



# Full wwPDB NMR Structure Validation Report ⓘ

Jun 5, 2023 – 09:49 AM EDT

PDB ID : 2M7Q  
BMRB ID : 19201  
Title : Solution structure of TAX1BP1 UBZ1+2  
Authors : Ceregido, M.A.; Spinola Amilibia, M.; Buts, L.; Bravo, J.; van Nuland, N.A.J.  
Deposited on : 2013-04-29

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

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

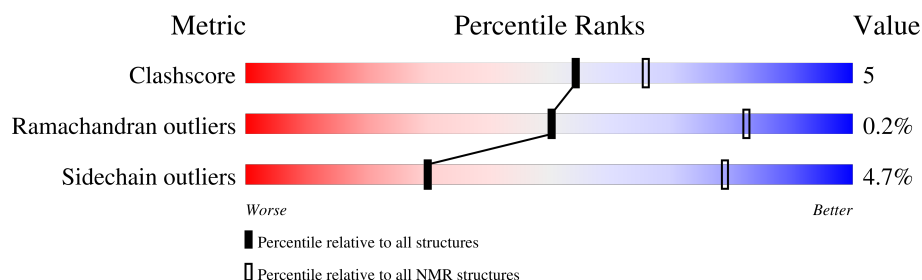
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 89%.

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



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

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

Mol	Chain	Length	Quality of chain
1	A	69	

## 2 Ensemble composition and analysis

This entry contains 20 models. Model 1 is the overall representative, medoid model (most similar to other models).

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

Well-defined (core) protein residues			
Well-defined core	Residue range (total)	Backbone RMSD (Å)	Medoid model
1	A:7-A:58 (52)	1.01	1

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

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

The models can be grouped into 3 clusters. No single-model clusters were found.

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

### 3 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 1107 atoms, of which 521 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Tax1-binding protein 1.

Mol	Chain	Residues	Atoms						Trace
1	A	69	Total	C	H	N	O	S	0
			1105	370	521	98	109	7	

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	expression tag	UNP Q86VP1
A	2	PRO	-	expression tag	UNP Q86VP1
A	3	HIS	-	expression tag	UNP Q86VP1
A	4	MET	-	expression tag	UNP Q86VP1

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

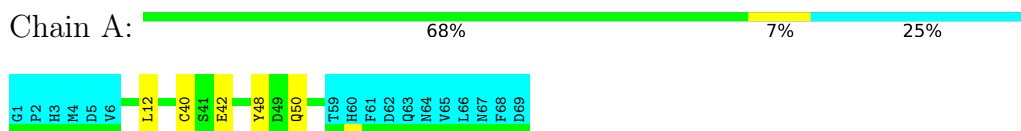
Mol	Chain	Residues	Atoms	
2	A	2	Total	Zn
			2	2

## 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: Tax1-binding protein 1

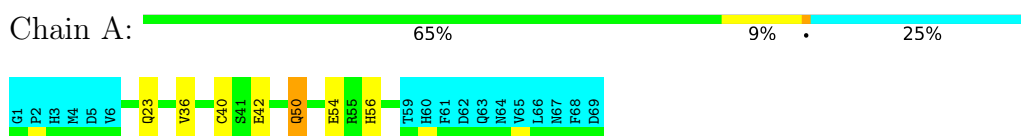


### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

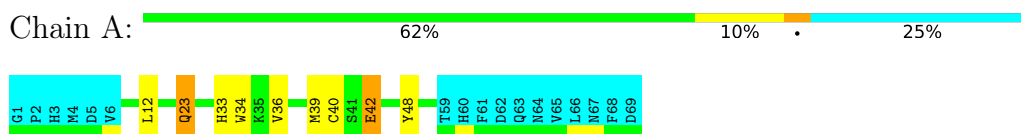
#### 4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Tax1-binding protein 1



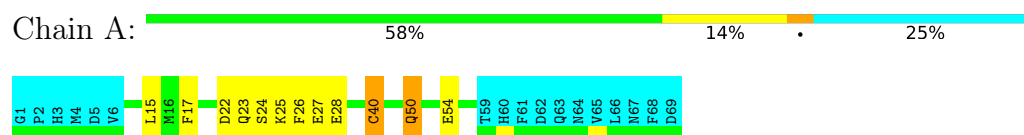
#### 4.2.2 Score per residue for model 2

- Molecule 1: Tax1-binding protein 1



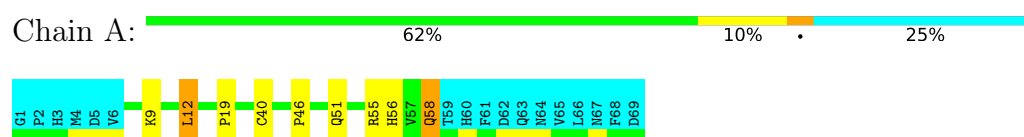
### 4.2.3 Score per residue for model 3

- Molecule 1: Tax1-binding protein 1



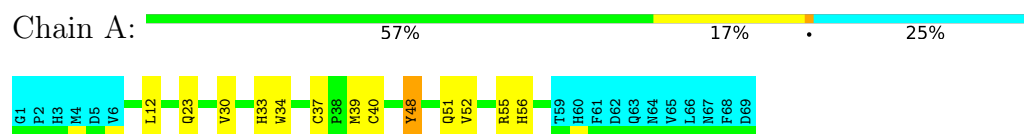
### 4.2.4 Score per residue for model 4

- Molecule 1: Tax1-binding protein 1



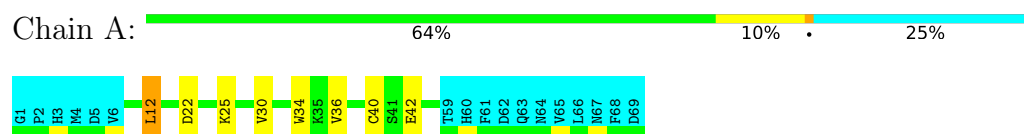
### 4.2.5 Score per residue for model 5

- Molecule 1: Tax1-binding protein 1



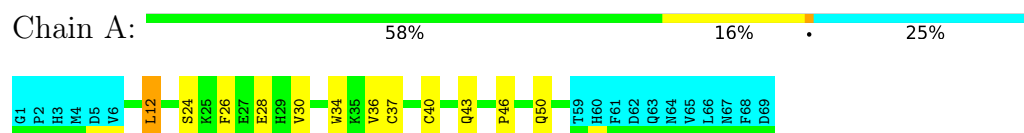
### 4.2.6 Score per residue for model 6

- Molecule 1: Tax1-binding protein 1



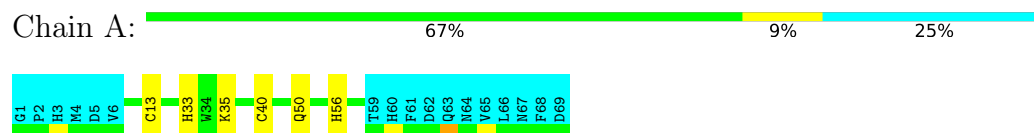
### 4.2.7 Score per residue for model 7

- Molecule 1: Tax1-binding protein 1



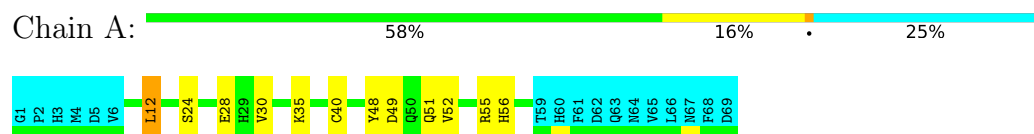
### 4.2.8 Score per residue for model 8

- Molecule 1: Tax1-binding protein 1



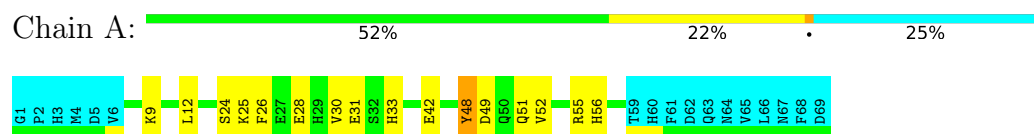
### 4.2.9 Score per residue for model 9

- Molecule 1: Tax1-binding protein 1



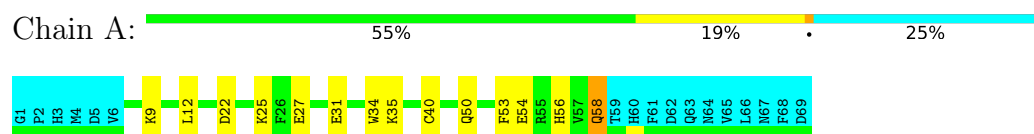
### 4.2.10 Score per residue for model 10

- Molecule 1: Tax1-binding protein 1



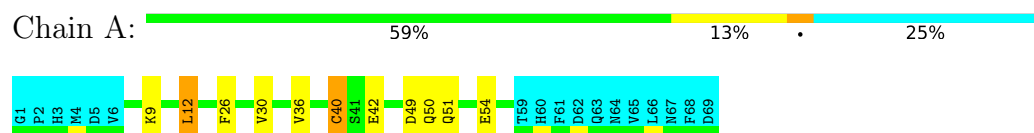
### 4.2.11 Score per residue for model 11

- Molecule 1: Tax1-binding protein 1



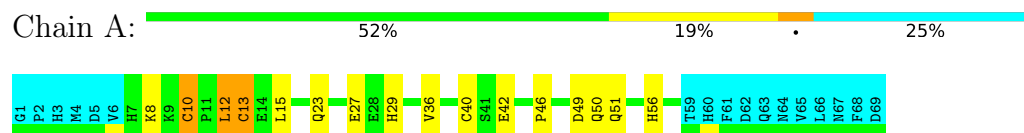
### 4.2.12 Score per residue for model 12

- Molecule 1: Tax1-binding protein 1



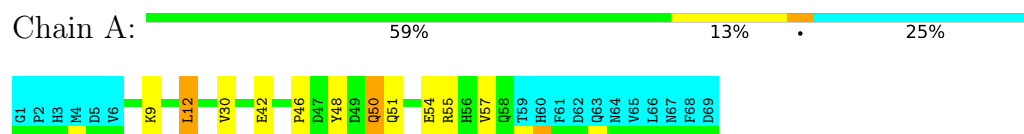
### 4.2.13 Score per residue for model 13

- Molecule 1: Tax1-binding protein 1



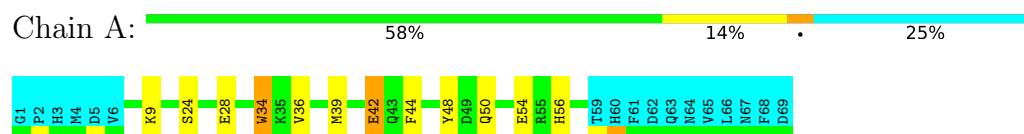
### 4.2.14 Score per residue for model 14

- Molecule 1: Tax1-binding protein 1



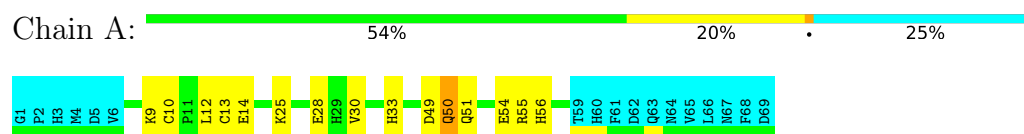
### 4.2.15 Score per residue for model 15

- Molecule 1: Tax1-binding protein 1



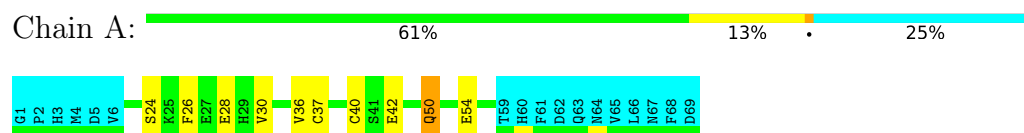
### 4.2.16 Score per residue for model 16

- Molecule 1: Tax1-binding protein 1



### 4.2.17 Score per residue for model 17

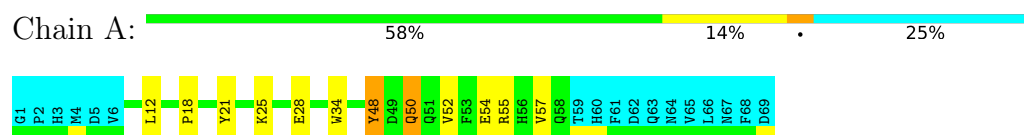
- Molecule 1: Tax1-binding protein 1





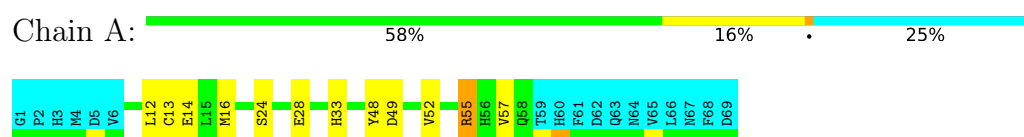
### 4.2.18 Score per residue for model 18

- Molecule 1: Tax1-binding protein 1



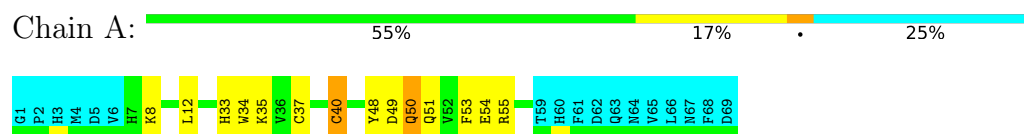
### 4.2.19 Score per residue for model 19

- Molecule 1: Tax1-binding protein 1



### 4.2.20 Score per residue for model 20

- Molecule 1: Tax1-binding protein 1



## 5 Refinement protocol and experimental data overview

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

Of the 100 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
CYANA	structure solution	
CNS	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	833
Number of shifts mapped to atoms	833
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	89%

## 6 Model quality [i](#)

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

Bond lengths and bond angles in the following residue types are not validated in this section: ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the (average) root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#Z>5	RMSZ	#Z>5
1	A	1.04±0.03	1±1/462 ( 0.2± 0.2%)	0.79±0.04	0±0/627 ( 0.0± 0.0%)
All	All	1.04	17/9240 ( 0.2%)	0.79	1/12540 ( 0.0%)

All unique bond outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)	Models	
								Worst	Total
1	A	34	TRP	N-CA	-5.58	1.35	1.46	5	3
1	A	34	TRP	CD2-CE3	-5.53	1.32	1.40	15	8
1	A	42	GLU	C-N	-5.45	1.21	1.34	2	3
1	A	40	CYS	CB-SG	-5.38	1.73	1.81	3	3

All unique angle outliers are listed below.

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)	Models	
								Worst	Total
1	A	13	CYS	N-CA-CB	-5.32	101.02	110.60	13	1

There are no chirality outliers.

There are no planarity outliers.

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	444	400	400	5±1
All	All	8920	8000	7997	92

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 5.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:10:CYS:SG	1:A:15:LEU:HB3	0.74	2.22	13	1
1:A:51:GLN:O	1:A:55:ARG:HD3	0.63	1.93	20	6
1:A:12:LEU:HB2	1:A:33:HIS:CD2	0.63	2.28	10	3
1:A:13:CYS:SG	1:A:33:HIS:HE1	0.58	2.21	8	3
1:A:12:LEU:HB2	1:A:33:HIS:ND1	0.57	2.14	5	1
1:A:24:SER:O	1:A:28:GLU:HG3	0.55	2.01	10	4
1:A:48:TYR:CE2	1:A:52:VAL:HG12	0.55	2.37	5	3
1:A:12:LEU:HG	1:A:46:PRO:CG	0.55	2.32	13	1
1:A:35:LYS:HB3	1:A:53:PHE:CD1	0.55	2.37	20	1
1:A:49:ASP:OD1	1:A:51:GLN:HG2	0.53	2.03	20	5
1:A:50:GLN:O	1:A:54:GLU:HG3	0.52	2.04	20	4
1:A:24:SER:O	1:A:28:GLU:HG2	0.52	2.05	7	3
1:A:30:VAL:HA	1:A:33:HIS:CD2	0.52	2.40	5	1
1:A:49:ASP:HB3	1:A:52:VAL:HG22	0.51	1.81	19	2
1:A:50:GLN:O	1:A:54:GLU:HG2	0.51	2.05	18	6
1:A:12:LEU:HB2	1:A:33:HIS:CE1	0.51	2.41	5	2
1:A:37:CYS:SG	1:A:39:MET:HB2	0.51	2.46	5	1
1:A:36:VAL:HA	1:A:42:GLU:O	0.49	2.07	17	7
1:A:23:GLN:O	1:A:27:GLU:HG3	0.49	2.08	3	1
1:A:23:GLN:O	1:A:27:GLU:HG2	0.49	2.08	13	1
1:A:37:CYS:HB3	1:A:40:CYS:HB2	0.47	1.86	20	3
1:A:18:PRO:O	1:A:21:TYR:HD2	0.47	1.92	18	1
1:A:12:LEU:HD21	1:A:30:VAL:HG13	0.46	1.86	9	4
1:A:58:GLN:HE21	1:A:58:GLN:HA	0.46	1.70	11	2
1:A:27:GLU:O	1:A:31:GLU:HG2	0.46	2.11	11	1
1:A:23:GLN:O	1:A:26:PHE:HB3	0.46	2.10	3	1
1:A:34:TRP:HA	1:A:44:PHE:O	0.45	2.11	15	1
1:A:23:GLN:HE21	1:A:23:GLN:HA	0.45	1.72	2	1
1:A:48:TYR:CD2	1:A:52:VAL:HG23	0.44	2.47	19	1
1:A:48:TYR:CE2	1:A:52:VAL:HG23	0.44	2.47	19	1
1:A:36:VAL:HB	1:A:43:GLN:HG2	0.44	1.90	7	1
1:A:22:ASP:HB3	1:A:25:LYS:HB2	0.43	1.90	6	1
1:A:12:LEU:CD1	1:A:46:PRO:HG2	0.43	2.44	4	1
1:A:12:LEU:HG	1:A:46:PRO:HG2	0.43	1.90	7	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:25:LYS:HA	1:A:28:GLU:OE2	0.43	2.12	16	1
1:A:26:PHE:O	1:A:30:VAL:HG23	0.42	2.15	10	4
1:A:35:LYS:HB3	1:A:53:PHE:CE2	0.42	2.49	11	1
1:A:49:ASP:CB	1:A:52:VAL:HG22	0.42	2.45	19	1
1:A:15:LEU:HD23	1:A:17:PHE:CZ	0.42	2.49	3	1
1:A:30:VAL:O	1:A:33:HIS:HB2	0.42	2.14	16	1
1:A:23:GLN:HA	1:A:23:GLN:OE1	0.42	2.14	5	1
1:A:35:LYS:HE2	1:A:50:GLN:OE1	0.42	2.15	8	1
1:A:25:LYS:HA	1:A:28:GLU:HG2	0.41	1.92	18	1
1:A:12:LEU:CD1	1:A:46:PRO:HG3	0.41	2.45	14	1
1:A:28:GLU:HA	1:A:31:GLU:HG2	0.41	1.93	10	1
1:A:22:ASP:CG	1:A:25:LYS:HD3	0.41	2.36	11	1
1:A:22:ASP:OD2	1:A:25:LYS:HG2	0.40	2.15	3	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	52/69 (75%)	51±1 (97±2%)	1±1 (2±2%)	0±0 (0±1%)	50	82
All	All	1040/1380 (75%)	1012 (97%)	26 (2%)	2 (0%)	50	82

All 1 unique Ramachandran outliers are listed below.

Mol	Chain	Res	Type	Models (Total)
1	A	14	GLU	2

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	52/68 (76%)	50±1 (95±3%)	2±1 (5±3%)	30 79
All	All	1040/1360 (76%)	991 (95%)	49 (5%)	30 79

All 14 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	12	LEU	10
1	A	50	GLN	9
1	A	48	TYR	8
1	A	9	LYS	7
1	A	23	GLN	2
1	A	58	GLN	2
1	A	55	ARG	2
1	A	8	LYS	2
1	A	10	CYS	2
1	A	35	LYS	1
1	A	25	LYS	1
1	A	42	GLU	1
1	A	13	CYS	1
1	A	29	HIS	1

### 6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

## 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 89% for the well-defined parts and 88% for the entire structure.

### 7.1 Chemical shift list 1

File name: working\_cs.cif

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

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

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

Total number of shifts	833
Number of shifts mapped to atoms	833
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
$^{13}\text{C}_\alpha$	69	$-0.53 \pm 0.15$	Should be checked
$^{13}\text{C}_\beta$	68	$0.38 \pm 0.14$	None needed ( $< 0.5$ ppm)
$^{13}\text{C}'$	61	$-0.20 \pm 0.12$	None needed ( $< 0.5$ ppm)
$^{15}\text{N}$	61	$-0.60 \pm 0.49$	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 89%, i.e. 645 atoms were assigned a chemical shift out of a possible 721. 0 out of 6 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	$^1\text{H}$	$^{13}\text{C}$	$^{15}\text{N}$
Backbone	242/248 (98%)	98/98 (100%)	98/104 (94%)	46/46 (100%)
Sidechain	346/375 (92%)	233/239 (97%)	106/123 (86%)	7/13 (54%)

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	Total	<sup>1</sup> H	<sup>13</sup> C	<sup>15</sup> N
Aromatic	57/98 (58%)	29/50 (58%)	27/43 (63%)	1/5 (20%)
Overall	645/721 (89%)	360/387 (93%)	231/270 (86%)	54/64 (84%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 88%, i.e. 832 atoms were assigned a chemical shift out of a possible 945. 0 out of 9 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	<sup>1</sup> H	<sup>13</sup> C	<sup>15</sup> N
Backbone	322/332 (97%)	131/132 (99%)	130/138 (94%)	61/62 (98%)
Sidechain	443/481 (92%)	298/307 (97%)	135/158 (85%)	10/16 (62%)
Aromatic	67/132 (51%)	36/68 (53%)	30/57 (53%)	1/7 (14%)
Overall	832/945 (88%)	465/507 (92%)	295/353 (84%)	72/85 (85%)

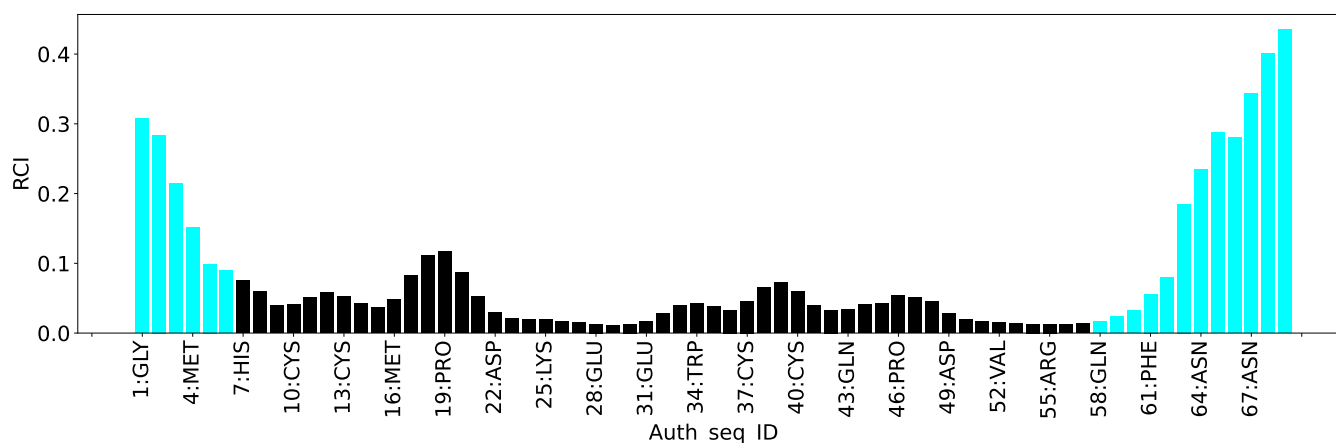
#### 7.1.4 Statistically unusual chemical shifts [i](#)

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 [i](#)

### 8.1 Conformationally restricting restraints [i](#)

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	1114
Intra-residue ( $ i-j =0$ )	302
Sequential ( $ i-j =1$ )	364
Medium range ( $ i-j >1$ and $ i-j <5$ )	277
Long range ( $ i-j \geq 5$ )	171
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	0
Total dihedral-angle restraints	80
Number of unmapped restraints	0
Number of restraints per residue	17.3
Number of long range restraints per residue <sup>1</sup>	2.5

<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 [i](#)

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 [i](#)

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)	20.2	0.2
0.2-0.5 (Medium)	6.0	0.43
>0.5 (Large)	0.1	1.0

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

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

Bins (°)	Average number of violations per model	Max (°)
1.0-10.0 (Small)	1.9	5.3
10.0-20.0 (Medium)	None	None
>20.0 (Large)	None	None

## 9 Distance violation analysis [i](#)

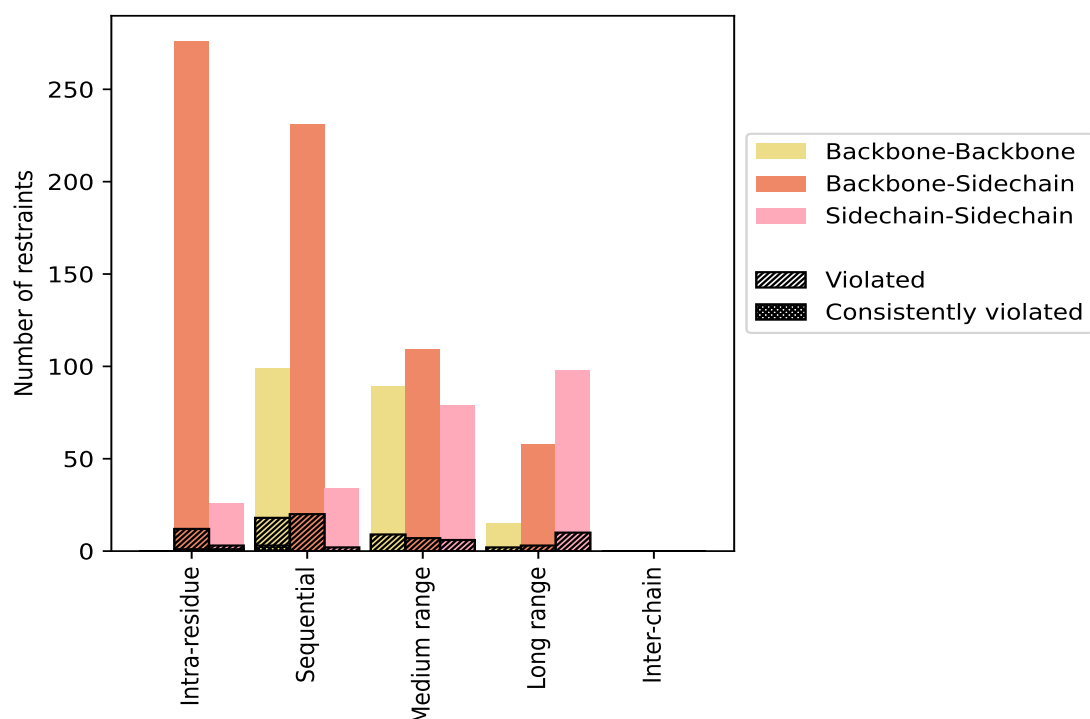
### 9.1 Summary of distance violations [i](#)

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>
<a href="#">Intra-residue ( i-j =0)</a>	<a href="#">302</a>	<a href="#">27.1</a>	<a href="#">15</a>	<a href="#">5.0</a>	<a href="#">1.3</a>	<a href="#">2</a>	<a href="#">0.7</a>	<a href="#">0.2</a>
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	276	24.8	12	4.3	1.1	1	0.4	0.1
Sidechain-Sidechain	26	2.3	3	11.5	0.3	1	3.8	0.1
<a href="#">Sequential ( i-j =1)</a>	<a href="#">364</a>	<a href="#">32.7</a>	<a href="#">40</a>	<a href="#">11.0</a>	<a href="#">3.6</a>	<a href="#">3</a>	<a href="#">0.8</a>	<a href="#">0.3</a>
Backbone-Backbone	99	8.9	18	18.2	1.6	3	3.0	0.3
Backbone-Sidechain	231	20.7	20	8.7	1.8	0	0.0	0.0
Sidechain-Sidechain	34	3.1	2	5.9	0.2	0	0.0	0.0
<a href="#">Medium range ( i-j &gt;1 &amp;  i-j &lt;5)</a>	<a href="#">277</a>	<a href="#">24.9</a>	<a href="#">22</a>	<a href="#">7.9</a>	<a href="#">2.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>
Backbone-Backbone	89	8.0	9	10.1	0.8	0	0.0	0.0
Backbone-Sidechain	109	9.8	7	6.4	0.6	0	0.0	0.0
Sidechain-Sidechain	79	7.1	6	7.6	0.5	0	0.0	0.0
<a href="#">Long range ( i-j ≥5)</a>	<a href="#">171</a>	<a href="#">15.4</a>	<a href="#">15</a>	<a href="#">8.8</a>	<a href="#">1.3</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>
Backbone-Backbone	15	1.3	2	13.3	0.2	0	0.0	0.0
Backbone-Sidechain	58	5.2	3	5.2	0.3	0	0.0	0.0
Sidechain-Sidechain	98	8.8	10	10.2	0.9	0	0.0	0.0
<a href="#">Inter-chain</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>
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
<a href="#">Hydrogen bond</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>
<a href="#">Disulfide bond</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0.0</a>
<a href="#">Total</a>	<a href="#">1114</a>	<a href="#">100.0</a>	<a href="#">92</a>	<a href="#">8.3</a>	<a href="#">8.3</a>	<a href="#">5</a>	<a href="#">0.4</a>	<a href="#">0.4</a>
Backbone-Backbone	203	18.2	29	14.3	2.6	3	1.5	0.3
Backbone-Sidechain	674	60.5	42	6.2	3.8	1	0.1	0.1
Sidechain-Sidechain	237	21.3	21	8.9	1.9	1	0.4	0.1

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

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



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

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

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

Model ID	Number of violations						Mean (Å)	Max (Å)	SD <sup>6</sup> (Å)	Median (Å)
	IR <sup>1</sup>	SQ <sup>2</sup>	MR <sup>3</sup>	LR <sup>4</sup>	IC <sup>5</sup>	Total				
1	6	15	5	2	0	28	0.16	0.36	0.06	0.14
2	5	17	5	2	0	29	0.16	0.41	0.06	0.14
3	5	11	5	3	0	24	0.16	0.28	0.05	0.14
4	6	10	7	4	0	27	0.17	0.32	0.06	0.15
5	5	12	4	4	0	25	0.17	0.43	0.06	0.16
6	7	10	6	3	0	26	0.17	0.39	0.06	0.15
7	4	11	5	4	0	24	0.16	0.35	0.06	0.14
8	4	9	5	5	0	23	0.17	0.31	0.05	0.16
9	5	12	7	3	0	27	0.17	0.3	0.06	0.14
10	3	14	6	4	0	27	0.16	0.28	0.05	0.14
11	6	8	6	3	0	23	0.17	0.4	0.07	0.13

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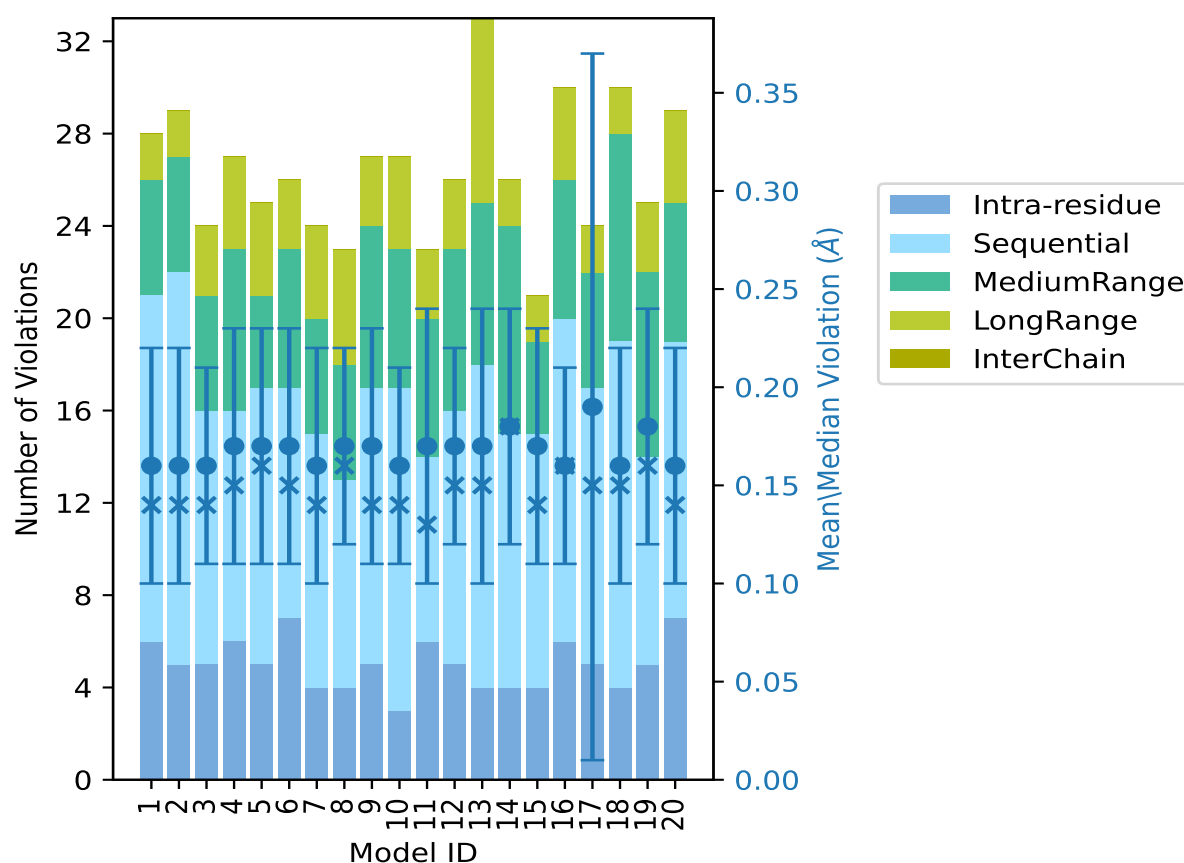
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Model ID	Number of violations						Mean (Å)	Max (Å)	SD <sup>6</sup> (Å)	Median (Å)
	IR <sup>1</sup>	SQ <sup>2</sup>	MR <sup>3</sup>	LR <sup>4</sup>	IC <sup>5</sup>	Total				
12	5	11	7	3	0	26	0.17	0.31	0.05	0.15
13	4	14	7	8	0	33	0.17	0.36	0.07	0.15
14	4	11	9	2	0	26	0.18	0.29	0.06	0.18
15	4	11	4	2	0	21	0.17	0.34	0.06	0.14
16	6	14	6	4	0	30	0.16	0.28	0.05	0.16
17	5	12	5	2	0	24	0.19	1.0	0.18	0.15
18	4	15	9	2	0	30	0.16	0.35	0.06	0.15
19	5	9	8	3	0	25	0.18	0.32	0.06	0.16
20	7	12	6	4	0	29	0.16	0.38	0.06	0.14

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

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

### 9.2.1 Bar graph : Distance Violation statistics for each model ⓘ



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

### 9.3 Distance violation statistics for the ensemble

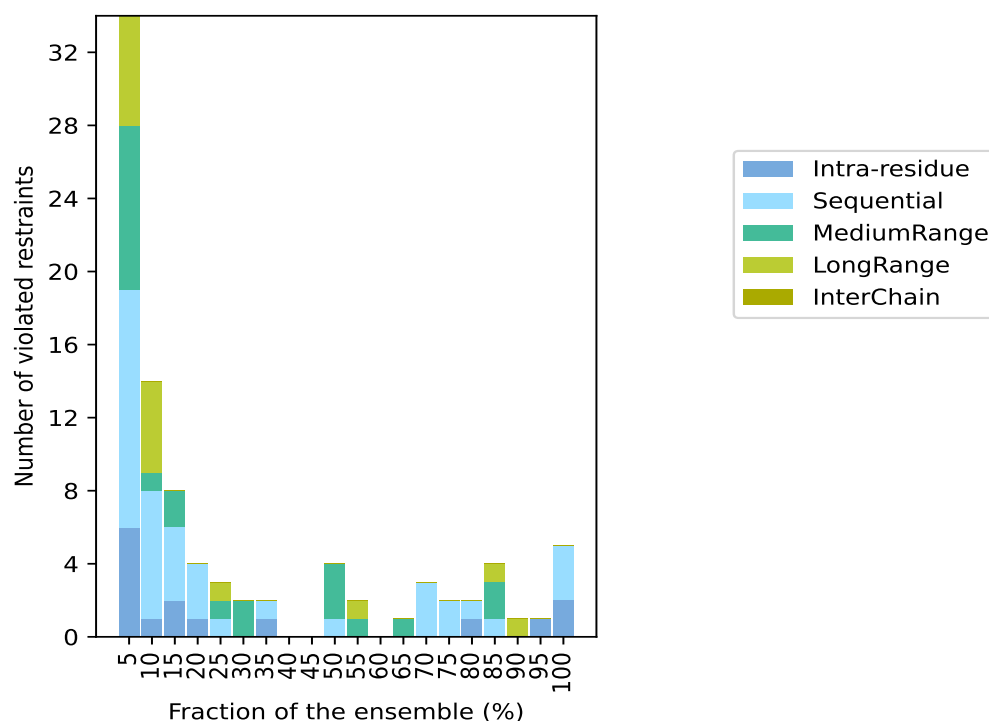
Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 1022(IR:287, SQ:324, MR:255, LR:156, IC:0) restraints are 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>	%
6	13	9	6	0	34	1	5.0
1	7	1	5	0	14	2	10.0
2	4	2	0	0	8	3	15.0
1	3	0	0	0	4	4	20.0
0	1	1	1	0	3	5	25.0
0	0	2	0	0	2	6	30.0
1	1	0	0	0	2	7	35.0
0	0	0	0	0	0	8	40.0
0	0	0	0	0	0	9	45.0
0	1	3	0	0	4	10	50.0
0	0	1	1	0	2	11	55.0
0	0	0	0	0	0	12	60.0
0	0	1	0	0	1	13	65.0
0	3	0	0	0	3	14	70.0
0	2	0	0	0	2	15	75.0
1	1	0	0	0	2	16	80.0
0	1	2	1	0	4	17	85.0
0	0	0	1	0	1	18	90.0
1	0	0	0	0	1	19	95.0
2	3	0	0	0	5	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](#)

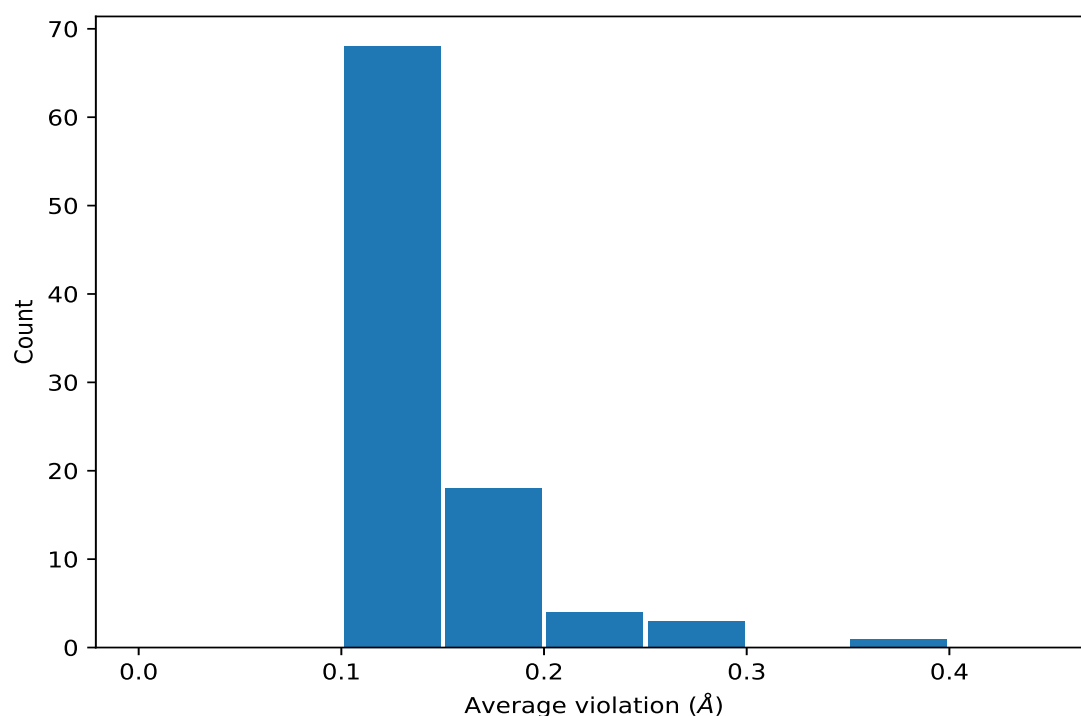


## 9.4 Most violated distance restraints in the ensemble [i](#)

### 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)
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	20	0.37	0.15	0.34
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	20	0.25	0.02	0.25
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	20	0.25	0.02	0.25
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	20	0.23	0.05	0.24
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	20	0.23	0.03	0.23
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	19	0.19	0.03	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	19	0.19	0.03	0.18
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	18	0.21	0.05	0.2
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	17	0.16	0.03	0.16
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	17	0.15	0.02	0.14
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	17	0.14	0.03	0.13
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	17	0.14	0.02	0.14
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	16	0.14	0.02	0.13
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	16	0.13	0.02	0.12
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	15	0.16	0.03	0.16
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	15	0.15	0.01	0.15

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Key	Atom-1	Atom-2	Models <sup>1</sup>	Mean (Å)	SD <sup>1</sup> (Å)	Median (Å)
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	14	0.16	0.03	0.17
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	14	0.14	0.02	0.14
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	14	0.13	0.02	0.12
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	13	0.13	0.02	0.13
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	11	0.15	0.02	0.14
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	11	0.14	0.01	0.14
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	10	0.14	0.02	0.14
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	10	0.13	0.01	0.12
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	10	0.13	0.01	0.12
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	10	0.12	0.01	0.12
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	10	0.12	0.01	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	10	0.12	0.01	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	10	0.12	0.01	0.11
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	7	0.12	0.01	0.11
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	7	0.12	0.01	0.12
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	6	0.13	0.02	0.12
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	6	0.13	0.02	0.12
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	6	0.12	0.01	0.12
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	5	0.17	0.09	0.13
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	5	0.15	0.02	0.15
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	5	0.13	0.02	0.12
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	5	0.13	0.02	0.12
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	5	0.13	0.02	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	5	0.13	0.02	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	5	0.13	0.02	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	5	0.13	0.02	0.12
(1,313)	1:A:4:MET:HA	1:A:5:ASP:H	4	0.18	0.05	0.18
(1,316)	1:A:6:VAL:H	1:A:7:HIS:HA	4	0.17	0.05	0.16
(1,43)	1:A:35:LYS:HA	1:A:36:VAL:HB	4	0.12	0.01	0.12
(1,461)	1:A:42:GLU:H	1:A:42:GLU:HB3	4	0.12	0.01	0.12
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE1	3	0.17	0.05	0.16
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE2	3	0.17	0.05	0.16
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE3	3	0.17	0.05	0.16
(1,764)	1:A:62:ASP:HB3	1:A:64:ASN:H	3	0.17	0.06	0.13
(1,1038)	1:A:39:MET:HB2	1:A:40:CYS:HB2	3	0.13	0.01	0.14
(1,1038)	1:A:39:MET:HB3	1:A:40:CYS:HB2	3	0.13	0.01	0.14
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG2	3	0.13	0.01	0.13

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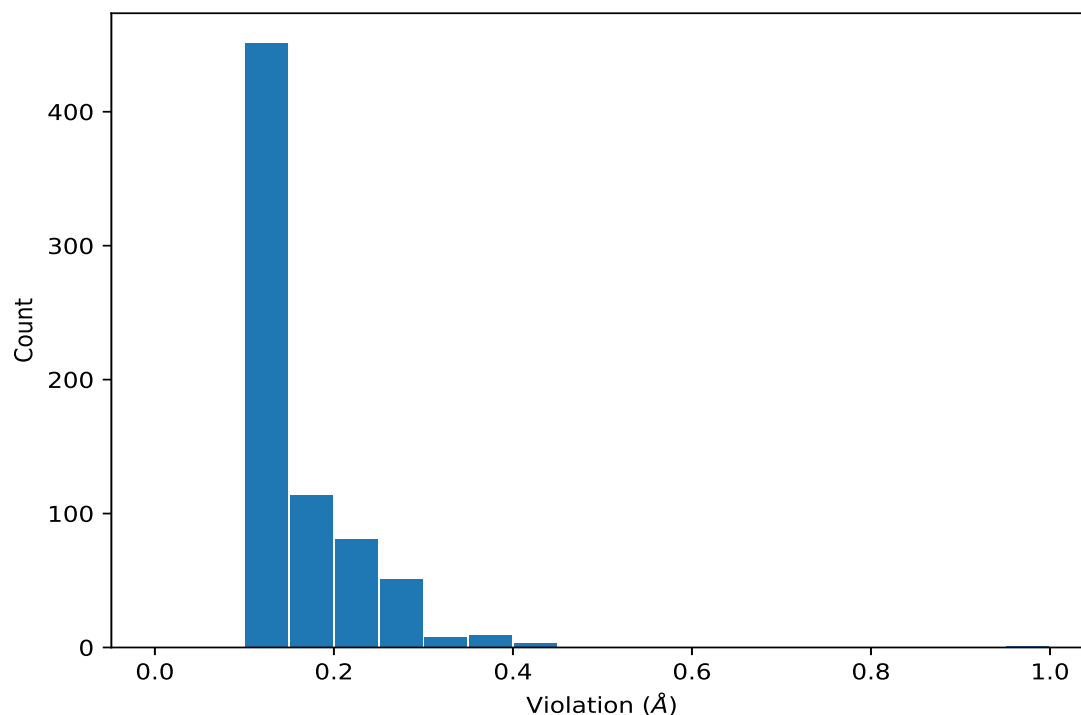
Key	Atom-1	Atom-2	Models <sup>1</sup>	Mean (Å)	SD <sup>1</sup> (Å)	Median (Å)
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG3	3	0.13	0.01	0.13
(1,455)	1:A:38:PRO:HD2	1:A:41:SER:H	3	0.12	0.01	0.12
(1,1067)	1:A:50:GLN:HB2	1:A:51:GLN:H	3	0.12	0.01	0.13
(1,1067)	1:A:50:GLN:HB3	1:A:51:GLN:H	3	0.12	0.01	0.13
(1,309)	1:A:62:ASP:H	1:A:63:GLN:HA	3	0.12	0.01	0.11
(1,426)	1:A:33:HIS:HB3	1:A:34:TRP:H	3	0.12	0.01	0.12
(1,145)	1:A:49:ASP:HB2	1:A:52:VAL:HB	2	0.26	0.01	0.26
(1,325)	1:A:7:HIS:HA	1:A:8:LYS:H	2	0.22	0.01	0.22
(1,588)	1:A:4:MET:H	1:A:5:ASP:H	2	0.17	0.05	0.17
(1,346)	1:A:21:TYR:H	1:A:22:ASP:H	2	0.14	0.03	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG11	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG12	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG13	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG21	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG22	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG23	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG11	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG12	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG13	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG21	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG22	2	0.14	0.01	0.14
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG23	2	0.14	0.01	0.14
(1,324)	1:A:8:LYS:H	1:A:17:PHE:H	2	0.13	0.01	0.13
(1,657)	1:A:39:MET:HE1	1:A:60:HIS:HB3	2	0.13	0.01	0.13
(1,657)	1:A:39:MET:HE2	1:A:60:HIS:HB3	2	0.13	0.01	0.13
(1,657)	1:A:39:MET:HE3	1:A:60:HIS:HB3	2	0.13	0.01	0.13
(1,1)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	2	0.12	0.02	0.12
(1,175)	1:A:40:CYS:HB3	1:A:41:SER:H	2	0.12	0.02	0.12
(1,952)	1:A:13:CYS:HB2	1:A:33:HIS:HE1	2	0.12	0.01	0.12
(1,952)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	2	0.12	0.01	0.12
(1,157)	1:A:27:GLU:H	1:A:28:GLU:HG2	2	0.12	0.01	0.12
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD2	2	0.12	0.01	0.12
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD3	2	0.12	0.01	0.12
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG2	2	0.12	0.0	0.12
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG3	2	0.12	0.0	0.12
(1,589)	1:A:8:LYS:H	1:A:9:LYS:H	2	0.11	0.0	0.11

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

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

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

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



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

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

Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	17	1.0
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	5	0.43
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	2	0.41
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	11	0.4
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	6	0.39
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	20	0.38
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	13	0.36
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	13	0.36
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	13	0.36
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	13	0.36

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	13	0.36
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	13	0.36
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	1	0.36
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	7	0.35
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	18	0.35
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	13	0.34
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	15	0.34
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	4	0.32
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	19	0.32
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	8	0.31
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	12	0.31
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	9	0.3
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	4	0.3
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	14	0.29
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	19	0.29
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	3	0.28
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	1	0.28
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	6	0.28
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	11	0.28
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	13	0.28
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	17	0.28
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	10	0.28
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	14	0.28
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	16	0.28
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	13	0.28
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	14	0.28
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	10	0.27
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	9	0.27
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	14	0.27
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	10	0.27
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	3	0.27
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	9	0.27
(1,764)	1:A:62:ASP:HB3	1:A:64:ASN:H	14	0.26
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	3	0.26
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	10	0.26
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	16	0.26
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	7	0.26
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	9	0.26
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	6	0.26
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	11	0.26
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	13	0.26
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	15	0.26

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	16	0.26
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	19	0.26
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	18	0.26
(1,145)	1:A:49:ASP:HB2	1:A:52:VAL:HB	19	0.26
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	4	0.26
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	7	0.26
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	16	0.26
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	4	0.25
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	9	0.25
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	8	0.25
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	1	0.25
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	4	0.25
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	17	0.25
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	18	0.25
(1,313)	1:A:4:MET:HA	1:A:5:ASP:H	5	0.25
(1,145)	1:A:49:ASP:HB2	1:A:52:VAL:HB	9	0.25
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	1	0.25
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	11	0.25
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	12	0.25
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	15	0.25
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	8	0.24
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	12	0.24
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	14	0.24
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	19	0.24
(1,595)	1:A:34:TRP:H	1:A:34:TRP:HE3	16	0.24
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	12	0.24
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	5	0.24
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	7	0.24
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	20	0.24
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE1	6	0.24
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE2	6	0.24
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE3	6	0.24
(1,316)	1:A:6:VAL:H	1:A:7:HIS:HA	14	0.24
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	6	0.24
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	8	0.24
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	10	0.24
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	18	0.24
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	19	0.24
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	14	0.23
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	14	0.23
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	1	0.23
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	7	0.23

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	13	0.23
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	15	0.23
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	19	0.23
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	2	0.23
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	12	0.23
(1,325)	1:A:7:HIS:HA	1:A:8:LYS:H	13	0.23
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	17	0.23
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	20	0.23
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	4	0.22
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	4	0.22
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	6	0.22
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	18	0.22
(1,588)	1:A:4:MET:H	1:A:5:ASP:H	10	0.22
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	3	0.22
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	14	0.22
(1,960)	1:A:15:LEU:HD11	1:A:16:MET:H	16	0.21
(1,960)	1:A:15:LEU:HD12	1:A:16:MET:H	16	0.21
(1,960)	1:A:15:LEU:HD13	1:A:16:MET:H	16	0.21
(1,960)	1:A:15:LEU:HD21	1:A:16:MET:H	16	0.21
(1,960)	1:A:15:LEU:HD22	1:A:16:MET:H	16	0.21
(1,960)	1:A:15:LEU:HD23	1:A:16:MET:H	16	0.21
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	3	0.21
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	9	0.21
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	14	0.21
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	16	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	1	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	1	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	3	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	3	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	13	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	13	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	15	0.21
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	15	0.21
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	20	0.21
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	14	0.21
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	5	0.21
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	18	0.21
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	2	0.21
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	20	0.21
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	8	0.21
(1,325)	1:A:7:HIS:HA	1:A:8:LYS:H	12	0.21
(1,313)	1:A:4:MET:HA	1:A:5:ASP:H	18	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	20	0.21
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	19	0.21
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	2	0.21
(1,116)	1:A:28:GLU:HA	1:A:29:HIS:HA	5	0.21
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	4	0.2
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	20	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	7	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	7	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	12	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	12	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	19	0.2
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	19	0.2
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	11	0.2
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	20	0.2
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	4	0.2
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	9	0.2
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	11	0.2
(1,959)	1:A:15:LEU:HB2	1:A:17:PHE:HE1	13	0.19
(1,959)	1:A:15:LEU:HB2	1:A:17:PHE:HE2	13	0.19
(1,959)	1:A:15:LEU:HB3	1:A:17:PHE:HE1	13	0.19
(1,959)	1:A:15:LEU:HB3	1:A:17:PHE:HE2	13	0.19
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	8	0.19
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	5	0.19
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	2	0.19
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	5	0.19
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	2	0.19
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	8	0.19
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	10	0.19
(1,458)	1:A:42:GLU:H	1:A:43:GLN:H	3	0.19
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	14	0.19
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	16	0.19
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	18	0.19
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	19	0.19
(1,316)	1:A:6:VAL:H	1:A:7:HIS:HA	1	0.19
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	6	0.19
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	8	0.19
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	12	0.19
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	13	0.19
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	14	0.18
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	14	0.18
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	10	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	2	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	2	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	8	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	8	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	20	0.18
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	20	0.18
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	5	0.18
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	16	0.18
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	18	0.18
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	10	0.18
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	4	0.18
(1,346)	1:A:21:TYR:H	1:A:22:ASP:H	18	0.18
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	6	0.18
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	16	0.18
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	1	0.18
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	7	0.18
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	17	0.18
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	8	0.18
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	20	0.18
(1,1103)	1:A:63:GLN:H	1:A:63:GLN:HE21	16	0.18
(1,1103)	1:A:63:GLN:H	1:A:63:GLN:HE22	16	0.18
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	12	0.17
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	13	0.17
(1,860)	1:A:17:PHE:HE1	1:A:30:VAL:HG21	13	0.17
(1,860)	1:A:17:PHE:HE1	1:A:30:VAL:HG22	13	0.17
(1,860)	1:A:17:PHE:HE1	1:A:30:VAL:HG23	13	0.17
(1,860)	1:A:17:PHE:HE2	1:A:30:VAL:HG21	13	0.17
(1,860)	1:A:17:PHE:HE2	1:A:30:VAL:HG22	13	0.17
(1,860)	1:A:17:PHE:HE2	1:A:30:VAL:HG23	13	0.17
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	3	0.17
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	4	0.17
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	12	0.17
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	10	0.17
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	10	0.17
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	2	0.17
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	5	0.17
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	17	0.17
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	14	0.17
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	15	0.17
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	17	0.17
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	19	0.17
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	20	0.17
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	10	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	1	0.17
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	5	0.17
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	9	0.17
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	4	0.17
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	5	0.17
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	13	0.17
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	14	0.17
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	16	0.16
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	16	0.16
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	16	0.16
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	16	0.16
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	16	0.16
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	16	0.16
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	16	0.16
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	19	0.16
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	8	0.16
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	13	0.16
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	11	0.16
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	19	0.16
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	9	0.16
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	9	0.16
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	16	0.16
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	16	0.16
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	11	0.16
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	17	0.16
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	8	0.16
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	18	0.16
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	15	0.16
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	19	0.16
(1,435)	1:A:35:LYS:HD3	1:A:36:VAL:H	6	0.16
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE1	16	0.16
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE2	16	0.16
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE3	16	0.16
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	20	0.16
(1,313)	1:A:4:MET:HA	1:A:5:ASP:H	15	0.16
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	5	0.16
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	12	0.16
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	17	0.16
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	3	0.16
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	5	0.16
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	5	0.16
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	5	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	5	0.16
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	5	0.16
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	5	0.16
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	12	0.16
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	4	0.16
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	10	0.15
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	10	0.15
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	12	0.15
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	12	0.15
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	18	0.15
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	18	0.15
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	1	0.15
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	6	0.15
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	7	0.15
(1,812)	1:A:39:MET:HE1	1:A:40:CYS:H	5	0.15
(1,812)	1:A:39:MET:HE2	1:A:40:CYS:H	5	0.15
(1,812)	1:A:39:MET:HE3	1:A:40:CYS:H	5	0.15
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	9	0.15
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	6	0.15
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	10	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	5	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	5	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	6	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	6	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	11	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	11	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD1	17	0.15
(1,682)	1:A:21:TYR:H	1:A:21:TYR:HD2	17	0.15
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	6	0.15
(1,618)	1:A:34:TRP:HB2	1:A:34:TRP:HE1	17	0.15
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	12	0.15
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	3	0.15
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	19	0.15
(1,584)	1:A:66:LEU:HA	1:A:67:ASN:H	2	0.15
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	4	0.15
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	9	0.15
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	6	0.15
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	11	0.15
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	16	0.15
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	4	0.15
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	13	0.15
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	2	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	13	0.15
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	1	0.15
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	13	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	1	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	2	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	9	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	13	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	18	0.15
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	20	0.15
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	18	0.15
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	18	0.15
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	18	0.15
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	18	0.15
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	18	0.15
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	18	0.15
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	4	0.15
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	7	0.15
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	8	0.15
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	17	0.15
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	18	0.15
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	3	0.15
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	2	0.15
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	18	0.15
(1,237)	1:A:9:LYS:HB2	1:A:9:LYS:HE3	2	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG11	20	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG12	20	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG13	20	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG21	20	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG22	20	0.15
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG23	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG11	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG12	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG13	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG21	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG22	20	0.15
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG23	20	0.15
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG2	20	0.14
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG3	20	0.14
(1,918)	1:A:8:LYS:HD2	1:A:9:LYS:H	1	0.14
(1,918)	1:A:8:LYS:HD3	1:A:9:LYS:H	1	0.14
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	15	0.14
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	10	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	10	0.14
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	10	0.14
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	6	0.14
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	12	0.14
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	20	0.14
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	13	0.14
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	15	0.14
(1,657)	1:A:39:MET:HE1	1:A:60:HIS:HB3	16	0.14
(1,657)	1:A:39:MET:HE2	1:A:60:HIS:HB3	16	0.14
(1,657)	1:A:39:MET:HE3	1:A:60:HIS:HB3	16	0.14
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	4	0.14
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	7	0.14
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	8	0.14
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	14	0.14
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	7	0.14
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	9	0.14
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	15	0.14
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	2	0.14
(1,583)	1:A:65:VAL:HA	1:A:66:LEU:H	13	0.14
(1,525)	1:A:6:VAL:H	1:A:6:VAL:HB	6	0.14
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	1	0.14
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	2	0.14
(1,455)	1:A:38:PRO:HD2	1:A:41:SER:H	9	0.14
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	12	0.14
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	3	0.14
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	10	0.14
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	6	0.14
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	19	0.14
(1,324)	1:A:8:LYS:H	1:A:17:PHE:H	7	0.14
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	18	0.14
(1,316)	1:A:6:VAL:H	1:A:7:HIS:HA	15	0.14
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	7	0.14
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	14	0.14
(1,309)	1:A:62:ASP:H	1:A:63:GLN:HA	20	0.14
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	2	0.14
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	15	0.14
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	3	0.14
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	10	0.14
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	12	0.14
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	17	0.14
(1,175)	1:A:40:CYS:HB3	1:A:41:SER:H	10	0.14
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	19	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG11	7	0.14
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG12	7	0.14
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG13	7	0.14
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG21	7	0.14
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG22	7	0.14
(1,1108)	1:A:64:ASN:HA	1:A:65:VAL:HG23	7	0.14
(1,1038)	1:A:39:MET:HB2	1:A:40:CYS:HB2	2	0.14
(1,1038)	1:A:39:MET:HB3	1:A:40:CYS:HB2	2	0.14
(1,1038)	1:A:39:MET:HB2	1:A:40:CYS:HB2	15	0.14
(1,1038)	1:A:39:MET:HB3	1:A:40:CYS:HB2	15	0.14
(1,1)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	8	0.14
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	9	0.13
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	9	0.13
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD2	18	0.13
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD3	18	0.13
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG2	9	0.13
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG3	9	0.13
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	5	0.13
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	5	0.13
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	5	0.13
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	5	0.13
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	5	0.13
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	5	0.13
(1,952)	1:A:13:CYS:HB2	1:A:33:HIS:HE1	19	0.13
(1,952)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	19	0.13
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	1	0.13
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	1	0.13
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	6	0.13
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	6	0.13
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	9	0.13
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	9	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	5	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	5	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	5	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	14	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	14	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	14	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	16	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	16	0.13
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	16	0.13
(1,863)	1:A:15:LEU:HD11	1:A:29:HIS:HE1	9	0.13
(1,863)	1:A:15:LEU:HD12	1:A:29:HIS:HE1	9	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,863)	1:A:15:LEU:HD13	1:A:29:HIS:HE1	9	0.13
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	11	0.13
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	1	0.13
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	14	0.13
(1,764)	1:A:62:ASP:HB3	1:A:64:ASN:H	11	0.13
(1,703)	1:A:64:ASN:HA	1:A:66:LEU:H	19	0.13
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	15	0.13
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	20	0.13
(1,617)	1:A:34:TRP:HE1	1:A:45:PRO:HA	13	0.13
(1,603)	1:A:51:GLN:H	1:A:54:GLU:H	17	0.13
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	19	0.13
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	1	0.13
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	4	0.13
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	12	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	1	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	2	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	4	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	9	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	13	0.13
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	17	0.13
(1,493)	1:A:48:TYR:H	1:A:49:ASP:H	5	0.13
(1,461)	1:A:42:GLU:H	1:A:42:GLU:HB3	5	0.13
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	8	0.13
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	20	0.13
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	11	0.13
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	16	0.13
(1,43)	1:A:35:LYS:HA	1:A:36:VAL:HB	20	0.13
(1,426)	1:A:33:HIS:HB3	1:A:34:TRP:H	7	0.13
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	1	0.13
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	5	0.13
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	11	0.13
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	12	0.13
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	18	0.13
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	3	0.13
(1,31)	1:A:62:ASP:HA	1:A:63:GLN:H	19	0.13
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	11	0.13
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	16	0.13
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	2	0.13
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	8	0.13
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	2	0.13
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	4	0.13
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	13	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	19	0.13
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	5	0.13
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	7	0.13
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	9	0.13
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	15	0.13
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	16	0.13
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	1	0.13
(1,157)	1:A:27:GLU:H	1:A:28:GLU:HG2	17	0.13
(1,1088)	1:A:54:GLU:HB2	1:A:55:ARG:HD2	7	0.13
(1,1088)	1:A:54:GLU:HB2	1:A:55:ARG:HD3	7	0.13
(1,1067)	1:A:50:GLN:HB2	1:A:51:GLN:H	10	0.13
(1,1067)	1:A:50:GLN:HB3	1:A:51:GLN:H	10	0.13
(1,1067)	1:A:50:GLN:HB2	1:A:51:GLN:H	13	0.13
(1,1067)	1:A:50:GLN:HB3	1:A:51:GLN:H	13	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG11	15	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG12	15	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG13	15	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG21	15	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG22	15	0.13
(1,1043)	1:A:44:PHE:HD1	1:A:52:VAL:HG23	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG11	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG12	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG13	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG21	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG22	15	0.13
(1,1043)	1:A:44:PHE:HD2	1:A:52:VAL:HG23	15	0.13
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	7	0.12
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	7	0.12
(1,952)	1:A:13:CYS:HB2	1:A:33:HIS:HE1	8	0.12
(1,952)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	8	0.12
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	3	0.12
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	3	0.12
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	10	0.12
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	10	0.12
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	11	0.12
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	11	0.12
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	17	0.12
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	17	0.12
(1,939)	1:A:12:LEU:HD11	1:A:33:HIS:HA	13	0.12
(1,939)	1:A:12:LEU:HD12	1:A:33:HIS:HA	13	0.12
(1,939)	1:A:12:LEU:HD13	1:A:33:HIS:HA	13	0.12
(1,939)	1:A:12:LEU:HD21	1:A:33:HIS:HA	13	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,939)	1:A:12:LEU:HD22	1:A:33:HIS:HA	13	0.12
(1,939)	1:A:12:LEU:HD23	1:A:33:HIS:HA	13	0.12
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	11	0.12
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	20	0.12
(1,849)	1:A:12:LEU:HB2	1:A:33:HIS:HD2	13	0.12
(1,831)	1:A:12:LEU:HG	1:A:13:CYS:H	2	0.12
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	7	0.12
(1,764)	1:A:62:ASP:HB3	1:A:64:ASN:H	4	0.12
(1,710)	1:A:6:VAL:HA	1:A:8:LYS:H	6	0.12
(1,657)	1:A:39:MET:HE1	1:A:60:HIS:HB3	10	0.12
(1,657)	1:A:39:MET:HE2	1:A:60:HIS:HB3	10	0.12
(1,657)	1:A:39:MET:HE3	1:A:60:HIS:HB3	10	0.12
(1,630)	1:A:48:TYR:HE1	1:A:52:VAL:HG11	19	0.12
(1,630)	1:A:48:TYR:HE1	1:A:52:VAL:HG12	19	0.12
(1,630)	1:A:48:TYR:HE1	1:A:52:VAL:HG13	19	0.12
(1,630)	1:A:48:TYR:HE2	1:A:52:VAL:HG11	19	0.12
(1,630)	1:A:48:TYR:HE2	1:A:52:VAL:HG12	19	0.12
(1,630)	1:A:48:TYR:HE2	1:A:52:VAL:HG13	19	0.12
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	12	0.12
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	18	0.12
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	19	0.12
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	3	0.12
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	6	0.12
(1,588)	1:A:4:MET:H	1:A:5:ASP:H	8	0.12
(1,587)	1:A:29:HIS:HD2	1:A:33:HIS:H	6	0.12
(1,566)	1:A:61:PHE:HD1	1:A:62:ASP:H	20	0.12
(1,566)	1:A:61:PHE:HD2	1:A:62:ASP:H	20	0.12
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	5	0.12
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	12	0.12
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	4	0.12
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	9	0.12
(1,494)	1:A:49:ASP:H	1:A:50:GLN:H	13	0.12
(1,461)	1:A:42:GLU:H	1:A:42:GLU:HB3	4	0.12
(1,461)	1:A:42:GLU:H	1:A:42:GLU:HB3	11	0.12
(1,460)	1:A:37:CYS:HB2	1:A:42:GLU:H	4	0.12
(1,455)	1:A:38:PRO:HD2	1:A:41:SER:H	12	0.12
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	5	0.12
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	6	0.12
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	11	0.12
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	17	0.12
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	7	0.12
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	12	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	13	0.12
(1,43)	1:A:35:LYS:HA	1:A:36:VAL:HB	2	0.12
(1,43)	1:A:35:LYS:HA	1:A:36:VAL:HB	14	0.12
(1,426)	1:A:33:HIS:HB3	1:A:34:TRP:H	1	0.12
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE1	1	0.12
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE2	1	0.12
(1,38)	1:A:4:MET:HA	1:A:4:MET:HE3	1	0.12
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	14	0.12
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	16	0.12
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	18	0.12
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	3	0.12
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	8	0.12
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	10	0.12
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	15	0.12
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	16	0.12
(1,324)	1:A:8:LYS:H	1:A:17:PHE:H	2	0.12
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	6	0.12
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	11	0.12
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	12	0.12
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	14	0.12
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	17	0.12
(1,313)	1:A:4:MET:HA	1:A:5:ASP:H	6	0.12
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	16	0.12
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	16	0.12
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	16	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	16	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	16	0.12
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	16	0.12
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	1	0.12
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	5	0.12
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	6	0.12
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	10	0.12
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	11	0.12
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	15	0.12
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	16	0.12
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	1	0.12
(1,184)	1:A:13:CYS:HB3	1:A:14:GLU:H	13	0.12
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	6	0.12
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	8	0.12
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG2	9	0.12
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG3	9	0.12
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	3	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	3	0.11
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB2	20	0.11
(1,996)	1:A:28:GLU:HA	1:A:31:GLU:HB3	20	0.11
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD2	12	0.11
(1,989)	1:A:25:LYS:HA	1:A:25:LYS:HD3	12	0.11
(1,979)	1:A:23:GLN:H	1:A:23:GLN:HE21	20	0.11
(1,979)	1:A:23:GLN:H	1:A:23:GLN:HE22	20	0.11
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG2	11	0.11
(1,978)	1:A:23:GLN:H	1:A:23:GLN:HG3	11	0.11
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	10	0.11
(1,963)	1:A:15:LEU:HD11	1:A:29:HIS:HD2	20	0.11
(1,963)	1:A:15:LEU:HD12	1:A:29:HIS:HD2	20	0.11
(1,963)	1:A:15:LEU:HD13	1:A:29:HIS:HD2	20	0.11
(1,963)	1:A:15:LEU:HD21	1:A:29:HIS:HD2	20	0.11
(1,963)	1:A:15:LEU:HD22	1:A:29:HIS:HD2	20	0.11
(1,963)	1:A:15:LEU:HD23	1:A:29:HIS:HD2	20	0.11
(1,950)	1:A:13:CYS:HB2	1:A:14:GLU:H	2	0.11
(1,950)	1:A:13:CYS:HB3	1:A:14:GLU:H	2	0.11
(1,920)	1:A:9:LYS:H	1:A:9:LYS:HD2	17	0.11
(1,920)	1:A:9:LYS:H	1:A:9:LYS:HD3	17	0.11
(1,91)	1:A:30:VAL:HA	1:A:34:TRP:HD1	18	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	1	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	1	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	1	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	2	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	2	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	2	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	7	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	7	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	7	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	13	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	13	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	13	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	17	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	17	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	17	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG11	18	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG12	18	0.11
(1,891)	1:A:49:ASP:HB2	1:A:52:VAL:HG13	18	0.11
(1,799)	1:A:42:GLU:HB3	1:A:43:GLN:H	3	0.11
(1,769)	1:A:40:CYS:HB2	1:A:60:HIS:HE1	4	0.11
(1,765)	1:A:21:TYR:HB2	1:A:22:ASP:H	7	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	1	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	3	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	4	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	9	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	13	0.11
(1,619)	1:A:34:TRP:HB3	1:A:34:TRP:HE1	14	0.11
(1,597)	1:A:49:ASP:H	1:A:52:VAL:H	11	0.11
(1,594)	1:A:29:HIS:H	1:A:32:SER:H	2	0.11
(1,589)	1:A:8:LYS:H	1:A:9:LYS:H	10	0.11
(1,589)	1:A:8:LYS:H	1:A:9:LYS:H	18	0.11
(1,559)	1:A:60:HIS:HB2	1:A:61:PHE:H	16	0.11
(1,558)	1:A:60:HIS:H	1:A:60:HIS:HB2	16	0.11
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	18	0.11
(1,553)	1:A:59:THR:H	1:A:62:ASP:H	20	0.11
(1,461)	1:A:42:GLU:H	1:A:42:GLU:HB3	20	0.11
(1,455)	1:A:38:PRO:HD2	1:A:41:SER:H	8	0.11
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	3	0.11
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	9	0.11
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	13	0.11
(1,446)	1:A:37:CYS:H	1:A:40:CYS:H	15	0.11
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	14	0.11
(1,439)	1:A:35:LYS:H	1:A:36:VAL:H	18	0.11
(1,43)	1:A:35:LYS:HA	1:A:36:VAL:HB	17	0.11
(1,426)	1:A:33:HIS:HB3	1:A:34:TRP:H	3	0.11
(1,391)	1:A:26:PHE:H	1:A:29:HIS:H	2	0.11
(1,377)	1:A:27:GLU:H	1:A:30:VAL:H	20	0.11
(1,364)	1:A:23:GLN:HB2	1:A:25:LYS:H	20	0.11
(1,351)	1:A:22:ASP:H	1:A:23:GLN:H	17	0.11
(1,346)	1:A:21:TYR:H	1:A:22:ASP:H	17	0.11
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	2	0.11
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	8	0.11
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	15	0.11
(1,32)	1:A:19:PRO:HA	1:A:20:ASN:HA	16	0.11
(1,316)	1:A:6:VAL:H	1:A:7:HIS:HA	9	0.11
(1,309)	1:A:62:ASP:H	1:A:63:GLN:HA	1	0.11
(1,309)	1:A:62:ASP:H	1:A:63:GLN:HA	14	0.11
(1,3)	1:A:40:CYS:HB3	1:A:60:HIS:HE1	5	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	10	0.11
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	10	0.11
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	10	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	10	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	10	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	10	0.11
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG21	14	0.11
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG22	14	0.11
(1,294)	1:A:48:TYR:HE1	1:A:52:VAL:HG23	14	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG21	14	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG22	14	0.11
(1,294)	1:A:48:TYR:HE2	1:A:52:VAL:HG23	14	0.11
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	3	0.11
(1,285)	1:A:35:LYS:HA	1:A:43:GLN:HA	10	0.11
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	1	0.11
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	7	0.11
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	10	0.11
(1,284)	1:A:42:GLU:HA	1:A:43:GLN:HB2	16	0.11
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	12	0.11
(1,271)	1:A:22:ASP:HB2	1:A:25:LYS:HB3	18	0.11
(1,259)	1:A:6:VAL:HA	1:A:7:HIS:HA	13	0.11
(1,175)	1:A:40:CYS:HB3	1:A:41:SER:H	16	0.11
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	3	0.11
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	4	0.11
(1,174)	1:A:16:MET:H	1:A:16:MET:HG3	7	0.11
(1,157)	1:A:27:GLU:H	1:A:28:GLU:HG2	9	0.11
(1,14)	1:A:9:LYS:HA	1:A:10:CYS:HB2	18	0.11
(1,121)	1:A:58:GLN:HA	1:A:61:PHE:HE1	18	0.11
(1,121)	1:A:58:GLN:HA	1:A:61:PHE:HE2	18	0.11
(1,1067)	1:A:50:GLN:HB2	1:A:51:GLN:H	4	0.11
(1,1067)	1:A:50:GLN:HB3	1:A:51:GLN:H	4	0.11
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG2	2	0.11
(1,1056)	1:A:49:ASP:HA	1:A:50:GLN:HG3	2	0.11
(1,1038)	1:A:39:MET:HB2	1:A:40:CYS:HB2	18	0.11
(1,1038)	1:A:39:MET:HB3	1:A:40:CYS:HB2	18	0.11
(1,1)	1:A:13:CYS:HB3	1:A:33:HIS:HE1	19	0.11

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

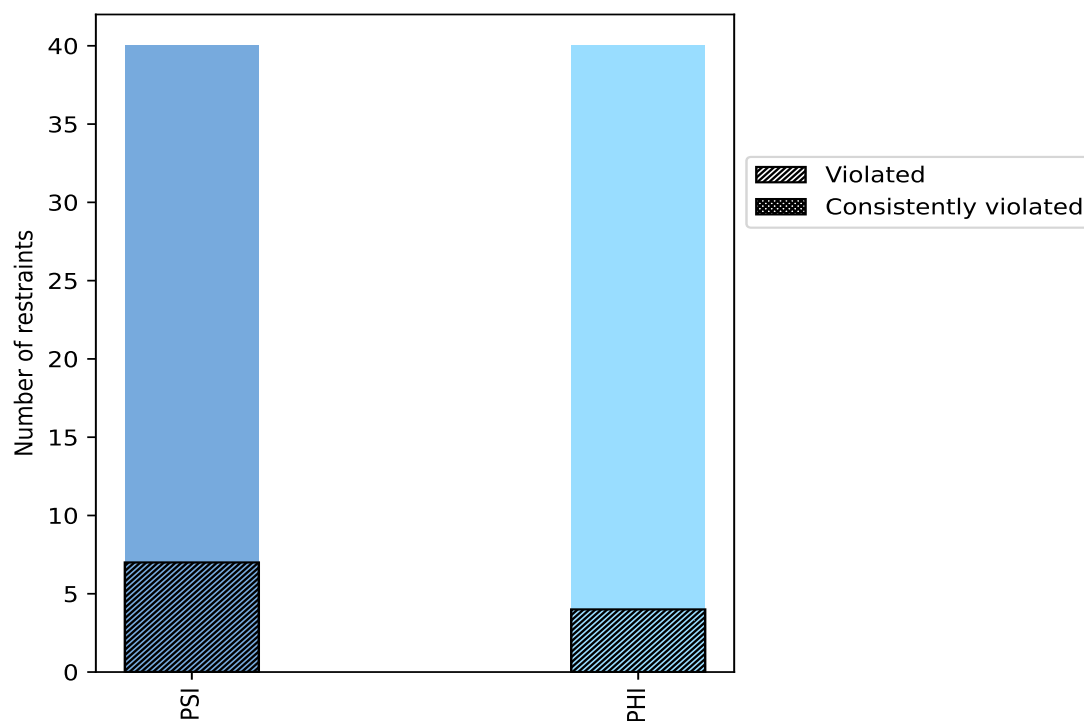
### 10.1 Summary of dihedral-angle violations [i](#)

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

Angle type	Count	% <sup>1</sup>	Violated <sup>3</sup>			Consistently Violated <sup>4</sup>		
			Count	% <sup>2</sup>	% <sup>1</sup>	Count	% <sup>2</sup>	% <sup>1</sup>
PSI	40	50.0	7	17.5	8.8	0	0.0	0.0
PHI	40	50.0	4	10.0	5.0	0	0.0	0.0
Total	80	100.0	11	13.8	13.8	0	0.0	0.0

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

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



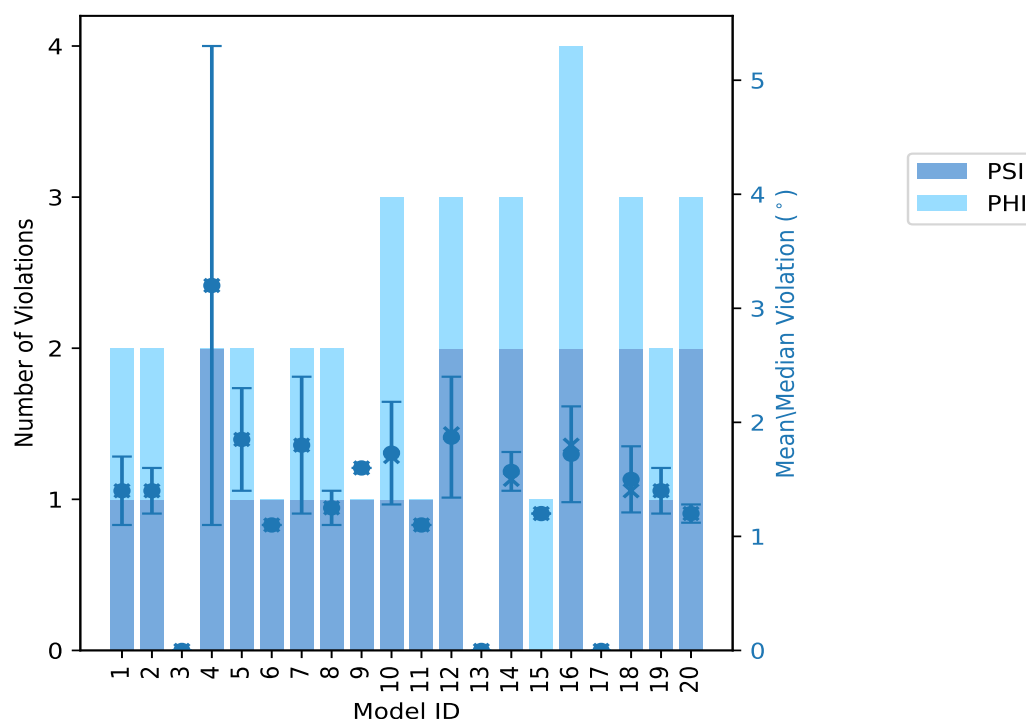
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

## 10.2 Dihedral-angle violation statistics for each model

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

Model ID	Number of violations			Mean (°)	Max (°)	SD (°)	Median (°)
	PSI	PHI	Total				
1	1	1	2	1.4	1.7	0.3	1.4
2	1	1	2	1.4	1.6	0.2	1.4
3	0	0	0	0.0	0.0	0.0	0.0
4	2	0	2	3.2	5.3	2.1	3.2
5	1	1	2	1.85	2.3	0.45	1.85
6	1	0	1	1.1	1.1	0.0	1.1
7	1	1	2	1.8	2.4	0.6	1.8
8	1	1	2	1.25	1.4	0.15	1.25
9	1	0	1	1.6	1.6	0.0	1.6
10	1	2	3	1.73	2.3	0.45	1.7
11	1	0	1	1.1	1.1	0.0	1.1
12	2	1	3	1.87	2.5	0.53	1.9
13	0	0	0	0.0	0.0	0.0	0.0
14	2	1	3	1.57	1.8	0.17	1.5
15	0	1	1	1.2	1.2	0.0	1.2
16	2	2	4	1.72	2.2	0.42	1.8
17	0	0	0	0.0	0.0	0.0	0.0
18	2	1	3	1.5	1.9	0.29	1.4
19	1	1	2	1.4	1.6	0.2	1.4
20	2	1	3	1.2	1.3	0.08	1.2

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



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

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

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

Number of violated restraints			Fraction of the ensemble	
PSI	PHI	Total	Count <sup>1</sup>	%
4	1	5	1	5.0
1	1	2	2	10.0
0	0	0	3	15.0
1	1	2	4	20.0
0	0	0	5	25.0
0	0	0	6	30.0
0	0	0	7	35.0
0	1	1	8	40.0
0	0	0	9	45.0
0	0	0	10	50.0
0	0	0	11	55.0

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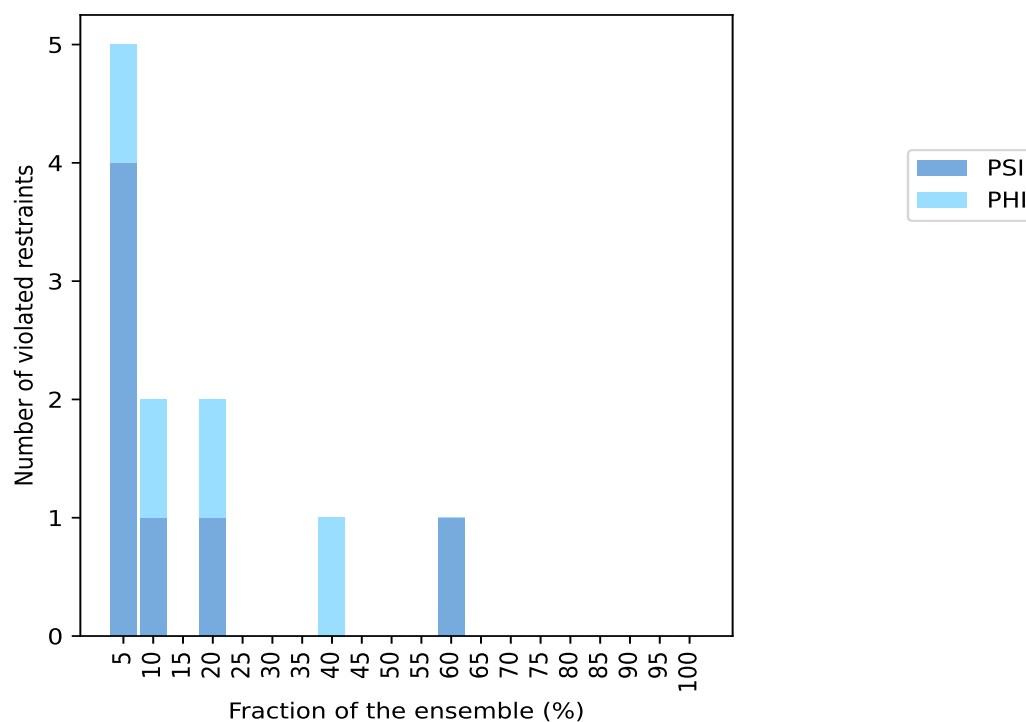


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Number of violated restraints			Fraction of the ensemble	
PSI	PHI	Total	Count <sup>1</sup>	%
1	0	1	12	60.0
0	0	0	13	65.0
0	0	0	14	70.0
0	0	0	15	75.0
0	0	0	16	80.0
0	0	0	17	85.0
0	0	0	18	90.0
0	0	0	19	95.0
0	0	0	20	100.0

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

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

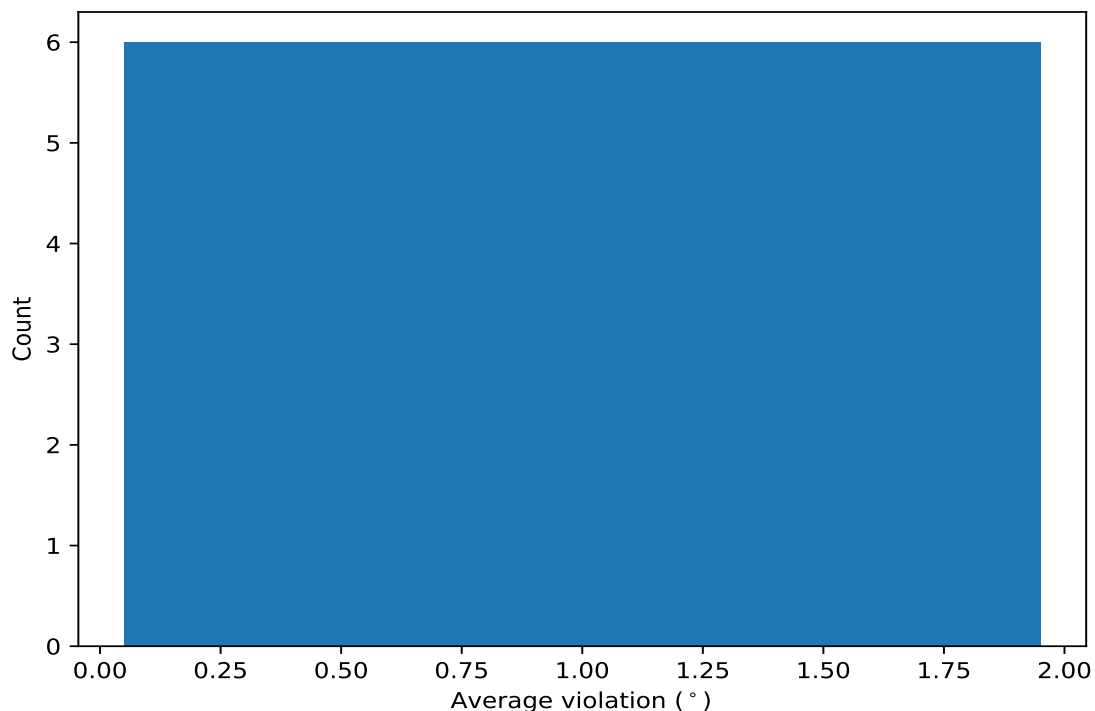


## 10.4 Most violated dihedral-angle restraints in the ensemble [i](#)

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

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

in the ensemble



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

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

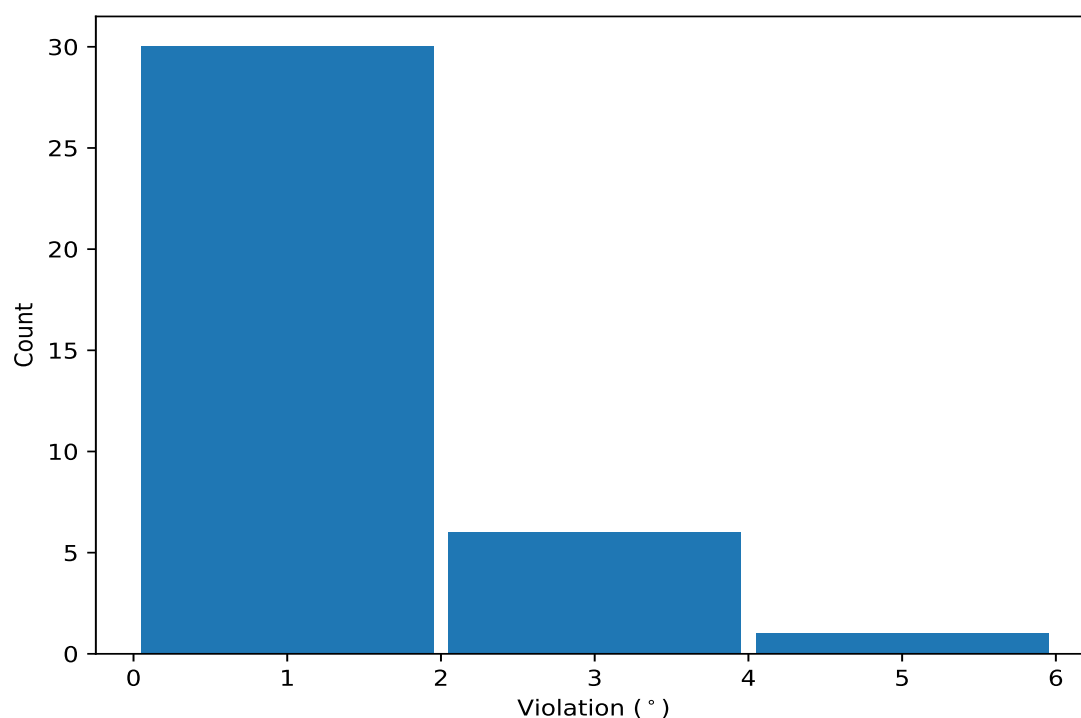
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models <sup>1</sup>	Mean	SD <sup>2</sup>	Median
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	12	1.49	0.34	1.4
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	8	1.76	0.45	1.75
(1,4)	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	1:A:10:CYS:N	4	1.58	0.35	1.6
(1,3)	1:A:8:LYS:C	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	4	1.52	0.57	1.25
(1,2)	1:A:8:LYS:N	1:A:8:LYS:CA	1:A:8:LYS:C	1:A:9:LYS:N	2	1.55	0.35	1.55
(1,78)	1:A:60:HIS:C	1:A:61:PHE:N	1:A:61:PHE:CA	1:A:61:PHE:C	2	1.15	0.05	1.15

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

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

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

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



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

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

Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,80)	1:A:62:ASP:N	1:A:62:ASP:CA	1:A:62:ASP:C	1:A:63:GLN:N	4	5.3
(1,3)	1:A:8:LYS:C	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	12	2.5
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	7	2.4
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	5	2.3
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	10	2.3
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	16	2.2
(1,4)	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	1:A:10:CYS:N	16	2.0
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	18	1.9
(1,2)	1:A:8:LYS:N	1:A:8:LYS:CA	1:A:8:LYS:C	1:A:9:LYS:N	12	1.9
(1,4)	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	1:A:10:CYS:N	14	1.8
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	1	1.7
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	10	1.7
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	9	1.6
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	16	1.6
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	19	1.6
(1,30)	1:A:28:GLU:C	1:A:29:HIS:N	1:A:29:HIS:CA	1:A:29:HIS:C	2	1.6
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	14	1.5
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	8	1.4
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	14	1.4
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	18	1.4
(1,4)	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	1:A:10:CYS:N	5	1.4

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,3)	1:A:8:LYS:C	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	20	1.3
(1,78)	1:A:60:HIS:C	1:A:61:PHE:N	1:A:61:PHE:CA	1:A:61:PHE:C	10	1.2
(1,73)	1:A:58:GLN:N	1:A:58:GLN:CA	1:A:58:GLN:C	1:A:59:THR:N	18	1.2
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	2	1.2
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	12	1.2
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	19	1.2
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	7	1.2
(1,3)	1:A:8:LYS:C	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	15	1.2
(1,2)	1:A:8:LYS:N	1:A:8:LYS:CA	1:A:8:LYS:C	1:A:9:LYS:N	20	1.2
(1,78)	1:A:60:HIS:C	1:A:61:PHE:N	1:A:61:PHE:CA	1:A:61:PHE:C	16	1.1
(1,47)	1:A:43:GLN:N	1:A:43:GLN:CA	1:A:43:GLN:C	1:A:44:PHE:N	4	1.1
(1,40)	1:A:35:LYS:C	1:A:36:VAL:N	1:A:36:VAL:CA	1:A:36:VAL:C	1	1.1
(1,4)	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	1:A:10:CYS:N	11	1.1
(1,3)	1:A:8:LYS:C	1:A:9:LYS:N	1:A:9:LYS:CA	1:A:9:LYS:C	8	1.1
(1,29)	1:A:28:GLU:N	1:A:28:GLU:CA	1:A:28:GLU:C	1:A:29:HIS:N	20	1.1
(1,15)	1:A:21:TYR:N	1:A:21:TYR:CA	1:A:21:TYR:C	1:A:22:ASP:N	6	1.1