Full wwPDB NMR Structure Validation Report (i)

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PDB ID	:	5LW4
BMRB ID	:	19984
Title	:	NMR solution structure of the apo-form of the chitin-active lytic polysaccharide monooxygenase BlLPMO10A
Authors	:	Courtade, G.; Wimmer, R.; Aachmann, F.L.
Deposited on	:	2016-09-15

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:

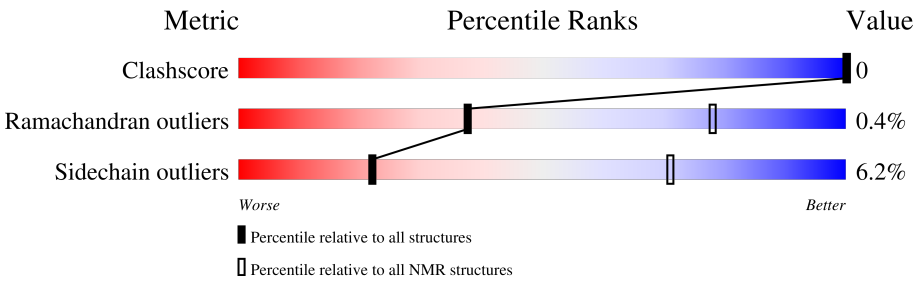
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal 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 84%.

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	172	82% 18%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 3 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *fewest violations*.

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:2-A:14, A:28-A:38, A:56-A:172 (141)	1.83	3

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 3 single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 2647 atoms, of which 1288 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Putative chitin binding protein.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	172	2647	869	1288	234	252	4	0

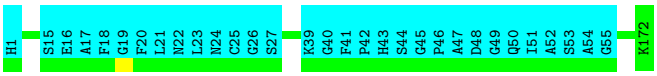
4 Residue-property plots (i)

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: Putative chitin binding protein

Chain A: 82% 18%



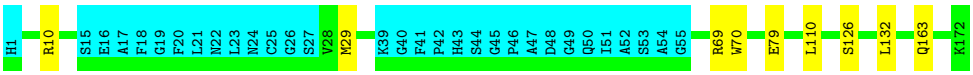
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: Putative chitin binding protein

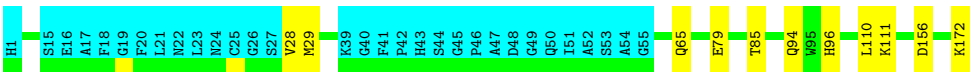
Chain A: 77% 5% 18%



4.2.2 Score per residue for model 2

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%



4.2.3 Score per residue for model 3 (medoid)

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 S34 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 R69 H73 I74 M75 Q94 W95 H96 L110 D114 V121 R130 M131 L132 K172

4.2.4 Score per residue for model 4

• Molecule 1: Putative chitin binding protein

Chain A: 78% • 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 Q33 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 V121 S126 H134 V167 K172

4.2.5 Score per residue for model 5

• Molecule 1: Putative chitin binding protein

Chain A: 77% 5% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 V28 Q33 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 T85 H90 Y97 S126 L132 Y162 K172

4.2.6 Score per residue for model 6

• Molecule 1: Putative chitin binding protein

Chain A: 77% 5% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 V28 M29 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 Y98 I99 W104 D105 L110 K111 V154 Q163 K172

4.2.7 Score per residue for model 7

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 R69 E79 Y86 L110 K111 S126 H134 V154 Q163 D168 K172

4.2.8 Score per residue for model 8

- Molecule 1: Putative chitin binding protein

Chain A: 78% • 18%

H1 E5 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 S34 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 W70 D124 P127 R142 D166 K172

4.2.9 Score per residue for model 9

- Molecule 1: Putative chitin binding protein

Chain A: 79% • 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 W70 F71 K72 H73 L143 Y162 K172

4.2.10 Score per residue for model 10

- Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 R69 W95 H96 I99 L117 D124 P127 L132 D168 K172

4.2.11 Score per residue for model 11

- Molecule 1: Putative chitin binding protein

Chain A: 80% • 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 V28 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 L132 Q163 K172

4.2.12 Score per residue for model 12

- Molecule 1: Putative chitin binding protein

Chain A: 78% • 18%

H1 R10 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 Q33 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 Q64 R69 V121 H146 E158 K172

4.2.13 Score per residue for model 13

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 V28 M29 Q33 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 T51 A52 S53 A54 G55 R69 W70 E79 H96 Y97 R112 L132 H146 K172

4.2.14 Score per residue for model 14

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% • 18%

H1 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 W95 H96 I99 W104 D124 R130 V154 A155 D156 D166 V167 D168 K172

4.2.15 Score per residue for model 15

• Molecule 1: Putative chitin binding protein

Chain A: 76% 6% 18%

H1 C14 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 V28 M29 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 R69 M75 E79 Y97 W104 L132 R142 V147 D156 K172

4.2.16 Score per residue for model 16

• Molecule 1: Putative chitin binding protein

Chain A: 77% 5% 18%

H1 R10 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 E79 T85 Y97 D124 R142 V147 D156 Q163 K172

4.2.17 Score per residue for model 17

• Molecule 1: Putative chitin binding protein

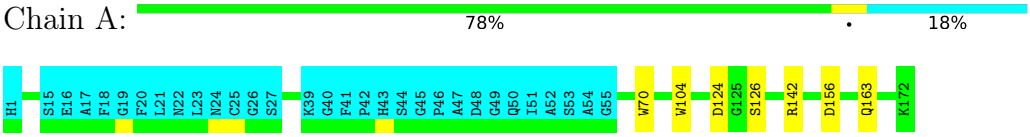
Chain A: 75% 7% 18%

H1 R10 S15 E16 A17 F18 G19 F20 L21 N22 L23 N24 C25 G26 S27 K38 K39 G40 F41 P42 H43 S44 G45 P46 A47 D48 G49 Q50 I51 A52 S53 A54 G55 R69 Y97 D114 I118 D124 L132 R142 Q163 V167 K172

4.2.18 Score per residue for model 18

- Molecule 1: Putative chitin binding protein

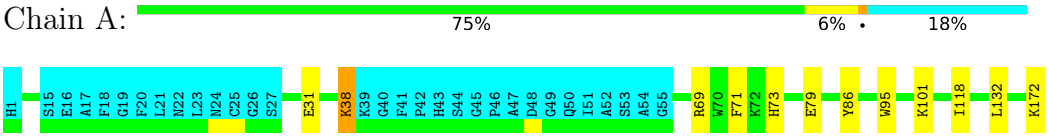
Chain A:



4.2.19 Score per residue for model 19

- Molecule 1: Putative chitin binding protein

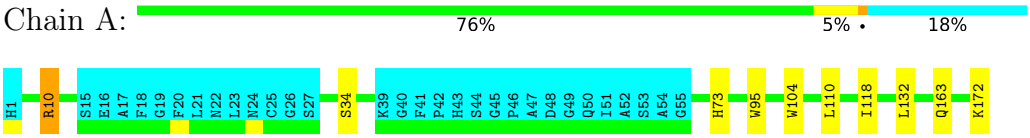
Chain A:



4.2.20 Score per residue for model 20

- Molecule 1: Putative chitin binding protein

Chain A:



5 Refinement protocol and experimental data overview (i)

The models were refined using the following method: *molecular dynamics*.

Of the 259 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 calculation	3.97
YASARA	refinement	14.6.23

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	1921
Number of shifts mapped to atoms	1921
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	84%

6 Model quality (i)

6.1 Standard geometry (i)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#Z>5	RMSZ	#Z>5
1	A	0.69±0.01	0±0/1181 (0.0± 0.0%)	0.70±0.02	1±1/1607 (0.1± 0.1%)
All	All	0.69	0/23620 (0.0%)	0.70	19/32140 (0.1%)

There are no bond-length outliers.

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

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	A	142	ARG	NE-CZ-NH1	6.28	123.44	120.30	8	3
1	A	142	ARG	NE-CZ-NH2	5.94	123.27	120.30	15	2
1	A	10	ARG	NE-CZ-NH1	5.91	123.25	120.30	20	1
1	A	10	ARG	NE-CZ-NH2	5.61	123.11	120.30	12	3
1	A	69	ARG	NE-CZ-NH1	5.60	123.10	120.30	13	6
1	A	69	ARG	NE-CZ-NH2	5.54	123.07	120.30	19	2
1	A	112	ARG	NE-CZ-NH1	5.32	122.96	120.30	13	1
1	A	130	ARG	NE-CZ-NH2	5.10	122.85	120.30	3	1

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	1143	1091	1083	0±0
All	All	22860	21820	21660	1

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:96:HIS:CD2	1:A:96:HIS:N	0.42	2.87	14	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	140/172 (81%)	135±1 (97±1%)	4±1 (3±1%)	1±1 (0±1%)	38	78
All	All	2800/3440 (81%)	2707 (97%)	81 (3%)	12 (0%)	38	78

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	124	ASP	5
1	A	126	SER	2
1	A	127	PRO	2
1	A	65	GLN	1
1	A	130	ARG	1
1	A	38	LYS	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	120/141 (85%)	113±2 (94±2%)	7±2 (6±2%)	22	71
All	All	2400/2820 (85%)	2251 (94%)	149 (6%)	22	71

All 51 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	132	LEU	10
1	A	163	GLN	8
1	A	79	GLU	7
1	A	172	LYS	7
1	A	110	LEU	6
1	A	29	MET	5
1	A	70	TRP	5
1	A	96	HIS	5
1	A	156	ASP	5
1	A	97	TYR	5
1	A	104	TRP	5
1	A	73	HIS	4
1	A	33	GLN	4
1	A	95	TRP	4
1	A	28	VAL	3
1	A	85	THR	3
1	A	111	LYS	3
1	A	34	SER	3
1	A	121	VAL	3
1	A	126	SER	3
1	A	99	ILE	3
1	A	154	VAL	3
1	A	168	ASP	3
1	A	118	ILE	3
1	A	10	ARG	2
1	A	94	GLN	2
1	A	75	MET	2
1	A	114	ASP	2
1	A	134	HIS	2
1	A	167	VAL	2
1	A	162	TYR	2
1	A	86	TYR	2
1	A	166	ASP	2
1	A	146	HIS	2
1	A	147	VAL	2
1	A	38	LYS	2
1	A	90	HIS	1
1	A	98	TYR	1
1	A	105	ASP	1
1	A	5	GLU	1
1	A	72	LYS	1

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Mol	Chain	Res	Type	Models (Total)
1	A	143	LEU	1
1	A	117	LEU	1
1	A	64	GLN	1
1	A	158	GLU	1
1	A	14	CYS	1
1	A	69	ARG	1
1	A	124	ASP	1
1	A	31	GLU	1
1	A	71	PHE	1
1	A	101	LYS	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 84% for the well-defined parts and 84% 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	1921
Number of shifts mapped to atoms	1921
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	15

7.1.2 Chemical shift referencing (i)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_{\alpha}$	172	-0.02 ± 0.14	None needed (< 0.5 ppm)
$^{13}C_{\beta}$	155	-0.08 ± 0.16	None needed (< 0.5 ppm)
$^{13}C'$	171	0.66 ± 0.20	Should be applied
^{15}N	161	-0.89 ± 0.40	Should be applied

7.1.3 Completeness of resonance assignments (i)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 84%, i.e. 1618 atoms were assigned a chemical shift out of a possible 1931. 0 out of 18 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	699/700 (100%)	285/285 (100%)	281/282 (100%)	133/133 (100%)
Sidechain	838/984 (85%)	562/640 (88%)	268/311 (86%)	8/33 (24%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	81/247 (33%)	59/120 (49%)	17/106 (16%)	5/21 (24%)
Overall	1618/1931 (84%)	906/1045 (87%)	566/699 (81%)	146/187 (78%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 84%, i.e. 1921 atoms were assigned a chemical shift out of a possible 2285. 0 out of 20 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	854/857 (100%)	350/351 (100%)	343/344 (100%)	161/162 (99%)
Sidechain	968/1135 (85%)	648/739 (88%)	309/359 (86%)	11/37 (30%)
Aromatic	99/293 (34%)	71/143 (50%)	23/125 (18%)	5/25 (20%)
Overall	1921/2285 (84%)	1069/1233 (87%)	675/828 (82%)	177/224 (79%)

7.1.4 Statistically unusual chemical shifts (i)

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

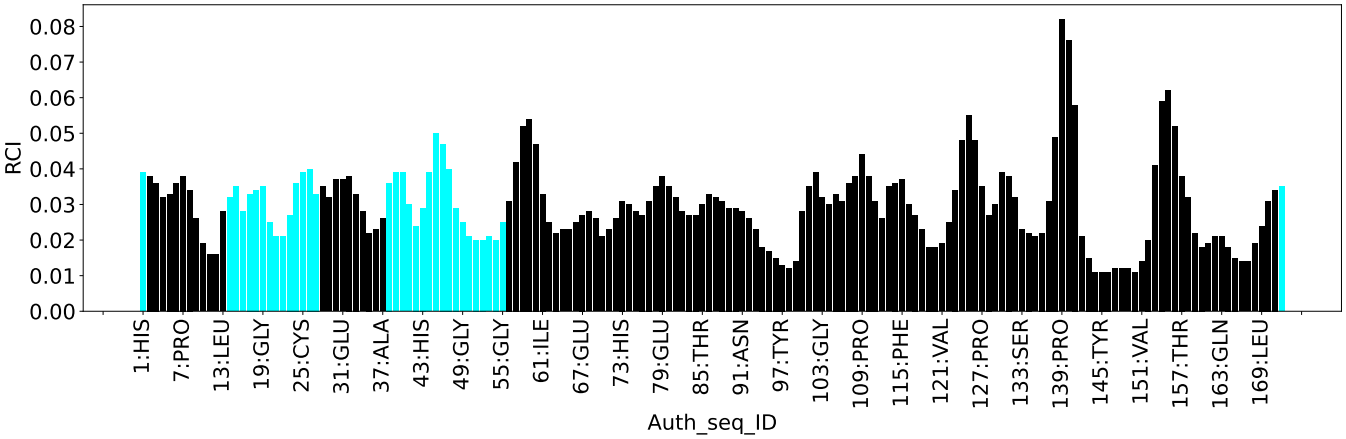
List Id	Chain	Res	Type	Atom	Shift, *ppm*	Expected range, *ppm*	Z-score
1	A	42	PRO	CD	41.90	45.11 – 55.58	-8.1
1	A	109	PRO	CD	42.70	45.11 – 55.58	-7.3
1	A	100	THR	HG21	-0.30	0.08 – 2.19	-6.8
1	A	100	THR	HG22	-0.30	0.08 – 2.19	-6.8
1	A	100	THR	HG23	-0.30	0.08 – 2.19	-6.8
1	A	4	ILE	HG13	-1.44	-0.82 – 3.23	-6.5
1	A	92	THR	HG21	-0.09	0.08 – 2.19	-5.8
1	A	92	THR	HG22	-0.09	0.08 – 2.19	-5.8
1	A	92	THR	HG23	-0.09	0.08 – 2.19	-5.8
1	A	149	LEU	HD21	-0.78	-0.65 – 2.13	-5.5
1	A	149	LEU	HD22	-0.78	-0.65 – 2.13	-5.5
1	A	149	LEU	HD23	-0.78	-0.65 – 2.13	-5.5
1	A	62	LEU	HD21	-0.77	-0.65 – 2.13	-5.4
1	A	62	LEU	HD22	-0.77	-0.65 – 2.13	-5.4
1	A	62	LEU	HD23	-0.77	-0.65 – 2.13	-5.4

7.1.5 Random Coil Index (RCI) plots (i)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-

defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition.If well-defined core and ill-defined regions are not identified then it is shown as gray bars.

Random coil index (RCI) for chain A:



8 NMR restraints analysis (i)

8.1 Conformationally restricting restraints (i)

The following table provides the summary of experimentally observed NMR restraints in different categories. Restraints are classified into different categories based on the sequence separation of the atoms involved.

Description	Value
Total distance restraints	1158
Intra-residue (|i-j|=0)	398
Sequential (|i-j|=1)	412
Medium range (|i-j|>1 and |i-j|<5)	93
Long range (|i-j|≥5)	252
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	3
Total dihedral-angle restraints	261
Number of unmapped restraints	0
Number of restraints per residue	8.2
Number of long range restraints per residue[1]	1.5

[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)	2.5	0.2
0.2-0.5 (Medium)	0.8	0.48
>0.5 (Large)	0.1	0.61

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)	13.9	10.0
10.0-20.0 (Medium)	3.9	20.0
>20.0 (Large)	2.6	30.0

9 Distance violation analysis (i)

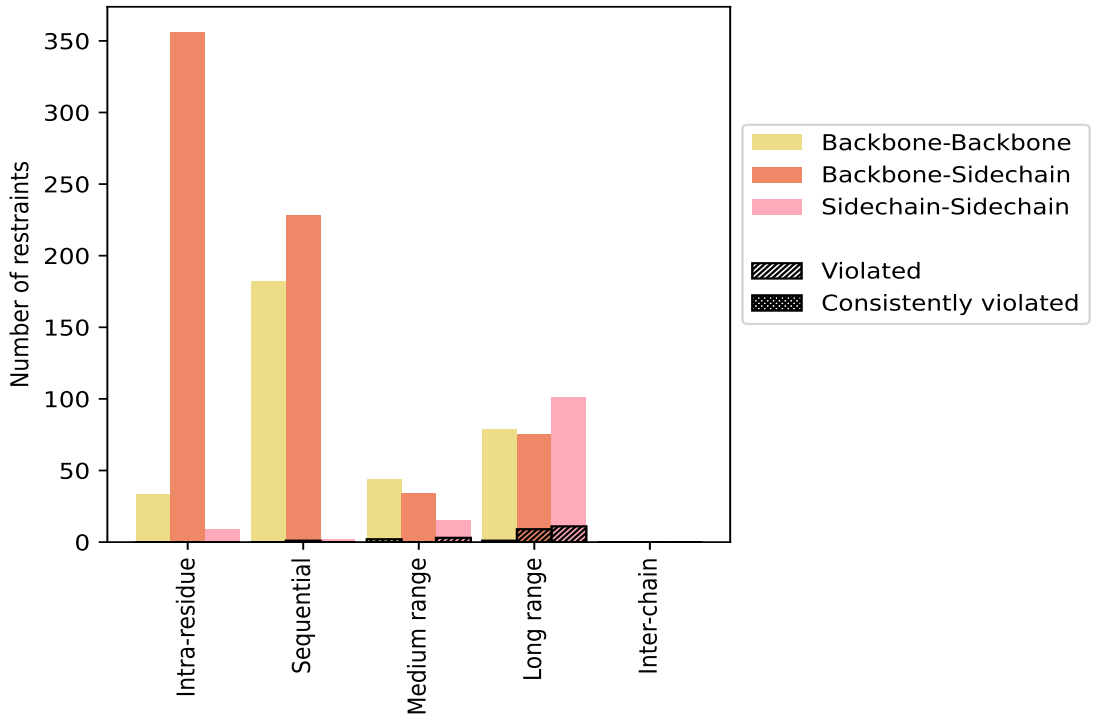
9.1 Summary of distance violations (i)

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)	398	34.4	0	0.0	0.0	0	0.0	0.0
Backbone-Backbone	33	2.8	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	356	30.7	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	9	0.8	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	412	35.6	1	0.2	0.1	0	0.0	0.0
Backbone-Backbone	182	15.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	228	19.7	1	0.4	0.1	0	0.0	0.0
Sidechain-Sidechain	2	0.2	0	0.0	0.0	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	93	8.0	5	5.4	0.4	0	0.0	0.0
Backbone-Backbone	44	3.8	2	4.5	0.2	0	0.0	0.0
Backbone-Sidechain	34	2.9	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	15	1.3	3	20.0	0.3	0	0.0	0.0
Long range (|i-j|≥5)	252	21.8	21	8.3	1.8	0	0.0	0.0
Backbone-Backbone	79	6.8	1	1.3	0.1	0	0.0	0.0
Backbone-Sidechain	75	6.5	9	12.0	0.8	0	0.0	0.0
Sidechain-Sidechain	98	8.5	11	11.2	0.9	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	3	0.3	0	0.0	0.0	0	0.0	0.0
Total	1158	100.0	27	2.3	2.3	0	0.0	0.0
Backbone-Backbone	338	29.2	3	0.9	0.3	0	0.0	0.0
Backbone-Sidechain	693	59.8	10	1.4	0.9	0	0.0	0.0
Sidechain-Sidechain	127	11.0	14	11.0	1.2	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	0	0	1	3	0	4	0.17	0.25	0.05	0.16
2	0	0	0	0	0	0	0.0	0.0	0.0	0.0
3	0	0	0	1	0	1	0.11	0.11	0.0	0.11
4	0	0	2	4	0	6	0.17	0.31	0.06	0.15
5	0	0	0	2	0	2	0.18	0.21	0.03	0.18
6	0	0	1	4	0	5	0.12	0.14	0.01	0.12
7	0	0	1	0	0	1	0.13	0.13	0.0	0.13
8	0	0	1	4	0	5	0.18	0.27	0.06	0.14
9	0	0	1	4	0	5	0.17	0.24	0.05	0.16
10	0	0	2	1	0	3	0.14	0.17	0.02	0.15
11	0	0	1	1	0	2	0.12	0.14	0.02	0.12

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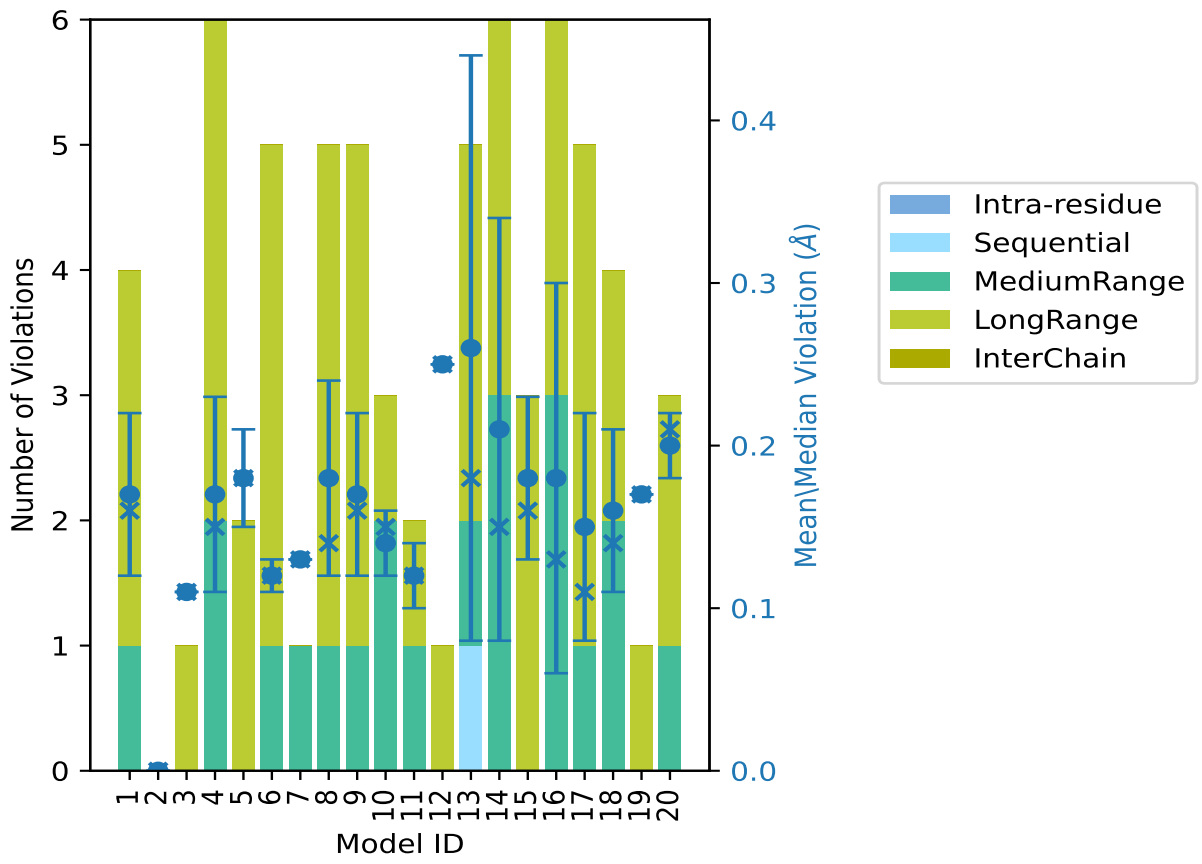
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	0	0	0	1	0	1	0.25	0.25	0.0	0.25
13	0	1	1	3	0	5	0.26	0.61	0.18	0.18
14	0	0	3	3	0	6	0.21	0.48	0.13	0.15
15	0	0	0	3	0	3	0.18	0.25	0.05	0.16
16	0	0	3	3	0	6	0.18	0.45	0.12	0.13
17	0	0	1	4	0	5	0.15	0.29	0.07	0.11
18	0	0	2	2	0	4	0.16	0.24	0.05	0.14
19	0	0	0	1	0	1	0.17	0.17	0.0	0.17
20	0	0	1	2	0	3	0.2	0.23	0.02	0.21

[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

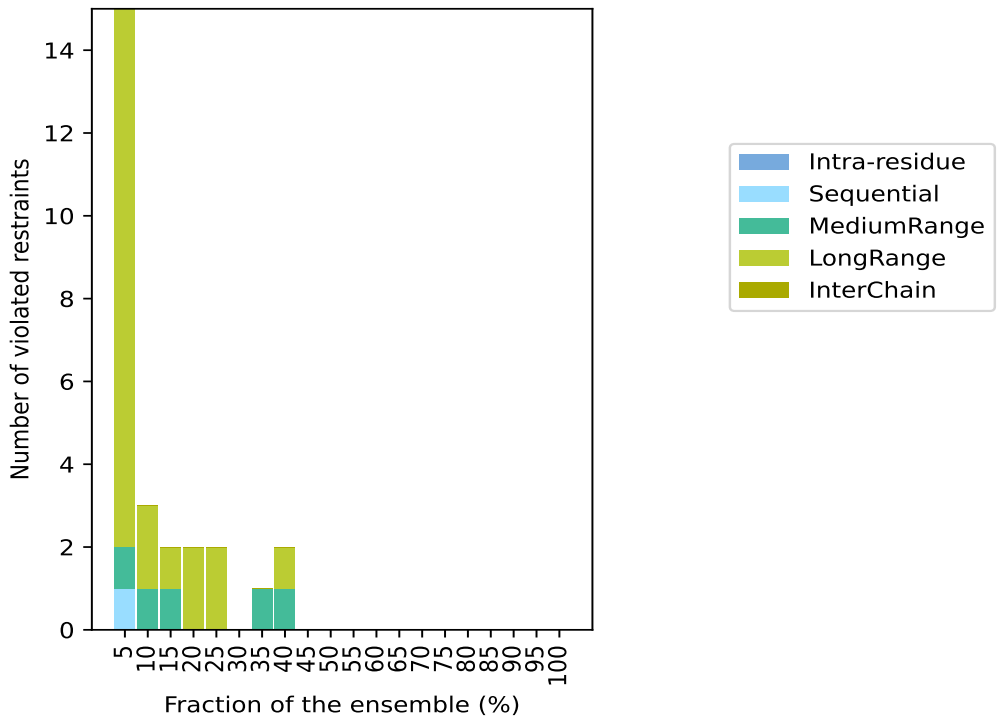
9.3 Distance violation statistics for the ensemble (i)

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, 1128(IR:398, SQ:411, MR:88, LR:231, 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]	%
0	1	1	13	0	15	1	5.0
0	0	1	2	0	3	2	10.0
0	0	1	1	0	2	3	15.0
0	0	0	2	0	2	4	20.0
0	0	0	2	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	1	1	0	2	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
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

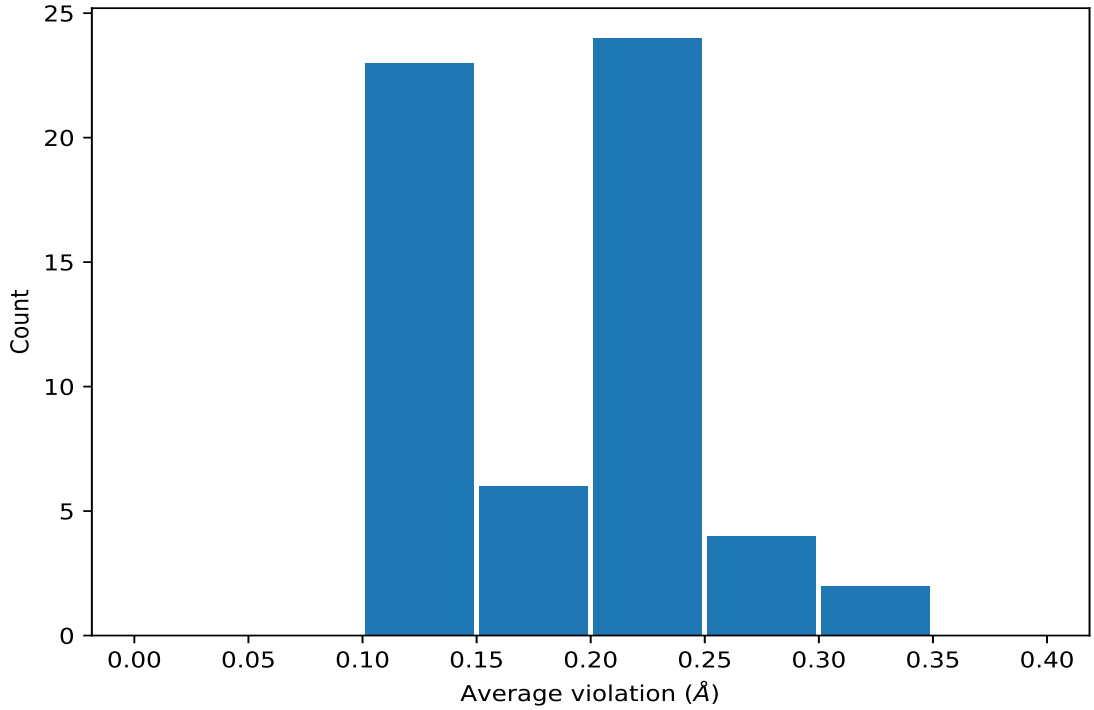
9.3.1 Bar graph : Distance violation statistics for the ensemble (i)



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)
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	8	0.32	0.17	0.28
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	8	0.32	0.17	0.28
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	8	0.2	0.06	0.18
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	8	0.2	0.06	0.18
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	8	0.2	0.06	0.18
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	8	0.2	0.06	0.18
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	8	0.2	0.06	0.18
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	8	0.2	0.06	0.18
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	7	0.14	0.03	0.13
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	7	0.14	0.03	0.13
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	7	0.14	0.03	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	7	0.14	0.03	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	7	0.14	0.03	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	7	0.14	0.03	0.13
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	5	0.13	0.01	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	5	0.13	0.01	0.14

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	5	0.12	0.01	0.12
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA2	4	0.18	0.03	0.17
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA3	4	0.18	0.03	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA2	4	0.18	0.03	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA3	4	0.18	0.03	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA2	4	0.18	0.03	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA3	4	0.18	0.03	0.17
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB2	4	0.15	0.04	0.14
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB3	4	0.15	0.04	0.14
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB2	3	0.2	0.05	0.18
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB3	3	0.2	0.05	0.18
(2,525)	1:A:123:HIS:HA	1:A:125:GLY:H	3	0.11	0.0	0.11
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE1	2	0.26	0.01	0.26
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE2	2	0.26	0.01	0.26
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE1	2	0.26	0.01	0.26
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE2	2	0.26	0.01	0.26
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG21	2	0.21	0.04	0.21
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG22	2	0.21	0.04	0.21
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG23	2	0.21	0.04	0.21
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG21	2	0.21	0.04	0.21
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG22	2	0.21	0.04	0.21
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG23	2	0.21	0.04	0.21

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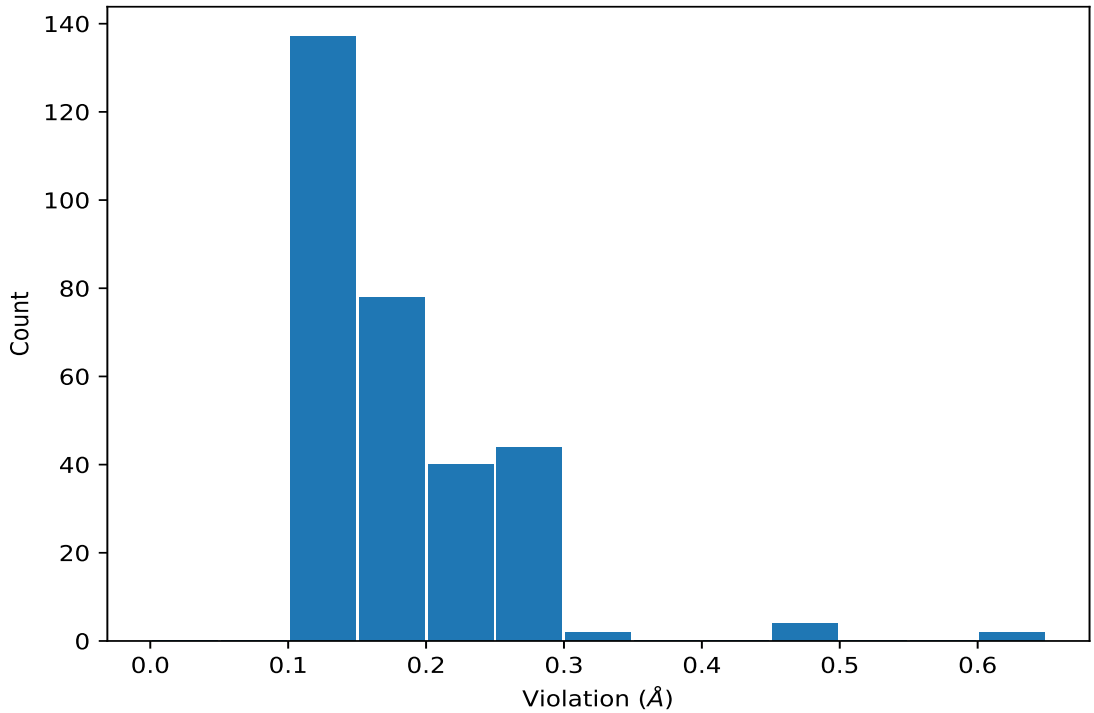
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(2,567)	1:A:6:LYS:HA	1:A:8:GLY:H	2	0.12	0.02	0.12

[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)
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	13	0.61
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	13	0.61
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	14	0.48

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	14	0.48
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	16	0.45
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	16	0.45
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	4	0.31
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	4	0.31
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	17	0.29
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	17	0.29
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	17	0.29
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	17	0.29
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	17	0.29
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	17	0.29
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB3	8	0.27
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB3	8	0.27
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB3	8	0.27
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB3	8	0.27
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB3	8	0.27
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB2	8	0.27
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB3	8	0.27
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE1	13	0.26
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE2	13	0.26
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE1	13	0.26
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE2	13	0.26
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG21	14	0.25
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG22	14	0.25
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG23	14	0.25
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG21	14	0.25
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG22	14	0.25
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG23	14	0.25
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE1	15	0.25
(2,816)	1:A:49:GLY:HA2	1:A:162:TYR:HE2	15	0.25
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE1	15	0.25
(2,816)	1:A:49:GLY:HA3	1:A:162:TYR:HE2	15	0.25
(1,17)	1:A:71:PHE:HE1	1:A:165:ILE:HD11	1	0.25
(1,17)	1:A:71:PHE:HE1	1:A:165:ILE:HD12	1	0.25
(1,17)	1:A:71:PHE:HE1	1:A:165:ILE:HD13	1	0.25
(1,17)	1:A:71:PHE:HE2	1:A:165:ILE:HD11	1	0.25
(1,17)	1:A:71:PHE:HE2	1:A:165:ILE:HD12	1	0.25

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,17)	1:A:71:PHE:HE2	1:A:165:ILE:HD13	1	0.25
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	12	0.25
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	12	0.25
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	12	0.25
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	12	0.25
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	12	0.25
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	12	0.25
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	18	0.24
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	18	0.24
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	9	0.24
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	9	0.24
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	9	0.24
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	9	0.24
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	9	0.24
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	9	0.24
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	20	0.23
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	20	0.23
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA2	8	0.22
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA3	8	0.22
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA2	8	0.22
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA3	8	0.22
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA2	8	0.22
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA3	8	0.22
(2,969)	1:A:136:ILE:HG12	1:A:148:ILE:HD11	5	0.21
(2,969)	1:A:136:ILE:HG12	1:A:148:ILE:HD12	5	0.21
(2,969)	1:A:136:ILE:HG12	1:A:148:ILE:HD13	5	0.21
(2,969)	1:A:136:ILE:HG13	1:A:148:ILE:HD11	5	0.21
(2,969)	1:A:136:ILE:HG13	1:A:148:ILE:HD12	5	0.21
(2,969)	1:A:136:ILE:HG13	1:A:148:ILE:HD13	5	0.21
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB3	20	0.21
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB3	20	0.21
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB3	20	0.21
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB3	20	0.21
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB3	20	0.21
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB2	20	0.21
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB3	20	0.21
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	9	0.2

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	9	0.2
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	9	0.2
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	9	0.2
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	9	0.2
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	9	0.2
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB3	13	0.18
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB3	13	0.18
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB3	13	0.18
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB3	13	0.18
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB3	13	0.18
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB2	13	0.18
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB3	13	0.18
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	1	0.18
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	14	0.18
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	14	0.18
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	14	0.18
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	14	0.18
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	14	0.18
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	14	0.18
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG21	10	0.17
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG22	10	0.17
(2,913)	1:A:99:ILE:HG12	1:A:118:ILE:HG23	10	0.17
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG21	10	0.17
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG22	10	0.17
(2,913)	1:A:99:ILE:HG13	1:A:118:ILE:HG23	10	0.17
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA2	19	0.17
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA3	19	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA2	19	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA3	19	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA2	19	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA3	19	0.17
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA2	20	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA3	20	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA2	20	0.17
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA3	20	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA2	20	0.17
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA3	20	0.17
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	4	0.17
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	4	0.17
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	4	0.17
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	4	0.17
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	4	0.17
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	4	0.17
(2,97)	1:A:4:ILE:HG21	1:A:84:TRP:HA	9	0.16
(2,97)	1:A:4:ILE:HG22	1:A:84:TRP:HA	9	0.16
(2,97)	1:A:4:ILE:HG23	1:A:84:TRP:HA	9	0.16
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB3	16	0.16
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB3	16	0.16
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB3	16	0.16
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB3	16	0.16
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB3	16	0.16
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB2	16	0.16
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB3	16	0.16
(2,9)	1:A:92:THR:HG21	1:A:123:HIS:HD2	4	0.16
(2,9)	1:A:92:THR:HG22	1:A:123:HIS:HD2	4	0.16
(2,9)	1:A:92:THR:HG23	1:A:123:HIS:HD2	4	0.16
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG11	1:A:68:ASN:HB3	15	0.16
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG12	1:A:68:ASN:HB3	15	0.16
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG13	1:A:68:ASN:HB3	15	0.16
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG21	1:A:68:ASN:HB3	15	0.16
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG22	1:A:68:ASN:HB3	15	0.16
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB2	15	0.16
(2,783)	1:A:28:VAL:HG23	1:A:68:ASN:HB3	15	0.16
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	10	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	10	0.15
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	10	0.15
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	10	0.15
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	10	0.15
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	10	0.15
(2,4)	1:A:3:PHE:HE1	1:A:87:THR:HB	5	0.15
(2,4)	1:A:3:PHE:HE2	1:A:87:THR:HB	5	0.15
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	4	0.14
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	4	0.14
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	4	0.14
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	4	0.14
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	4	0.14
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	4	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	8	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	8	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	16	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	16	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	18	0.14
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	18	0.14
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA2	17	0.14
(2,810)	1:A:47:ALA:HB1	1:A:56:GLY:HA3	17	0.14
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA2	17	0.14
(2,810)	1:A:47:ALA:HB2	1:A:56:GLY:HA3	17	0.14
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA2	17	0.14
(2,810)	1:A:47:ALA:HB3	1:A:56:GLY:HA3	17	0.14
(2,705)	1:A:71:PHE:H	1:A:165:ILE:HG21	1	0.14
(2,705)	1:A:71:PHE:H	1:A:165:ILE:HG22	1	0.14
(2,705)	1:A:71:PHE:H	1:A:165:ILE:HG23	1	0.14
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	4	0.14
(2,567)	1:A:6:LYS:HA	1:A:8:GLY:H	8	0.14
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	11	0.14
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	11	0.14
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	11	0.14
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	11	0.14
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	11	0.14
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	11	0.14
(1,101)	1:A:33:GLN:HG2	1:A:86:TYR:HE1	6	0.14
(1,101)	1:A:33:GLN:HG2	1:A:86:TYR:HE2	6	0.14
(1,101)	1:A:33:GLN:HG3	1:A:86:TYR:HE1	6	0.14
(1,101)	1:A:33:GLN:HG3	1:A:86:TYR:HE2	6	0.14
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	18	0.13
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	18	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	18	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	18	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	18	0.13
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	18	0.13
(2,749)	1:A:7:PRO:HD2	1:A:82:PHE:HA	13	0.13
(2,749)	1:A:7:PRO:HD3	1:A:82:PHE:HA	13	0.13
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	15	0.13
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	7	0.13
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	7	0.13
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	14	0.12
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	14	0.12
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	14	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	14	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	14	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	14	0.12
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	16	0.12
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	16	0.12
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	16	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	16	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	16	0.12
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	16	0.12
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	6	0.12
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	6	0.12
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB2	9	0.12
(2,895)	1:A:95:TRP:H	1:A:122:PRO:HB3	9	0.12
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	6	0.12
(2,622)	1:A:86:TYR:H	1:A:132:LEU:HG	9	0.12
(2,525)	1:A:123:HIS:HA	1:A:125:GLY:H	16	0.12
(2,494)	1:A:39:LYS:H	1:A:159:ASN:HA	14	0.12
(1,13)	1:A:82:PHE:HD1	1:A:148:ILE:HG21	8	0.12
(1,13)	1:A:82:PHE:HD1	1:A:148:ILE:HG22	8	0.12
(1,13)	1:A:82:PHE:HD1	1:A:148:ILE:HG23	8	0.12
(1,13)	1:A:82:PHE:HD2	1:A:148:ILE:HG21	8	0.12
(1,13)	1:A:82:PHE:HD2	1:A:148:ILE:HG22	8	0.12
(1,13)	1:A:82:PHE:HD2	1:A:148:ILE:HG23	8	0.12
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB2	17	0.11
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB2	17	0.11
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB2	17	0.11
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB2	17	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB2	17	0.11
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB2	17	0.11
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB3	17	0.11
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG11	1:A:134:HIS:HB3	18	0.11
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG12	1:A:134:HIS:HB3	18	0.11
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG13	1:A:134:HIS:HB3	18	0.11
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG21	1:A:134:HIS:HB3	18	0.11
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG22	1:A:134:HIS:HB3	18	0.11
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB2	18	0.11
(2,948)	1:A:121:VAL:HG23	1:A:134:HIS:HB3	18	0.11
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB1	1	0.11
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB2	1	0.11
(2,943)	1:A:117:LEU:HB2	1:A:120:ALA:HB3	1	0.11
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB1	1	0.11
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB2	1	0.11
(2,943)	1:A:117:LEU:HB3	1:A:120:ALA:HB3	1	0.11
(2,806)	1:A:44:SER:HB2	1:A:45:GLY:H	13	0.11
(2,806)	1:A:44:SER:HB3	1:A:45:GLY:H	13	0.11
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	16	0.11
(2,64)	1:A:143:LEU:HA	1:A:170:VAL:HB	17	0.11
(2,567)	1:A:6:LYS:HA	1:A:8:GLY:H	6	0.11
(2,525)	1:A:123:HIS:HA	1:A:125:GLY:H	10	0.11
(2,525)	1:A:123:HIS:HA	1:A:125:GLY:H	14	0.11
(1,7)	1:A:58:PHE:HE1	1:A:110:LEU:HG	6	0.11
(1,7)	1:A:58:PHE:HE2	1:A:110:LEU:HG	6	0.11
(1,6)	1:A:30:TYR:HE1	1:A:34:SER:HB2	11	0.11
(1,6)	1:A:30:TYR:HE2	1:A:34:SER:HB2	11	0.11
(1,22)	1:A:160:ALA:HB1	1:A:162:TYR:HE1	17	0.11
(1,22)	1:A:160:ALA:HB1	1:A:162:TYR:HE2	17	0.11
(1,22)	1:A:160:ALA:HB2	1:A:162:TYR:HE1	17	0.11
(1,22)	1:A:160:ALA:HB2	1:A:162:TYR:HE2	17	0.11
(1,22)	1:A:160:ALA:HB3	1:A:162:TYR:HE1	17	0.11
(1,22)	1:A:160:ALA:HB3	1:A:162:TYR:HE2	17	0.11
(1,20)	1:A:61:ILE:HD11	1:A:145:TYR:HD1	4	0.11
(1,20)	1:A:61:ILE:HD11	1:A:145:TYR:HD2	4	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,20)	1:A:61:ILE:HD12	1:A:145:TYR:HD1	4	0.11
(1,20)	1:A:61:ILE:HD12	1:A:145:TYR:HD2	4	0.11
(1,20)	1:A:61:ILE:HD13	1:A:145:TYR:HD1	4	0.11
(1,20)	1:A:61:ILE:HD13	1:A:145:TYR:HD2	4	0.11
(1,126)	1:A:121:VAL:HG11	1:A:135:HIS:H	3	0.11
(1,126)	1:A:121:VAL:HG12	1:A:135:HIS:H	3	0.11
(1,126)	1:A:121:VAL:HG13	1:A:135:HIS:H	3	0.11
(1,126)	1:A:121:VAL:HG21	1:A:135:HIS:H	3	0.11
(1,126)	1:A:121:VAL:HG22	1:A:135:HIS:H	3	0.11
(1,126)	1:A:121:VAL:HG23	1:A:135:HIS:H	3	0.11

10 Dihedral-angle violation analysis (i)

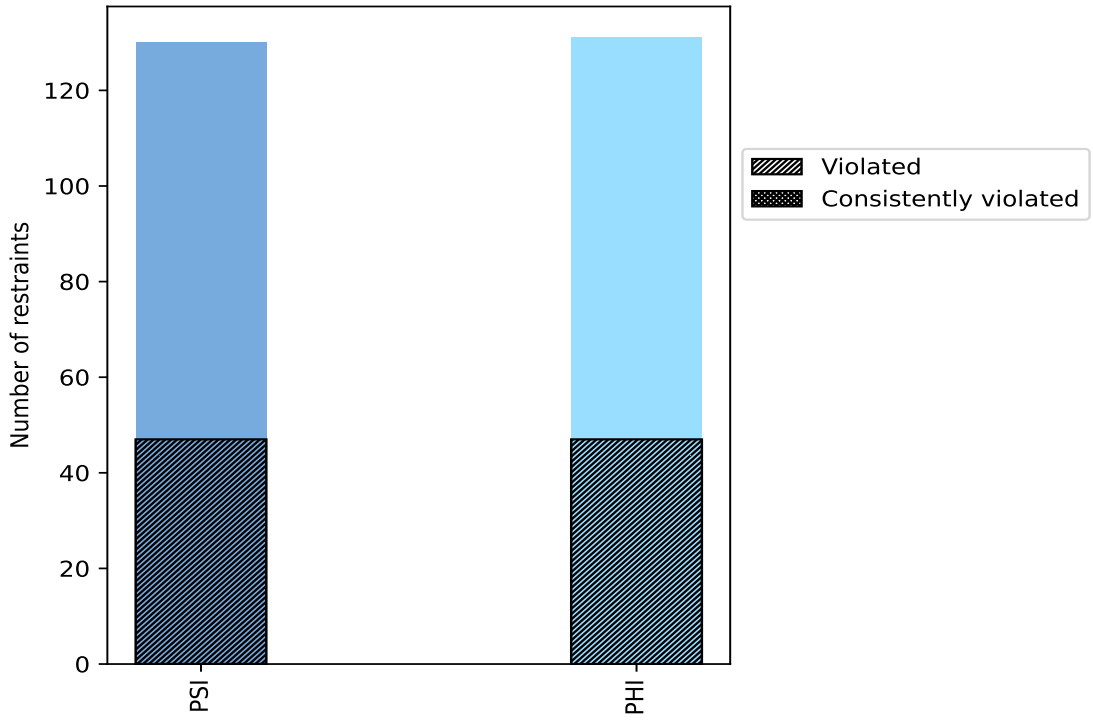
10.1 Summary of dihedral-angle violations (i)

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]
PSI	130	49.8	47	36.2	18.0	0	0.0	0.0
PHI	131	50.2	47	35.9	18.0	0	0.0	0.0
Total	261	100.0	94	36.0	36.0	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)



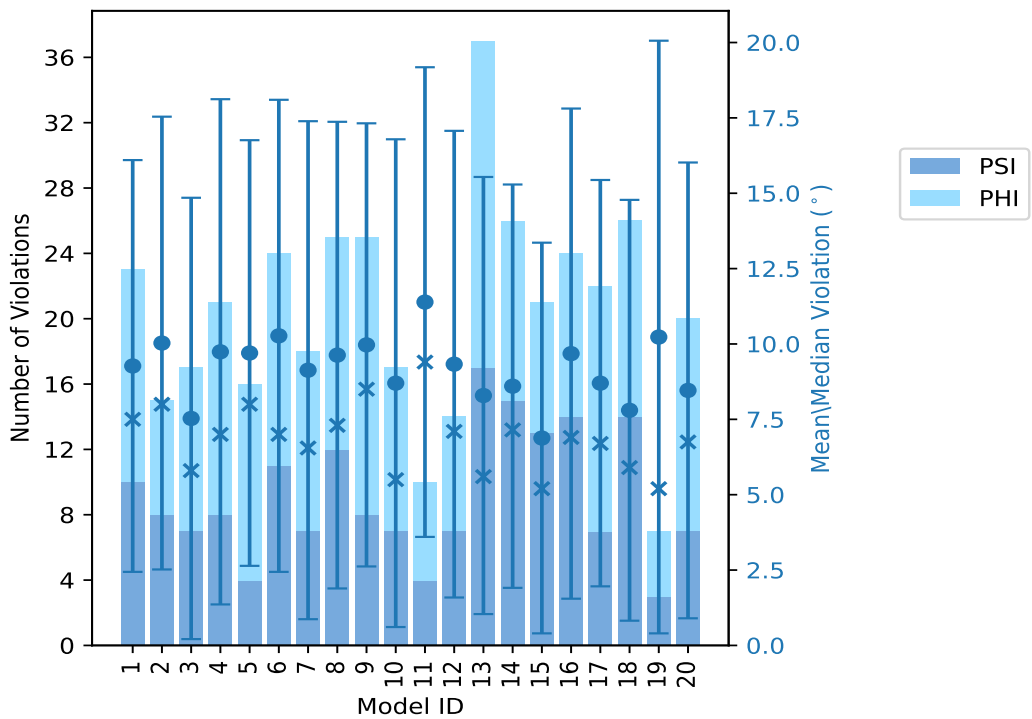
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

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 (°)
	PSI	PHI	Total				
1	10	13	23	9.27	29.5	6.83	7.5
2	8	7	15	10.03	30.0	7.51	8.0
3	7	10	17	7.53	29.0	7.32	5.8
4	8	13	21	9.74	29.5	8.38	7.0
5	4	12	16	9.7	29.8	7.06	8.0
6	11	13	24	10.27	29.5	7.83	7.0
7	7	11	18	9.13	29.1	8.26	6.55
8	12	13	25	9.63	26.8	7.74	7.3
9	8	17	25	9.97	28.7	7.35	8.5
10	7	10	17	8.7	28.9	8.09	5.5
11	4	6	10	11.39	29.5	7.79	9.4
12	7	7	14	9.33	28.8	7.74	7.1
13	17	20	37	8.29	27.4	7.25	5.6
14	15	11	26	8.6	24.3	6.69	7.15
15	13	8	21	6.88	29.6	6.48	5.2
16	14	10	24	9.68	29.6	8.13	6.9
17	7	15	22	8.7	22.3	6.74	6.7
18	14	12	26	7.8	28.3	6.98	5.9
19	3	4	7	10.23	28.6	9.83	5.2
20	7	13	20	8.46	29.4	7.56	6.75

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



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

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

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

Number of violated restraints			Fraction of the ensemble	
PSI	PHI	Total	Count[1]	%
18	16	34	1	5.0
5	8	13	2	10.0
7	4	11	3	15.0
5	1	6	4	20.0
1	2	3	5	25.0
1	1	2	6	30.0
2	5	7	7	35.0
1	1	2	8	40.0
2	3	5	9	45.0
1	0	1	10	50.0
1	1	2	11	55.0

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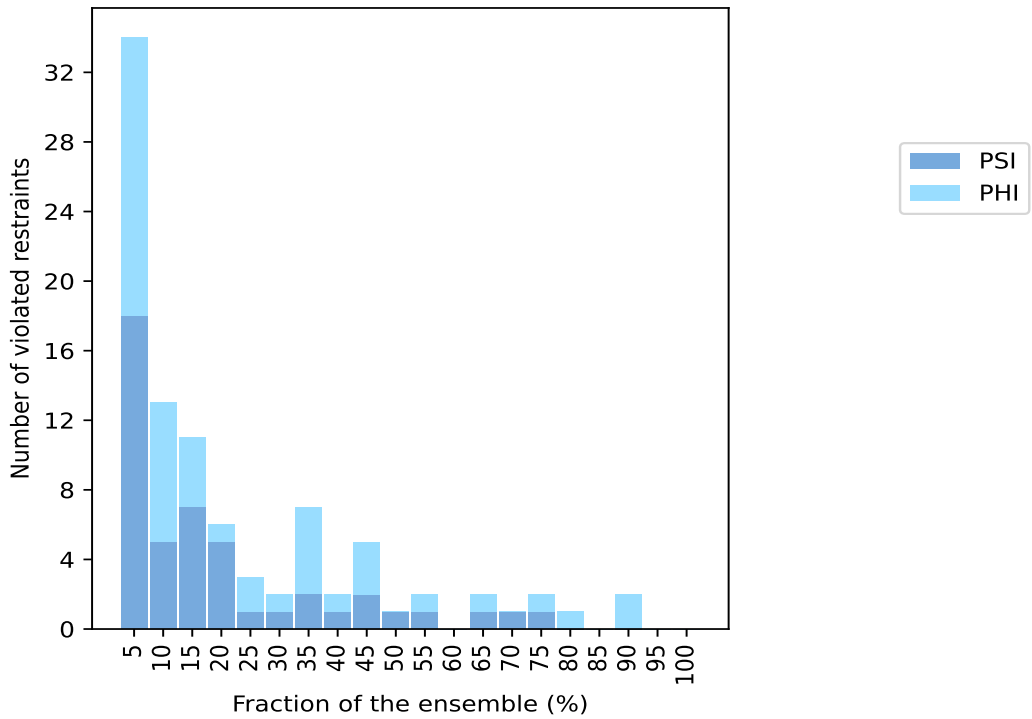
Number of violated restraints			Fraction of the ensemble	
PSI	PHI	Total	Count[1]	%
0	0	0	12	60.0
1	1	2	13	65.0
1	0	1	14	70.0
1	1	2	15	75.0
0	1	1	16	80.0
0	0	0	17	85.0
0	2	2	18	90.0
0	0	0	19	95.0
0	0	0	20	100.0

[1] Number of models with violations

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

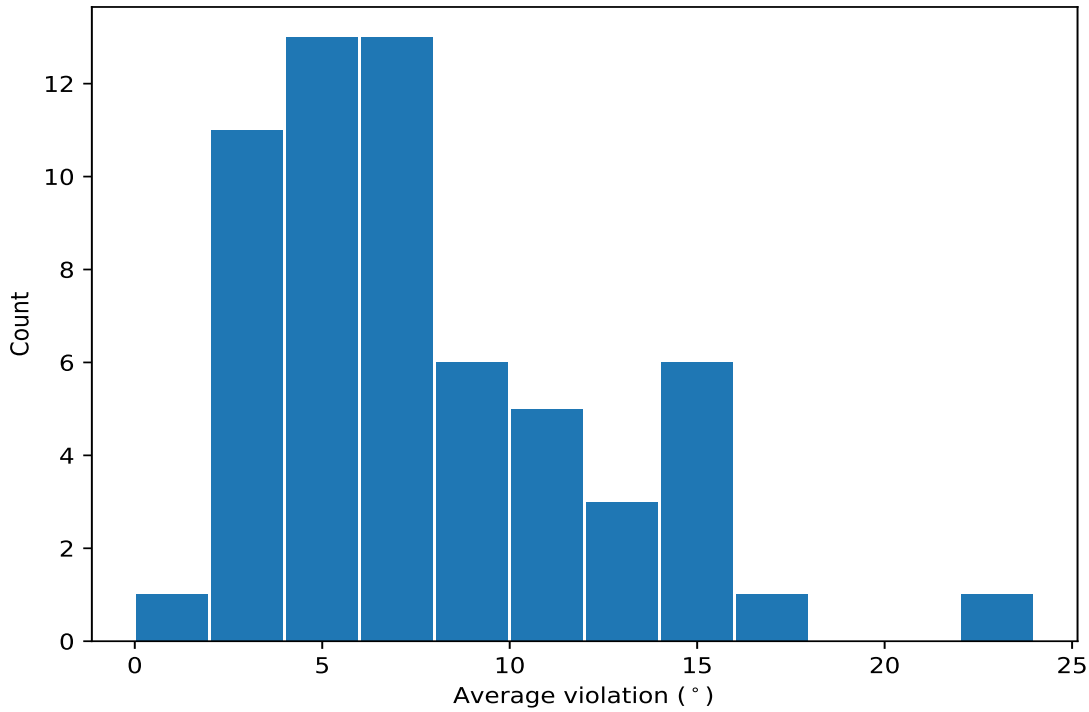


10.4 Most violated dihedral-angle restraints in the ensemble (i)

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
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	18	16.13	7.24	15.25
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	18	15.55	9.63	17.25
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	16	15.2	7.55	15.8
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	15	22.68	8.95	28.3
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	15	6.65	3.43	6.3
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	14	12.52	7.11	9.95
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	13	11.55	6.04	10.9
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	13	9.45	6.78	8.7
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	11	14.43	6.91	14.7
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	11	4.4	2.01	4.2
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	10	4.6	3.32	3.25
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	9	6.93	2.9	7.3
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	9	6.13	3.28	5.9
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	9	6.12	4.06	4.4
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	9	5.44	2.18	5.6
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	9	2.21	1.18	1.9
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	8	13.46	8.25	12.5
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	8	8.81	2.88	8.8
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	7	15.64	8.97	14.6
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	7	14.33	9.09	11.9

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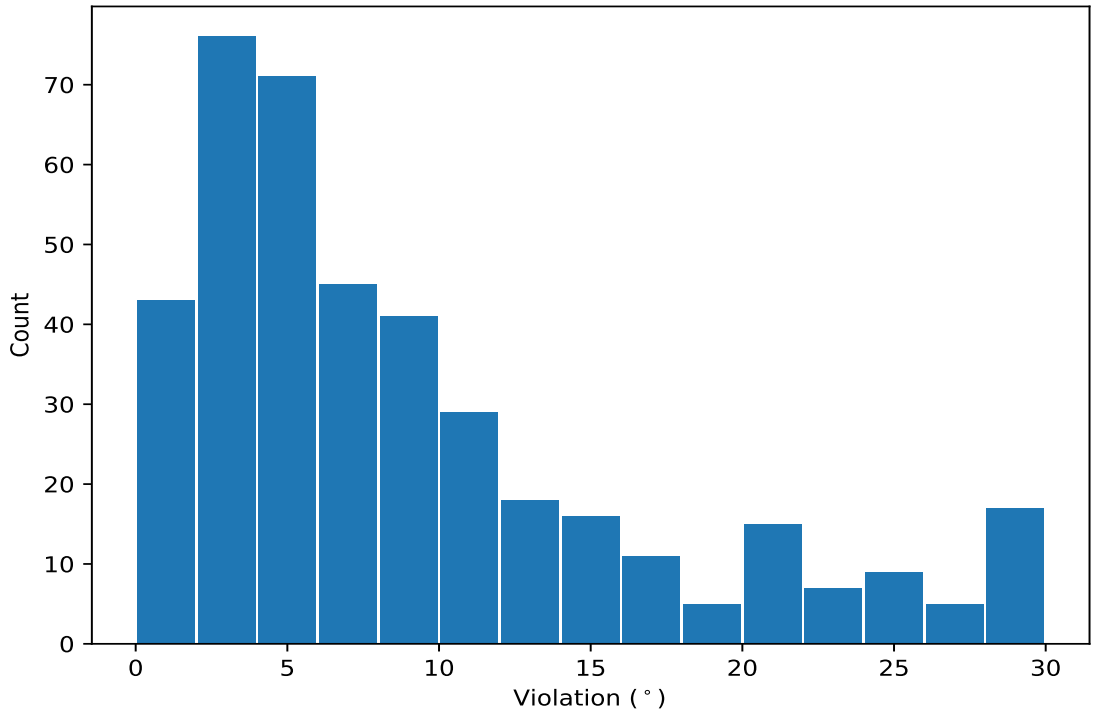
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models[1]	Mean	SD[2]	Median
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	7	8.96	5.6	8.3
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	7	7.91	4.03	8.5
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	7	7.63	6.89	6.9
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	7	3.87	1.72	3.8
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	7	3.59	2.46	2.7
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	6	9.82	7.66	5.55
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	6	6.92	4.55	6.1
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	5	7.02	4.06	5.5
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	5	5.26	2.64	5.5
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	5	4.4	2.57	3.2
(1,145)	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1:A:116:GLU:N	4	10.82	7.72	9.55
(1,24)	1:A:23:LEU:N	1:A:23:LEU:CA	1:A:23:LEU:C	1:A:24:ASN:N	4	6.72	3.7	7.05
(1,189)	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	1:A:147:VAL:N	4	5.38	1.58	4.55
(1,41)	1:A:36:GLU:C	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	4	4.85	1.19	4.25
(1,6)	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	1:A:11:ALA:N	4	3.08	1.5	2.9
(1,203)	1:A:153:ASP:N	1:A:153:ASP:CA	1:A:153:ASP:C	1:A:154:VAL:N	4	2.85	2.01	2.05
(1,62)	1:A:60:GLY:N	1:A:60:GLY:CA	1:A:60:GLY:C	1:A:61:ILE:N	3	10.8	6.39	12.4
(1,247)	1:A:64:GLN:N	1:A:64:GLN:CA	1:A:64:GLN:C	1:A:65:GLN:N	3	10.47	6.06	9.8
(1,16)	1:A:16:GLU:N	1:A:16:GLU:CA	1:A:16:GLU:C	1:A:17:ALA:N	3	8.2	7.76	3.9
(1,46)	1:A:45:GLY:N	1:A:45:GLY:CA	1:A:45:GLY:C	1:A:46:PRO:N	3	7.8	0.92	8.4
(1,183)	1:A:142:ARG:N	1:A:142:ARG:CA	1:A:142:ARG:C	1:A:143:LEU:N	3	7.8	3.96	10.5
(1,141)	1:A:113:ALA:N	1:A:113:ALA:CA	1:A:113:ALA:C	1:A:114:ASP:N	3	5.2	0.59	5.4
(1,212)	1:A:160:ALA:C	1:A:161:PHE:N	1:A:161:PHE:CA	1:A:161:PHE:C	3	4.4	2.62	2.6
(1,190)	1:A:146:HIS:C	1:A:147:VAL:N	1:A:147:VAL:CA	1:A:147:VAL:C	3	4.1	0.78	4.6
(1,142)	1:A:113:ALA:C	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	3	3.37	0.33	3.3
(1,102)	1:A:84:TRP:N	1:A:84:TRP:CA	1:A:84:TRP:C	1:A:85:THR:N	3	3.33	1.71	2.6
(1,33)	1:A:30:TYR:C	1:A:31:GLU:N	1:A:31:GLU:CA	1:A:31:GLU:C	3	2.53	1.34	1.9
(1,158)	1:A:122:PRO:C	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	2	14.25	7.15	14.25
(1,39)	1:A:35:LEU:C	1:A:36:GLU:N	1:A:36:GLU:CA	1:A:36:GLU:C	2	12.2	0.2	12.2
(1,28)	1:A:28:VAL:N	1:A:28:VAL:CA	1:A:28:VAL:C	1:A:29:MET:N	2	10.35	0.05	10.35
(1,135)	1:A:107:ASP:C	1:A:108:LYS:N	1:A:108:LYS:CA	1:A:108:LYS:C	2	8.05	3.75	8.05
(1,58)	1:A:58:PHE:N	1:A:58:PHE:CA	1:A:58:PHE:C	1:A:59:GLY:N	2	7.4	6.2	7.4
(1,165)	1:A:130:ARG:N	1:A:130:ARG:CA	1:A:130:ARG:C	1:A:131:ASN:N	2	6.45	2.75	6.45
(1,5)	1:A:9:SER:C	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	2	5.7	0.3	5.7
(1,117)	1:A:95:TRP:C	1:A:96:HIS:N	1:A:96:HIS:CA	1:A:96:HIS:C	2	5.45	0.75	5.45
(1,109)	1:A:89:PRO:C	1:A:90:HIS:N	1:A:90:HIS:CA	1:A:90:HIS:C	2	5.2	0.1	5.2
(1,11)	1:A:12:ALA:C	1:A:13:LEU:N	1:A:13:LEU:CA	1:A:13:LEU:C	2	3.5	0.8	3.5
(1,215)	1:A:162:TYR:N	1:A:162:TYR:CA	1:A:162:TYR:C	1:A:163:GLN:N	2	3.0	0.6	3.0
(1,130)	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	1:A:103:GLY:N	2	2.1	0.1	2.1
(1,176)	1:A:135:HIS:C	1:A:136:ILE:N	1:A:136:ILE:CA	1:A:136:ILE:C	2	1.9	0.6	1.9

[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 (°)
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	2	30.0
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	5	29.8
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	16	29.6
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	15	29.6
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	6	29.5
(1,17)	1:A:16:GLU:C	1:A:17:ALA:N	1:A:17:ALA:CA	1:A:17:ALA:C	11	29.5
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	4	29.5
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1	29.5
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	20	29.4
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	7	29.1
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	3	29.0
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	10	28.9
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	12	28.8
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	9	28.7
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	19	28.6
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	18	28.3
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	18	28.0
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	13	27.4
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	16	27.3
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	6	27.0
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	8	26.8

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	4	26.7
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	10	25.8
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	13	25.8
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	4	25.6
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	8	25.4
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	1	24.8
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	16	24.8
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	14	24.3
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	14	24.2
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	8	24.1
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	14	23.3
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	9	22.9
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	13	22.9
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	17	22.3
(1,167)	1:A:131:ASN:N	1:A:131:ASN:CA	1:A:131:ASN:C	1:A:132:LEU:N	13	22.2
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	20	22.1
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	3	22.0
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	17	21.9
(1,145)	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1:A:116:GLU:N	19	21.9
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	9	21.7
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	13	21.6
(1,158)	1:A:122:PRO:C	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	9	21.4
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	7	21.2
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	7	21.1
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	6	20.8
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	10	20.7
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	16	20.7
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	8	20.6
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	2	20.6
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	17	20.5
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	20	20.1
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	8	20.0
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	6	19.8
(1,16)	1:A:16:GLU:N	1:A:16:GLU:CA	1:A:16:GLU:C	1:A:17:ALA:N	11	19.1
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	9	18.9
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	12	18.8
(1,247)	1:A:64:GLN:N	1:A:64:GLN:CA	1:A:64:GLN:C	1:A:65:GLN:N	15	18.2
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	7	17.9
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	7	17.8
(1,62)	1:A:60:GLY:N	1:A:60:GLY:CA	1:A:60:GLY:C	1:A:61:ILE:N	2	17.7
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	6	17.7
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	4	17.6
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	12	17.4
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	5	16.9
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	1	16.7
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	4	16.6
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	17	16.3
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	5	16.2
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	17	15.7
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	18	15.5
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	6	15.4

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	14	15.1
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	6	15.0
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	14	15.0
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	6	15.0
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	1	14.7
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	11	14.6
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	8	14.5
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	13	14.3
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	13	14.3
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	5	14.1
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	20	14.1
(1,145)	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1:A:116:GLU:N	13	14.0
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	16	14.0
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	17	13.9
(1,58)	1:A:58:PHE:N	1:A:58:PHE:CA	1:A:58:PHE:C	1:A:59:GLY:N	12	13.6
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	5	13.1
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	17	13.0
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	9	12.9
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	18	12.8
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	2	12.8
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	1	12.6
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	11	12.6
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	11	12.5
(1,100)	1:A:83:THR:N	1:A:83:THR:CA	1:A:83:THR:C	1:A:84:TRP:N	9	12.5
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	2	12.4
(1,62)	1:A:60:GLY:N	1:A:60:GLY:CA	1:A:60:GLY:C	1:A:61:ILE:N	13	12.4
(1,39)	1:A:35:LEU:C	1:A:36:GLU:N	1:A:36:GLU:CA	1:A:36:GLU:C	5	12.4
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	12	12.2
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	8	12.2
(1,39)	1:A:35:LEU:C	1:A:36:GLU:N	1:A:36:GLU:CA	1:A:36:GLU:C	9	12.0
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	16	12.0
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	15	11.9
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	16	11.9
(1,135)	1:A:107:ASP:C	1:A:108:LYS:N	1:A:108:LYS:CA	1:A:108:LYS:C	20	11.8
(1,24)	1:A:23:LEU:N	1:A:23:LEU:CA	1:A:23:LEU:C	1:A:24:ASN:N	16	11.6
(1,233)	1:A:171:ASN:N	1:A:171:ASN:CA	1:A:171:ASN:C	1:A:172:LYS:N	1	11.6
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	16	11.6
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	6	11.6
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	9	11.5
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	8	11.4
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	3	11.4
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	4	11.3
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	1	10.9
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	14	10.9
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	18	10.8
(1,79)	1:A:71:PHE:C	1:A:72:LYS:N	1:A:72:LYS:CA	1:A:72:LYS:C	1	10.8
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	9	10.8
(1,183)	1:A:142:ARG:N	1:A:142:ARG:CA	1:A:142:ARG:C	1:A:143:LEU:N	14	10.7
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	8	10.6
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	18	10.6
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	1	10.6

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,183)	1:A:142:ARG:N	1:A:142:ARG:CA	1:A:142:ARG:C	1:A:143:LEU:N	2	10.5
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	18	10.5
(1,28)	1:A:28:VAL:N	1:A:28:VAL:CA	1:A:28:VAL:C	1:A:29:MET:N	3	10.4
(1,28)	1:A:28:VAL:N	1:A:28:VAL:CA	1:A:28:VAL:C	1:A:29:MET:N	13	10.3
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	8	10.3
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	15	10.2
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	16	10.1
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	13	10.0
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	15	10.0
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	2	9.9
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	7	9.9
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	4	9.8
(1,247)	1:A:64:GLN:N	1:A:64:GLN:CA	1:A:64:GLN:C	1:A:65:GLN:N	13	9.8
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	18	9.8
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	4	9.7
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	3	9.7
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	1	9.7
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	10	9.6
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	9	9.5
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	14	9.4
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	5	9.3
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	10	9.2
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	17	9.2
(1,165)	1:A:130:ARG:N	1:A:130:ARG:CA	1:A:130:ARG:C	1:A:131:ASN:N	14	9.2
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	13	9.0
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	20	9.0
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	20	8.9
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	12	8.8
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	14	8.8
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	16	8.7
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	12	8.7
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	20	8.6
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	8	8.5
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	9	8.5
(1,46)	1:A:45:GLY:N	1:A:45:GLY:CA	1:A:45:GLY:C	1:A:46:PRO:N	18	8.5
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	9	8.5
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	1	8.5
(1,46)	1:A:45:GLY:N	1:A:45:GLY:CA	1:A:45:GLY:C	1:A:46:PRO:N	16	8.4
(1,211)	1:A:160:ALA:N	1:A:160:ALA:CA	1:A:160:ALA:C	1:A:161:PHE:N	14	8.4
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	4	8.4
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	10	8.3
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	5	8.2
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	6	8.2
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	7	8.1
(1,212)	1:A:160:ALA:C	1:A:161:PHE:N	1:A:161:PHE:CA	1:A:161:PHE:C	20	8.1
(1,189)	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	1:A:147:VAL:N	18	8.1
(1,251)	1:A:91:ASN:N	1:A:91:ASN:CA	1:A:91:ASN:C	1:A:92:THR:N	6	8.0
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	14	8.0
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	4	8.0
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	2	8.0
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	9	7.8

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	8	7.8
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	5	7.8
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	17	7.7
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	18	7.6
(1,53)	1:A:52:ALA:C	1:A:53:SER:N	1:A:53:SER:CA	1:A:53:SER:C	19	7.5
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	1	7.5
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	14	7.5
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	13	7.4
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	17	7.3
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	20	7.3
(1,24)	1:A:23:LEU:N	1:A:23:LEU:CA	1:A:23:LEU:C	1:A:24:ASN:N	8	7.3
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	15	7.3
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	10	7.3
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	9	7.2
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	7	7.2
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	13	7.1
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	10	7.1
(1,158)	1:A:122:PRO:C	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	3	7.1
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	17	7.1
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	6	7.0
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	4	7.0
(1,163)	1:A:129:SER:N	1:A:129:SER:CA	1:A:129:SER:C	1:A:130:ARG:N	6	7.0
(1,41)	1:A:36:GLU:C	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	4	6.9
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	7	6.9
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	14	6.8
(1,24)	1:A:23:LEU:N	1:A:23:LEU:CA	1:A:23:LEU:C	1:A:24:ASN:N	14	6.8
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	5	6.8
(1,46)	1:A:45:GLY:N	1:A:45:GLY:CA	1:A:45:GLY:C	1:A:46:PRO:N	15	6.5
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1	6.5
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	2	6.3
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	17	6.3
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	11	6.3
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	3	6.2
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	6	6.2
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	20	6.2
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	18	6.2
(1,203)	1:A:153:ASP:N	1:A:153:ASP:CA	1:A:153:ASP:C	1:A:154:VAL:N	18	6.2
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	7	6.2
(1,117)	1:A:95:TRP:C	1:A:96:HIS:N	1:A:96:HIS:CA	1:A:96:HIS:C	13	6.2
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	11	6.1
(1,5)	1:A:9:SER:C	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	13	6.0
(1,38)	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	1:A:36:GLU:N	9	6.0
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	13	6.0
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	3	6.0
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	15	5.9
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	6	5.9
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	6	5.8
(1,141)	1:A:113:ALA:N	1:A:113:ALA:CA	1:A:113:ALA:C	1:A:114:ASP:N	3	5.8
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	6	5.7
(1,102)	1:A:84:TRP:N	1:A:84:TRP:CA	1:A:84:TRP:C	1:A:85:THR:N	15	5.7
(1,75)	1:A:69:ARG:C	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	11	5.6

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	13	5.6
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	18	5.6
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1	5.5
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	9	5.5
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	10	5.5
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	20	5.5
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	12	5.5
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	16	5.4
(1,5)	1:A:9:SER:C	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	14	5.4
(1,141)	1:A:113:ALA:N	1:A:113:ALA:CA	1:A:113:ALA:C	1:A:114:ASP:N	14	5.4
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	15	5.3
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	16	5.3
(1,159)	1:A:123:HIS:N	1:A:123:HIS:CA	1:A:123:HIS:C	1:A:124:ASP:N	1	5.3
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	5	5.3
(1,109)	1:A:89:PRO:C	1:A:90:HIS:N	1:A:90:HIS:CA	1:A:90:HIS:C	13	5.3
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	19	5.2
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	15	5.2
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	11	5.2
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	18	5.2
(1,6)	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	1:A:11:ALA:N	16	5.1
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	14	5.1
(1,145)	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1:A:116:GLU:N	20	5.1
(1,109)	1:A:89:PRO:C	1:A:90:HIS:N	1:A:90:HIS:CA	1:A:90:HIS:C	6	5.1
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	13	5.0
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	2	5.0
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	14	4.9
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	15	4.9
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	15	4.8
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	2	4.8
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	5	4.7
(1,232)	1:A:170:VAL:C	1:A:171:ASN:N	1:A:171:ASN:CA	1:A:171:ASN:C	16	4.7
(1,190)	1:A:146:HIS:C	1:A:147:VAL:N	1:A:147:VAL:CA	1:A:147:VAL:C	17	4.7
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	13	4.7
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	1	4.7
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	13	4.7
(1,117)	1:A:95:TRP:C	1:A:96:HIS:N	1:A:96:HIS:CA	1:A:96:HIS:C	1	4.7
(1,190)	1:A:146:HIS:C	1:A:147:VAL:N	1:A:147:VAL:CA	1:A:147:VAL:C	8	4.6
(1,189)	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	1:A:147:VAL:N	8	4.6
(1,12)	1:A:13:LEU:N	1:A:13:LEU:CA	1:A:13:LEU:C	1:A:14:CYS:N	8	4.6
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	10	4.5
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	4	4.5
(1,21)	1:A:20:PHE:C	1:A:21:LEU:N	1:A:21:LEU:CA	1:A:21:LEU:C	9	4.5
(1,189)	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	1:A:147:VAL:N	16	4.5
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	4	4.5
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	6	4.5
(1,33)	1:A:30:TYR:C	1:A:31:GLU:N	1:A:31:GLU:CA	1:A:31:GLU:C	18	4.4
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	10	4.4
(1,184)	1:A:142:ARG:C	1:A:143:LEU:N	1:A:143:LEU:CA	1:A:143:LEU:C	15	4.4
(1,141)	1:A:113:ALA:N	1:A:113:ALA:CA	1:A:113:ALA:C	1:A:114:ASP:N	18	4.4
(1,41)	1:A:36:GLU:C	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	17	4.3
(1,237)	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	1:A:35:LEU:N	12	4.3

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	17	4.3
(1,189)	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	1:A:147:VAL:N	15	4.3
(1,135)	1:A:107:ASP:C	1:A:108:LYS:N	1:A:108:LYS:CA	1:A:108:LYS:C	13	4.3
(1,11)	1:A:12:ALA:C	1:A:13:LEU:N	1:A:13:LEU:CA	1:A:13:LEU:C	8	4.3
(1,41)	1:A:36:GLU:C	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	9	4.2
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	5	4.2
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	14	4.2
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	8	4.2
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	2	4.1
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	12	4.1
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	4	4.0
(1,41)	1:A:36:GLU:C	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	10	4.0
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	13	4.0
(1,78)	1:A:71:PHE:N	1:A:71:PHE:CA	1:A:71:PHE:C	1:A:72:LYS:N	1	3.9
(1,6)	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	1:A:11:ALA:N	4	3.9
(1,188)	1:A:145:TYR:C	1:A:146:HIS:N	1:A:146:HIS:CA	1:A:146:HIS:C	13	3.9
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	1	3.9
(1,16)	1:A:16:GLU:N	1:A:16:GLU:CA	1:A:16:GLU:C	1:A:17:ALA:N	13	3.9
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	8	3.8
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	18	3.8
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1	3.8
(1,142)	1:A:113:ALA:C	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	3	3.8
(1,165)	1:A:130:ARG:N	1:A:130:ARG:CA	1:A:130:ARG:C	1:A:131:ASN:N	19	3.7
(1,128)	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	1:A:102:LYS:N	18	3.7
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	16	3.7
(1,63)	1:A:60:GLY:C	1:A:61:ILE:N	1:A:61:ILE:CA	1:A:61:ILE:C	7	3.6
(1,37)	1:A:34:SER:C	1:A:35:LEU:N	1:A:35:LEU:CA	1:A:35:LEU:C	17	3.6
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	3	3.6
(1,22)	1:A:21:LEU:N	1:A:21:LEU:CA	1:A:21:LEU:C	1:A:22:ASN:N	10	3.6
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	19	3.6
(1,215)	1:A:162:TYR:N	1:A:162:TYR:CA	1:A:162:TYR:C	1:A:163:GLN:N	16	3.6
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	20	3.5
(1,247)	1:A:64:GLN:N	1:A:64:GLN:CA	1:A:64:GLN:C	1:A:65:GLN:N	2	3.4
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	8	3.3
(1,142)	1:A:113:ALA:C	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	6	3.3
(1,132)	1:A:103:GLY:N	1:A:103:GLY:CA	1:A:103:GLY:C	1:A:104:TRP:N	18	3.3
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	14	3.2
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	3	3.1
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	9	3.1
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	10	3.0
(1,190)	1:A:146:HIS:C	1:A:147:VAL:N	1:A:147:VAL:CA	1:A:147:VAL:C	4	3.0
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	7	3.0
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	3	3.0
(1,142)	1:A:113:ALA:C	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	20	3.0
(1,20)	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	1:A:19:GLY:N	9	2.8
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	2	2.8
(1,56)	1:A:54:ALA:N	1:A:54:ALA:CA	1:A:54:ALA:C	1:A:55:GLY:N	18	2.7
(1,48)	1:A:47:ALA:N	1:A:47:ALA:CA	1:A:47:ALA:C	1:A:48:ASP:N	7	2.7
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	16	2.7
(1,216)	1:A:162:TYR:C	1:A:163:GLN:N	1:A:163:GLN:CA	1:A:163:GLN:C	17	2.7
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	5	2.7

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	8	2.7
(1,11)	1:A:12:ALA:C	1:A:13:LEU:N	1:A:13:LEU:CA	1:A:13:LEU:C	1	2.7
(1,1)	1:A:3:PHE:C	1:A:4:ILE:N	1:A:4:ILE:CA	1:A:4:ILE:C	6	2.7
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	7	2.6
(1,212)	1:A:160:ALA:C	1:A:161:PHE:N	1:A:161:PHE:CA	1:A:161:PHE:C	17	2.6
(1,203)	1:A:153:ASP:N	1:A:153:ASP:CA	1:A:153:ASP:C	1:A:154:VAL:N	8	2.6
(1,102)	1:A:84:TRP:N	1:A:84:TRP:CA	1:A:84:TRP:C	1:A:85:THR:N	1	2.6
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	6	2.5
(1,44)	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	1:A:42:PRO:N	5	2.5
(1,212)	1:A:160:ALA:C	1:A:161:PHE:N	1:A:161:PHE:CA	1:A:161:PHE:C	9	2.5
(1,176)	1:A:135:HIS:C	1:A:136:ILE:N	1:A:136:ILE:CA	1:A:136:ILE:C	3	2.5
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	8	2.5
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	15	2.5
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	17	2.5
(1,68)	1:A:63:ASP:N	1:A:63:ASP:CA	1:A:63:ASP:C	1:A:64:GLN:N	13	2.4
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	10	2.4
(1,215)	1:A:162:TYR:N	1:A:162:TYR:CA	1:A:162:TYR:C	1:A:163:GLN:N	11	2.4
(1,62)	1:A:60:GLY:N	1:A:60:GLY:CA	1:A:60:GLY:C	1:A:61:ILE:N	15	2.3
(1,43)	1:A:40:GLY:C	1:A:41:PHE:N	1:A:41:PHE:CA	1:A:41:PHE:C	12	2.3
(1,210)	1:A:159:ASN:C	1:A:160:ALA:N	1:A:160:ALA:CA	1:A:160:ALA:C	13	2.3
(1,145)	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	1:A:116:GLU:N	17	2.3
(1,76)	1:A:70:TRP:N	1:A:70:TRP:CA	1:A:70:TRP:C	1:A:71:PHE:N	13	2.2
(1,36)	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	1:A:34:SER:N	2	2.2
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	9	2.2
(1,183)	1:A:142:ARG:N	1:A:142:ARG:CA	1:A:142:ARG:C	1:A:143:LEU:N	12	2.2
(1,130)	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	1:A:103:GLY:N	12	2.2
(1,118)	1:A:96:HIS:N	1:A:96:HIS:CA	1:A:96:HIS:C	1:A:97:TYR:N	13	2.2
(1,88)	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	1:A:77:GLY:N	7	2.1
(1,81)	1:A:72:LYS:C	1:A:73:HIS:N	1:A:73:HIS:CA	1:A:73:HIS:C	4	2.1
(1,35)	1:A:32:PRO:C	1:A:33:GLN:N	1:A:33:GLN:CA	1:A:33:GLN:C	4	2.1
(1,218)	1:A:163:GLN:C	1:A:164:VAL:N	1:A:164:VAL:CA	1:A:164:VAL:C	13	2.1
(1,18)	1:A:17:ALA:N	1:A:17:ALA:CA	1:A:17:ALA:C	1:A:18:PHE:N	13	2.1
(1,170)	1:A:132:LEU:C	1:A:133:SER:N	1:A:133:SER:CA	1:A:133:SER:C	4	2.1
(1,107)	1:A:87:THR:C	1:A:88:ALA:N	1:A:88:ALA:CA	1:A:88:ALA:C	8	2.1
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	18	2.0
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	10	2.0
(1,130)	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	1:A:103:GLY:N	7	2.0
(1,127)	1:A:100:THR:C	1:A:101:LYS:N	1:A:101:LYS:CA	1:A:101:LYS:C	17	2.0
(1,87)	1:A:75:MET:C	1:A:76:THR:N	1:A:76:THR:CA	1:A:76:THR:C	9	1.9
(1,6)	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	1:A:11:ALA:N	8	1.9
(1,33)	1:A:30:TYR:C	1:A:31:GLU:N	1:A:31:GLU:CA	1:A:31:GLU:C	16	1.9
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	15	1.9
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	16	1.9
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	3	1.9
(1,206)	1:A:156:ASP:C	1:A:157:THR:N	1:A:157:THR:CA	1:A:157:THR:C	1	1.8
(1,34)	1:A:31:GLU:N	1:A:31:GLU:CA	1:A:31:GLU:C	1:A:32:PRO:N	14	1.7
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	9	1.7
(1,143)	1:A:114:ASP:N	1:A:114:ASP:CA	1:A:114:ASP:C	1:A:115:PHE:N	20	1.7
(1,102)	1:A:84:TRP:N	1:A:84:TRP:CA	1:A:84:TRP:C	1:A:85:THR:N	12	1.7
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	10	1.6
(1,31)	1:A:29:MET:C	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	7	1.6

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,16)	1:A:16:GLU:N	1:A:16:GLU:CA	1:A:16:GLU:C	1:A:17:ALA:N	6	1.6
(1,146)	1:A:115:PHE:C	1:A:116:GLU:N	1:A:116:GLU:CA	1:A:116:GLU:C	13	1.6
(1,203)	1:A:153:ASP:N	1:A:153:ASP:CA	1:A:153:ASP:C	1:A:154:VAL:N	16	1.5
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	14	1.5
(1,6)	1:A:10:ARG:N	1:A:10:ARG:CA	1:A:10:ARG:C	1:A:11:ALA:N	18	1.4
(1,32)	1:A:30:TYR:N	1:A:30:TYR:CA	1:A:30:TYR:C	1:A:31:GLU:N	7	1.4
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	14	1.4
(1,137)	1:A:109:PRO:C	1:A:110:LEU:N	1:A:110:LEU:CA	1:A:110:LEU:C	16	1.4
(1,33)	1:A:30:TYR:C	1:A:31:GLU:N	1:A:31:GLU:CA	1:A:31:GLU:C	20	1.3
(1,19)	1:A:17:ALA:C	1:A:18:PHE:N	1:A:18:PHE:CA	1:A:18:PHE:C	14	1.3
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	3	1.3
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	4	1.3
(1,176)	1:A:135:HIS:C	1:A:136:ILE:N	1:A:136:ILE:CA	1:A:136:ILE:C	13	1.3
(1,58)	1:A:58:PHE:N	1:A:58:PHE:CA	1:A:58:PHE:C	1:A:59:GLY:N	20	1.2
(1,24)	1:A:23:LEU:N	1:A:23:LEU:CA	1:A:23:LEU:C	1:A:24:ASN:N	18	1.2
(1,236)	1:A:33:GLN:C	1:A:34:SER:N	1:A:34:SER:CA	1:A:34:SER:C	13	1.2
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	13	1.2
(1,186)	1:A:144:GLY:C	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	18	1.2
(1,169)	1:A:132:LEU:N	1:A:132:LEU:CA	1:A:132:LEU:C	1:A:133:SER:N	15	1.2
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	6	1.2
(1,144)	1:A:114:ASP:C	1:A:115:PHE:N	1:A:115:PHE:CA	1:A:115:PHE:C	15	1.2
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	5	1.2
(1,129)	1:A:101:LYS:C	1:A:102:LYS:N	1:A:102:LYS:CA	1:A:102:LYS:C	3	1.2
(1,42)	1:A:37:ALA:N	1:A:37:ALA:CA	1:A:37:ALA:C	1:A:38:LYS:N	20	1.1
(1,208)	1:A:158:GLU:C	1:A:159:ASN:N	1:A:159:ASN:CA	1:A:159:ASN:C	15	1.1
(1,203)	1:A:153:ASP:N	1:A:153:ASP:CA	1:A:153:ASP:C	1:A:154:VAL:N	17	1.1
(1,198)	1:A:150:ALA:C	1:A:151:VAL:N	1:A:151:VAL:CA	1:A:151:VAL:C	18	1.1
(1,187)	1:A:145:TYR:N	1:A:145:TYR:CA	1:A:145:TYR:C	1:A:146:HIS:N	20	1.1
(1,138)	1:A:111:LYS:C	1:A:112:ARG:N	1:A:112:ARG:CA	1:A:112:ARG:C	19	1.1
(1,105)	1:A:85:THR:C	1:A:86:TYR:N	1:A:86:TYR:CA	1:A:86:TYR:C	14	1.1