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG23 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG11 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG12 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG13 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG21 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG22 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG23 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG11 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG12 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG13 | 4                   | 0.2      | 0.02                | 0.22       |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG21 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG22 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG23 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG21 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG22 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG23 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG21 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG22 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG23 | 4                   | 0.17     | 0.0                 | 0.17       |
| (1,1869) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 4                   | 0.16     | 0.02                | 0.16       |
| (1,1869) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 4                   | 0.16     | 0.02                | 0.16       |

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| Key      | Atom-1          | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|-----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,2564) | 1:A:72:ARG:HA   | 1:A:72:ARG:HD2  | 4                   | 0.15     | 0.02                | 0.15       |
| (1,2564) | 1:A:72:ARG:HA   | 1:A:72:ARG:HD3  | 4                   | 0.15     | 0.02                | 0.15       |
| (1,1867) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 4                   | 0.13     | 0.02                | 0.12       |
| (1,1867) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 4                   | 0.13     | 0.02                | 0.12       |
| (1,1903) | 1:A:44:ILE:HG21 | 1:A:68:HIS:HB3  | 4                   | 0.12     | 0.01                | 0.12       |
| (1,1903) | 1:A:44:ILE:HG22 | 1:A:68:HIS:HB3  | 4                   | 0.12     | 0.01                | 0.12       |
| (1,1903) | 1:A:44:ILE:HG23 | 1:A:68:HIS:HB3  | 4                   | 0.12     | 0.01                | 0.12       |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:15:LEU:HG   | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG2  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG3  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:15:LEU:HG   | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG2  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG3  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 3                   | 0.31     | 0.01                | 0.3        |
| (1,2028) | 1:A:48:LYS:HG2  | 1:A:48:LYS:HA   | 3                   | 0.18     | 0.0                 | 0.18       |
| (1,2028) | 1:A:48:LYS:HG3  | 1:A:48:LYS:HA   | 3                   | 0.18     | 0.0                 | 0.18       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:15:LEU:HG   | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG2  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG3  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:15:LEU:HG   | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |

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| Key      | Atom-1         | Atom-2          | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|----------------|-----------------|---------------------|----------|---------------------|------------|
| (1,338)  | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG2  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG3  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:15:LEU:HG   | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:36:ILE:HG12 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:36:ILE:HG13 | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:42:ARG:HG2  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,338)  | 1:A:5:VAL:HG23 | 1:A:42:ARG:HG3  | 3                   | 0.15     | 0.01                | 0.14       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD11 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD12 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD13 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD21 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD22 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD23 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD11 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD12 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD13 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD21 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD22 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD23 | 3                   | 0.15     | 0.0                 | 0.15       |
| (1,1475) | 1:A:33:LYS:HD2 | 1:A:33:LYS:HA   | 3                   | 0.13     | 0.01                | 0.14       |
| (1,1475) | 1:A:33:LYS:HD3 | 1:A:33:LYS:HA   | 3                   | 0.13     | 0.01                | 0.14       |
| (1,1392) | 1:A:30:ILE:HB  | 1:A:41:GLN:HE22 | 2                   | 0.35     | 0.0                 | 0.35       |
| (1,2591) | 1:A:74:ARG:HA  | 1:A:75:GLY:H    | 2                   | 0.3      | 0.0                 | 0.3        |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:66:THR:HG21 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:66:THR:HG22 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:66:THR:HG23 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:70:VAL:HG11 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:70:VAL:HG12 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE2  | 1:A:70:VAL:HG13 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:66:THR:HG21 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:66:THR:HG22 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:66:THR:HG23 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:70:VAL:HG11 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:70:VAL:HG12 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,459)  | 1:A:6:LYS:HE3  | 1:A:70:VAL:HG13 | 2                   | 0.16     | 0.05                | 0.16       |
| (1,1134) | 1:A:24:GLU:HA  | 1:A:27:LYS:HD2  | 2                   | 0.15     | 0.0                 | 0.15       |
| (1,1134) | 1:A:24:GLU:HA  | 1:A:27:LYS:HD3  | 2                   | 0.15     | 0.0                 | 0.15       |
| (1,1659) | 1:A:38:PRO:HA  | 1:A:41:GLN:HE21 | 2                   | 0.15     | 0.02                | 0.15       |
| (1,1775) | 1:A:42:ARG:HD2 | 1:A:72:ARG:HA   | 2                   | 0.12     | 0.0                 | 0.12       |
| (1,1775) | 1:A:42:ARG:HD3 | 1:A:72:ARG:HA   | 2                   | 0.12     | 0.0                 | 0.12       |

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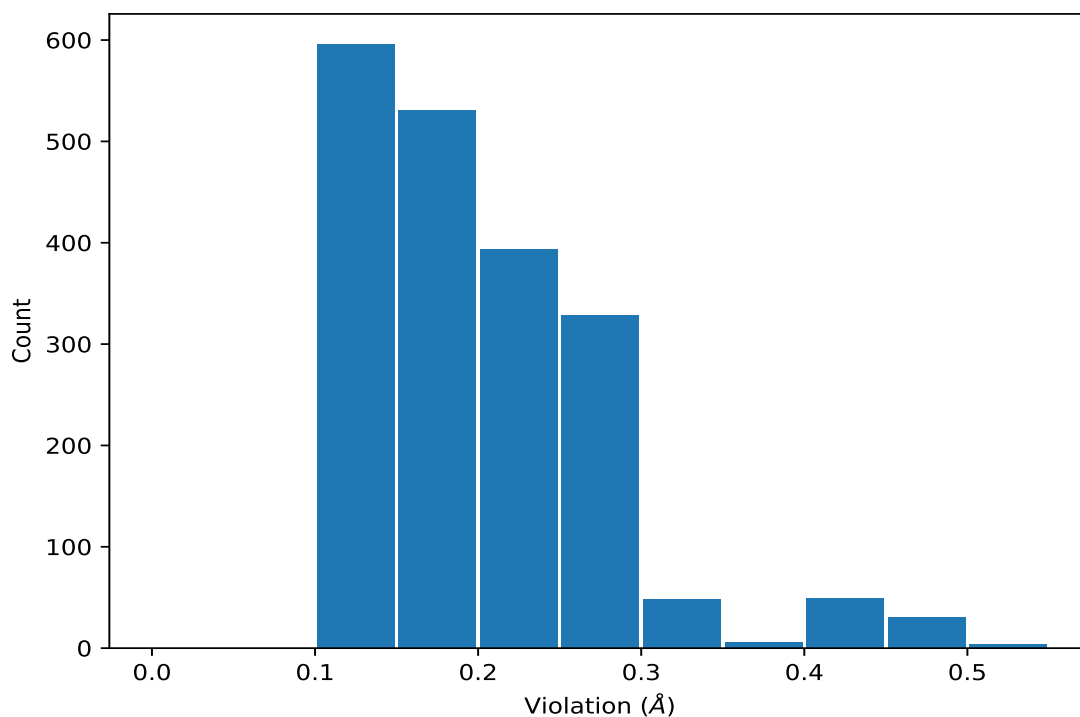
| Key      | Atom-1         | Atom-2         | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|----------|----------------|----------------|---------------------|----------|---------------------|------------|
| (1,1775) | 1:A:72:ARG:HD2 | 1:A:72:ARG:HA  | 2                   | 0.12     | 0.0                 | 0.12       |
| (1,1775) | 1:A:72:ARG:HD3 | 1:A:72:ARG:HA  | 2                   | 0.12     | 0.0                 | 0.12       |
| (1,1149) | 1:A:24:GLU:HA  | 1:A:52: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) |
|----------|---------------|--------------|----------|---------------|
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H | 20       | 0.51          |

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| Key      | Atom-1        | Atom-2          | Model ID | Violation (Å) |
|----------|---------------|-----------------|----------|---------------|
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 3        | 0.5           |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 10       | 0.5           |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 18       | 0.5           |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 4        | 0.49          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 6        | 0.49          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 12       | 0.49          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 7        | 0.48          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 14       | 0.48          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 2        | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 5        | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 8        | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 13       | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 16       | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 19       | 0.47          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 1        | 0.46          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 9        | 0.46          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 11       | 0.46          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 15       | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 6        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 6        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 6        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 8        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 8        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 8        | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 20       | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 20       | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 20       | 0.46          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 16       | 0.45          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 16       | 0.45          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 16       | 0.45          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 17       | 0.45          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 17       | 0.45          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 17       | 0.45          |
| (1,2547) | 1:A:70:VAL:HB | 1:A:71:LEU:H    | 17       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 1        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 1        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 1        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 5        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 5        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 5        | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 11       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 11       | 0.44          |

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| Key      | Atom-1        | Atom-2          | Model ID | Violation (Å) |
|----------|---------------|-----------------|----------|---------------|
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 11       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 18       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 18       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 18       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 19       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 19       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 19       | 0.44          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 2        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 2        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 2        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 4        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 4        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 4        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 7        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 7        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 7        | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 12       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 12       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 12       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 13       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 13       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 13       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 15       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 15       | 0.43          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 15       | 0.43          |
| (1,551)  | 1:A:8:LEU:HG  | 1:A:70:VAL:HA   | 9        | 0.42          |
| (1,551)  | 1:A:8:LEU:HG  | 1:A:70:VAL:HA   | 13       | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 3        | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 3        | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 3        | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 9        | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 9        | 0.42          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 9        | 0.42          |
| (1,551)  | 1:A:8:LEU:HG  | 1:A:70:VAL:HA   | 17       | 0.41          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 10       | 0.41          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 10       | 0.41          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 10       | 0.41          |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG21 | 14       | 0.4           |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG22 | 14       | 0.4           |
| (1,1758) | 1:A:42:ARG:HA | 1:A:70:VAL:HG23 | 14       | 0.4           |
| (1,551)  | 1:A:8:LEU:HG  | 1:A:70:VAL:HA   | 20       | 0.37          |
| (1,551)  | 1:A:8:LEU:HG  | 1:A:70:VAL:HA   | 5        | 0.36          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 12       | 0.36          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG   | 4        | 0.36          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG   | 4        | 0.36          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG   | 4        | 0.36          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 1        | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 3        | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 8        | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 11       | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 15       | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 16       | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 18       | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 19       | 0.35          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG   | 8        | 0.35          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG   | 8        | 0.35          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG   | 8        | 0.35          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG   | 15       | 0.35          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG   | 15       | 0.35          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG   | 15       | 0.35          |
| (1,1392) | 1:A:30:ILE:HB  | 1:A:41:GLN:HE22 | 9        | 0.35          |
| (1,1392) | 1:A:30:ILE:HB  | 1:A:41:GLN:HE22 | 20       | 0.35          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 6        | 0.34          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 10       | 0.34          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 2        | 0.33          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 4        | 0.33          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 7        | 0.33          |
| (1,551)  | 1:A:8:LEU:HG   | 1:A:70:VAL:HA   | 14       | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG12 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG13 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:15:LEU:HG   | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG12 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG13 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG2  | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG3  | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG12 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG13 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:15:LEU:HG   | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG12 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG13 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG2  | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG3  | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG12 | 4        | 0.33          |
| (1,340)  | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG13 | 4        | 0.33          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,340) | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 4        | 0.33          |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 4        | 0.33          |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 4        | 0.33          |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 4        | 0.33          |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 4        | 0.33          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 7        | 0.33          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 2        | 0.32          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 10       | 0.32          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 3        | 0.31          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 17       | 0.31          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 2        | 0.3           |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 7        | 0.3           |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 7        | 0.3           |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 7        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 7        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 7        | 0.3           |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 7        | 0.3           |
| (1,439) | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 15       | 0.3           |
| (1,439) | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 15       | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG12 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG13 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:15:LEU:HG   | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG12 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG13 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG2  | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG3  | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG12 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG13 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:15:LEU:HG   | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG12 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG13 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG2  | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG3  | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG12 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG13 | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 8        | 0.3           |
| (1,340) | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 8        | 0.3           |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 8        | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 8        | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 8        | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:15:LEU:HG   | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG2  | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG3  | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:15:LEU:HG   | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG2  | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG3  | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 15       | 0.3           |
| (1,340)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 15       | 0.3           |
| (1,292)  | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 13       | 0.3           |
| (1,2591) | 1:A:74:ARG:HA   | 1:A:75:GLY:H    | 4        | 0.3           |
| (1,2591) | 1:A:74:ARG:HA   | 1:A:75:GLY:H    | 12       | 0.3           |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 4        | 0.3           |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 4        | 0.3           |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 8        | 0.3           |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 8        | 0.3           |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 3        | 0.29          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 10       | 0.29          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 10       | 0.29          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 10       | 0.29          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 10       | 0.29          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 10       | 0.29          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 10       | 0.29          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 13       | 0.29          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 13       | 0.29          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 13       | 0.29          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 13       | 0.29          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 13       | 0.29          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 13       | 0.29          |
| (1,439) | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 1        | 0.29          |
| (1,439) | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 1        | 0.29          |
| (1,439) | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 5        | 0.29          |
| (1,439) | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 5        | 0.29          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 9        | 0.29          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 9        | 0.29          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 9        | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 1        | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 4        | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 5        | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 15       | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 19       | 0.29          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 20       | 0.29          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 17       | 0.28          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 17       | 0.28          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 17       | 0.28          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 17       | 0.28          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 17       | 0.28          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 17       | 0.28          |
| (1,439) | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 8        | 0.28          |
| (1,439) | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 8        | 0.28          |
| (1,439) | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 19       | 0.28          |
| (1,439) | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 19       | 0.28          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 13       | 0.28          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 13       | 0.28          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 13       | 0.28          |
| (1,378) | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 3        | 0.28          |
| (1,378) | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 3        | 0.28          |
| (1,378) | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 3        | 0.28          |
| (1,378) | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 7        | 0.28          |
| (1,378) | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 7        | 0.28          |
| (1,378) | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 7        | 0.28          |
| (1,378) | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 10       | 0.28          |
| (1,378) | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 10       | 0.28          |
| (1,378) | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 10       | 0.28          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 8        | 0.28          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 9        | 0.28          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 16       | 0.28          |
| (1,292) | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 18       | 0.28          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 9        | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 18       | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 20       | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 20       | 0.27          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 20       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 20       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 20       | 0.27          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 20       | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 3        | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 3        | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 3        | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 4        | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 4        | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 4        | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 7        | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 7        | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 7        | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 8        | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 8        | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 8        | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 15       | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 15       | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 15       | 0.27          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 17       | 0.27          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 17       | 0.27          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 17       | 0.27          |
| (1,378) | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 1        | 0.27          |
| (1,378) | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 1        | 0.27          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 1        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 2        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 2        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 2        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 5        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 5        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 5        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 9        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 9        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 9        | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 16       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 16       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 16       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 17       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 17       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 17       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG21  | 1:A:67:LEU:HG   | 20       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG22  | 1:A:67:LEU:HG   | 20       | 0.27          |
| (1,378)  | 1:A:5:VAL:HG23  | 1:A:67:LEU:HG   | 20       | 0.27          |
| (1,292)  | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 11       | 0.27          |
| (1,292)  | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 12       | 0.27          |
| (1,292)  | 1:A:4:PHE:HB3   | 1:A:66:THR:HA   | 14       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 9        | 0.27          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 20       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 20       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 20       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 20       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 20       | 0.27          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 20       | 0.27          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 4        | 0.27          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 1        | 0.26          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 6        | 0.26          |

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| Key     | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|---------|-----------------|-----------------|----------|---------------|
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 6        | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 6        | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 6        | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 6        | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 6        | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 11       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 12       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 16       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 19       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 19       | 0.26          |
| (1,634) | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 19       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 19       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 19       | 0.26          |
| (1,634) | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 19       | 0.26          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 1        | 0.26          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 1        | 0.26          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 1        | 0.26          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 2        | 0.26          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 2        | 0.26          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 2        | 0.26          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 5        | 0.26          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 5        | 0.26          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 5        | 0.26          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 6        | 0.26          |
| (1,387) | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 6        | 0.26          |
| (1,387) | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 6        | 0.26          |
| (1,387) | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 10       | 0.26          |

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| Key      | Atom-1         | Atom-2         | Model ID | Violation (Å) |
|----------|----------------|----------------|----------|---------------|
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 10       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 10       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG  | 11       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 11       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 11       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG  | 12       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 12       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 12       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG  | 14       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 14       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 14       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG  | 19       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 19       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 19       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG  | 20       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG  | 20       | 0.26          |
| (1,387)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG  | 20       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 6        | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 6        | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 6        | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 11       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 11       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 11       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 12       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 12       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 12       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 13       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 13       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 13       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 14       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 14       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 14       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 18       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 18       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 18       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG21 | 1:A:67:LEU:HG  | 19       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG22 | 1:A:67:LEU:HG  | 19       | 0.26          |
| (1,378)  | 1:A:5:VAL:HG23 | 1:A:67:LEU:HG  | 19       | 0.26          |
| (1,292)  | 1:A:4:PHE:HB3  | 1:A:66:THR:HA  | 6        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA  | 1:A:33:LYS:HB3 | 1        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA  | 1:A:33:LYS:HB3 | 2        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA  | 1:A:33:LYS:HB3 | 3        | 0.26          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 5        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 7        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 8        | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 10       | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 12       | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 14       | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 15       | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 16       | 0.26          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 18       | 0.26          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 4        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 5        | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 14       | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 14       | 0.25          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 14       | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 14       | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 14       | 0.25          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 14       | 0.25          |
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 7        | 0.25          |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 7        | 0.25          |
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 10       | 0.25          |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 10       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 16       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 16       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 16       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 18       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 18       | 0.25          |
| (1,387)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 18       | 0.25          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 6        | 0.25          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 9        | 0.25          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 11       | 0.25          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 13       | 0.25          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 19       | 0.25          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 15       | 0.25          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 15       | 0.25          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 18       | 0.24          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 18       | 0.24          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 18       | 0.24          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 18       | 0.24          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 18       | 0.24          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 18       | 0.24          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 17       | 0.24          |
| (1,1370) | 1:A:30:ILE:HA   | 1:A:33:LYS:HB3  | 20       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 12       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 12       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 13       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 13       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 14       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 14       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 16       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 16       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 18       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 18       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 19       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 19       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 20       | 0.24          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 20       | 0.24          |
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA   | 2        | 0.23          |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA   | 2        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 1        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 1        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 2        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 2        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 5        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 5        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 6        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 6        | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 11       | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 11       | 0.23          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 17       | 0.23          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 17       | 0.23          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 8        | 0.22          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 8        | 0.22          |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 8        | 0.22          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 8        | 0.22          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 8        | 0.22          |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 8        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG21 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG22 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG23 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG11 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG12 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG13 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG21 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG22 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG23 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG11 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG12 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG13 | 4        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG21 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG22 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG23 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG11 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG12 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG13 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG21 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG22 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG23 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG11 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG12 | 9        | 0.22          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG13 | 9        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 2        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 6        | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 12       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 12       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 12       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 12       | 0.22          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 12       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 12       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 15       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 16       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 19       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 19       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 19       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 19       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 19       | 0.22          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 19       | 0.22          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG21 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG22 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG23 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG11 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG12 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG13 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG21 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG22 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG23 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG11 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG12 | 6        | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG13 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG21 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG22 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG23 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG11 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG12 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG13 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG21 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG22 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG23 | 6        | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG11 | 6        | 0.21          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG12 | 6        | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG13 | 6        | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG21 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG22 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG23 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG11 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG12 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG13 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG21 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG22 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG23 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG11 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG12 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG13 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG21 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG22 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG23 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG11 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG12 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG13 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG21 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG22 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG23 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG11 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG12 | 11       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG13 | 11       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG21 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG22 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG23 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG11 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG12 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG13 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG21 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG22 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG23 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG11 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG12 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG13 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG21 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG22 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG23 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG11 | 12       | 0.21          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG12 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG13 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG21 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG22 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG23 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG11 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG12 | 12       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG13 | 12       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG21 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG22 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG23 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG11 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG12 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG13 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG21 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG22 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG23 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG11 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG12 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG13 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG21 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG22 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:66:THR:HG23 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG11 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG12 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG2 | 1:A:70:VAL:HG13 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG21 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG22 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:66:THR:HG23 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG11 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG12 | 14       | 0.21          |
| (1,463) | 1:A:11:LYS:HG3 | 1:A:70:VAL:HG13 | 14       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG21 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG22 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:66:THR:HG23 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG11 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG12 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG2  | 1:A:70:VAL:HG13 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG21 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG22 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:66:THR:HG23 | 16       | 0.21          |
| (1,463) | 1:A:6:LYS:HG3  | 1:A:70:VAL:HG11 | 16       | 0.21          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG12 | 16       | 0.21          |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG13 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG21 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG22 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG23 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG11 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG12 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG13 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG21 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG22 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG23 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG11 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG12 | 16       | 0.21          |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG13 | 16       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG21 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG22 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG23 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG11 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG12 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG13 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG21 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG22 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG23 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG11 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG12 | 13       | 0.21          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG13 | 13       | 0.21          |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 9        | 0.21          |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 9        | 0.21          |
| (1,386)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 9        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 5        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 7        | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 11       | 0.21          |

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| Key      | Atom-1          | Atom-2         | Model ID | Violation (Å) |
|----------|-----------------|----------------|----------|---------------|
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3 | 11       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2 | 11       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3 | 11       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2 | 11       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3 | 11       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2 | 17       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3 | 17       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2 | 17       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3 | 17       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2 | 17       | 0.21          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3 | 17       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 1        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 1        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 1        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 5        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 5        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 5        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 9        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 9        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 9        | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 12       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 12       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 12       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 13       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 13       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 13       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 14       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 14       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 14       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 15       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 15       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 15       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 17       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 17       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 17       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 19       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 19       | 0.21          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 19       | 0.21          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3 | 3        | 0.21          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3 | 3        | 0.21          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3 | 7        | 0.21          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3 | 7        | 0.21          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 9        | 0.21          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 9        | 0.21          |
| (1,1294) | 1:A:27:LYS:HE2  | 1:A:52:ASP:HB3  | 10       | 0.21          |
| (1,1294) | 1:A:27:LYS:HE3  | 1:A:52:ASP:HB3  | 10       | 0.21          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 11       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD11 | 15       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD12 | 15       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG12 | 1:A:30:ILE:HD13 | 15       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD11 | 15       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD12 | 15       | 0.2           |
| (1,634)  | 1:A:13:ILE:HG13 | 1:A:30:ILE:HD13 | 15       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG21 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG22 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:66:THR:HG23 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG11 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG12 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG2   | 1:A:70:VAL:HG13 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG21 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG22 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:66:THR:HG23 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG11 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG12 | 17       | 0.2           |
| (1,463)  | 1:A:6:LYS:HG3   | 1:A:70:VAL:HG13 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG21 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG22 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:66:THR:HG23 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG11 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG12 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG2  | 1:A:70:VAL:HG13 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG21 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG22 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:66:THR:HG23 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG11 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG12 | 17       | 0.2           |
| (1,463)  | 1:A:11:LYS:HG3  | 1:A:70:VAL:HG13 | 17       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG21 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG22 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG23 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG11 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG12 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG13 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG21 | 20       | 0.2           |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG22 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG23 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG11 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG12 | 20       | 0.2           |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG13 | 20       | 0.2           |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 13       | 0.2           |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 13       | 0.2           |
| (1,386)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 13       | 0.2           |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG21 | 20       | 0.2           |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG22 | 20       | 0.2           |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG23 | 20       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 1        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 4        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 8        | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2  | 14       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3  | 14       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2  | 14       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3  | 14       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2  | 14       | 0.2           |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3  | 14       | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21  | 4        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22  | 4        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23  | 4        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21  | 6        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22  | 6        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23  | 6        | 0.2           |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21  | 7        | 0.2           |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 7        | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 7        | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG21  | 8        | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 8        | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 8        | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG21  | 10       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 10       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 10       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG21  | 11       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 11       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 11       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG21  | 16       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 16       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 16       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG21  | 18       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG22  | 18       | 0.2           |
| (1,15)  | 1:A:1:MET:HB3  | 1:A:3:ILE:HG23  | 18       | 0.2           |
| (1,865) | 1:A:19:PRO:HA  | 1:A:56:LEU:HA   | 6        | 0.19          |
| (1,865) | 1:A:19:PRO:HA  | 1:A:56:LEU:HA   | 16       | 0.19          |
| (1,865) | 1:A:19:PRO:HA  | 1:A:56:LEU:HA   | 17       | 0.19          |
| (1,865) | 1:A:19:PRO:HA  | 1:A:56:LEU:HA   | 18       | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 3        | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 3        | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 3        | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 4        | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 4        | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 4        | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 7        | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 7        | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 7        | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 8        | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 8        | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 8        | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 15       | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 15       | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 15       | 0.19          |
| (1,386) | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 17       | 0.19          |
| (1,386) | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 17       | 0.19          |
| (1,386) | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 17       | 0.19          |
| (1,269) | 1:A:4:PHE:HB2  | 1:A:12:THR:HG21 | 10       | 0.19          |
| (1,269) | 1:A:4:PHE:HB2  | 1:A:12:THR:HG22 | 10       | 0.19          |
| (1,269) | 1:A:4:PHE:HB2  | 1:A:12:THR:HG23 | 10       | 0.19          |

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| Key      | Atom-1          | Atom-2         | Model ID | Violation (Å) |
|----------|-----------------|----------------|----------|---------------|
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA  | 1        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA  | 1        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA  | 1        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA  | 4        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA  | 4        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA  | 4        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA  | 6        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA  | 6        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA  | 6        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA  | 7        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA  | 7        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA  | 7        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA  | 9        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA  | 9        | 0.19          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA  | 9        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3 | 3        | 0.19          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG2 | 10       | 0.19          |
| (1,1560) | 1:A:36:ILE:HG21 | 1:A:40:GLN:HG3 | 10       | 0.19          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG2 | 10       | 0.19          |
| (1,1560) | 1:A:36:ILE:HG22 | 1:A:40:GLN:HG3 | 10       | 0.19          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG2 | 10       | 0.19          |
| (1,1560) | 1:A:36:ILE:HG23 | 1:A:40:GLN:HG3 | 10       | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 2        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 2        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 2        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 3        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 3        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 3        | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG21 | 20       | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG22 | 20       | 0.19          |
| (1,15)   | 1:A:1:MET:HB3   | 1:A:3:ILE:HG23 | 20       | 0.19          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA  | 1        | 0.18          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA  | 2        | 0.18          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA  | 8        | 0.18          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA  | 12       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG  | 1        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG  | 1        | 0.18          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 1        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 2        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 2        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 2        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 5        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 5        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 5        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 6        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 6        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 6        | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 10       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 10       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 10       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 11       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 11       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 11       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 12       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 12       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 12       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 14       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 14       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 14       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 19       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 19       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 19       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG11 | 1:A:69:LEU:HG   | 20       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG12 | 1:A:69:LEU:HG   | 20       | 0.18          |
| (1,386)  | 1:A:5:VAL:HG13 | 1:A:69:LEU:HG   | 20       | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG21 | 2        | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG22 | 2        | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG23 | 2        | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG21 | 7        | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG22 | 7        | 0.18          |
| (1,269)  | 1:A:4:PHE:HB2  | 1:A:12:THR:HG23 | 7        | 0.18          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD2  | 2        | 0.18          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD3  | 2        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG2 | 1:A:48:LYS:HA   | 4        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG3 | 1:A:48:LYS:HA   | 4        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG2 | 1:A:48:LYS:HA   | 7        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG3 | 1:A:48:LYS:HA   | 7        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG2 | 1:A:48:LYS:HA   | 9        | 0.18          |
| (1,2028) | 1:A:48:LYS:HG3 | 1:A:48:LYS:HA   | 9        | 0.18          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1869) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 14       | 0.18          |
| (1,1869) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 14       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 2        | 0.18          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 2        | 0.18          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 2        | 0.18          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 12       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 12       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 12       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 17       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 17       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 17       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 20       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 20       | 0.18          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 20       | 0.18          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD11 | 8        | 0.18          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD12 | 8        | 0.18          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD13 | 8        | 0.18          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 3        | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 5        | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 7        | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 9        | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 10       | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 14       | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 19       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 16       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 16       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 16       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG11  | 1:A:69:LEU:HG   | 18       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG12  | 1:A:69:LEU:HG   | 18       | 0.17          |
| (1,386)  | 1:A:5:VAL:HG13  | 1:A:69:LEU:HG   | 18       | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:13:ILE:HG13 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:15:LEU:HG   | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:36:ILE:HG13 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG2  | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG21  | 1:A:42:ARG:HG3  | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:13:ILE:HG13 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:15:LEU:HG   | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:36:ILE:HG13 | 4        | 0.17          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG2  | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG3  | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG13 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 4        | 0.17          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 4        | 0.17          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG21 | 3        | 0.17          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG22 | 3        | 0.17          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG23 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG21 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG22 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG23 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG21 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG22 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG23 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG21 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG22 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG23 | 3        | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG21 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG22 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG23 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG21 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG22 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG23 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG21 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG22 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG23 | 10       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG21 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG22 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG23 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG21 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG22 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG23 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG21 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG22 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG23 | 13       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG21 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG22 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD11 | 1:A:70:VAL:HG23 | 14       | 0.17          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG21 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG22 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD12 | 1:A:70:VAL:HG23 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG21 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG22 | 14       | 0.17          |
| (1,1916) | 1:A:44:ILE:HD13 | 1:A:70:VAL:HG23 | 14       | 0.17          |
| (1,1869) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 10       | 0.17          |
| (1,1869) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 10       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 5        | 0.17          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 5        | 0.17          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 5        | 0.17          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 11       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 11       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 11       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 18       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 18       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 18       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 19       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 19       | 0.17          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 19       | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD11 | 4        | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD12 | 4        | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD13 | 4        | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD11 | 15       | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD12 | 15       | 0.17          |
| (1,1350) | 1:A:30:ILE:HA   | 1:A:30:ILE:HD13 | 15       | 0.17          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 4        | 0.16          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 13       | 0.16          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 15       | 0.16          |
| (1,865)  | 1:A:19:PRO:HA   | 1:A:56:LEU:HA   | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG21 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG22 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:66:THR:HG23 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG11 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG12 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD2   | 1:A:70:VAL:HG13 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG21 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG22 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:66:THR:HG23 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG11 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG12 | 20       | 0.16          |
| (1,458)  | 1:A:6:LYS:HD3   | 1:A:70:VAL:HG13 | 20       | 0.16          |

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| Key      | Atom-1          | Atom-2        | Model ID | Violation (Å) |
|----------|-----------------|---------------|----------|---------------|
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA | 3        | 0.16          |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA | 3        | 0.16          |
| (1,439)  | 1:A:6:LYS:HD2   | 1:A:12:THR:HA | 18       | 0.16          |
| (1,439)  | 1:A:6:LYS:HD3   | 1:A:12:THR:HA | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 1        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 2        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 3        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 4        | 0.16          |

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| Key      | Atom-1          | Atom-2        | Model ID | Violation (Å) |
|----------|-----------------|---------------|----------|---------------|
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 4        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 5        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 6        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 7        | 0.16          |

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| Key      | Atom-1          | Atom-2        | Model ID | Violation (Å) |
|----------|-----------------|---------------|----------|---------------|
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 7        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 8        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 9        | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 10       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 11       | 0.16          |

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| Key      | Atom-1          | Atom-2        | Model ID | Violation (Å) |
|----------|-----------------|---------------|----------|---------------|
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 11       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 12       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 13       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 14       | 0.16          |

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| Key      | Atom-1          | Atom-2        | Model ID | Violation (Å) |
|----------|-----------------|---------------|----------|---------------|
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 14       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 15       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 16       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA | 17       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA | 18       | 0.16          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA   | 18       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA   | 19       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD11 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD12 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD13 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD21 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD22 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:67:LEU:HA   | 20       | 0.16          |
| (1,2483) | 1:A:67:LEU:HD23 | 1:A:71:LEU:HA   | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 3        | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 10       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 10       | 0.16          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 10       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 10       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 10       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 10       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 14       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 20       | 0.16          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 20       | 0.16          |
| (1,1826) | 1:A:44:ILE:HA  | 1:A:44:ILE:HD11 | 8        | 0.16          |
| (1,1826) | 1:A:44:ILE:HA  | 1:A:44:ILE:HD12 | 8        | 0.16          |
| (1,1826) | 1:A:44:ILE:HA  | 1:A:44:ILE:HD13 | 8        | 0.16          |
| (1,1659) | 1:A:38:PRO:HA  | 1:A:41:GLN:HE21 | 9        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 1        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 1        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 1        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 5        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 5        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 5        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 6        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 6        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 6        | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 11       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 11       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 11       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 12       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 12       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 12       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 14       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 14       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 14       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 16       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 16       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 16       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 19       | 0.16          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 19       | 0.16          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 19       | 0.16          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD11 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD12 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD13 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD21 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD22 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD23 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD11 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD12 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD13 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD21 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD22 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD23 | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD11 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD12 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD13 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD21 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD22 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD23 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD11 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD12 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD13 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD21 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD22 | 15       | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD23 | 15       | 0.15          |
| (1,420)  | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA2  | 4        | 0.15          |
| (1,420)  | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA3  | 4        | 0.15          |
| (1,420)  | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA2  | 4        | 0.15          |
| (1,420)  | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA3  | 4        | 0.15          |
| (1,420)  | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA2  | 13       | 0.15          |
| (1,420)  | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA3  | 13       | 0.15          |
| (1,420)  | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA2  | 13       | 0.15          |
| (1,420)  | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA3  | 13       | 0.15          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD2  | 6        | 0.15          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD3  | 6        | 0.15          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD2  | 19       | 0.15          |
| (1,2564) | 1:A:72:ARG:HA  | 1:A:72:ARG:HD3  | 19       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 2        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 2        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 2        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 2        | 0.15          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 2        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 2        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 4        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 8        | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 12       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 13       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 15       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD22 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD23 | 16       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD11 | 17       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD12 | 17       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD13 | 17       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3 | 1:A:67:LEU:HD21 | 17       | 0.15          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 17       | 0.15          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 17       | 0.15          |
| (1,1867) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 14       | 0.15          |
| (1,1867) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 14       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 15       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 15       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 15       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 16       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 16       | 0.15          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 16       | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 1        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 2        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 3        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 4        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:3:ILE:HA    | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12  | 1:A:29:LYS:HA   | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:3:ILE:HA    | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13  | 1:A:29:LYS:HA   | 5        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:3:ILE:HA    | 6        | 0.15          |
| (1,156)  | 1:A:3:ILE:HD11  | 1:A:29:LYS:HA   | 6        | 0.15          |

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| Key     | Atom-1         | Atom-2        | Model ID | Violation (Å) |
|---------|----------------|---------------|----------|---------------|
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 6        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 6        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 6        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 6        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 7        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 8        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 9        | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 10       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 11       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 12       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 13       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 13       | 0.15          |

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| Key     | Atom-1         | Atom-2        | Model ID | Violation (Å) |
|---------|----------------|---------------|----------|---------------|
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 13       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 13       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 13       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 13       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 14       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 15       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 16       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 17       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 18       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA  | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA  | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA | 19       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:3:ILE:HA  | 20       | 0.15          |
| (1,156) | 1:A:3:ILE:HD11 | 1:A:29:LYS:HA | 20       | 0.15          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,156)  | 1:A:3:ILE:HD12 | 1:A:3:ILE:HA    | 20       | 0.15          |
| (1,156)  | 1:A:3:ILE:HD12 | 1:A:29:LYS:HA   | 20       | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13 | 1:A:3:ILE:HA    | 20       | 0.15          |
| (1,156)  | 1:A:3:ILE:HD13 | 1:A:29:LYS:HA   | 20       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 2        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 2        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 2        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 3        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 3        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 3        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 7        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 7        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 7        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 9        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 9        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 9        | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 10       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 10       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 10       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 13       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 13       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 13       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 17       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 17       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 17       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 18       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 18       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 18       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD11 | 20       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD12 | 20       | 0.15          |
| (1,1350) | 1:A:30:ILE:HA  | 1:A:30:ILE:HD13 | 20       | 0.15          |
| (1,1134) | 1:A:24:GLU:HA  | 1:A:27:LYS:HD2  | 4        | 0.15          |
| (1,1134) | 1:A:24:GLU:HA  | 1:A:27:LYS:HD3  | 4        | 0.15          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD11 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD12 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD13 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD21 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD22 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:15:LEU:HD23 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD11 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD12 | 8        | 0.14          |
| (1,684)  | 1:A:15:LEU:HA  | 1:A:43:LEU:HD13 | 8        | 0.14          |

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| Key     | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|---------|----------------|-----------------|----------|---------------|
| (1,684) | 1:A:15:LEU:HA  | 1:A:43:LEU:HD21 | 8        | 0.14          |
| (1,684) | 1:A:15:LEU:HA  | 1:A:43:LEU:HD22 | 8        | 0.14          |
| (1,684) | 1:A:15:LEU:HA  | 1:A:43:LEU:HD23 | 8        | 0.14          |
| (1,532) | 1:A:8:LEU:HG   | 1:A:8:LEU:H     | 4        | 0.14          |
| (1,420) | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA2  | 9        | 0.14          |
| (1,420) | 1:A:6:LYS:HE2  | 1:A:10:GLY:HA3  | 9        | 0.14          |
| (1,420) | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA2  | 9        | 0.14          |
| (1,420) | 1:A:6:LYS:HE3  | 1:A:10:GLY:HA3  | 9        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:15:LEU:HG   | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG2  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG3  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:15:LEU:HG   | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG2  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG3  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:13:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:15:LEU:HG   | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:36:ILE:HG12 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:36:ILE:HG13 | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:42:ARG:HG2  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG23 | 1:A:42:ARG:HG3  | 8        | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG12 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:13:ILE:HG13 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:15:LEU:HG   | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG12 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:36:ILE:HG13 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG2  | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG21 | 1:A:42:ARG:HG3  | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG12 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:13:ILE:HG13 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:15:LEU:HG   | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG12 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:36:ILE:HG13 | 15       | 0.14          |
| (1,338) | 1:A:5:VAL:HG22 | 1:A:42:ARG:HG2  | 15       | 0.14          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,338)  | 1:A:5:VAL:HG22  | 1:A:42:ARG:HG3  | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG12 | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:13:ILE:HG13 | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:15:LEU:HG   | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG12 | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:36:ILE:HG13 | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG2  | 15       | 0.14          |
| (1,338)  | 1:A:5:VAL:HG23  | 1:A:42:ARG:HG3  | 15       | 0.14          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG21 | 17       | 0.14          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG22 | 17       | 0.14          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG23 | 17       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 6        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 9        | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 18       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 19       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 19       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 19       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 19       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 19       | 0.14          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 19       | 0.14          |
| (1,1869) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 3        | 0.14          |
| (1,1869) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 3        | 0.14          |
| (1,1869) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 13       | 0.14          |
| (1,1869) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 13       | 0.14          |
| (1,1867) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 10       | 0.14          |
| (1,1867) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 10       | 0.14          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 11       | 0.14          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 11       | 0.14          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 11       | 0.14          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 11       | 0.14          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 11       | 0.14          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 11       | 0.14          |
| (1,1475) | 1:A:33:LYS:HD2  | 1:A:33:LYS:HA   | 6        | 0.14          |
| (1,1475) | 1:A:33:LYS:HD3  | 1:A:33:LYS:HA   | 6        | 0.14          |
| (1,1475) | 1:A:33:LYS:HD2  | 1:A:33:LYS:HA   | 11       | 0.14          |
| (1,1475) | 1:A:33:LYS:HD3  | 1:A:33:LYS:HA   | 11       | 0.14          |
| (1,1134) | 1:A:24:GLU:HA   | 1:A:27:LYS:HD2  | 8        | 0.14          |
| (1,1134) | 1:A:24:GLU:HA   | 1:A:27:LYS:HD3  | 8        | 0.14          |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 2        | 0.13          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG21 | 4        | 0.13          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG22 | 4        | 0.13          |
| (1,269)  | 1:A:4:PHE:HB2   | 1:A:12:THR:HG23 | 4        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 1        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 5        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 7        | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD11 | 11       | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD12 | 11       | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD13 | 11       | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD21 | 11       | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD22 | 11       | 0.13          |
| (1,1990) | 1:A:45:PHE:HB3  | 1:A:67:LEU:HD23 | 11       | 0.13          |
| (1,1903) | 1:A:44:ILE:HG21 | 1:A:68:HIS:HB3  | 13       | 0.13          |
| (1,1903) | 1:A:44:ILE:HG22 | 1:A:68:HIS:HB3  | 13       | 0.13          |
| (1,1903) | 1:A:44:ILE:HG23 | 1:A:68:HIS:HB3  | 13       | 0.13          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1903) | 1:A:44:ILE:HG21 | 1:A:68:HIS:HB3  | 14       | 0.13          |
| (1,1903) | 1:A:44:ILE:HG22 | 1:A:68:HIS:HB3  | 14       | 0.13          |
| (1,1903) | 1:A:44:ILE:HG23 | 1:A:68:HIS:HB3  | 14       | 0.13          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 1        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 1        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 1        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 4        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 4        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 4        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 6        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 6        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 6        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 7        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 7        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 7        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 9        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 9        | 0.13          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 9        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 2        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 2        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 2        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 2        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 2        | 0.13          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 2        | 0.13          |
| (1,1659) | 1:A:38:PRO:HA   | 1:A:41:GLN:HE21 | 20       | 0.13          |
| (1,973)  | 1:A:22:THR:HA   | 1:A:55:THR:HB   | 13       | 0.12          |
| (1,562)  | 1:A:9:THR:HG21  | 1:A:11:LYS:HD2  | 15       | 0.12          |
| (1,562)  | 1:A:9:THR:HG21  | 1:A:11:LYS:HD3  | 15       | 0.12          |
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD2  | 15       | 0.12          |
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD3  | 15       | 0.12          |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD2  | 15       | 0.12          |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD3  | 15       | 0.12          |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 7        | 0.12          |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 10       | 0.12          |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 20       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 2        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 7        | 0.12          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 7        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 7        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 7        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 7        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 7        | 0.12          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 18       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 18       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 18       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 18       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 18       | 0.12          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 18       | 0.12          |
| (1,1861) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 8        | 0.12          |
| (1,1861) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 8        | 0.12          |
| (1,1861) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 8        | 0.12          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 2        | 0.12          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 2        | 0.12          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 2        | 0.12          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 12       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 12       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 12       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 17       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 17       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 17       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 20       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 20       | 0.12          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 20       | 0.12          |
| (1,1775) | 1:A:42:ARG:HD2  | 1:A:72:ARG:HA   | 2        | 0.12          |
| (1,1775) | 1:A:42:ARG:HD3  | 1:A:72:ARG:HA   | 2        | 0.12          |
| (1,1775) | 1:A:72:ARG:HD2  | 1:A:72:ARG:HA   | 2        | 0.12          |
| (1,1775) | 1:A:72:ARG:HD3  | 1:A:72:ARG:HA   | 2        | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 10       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 12       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 12       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 12       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 12       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 12       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 12       | 0.12          |

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| Key      | Atom-1         | Atom-2          | Model ID | Violation (Å) |
|----------|----------------|-----------------|----------|---------------|
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG21 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG22 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG23 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG21 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG22 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG23 | 14       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG21 | 18       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG22 | 18       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG23 | 18       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG21 | 18       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG22 | 18       | 0.12          |
| (1,1770) | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG23 | 18       | 0.12          |
| (1,1475) | 1:A:33:LYS:HD2 | 1:A:33:LYS:HA   | 20       | 0.12          |
| (1,1475) | 1:A:33:LYS:HD3 | 1:A:33:LYS:HA   | 20       | 0.12          |
| (1,790)  | 1:A:17:VAL:HA  | 1:A:29:LYS:HE2  | 16       | 0.11          |
| (1,790)  | 1:A:17:VAL:HA  | 1:A:29:LYS:HE3  | 16       | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD2  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD3  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD2  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD3  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD2  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD3  | 1        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD2  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD3  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD2  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD3  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD2  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD3  | 5        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD2  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD3  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD2  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD3  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD2  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD3  | 6        | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD2  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD3  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD2  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG22 | 1:A:11:LYS:HD3  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD2  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG23 | 1:A:11:LYS:HD3  | 14       | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD2  | 16       | 0.11          |
| (1,562)  | 1:A:9:THR:HG21 | 1:A:11:LYS:HD3  | 16       | 0.11          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD2  | 16       | 0.11          |
| (1,562)  | 1:A:9:THR:HG22  | 1:A:11:LYS:HD3  | 16       | 0.11          |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD2  | 16       | 0.11          |
| (1,562)  | 1:A:9:THR:HG23  | 1:A:11:LYS:HD3  | 16       | 0.11          |
| (1,532)  | 1:A:8:LEU:HG    | 1:A:8:LEU:H     | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG21 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG22 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:66:THR:HG23 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG11 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG12 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE2   | 1:A:70:VAL:HG13 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG21 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG22 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:66:THR:HG23 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG11 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG12 | 3        | 0.11          |
| (1,459)  | 1:A:6:LYS:HE3   | 1:A:70:VAL:HG13 | 3        | 0.11          |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA2  | 11       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA3  | 11       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA2  | 11       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA3  | 11       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA2  | 12       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE2   | 1:A:10:GLY:HA3  | 12       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA2  | 12       | 0.11          |
| (1,420)  | 1:A:6:LYS:HE3   | 1:A:10:GLY:HA3  | 12       | 0.11          |
| (1,2564) | 1:A:72:ARG:HA   | 1:A:72:ARG:HD2  | 18       | 0.11          |
| (1,2564) | 1:A:72:ARG:HA   | 1:A:72:ARG:HD3  | 18       | 0.11          |
| (1,1903) | 1:A:44:ILE:HG21 | 1:A:68:HIS:HB3  | 3        | 0.11          |
| (1,1903) | 1:A:44:ILE:HG22 | 1:A:68:HIS:HB3  | 3        | 0.11          |
| (1,1903) | 1:A:44:ILE:HG23 | 1:A:68:HIS:HB3  | 3        | 0.11          |
| (1,1903) | 1:A:44:ILE:HG21 | 1:A:68:HIS:HB3  | 10       | 0.11          |
| (1,1903) | 1:A:44:ILE:HG22 | 1:A:68:HIS:HB3  | 10       | 0.11          |
| (1,1903) | 1:A:44:ILE:HG23 | 1:A:68:HIS:HB3  | 10       | 0.11          |
| (1,1892) | 1:A:44:ILE:HB   | 1:A:68:HIS:HB3  | 9        | 0.11          |
| (1,1878) | 1:A:44:ILE:HG21 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1878) | 1:A:44:ILE:HG21 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1878) | 1:A:44:ILE:HG22 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1878) | 1:A:44:ILE:HG22 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1878) | 1:A:44:ILE:HG23 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1878) | 1:A:44:ILE:HG23 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1867) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 3        | 0.11          |
| (1,1867) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 3        | 0.11          |

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| Key      | Atom-1          | Atom-2          | Model ID | Violation (Å) |
|----------|-----------------|-----------------|----------|---------------|
| (1,1867) | 1:A:44:ILE:HG12 | 1:A:49:GLN:HA   | 13       | 0.11          |
| (1,1867) | 1:A:44:ILE:HG13 | 1:A:49:GLN:HA   | 13       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 9        | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 11       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB2  | 19       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HB3  | 19       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB2  | 19       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HB3  | 19       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB2  | 19       | 0.11          |
| (1,1863) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HB3  | 19       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 5        | 0.11          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 5        | 0.11          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 5        | 0.11          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 11       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 11       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 11       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 18       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 18       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 18       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD11 | 1:A:49:GLN:HA   | 19       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD12 | 1:A:49:GLN:HA   | 19       | 0.11          |
| (1,1860) | 1:A:44:ILE:HD13 | 1:A:49:GLN:HA   | 19       | 0.11          |
| (1,1775) | 1:A:42:ARG:HD2  | 1:A:72:ARG:HA   | 19       | 0.11          |
| (1,1775) | 1:A:42:ARG:HD3  | 1:A:72:ARG:HA   | 19       | 0.11          |
| (1,1775) | 1:A:72:ARG:HD2  | 1:A:72:ARG:HA   | 19       | 0.11          |
| (1,1775) | 1:A:72:ARG:HD3  | 1:A:72:ARG:HA   | 19       | 0.11          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG21 | 7        | 0.11          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG22 | 7        | 0.11          |
| (1,1770) | 1:A:42:ARG:HG2  | 1:A:70:VAL:HG23 | 7        | 0.11          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG21 | 7        | 0.11          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG22 | 7        | 0.11          |
| (1,1770) | 1:A:42:ARG:HG3  | 1:A:70:VAL:HG23 | 7        | 0.11          |

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| <b>Key</b> | <b>Atom-1</b>  | <b>Atom-2</b>   | <b>Model ID</b> | <b>Violation (Å)</b> |
|------------|----------------|-----------------|-----------------|----------------------|
| (1,1770)   | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG21 | 19              | 0.11                 |
| (1,1770)   | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG22 | 19              | 0.11                 |
| (1,1770)   | 1:A:42:ARG:HG2 | 1:A:70:VAL:HG23 | 19              | 0.11                 |
| (1,1770)   | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG21 | 19              | 0.11                 |
| (1,1770)   | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG22 | 19              | 0.11                 |
| (1,1770)   | 1:A:42:ARG:HG3 | 1:A:70:VAL:HG23 | 19              | 0.11                 |
| (1,1285)   | 1:A:27:LYS:HE2 | 1:A:43:LEU:HB3  | 15              | 0.11                 |
| (1,1285)   | 1:A:27:LYS:HE3 | 1:A:43:LEU:HB3  | 15              | 0.11                 |
| (1,1149)   | 1:A:24:GLU:HA  | 1:A:52:ASP:HB3  | 6               | 0.11                 |
| (1,1149)   | 1:A:24:GLU:HA  | 1:A:52:ASP:HB3  | 9               | 0.11                 |

## 10 Dihedral-angle violation analysis

Dihedral angle analysis failed due to data error in the dihedral angle restraints, possibly missing target value