Full wwPDB NMR Structure Validation Report (i)

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PDB ID	:	2MBM
BMRB ID	:	19405
Title	:	Solution NMR Structure of De novo designed Top7 Fold Protein Top7m13, Northeast Structural Genomics Consortium (NESG) Target OR33
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Deposited on	:	2013-08-02

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

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

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

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

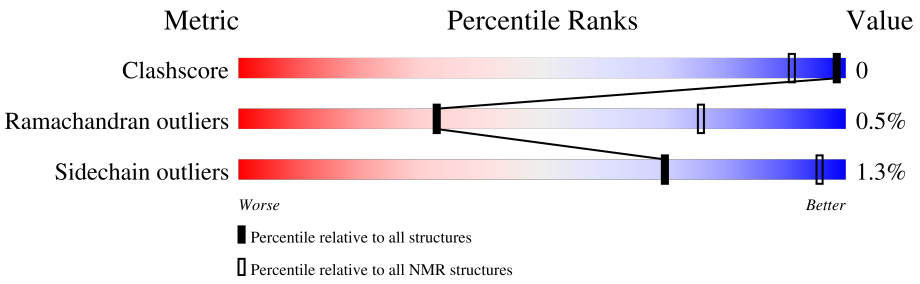
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.33

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
SOLUTION NMR

The overall completeness of chemical shifts assignment is 91%.

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 >=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 <=5%

Mol	Chain	Length	Quality of chain
1	A	120	85% • 14%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 4 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:5-A:107 (103)	0.67	4

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 5 clusters and 1 single-model cluster was found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1961 atoms, of which 987 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Top7 Fold Protein Top7m13.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	120	1961	609	987	178	183	4	0

4 Residue-property plots (i)

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: Top7 Fold Protein Top7m13

Chain A:

4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

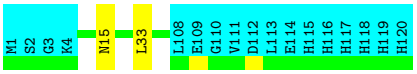
• Molecule 1: Top7 Fold Protein Top7m13

Chain A:

4.2.2 Score per residue for model 2

• Molecule 1: Top7 Fold Protein Top7m13

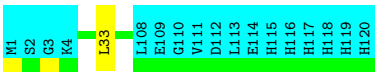
Chain A:



4.2.3 Score per residue for model 3

- Molecule 1: Top7 Fold Protein Top7m13

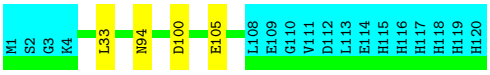
Chain A: 85% 14%



4.2.4 Score per residue for model 4 (medoid)

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 82% 14%



4.2.5 Score per residue for model 5

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 84% 14%

4.2.6 Score per residue for model 6

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 85% 14%

4.2.7 Score per residue for model 7

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 83% 14%

4.2.8 Score per residue for model 8

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 85% • 14%

4.2.9 Score per residue for model 9

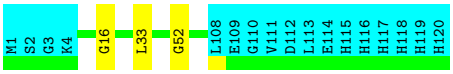
- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 85% • 14%

4.2.10 Score per residue for model 10

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 83% • 14%



4.2.11 Score per residue for model 11

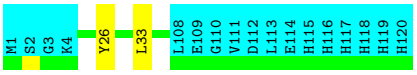
- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 85% • 14%

4.2.12 Score per residue for model 12

- Molecule 1: Top7 Fold Protein Top7m13

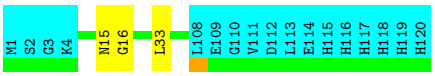
Chain A: 84% • 14%



4.2.13 Score per residue for model 13

- Molecule 1: Top7 Fold Protein Top7m13

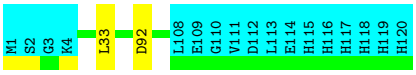
Chain A: 83% • 14%



4.2.14 Score per residue for model 14

- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 84% • 14%



4.2.15 Score per residue for model 15

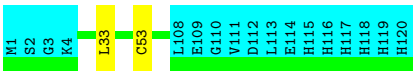
- Molecule 1: Top7 Fold Protein Top7m13

Chain A: 84% • 14%

4.2.16 Score per residue for model 16

- Molecule 1: Top7 Fold Protein Top7m13

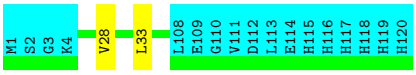
Chain A: 84% • 14%



4.2.17 Score per residue for model 17

- Molecule 1: Top7 Fold Protein Top7m13

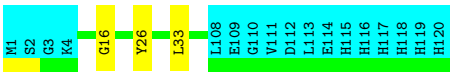
Chain A: 84% • 14%



4.2.18 Score per residue for model 18

- Molecule 1: Top7 Fold Protein Top7m13

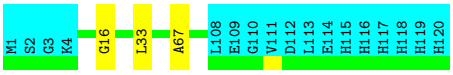
Chain A:



4.2.19 Score per residue for model 19

- Molecule 1: Top7 Fold Protein Top7m13

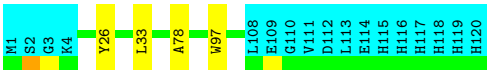
Chain A:



4.2.20 Score per residue for model 20

- Molecule 1: Top7 Fold Protein Top7m13

Chain A:



5 Refinement protocol and experimental data overview (i)

The models were refined using the following method: *distance geometry, simulated annealing, and molecular dynamics.*

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
CNS	refinement	
CNS	structure solution	
CNS	geometry optimization	
CYANA	refinement	3.0
CYANA	geometry optimization	3.0
CYANA	structure solution	3.0
AutoStructure	refinement	2.1
TALOS+	geometry optimization	
PALES	geometry optimization	
REDCAT	geometry optimization	
conRosetta	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	1440
Number of shifts mapped to atoms	1440
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	91%

6 Model quality (i)

6.1 Standard geometry (i)

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	833	863	863	0±1
All	All	16660	17260	17260	5

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 0.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:28:VAL:O	1:A:28:VAL:CG1	0.45	2.65	17	1
1:A:15:ASN:HB2	1:A:53:CYS:SG	0.43	2.53	7	1
1:A:78:ALA:HA	1:A:97:TRP:CZ2	0.42	2.49	20	1
1:A:94:ASN:HB3	1:A:105:GLU:O	0.41	2.16	4	1
1:A:28:VAL:O	1:A:28:VAL:HG13	0.40	2.15	17	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	103/120 (86%)	101±1 (98±1%)	1±1 (1±1%)	1±1 (1±1%)	32 76
All	All	2060/2400 (86%)	2029 (98%)	20 (1%)	11 (1%)	32 76

All 6 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	16	GLY	5
1	A	15	ASN	2
1	A	100	ASP	1
1	A	52	GLY	1
1	A	92	ASP	1
1	A	67	ALA	1

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	91/106 (86%)	90±0 (99±0%)	1±0 (1±0%)	70 96
All	All	1820/2120 (86%)	1797 (99%)	23 (1%)	70 96

All 3 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	33	LEU	20
1	A	26	TYR	2
1	A	53	CYS	1

6.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates (i)

There are no monosaccharides in this entry.

6.6 Ligand geometry (i)

There are no ligands in this entry.

6.7 Other polymers (i)

There are no such molecules in this entry.

6.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

7 Chemical shift validation (i)

The completeness of assignment taking into account all chemical shift lists is 91% for the well-defined parts and 85% 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	1440
Number of shifts mapped to atoms	1440
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	1

7.1.2 Chemical shift referencing (i)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_{\alpha}$	111	-0.08 ± 0.10	None needed (< 0.5 ppm)
$^{13}C_{\beta}$	105	0.35 ± 0.13	None needed (< 0.5 ppm)
$^{13}C'$	101	0.20 ± 0.08	None needed (< 0.5 ppm)
^{15}N	101	-0.07 ± 0.18	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments (i)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 91%, i.e. 1328 atoms were assigned a chemical shift out of a possible 1463. 0 out of 18 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	490/518 (95%)	203/210 (97%)	194/206 (94%)	93/102 (91%)
Sidechain	772/870 (89%)	525/557 (94%)	239/271 (88%)	8/42 (19%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	66/75 (88%)	33/36 (92%)	32/37 (86%)	1/2 (50%)
Overall	1328/1463 (91%)	761/803 (95%)	465/514 (90%)	102/146 (70%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 85%, i.e. 1440 atoms were assigned a chemical shift out of a possible 1690. 0 out of 21 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	536/605 (89%)	223/246 (91%)	212/240 (88%)	101/119 (85%)
Sidechain	838/968 (87%)	570/621 (92%)	260/304 (86%)	8/43 (19%)
Aromatic	66/117 (56%)	33/60 (55%)	32/49 (65%)	1/8 (12%)
Overall	1440/1690 (85%)	826/927 (89%)	504/593 (85%)	110/170 (65%)

7.1.4 Statistically unusual chemical shifts (i)

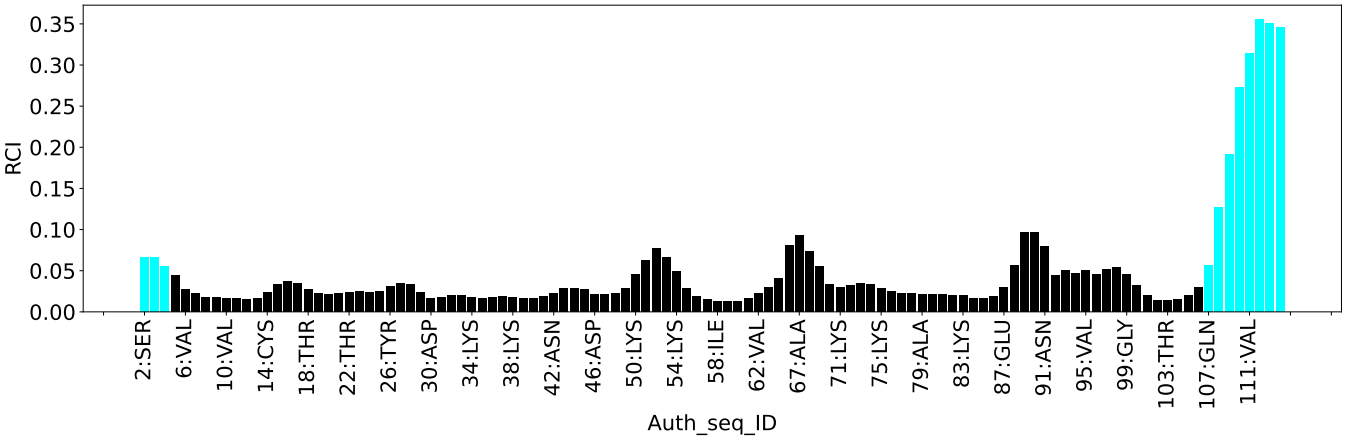
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, *ppm*	Expected range, *ppm*	Z-score
1	A	102	VAL	HB	-0.52	0.43 – 3.54	-8.1

7.1.5 Random Coil Index (RCI) plots (i)

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

Random coil index (RCI) for chain A:


RCI
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2:SER
6:VAL
10:VAL
14:CYS
18:THR
22:THR
26:TYR
30:ASP
34:LYS
38:LYS
42:ASN
46:ASP
50:LYS
54:LYS
58:ILE
62:VAL
67:ALA
71:LYS
75:LYS
79:ALA
83:LYS
87:GLU
91:ASN
95:VAL
99:GLY
103:THR
107:GLN
111:VAL
Auth_seq_ID

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	2792
Intra-residue (|i-j|=0)	809
Sequential (|i-j|=1)	626
Medium range (|i-j|>1 and |i-j|<5)	511
Long range (|i-j|≥5)	792
Inter-chain	0
Hydrogen bond restraints	48
Disulfide bond restraints	6
Total dihedral-angle restraints	170
Number of unmapped restraints	0
Number of restraints per residue	24.7
Number of long range restraints per residue[1]	6.8

[1]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)	4.8	0.2
0.2-0.5 (Medium)	3.9	0.5
>0.5 (Large)	0.8	1.37

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)	0.5	8.9
10.0-20.0 (Medium)	0.1	15.3
>20.0 (Large)	None	None

9 Distance violation analysis (i)

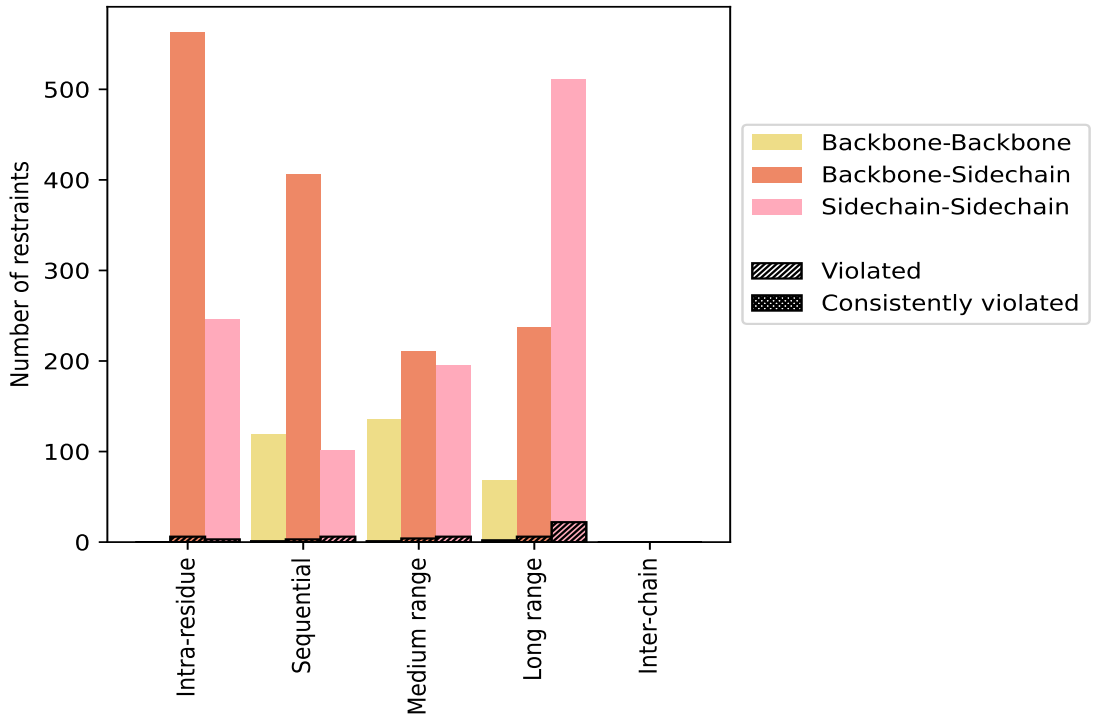
9.1 Summary of distance violations (i)

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.

Restraints type	Count	%[1]	Violated[3]			Consistently Violated[4]		
			Count	%[2]	%[1]	Count	%[2]	%[1]
Intra-residue (|i-j|=0)	809	29.0	9	1.1	0.3	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	563	20.2	6	1.1	0.2	0	0.0	0.0
Sidechain-Sidechain	246	8.8	3	1.2	0.1	0	0.0	0.0
Sequential (|i-j|=1)	626	22.4	10	1.6	0.4	0	0.0	0.0
Backbone-Backbone	119	4.3	1	0.8	0.0	0	0.0	0.0
Backbone-Sidechain	406	14.5	3	0.7	0.1	0	0.0	0.0
Sidechain-Sidechain	101	3.6	6	5.9	0.2	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	511	18.3	10	2.0	0.4	0	0.0	0.0
Backbone-Backbone	105	3.8	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	211	7.6	4	1.9	0.1	0	0.0	0.0
Sidechain-Sidechain	195	7.0	6	3.1	0.2	0	0.0	0.0
Long range (|i-j|≥5)	792	28.4	30	3.8	1.1	0	0.0	0.0
Backbone-Backbone	50	1.8	2	4.0	0.1	0	0.0	0.0
Backbone-Sidechain	237	8.5	6	2.5	0.2	0	0.0	0.0
Sidechain-Sidechain	505	18.1	22	4.4	0.8	0	0.0	0.0
Inter-chain	0	0.0	0	0.0	0.0	0	0.0	0.0
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
Hydrogen bond	48	1.7	1	2.1	0.0	0	0.0	0.0
Disulfide bond	6	0.2	0	0.0	0.0	0	0.0	0.0
Total	2792	100.0	60	2.1	2.1	0	0.0	0.0
Backbone-Backbone	322	11.5	4	1.2	0.1	0	0.0	0.0
Backbone-Sidechain	1417	50.8	19	1.3	0.7	0	0.0	0.0
Sidechain-Sidechain	1053	37.7	37	3.5	1.3	0	0.0	0.0

[1] percentage calculated with respect to the total number of distance restraints, [2] percentage calculated with respect to the number of restraints in a particular restraint category, [3] violated in at least one model, [4] 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[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
1	2	2	2	4	0	10	0.27	0.52	0.14	0.2
2	0	2	3	5	0	10	0.28	0.7	0.17	0.24
3	3	0	0	2	0	5	0.21	0.32	0.08	0.25
4	3	3	3	4	0	13	0.2	0.44	0.11	0.14
5	1	0	2	6	0	9	0.18	0.29	0.07	0.13
6	3	1	0	7	0	11	0.24	0.41	0.08	0.23
7	1	0	0	1	0	2	0.36	0.38	0.02	0.36
8	2	1	4	7	0	14	0.22	0.4	0.1	0.18
9	1	1	0	3	0	5	0.25	0.49	0.16	0.16
10	1	0	2	3	0	6	0.25	0.49	0.16	0.16
11	1	1	3	5	0	10	0.26	0.42	0.11	0.24

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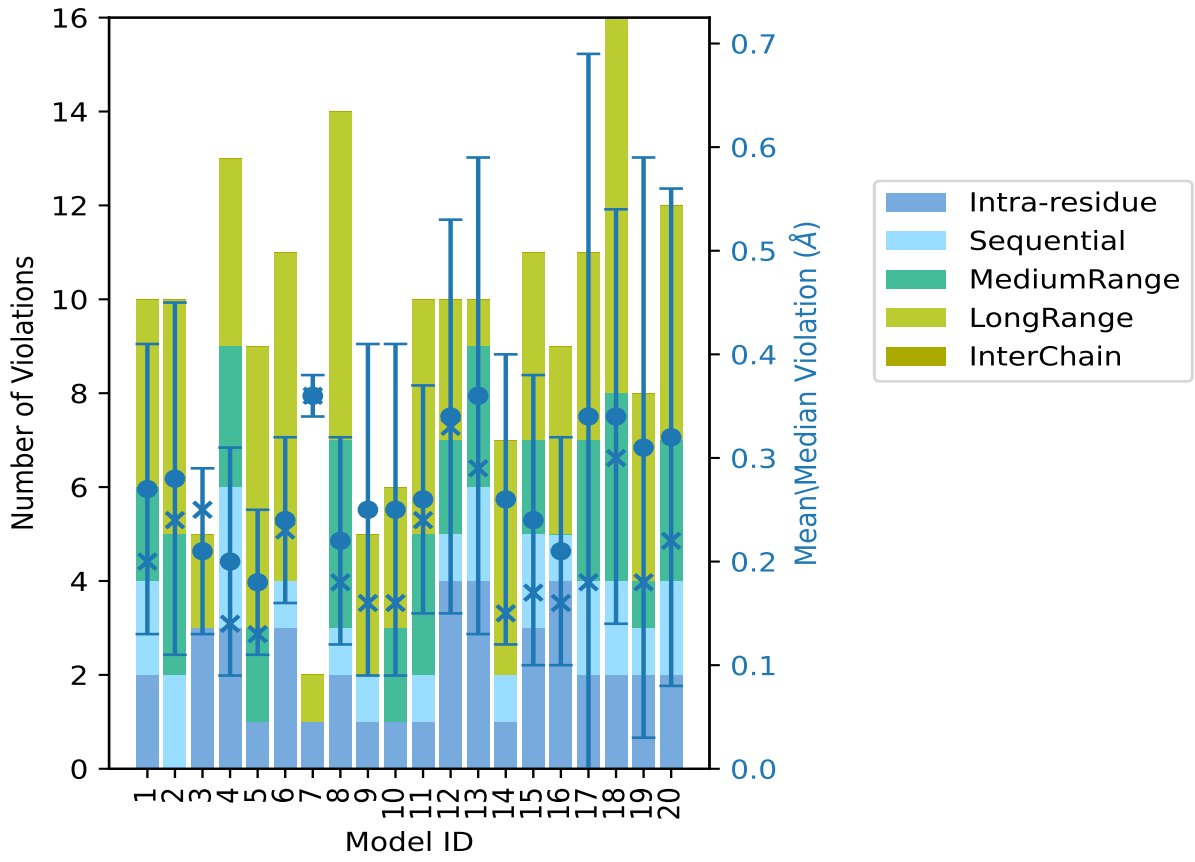
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	4	1	2	3	0	10	0.34	0.77	0.19	0.33
13	4	2	3	1	0	10	0.36	0.69	0.23	0.29
14	1	1	0	5	0	7	0.26	0.47	0.14	0.15
15	3	2	2	4	0	11	0.24	0.49	0.14	0.17
16	4	1	0	4	0	9	0.21	0.46	0.11	0.16
17	2	2	3	4	0	11	0.34	1.37	0.35	0.18
18	2	2	4	8	0	16	0.34	0.78	0.2	0.3
19	2	1	1	4	0	8	0.31	1.01	0.28	0.18
20	2	2	3	5	0	12	0.32	0.88	0.24	0.22

[1]Intra-residue restraints, [2]Sequential restraints, [3]Medium range restraints, [4]Long range restraints, [5]Inter-chain restraints, [6]Standard deviation

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



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

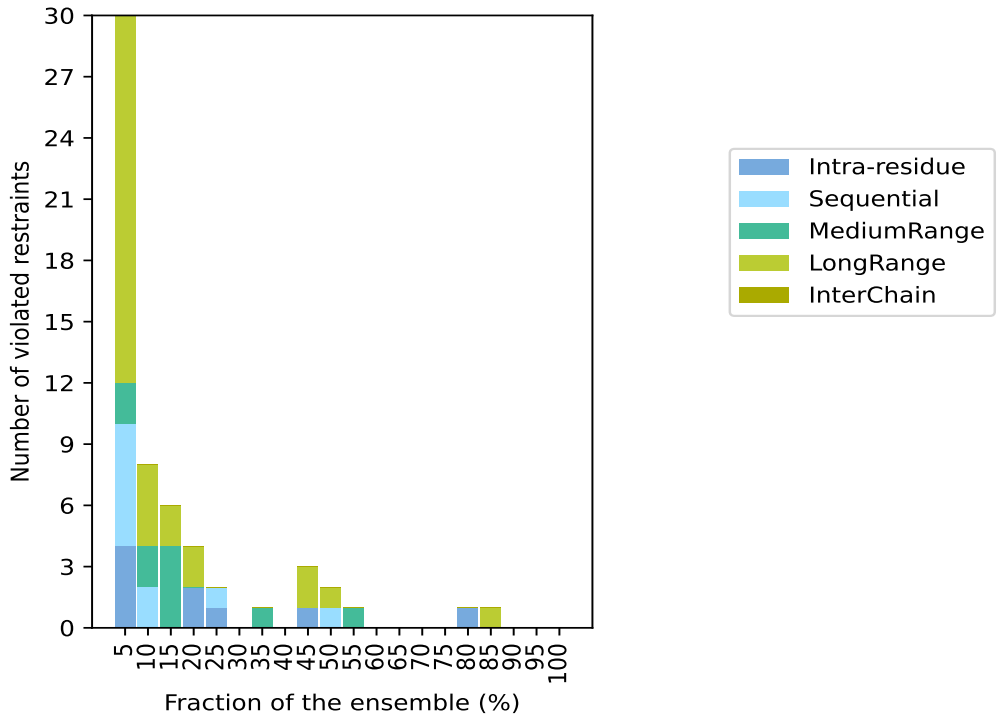
9.3 Distance violation statistics for the ensemble (i)

Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 2679(IR:800, SQ:616, MR:501, LR:762, IC:0) restraints are not violated in the ensemble.

Number of violated restraints						Fraction of the ensemble	
IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total	Count[6]	%
4	6	2	18	0	30	1	5.0
0	2	2	4	0	8	2	10.0
0	0	4	2	0	6	3	15.0
2	0	0	2	0	4	4	20.0
1	1	0	0	0	2	5	25.0
0	0	0	0	0	0	6	30.0
0	0	1	0	0	1	7	35.0
0	0	0	0	0	0	8	40.0
1	0	0	2	0	3	9	45.0
0	1	0	1	0	2	10	50.0
0	0	1	0	0	1	11	55.0
0	0	0	0	0	0	12	60.0
0	0	0	0	0	0	13	65.0
0	0	0	0	0	0	14	70.0
0	0	0	0	0	0	15	75.0
1	0	0	0	0	1	16	80.0
0	0	0	1	0	1	17	85.0
0	0	0	0	0	0	18	90.0
0	0	0	0	0	0	19	95.0
0	0	0	0	0	0	20	100.0

[1]Intra-residue restraints, [2]Sequential restraints, [3]Medium range restraints, [4]Long range restraints, [5]Inter-chain restraints, [6] Number of models with violations

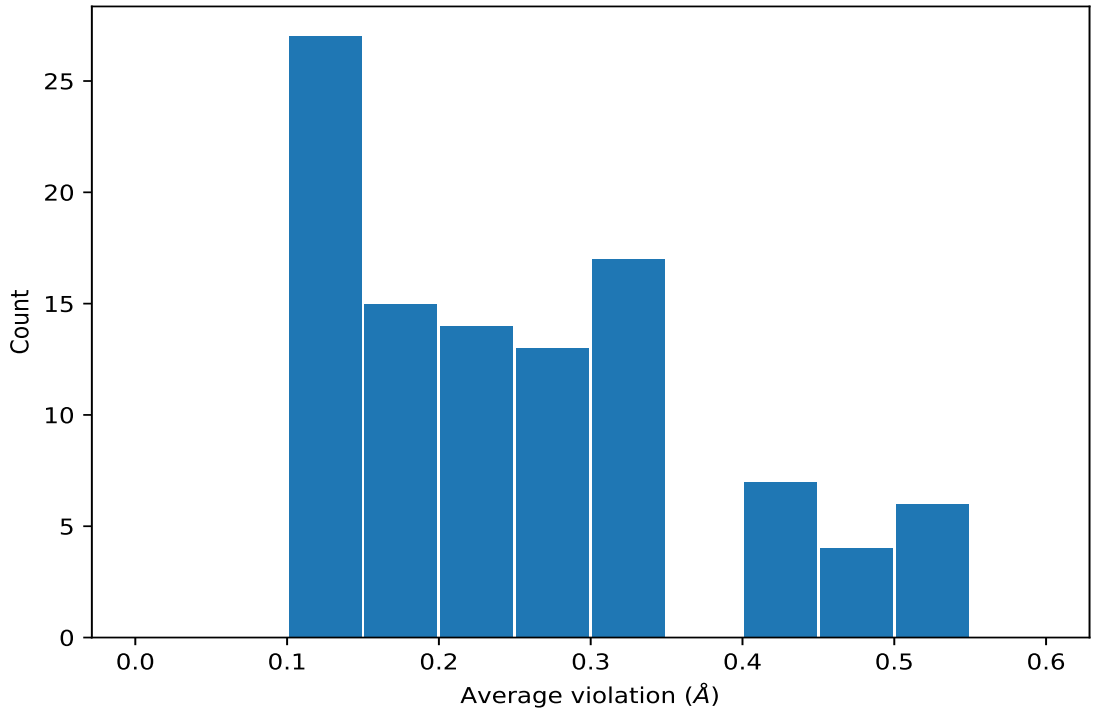
9.3.1 Bar graph : Distance violation statistics for the ensemble (i)



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[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	17	0.4	0.06	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	17	0.4	0.06	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	17	0.4	0.06	0.4
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	16	0.13	0.01	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	16	0.13	0.01	0.13
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	11	0.54	0.36	0.49
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	11	0.54	0.36	0.49
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	11	0.54	0.36	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	11	0.54	0.36	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	11	0.54	0.36	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	11	0.54	0.36	0.49
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	10	0.43	0.1	0.4
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	10	0.43	0.1	0.4
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	10	0.33	0.1	0.32
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	10	0.33	0.1	0.32
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	10	0.33	0.1	0.32

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	10	0.33	0.1	0.32
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	9	0.16	0.02	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	9	0.16	0.02	0.17
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	9	0.15	0.02	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	9	0.15	0.02	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	9	0.15	0.02	0.15
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	9	0.15	0.06	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	9	0.15	0.06	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	9	0.15	0.06	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	9	0.15	0.06	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	9	0.15	0.06	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	9	0.15	0.06	0.12
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	7	0.44	0.18	0.41
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	7	0.44	0.18	0.41
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	5	0.32	0.01	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	5	0.32	0.01	0.32
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	5	0.22	0.1	0.18
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	5	0.22	0.1	0.18
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	5	0.22	0.1	0.18
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	5	0.22	0.1	0.18
(1,1682)	1:A:3:GLY:HA2	1:A:28:VAL:HA	4	0.28	0.2	0.2
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG2	4	0.27	0.01	0.27
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG3	4	0.27	0.01	0.27
(1,699)	1:A:6:VAL:HB	1:A:63:LYS:H	4	0.24	0.07	0.25
(1,427)	1:A:83:LYS:H	1:A:83:LYS:HG2	4	0.19	0.01	0.19
(1,1679)	1:A:26:TYR:HD1	1:A:28:VAL:HA	3	0.2	0.03	0.21
(1,1679)	1:A:26:TYR:HD2	1:A:28:VAL:HA	3	0.2	0.03	0.21
(1,1091)	1:A:45:MET:HE1	1:A:48:ILE:HB	3	0.19	0.11	0.11
(1,1091)	1:A:45:MET:HE2	1:A:48:ILE:HB	3	0.19	0.11	0.11
(1,1091)	1:A:45:MET:HE3	1:A:48:ILE:HB	3	0.19	0.11	0.11
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG11	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG12	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG13	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG11	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG12	3	0.14	0.01	0.13

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG13	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG11	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG12	3	0.14	0.01	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG13	3	0.14	0.01	0.13
(1,1692)	1:A:33:LEU:HD11	1:A:36:LYS:HA	3	0.13	0.02	0.14
(1,1692)	1:A:33:LEU:HD12	1:A:36:LYS:HA	3	0.13	0.02	0.14
(1,1692)	1:A:33:LEU:HD13	1:A:36:LYS:HA	3	0.13	0.02	0.14
(1,1687)	1:A:28:VAL:HG11	1:A:32:GLU:HG2	3	0.12	0.01	0.13
(1,1687)	1:A:28:VAL:HG12	1:A:32:GLU:HG2	3	0.12	0.01	0.13
(1,1687)	1:A:28:VAL:HG13	1:A:32:GLU:HG2	3	0.12	0.01	0.13
(1,1657)	1:A:11:LYS:HG2	1:A:20:GLU:HB3	3	0.11	0.0	0.11
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB2	2	0.46	0.13	0.46
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB3	2	0.46	0.13	0.46
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB2	2	0.46	0.13	0.46
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB3	2	0.46	0.13	0.46
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD2	2	0.34	0.15	0.34
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD3	2	0.34	0.15	0.34
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD2	2	0.34	0.15	0.34
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD3	2	0.34	0.15	0.34
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE1	2	0.26	0.04	0.26
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE2	2	0.26	0.04	0.26
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE1	2	0.26	0.04	0.26
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE2	2	0.26	0.04	0.26
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB2	2	0.26	0.12	0.26
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB3	2	0.26	0.12	0.26
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB2	2	0.26	0.12	0.26
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB3	2	0.26	0.12	0.26
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD2	2	0.26	0.02	0.26
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD3	2	0.26	0.02	0.26
(1,1101)	1:A:108:LEU:HD21	1:A:110:GLY:H	2	0.23	0.06	0.23
(1,1101)	1:A:108:LEU:HD22	1:A:110:GLY:H	2	0.23	0.06	0.23
(1,1101)	1:A:108:LEU:HD23	1:A:110:GLY:H	2	0.23	0.06	0.23
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD1	2	0.2	0.03	0.2
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD2	2	0.2	0.03	0.2
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD1	2	0.2	0.03	0.2
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD2	2	0.2	0.03	0.2
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG21	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG22	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG23	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG21	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG22	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG23	2	0.12	0.0	0.12

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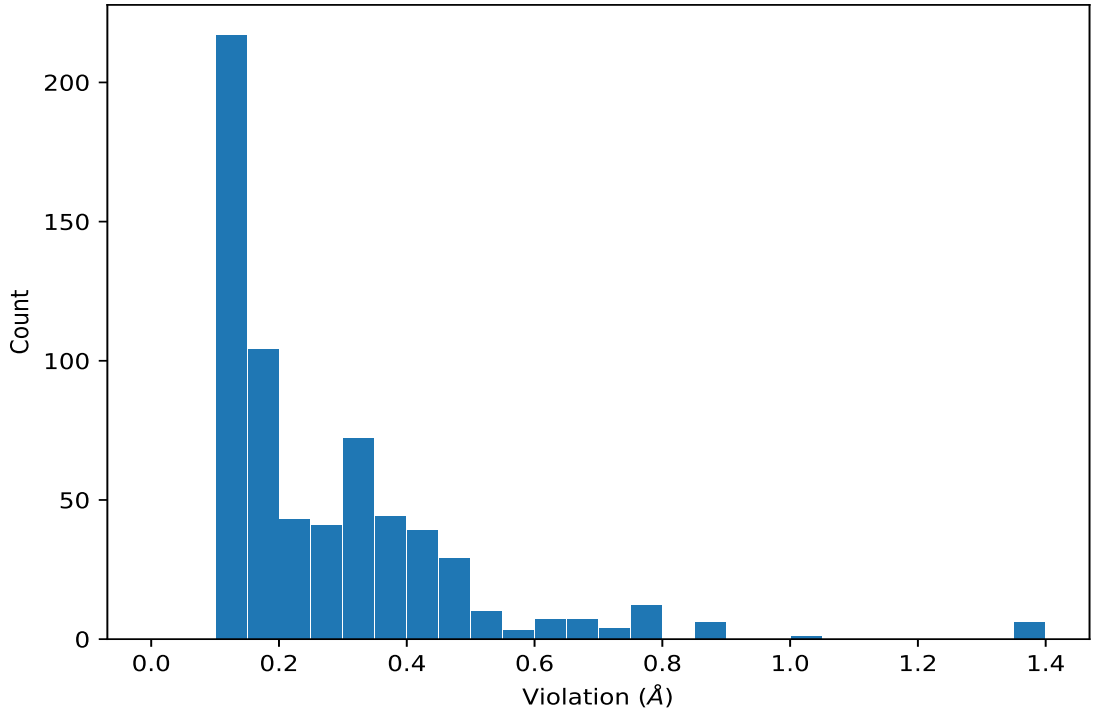
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG21	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG22	2	0.12	0.0	0.12
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG23	2	0.12	0.0	0.12

[1]Number of violated models, [2]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)
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	17	1.37

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	17	1.37
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	17	1.37
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	17	1.37
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	17	1.37
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	17	1.37
(1,1825)	1:A:64:HIS:HD2	1:A:70:GLU:HA	19	1.01
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	20	0.88
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	20	0.88
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	20	0.88
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	20	0.88
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	20	0.88
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	20	0.88
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	18	0.78
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	18	0.78
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	18	0.78
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	18	0.78
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	18	0.78
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	18	0.78
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	12	0.77
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	12	0.77
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	12	0.77
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	12	0.77
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	12	0.77
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	12	0.77
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	20	0.71
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	20	0.71
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	2	0.7
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	2	0.7
(1,2122)	1:A:6:VAL:HG21	1:A:63:LYS:HB2	13	0.69
(1,2122)	1:A:6:VAL:HG21	1:A:63:LYS:HB3	13	0.69
(1,2122)	1:A:6:VAL:HG22	1:A:63:LYS:HB2	13	0.69
(1,2122)	1:A:6:VAL:HG22	1:A:63:LYS:HB3	13	0.69
(1,2122)	1:A:6:VAL:HG23	1:A:63:LYS:HB2	13	0.69
(1,2122)	1:A:6:VAL:HG23	1:A:63:LYS:HB3	13	0.69
(1,474)	1:A:113:LEU:H	1:A:113:LEU:HG	13	0.66
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	18	0.63
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	18	0.63
(1,1682)	1:A:3:GLY:HA2	1:A:28:VAL:HA	18	0.62
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB2	13	0.6
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB3	13	0.6
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB2	13	0.6
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB3	13	0.6

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1113)	1:A:113:LEU:HA	1:A:113:LEU:HD21	13	0.55
(1,1113)	1:A:113:LEU:HA	1:A:113:LEU:HD22	13	0.55
(1,1113)	1:A:113:LEU:HA	1:A:113:LEU:HD23	13	0.55
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	1	0.52
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	1	0.52
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	1	0.52
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	1	0.52
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	1	0.52
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	1	0.52
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	12	0.51
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	12	0.51
(1,2095)	1:A:3:GLY:HA2	1:A:28:VAL:HA	18	0.5
(1,2095)	1:A:3:GLY:HA3	1:A:28:VAL:HA	18	0.5
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD2	10	0.49
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD3	10	0.49
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD2	10	0.49
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD3	10	0.49
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	15	0.49
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	15	0.49
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	15	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	15	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	15	0.49
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	15	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	9	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	9	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	9	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	20	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	20	0.49
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	20	0.49
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	15	0.48
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	15	0.48
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	15	0.48
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	15	0.48
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	1	0.47
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	1	0.47
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	14	0.47
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	14	0.47
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	14	0.47
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	14	0.47
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	16	0.46
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	16	0.46
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	16	0.46

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	4	0.44
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	4	0.44
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	10	0.44
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	10	0.44
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	10	0.44
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	18	0.43
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	18	0.43
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	18	0.43
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	18	0.43
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	4	0.43
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	4	0.43
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	4	0.43
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	11	0.42
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	11	0.42
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	19	0.42
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	19	0.42
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	19	0.42
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	14	0.41
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	14	0.41
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	14	0.41
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	14	0.41
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	1	0.41
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	1	0.41
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	17	0.41
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	17	0.41
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	6	0.41
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	6	0.41
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	6	0.41
(1,1281)	1:A:7:GLU:HB2	1:A:22:THR:HB	12	0.41
(1,1281)	1:A:7:GLU:HB3	1:A:22:THR:HB	12	0.41
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	2	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	2	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	2	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	8	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	8	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	8	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	12	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	12	0.4
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	12	0.4
(1,2093)	1:A:3:GLY:HA2	1:A:26:TYR:HD1	18	0.39
(1,2093)	1:A:3:GLY:HA2	1:A:26:TYR:HD2	18	0.39
(1,2093)	1:A:3:GLY:HA3	1:A:26:TYR:HD1	18	0.39

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,2093)	1:A:3:GLY:HA3	1:A:26:TYR:HD2	18	0.39
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	17	0.39
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	17	0.39
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	11	0.39
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	11	0.39
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	11	0.39
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	11	0.39
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	11	0.39
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	11	0.39
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	9	0.39
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	9	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	15	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	15	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	15	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	17	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	17	0.39
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	17	0.39
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB2	6	0.38
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB3	6	0.38
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB2	6	0.38
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB3	6	0.38
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	8	0.38
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	8	0.38
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	7	0.38
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	7	0.38
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	7	0.38
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	12	0.37
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	12	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	11	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	11	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	11	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	14	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	14	0.37
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	14	0.37
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	18	0.35
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	18	0.35
(1,1956)	1:A:50:LYS:HD2	1:A:51:LEU:HA	20	0.35
(1,1956)	1:A:50:LYS:HD3	1:A:51:LEU:HA	20	0.35
(1,1091)	1:A:45:MET:HE1	1:A:48:ILE:HB	8	0.35
(1,1091)	1:A:45:MET:HE2	1:A:48:ILE:HB	8	0.35
(1,1091)	1:A:45:MET:HE3	1:A:48:ILE:HB	8	0.35
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	7	0.33

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	7	0.33
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	7	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	7	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	7	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	7	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	7	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	7	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	7	0.33
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	13	0.33
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	13	0.33
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	13	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	13	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	13	0.33
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	13	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	13	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	13	0.33
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	13	0.33
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	2	0.33
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	2	0.33
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	2	0.33
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	2	0.33
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	4	0.33
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	4	0.33
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	4	0.33
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	4	0.33
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB2	1	0.33
(1,1744)	1:A:107:GLN:HG2	1:A:108:LEU:HB3	1	0.33
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB2	1	0.33
(1,1744)	1:A:107:GLN:HG3	1:A:108:LEU:HB3	1	0.33
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	3	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	3	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	3	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	3	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	3	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	3	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	3	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	3	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	3	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	16	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	16	0.32
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	16	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	16	0.32

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	16	0.32
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	16	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	16	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	16	0.32
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	16	0.32
(1,699)	1:A:6:VAL:HB	1:A:63:LYS:H	2	0.32
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	2	0.32
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	2	0.32
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	2	0.32
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	2	0.32
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	2	0.32
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	2	0.32
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	11	0.32
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	11	0.32
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	11	0.32
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	11	0.32
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE1	18	0.31
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE2	18	0.31
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE1	18	0.31
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE2	18	0.31
(1,2001)	1:A:5:LYS:HB3	1:A:26:TYR:HD1	17	0.31
(1,2001)	1:A:5:LYS:HB3	1:A:26:TYR:HD2	17	0.31
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	20	0.3
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	20	0.3
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	20	0.3
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	20	0.3
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	18	0.3
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	18	0.3
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	18	0.3
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD11	19	0.29
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD12	19	0.29
(1,968)	1:A:60:ILE:HG21	1:A:60:ILE:HD13	19	0.29
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD11	19	0.29
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD12	19	0.29
(1,968)	1:A:60:ILE:HG22	1:A:60:ILE:HD13	19	0.29
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD11	19	0.29
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD12	19	0.29
(1,968)	1:A:60:ILE:HG23	1:A:60:ILE:HD13	19	0.29
(1,699)	1:A:6:VAL:HB	1:A:63:LYS:H	5	0.29
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG2	12	0.29
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG3	12	0.29
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	8	0.29

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	8	0.29
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	8	0.29
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	8	0.29
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG2	15	0.28
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG3	15	0.28
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	11	0.28
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	11	0.28
(1,1101)	1:A:108:LEU:HD21	1:A:110:GLY:H	8	0.28
(1,1101)	1:A:108:LEU:HD22	1:A:110:GLY:H	8	0.28
(1,1101)	1:A:108:LEU:HD23	1:A:110:GLY:H	8	0.28
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	5	0.27
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	5	0.27
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	5	0.27
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	5	0.27
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	5	0.27
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	5	0.27
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD2	5	0.27
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD3	5	0.27
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG2	6	0.26
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG3	6	0.26
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG2	16	0.26
(1,2663)	1:A:83:LYS:H	1:A:83:LYS:HG3	16	0.26
(1,1324)	1:A:5:LYS:HD2	1:A:24:GLN:HG2	6	0.26
(1,1324)	1:A:5:LYS:HD3	1:A:24:GLN:HG2	6	0.26
(1,479)	1:A:114:GLU:H	1:A:114:GLU:HG3	3	0.25
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG11	3	0.25
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG12	3	0.25
(1,1619)	1:A:6:VAL:HB	1:A:62:VAL:HG13	3	0.25
(1,1679)	1:A:26:TYR:HD1	1:A:28:VAL:HA	18	0.24
(1,1679)	1:A:26:TYR:HD2	1:A:28:VAL:HA	18	0.24
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD2	13	0.24
(1,1458)	1:A:68:ALA:HA	1:A:71:LYS:HD3	13	0.24
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	6	0.23
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	6	0.23
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	6	0.23
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	6	0.23
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	6	0.23
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	6	0.23
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD1	18	0.23
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD2	18	0.23
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD1	18	0.23
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD2	18	0.23

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	6	0.23
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	6	0.23
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	6	0.23
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	6	0.23
(1,1682)	1:A:3:GLY:HA2	1:A:28:VAL:HA	1	0.23
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE1	20	0.22
(1,2008)	1:A:4:LYS:HD2	1:A:26:TYR:HE2	20	0.22
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE1	20	0.22
(1,2008)	1:A:4:LYS:HD3	1:A:26:TYR:HE2	20	0.22
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	8	0.22
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	8	0.22
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	8	0.22
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	8	0.22
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	8	0.22
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	8	0.22
(1,699)	1:A:6:VAL:HB	1:A:63:LYS:H	11	0.21
(1,2722)	1:A:108:LEU:HD21	1:A:109:GLU:HB2	4	0.21
(1,2722)	1:A:108:LEU:HD21	1:A:109:GLU:HB3	4	0.21
(1,2722)	1:A:108:LEU:HD22	1:A:109:GLU:HB2	4	0.21
(1,2722)	1:A:108:LEU:HD22	1:A:109:GLU:HB3	4	0.21
(1,2722)	1:A:108:LEU:HD23	1:A:109:GLU:HB2	4	0.21
(1,2722)	1:A:108:LEU:HD23	1:A:109:GLU:HB3	4	0.21
(1,1679)	1:A:26:TYR:HD1	1:A:28:VAL:HA	20	0.21
(1,1679)	1:A:26:TYR:HD2	1:A:28:VAL:HA	20	0.21
(1,427)	1:A:83:LYS:H	1:A:83:LYS:HG2	12	0.2
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	19	0.2
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	19	0.2
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	19	0.2
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	19	0.2
(1,427)	1:A:83:LYS:H	1:A:83:LYS:HG2	6	0.19
(1,427)	1:A:83:LYS:H	1:A:83:LYS:HG2	16	0.19
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD2	8	0.19
(1,2280)	1:A:23:TYR:HE1	1:A:44:ARG:HD3	8	0.19
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD2	8	0.19
(1,2280)	1:A:23:TYR:HE2	1:A:44:ARG:HD3	8	0.19
(1,924)	1:A:50:LYS:HE2	1:A:51:LEU:H	4	0.18
(1,924)	1:A:50:LYS:HE3	1:A:51:LEU:H	4	0.18
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	1	0.18
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	1	0.18
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	11	0.18
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	11	0.18
(1,427)	1:A:83:LYS:H	1:A:83:LYS:HG2	15	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	6	0.18
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	6	0.18
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	6	0.18
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	6	0.18
(1,1671)	1:A:5:LYS:HD2	1:A:24:GLN:HB2	6	0.18
(1,1671)	1:A:5:LYS:HD3	1:A:24:GLN:HB2	6	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	8	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	8	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	8	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	17	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	17	0.18
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	17	0.18
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	8	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	8	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	12	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	12	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	18	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	18	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	20	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	20	0.17
(1,244)	1:A:112:ASP:HA	1:A:113:LEU:H	2	0.17
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD1	15	0.17
(1,1922)	1:A:76:LYS:HD2	1:A:77:PHE:HD2	15	0.17
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD1	15	0.17
(1,1922)	1:A:76:LYS:HD3	1:A:77:PHE:HD2	15	0.17
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	6	0.17
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	6	0.17
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	6	0.17
(1,1101)	1:A:108:LEU:HD21	1:A:110:GLY:H	19	0.17
(1,1101)	1:A:108:LEU:HD22	1:A:110:GLY:H	19	0.17
(1,1101)	1:A:108:LEU:HD23	1:A:110:GLY:H	19	0.17
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	9	0.16
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	9	0.16
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	17	0.16
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	17	0.16
(1,1682)	1:A:3:GLY:HA2	1:A:28:VAL:HA	16	0.16
(1,1679)	1:A:26:TYR:HD1	1:A:28:VAL:HA	2	0.16
(1,1679)	1:A:26:TYR:HD2	1:A:28:VAL:HA	2	0.16
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG11	10	0.16
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG12	10	0.16
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG13	10	0.16
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG11	10	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG12	10	0.16
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG13	10	0.16
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG11	10	0.16
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG12	10	0.16
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG13	10	0.16
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	5	0.16
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	5	0.16
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	5	0.16
(3,25)	1:A:48:ILE:O	1:A:52:GLY:H	10	0.15
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	15	0.15
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	15	0.15
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	15	0.15
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	15	0.15
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	15	0.15
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	15	0.15
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB2	14	0.15
(1,2112)	1:A:5:LYS:HD2	1:A:24:GLN:HB3	14	0.15
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB2	14	0.15
(1,2112)	1:A:5:LYS:HD3	1:A:24:GLN:HB3	14	0.15
(1,2047)	1:A:90:TYR:HE1	1:A:104:VAL:HG21	11	0.15
(1,2047)	1:A:90:TYR:HE1	1:A:104:VAL:HG22	11	0.15
(1,2047)	1:A:90:TYR:HE1	1:A:104:VAL:HG23	11	0.15
(1,2047)	1:A:90:TYR:HE2	1:A:104:VAL:HG21	11	0.15
(1,2047)	1:A:90:TYR:HE2	1:A:104:VAL:HG22	11	0.15
(1,2047)	1:A:90:TYR:HE2	1:A:104:VAL:HG23	11	0.15
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	4	0.15
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	4	0.15
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	4	0.15
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	4	0.15
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	4	0.15
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	4	0.15
(1,1692)	1:A:33:LEU:HD11	1:A:36:LYS:HA	11	0.15
(1,1692)	1:A:33:LEU:HD12	1:A:36:LYS:HA	11	0.15
(1,1692)	1:A:33:LEU:HD13	1:A:36:LYS:HA	11	0.15
(1,1620)	1:A:6:VAL:HG11	1:A:62:VAL:HG21	1	0.15
(1,1620)	1:A:6:VAL:HG11	1:A:62:VAL:HG22	1	0.15
(1,1620)	1:A:6:VAL:HG11	1:A:62:VAL:HG23	1	0.15
(1,1620)	1:A:6:VAL:HG12	1:A:62:VAL:HG21	1	0.15
(1,1620)	1:A:6:VAL:HG12	1:A:62:VAL:HG22	1	0.15
(1,1620)	1:A:6:VAL:HG12	1:A:62:VAL:HG23	1	0.15
(1,1620)	1:A:6:VAL:HG13	1:A:62:VAL:HG21	1	0.15
(1,1620)	1:A:6:VAL:HG13	1:A:62:VAL:HG22	1	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1620)	1:A:6:VAL:HG13	1:A:62:VAL:HG23	1	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	1	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	1	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	1	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	2	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	2	0.15
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	2	0.15
(1,2661)	1:A:82:ASN:HB2	1:A:83:LYS:HG2	16	0.14
(1,2661)	1:A:82:ASN:HB2	1:A:83:LYS:HG3	16	0.14
(1,2661)	1:A:82:ASN:HB3	1:A:83:LYS:HG2	16	0.14
(1,2661)	1:A:82:ASN:HB3	1:A:83:LYS:HG3	16	0.14
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD1	13	0.14
(1,2637)	1:A:76:LYS:HG2	1:A:77:PHE:HD2	13	0.14
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD1	13	0.14
(1,2637)	1:A:76:LYS:HG3	1:A:77:PHE:HD2	13	0.14
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	12	0.14
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	12	0.14
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	14	0.14
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	14	0.14
(1,2073)	1:A:26:TYR:HE1	1:A:28:VAL:HB	2	0.14
(1,2073)	1:A:26:TYR:HE2	1:A:28:VAL:HB	2	0.14
(1,1692)	1:A:33:LEU:HD11	1:A:36:LYS:HA	4	0.14
(1,1692)	1:A:33:LEU:HD12	1:A:36:LYS:HA	4	0.14
(1,1692)	1:A:33:LEU:HD13	1:A:36:LYS:HA	4	0.14
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	15	0.14
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	15	0.14
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	15	0.14
(1,699)	1:A:6:VAL:HB	1:A:63:LYS:H	8	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	1	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	1	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	3	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	3	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	4	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	4	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	5	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	5	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	6	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	6	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	8	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	8	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	10	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	10	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	13	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	13	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	16	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	16	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	18	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	18	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	19	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	19	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	20	0.13
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	20	0.13
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	4	0.13
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	4	0.13
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	4	0.13
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	4	0.13
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	4	0.13
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	4	0.13
(1,1999)	1:A:26:TYR:HD1	1:A:27:ALA:HA	17	0.13
(1,1999)	1:A:26:TYR:HD2	1:A:27:ALA:HA	17	0.13
(1,1996)	1:A:8:VAL:HG11	1:A:23:TYR:HE1	19	0.13
(1,1996)	1:A:8:VAL:HG11	1:A:23:TYR:HE2	19	0.13
(1,1996)	1:A:8:VAL:HG12	1:A:23:TYR:HE1	19	0.13
(1,1996)	1:A:8:VAL:HG12	1:A:23:TYR:HE2	19	0.13
(1,1996)	1:A:8:VAL:HG13	1:A:23:TYR:HE1	19	0.13
(1,1996)	1:A:8:VAL:HG13	1:A:23:TYR:HE2	19	0.13
(1,1747)	1:A:49:LYS:HD2	1:A:108:LEU:HD21	14	0.13
(1,1747)	1:A:49:LYS:HD2	1:A:108:LEU:HD22	14	0.13
(1,1747)	1:A:49:LYS:HD2	1:A:108:LEU:HD23	14	0.13
(1,1747)	1:A:49:LYS:HD3	1:A:108:LEU:HD21	14	0.13
(1,1747)	1:A:49:LYS:HD3	1:A:108:LEU:HD22	14	0.13
(1,1747)	1:A:49:LYS:HD3	1:A:108:LEU:HD23	14	0.13
(1,1687)	1:A:28:VAL:HG11	1:A:32:GLU:HG2	8	0.13
(1,1687)	1:A:28:VAL:HG12	1:A:32:GLU:HG2	8	0.13
(1,1687)	1:A:28:VAL:HG13	1:A:32:GLU:HG2	8	0.13
(1,1687)	1:A:28:VAL:HG11	1:A:32:GLU:HG2	15	0.13
(1,1687)	1:A:28:VAL:HG12	1:A:32:GLU:HG2	15	0.13
(1,1687)	1:A:28:VAL:HG13	1:A:32:GLU:HG2	15	0.13
(1,1600)	1:A:7:GLU:H	1:A:62:VAL:HG11	4	0.13
(1,1600)	1:A:7:GLU:H	1:A:62:VAL:HG12	4	0.13
(1,1600)	1:A:7:GLU:H	1:A:62:VAL:HG13	4	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG11	5	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG12	5	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG13	5	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG11	5	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG12	5	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG13	5	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG11	5	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG12	5	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG13	5	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG11	14	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG12	14	0.13
(1,1581)	1:A:60:ILE:HD11	1:A:104:VAL:HG13	14	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG11	14	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG12	14	0.13
(1,1581)	1:A:60:ILE:HD12	1:A:104:VAL:HG13	14	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG11	14	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG12	14	0.13
(1,1581)	1:A:60:ILE:HD13	1:A:104:VAL:HG13	14	0.13
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	18	0.13
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	18	0.13
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	18	0.13
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE2	4	0.12
(1,871)	1:A:50:LYS:HB3	1:A:50:LYS:HE3	4	0.12
(1,713)	1:A:50:LYS:HB2	1:A:50:LYS:HE2	4	0.12
(1,713)	1:A:50:LYS:HB2	1:A:50:LYS:HE3	4	0.12
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG2	17	0.12
(1,2144)	1:A:9:GLN:H	1:A:9:GLN:HG3	17	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	8	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	8	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	8	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	8	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	8	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	8	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	11	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	11	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	11	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	11	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	11	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	11	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	18	0.12
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	18	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	18	0.12
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	18	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	18	0.12
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	18	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1973)	1:A:13:THR:HA	1:A:19:TYR:HE1	5	0.12
(1,1973)	1:A:13:THR:HA	1:A:19:TYR:HE2	5	0.12
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG21	1	0.12
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG22	1	0.12
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG23	1	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG21	1	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG22	1	0.12
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG23	1	0.12
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG21	1	0.12
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG22	1	0.12
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG23	1	0.12
(1,1861)	1:A:33:LEU:HD11	1:A:36:LYS:HD3	17	0.12
(1,1861)	1:A:33:LEU:HD12	1:A:36:LYS:HD3	17	0.12
(1,1861)	1:A:33:LEU:HD13	1:A:36:LYS:HD3	17	0.12
(1,1806)	1:A:31:GLU:HA	1:A:80:ILE:HG21	17	0.12
(1,1806)	1:A:31:GLU:HA	1:A:80:ILE:HG22	17	0.12
(1,1806)	1:A:31:GLU:HA	1:A:80:ILE:HG23	17	0.12
(1,1778)	1:A:60:ILE:HG21	1:A:77:PHE:HZ	3	0.12
(1,1778)	1:A:60:ILE:HG22	1:A:77:PHE:HZ	3	0.12
(1,1778)	1:A:60:ILE:HG23	1:A:77:PHE:HZ	3	0.12
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB2	19	0.12
(1,1750)	1:A:49:LYS:HB2	1:A:108:LEU:HB3	19	0.12
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB2	19	0.12
(1,1750)	1:A:49:LYS:HB3	1:A:108:LEU:HB3	19	0.12
(1,1682)	1:A:3:GLY:HA2	1:A:28:VAL:HA	15	0.12
(1,1657)	1:A:11:LYS:HG2	1:A:20:GLU:HB3	8	0.12
(1,1590)	1:A:111:VAL:HB	1:A:112:ASP:HB3	20	0.12
(1,1582)	1:A:58:ILE:HG21	1:A:104:VAL:HG11	9	0.12
(1,1582)	1:A:58:ILE:HG21	1:A:104:VAL:HG12	9	0.12
(1,1582)	1:A:58:ILE:HG21	1:A:104:VAL:HG13	9	0.12
(1,1582)	1:A:58:ILE:HG22	1:A:104:VAL:HG11	9	0.12
(1,1582)	1:A:58:ILE:HG22	1:A:104:VAL:HG12	9	0.12
(1,1582)	1:A:58:ILE:HG22	1:A:104:VAL:HG13	9	0.12
(1,1582)	1:A:58:ILE:HG23	1:A:104:VAL:HG11	9	0.12
(1,1582)	1:A:58:ILE:HG23	1:A:104:VAL:HG12	9	0.12
(1,1582)	1:A:58:ILE:HG23	1:A:104:VAL:HG13	9	0.12
(1,2362)	1:A:33:LEU:HD21	1:A:36:LYS:HG2	18	0.11
(1,2362)	1:A:33:LEU:HD21	1:A:36:LYS:HG3	18	0.11
(1,2362)	1:A:33:LEU:HD22	1:A:36:LYS:HG2	18	0.11
(1,2362)	1:A:33:LEU:HD22	1:A:36:LYS:HG3	18	0.11
(1,2362)	1:A:33:LEU:HD23	1:A:36:LYS:HG2	18	0.11
(1,2362)	1:A:33:LEU:HD23	1:A:36:LYS:HG3	18	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,2213)	1:A:12:ILE:HG21	1:A:44:ARG:HG2	2	0.11
(1,2213)	1:A:12:ILE:HG21	1:A:44:ARG:HG3	2	0.11
(1,2213)	1:A:12:ILE:HG22	1:A:44:ARG:HG2	2	0.11
(1,2213)	1:A:12:ILE:HG22	1:A:44:ARG:HG3	2	0.11
(1,2213)	1:A:12:ILE:HG23	1:A:44:ARG:HG2	2	0.11
(1,2213)	1:A:12:ILE:HG23	1:A:44:ARG:HG3	2	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	12	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	12	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	12	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	12	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	12	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	12	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	16	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	16	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	16	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	16	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	16	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	16	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE1	20	0.11
(1,2046)	1:A:41:LEU:HD21	1:A:90:TYR:HE2	20	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE1	20	0.11
(1,2046)	1:A:41:LEU:HD22	1:A:90:TYR:HE2	20	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE1	20	0.11
(1,2046)	1:A:41:LEU:HD23	1:A:90:TYR:HE2	20	0.11
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG21	13	0.11
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG22	13	0.11
(1,2007)	1:A:26:TYR:HE1	1:A:28:VAL:HG23	13	0.11
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG21	13	0.11
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG22	13	0.11
(1,2007)	1:A:26:TYR:HE2	1:A:28:VAL:HG23	13	0.11
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG21	5	0.11
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG22	5	0.11
(1,1864)	1:A:6:VAL:HG21	1:A:62:VAL:HG23	5	0.11
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG21	5	0.11
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG22	5	0.11
(1,1864)	1:A:6:VAL:HG22	1:A:62:VAL:HG23	5	0.11
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG21	5	0.11
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG22	5	0.11
(1,1864)	1:A:6:VAL:HG23	1:A:62:VAL:HG23	5	0.11
(1,1692)	1:A:33:LEU:HD11	1:A:36:LYS:HA	10	0.11
(1,1692)	1:A:33:LEU:HD12	1:A:36:LYS:HA	10	0.11
(1,1692)	1:A:33:LEU:HD13	1:A:36:LYS:HA	10	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1687)	1:A:28:VAL:HG11	1:A:32:GLU:HG2	13	0.11
(1,1687)	1:A:28:VAL:HG12	1:A:32:GLU:HG2	13	0.11
(1,1687)	1:A:28:VAL:HG13	1:A:32:GLU:HG2	13	0.11
(1,1657)	1:A:11:LYS:HG2	1:A:20:GLU:HB3	9	0.11
(1,1657)	1:A:11:LYS:HG2	1:A:20:GLU:HB3	20	0.11
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG21	16	0.11
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG22	16	0.11
(1,1319)	1:A:7:GLU:HG3	1:A:22:THR:HG23	16	0.11
(1,1091)	1:A:45:MET:HE1	1:A:48:ILE:HB	4	0.11
(1,1091)	1:A:45:MET:HE2	1:A:48:ILE:HB	4	0.11
(1,1091)	1:A:45:MET:HE3	1:A:48:ILE:HB	4	0.11
(1,1091)	1:A:45:MET:HE1	1:A:48:ILE:HB	5	0.11
(1,1091)	1:A:45:MET:HE2	1:A:48:ILE:HB	5	0.11
(1,1091)	1:A:45:MET:HE3	1:A:48:ILE:HB	5	0.11

10 Dihedral-angle violation analysis (i)

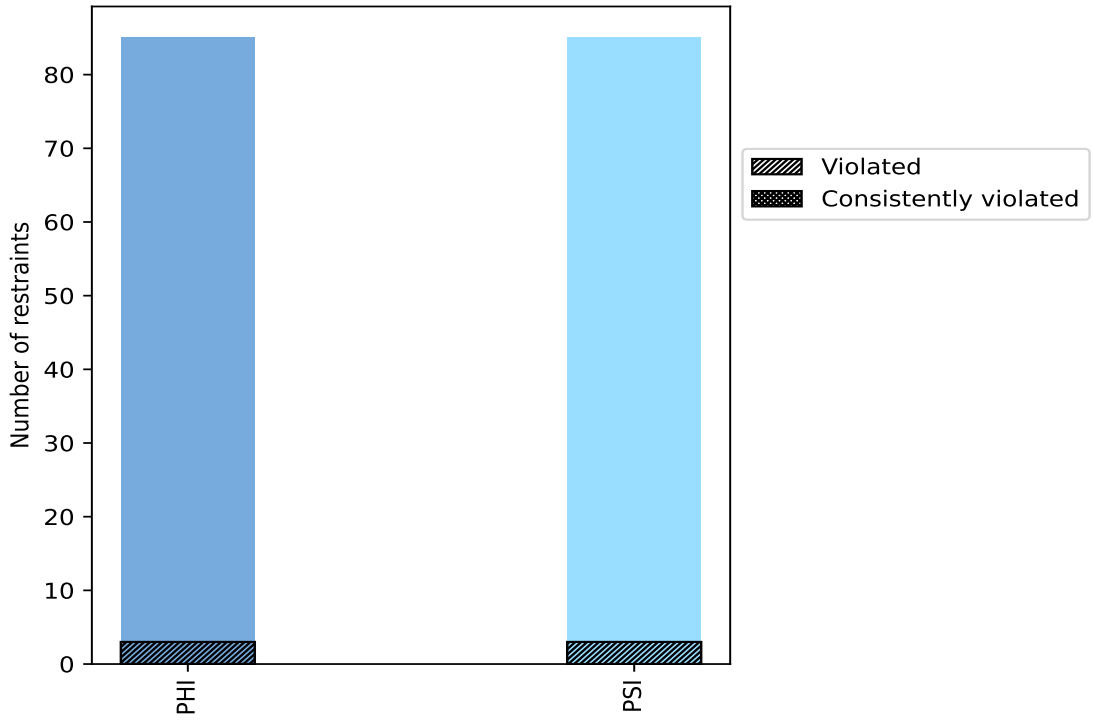
10.1 Summary of dihedral-angle violations (i)

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	%[1]	Violated[3]			Consistently Violated[4]		
			Count	%[2]	%[1]	Count	%[2]	%[1]
PHI	85	50.0	3	3.5	1.8	0	0.0	0.0
PSI	85	50.0	3	3.5	1.8	0	0.0	0.0
Total	170	100.0	6	3.5	3.5	0	0.0	0.0

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

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



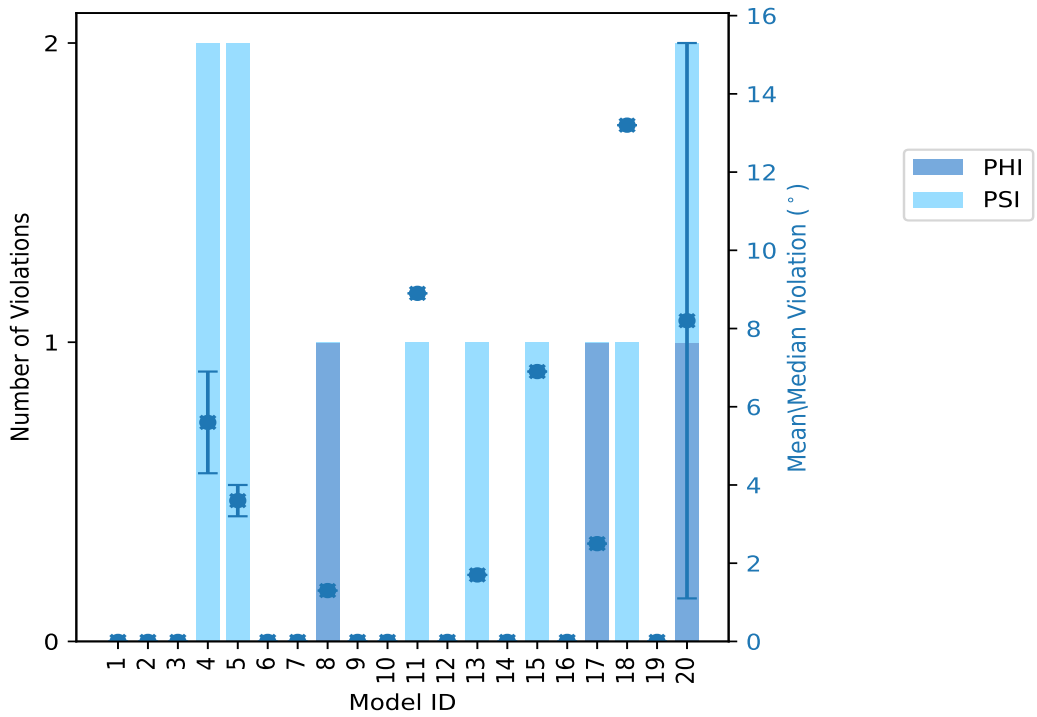
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

10.2 Dihedral-angle violation statistics for each model (i)

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

Model ID	Number of violations			Mean (°)	Max (°)	SD (°)	Median (°)
	PHI	PSI	Total				
1	0	0	0	0.0	0.0	0.0	0.0
2	0	0	0	0.0	0.0	0.0	0.0
3	0	0	0	0.0	0.0	0.0	0.0
4	0	2	2	5.6	6.9	1.3	5.6
5	0	2	2	3.6	4.0	0.4	3.6
6	0	0	0	0.0	0.0	0.0	0.0
7	0	0	0	0.0	0.0	0.0	0.0
8	1	0	1	1.3	1.3	0.0	1.3
9	0	0	0	0.0	0.0	0.0	0.0
10	0	0	0	0.0	0.0	0.0	0.0
11	0	1	1	8.9	8.9	0.0	8.9
12	0	0	0	0.0	0.0	0.0	0.0
13	0	1	1	1.7	1.7	0.0	1.7
14	0	0	0	0.0	0.0	0.0	0.0
15	0	1	1	6.9	6.9	0.0	6.9
16	0	0	0	0.0	0.0	0.0	0.0
17	1	0	1	2.5	2.5	0.0	2.5
18	0	1	1	13.2	13.2	0.0	13.2
19	0	0	0	0.0	0.0	0.0	0.0
20	1	1	2	8.2	15.3	7.1	8.2

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	
PHI	PSI	Total	Count[1]	%
3	2	5	1	5.0
0	0	0	2	10.0
0	0	0	3	15.0
0	0	0	4	20.0
0	0	0	5	25.0
0	0	0	6	30.0
0	1	1	7	35.0
0	0	0	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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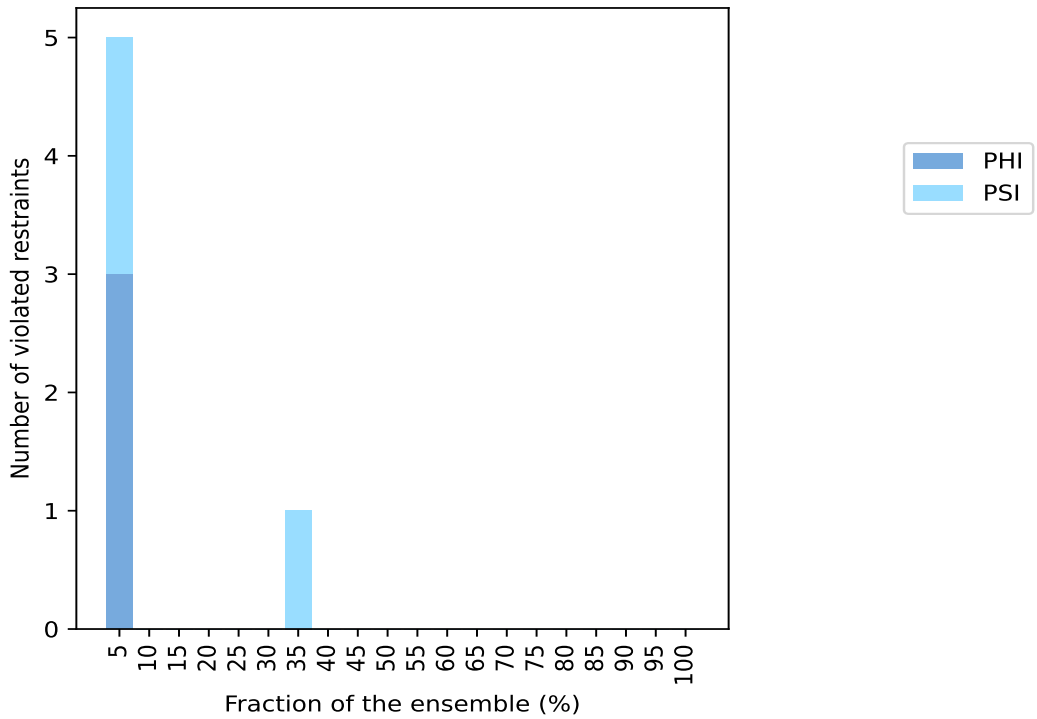
Number of violated restraints			Fraction of the ensemble	
PHI	PSI	Total	Count[1]	%
0	0	0	12	60.0
0	0	0	13	65.0
0	0	0	14	70.0
0	0	0	15	75.0
0	0	0	16	80.0
0	0	0	17	85.0
0	0	0	18	90.0
0	0	0	19	95.0
0	0	0	20	100.0

[1] Number of models with violations

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

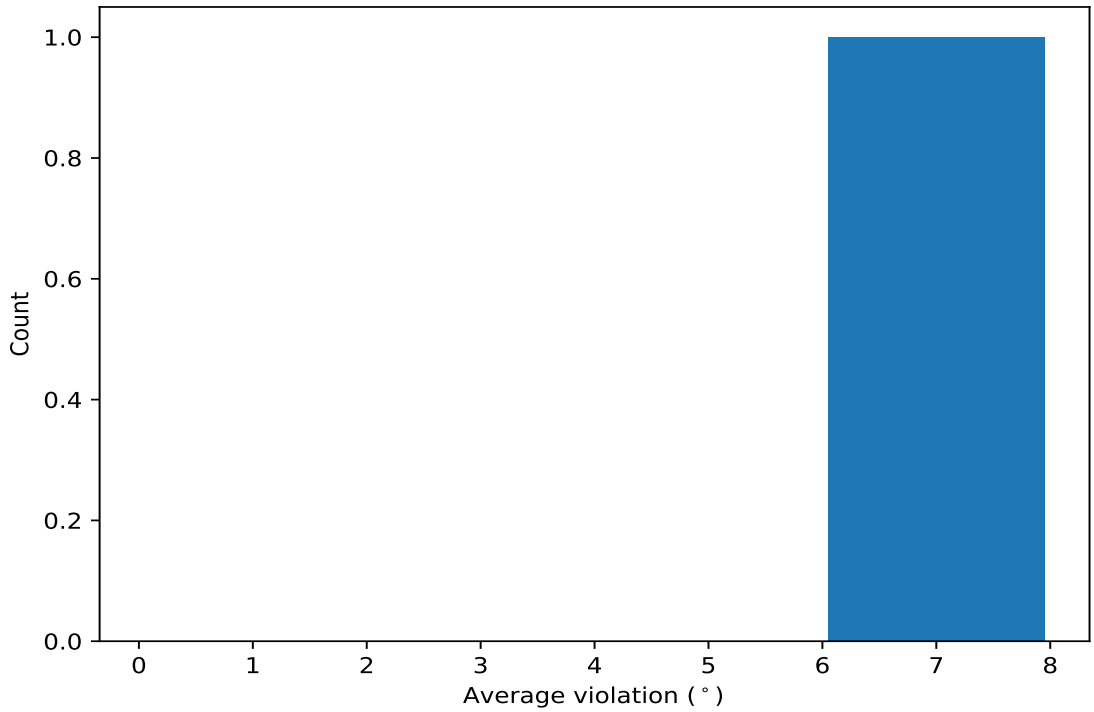


10.4 Most violated dihedral-angle restraints in the ensemble (i)

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.

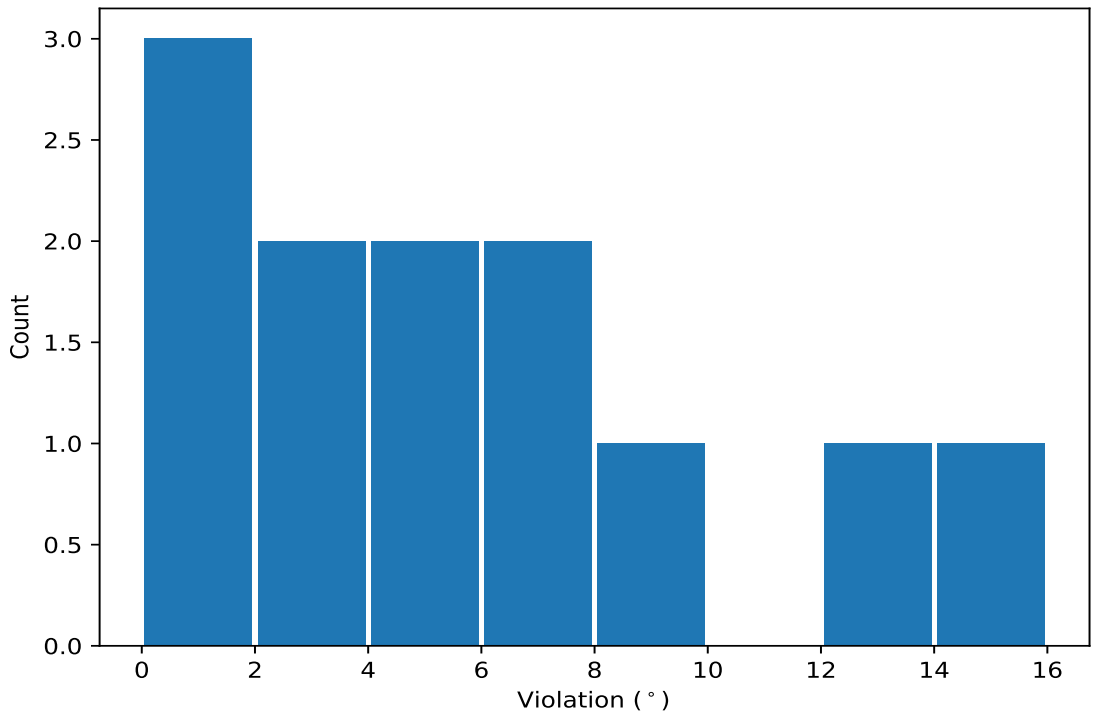
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models[1]	Mean	SD[2]	Median
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	7	7.64	4.75	6.9

[1] Number of violated models, [2]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 (°)
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	20	15.3
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	18	13.2
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	11	8.9
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	15	6.9
(1,154)	1:A:98:ASP:N	1:A:98:ASP:CA	1:A:98:ASP:C	1:A:99:GLY:N	4	6.9
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	4	4.3
(1,22)	1:A:14:CYS:N	1:A:14:CYS:CA	1:A:14:CYS:C	1:A:15:ASN:N	5	4.0
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	5	3.2
(1,101)	1:A:62:VAL:C	1:A:63:LYS:N	1:A:63:LYS:CA	1:A:63:LYS:C	17	2.5
(1,42)	1:A:26:TYR:N	1:A:26:TYR:CA	1:A:26:TYR:C	1:A:27:ALA:N	13	1.7
(1,145)	1:A:87:GLU:C	1:A:88:LEU:N	1:A:88:LEU:CA	1:A:88:LEU:C	8	1.3
(1,5)	1:A:5:LYS:C	1:A:6:VAL:N	1:A:6:VAL:CA	1:A:6:VAL:C	20	1.1