Full wwPDB NMR Structure Validation Report (i)

Dec 24, 2024 – 04:19 PM EST

PDB ID	:	2LJL
BMRB ID	:	17948
Title	:	NMR structure of Hsp12 in the presence of DPC
Authors	:	Singarapu, K.; Markley, J.; Center for Eukaryotic Structural Genomics (CESG)
Deposited on	:	2011-09-20

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 (1)) were used in the production of this report:

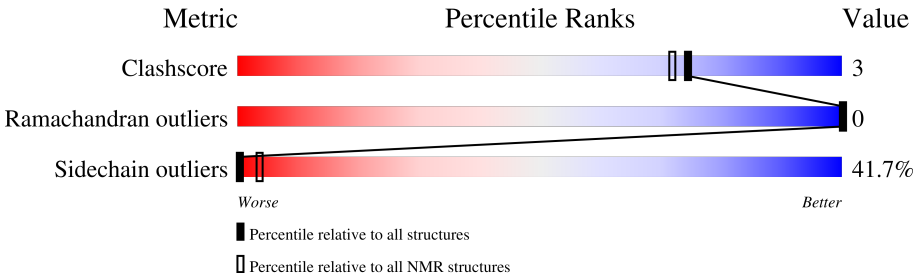
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance (i)

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

The overall completeness of chemical shifts assignment is 77%.

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	210492	14027
Ramachandran outliers	207382	12486
Sidechain outliers	206894	12463

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for >=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	109	16% 6% • 78%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 13 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:77-A:100 (24)	0.24	13

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

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

The models can be grouped into 3 clusters and 2 single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1602 atoms, of which 782 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called 12 kDa heat shock protein.

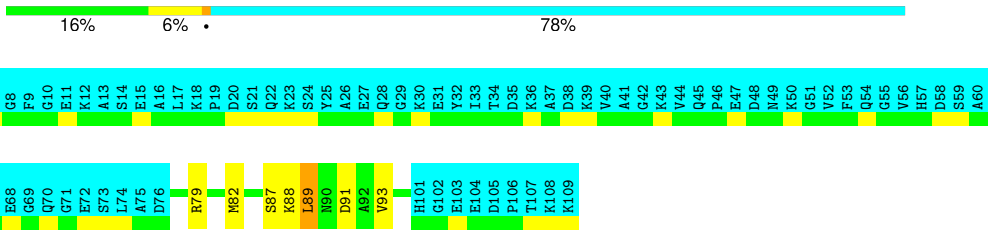
Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	109	1602	496	782	146	176	2	0

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: 12 kDa heat shock protein

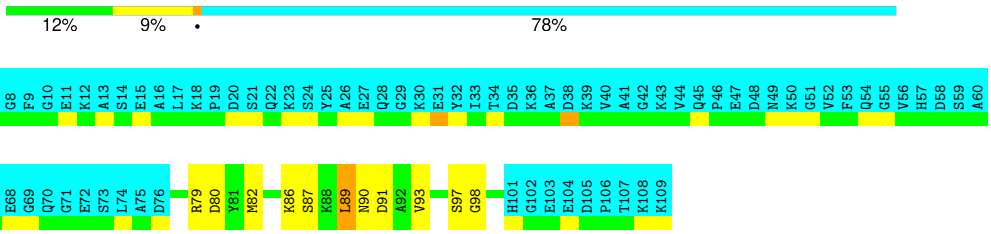
Chain A: 

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

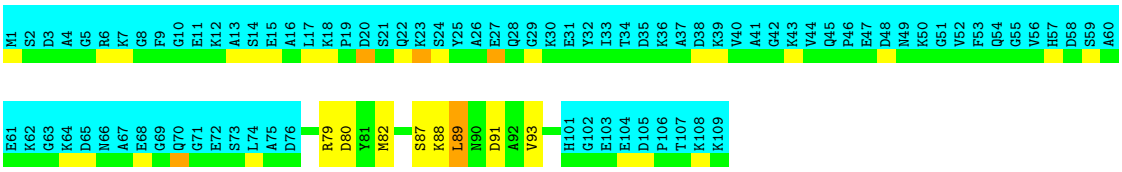
• Molecule 1: 12 kDa heat shock protein

Chain A: 

4.2.2 Score per residue for model 2

• Molecule 1: 12 kDa heat shock protein

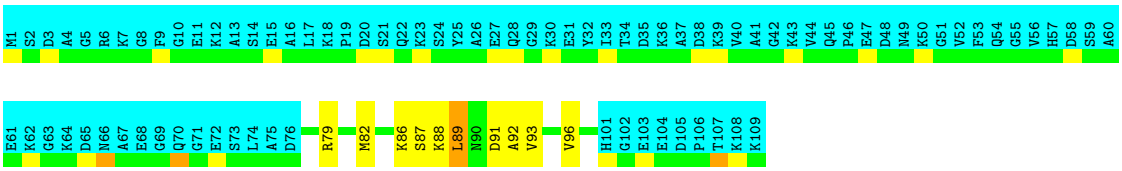
Chain A:



4.2.3 Score per residue for model 3

- Molecule 1: 12 kDa heat shock protein

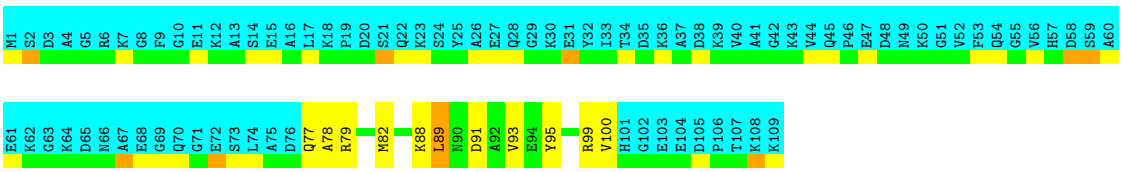
Chain A:



4.2.4 Score per residue for model 4

- Molecule 1: 12 kDa heat shock protein

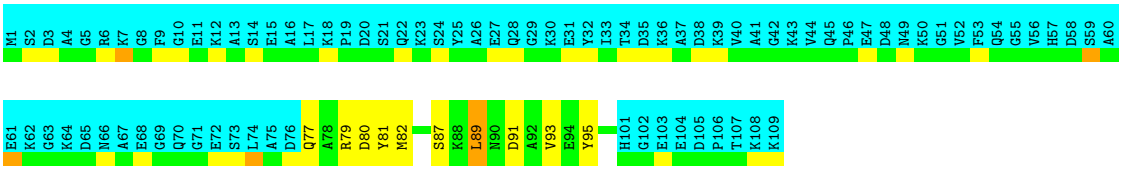
Chain A:



4.2.5 Score per residue for model 5

- Molecule 1: 12 kDa heat shock protein

Chain A:



4.2.6 Score per residue for model 6

- Molecule 1: 12 kDa heat shock protein

Chain A: 16% 6% • 78%

M1 S2 D3 A4 G5 R6 K7 G8 F9 G10 E11 K12 A13 S14 E15 A16 L17 K18 P19 D20 S21 Q22 K23 S24 Y25 A26 E27 Q28 G29 K30 E31 Y32 I33 T34 D35 K36 A37 D38 K39 V40 A41 G42 K43 V44 Q45 P46 E47 D48 N49 K50 G51 V52 F53 Q54 G55 V56 H57 D58 S59 A60

E61 K62 G63 K64 D65 N66 A67 E68 G69 Q70 G71 E72 S73 L74 A75 D76 R79 M82 L89 N90 D91 A92 V93 E94 Y95 H101 G102 E103 E104 D105 P106 T107 K108 K109

4.2.7 Score per residue for model 7

- Molecule 1: 12 kDa heat shock protein

Chain A: 15% 6% • 78%

M1 S2 D3 A4 G5 R6 K7 G8 F9 G10 E11 K12 A13 S14 E15 A16 L17 K18 P19 D20 S21 Q22 K23 S24 Y25 A26 E27 Q28 G29 K30 E31 Y32 I33 T34 D35 K36 A37 D38 K39 V40 A41 G42 K43 V44 Q45 P46 E47 D48 N49 K50 G51 V52 F53 Q54 G55 V56 H57 D58 S59 A60

E61 K62 G63 K64 D65 N66 A67 E68 G69 Q70 G71 E72 S73 L74 A75 D76 R79 M82 S87 K88 L89 N90 D91 A92 V93 R99 V100 H101 G102 E103 E104 D105 P106 T107 K108 K109

4.2.8 Score per residue for model 8

- Molecule 1: 12 kDa heat shock protein

Chain A: 15% 6% • 78%

M1 S2 D3 A4 G5 R6 K7 G8 F9 G10 E11 K12 A13 S14 E15 A16 L17 K18 P19 D20 S21 Q22 K23 S24 Y25 A26 E27 Q28 G29 K30 E31 Y32 I33 T34 D35 K36 A37 D38 K39 V40 A41 G42 K43 V44 Q45 P46 E47 D48 N49 K50 G51 V52 F53 Q54 G55 V56 H57 D58 S59 A60

E61 K62 G63 K64 D65 N66 A67 E68 G69 Q70 G71 E72 S73 L74 A75 D76 R79 M82 S87 K88 L89 N90 D91 A92 V93 R99 V100 H101 G102 E103 E104 D105 P106 T107 K108 K109

4.2.9 Score per residue for model 9

- Molecule 1: 12 kDa heat shock protein

Chain A: 16% 6% • 78%

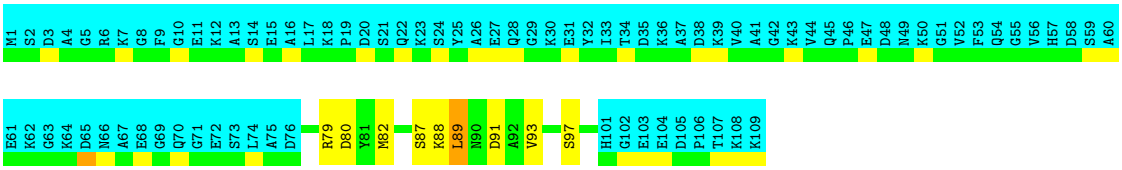
M1 S2 D3 A4 G5 R6 K7 G8 F9 G10 E11 K12 A13 S14 E15 A16 L17 K18 P19 D20 S21 Q22 K23 S24 Y25 A26 E27 Q28 G29 K30 E31 Y32 I33 T34 D35 K36 A37 D38 K39 V40 A41 G42 K43 V44 Q45 P46 E47 D48 N49 K50 G51 V52 F53 Q54 G55 V56 H57 D58 S59 A60

E61 K62 G63 K64 D65 N66 A67 E68 G69 Q70 G71 E72 S73 L74 A75 D76 M82 L89 N90 D91 A92 V93 E94 S97 H101 G102 E103 E104 D105 P106 T107 K108 K109

4.2.10 Score per residue for model 10

- Molecule 1: 12 kDa heat shock protein

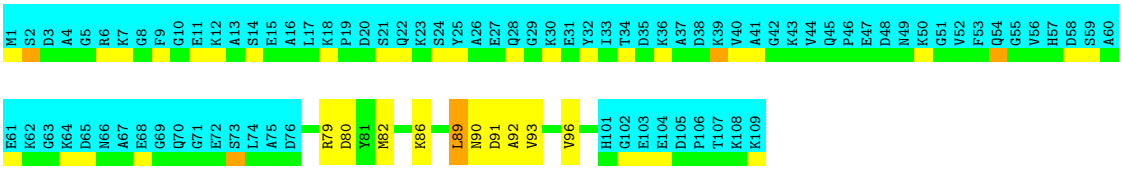
Chain A: 14% 7% • 78%



4.2.11 Score per residue for model 11

- Molecule 1: 12 kDa heat shock protein

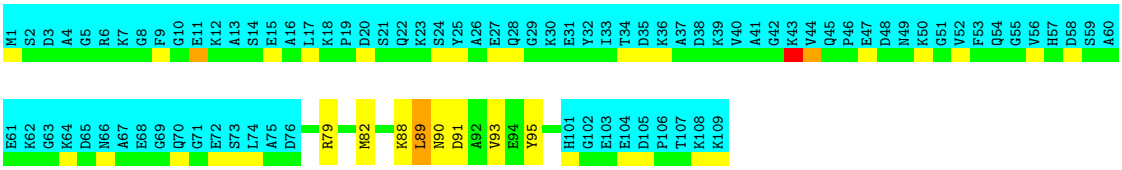
Chain A: 13% 8% • 78%



4.2.12 Score per residue for model 12

- Molecule 1: 12 kDa heat shock protein

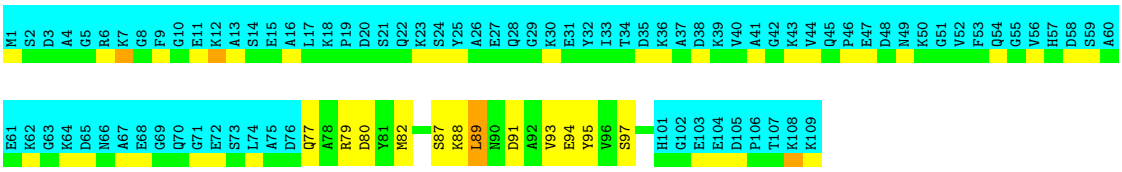
Chain A: 15% 6% • 78%



4.2.13 Score per residue for model 13 (medoid)

- Molecule 1: 12 kDa heat shock protein

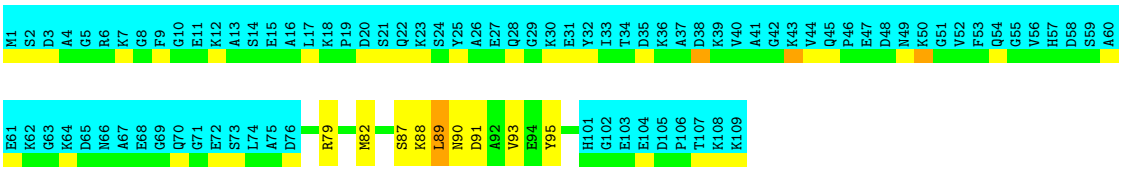
Chain A: 11% 10% • 78%



4.2.14 Score per residue for model 14

- Molecule 1: 12 kDa heat shock protein

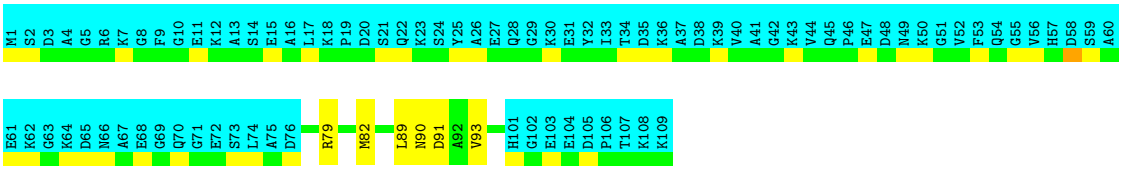
Chain A: 14% 7% • 78%



4.2.15 Score per residue for model 15

- Molecule 1: 12 kDa heat shock protein

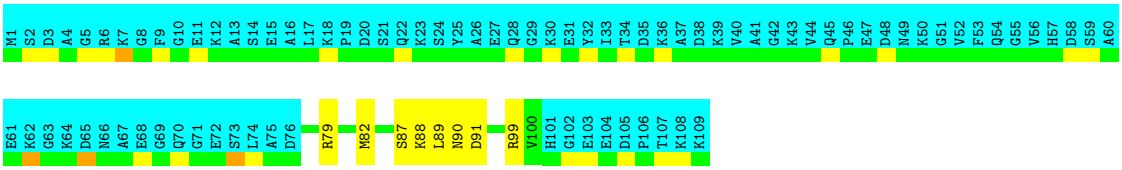
Chain A: 17% 6% 78%



4.2.16 Score per residue for model 16

- Molecule 1: 12 kDa heat shock protein

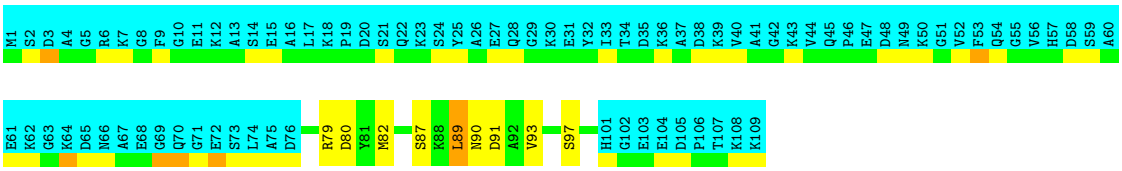
Chain A: 15% 7% 78%



4.2.17 Score per residue for model 17

- Molecule 1: 12 kDa heat shock protein

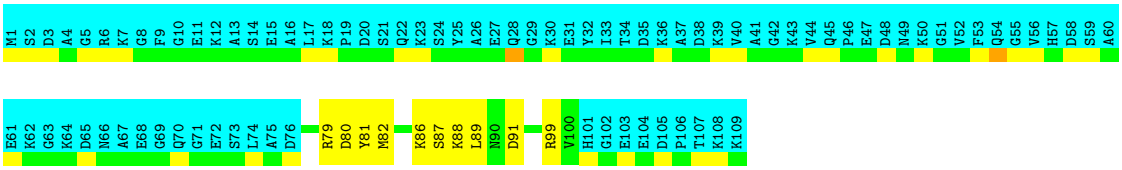
Chain A: 14% 7% • 78%



4.2.18 Score per residue for model 18

- Molecule 1: 12 kDa heat shock protein

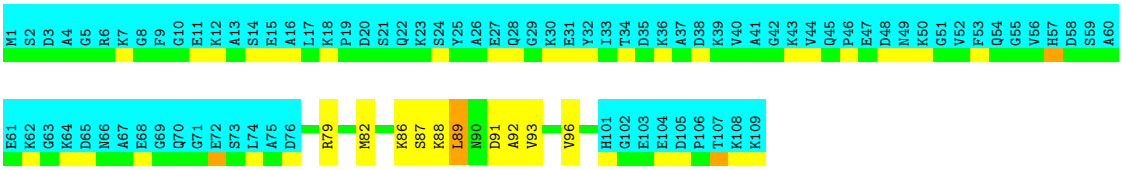
Chain A: 13% 9% 78%



4.2.19 Score per residue for model 19

- Molecule 1: 12 kDa heat shock protein

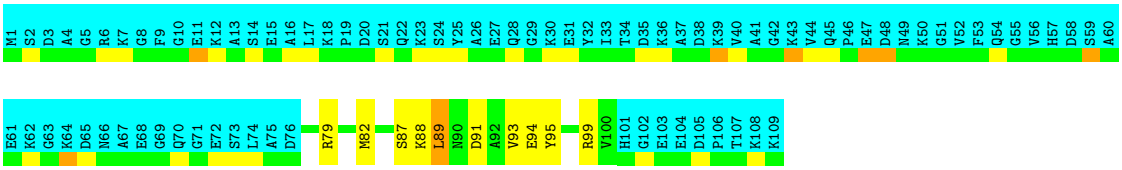
Chain A: 13% 8% • 78%



4.2.20 Score per residue for model 20

- Molecule 1: 12 kDa heat shock protein

Chain A: 13% 8% • 78%



5 Refinement protocol and experimental data overview (i)

The models were refined using the following method: *distance geometry*.

Of the 100 calculated structures, 20 were deposited, based on the following criterion: *target function*.

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

Software name	Classification	Version
CYANA	structure solution	
CYANA	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	862
Number of shifts mapped to atoms	862
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	77%

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	183	181	181	1±1
All	All	3660	3620	3620	22

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 3.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:89:LEU:O	1:A:93:VAL:HG23	0.62	1.94	15	18
1:A:89:LEU:C	1:A:89:LEU:HD13	0.41	2.36	15	1
1:A:92:ALA:O	1:A:96:VAL:HG23	0.41	2.16	11	3

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	24/109 (22%)	23±1 (96±3%)	1±1 (4±3%)	0±0 (0±0%)	100	100
All	All	480/2180 (22%)	459 (96%)	21 (4%)	0 (0%)	100	100

There are no Ramachandran outliers.

6.3.2 Protein sidechains (i)

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	18/83 (22%)	10±1 (58±8%)	8±1 (42±8%)	0	4
All	All	360/1660 (22%)	210 (58%)	150 (42%)	0	4

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	82	MET	20
1	A	91	ASP	20
1	A	79	ARG	19
1	A	89	LEU	19
1	A	87	SER	14
1	A	88	LYS	13
1	A	90	ASN	9
1	A	80	ASP	8
1	A	95	TYR	7
1	A	99	ARG	6
1	A	86	LYS	5
1	A	97	SER	5
1	A	94	GLU	3
1	A	81	TYR	2

6.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.6 Ligand geometry (i)

There are no ligands in this entry.

6.7 Other polymers (i)

There are no such molecules in this entry.

6.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

7 Chemical shift validation (i)

The completeness of assignment taking into account all chemical shift lists is 77% for the well-defined parts and 64% 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	862
Number of shifts mapped to atoms	862
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
$^{13}C_{\alpha}$	99	-0.25 ± 0.14	None needed (< 0.5 ppm)
$^{13}C_{\beta}$	87	0.07 ± 0.05	None needed (< 0.5 ppm)
$^{13}C'$	0	—	None (insufficient data)
^{15}N	101	-0.22 ± 0.17	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 77%, i.e. 241 atoms were assigned a chemical shift out of a possible 315. 0 out of 4 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	98/122 (80%)	50/50 (100%)	24/48 (50%)	24/24 (100%)
Sidechain	143/175 (82%)	100/113 (88%)	42/52 (81%)	1/10 (10%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	0/18 (0%)	0/8 (0%)	0/10 (0%)	0/0 (—%)
Overall	241/315 (77%)	150/171 (88%)	66/110 (60%)	25/34 (74%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 64%, i.e. 862 atoms were assigned a chemical shift out of a possible 1354. 0 out of 10 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	423/552 (77%)	223/228 (98%)	99/218 (45%)	101/106 (95%)
Sidechain	439/732 (60%)	314/463 (68%)	124/236 (53%)	1/33 (3%)
Aromatic	0/70 (0%)	0/34 (0%)	0/34 (0%)	0/2 (0%)
Overall	862/1354 (64%)	537/725 (74%)	223/488 (46%)	102/141 (72%)

7.1.4 Statistically unusual chemical shifts (i)

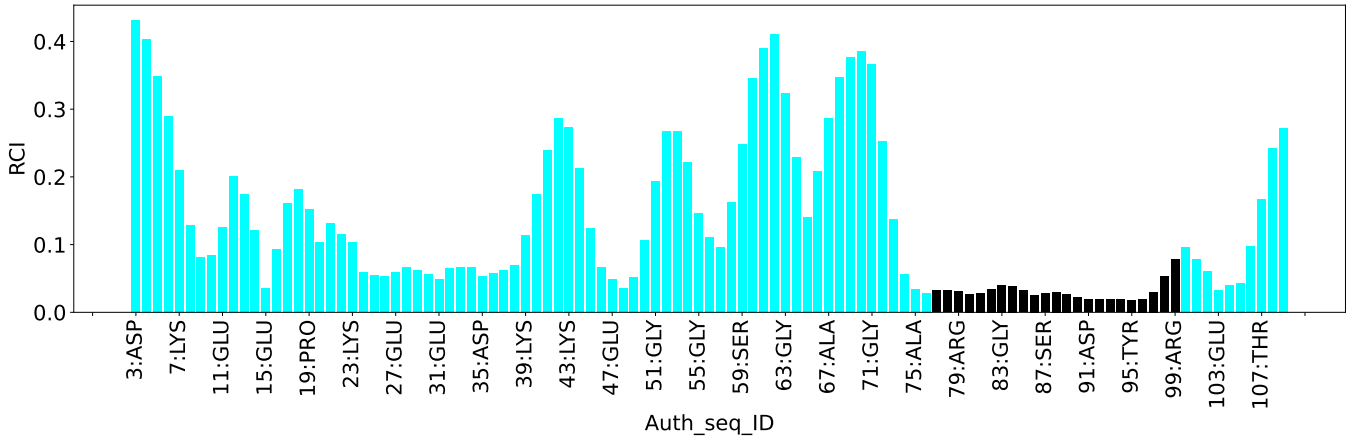
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, *ppm*	Expected range, *ppm*	Z-score
1	A	48	ASP	CB	30.70	32.98 – 48.76	-6.5

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
0.0
0.1
0.2
0.3
0.4
3:ASP
7:LYS
11:GLU
15:GLU
19:PRO
23:LYS
27:GLU
31:GLU
35:ASP
39:LYS
43:LYS
47:GLU
51:GLY
55:GLY
59:SER
63:GLY
67:ALA
71:GLY
75:ALA
79:ARG
83:GLY
87:SER
91:ASP
95:TYR
99:ARG
103:GLU
107:THR
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	259
Intra-residue (|i-j|=0)	118
Sequential (|i-j|=1)	86
Medium range (|i-j|>1 and |i-j|<5)	55
Long range (|i-j|≥5)	0
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	0
Total dihedral-angle restraints	52
Number of unmapped restraints	0
Number of restraints per residue	2.9
Number of long range restraints per residue[1]	0.0

[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)	9.2	0.2
0.2-0.5 (Medium)	7.4	0.47
>0.5 (Large)	None	None

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)	7.5	2.74
10.0-20.0 (Medium)	None	None
>20.0 (Large)	None	None

9 Distance violation analysis (i)

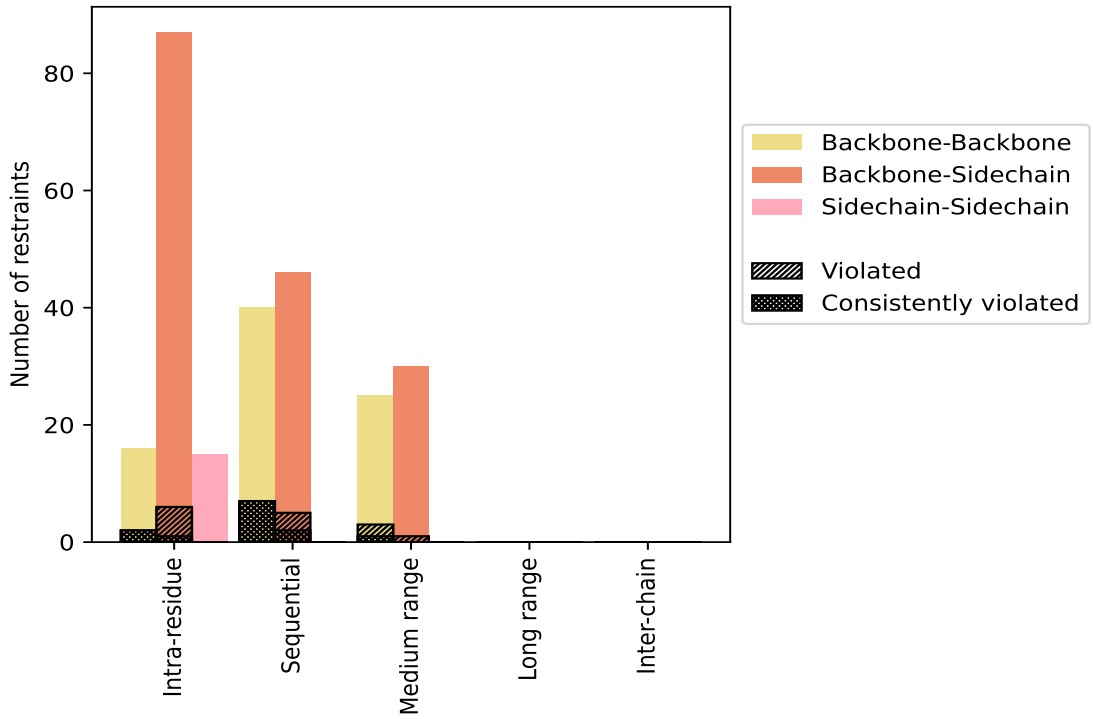
9.1 Summary of distance violations (i)

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.

Restraints type	Count	%[1]	Violated[3]			Consistently Violated[4]		
			Count	%[2]	%[1]	Count	%[2]	%[1]
Intra-residue (|i-j|=0)	118	45.6	8	6.8	3.1	3	2.5	1.2
Backbone-Backbone	16	6.2	2	12.5	0.8	2	12.5	0.8
Backbone-Sidechain	87	33.6	6	6.9	2.3	1	1.1	0.4
Sidechain-Sidechain	15	5.8	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	86	33.2	12	14.0	4.6	9	10.5	3.5
Backbone-Backbone	40	15.4	7	17.5	2.7	7	17.5	2.7
Backbone-Sidechain	46	17.8	5	10.9	1.9	2	4.3	0.8
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	55	21.2	4	7.3	1.5	1	1.8	0.4
Backbone-Backbone	25	9.7	3	12.0	1.2	1	4.0	0.4
Backbone-Sidechain	30	11.6	1	3.3	0.4	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Long range (|i-j|≥5)	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
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	0	0.0	0	0.0	0.0	0	0.0	0.0
Disulfide bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Total	259	100.0	24	9.3	9.3	13	5.0	5.0
Backbone-Backbone	81	31.3	12	14.8	4.6	10	12.3	3.9
Backbone-Sidechain	163	62.9	12	7.4	4.6	3	1.8	1.2
Sidechain-Sidechain	15	5.8	0	0.0	0.0	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	4	11	2	0	0	17	0.19	0.32	0.06	0.18
2	4	11	2	0	0	17	0.19	0.32	0.06	0.18
3	4	11	2	0	0	17	0.2	0.32	0.06	0.18
4	4	11	2	0	0	17	0.19	0.32	0.06	0.18
5	4	11	2	0	0	17	0.19	0.32	0.06	0.18
6	4	11	2	0	0	17	0.19	0.32	0.06	0.18
7	4	11	2	0	0	17	0.19	0.32	0.06	0.18
8	4	11	2	0	0	17	0.19	0.32	0.06	0.18
9	4	11	2	0	0	17	0.19	0.32	0.06	0.18
10	4	11	2	0	0	17	0.19	0.32	0.06	0.18

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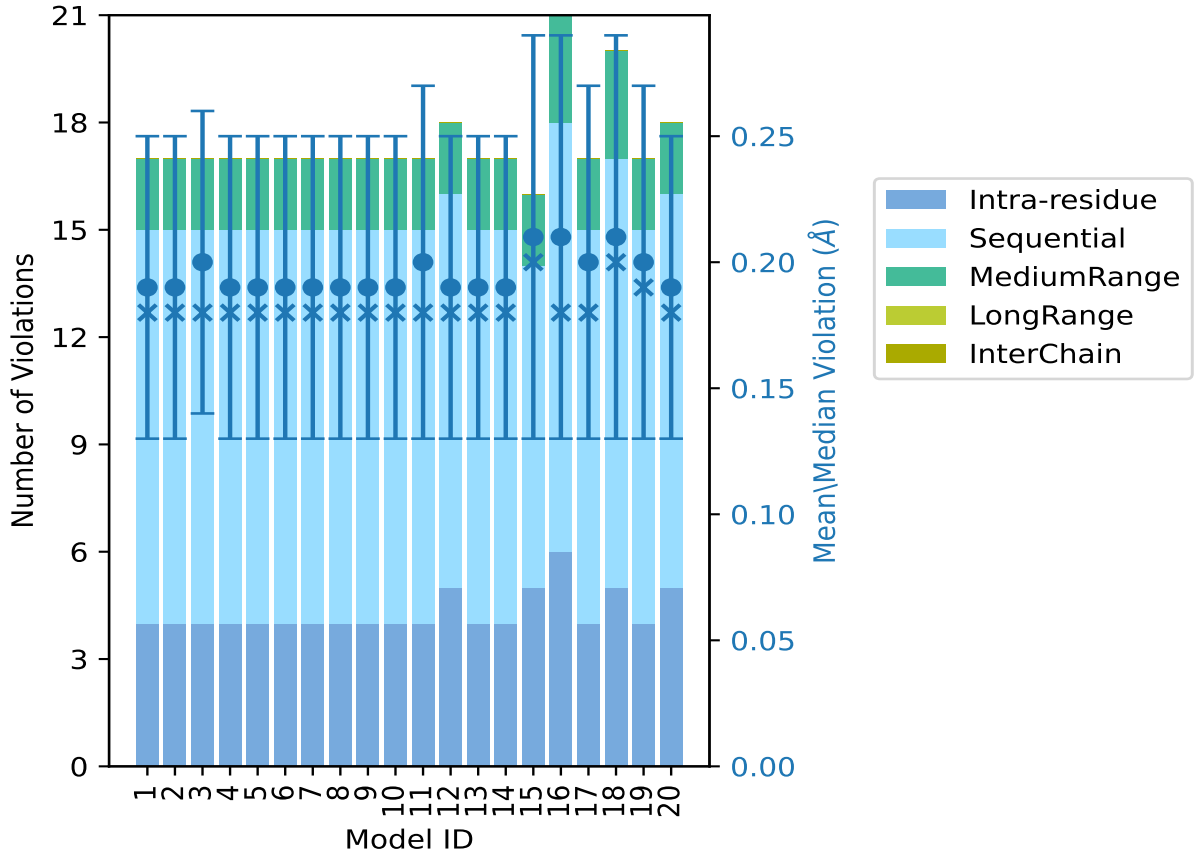
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
11	4	11	2	0	0	17	0.2	0.32	0.07	0.18
12	5	11	2	0	0	18	0.19	0.32	0.06	0.18
13	4	11	2	0	0	17	0.19	0.32	0.06	0.18
14	4	11	2	0	0	17	0.19	0.32	0.06	0.18
15	5	9	2	0	0	16	0.21	0.4	0.08	0.2
16	6	12	3	0	0	21	0.21	0.47	0.08	0.18
17	4	11	2	0	0	17	0.2	0.33	0.07	0.18
18	5	12	3	0	0	20	0.21	0.47	0.08	0.2
19	4	11	2	0	0	17	0.2	0.32	0.07	0.19
20	5	11	2	0	0	18	0.19	0.32	0.06	0.18

[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

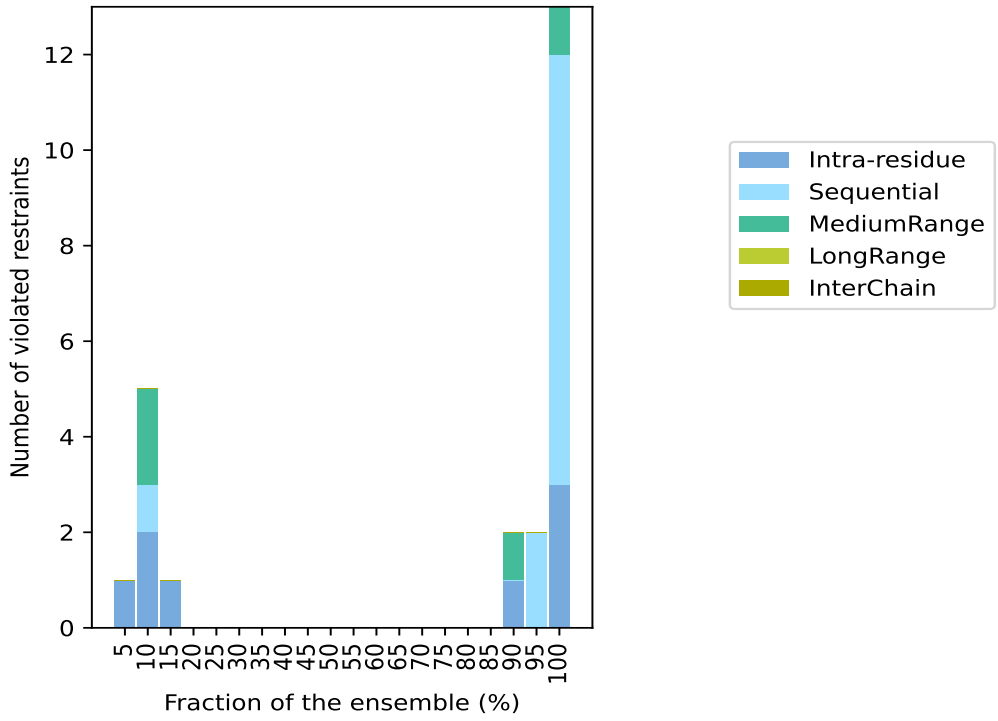
9.3 Distance violation statistics for the ensemble (i)

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, 235(IR:110, SQ:74, MR:51, LR:0, 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]	%
1	0	0	0	0	1	1	5.0
2	1	2	0	0	5	2	10.0
1	0	0	0	0	1	3	15.0
0	0	0	0	0	0	4	20.0
0	0	0	0	0	0	5	25.0
0	0	0	0	0	0	6	30.0
0	0	0	0	0	0	7	35.0
0	0	0	0	0	0	8	40.0
0	0	0	0	0	0	9	45.0
0	0	0	0	0	0	10	50.0
0	0	0	0	0	0	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
0	0	0	0	0	0	16	80.0
0	0	0	0	0	0	17	85.0
1	0	1	0	0	2	18	90.0
0	2	0	0	0	2	19	95.0
3	9	1	0	0	13	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

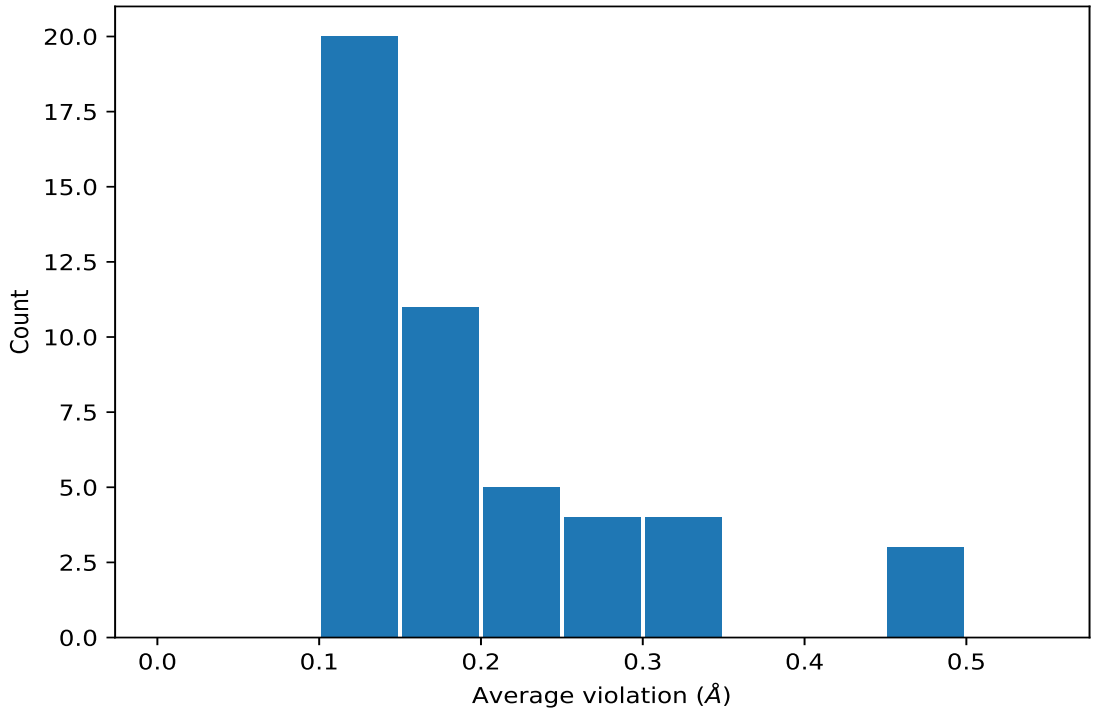
9.3.1 Bar graph : Distance violation statistics for the ensemble (i)



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 theviolation 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)
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	20	0.32	0.01	0.32
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	20	0.28	0.03	0.26
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	20	0.23	0.01	0.23
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	20	0.22	0.0	0.22
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	20	0.21	0.01	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	20	0.21	0.01	0.21
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	20	0.19	0.01	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	20	0.18	0.0	0.18
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	20	0.17	0.0	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	20	0.17	0.0	0.17
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	20	0.16	0.0	0.16
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	20	0.13	0.01	0.13
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	20	0.1	0.01	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	20	0.1	0.01	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	20	0.1	0.01	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	20	0.1	0.01	0.1

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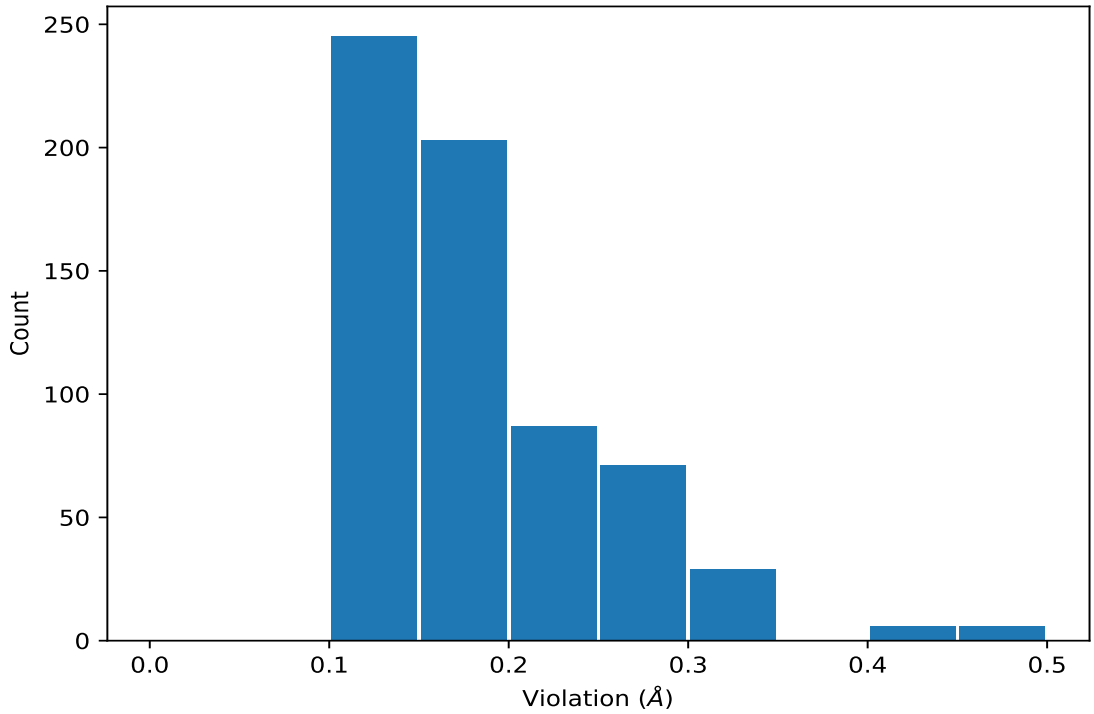
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	20	0.1	0.01	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	20	0.1	0.01	0.1
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	19	0.16	0.0	0.16
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	19	0.14	0.01	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	19	0.14	0.01	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	19	0.14	0.01	0.14
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	18	0.3	0.0	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	18	0.3	0.0	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	18	0.3	0.0	0.3
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	18	0.11	0.01	0.11
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD11	3	0.15	0.0	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD12	3	0.15	0.0	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD13	3	0.15	0.0	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD21	3	0.15	0.0	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD22	3	0.15	0.0	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD23	3	0.15	0.0	0.15
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG11	2	0.47	0.0	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG12	2	0.47	0.0	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG13	2	0.47	0.0	0.47
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG21	2	0.31	0.0	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG22	2	0.31	0.0	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG23	2	0.31	0.0	0.31
(1,182)	1:90:A:ASN:HA	1:93:A:VAL:H	2	0.21	0.0	0.21
(1,61)	1:90:A:ASN:HA	1:93:A:VAL:HB	2	0.14	0.0	0.14
(1,248)	1:91:A:ASP:HB2	1:92:A:ALA:H	2	0.14	0.0	0.14
(1,248)	1:91:A:ASP:HB3	1:92:A:ALA:H	2	0.14	0.0	0.14

[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)
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG11	16	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG12	16	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG13	16	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG11	18	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG12	18	0.47
(1,30)	1:93:A:VAL:HA	1:93:A:VAL:HG13	18	0.47
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD11	15	0.4
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD12	15	0.4
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD13	15	0.4
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD21	15	0.4
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD22	15	0.4
(1,238)	1:89:A:LEU:H	1:89:A:LEU:HD23	15	0.4
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	17	0.33
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	18	0.33
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	15	0.33
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	3	0.32

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	11	0.32
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	19	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	1	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	2	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	3	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	4	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	5	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	6	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	7	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	8	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	9	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	10	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	11	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	12	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	13	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	14	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	17	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	19	0.32
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	20	0.32
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG21	16	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG22	16	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG23	16	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG21	18	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG22	18	0.31
(1,142)	1:93:A:VAL:H	1:93:A:VAL:HG23	18	0.31
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	1	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	1	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	1	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	2	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	2	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	2	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	3	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	3	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	3	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	4	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	4	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	4	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	5	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	5	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	5	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	6	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	6	0.3

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	6	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	7	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	7	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	7	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	8	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	8	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	8	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	9	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	9	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	9	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	10	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	10	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	10	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	11	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	11	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	11	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	12	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	12	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	12	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	13	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	13	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	13	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	14	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	14	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	14	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	15	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	15	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	15	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	17	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	17	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	17	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	19	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	19	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	19	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG11	20	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG12	20	0.3
(1,31)	1:93:A:VAL:H	1:93:A:VAL:HG13	20	0.3
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	16	0.29
(1,42)	1:91:A:ASP:HA	1:92:A:ALA:H	18	0.29
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	1	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	2	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	4	0.26

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	5	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	6	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	7	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	8	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	9	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	10	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	12	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	13	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	14	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	15	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	16	0.26
(1,88)	1:85:A:ALA:HA	1:86:A:LYS:H	20	0.26
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	16	0.24
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	18	0.24
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	11	0.24
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	19	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	1	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	5	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	7	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	14	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	16	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	18	0.24
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	2	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	3	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	4	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	6	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	8	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	9	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	10	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	11	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	12	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	13	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	17	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	19	0.23
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	20	0.23
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	3	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	1	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	2	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	3	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	4	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	5	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	6	0.22

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	7	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	8	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	9	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	10	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	11	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	12	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	13	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	14	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	15	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	16	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	17	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	18	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	19	0.22
(1,68)	1:74:A:LEU:HA	1:75:A:ALA:H	20	0.22
(1,27)	1:90:A:ASN:H	1:90:A:ASN:HB3	15	0.22
(1,182)	1:90:A:ASN:HA	1:93:A:VAL:H	16	0.21
(1,182)	1:90:A:ASN:HA	1:93:A:VAL:H	18	0.21
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	3	0.21
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	11	0.21
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	19	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	1	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	2	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	3	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	4	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	5	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	6	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	7	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	8	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	9	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	10	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	11	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	12	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	13	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	14	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	15	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	17	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	19	0.21
(1,98)	1:90:A:ASN:HB2	1:91:A:ASP:H	20	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	1	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	2	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	4	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	5	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	6	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	7	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	8	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	9	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	10	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	12	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	13	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	14	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	15	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	16	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	17	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	18	0.21
(1,87)	1:84:A:ALA:HA	1:85:A:ALA:H	20	0.21
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	17	0.2
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	18	0.2
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	6	0.19
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	16	0.19
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	18	0.19
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	19	0.19
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	6	0.18
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	7	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	1	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	2	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	4	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	5	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	6	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	7	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	8	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	9	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	10	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	12	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	13	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	14	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	15	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	16	0.18
(1,126)	1:85:A:ALA:H	1:85:A:ALA:HA	20	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	1	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	2	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	3	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	4	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	5	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	7	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	8	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	9	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	10	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	11	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	12	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	13	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	14	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	15	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	17	0.18
(1,38)	1:89:A:LEU:HA	1:90:A:ASN:H	20	0.18
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	1	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	2	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	3	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	4	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	5	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	8	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	9	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	10	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	11	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	12	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	13	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	14	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	15	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	16	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	17	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	18	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	19	0.17
(1,192)	1:95:A:TYR:H	1:97:A:SER:H	20	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	1	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	2	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	3	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	4	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	5	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	6	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	7	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	8	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	9	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	10	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	11	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	12	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	13	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	14	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	15	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	16	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	17	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	18	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	19	0.17
(1,107)	1:99:A:ARG:HA	1:100:A:VAL:H	20	0.17
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	1	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	2	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	3	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	4	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	5	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	6	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	6	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	6	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	6	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	6	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	6	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	7	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	8	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	9	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	10	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	12	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	13	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	14	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	14	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	14	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	14	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	14	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	14	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	16	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	17	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	18	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	20	0.16
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	20	0.16
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	20	0.16
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	20	0.16
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	20	0.16
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	20	0.16
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	11	0.16
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	11	0.16
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	11	0.16
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	19	0.16
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	19	0.16
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	19	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	1	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	2	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	3	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	4	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	5	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	6	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	7	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	8	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	9	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	10	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	11	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	12	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	13	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	14	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	15	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	16	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	17	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	18	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	19	0.16
(1,74)	1:77:A:GLN:HA	1:78:A:ALA:H	20	0.16
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	11	0.15
(1,243)	1:89:A:LEU:HD11	1:90:A:ASN:H	19	0.15
(1,243)	1:89:A:LEU:HD12	1:90:A:ASN:H	19	0.15
(1,243)	1:89:A:LEU:HD13	1:90:A:ASN:H	19	0.15
(1,243)	1:89:A:LEU:HD21	1:90:A:ASN:H	19	0.15
(1,243)	1:89:A:LEU:HD22	1:90:A:ASN:H	19	0.15
(1,243)	1:89:A:LEU:HD23	1:90:A:ASN:H	19	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD11	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD12	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD13	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD21	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD22	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD23	12	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD11	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD12	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD13	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD21	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD22	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD23	16	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD11	20	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD12	20	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD13	20	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD21	20	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD22	20	0.15
(1,199)	1:74:A:LEU:HA	1:74:A:LEU:HD23	20	0.15
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	16	0.15
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	18	0.15
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	3	0.15
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	3	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	3	0.15
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	17	0.15
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	17	0.15
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	17	0.15
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	18	0.15
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	18	0.15
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	18	0.15
(1,248)	1:91:A:ASP:HB2	1:92:A:ALA:H	16	0.14
(1,248)	1:91:A:ASP:HB3	1:92:A:ALA:H	16	0.14
(1,248)	1:91:A:ASP:HB2	1:92:A:ALA:H	18	0.14
(1,248)	1:91:A:ASP:HB3	1:92:A:ALA:H	18	0.14
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	15	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	2	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	2	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	2	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	5	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	5	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	5	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	6	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	6	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	6	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	7	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	7	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	7	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	8	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	8	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	8	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	9	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	9	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	9	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	10	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	10	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	10	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	12	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	12	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	12	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	13	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	13	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	13	0.14
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	14	0.14
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	14	0.14
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	14	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,61)	1:90:A:ASN:HA	1:93:A:VAL:HB	16	0.14
(1,61)	1:90:A:ASN:HA	1:93:A:VAL:HB	18	0.14
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	1	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	2	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	3	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	4	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	5	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	6	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	7	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	8	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	9	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	10	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	11	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	12	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	13	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	14	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	17	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	19	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	20	0.13
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	1	0.13
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	1	0.13
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	1	0.13
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	4	0.13
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	4	0.13
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	4	0.13
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	16	0.13
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	16	0.13
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	16	0.13
(1,97)	1:89:A:LEU:HD21	1:90:A:ASN:H	20	0.13
(1,97)	1:89:A:LEU:HD22	1:90:A:ASN:H	20	0.13
(1,97)	1:89:A:LEU:HD23	1:90:A:ASN:H	20	0.13
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	16	0.13
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	18	0.13
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	18	0.13
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	18	0.13
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	18	0.13
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	18	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	18	0.13
(1,139)	1:92:A:ALA:H	1:92:A:ALA:HA	15	0.12
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	1	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	2	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	3	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	4	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	5	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	6	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	7	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	8	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	9	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	10	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	11	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	12	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	13	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	14	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	17	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	19	0.11
(1,180)	1:89:A:LEU:HA	1:91:A:ASP:H	20	0.11
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	5	0.11
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	15	0.11
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	1	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	2	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	2	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	2	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	2	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	2	0.1

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	2	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	3	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	4	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	6	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	7	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	8	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	9	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	10	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	10	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	10	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	10	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	10	0.1

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	10	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	11	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	12	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	13	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	14	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	17	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	19	0.1
(1,46)	1:96:A:VAL:HG11	1:97:A:SER:H	20	0.1
(1,46)	1:96:A:VAL:HG12	1:97:A:SER:H	20	0.1
(1,46)	1:96:A:VAL:HG13	1:97:A:SER:H	20	0.1
(1,46)	1:96:A:VAL:HG21	1:97:A:SER:H	20	0.1
(1,46)	1:96:A:VAL:HG22	1:97:A:SER:H	20	0.1

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,46)	1:96:A:VAL:HG23	1:97:A:SER:H	20	0.1

10 Dihedral-angle violation analysis (i)

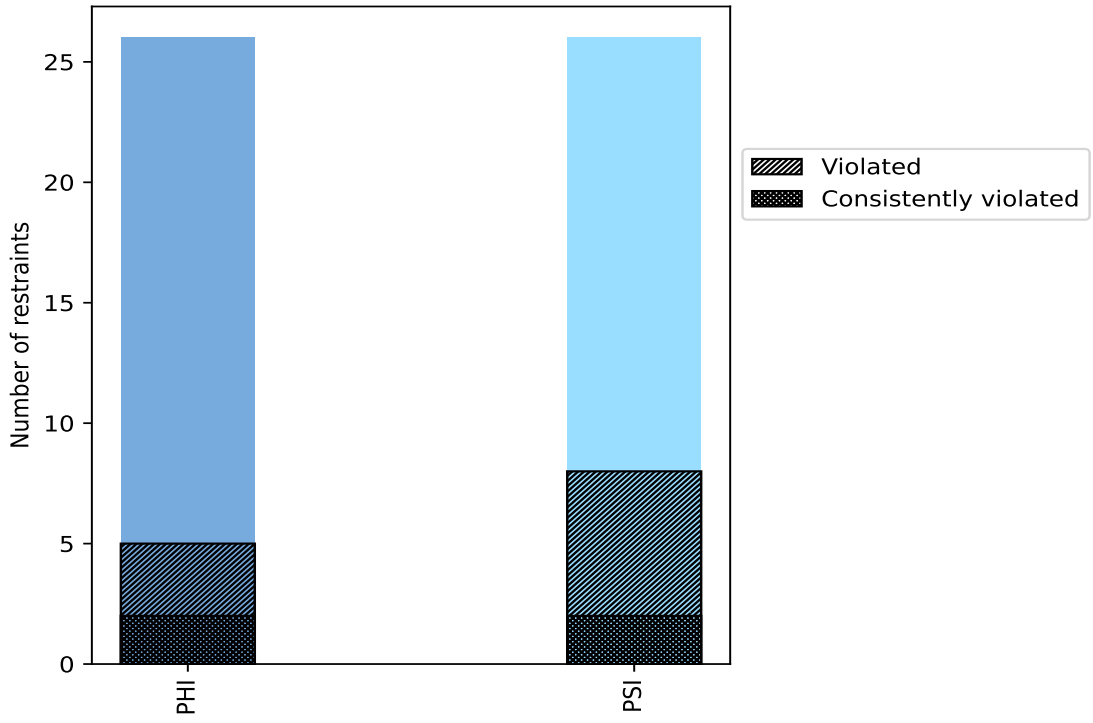
10.1 Summary of dihedral-angle violations (i)

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

Angle type	Count	%[1]	Violated[3]			Consistently Violated[4]		
			Count	%[2]	%[1]	Count	%[2]	%[1]
PHI	26	50.0	5	19.2	9.6	2	7.7	3.8
PSI	26	50.0	8	30.8	15.4	2	7.7	3.8
Total	52	100.0	13	25.0	25.0	4	7.7	7.7

[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)



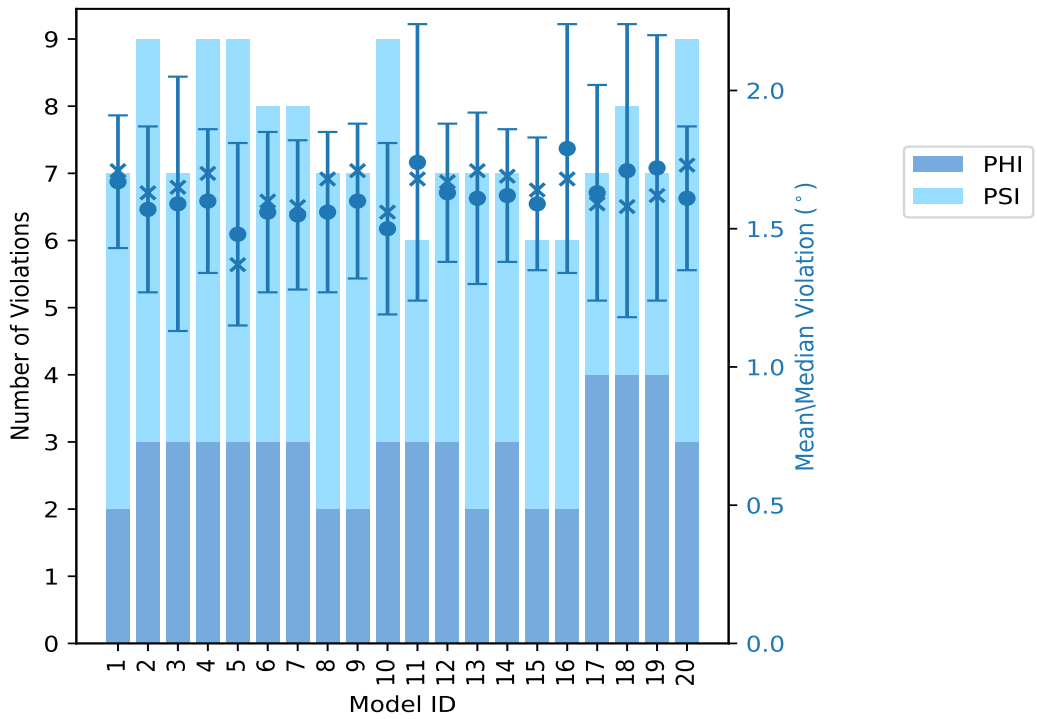
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

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	2	5	7	1.67	1.98	0.24	1.71
2	3	6	9	1.57	2.07	0.3	1.63
3	3	4	7	1.59	2.41	0.46	1.65
4	3	6	9	1.6	1.99	0.26	1.7
5	3	6	9	1.48	2.06	0.33	1.37
6	3	5	8	1.56	1.97	0.29	1.6
7	3	5	8	1.55	1.89	0.27	1.58
8	2	5	7	1.56	1.92	0.29	1.68
9	2	5	7	1.6	1.98	0.28	1.71
10	3	6	9	1.5	1.97	0.31	1.56
11	3	3	6	1.74	2.66	0.5	1.68
12	3	4	7	1.63	2.01	0.25	1.67
13	2	5	7	1.61	2.0	0.31	1.71
14	3	4	7	1.62	1.97	0.24	1.69
15	2	4	6	1.59	1.93	0.24	1.64
16	2	4	6	1.79	2.62	0.45	1.68
17	4	3	7	1.63	2.37	0.39	1.59
18	4	4	8	1.71	2.61	0.53	1.58
19	4	3	7	1.72	2.74	0.48	1.62
20	3	6	9	1.61	1.94	0.26	1.73

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]	%
1	1	2	1	5.0
0	1	1	2	10.0
0	0	0	3	15.0
0	0	0	4	20.0
1	0	1	5	25.0
0	1	1	6	30.0
0	0	0	7	35.0
0	0	0	8	40.0
0	0	0	9	45.0
0	1	1	10	50.0
1	0	1	11	55.0

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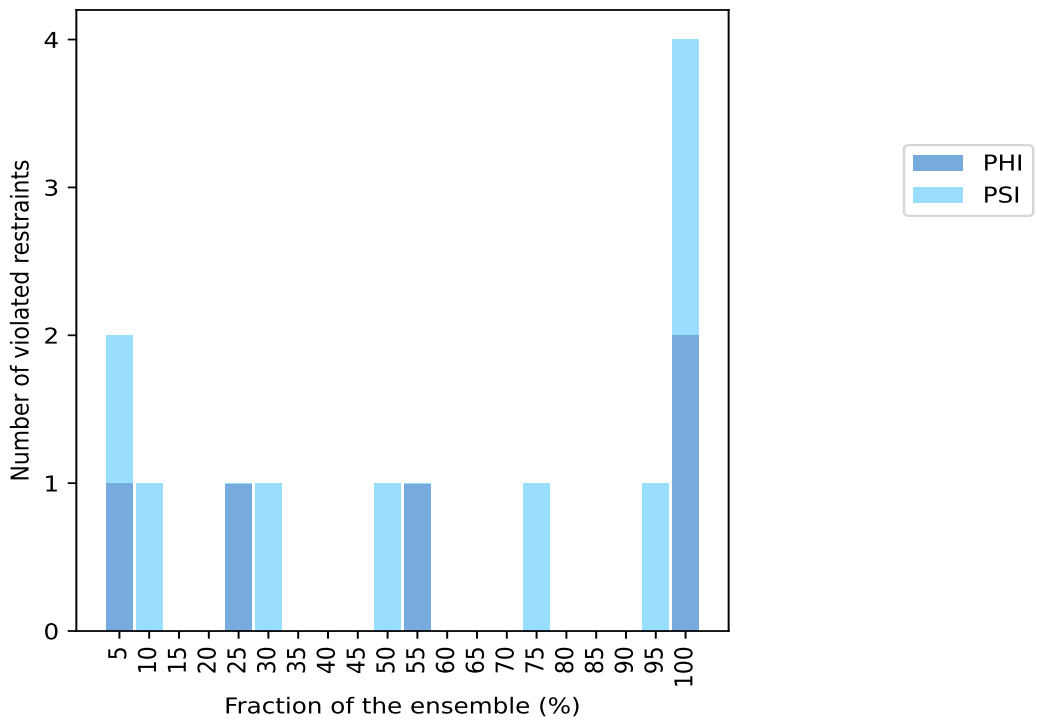
Number of violated restraints			Fraction of the ensemble	
PHI	PSI	Total	Count[1]	%
0	0	0	12	60.0
0	0	0	13	65.0
0	0	0	14	70.0
0	1	1	15	75.0
0	0	0	16	80.0
0	0	0	17	85.0
0	0	0	18	90.0
0	1	1	19	95.0
2	2	4	20	100.0

[1] Number of models with violations

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

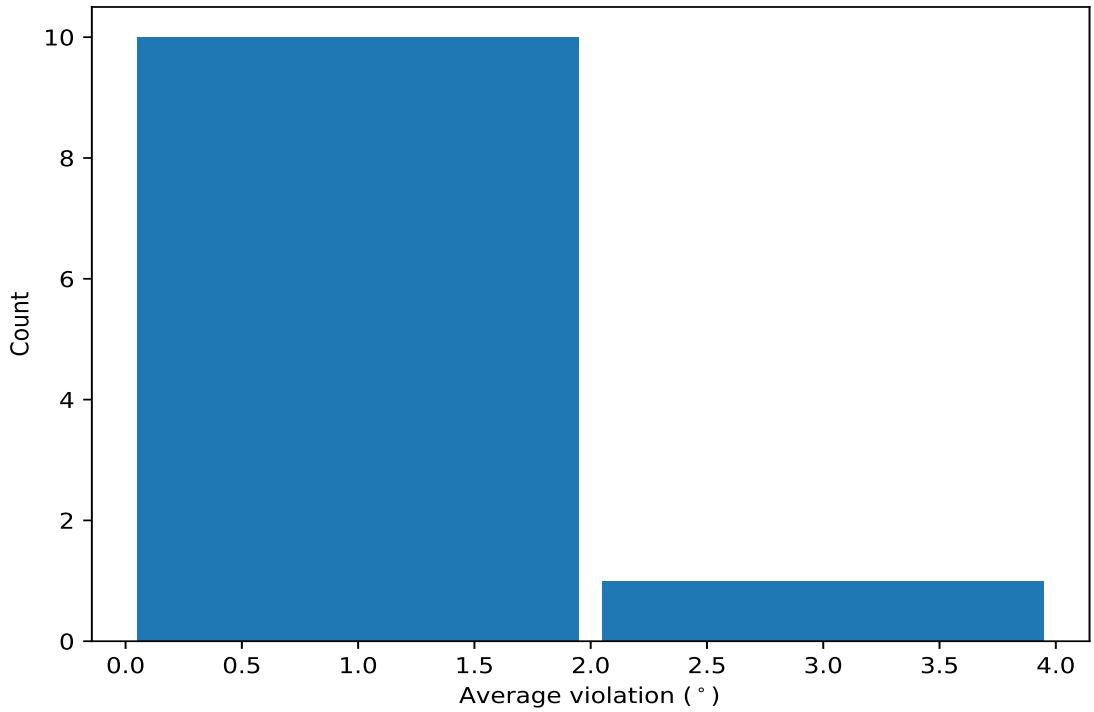


10.4 Most violated dihedral-angle restraints in the ensemble (i)

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.

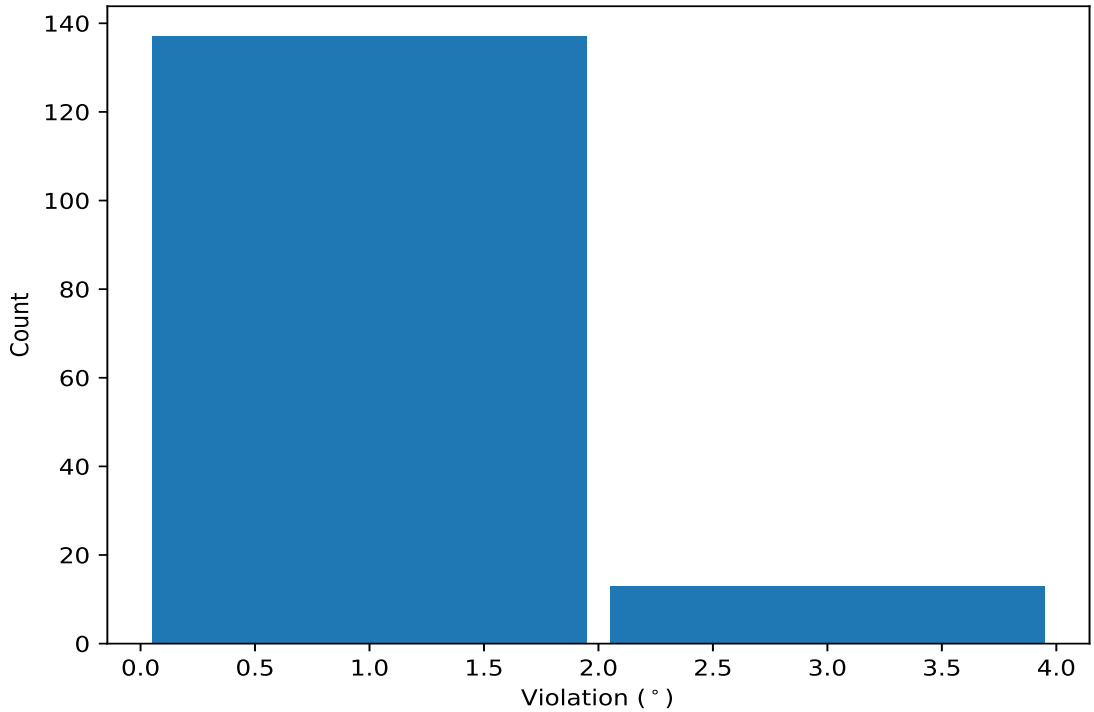
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models[1]	Mean	SD[2]	Median
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	20	2.04	0.2	1.98
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	20	1.93	0.35	1.75
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	20	1.68	0.04	1.67
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	20	1.21	0.03	1.2
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	19	1.82	0.11	1.83
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	15	1.44	0.04	1.44
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	11	1.49	0.16	1.56
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	10	1.15	0.08	1.14
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	6	1.56	0.23	1.67
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	5	1.24	0.05	1.23
(1,18)	1:82:A:MET:N	1:82:A:MET:CA	1:82:A:MET:C	1:83:A:GLY:N	2	1.01	0.0	1.01

[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 (°)
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	19	2.74
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	11	2.66
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	16	2.62
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	18	2.61
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	18	2.43
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	3	2.41
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	17	2.37
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	2	2.07
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	5	2.06
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	16	2.06
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	12	2.01
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	11	2.0
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	13	2.0
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	3	1.99

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	4	1.99
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	1	1.98
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	9	1.98
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	17	1.98
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	6	1.97
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	10	1.97
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	14	1.97
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	19	1.97
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	20	1.94
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	15	1.93
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	8	1.92
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	13	1.92
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	18	1.9
(1,43)	1:94:A:GLU:C	1:95:A:TYR:N	1:95:A:TYR:CA	1:95:A:TYR:C	7	1.89
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	9	1.89
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	1	1.88
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	6	1.87
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	20	1.87
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	7	1.86
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	4	1.85
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	2	1.83
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	8	1.83
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	10	1.83
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	12	1.82
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	20	1.82
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	5	1.81
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	14	1.79
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	14	1.78
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	1	1.77
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	2	1.77
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	13	1.77
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	7	1.76
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	12	1.76
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	5	1.74
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	20	1.73
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	20	1.73
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	2	1.72
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	11	1.71
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	8	1.71
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	9	1.71
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	13	1.71
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	4	1.71
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	9	1.71
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	1	1.71
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	4	1.7
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	6	1.7
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	15	1.7
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	16	1.7
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	5	1.7
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	4	1.7
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	1	1.69

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	10	1.69
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	14	1.69
(1,21)	1:83:A:GLY:C	1:84:A:ALA:N	1:84:A:ALA:CA	1:84:A:ALA:C	10	1.68
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	8	1.68
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	12	1.67
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	16	1.67
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	3	1.66
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	7	1.66
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	11	1.66
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	3	1.65
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	15	1.65
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	15	1.64
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	19	1.64
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	6	1.63
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	17	1.63
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	2	1.63
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	19	1.62
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	20	1.61
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	18	1.6
(1,32)	1:89:A:LEU:N	1:89:A:LEU:CA	1:89:A:LEU:C	1:90:A:ASN:N	17	1.59
(1,16)	1:81:A:TYR:N	1:81:A:TYR:CA	1:81:A:TYR:C	1:82:A:MET:N	18	1.57
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	19	1.57
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	6	1.56
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	10	1.56
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	4	1.53
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	16	1.51
(1,3)	1:74:A:LEU:C	1:75:A:ALA:N	1:75:A:ALA:CA	1:75:A:ALA:C	12	1.51
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	4	1.49
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	7	1.49
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	9	1.48
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	1	1.46
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	2	1.46
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	10	1.45
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	14	1.45
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	12	1.44
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	13	1.44
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	15	1.44
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	6	1.43
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	8	1.43
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	14	1.42
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	17	1.42
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	7	1.41
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	20	1.38
(1,26)	1:86:A:LYS:N	1:86:A:LYS:CA	1:86:A:LYS:C	1:87:A:SER:N	5	1.37
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	2	1.32
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	18	1.3
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	19	1.28
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	20	1.28
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	5	1.26
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	6	1.26
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	18	1.26

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	2	1.24
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	13	1.24
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	1	1.23
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	4	1.23
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	17	1.23
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	5	1.23
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	9	1.23
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	3	1.22
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	14	1.22
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	11	1.22
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	10	1.21
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	7	1.2
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	8	1.2
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	9	1.2
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	11	1.2
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	12	1.19
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	16	1.19
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	17	1.19
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	19	1.19
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	15	1.17
(1,48)	1:97:A:SER:N	1:97:A:SER:CA	1:97:A:SER:C	1:98:A:GLY:N	20	1.17
(1,6)	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	1:77:A:GLN:N	5	1.17
(1,29)	1:87:A:SER:C	1:88:A:LYS:N	1:88:A:LYS:CA	1:88:A:LYS:C	3	1.16
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	4	1.16
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	13	1.16
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	8	1.13
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	7	1.12
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	10	1.1
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	2	1.06
(1,4)	1:75:A:ALA:N	1:75:A:ALA:CA	1:75:A:ALA:C	1:76:A:ASP:N	10	1.05
(1,14)	1:80:A:ASP:N	1:80:A:ASP:CA	1:80:A:ASP:C	1:81:A:TYR:N	6	1.02
(1,5)	1:75:A:ALA:C	1:76:A:ASP:N	1:76:A:ASP:CA	1:76:A:ASP:C	5	1.02
(1,18)	1:82:A:MET:N	1:82:A:MET:CA	1:82:A:MET:C	1:83:A:GLY:N	3	1.01
(1,18)	1:82:A:MET:N	1:82:A:MET:CA	1:82:A:MET:C	1:83:A:GLY:N	18	1.01