



# Full wwPDB NMR Structure Validation Report ⓘ

Jun 20, 2024 – 04:23 pm BST

PDB ID : 8RPQ  
BMRB ID : 34892  
Title : Solution NMR structure of Integrin beta-1 TMD  
Authors : Muhle-Goll, C.; Moser, C.  
Deposited on : 2024-01-16

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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) : 2.37.1

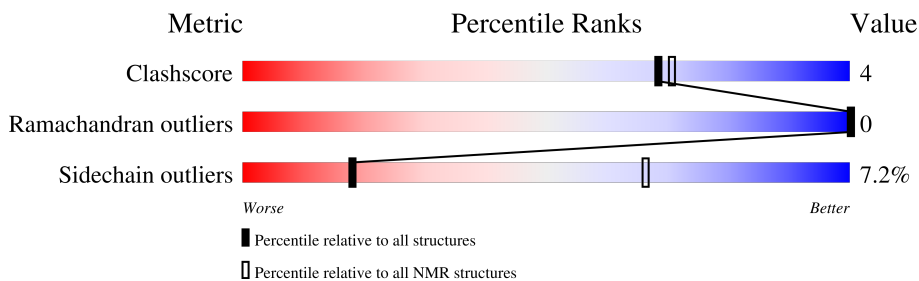
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 86%.

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     | 36     |                  |

## 2 Ensemble composition and analysis i

This entry contains 20 models. Model 5 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *lowest energy*.

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

| Well-defined (core) protein residues |                       |                   |              |
|--------------------------------------|-----------------------|-------------------|--------------|
| Well-defined core                    | Residue range (total) | Backbone RMSD (Å) | Medoid model |
| 1                                    | A:729-A:749 (21)      | 0.80              | 5            |
| 2                                    | A:750-A:759 (10)      | 0.29              | 9            |

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 2 single-model clusters were found.

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

### 3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 591 atoms, of which 318 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Integrin beta-1.

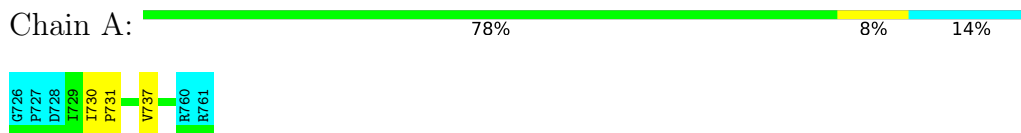
| Mol | Chain | Residues | Atoms |     |     |    |    |   | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|-------|
|     |       |          | Total | C   | H   | N  | O  | S |       |
| 1   | A     | 36       | 591   | 185 | 318 | 46 | 41 | 1 | 0     |

## 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: Integrin beta-1

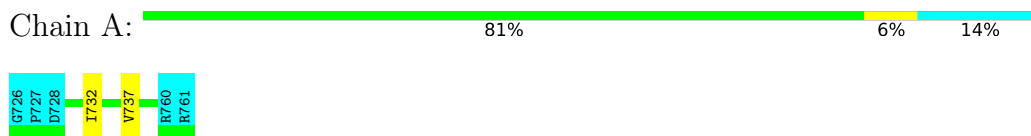


### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

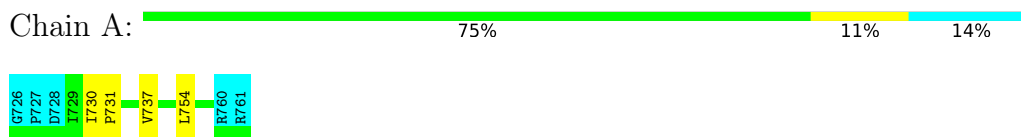
#### 4.2.1 Score per residue for model 1

- Molecule 1: Integrin beta-1



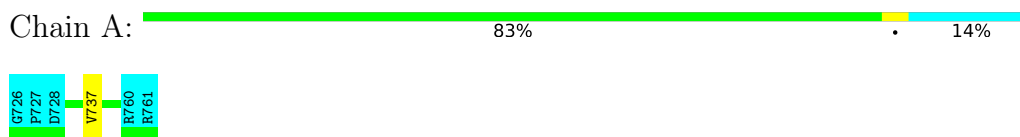
#### 4.2.2 Score per residue for model 2

- Molecule 1: Integrin beta-1



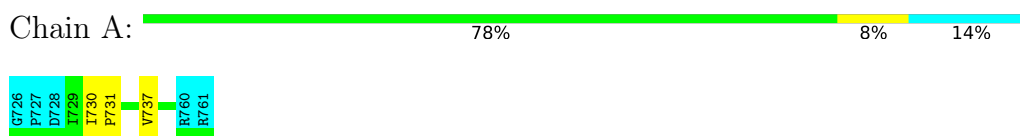
### 4.2.3 Score per residue for model 3

- Molecule 1: Integrin beta-1



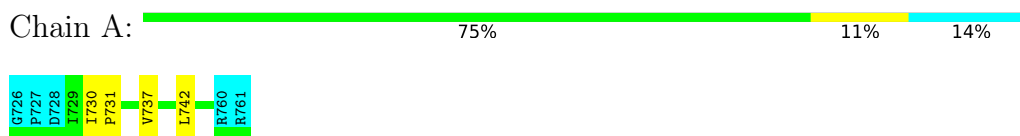
### 4.2.4 Score per residue for model 4

- Molecule 1: Integrin beta-1



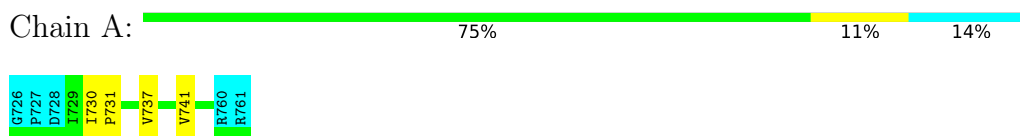
### 4.2.5 Score per residue for model 5 (medoid)

- Molecule 1: Integrin beta-1



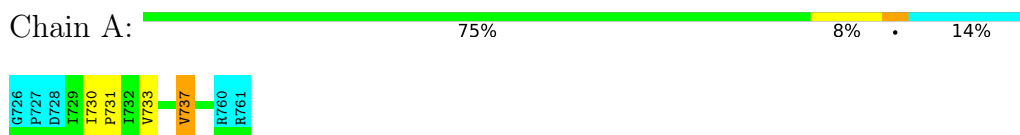
### 4.2.6 Score per residue for model 6

- Molecule 1: Integrin beta-1



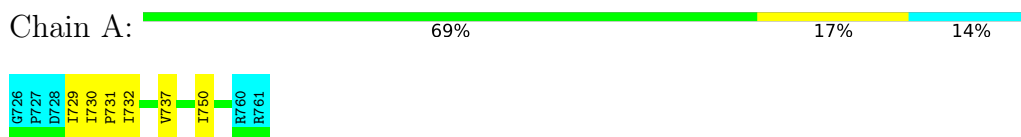
### 4.2.7 Score per residue for model 7

- Molecule 1: Integrin beta-1



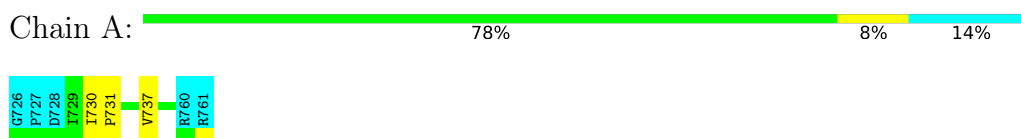
#### 4.2.8 Score per residue for model 8

- Molecule 1: Integrin beta-1



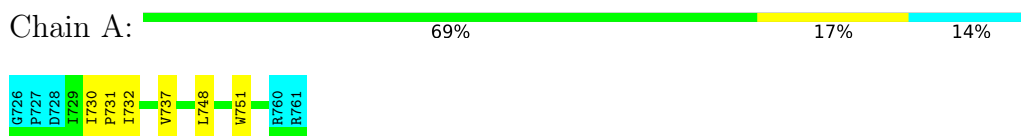
#### 4.2.9 Score per residue for model 9

- Molecule 1: Integrin beta-1



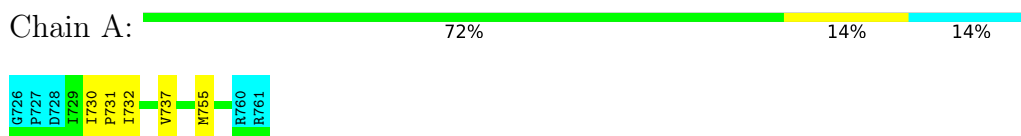
#### 4.2.10 Score per residue for model 10

- Molecule 1: Integrin beta-1



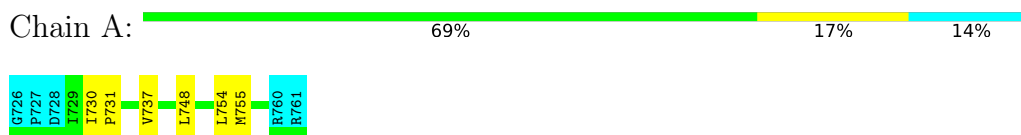
#### 4.2.11 Score per residue for model 11

- Molecule 1: Integrin beta-1



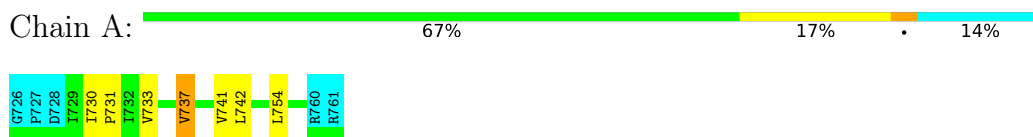
#### 4.2.12 Score per residue for model 12

- Molecule 1: Integrin beta-1



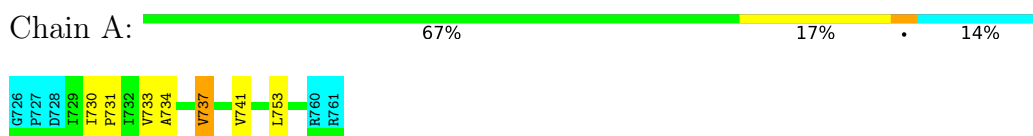
#### 4.2.13 Score per residue for model 13

- Molecule 1: Integrin beta-1



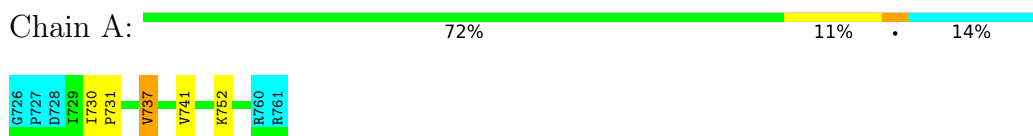
#### 4.2.14 Score per residue for model 14

- Molecule 1: Integrin beta-1



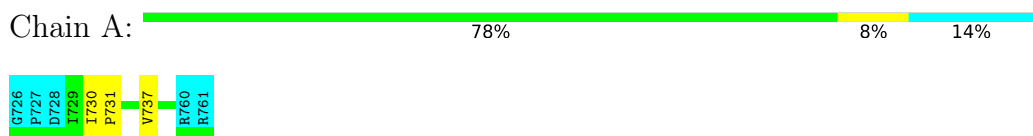
#### 4.2.15 Score per residue for model 15

- Molecule 1: Integrin beta-1



#### 4.2.16 Score per residue for model 16

- Molecule 1: Integrin beta-1



#### 4.2.17 Score per residue for model 17

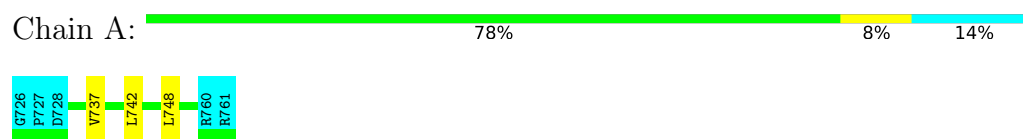
- Molecule 1: Integrin beta-1





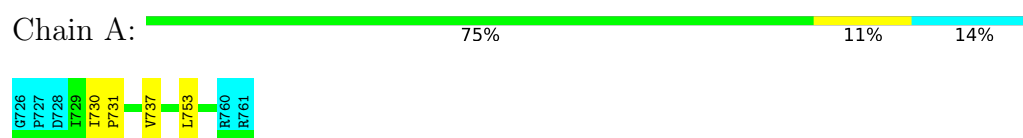
#### 4.2.18 Score per residue for model 18

- Molecule 1: Integrin beta-1



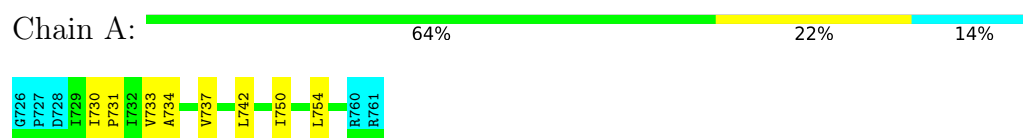
#### 4.2.19 Score per residue for model 19

- Molecule 1: Integrin beta-1



#### 4.2.20 Score per residue for model 20

- Molecule 1: Integrin beta-1



## 5 Refinement protocol and experimental data overview

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

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

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

| Software name | Classification        | Version |
|---------------|-----------------------|---------|
| ARIA          | structure calculation | 2.3.2   |
| ARIA          | 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                       | 442            |
| Number of shifts mapped to atoms             | 442            |
| Number of unparsed shifts                    | 0              |
| Number of shifts with mapping errors         | 0              |
| Number of shifts with mapping warnings       | 0              |
| Assignment completeness (well-defined parts) | 86%            |

## 6 Model quality

### 6.1 Standard geometry

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 6.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|-----|-------|-------|----------|----------|---------|
| 1   | A     | 231   | 276      | 275      | 2±1     |
| All | All   | 4620  | 5520     | 5500     | 38      |

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 4.

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

| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:730:ILE:N    | 1:A:731:PRO:HD2  | 0.53     | 2.18        | 11     | 3     |
| 1:A:737:VAL:O    | 1:A:741:VAL:HG23 | 0.49     | 2.08        | 13     | 5     |
| 1:A:730:ILE:N    | 1:A:731:PRO:CD   | 0.46     | 2.79        | 8      | 15    |
| 1:A:752:LYS:O    | 1:A:756:ILE:HD13 | 0.45     | 2.11        | 17     | 1     |
| 1:A:733:VAL:O    | 1:A:737:VAL:HB   | 0.45     | 2.12        | 13     | 2     |
| 1:A:752:LYS:HD3  | 1:A:753:LEU:N    | 0.44     | 2.27        | 17     | 1     |
| 1:A:732:ILE:HD12 | 1:A:732:ILE:N    | 0.43     | 2.29        | 11     | 2     |
| 1:A:748:LEU:HD22 | 1:A:748:LEU:N    | 0.42     | 2.30        | 18     | 2     |
| 1:A:729:ILE:HA   | 1:A:732:ILE:HD12 | 0.41     | 1.92        | 8      | 1     |
| 1:A:752:LYS:HA   | 1:A:755:MET:HG2  | 0.41     | 1.92        | 17     | 1     |
| 1:A:748:LEU:O    | 1:A:748:LEU:HD13 | 0.41     | 2.16        | 10     | 1     |
| 1:A:733:VAL:HG13 | 1:A:734:ALA:N    | 0.41     | 2.31        | 20     | 2     |
| 1:A:748:LEU:O    | 1:A:751:TRP:HB3  | 0.40     | 2.16        | 10     | 1     |
| 1:A:732:ILE:N    | 1:A:732:ILE:HD12 | 0.40     | 2.32        | 1      | 1     |

## 6.3 Torsion angles [i](#)

### 6.3.1 Protein backbone [i](#)

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

| Mol | Chain | Analysed      | Favoured     | Allowed    | Outliers   | Percentiles |     |
|-----|-------|---------------|--------------|------------|------------|-------------|-----|
| 1   | A     | 31/36 (86%)   | 30±1 (97±3%) | 1±1 (3±3%) | 0±0 (0±0%) | 100         | 100 |
| All | All   | 620/720 (86%) | 602 (97%)    | 18 (3%)    | 0 (0%)     | 100         | 100 |

There are no Ramachandran outliers.

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

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

| Mol | Chain | Analysed      | Rotameric    | Outliers   | Percentiles |    |
|-----|-------|---------------|--------------|------------|-------------|----|
| 1   | A     | 25/29 (86%)   | 23±1 (93±4%) | 2±1 (7±4%) | 18          | 66 |
| All | All   | 500/580 (86%) | 464 (93%)    | 36 (7%)    | 18          | 66 |

All 7 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     | 737 | VAL  | 19             |
| 1   | A     | 742 | LEU  | 5              |
| 1   | A     | 754 | LEU  | 4              |
| 1   | A     | 750 | ILE  | 2              |
| 1   | A     | 755 | MET  | 2              |
| 1   | A     | 753 | LEU  | 2              |
| 1   | A     | 752 | LYS  | 2              |

### 6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 6.7 Other polymers [i](#)

There are no such molecules in this entry.

## 6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 7 Chemical shift validation i

The completeness of assignment taking into account all chemical shift lists is 86% for the well-defined parts and 82% for the entire structure.

### 7.1 Chemical shift list 1

File name: working\_cs.cif

Chemical shift list name: *assigned\_chemical\_shifts\_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                  | 442 |
| Number of shifts mapped to atoms        | 442 |
| Number of unparsed shifts               | 0   |
| Number of shifts with mapping errors    | 0   |
| Number of shifts with mapping warnings  | 0   |
| Number of shift outliers (ShiftChecker) | 0   |

#### 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         |
|------------------------|----------|---------------------------------|--------------------------|
| $^{13}\text{C}_\alpha$ | 35       | 0.00 $\pm$ 0.26                 | None needed (< 0.5 ppm)  |
| $^{13}\text{C}_\beta$  | 32       | 0.87 $\pm$ 0.12                 | Should be checked        |
| $^{13}\text{C}'$       | 0        | —                               | None (insufficient data) |
| $^{15}\text{N}$        | 33       | 0.96 $\pm$ 0.73                 | None needed (imprecise)  |

#### 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 86%, i.e. 399 atoms were assigned a chemical shift out of a possible 465. 0 out of 11 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total         | $^1\text{H}$  | $^{13}\text{C}$ | $^{15}\text{N}$ |
|-----------|---------------|---------------|-----------------|-----------------|
| Backbone  | 125/156 (80%) | 64/64 (100%)  | 31/62 (50%)     | 30/30 (100%)    |
| Sidechain | 258/289 (89%) | 177/199 (89%) | 81/89 (91%)     | 0/1 (0%)        |

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|          | Total         | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|----------|---------------|----------------|-----------------|-----------------|
| Aromatic | 16/20 (80%)   | 8/10 (80%)     | 7/7 (100%)      | 1/3 (33%)       |
| Overall  | 399/465 (86%) | 249/273 (91%)  | 119/158 (75%)   | 31/34 (91%)     |

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 82%, i.e. 442 atoms were assigned a chemical shift out of a possible 538. 0 out of 11 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total         | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|-----------|---------------|----------------|-----------------|-----------------|
| Backbone  | 139/180 (77%) | 71/74 (96%)    | 35/72 (49%)     | 33/34 (97%)     |
| Sidechain | 287/338 (85%) | 196/229 (86%)  | 91/102 (89%)    | 0/7 (0%)        |
| Aromatic  | 16/20 (80%)   | 8/10 (80%)     | 7/7 (100%)      | 1/3 (33%)       |
| Overall   | 442/538 (82%) | 275/313 (88%)  | 133/181 (73%)   | 34/44 (77%)     |

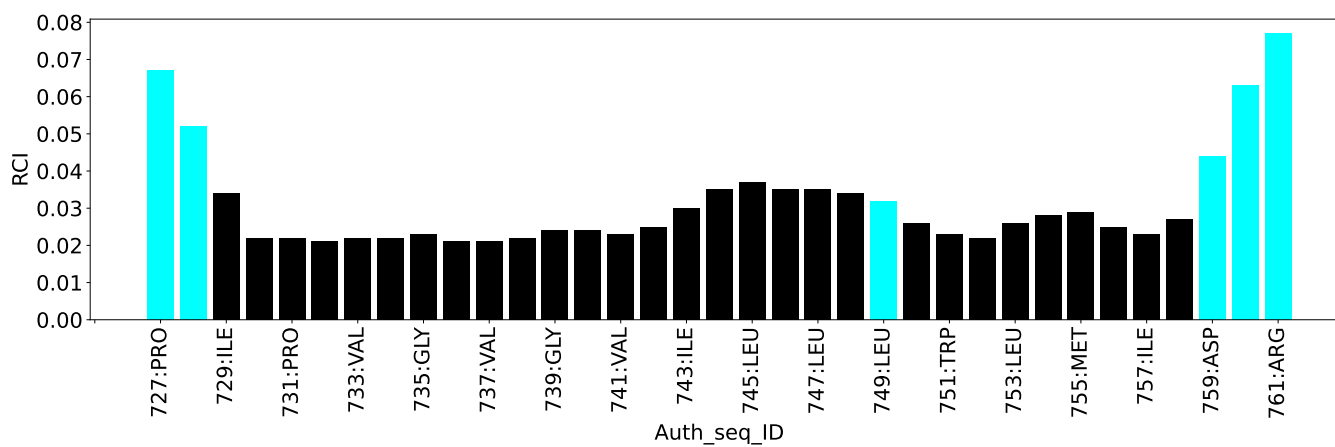
#### 7.1.4 Statistically unusual chemical shifts [i](#)

There are no statistically unusual chemical shifts.

#### 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                                | 476   |
| Intra-residue ( $ i-j =0$ )                              | 158   |
| Sequential ( $ i-j =1$ )                                 | 130   |
| Medium range ( $ i-j >1$ and $ i-j <5$ )                 | 188   |
| Long range ( $ i-j \geq 5$ )                             | 0     |
| Inter-chain  | 0     |
| Hydrogen bond restraints                                 | 0     |
| Disulfide bond restraints                                | 0     |
| Total dihedral-angle restraints                          | 0     |
| Number of unmapped restraints                            | 0     |
| Number of restraints per residue                         | 13.2  |
| Number of long range restraints per residue <sup>1</sup> | 0.0   |

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

### 8.2 Residual restraint violations

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

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

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

| Bins (Å)         | Average number of violations per model | Max (Å) |
|------------------|--|---------|
| 0.1-0.2 (Small)  | 3.4                                    | 0.2     |
| 0.2-0.5 (Medium) | 7.5                                    | 0.5     |
| >0.5 (Large)     | 22.1                                   | 4.26    |



### 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](#)

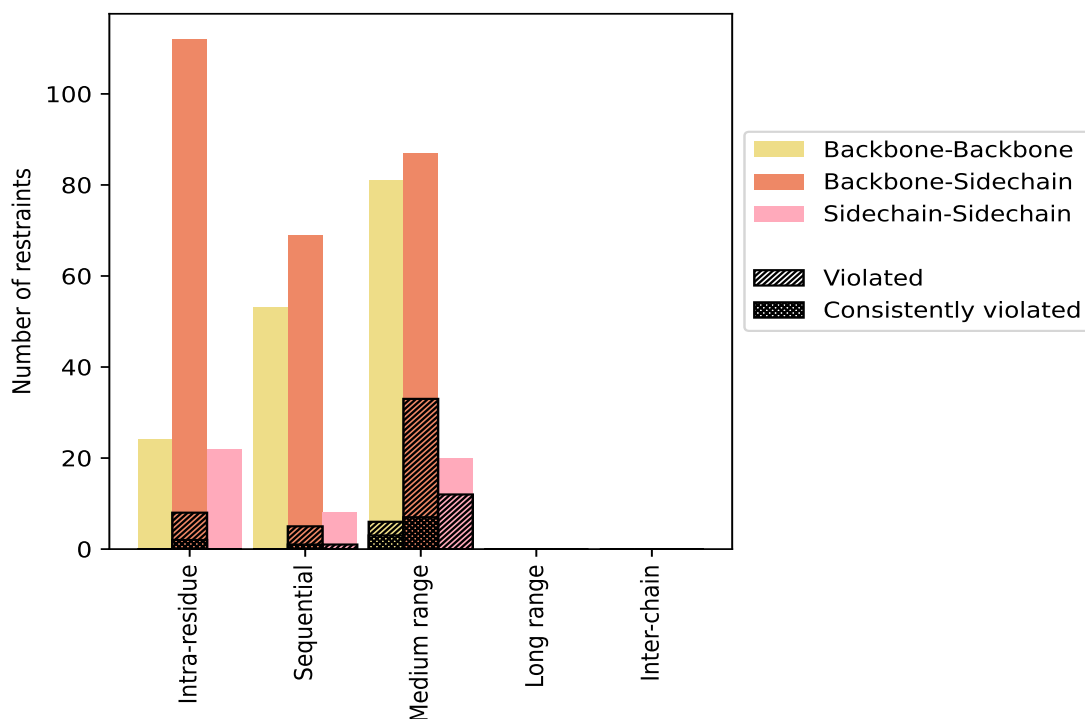
### 9.1 Summary of distance violations [i](#)

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 (<math> i-j =0</math>)</b>                                 | <b>158</b> | <b>33.2</b>    | <b>8</b>              | <b>5.1</b>     | <b>1.7</b>     | <b>2</b>                           | <b>1.3</b>     | <b>0.4</b>     |
| Backbone-Backbone   | 24         | 5.0            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 112        | 23.5           | 8                     | 7.1            | 1.7            | 2                                  | 1.8            | 0.4            |
| Sidechain-Sidechain   | 22         | 4.6            | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| <b>Sequential (<math> i-j =1</math>)</b>                                    | <b>130</b> | <b>27.3</b>    | <b>6</b>              | <b>4.6</b>     | <b>1.3</b>     | <b>1</b>                           | <b>0.8</b>     | <b>0.2</b>     |
| Backbone-Backbone   | 53         | 11.1           | 0                     | 0.0            | 0.0            | 0                                  | 0.0            | 0.0            |
| Backbone-Sidechain  | 69         | 14.5           | 5                     | 7.2            | 1.1            | 1                                  | 1.4            | 0.2            |
| Sidechain-Sidechain   | 8          | 1.7            | 1                     | 12.5           | 0.2            | 0                                  | 0.0            | 0.0            |
| <b>Medium range (<math> i-j &gt;1</math> &amp; <math> i-j &lt;5</math>)</b> | <b>188</b> | <b>39.5</b>    | <b>51</b>             | <b>27.1</b>    | <b>10.7</b>    | <b>10</b>                          | <b>5.3</b>     | <b>2.1</b>     |
| Backbone-Backbone   | 81         | 17.0           | 6                     | 7.4            | 1.3            | 3                                  | 3.7            | 0.6            |
| Backbone-Sidechain  | 87         | 18.3           | 33                    | 37.9           | 6.9            | 7                                  | 8.0            | 1.5            |
| Sidechain-Sidechain   | 20         | 4.2            | 12                    | 60.0           | 2.5            | 0                                  | 0.0            | 0.0            |
| <b>Long range (<math> i-j \geq 5</math>)</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>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>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>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>476</b> | <b>100.0</b>   | <b>65</b>             | <b>13.7</b>    | <b>13.7</b>    | <b>13</b>                          | <b>2.7</b>     | <b>2.7</b>     |
| Backbone-Backbone   | 158        | 33.2           | 6                     | 3.8            | 1.3            | 3                                  | 1.9            | 0.6            |
| Backbone-Sidechain  | 268        | 56.3           | 46                    | 17.2           | 9.7            | 10                                 | 3.7            | 2.1            |
| Sidechain-Sidechain   | 50         | 10.5           | 13                    | 26.0           | 2.7            | 0                                  | 0.0            | 0.0            |

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

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



Violated and consistently violated restraints are shown using different hatch patterns in their respective categories. The hydrogen bonds and 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        | 5                    | 4               | 27              | 0               | 0               | 36    | 0.95     | 3.24    | 0.79                | 0.9        |
| 2        | 3                    | 3               | 26              | 0               | 0               | 32    | 0.84     | 3.29    | 0.7                 | 0.66       |
| 3        | 3                    | 3               | 25              | 0               | 0               | 31    | 0.92     | 3.51    | 0.81                | 0.65       |
| 4        | 4                    | 5               | 29              | 0               | 0               | 38    | 0.86     | 2.85    | 0.57                | 0.88       |
| 5        | 3                    | 1               | 28              | 0               | 0               | 32    | 1.07     | 4.26    | 0.79                | 1.02       |
| 6        | 5                    | 3               | 27              | 0               | 0               | 35    | 0.83     | 2.62    | 0.54                | 0.84       |
| 7        | 2                    | 2               | 20              | 0               | 0               | 24    | 0.84     | 2.25    | 0.5                 | 0.76       |
| 8        | 4                    | 3               | 26              | 0               | 0               | 33    | 1.01     | 2.61    | 0.73                | 0.93       |
| 9        | 4                    | 3               | 27              | 0               | 0               | 34    | 0.99     | 3.55    | 0.7                 | 0.96       |
| 10       | 5                    | 4               | 30              | 0               | 0               | 39    | 0.76     | 2.55    | 0.52                | 0.65       |

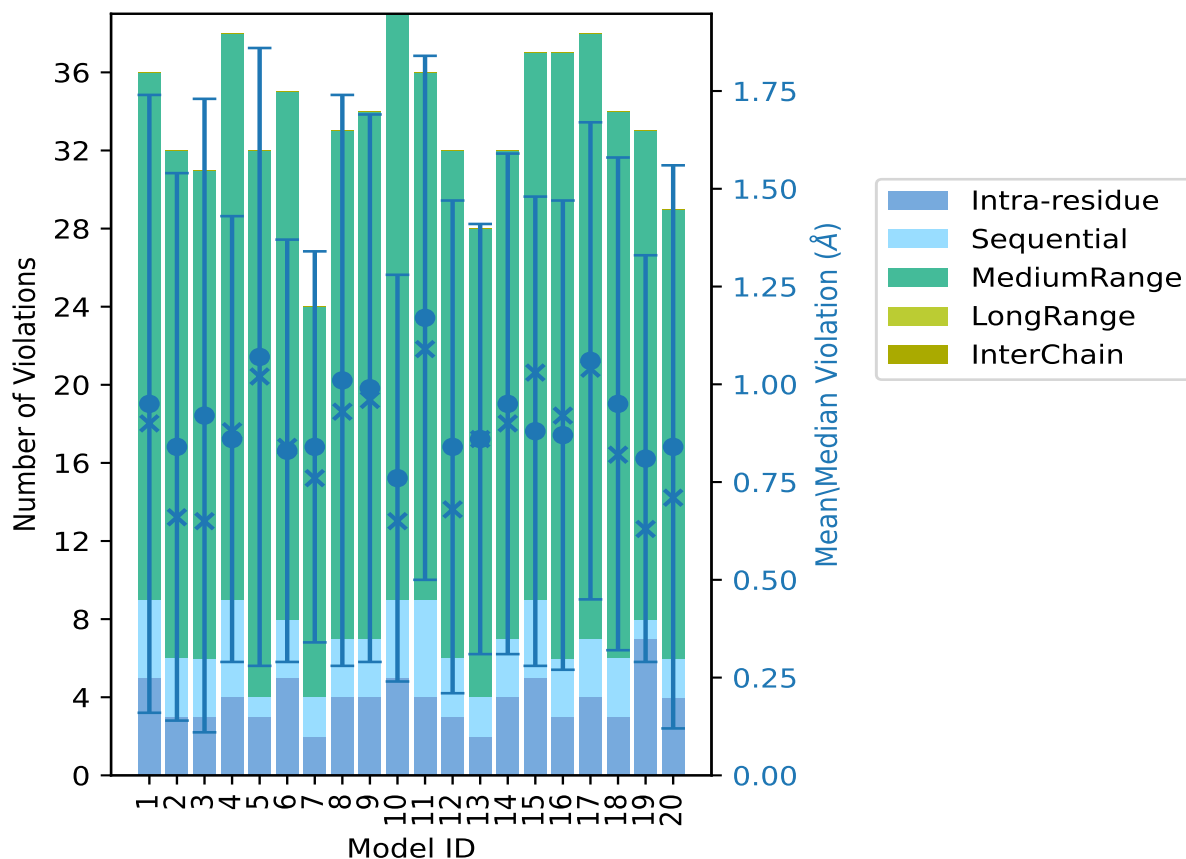
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| Model ID | Number of violations |                 |                 |                 |                 | Total | Mean (Å) | Max (Å) | SD <sup>6</sup> (Å) | Median (Å) |
|----------|----------------------|-----------------|-----------------|-----------------|-----------------|-------|----------|---------|---------------------|------------|
|          | IR <sup>1</sup>      | SQ <sup>2</sup> | MR <sup>3</sup> | LR <sup>4</sup> | IC <sup>5</sup> |       |          |         |                     |            |
| 11       | 4                    | 5               | 27              | 0               | 0               | 36    | 1.17     | 2.85    | 0.67                | 1.09       |
| 12       | 3                    | 3               | 26              | 0               | 0               | 32    | 0.84     | 2.33    | 0.63                | 0.68       |
| 13       | 2                    | 2               | 24              | 0               | 0               | 28    | 0.86     | 2.59    | 0.55                | 0.86       |
| 14       | 4                    | 3               | 25              | 0               | 0               | 32    | 0.95     | 2.66    | 0.64                | 0.9        |
| 15       | 5                    | 4               | 28              | 0               | 0               | 37    | 0.88     | 2.46    | 0.6                 | 1.03       |
| 16       | 3                    | 3               | 31              | 0               | 0               | 37    | 0.87     | 2.99    | 0.6                 | 0.92       |
| 17       | 4                    | 3               | 31              | 0               | 0               | 38    | 1.06     | 2.66    | 0.61                | 1.04       |
| 18       | 3                    | 3               | 28              | 0               | 0               | 34    | 0.95     | 2.54    | 0.63                | 0.82       |
| 19       | 7                    | 1               | 25              | 0               | 0               | 33    | 0.81     | 2.23    | 0.52                | 0.63       |
| 20       | 4                    | 2               | 23              | 0               | 0               | 29    | 0.84     | 3.32    | 0.72                | 0.71       |

<sup>1</sup>Intra-residue restraints, <sup>2</sup>Sequential restraints, <sup>3</sup>Medium range restraints, <sup>4</sup>Long range restraints, <sup>5</sup>Inter-chain restraints, <sup>6</sup>Standard deviation

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



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

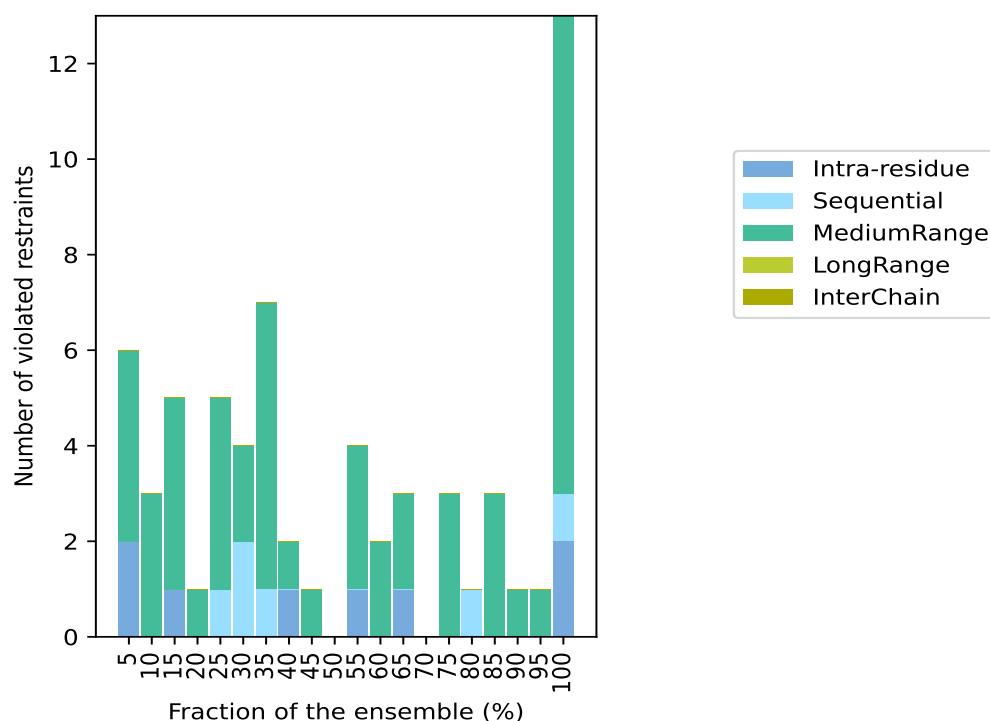
### 9.3 Distance violation statistics for the ensemble

Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 411(IR:150, SQ:124, MR:137, LR:0, 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>       | %     |
| 2                             | 0               | 4               | 0               | 0               | 6     | 1                        | 5.0   |
| 0                             | 0               | 3               | 0               | 0               | 3     | 2                        | 10.0  |
| 1                             | 0               | 4               | 0               | 0               | 5     | 3                        | 15.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 4                        | 20.0  |
| 0                             | 1               | 4               | 0               | 0               | 5     | 5                        | 25.0  |
| 0                             | 2               | 2               | 0               | 0               | 4     | 6                        | 30.0  |
| 0                             | 1               | 6               | 0               | 0               | 7     | 7                        | 35.0  |
| 1                             | 0               | 1               | 0               | 0               | 2     | 8                        | 40.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 9                        | 45.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 10                       | 50.0  |
| 1                             | 0               | 3               | 0               | 0               | 4     | 11                       | 55.0  |
| 0                             | 0               | 2               | 0               | 0               | 2     | 12                       | 60.0  |
| 1                             | 0               | 2               | 0               | 0               | 3     | 13                       | 65.0  |
| 0                             | 0               | 0               | 0               | 0               | 0     | 14                       | 70.0  |
| 0                             | 0               | 3               | 0               | 0               | 3     | 15                       | 75.0  |
| 0                             | 1               | 0               | 0               | 0               | 1     | 16                       | 80.0  |
| 0                             | 0               | 3               | 0               | 0               | 3     | 17                       | 85.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 18                       | 90.0  |
| 0                             | 0               | 1               | 0               | 0               | 1     | 19                       | 95.0  |
| 2                             | 1               | 10              | 0               | 0               | 13    | 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

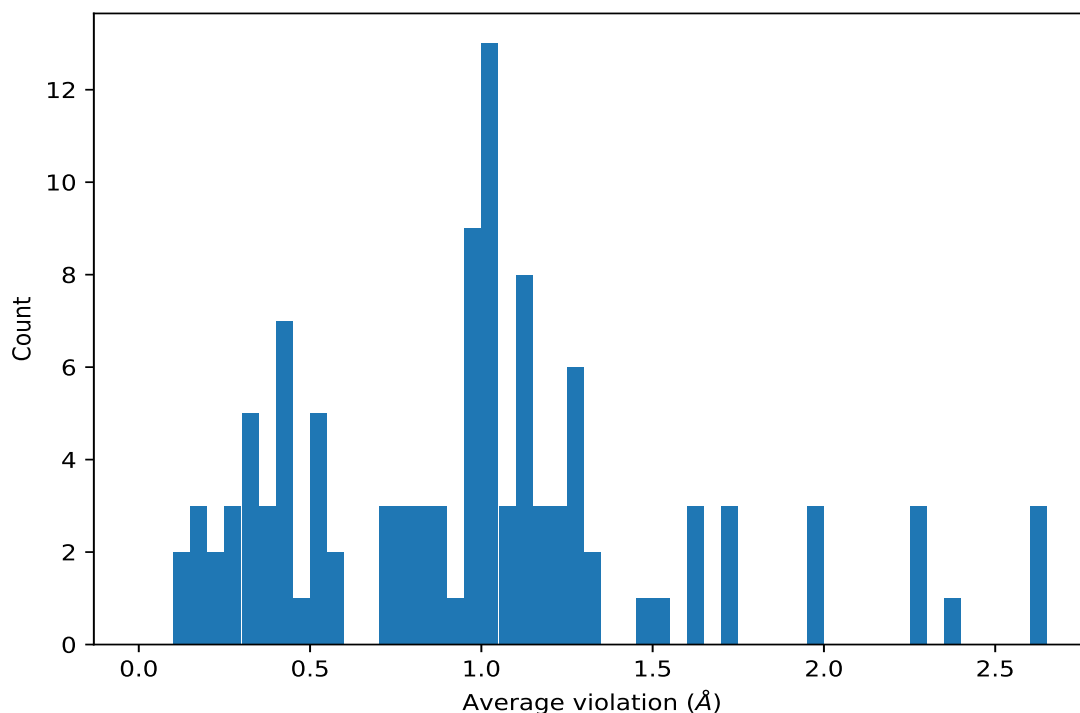
### 9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)



## 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) |
|---------|---------------|------------------|---------------------|----------|---------------------|------------|
| (1,407) | 1:757:A:ILE:H | 1:761:A:ARG:HG2  | 20                  | 2.39     | 0.92                | 2.3        |
| (1,410) | 1:752:A:LYS:H | 1:749:A:LEU:HD21 | 20                  | 1.74     | 0.83                | 2.26       |
| (1,410) | 1:752:A:LYS:H | 1:749:A:LEU:HD22 | 20                  | 1.74     | 0.83                | 2.26       |
| (1,410) | 1:752:A:LYS:H | 1:749:A:LEU:HD23 | 20                  | 1.74     | 0.83                | 2.26       |
| (1,402) | 1:756:A:ILE:H | 1:753:A:LEU:HB3  | 20                  | 1.51     | 0.12                | 1.48       |
| (1,401) | 1:743:A:ILE:H | 1:740:A:ILE:HB   | 20                  | 1.49     | 0.17                | 1.5        |
| (1,398) | 1:743:A:ILE:H | 1:739:A:GLY:HA3  | 20                  | 1.33     | 0.19                | 1.32       |
| (1,134) | 1:747:A:LEU:H | 1:744:A:GLY:HA3  | 20                  | 1.13     | 0.11                | 1.15       |
| (1,263) | 1:733:A:VAL:H | 1:736:A:VAL:HG11 | 20                  | 1.03     | 0.14                | 1.03       |
| (1,263) | 1:733:A:VAL:H | 1:736:A:VAL:HG12 | 20                  | 1.03     | 0.14                | 1.03       |
| (1,263) | 1:733:A:VAL:H | 1:736:A:VAL:HG13 | 20                  | 1.03     | 0.14                | 1.03       |
| (1,243) | 1:736:A:VAL:H | 1:736:A:VAL:HG11 | 20                  | 1.03     | 0.0                 | 1.03       |
| (1,243) | 1:736:A:VAL:H | 1:736:A:VAL:HG12 | 20                  | 1.03     | 0.0                 | 1.03       |
| (1,243) | 1:736:A:VAL:H | 1:736:A:VAL:HG13 | 20                  | 1.03     | 0.0                 | 1.03       |
| (1,403) | 1:743:A:ILE:H | 1:740:A:ILE:HD11 | 20                  | 0.97     | 0.61                | 0.74       |
| (1,403) | 1:743:A:ILE:H | 1:740:A:ILE:HD12 | 20                  | 0.97     | 0.61                | 0.74       |

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| Key     | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 20                  | 0.97     | 0.61                | 0.74       |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 20                  | 0.57     | 0.16                | 0.63       |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 20                  | 0.54     | 0.19                | 0.52       |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 20                  | 0.54     | 0.19                | 0.52       |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 20                  | 0.54     | 0.19                | 0.52       |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 20                  | 0.43     | 0.02                | 0.44       |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 20                  | 0.43     | 0.02                | 0.44       |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 20                  | 0.43     | 0.02                | 0.44       |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 20                  | 0.39     | 0.06                | 0.4        |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 19                  | 1.11     | 0.11                | 1.07       |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 19                  | 1.11     | 0.11                | 1.07       |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 19                  | 1.11     | 0.11                | 1.07       |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 18                  | 0.78     | 0.28                | 0.86       |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 17                  | 1.34     | 0.08                | 1.36       |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 17                  | 1.0      | 0.07                | 1.02       |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 17                  | 1.0      | 0.07                | 1.02       |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 17                  | 1.0      | 0.07                | 1.02       |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 17                  | 0.33     | 0.16                | 0.35       |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 17                  | 0.33     | 0.16                | 0.35       |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 17                  | 0.33     | 0.16                | 0.35       |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 16                  | 0.17     | 0.06                | 0.15       |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 15                  | 0.46     | 0.2                 | 0.46       |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 15                  | 0.35     | 0.16                | 0.34       |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 15                  | 0.34     | 0.16                | 0.3        |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 13                  | 1.96     | 0.63                | 2.06       |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 13                  | 1.96     | 0.63                | 2.06       |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 13                  | 1.96     | 0.63                | 2.06       |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 13                  | 0.19     | 0.07                | 0.21       |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 13                  | 0.13     | 0.02                | 0.12       |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 12                  | 0.71     | 0.43                | 0.66       |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 12                  | 0.71     | 0.43                | 0.66       |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 12                  | 0.71     | 0.43                | 0.66       |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 12                  | 0.35     | 0.19                | 0.3        |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 11                  | 1.11     | 0.0                 | 1.11       |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 11                  | 1.11     | 0.0                 | 1.11       |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 11                  | 1.11     | 0.0                 | 1.11       |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 11                  | 1.0      | 0.2                 | 1.07       |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 11                  | 1.0      | 0.2                 | 1.07       |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 11                  | 1.0      | 0.2                 | 1.07       |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 11                  | 0.98     | 0.17                | 0.95       |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 11                  | 0.98     | 0.17                | 0.95       |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 11                  | 0.98     | 0.17                | 0.95       |

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| Key     | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 11                  | 0.57     | 0.34                | 0.68       |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 9                   | 1.26     | 0.16                | 1.27       |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 9                   | 1.26     | 0.16                | 1.27       |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 9                   | 1.26     | 0.16                | 1.27       |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 8                   | 1.03     | 0.19                | 1.09       |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 8                   | 0.5      | 0.03                | 0.5        |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 7                   | 2.25     | 0.7                 | 2.42       |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 7                   | 2.25     | 0.7                 | 2.42       |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 7                   | 2.25     | 0.7                 | 2.42       |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 7                   | 1.25     | 0.66                | 1.5        |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 7                   | 1.25     | 0.66                | 1.5        |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 7                   | 1.25     | 0.66                | 1.5        |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 7                   | 1.07     | 0.42                | 1.23       |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 7                   | 1.07     | 0.42                | 1.23       |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 7                   | 1.07     | 0.42                | 1.23       |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 7                   | 0.82     | 0.16                | 0.86       |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 7                   | 0.82     | 0.16                | 0.86       |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 7                   | 0.82     | 0.16                | 0.86       |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 7                   | 0.54     | 0.53                | 0.2        |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 7                   | 0.44     | 0.18                | 0.36       |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 7                   | 0.25     | 0.06                | 0.22       |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 7                   | 0.25     | 0.06                | 0.22       |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 7                   | 0.25     | 0.06                | 0.22       |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 6                   | 2.6      | 0.04                | 2.59       |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 6                   | 2.6      | 0.04                | 2.59       |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 6                   | 2.6      | 0.04                | 2.59       |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 6                   | 1.21     | 0.19                | 1.1        |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 6                   | 1.21     | 0.19                | 1.1        |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 6                   | 1.21     | 0.19                | 1.1        |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 6                   | 1.13     | 0.09                | 1.16       |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 6                   | 0.79     | 0.61                | 0.62       |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 5                   | 1.17     | 0.57                | 1.55       |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 5                   | 1.17     | 0.57                | 1.55       |
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 5                   | 1.17     | 0.57                | 1.55       |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 5                   | 0.9      | 0.36                | 1.09       |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 5                   | 0.41     | 0.25                | 0.4        |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 5                   | 0.34     | 0.17                | 0.39       |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 5                   | 0.22     | 0.08                | 0.25       |
| (1,326) | 1:755:A:MET:HB3  | 1:752:A:LYS:HA   | 4                   | 0.23     | 0.07                | 0.22       |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD11 | 3                   | 1.6      | 0.29                | 1.59       |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD12 | 3                   | 1.6      | 0.29                | 1.59       |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD13 | 3                   | 1.6      | 0.29                | 1.59       |

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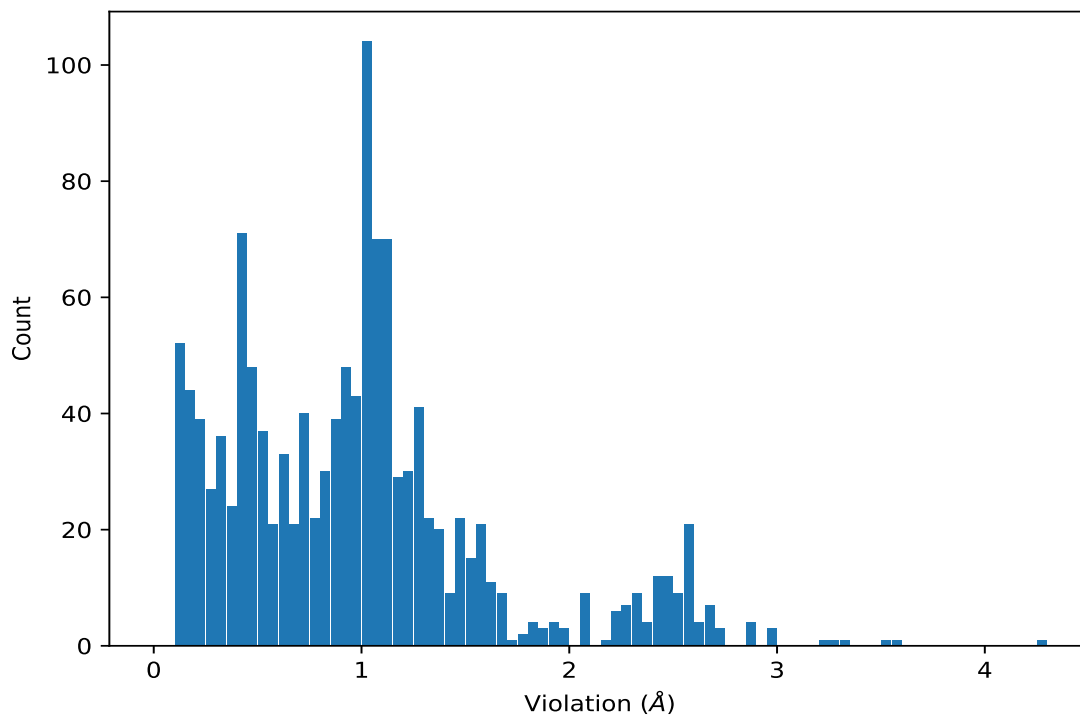
| Key     | Atom-1           | Atom-2           | Models <sup>1</sup> | Mean (Å) | SD <sup>1</sup> (Å) | Median (Å) |
|---------|------------------|------------------|---------------------|----------|---------------------|------------|
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD11 | 3                   | 0.98     | 0.43                | 0.72       |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD12 | 3                   | 0.98     | 0.43                | 0.72       |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD13 | 3                   | 0.98     | 0.43                | 0.72       |
| (1,357) | 1:751:A:TRP:HD1  | 1:754:A:LEU:HB2  | 3                   | 0.44     | 0.25                | 0.46       |
| (1,126) | 1:754:A:LEU:HB2  | 1:751:A:TRP:HA   | 3                   | 0.4      | 0.2                 | 0.35       |
| (1,285) | 1:743:A:ILE:H    | 1:743:A:ILE:HG12 | 3                   | 0.16     | 0.05                | 0.17       |
| (1,396) | 1:741:A:VAL:HG21 | 1:738:A:ALA:HA   | 2                   | 0.89     | 0.79                | 0.89       |
| (1,396) | 1:741:A:VAL:HG22 | 1:738:A:ALA:HA   | 2                   | 0.89     | 0.79                | 0.89       |
| (1,396) | 1:741:A:VAL:HG23 | 1:738:A:ALA:HA   | 2                   | 0.89     | 0.79                | 0.89       |
| (1,358) | 1:751:A:TRP:HD1  | 1:755:A:MET:HG2  | 2                   | 0.76     | 0.53                | 0.76       |
| (1,394) | 1:737:A:VAL:HB   | 1:733:A:VAL:HA   | 2                   | 0.1      | 0.0                 | 0.1        |

<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) |
|---------|------------------|------------------|----------|---------------|
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 5        | 4.26          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 9        | 3.55          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 3        | 3.51          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 20       | 3.32          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 2        | 3.29          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 1        | 3.24          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 16       | 2.99          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 16       | 2.99          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 16       | 2.99          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 4        | 2.85          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 11       | 2.85          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 11       | 2.85          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 11       | 2.85          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 1        | 2.71          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 1        | 2.71          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 1        | 2.71          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 3        | 2.69          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 3        | 2.69          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 3        | 2.69          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 17       | 2.66          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 14       | 2.66          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 14       | 2.66          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 14       | 2.66          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 6        | 2.62          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 8        | 2.61          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 8        | 2.61          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 8        | 2.61          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 13       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 13       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 13       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 17       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 17       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 17       | 2.59          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 17       | 2.59          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 17       | 2.59          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 17       | 2.59          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 5        | 2.58          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 5        | 2.58          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 5        | 2.58          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 9        | 2.55          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 9        | 2.55          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 9        | 2.55          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 14       | 2.55          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 14       | 2.55          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 14       | 2.55          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 10       | 2.55          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 10       | 2.55          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 10       | 2.55          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD11 | 18       | 2.54          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD12 | 18       | 2.54          |
| (1,392) | 1:746:A:ALA:H    | 1:742:A:LEU:HD13 | 18       | 2.54          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 3        | 2.52          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 3        | 2.52          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 3        | 2.52          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 11       | 2.51          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 11       | 2.51          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 11       | 2.51          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 18       | 2.49          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 18       | 2.49          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 18       | 2.49          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 15       | 2.46          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 15       | 2.46          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 15       | 2.46          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 11       | 2.45          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 11       | 2.45          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 11       | 2.45          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 8        | 2.45          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 8        | 2.45          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 8        | 2.45          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 8        | 2.44          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 8        | 2.44          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 8        | 2.44          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 20       | 2.42          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 20       | 2.42          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 20       | 2.42          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 2        | 2.42          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 2        | 2.42          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 2        | 2.42          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 1        | 2.41          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 1        | 2.41          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 1        | 2.41          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 4        | 2.37          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 4        | 2.37          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 4        | 2.37          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 14       | 2.36          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 5        | 2.34          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 5        | 2.34          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 5        | 2.34          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 12       | 2.33          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 12       | 2.33          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 12       | 2.33          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 1        | 2.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 1        | 2.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 1        | 2.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 12       | 2.27          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 12       | 2.27          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 12       | 2.27          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 1        | 2.26          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 1        | 2.26          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 1        | 2.26          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 7        | 2.25          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 8        | 2.24          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 8        | 2.24          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 8        | 2.24          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 19       | 2.23          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 19       | 2.23          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 19       | 2.23          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 11       | 2.17          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 8        | 2.08          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 8        | 2.08          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 8        | 2.08          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 9        | 2.06          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 9        | 2.06          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 9        | 2.06          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 15       | 2.06          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 15       | 2.06          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 15       | 2.06          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD11 | 11       | 1.96          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD12 | 11       | 1.96          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD13 | 11       | 1.96          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 18       | 1.94          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 18       | 1.94          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 18       | 1.94          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 18       | 1.91          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 15       | 1.89          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 11       | 1.89          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 12       | 1.88          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 11       | 1.84          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 11       | 1.84          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 11       | 1.84          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 17       | 1.82          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 14       | 1.75          |
| (1,284) | 1:752:A:LYS:H    | 1:755:A:MET:HG2  | 16       | 1.75          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 12       | 1.71          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 6        | 1.69          |
| (1,396) | 1:741:A:VAL:HG21 | 1:738:A:ALA:HA   | 19       | 1.68          |
| (1,396) | 1:741:A:VAL:HG22 | 1:738:A:ALA:HA   | 19       | 1.68          |
| (1,396) | 1:741:A:VAL:HG23 | 1:738:A:ALA:HA   | 19       | 1.68          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 9        | 1.67          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 10       | 1.67          |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 18       | 1.66          |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 18       | 1.66          |
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 18       | 1.66          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 3        | 1.64          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 18       | 1.64          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 19       | 1.64          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 2        | 1.63          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 13       | 1.62          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 11       | 1.61          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 11       | 1.61          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 11       | 1.61          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 6        | 1.6           |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 15       | 1.6           |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 11       | 1.6           |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD11 | 17       | 1.59          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD12 | 17       | 1.59          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD13 | 17       | 1.59          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD11 | 8        | 1.59          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD12 | 8        | 1.59          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD13 | 8        | 1.59          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 16       | 1.58          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 15       | 1.58          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 15       | 1.58          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 15       | 1.58          |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 17       | 1.57          |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 17       | 1.57          |
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 17       | 1.57          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 2        | 1.56          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 3        | 1.56          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 15       | 1.55          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 15       | 1.55          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 15       | 1.55          |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 12       | 1.55          |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 12       | 1.55          |
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 12       | 1.55          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 16       | 1.54          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 16       | 1.54          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 16       | 1.54          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 19       | 1.54          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 20       | 1.54          |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 3        | 1.54          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 17       | 1.53          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 13       | 1.51          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 8        | 1.51          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 8        | 1.51          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 8        | 1.51          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 10       | 1.5           |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 9        | 1.5           |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 9        | 1.5           |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 9        | 1.5           |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 11       | 1.49          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 4        | 1.49          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 17       | 1.49          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 8        | 1.48          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 16       | 1.48          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 5        | 1.48          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 15       | 1.48          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 11       | 1.48          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 11       | 1.48          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 11       | 1.48          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 12       | 1.48          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 12       | 1.48          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 12       | 1.48          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 18       | 1.47          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 13       | 1.46          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 2        | 1.46          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 1        | 1.46          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 1        | 1.46          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 1        | 1.46          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 5        | 1.45          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 16       | 1.45          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 20       | 1.45          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 9        | 1.44          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 9        | 1.44          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 18       | 1.44          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 7        | 1.43          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 11       | 1.42          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 4        | 1.41          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 19       | 1.41          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 7        | 1.41          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 8        | 1.4           |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 5        | 1.39          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 16       | 1.39          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 16       | 1.39          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 16       | 1.39          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 2        | 1.39          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 13       | 1.38          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 19       | 1.38          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 19       | 1.38          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 19       | 1.38          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 12       | 1.38          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 14       | 1.37          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 1        | 1.36          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 6        | 1.36          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 6        | 1.36          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 6        | 1.36          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 5        | 1.36          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 16       | 1.36          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 4        | 1.35          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 12       | 1.35          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 7        | 1.35          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 20       | 1.34          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 18       | 1.34          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 18       | 1.34          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 18       | 1.34          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 17       | 1.34          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 7        | 1.33          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 4        | 1.33          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 6        | 1.32          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 10       | 1.32          |
| (1,402) | 1:756:A:ILE:H    | 1:753:A:LEU:HB3  | 14       | 1.31          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 8        | 1.31          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 3        | 1.3           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 3        | 1.3           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 3        | 1.3           |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 1        | 1.3           |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 2        | 1.3           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 8        | 1.3           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 8        | 1.3           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 8        | 1.3           |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 17       | 1.3           |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 17       | 1.3           |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 17       | 1.3           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 20       | 1.29          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 20       | 1.29          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 20       | 1.29          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 10       | 1.29          |
| (1,358) | 1:751:A:TRP:HD1  | 1:755:A:MET:HG2  | 16       | 1.29          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 3        | 1.29          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 10       | 1.29          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 10       | 1.29          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 10       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 13       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 13       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 13       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 17       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 17       | 1.29          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 17       | 1.29          |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 1        | 1.28          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 18       | 1.27          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 18       | 1.27          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 18       | 1.27          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 9        | 1.27          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 9        | 1.27          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 9        | 1.27          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 6        | 1.27          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 11       | 1.27          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 15       | 1.26          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 17       | 1.26          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 17       | 1.26          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 17       | 1.26          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 5        | 1.26          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 5        | 1.26          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 5        | 1.26          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 19       | 1.26          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 2        | 1.26          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 2        | 1.26          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 2        | 1.26          |
| (1,245) | 1:741:A:VAL:H    | 1:741:A:VAL:HG21 | 19       | 1.26          |
| (1,245) | 1:741:A:VAL:H    | 1:741:A:VAL:HG22 | 19       | 1.26          |
| (1,245) | 1:741:A:VAL:H    | 1:741:A:VAL:HG23 | 19       | 1.26          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 20       | 1.25          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 10       | 1.25          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 13       | 1.25          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 20       | 1.24          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 20       | 1.24          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 20       | 1.24          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 8        | 1.24          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 8        | 1.24          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 8        | 1.24          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD11 | 1        | 1.24          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD12 | 1        | 1.24          |
| (1,256) | 1:744:A:GLY:H    | 1:740:A:ILE:HD13 | 1        | 1.24          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 3        | 1.23          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 13       | 1.23          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 1        | 1.23          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 1        | 1.23          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 1        | 1.23          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 4        | 1.22          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 4        | 1.22          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 4        | 1.22          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 8        | 1.22          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 8        | 1.22          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 8        | 1.22          |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 7        | 1.22          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 15       | 1.22          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 14       | 1.22          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 12       | 1.21          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 3        | 1.2           |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 15       | 1.2           |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 16       | 1.2           |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 16       | 1.2           |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 16       | 1.2           |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 5        | 1.2           |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 11       | 1.19          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 17       | 1.19          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 17       | 1.19          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 17       | 1.19          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 9        | 1.19          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 9        | 1.19          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 9        | 1.19          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 1        | 1.19          |
| (1,401) | 1:743:A:ILE:H    | 1:740:A:ILE:HB   | 15       | 1.19          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 9        | 1.19          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 5        | 1.18          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 5        | 1.18          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 5        | 1.18          |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 4        | 1.18          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 10       | 1.18          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 14       | 1.18          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 16       | 1.18          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 16       | 1.17          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 16       | 1.17          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 16       | 1.17          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 17       | 1.17          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 1        | 1.17          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 10       | 1.16          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 11       | 1.16          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 11       | 1.16          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 11       | 1.16          |
| (1,319) | 1:740:A:ILE:HG13 | 1:736:A:VAL:HA   | 6        | 1.15          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 17       | 1.15          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 20       | 1.15          |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 6        | 1.14          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 6        | 1.13          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 6        | 1.13          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 6        | 1.13          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 4        | 1.13          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 4        | 1.13          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 4        | 1.13          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 5        | 1.12          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 18       | 1.12          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 9        | 1.12          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 9        | 1.12          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 9        | 1.12          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 16       | 1.12          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 16       | 1.12          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 16       | 1.12          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 2        | 1.12          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 16       | 1.11          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 16       | 1.11          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 16       | 1.11          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 14       | 1.11          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 19       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 4        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 4        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 4        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 5        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 5        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 5        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 6        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 6        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 6        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 8        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 8        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 8        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 9        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 9        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 9        | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 10       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 10       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 10       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 11       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 11       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 11       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 15       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 15       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 15       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 17       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 17       | 1.11          |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 17       | 1.11          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 3        | 1.11          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 15       | 1.1           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 15       | 1.1           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 15       | 1.1           |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 17       | 1.1           |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 17       | 1.1           |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 17       | 1.1           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 14       | 1.1           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 14       | 1.1           |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 14       | 1.1           |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 5        | 1.1           |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 5        | 1.1           |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 5        | 1.1           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 11       | 1.1           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 11       | 1.1           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 11       | 1.1           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 11       | 1.1           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 11       | 1.1           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 11       | 1.1           |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG11 | 1        | 1.1           |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG12 | 1        | 1.1           |
| (1,248) | 1:733:A:VAL:H    | 1:733:A:VAL:HG13 | 1        | 1.1           |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 10       | 1.09          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 6        | 1.09          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 6        | 1.09          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 6        | 1.09          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 15       | 1.09          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 15       | 1.09          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 15       | 1.09          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 15       | 1.09          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 15       | 1.09          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 15       | 1.09          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 5        | 1.09          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 5        | 1.09          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 5        | 1.09          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 5        | 1.09          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 6        | 1.09          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 9        | 1.09          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 8        | 1.09          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 12       | 1.08          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 11       | 1.08          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 11       | 1.08          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 11       | 1.08          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 14       | 1.08          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 19       | 1.08          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 1        | 1.07          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 1        | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 1        | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 7        | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 7        | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 7        | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 17       | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 17       | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 17       | 1.07          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 15       | 1.07          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 15       | 1.07          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 15       | 1.07          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 6        | 1.07          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 6        | 1.07          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 6        | 1.07          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 14       | 1.07          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 14       | 1.07          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 14       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 10       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 10       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 10       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 15       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 15       | 1.07          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 15       | 1.07          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 15       | 1.07          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 2        | 1.06          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 2        | 1.06          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 2        | 1.06          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 11       | 1.06          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 11       | 1.06          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 11       | 1.06          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 14       | 1.06          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 14       | 1.06          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 14       | 1.06          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD11 | 9        | 1.06          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD12 | 9        | 1.06          |
| (1,331) | 1:758:A:HIS:HD2  | 1:754:A:LEU:HD13 | 9        | 1.06          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 7        | 1.05          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 7        | 1.05          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 7        | 1.05          |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 17       | 1.05          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 16       | 1.05          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 16       | 1.05          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 16       | 1.05          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 18       | 1.05          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 18       | 1.05          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 18       | 1.05          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 3        | 1.04          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 3        | 1.04          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 3        | 1.04          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 13       | 1.04          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 13       | 1.04          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 13       | 1.04          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 2        | 1.03          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 2        | 1.03          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 2        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 1        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 1        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 1        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 2        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 2        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 2        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 3        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 3        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 3        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 4        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 4        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 4        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 5        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 5        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 5        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 6        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 6        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 6        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 9        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 9        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 9        | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 10       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 10       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 10       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 11       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 11       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 11       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 15       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 15       | 1.03          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 15       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 16       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 16       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 16       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 17       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 17       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 17       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 18       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 18       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 18       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 20       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 20       | 1.03          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 20       | 1.03          |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 16       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 10       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 10       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 10       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 19       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 19       | 1.02          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 19       | 1.02          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD11 | 5        | 1.02          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD12 | 5        | 1.02          |
| (1,363) | 1:746:A:ALA:HA   | 1:749:A:LEU:HD13 | 5        | 1.02          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG11 | 18       | 1.02          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG12 | 18       | 1.02          |
| (1,351) | 1:729:A:ILE:HG13 | 1:733:A:VAL:HG13 | 18       | 1.02          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 10       | 1.02          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 10       | 1.02          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 10       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 7        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 7        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 7        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 8        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 8        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 8        | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 12       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 12       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 12       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 13       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 13       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 13       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 14       | 1.02          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 14       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 14       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG11 | 19       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG12 | 19       | 1.02          |
| (1,243) | 1:736:A:VAL:H    | 1:736:A:VAL:HG13 | 19       | 1.02          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 10       | 1.01          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 10       | 1.01          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 10       | 1.01          |
| (1,398) | 1:743:A:ILE:H    | 1:739:A:GLY:HA3  | 9        | 1.01          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 17       | 1.01          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 17       | 1.01          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 17       | 1.01          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 7        | 1.01          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 7        | 1.01          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 7        | 1.01          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 4        | 1.01          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 11       | 1.0           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 12       | 1.0           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 12       | 1.0           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 12       | 1.0           |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 4        | 1.0           |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 4        | 1.0           |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 4        | 1.0           |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 18       | 1.0           |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 14       | 0.99          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 14       | 0.99          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 14       | 0.99          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 6        | 0.98          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 6        | 0.98          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 6        | 0.98          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 2        | 0.98          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 2        | 0.98          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 2        | 0.98          |
| (1,395) | 1:757:A:ILE:HG12 | 1:756:A:ILE:HA   | 11       | 0.98          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 16       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 12       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 12       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 12       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 15       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 15       | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 15       | 0.97          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 11       | 0.97          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 11       | 0.97          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 11       | 0.97          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 4        | 0.97          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 4        | 0.97          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 4        | 0.97          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 4        | 0.96          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 4        | 0.96          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 4        | 0.96          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 4        | 0.96          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 4        | 0.96          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 4        | 0.96          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 9        | 0.96          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 9        | 0.96          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 9        | 0.96          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 19       | 0.96          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 9        | 0.95          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 9        | 0.95          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 9        | 0.95          |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 1        | 0.95          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 6        | 0.95          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 6        | 0.95          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 6        | 0.95          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 11       | 0.95          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 11       | 0.95          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 11       | 0.95          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 5        | 0.94          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG21 | 13       | 0.93          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG22 | 13       | 0.93          |
| (1,406) | 1:745:A:LEU:H    | 1:741:A:VAL:HG23 | 13       | 0.93          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 14       | 0.93          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 14       | 0.93          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 14       | 0.93          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 8        | 0.93          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 8        | 0.93          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 8        | 0.93          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 19       | 0.93          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 19       | 0.93          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 19       | 0.93          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 7        | 0.93          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 4        | 0.92          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 16       | 0.92          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 16       | 0.92          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 16       | 0.92          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 20       | 0.92          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 20       | 0.92          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 20       | 0.92          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 1        | 0.92          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 1        | 0.92          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 1        | 0.92          |
| (1,134) | 1:747:A:LEU:H    | 1:744:A:GLY:HA3  | 12       | 0.92          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 17       | 0.91          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 5        | 0.91          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 5        | 0.91          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 5        | 0.91          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 6        | 0.91          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 6        | 0.91          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 6        | 0.91          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 13       | 0.91          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 13       | 0.91          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 13       | 0.91          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 4        | 0.9           |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 4        | 0.9           |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 4        | 0.9           |
| (1,407) | 1:757:A:ILE:H    | 1:761:A:ARG:HG2  | 8        | 0.9           |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 18       | 0.9           |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 18       | 0.9           |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 18       | 0.9           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 13       | 0.9           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 13       | 0.9           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 13       | 0.9           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 20       | 0.9           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 20       | 0.9           |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 20       | 0.9           |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 20       | 0.89          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 20       | 0.89          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 20       | 0.89          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD11 | 9        | 0.89          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD12 | 9        | 0.89          |
| (1,404) | 1:736:A:VAL:H    | 1:740:A:ILE:HD13 | 9        | 0.89          |
| (1,349) | 1:738:A:ALA:HB1  | 1:741:A:VAL:HG21 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB1  | 1:741:A:VAL:HG22 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB1  | 1:741:A:VAL:HG23 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB2  | 1:741:A:VAL:HG21 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB2  | 1:741:A:VAL:HG22 | 19       | 0.89          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,349) | 1:738:A:ALA:HB2  | 1:741:A:VAL:HG23 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB3  | 1:741:A:VAL:HG21 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB3  | 1:741:A:VAL:HG22 | 19       | 0.89          |
| (1,349) | 1:738:A:ALA:HB3  | 1:741:A:VAL:HG23 | 19       | 0.89          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 4        | 0.89          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 4        | 0.89          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 4        | 0.89          |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 11       | 0.88          |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 11       | 0.88          |
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 11       | 0.88          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 13       | 0.87          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 20       | 0.87          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 1        | 0.87          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 1        | 0.87          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 1        | 0.87          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 18       | 0.86          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 18       | 0.86          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 18       | 0.86          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 14       | 0.86          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 14       | 0.86          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 14       | 0.86          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 4        | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 3        | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 3        | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 3        | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 14       | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 14       | 0.86          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 14       | 0.86          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 2        | 0.84          |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 12       | 0.84          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 13       | 0.84          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 13       | 0.84          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 13       | 0.84          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 17       | 0.84          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 17       | 0.84          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 17       | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 5        | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 5        | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 5        | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 8        | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 8        | 0.84          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 8        | 0.84          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 6        | 0.84          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 10       | 0.82          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 10       | 0.82          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 10       | 0.82          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG11 | 12       | 0.82          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG12 | 12       | 0.82          |
| (1,263) | 1:733:A:VAL:H    | 1:736:A:VAL:HG13 | 12       | 0.82          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 17       | 0.82          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 17       | 0.82          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 17       | 0.82          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 7        | 0.81          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 7        | 0.81          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 7        | 0.81          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 14       | 0.8           |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 14       | 0.8           |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 14       | 0.8           |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 18       | 0.79          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 13       | 0.79          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 13       | 0.79          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 13       | 0.79          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 10       | 0.79          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG11 | 9        | 0.79          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG12 | 9        | 0.79          |
| (1,346) | 1:729:A:ILE:HA   | 1:733:A:VAL:HG13 | 9        | 0.79          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 18       | 0.76          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 18       | 0.76          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 18       | 0.76          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 2        | 0.76          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 2        | 0.76          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 2        | 0.76          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 6        | 0.75          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 5        | 0.75          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 5        | 0.75          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 5        | 0.75          |
| (1,195) | 1:752:A:LYS:HB2  | 1:749:A:LEU:HA   | 17       | 0.75          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 8        | 0.75          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 8        | 0.75          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 8        | 0.75          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 3        | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 3        | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 3        | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 9        | 0.74          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 9        | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 9        | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 10       | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 10       | 0.74          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 10       | 0.74          |
| (1,357) | 1:751:A:TRP:HD1  | 1:754:A:LEU:HB2  | 4        | 0.73          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 14       | 0.72          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD11 | 4        | 0.72          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD12 | 4        | 0.72          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD13 | 4        | 0.72          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 17       | 0.72          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 18       | 0.72          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 4        | 0.72          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 4        | 0.72          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 4        | 0.72          |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 15       | 0.72          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 6        | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 6        | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 6        | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 19       | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 19       | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 19       | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 20       | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 20       | 0.71          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 20       | 0.71          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 9        | 0.71          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 4        | 0.7           |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 7        | 0.7           |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 7        | 0.7           |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 7        | 0.7           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 2        | 0.7           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 2        | 0.7           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 2        | 0.7           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 6        | 0.7           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 16       | 0.7           |
| (1,192) | 1:730:A:ILE:HG13 | 1:727:A:PRO:HA   | 18       | 0.7           |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 7        | 0.69          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 16       | 0.69          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 16       | 0.69          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 16       | 0.69          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 13       | 0.68          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 8        | 0.67          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 6        | 0.66          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 6        | 0.66          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 6        | 0.66          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 7        | 0.66          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 7        | 0.66          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 7        | 0.66          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 11       | 0.66          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 16       | 0.66          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 16       | 0.66          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 16       | 0.66          |
| (1,126) | 1:754:A:LEU:HB2  | 1:751:A:TRP:HA   | 4        | 0.66          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 3        | 0.65          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD11 | 10       | 0.65          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD12 | 10       | 0.65          |
| (1,281) | 1:752:A:LYS:H    | 1:756:A:ILE:HD13 | 10       | 0.65          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 14       | 0.64          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 7        | 0.64          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD11 | 11       | 0.64          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD12 | 11       | 0.64          |
| (1,350) | 1:751:A:TRP:HE1  | 1:754:A:LEU:HD13 | 11       | 0.64          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 11       | 0.63          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 6        | 0.63          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 9        | 0.63          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 19       | 0.63          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 2        | 0.62          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 2        | 0.62          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 2        | 0.62          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 5        | 0.62          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 5        | 0.62          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 5        | 0.62          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 17       | 0.62          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 17       | 0.62          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 17       | 0.62          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 17       | 0.62          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 5        | 0.62          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 5        | 0.62          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 5        | 0.62          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 19       | 0.61          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 13       | 0.61          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 13       | 0.61          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 13       | 0.61          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 4        | 0.61          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 4        | 0.61          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 4        | 0.61          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 5        | 0.61          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 9        | 0.6           |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 3        | 0.6           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 17       | 0.6           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 3        | 0.59          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 3        | 0.59          |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 3        | 0.59          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 17       | 0.58          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD11 | 15       | 0.58          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD12 | 15       | 0.58          |
| (1,393) | 1:755:A:MET:H    | 1:754:A:LEU:HD13 | 15       | 0.58          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 20       | 0.57          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 16       | 0.57          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 18       | 0.57          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 19       | 0.57          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 19       | 0.57          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 19       | 0.57          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 5        | 0.56          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 15       | 0.56          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 15       | 0.56          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 15       | 0.56          |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 19       | 0.55          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 18       | 0.55          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 18       | 0.55          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 18       | 0.55          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 10       | 0.54          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 14       | 0.54          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 4        | 0.54          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 4        | 0.54          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 4        | 0.54          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 12       | 0.54          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 12       | 0.54          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 12       | 0.54          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 17       | 0.54          |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 12       | 0.54          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 14       | 0.54          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 11       | 0.54          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 11       | 0.54          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 11       | 0.54          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 10       | 0.53          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 10       | 0.53          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 10       | 0.53          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 13       | 0.52          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 14       | 0.52          |
| (1,335) | 1:733:A:VAL:HG11 | 1:730:A:ILE:HA   | 1        | 0.51          |
| (1,335) | 1:733:A:VAL:HG12 | 1:730:A:ILE:HA   | 1        | 0.51          |
| (1,335) | 1:733:A:VAL:HG13 | 1:730:A:ILE:HA   | 1        | 0.51          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 9        | 0.51          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 19       | 0.51          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 9        | 0.51          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 9        | 0.51          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 9        | 0.51          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 7        | 0.5           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 7        | 0.5           |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 7        | 0.5           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 1        | 0.5           |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 10       | 0.5           |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 18       | 0.5           |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 17       | 0.5           |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 19       | 0.5           |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 19       | 0.5           |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 19       | 0.5           |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 15       | 0.49          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 13       | 0.49          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD11 | 15       | 0.49          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD12 | 15       | 0.49          |
| (1,403) | 1:743:A:ILE:H    | 1:740:A:ILE:HD13 | 15       | 0.49          |
| (1,184) | 1:741:A:VAL:HG11 | 1:741:A:VAL:HA   | 19       | 0.49          |
| (1,184) | 1:741:A:VAL:HG12 | 1:741:A:VAL:HA   | 19       | 0.49          |
| (1,184) | 1:741:A:VAL:HG13 | 1:741:A:VAL:HA   | 19       | 0.49          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 19       | 0.48          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 19       | 0.48          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 19       | 0.48          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 6        | 0.48          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 16       | 0.47          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 5        | 0.47          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 3        | 0.46          |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 12       | 0.46          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 14       | 0.46          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 14       | 0.46          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 14       | 0.46          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 20       | 0.46          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 20       | 0.46          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 20       | 0.46          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 6        | 0.46          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 6        | 0.46          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 6        | 0.46          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 7        | 0.46          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 10       | 0.46          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 12       | 0.46          |
| (1,357) | 1:751:A:TRP:HD1  | 1:754:A:LEU:HB2  | 10       | 0.46          |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 4        | 0.45          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 10       | 0.45          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 2        | 0.45          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 2        | 0.45          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 2        | 0.45          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 5        | 0.45          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 5        | 0.45          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 5        | 0.45          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 9        | 0.45          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 9        | 0.45          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 9        | 0.45          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 12       | 0.45          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 12       | 0.45          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 12       | 0.45          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 17       | 0.45          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 17       | 0.45          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 17       | 0.45          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 6        | 0.45          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 19       | 0.45          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 8        | 0.44          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 2        | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 1        | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 1        | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 1        | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 3        | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 3        | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 3        | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 4        | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 4        | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 4        | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 10       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 10       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 10       | 0.44          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 11       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 11       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 11       | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 14       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 14       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 14       | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 15       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 15       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 15       | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 19       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 19       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 19       | 0.44          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 20       | 0.44          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 20       | 0.44          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 20       | 0.44          |
| (1,236) | 1:730:A:ILE:H    | 1:730:A:ILE:HG13 | 15       | 0.44          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 3        | 0.43          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 12       | 0.43          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 7        | 0.43          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 7        | 0.43          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 7        | 0.43          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 8        | 0.43          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 8        | 0.43          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 8        | 0.43          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 16       | 0.43          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 16       | 0.43          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 16       | 0.43          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 2        | 0.43          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 4        | 0.43          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 4        | 0.43          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 4        | 0.43          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 6        | 0.43          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 6        | 0.43          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 6        | 0.43          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 10       | 0.43          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 10       | 0.43          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 10       | 0.43          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 18       | 0.42          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 1        | 0.42          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 2        | 0.42          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 2        | 0.41          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 2        | 0.41          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 2        | 0.41          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 18       | 0.41          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 18       | 0.41          |
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 18       | 0.41          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 9        | 0.41          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 15       | 0.41          |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 1        | 0.4           |
| (2,20)  | 1:751:A:TRP:HE1  | 1:748:A:LEU:HB3  | 2        | 0.4           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 12       | 0.4           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 18       | 0.4           |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 14       | 0.4           |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 16       | 0.4           |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 20       | 0.4           |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 20       | 0.4           |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 20       | 0.4           |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 17       | 0.39          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 13       | 0.39          |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 18       | 0.39          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 13       | 0.38          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 8        | 0.37          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 1        | 0.37          |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 20       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 12       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 12       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 12       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 18       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 18       | 0.36          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 18       | 0.36          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 5        | 0.36          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 17       | 0.36          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 14       | 0.36          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 14       | 0.36          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 14       | 0.36          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 5        | 0.35          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 18       | 0.35          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 16       | 0.35          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 16       | 0.35          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 16       | 0.35          |
| (1,126) | 1:754:A:LEU:HB2  | 1:751:A:TRP:HA   | 16       | 0.35          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 8        | 0.34          |
| (1,400) | 1:737:A:VAL:HG11 | 1:737:A:VAL:HA   | 13       | 0.34          |
| (1,400) | 1:737:A:VAL:HG12 | 1:737:A:VAL:HA   | 13       | 0.34          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,400) | 1:737:A:VAL:HG13 | 1:737:A:VAL:HA   | 13       | 0.34          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 20       | 0.34          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 3        | 0.34          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 3        | 0.34          |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 3        | 0.34          |
| (1,326) | 1:755:A:MET:HB3  | 1:752:A:LYS:HA   | 6        | 0.34          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 1        | 0.34          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 1        | 0.34          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 1        | 0.34          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 20       | 0.33          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 15       | 0.33          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 1        | 0.33          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 1        | 0.33          |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 1        | 0.33          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 13       | 0.33          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 10       | 0.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD21 | 7        | 0.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD22 | 7        | 0.32          |
| (1,410) | 1:752:A:LYS:H    | 1:749:A:LEU:HD23 | 7        | 0.32          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 4        | 0.32          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 9        | 0.32          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 19       | 0.31          |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 14       | 0.31          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 19       | 0.31          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 7        | 0.3           |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 8        | 0.3           |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 19       | 0.3           |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 13       | 0.3           |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 3        | 0.3           |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 11       | 0.3           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD11 | 2        | 0.3           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD12 | 2        | 0.3           |
| (1,268) | 1:736:A:VAL:H    | 1:732:A:ILE:HD13 | 2        | 0.3           |
| (2,59)  | 1:747:A:LEU:HB2  | 1:744:A:GLY:HA3  | 10       | 0.29          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 8        | 0.29          |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 4        | 0.29          |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 16       | 0.28          |
| (2,36)  | 1:748:A:LEU:H    | 1:744:A:GLY:HA3  | 17       | 0.28          |
| (1,374) | 1:746:A:ALA:H    | 1:744:A:GLY:HA3  | 18       | 0.28          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 1        | 0.28          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 18       | 0.27          |
| (1,385) | 1:755:A:MET:H    | 1:754:A:LEU:HB2  | 20       | 0.27          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 11       | 0.27          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 12       | 0.27          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 16       | 0.27          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 2        | 0.26          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 11       | 0.26          |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 9        | 0.26          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 9        | 0.26          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 3        | 0.26          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 10       | 0.26          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 10       | 0.26          |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 10       | 0.26          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 19       | 0.26          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 10       | 0.25          |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 16       | 0.25          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 10       | 0.25          |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 3        | 0.25          |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 3        | 0.25          |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 3        | 0.25          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 1        | 0.24          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 2        | 0.24          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 9        | 0.23          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 9        | 0.23          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 9        | 0.23          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 16       | 0.23          |
| (1,358) | 1:751:A:TRP:HD1  | 1:755:A:MET:HG2  | 13       | 0.23          |
| (1,326) | 1:755:A:MET:HB3  | 1:752:A:LYS:HA   | 16       | 0.23          |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 10       | 0.22          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 6        | 0.22          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 6        | 0.22          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 6        | 0.22          |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 2        | 0.22          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 7        | 0.22          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 2        | 0.22          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 2        | 0.22          |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 2        | 0.22          |
| (1,326) | 1:755:A:MET:HB3  | 1:752:A:LYS:HA   | 1        | 0.22          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 4        | 0.21          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 3        | 0.21          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 10       | 0.21          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 8        | 0.21          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 11       | 0.21          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 11       | 0.21          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 11       | 0.21          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 8        | 0.21          |
| (1,285) | 1:743:A:ILE:H    | 1:743:A:ILE:HG12 | 1        | 0.21          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 2        | 0.2           |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 12       | 0.2           |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 16       | 0.2           |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 5        | 0.2           |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 5        | 0.2           |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 5        | 0.2           |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 8        | 0.2           |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 8        | 0.2           |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 8        | 0.2           |
| (1,185) | 1:736:A:VAL:HG11 | 1:733:A:VAL:HA   | 12       | 0.2           |
| (1,185) | 1:736:A:VAL:HG12 | 1:733:A:VAL:HA   | 12       | 0.2           |
| (1,185) | 1:736:A:VAL:HG13 | 1:733:A:VAL:HA   | 12       | 0.2           |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 5        | 0.19          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 15       | 0.19          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 8        | 0.19          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 15       | 0.19          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 15       | 0.19          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 15       | 0.19          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 4        | 0.19          |
| (1,126) | 1:754:A:LEU:HB2  | 1:751:A:TRP:HA   | 17       | 0.19          |
| (2,47)  | 1:751:A:TRP:HD1  | 1:747:A:LEU:HB2  | 1        | 0.18          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 3        | 0.18          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 15       | 0.18          |
| (1,353) | 1:734:A:ALA:HB1  | 1:737:A:VAL:HB   | 12       | 0.18          |
| (1,353) | 1:734:A:ALA:HB2  | 1:737:A:VAL:HB   | 12       | 0.18          |
| (1,353) | 1:734:A:ALA:HB3  | 1:737:A:VAL:HB   | 12       | 0.18          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 2        | 0.18          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 5        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 3        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 3        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 3        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 4        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 4        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 4        | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 17       | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 17       | 0.17          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 17       | 0.17          |
| (1,342) | 1:748:A:LEU:HD11 | 1:745:A:LEU:HA   | 1        | 0.17          |
| (1,342) | 1:748:A:LEU:HD12 | 1:745:A:LEU:HA   | 1        | 0.17          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,342) | 1:748:A:LEU:HD13 | 1:745:A:LEU:HA   | 1        | 0.17          |
| (1,285) | 1:743:A:ILE:H    | 1:743:A:ILE:HG12 | 20       | 0.17          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 4        | 0.16          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 1        | 0.16          |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 6        | 0.16          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 18       | 0.16          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 3        | 0.16          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 3        | 0.16          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 3        | 0.16          |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 20       | 0.16          |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 4        | 0.16          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 6        | 0.16          |
| (2,66)  | 1:744:A:GLY:H    | 1:740:A:ILE:HG12 | 12       | 0.15          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 2        | 0.15          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 2        | 0.15          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 2        | 0.15          |
| (1,391) | 1:746:A:ALA:H    | 1:745:A:LEU:HG   | 10       | 0.15          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 9        | 0.14          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 19       | 0.14          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD11 | 1        | 0.14          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD12 | 1        | 0.14          |
| (1,408) | 1:751:A:TRP:HA   | 1:754:A:LEU:HD13 | 1        | 0.14          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG11 | 8        | 0.14          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG12 | 8        | 0.14          |
| (1,405) | 1:736:A:VAL:H    | 1:733:A:VAL:HG13 | 8        | 0.14          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 15       | 0.14          |
| (1,326) | 1:755:A:MET:HB3  | 1:752:A:LYS:HA   | 3        | 0.14          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD11 | 1        | 0.14          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD12 | 1        | 0.14          |
| (1,304) | 1:758:A:HIS:HE1  | 1:754:A:LEU:HD13 | 1        | 0.14          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 7        | 0.13          |
| (2,45)  | 1:751:A:TRP:HD1  | 1:752:A:LYS:HD3  | 16       | 0.13          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 7        | 0.13          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 8        | 0.13          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 15       | 0.13          |
| (1,386) | 1:742:A:LEU:H    | 1:739:A:GLY:HA3  | 12       | 0.13          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 4        | 0.13          |
| (1,202) | 1:749:A:LEU:HB3  | 1:746:A:ALA:HA   | 16       | 0.13          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 10       | 0.13          |
| (1,200) | 1:745:A:LEU:HB2  | 1:742:A:LEU:HA   | 15       | 0.13          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 6        | 0.12          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 16       | 0.12          |

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| Key     | Atom-1           | Atom-2           | Model ID | Violation (Å) |
|---------|------------------|------------------|----------|---------------|
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 9        | 0.12          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 20       | 0.12          |
| (1,357) | 1:751:A:TRP:HD1  | 1:754:A:LEU:HB2  | 11       | 0.12          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 13       | 0.11          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 14       | 0.11          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 15       | 0.11          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 18       | 0.11          |
| (2,49)  | 1:751:A:TRP:HD1  | 1:750:A:ILE:HA   | 20       | 0.11          |
| (2,44)  | 1:758:A:HIS:HD2  | 1:761:A:ARG:HG2  | 6        | 0.11          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 3        | 0.11          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 12       | 0.11          |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 13       | 0.11          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 6        | 0.11          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 14       | 0.11          |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 20       | 0.11          |
| (2,56)  | 1:747:A:LEU:H    | 1:743:A:ILE:HG13 | 20       | 0.1           |
| (2,42)  | 1:751:A:TRP:HH2  | 1:755:A:MET:HB3  | 10       | 0.1           |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 6        | 0.1           |
| (1,409) | 1:753:A:LEU:H    | 1:751:A:TRP:H    | 14       | 0.1           |
| (1,396) | 1:741:A:VAL:HG21 | 1:738:A:ALA:HA   | 10       | 0.1           |
| (1,396) | 1:741:A:VAL:HG22 | 1:738:A:ALA:HA   | 10       | 0.1           |
| (1,396) | 1:741:A:VAL:HG23 | 1:738:A:ALA:HA   | 10       | 0.1           |
| (1,394) | 1:737:A:VAL:HB   | 1:733:A:VAL:HA   | 2        | 0.1           |
| (1,394) | 1:737:A:VAL:HB   | 1:733:A:VAL:HA   | 12       | 0.1           |
| (1,362) | 1:742:A:LEU:H    | 1:742:A:LEU:HG   | 19       | 0.1           |
| (1,325) | 1:742:A:LEU:HB3  | 1:739:A:GLY:HA3  | 15       | 0.1           |
| (1,285) | 1:743:A:ILE:H    | 1:743:A:ILE:HG12 | 19       | 0.1           |

## 10 Dihedral-angle violation analysis

No dihedral-angle restraints found