Full wwPDB NMR Structure Validation Report

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BMRB ID	:	11020
Title	:	Solution structure of human Cu(I)Cox17
Authors	:	Banci, L.; Bertini, I.; Ciofi-Baffoni, S.; Janicka, A.; Martinelli, M.; Kozlowski, H.; Palumaa, P.
Deposited on	:	2007-12-08

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 ⓘ 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 ⓘ) were used in the production of this report:

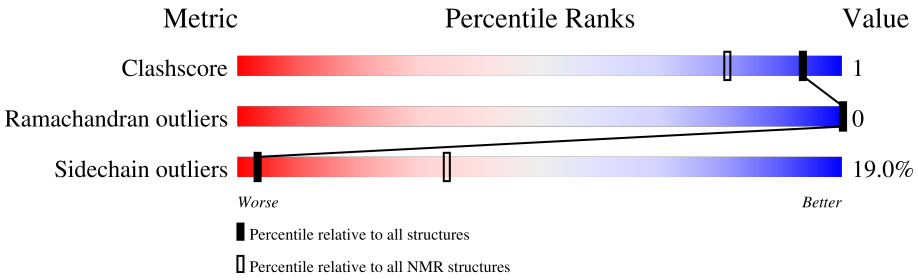
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance

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

The overall completeness of chemical shifts assignment is 83%.

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	229148	14424
Ramachandran outliers	224038	12848
Sidechain outliers	223484	12823

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	67	43% 12% • 43%

2 Ensemble composition and analysis

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

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

Well-defined (core) protein residues			
Well-defined core	**Residue range (total)**	**Backbone RMSD (Å)**	**Medoid model**
1	A:30-A:67 (38)	0.35	1

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

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

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

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

3 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 1010 atoms, of which 503 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Cytochrome c oxidase copper chaperone.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	67	1009	314	503	89	95	8	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	expression tag	UNP Q14061
A	2	SER	-	expression tag	UNP Q14061
A	3	PHE	-	expression tag	UNP Q14061
A	4	THR	-	expression tag	UNP Q14061

- Molecule 2 is COPPER (I) ION (CCD ID: CU1) (formula: Cu).

Mol	Chain	Residues	Atoms	
			Total	Cu
2	A	1	1	1

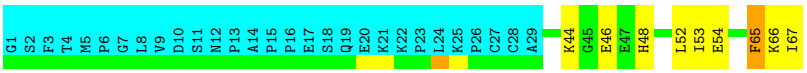
4 Residue-property plots

4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

• Molecule 1: Cytochrome c oxidase copper chaperone

Chain A:



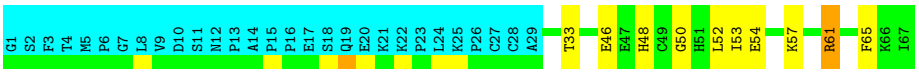
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1 (medoid)

• Molecule 1: Cytochrome c oxidase copper chaperone

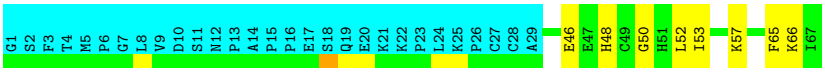
Chain A:



4.2.2 Score per residue for model 2

• Molecule 1: Cytochrome c oxidase copper chaperone

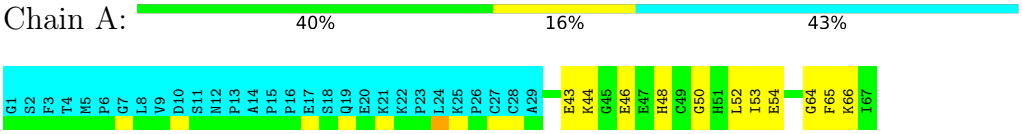
Chain A:



4.2.3 Score per residue for model 3

• Molecule 1: Cytochrome c oxidase copper chaperone

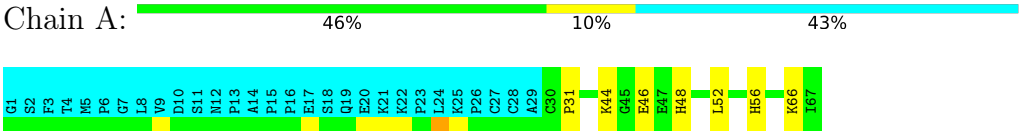
Chain A:



4.2.4 Score per residue for model 4

• Molecule 1: Cytochrome c oxidase copper chaperone

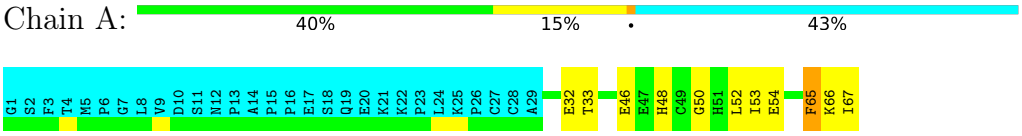
Chain A:



4.2.5 Score per residue for model 5

• Molecule 1: Cytochrome c oxidase copper chaperone

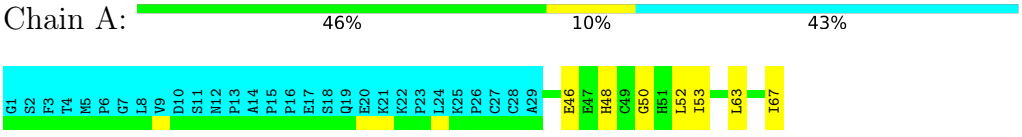
Chain A:



4.2.6 Score per residue for model 6

• Molecule 1: Cytochrome c oxidase copper chaperone

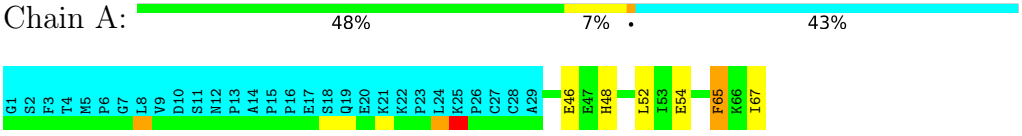
Chain A:



4.2.7 Score per residue for model 7

• Molecule 1: Cytochrome c oxidase copper chaperone

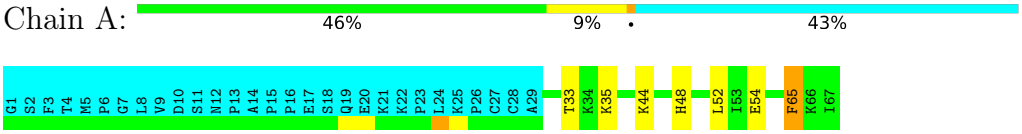
Chain A:



4.2.8 Score per residue for model 8

• Molecule 1: Cytochrome c oxidase copper chaperone

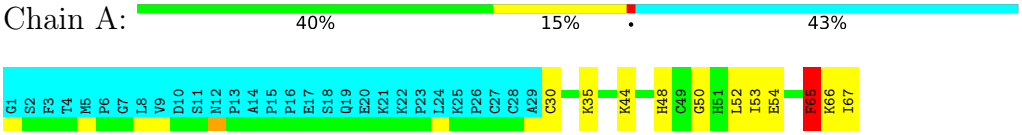
Chain A:



4.2.9 Score per residue for model 9

• Molecule 1: Cytochrome c oxidase copper chaperone

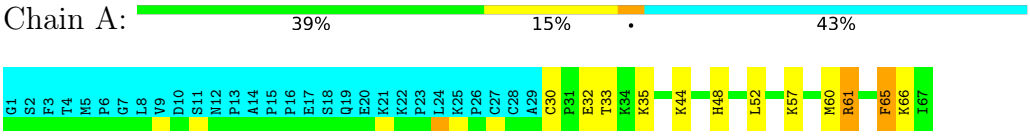
Chain A:



4.2.10 Score per residue for model 10

• Molecule 1: Cytochrome c oxidase copper chaperone

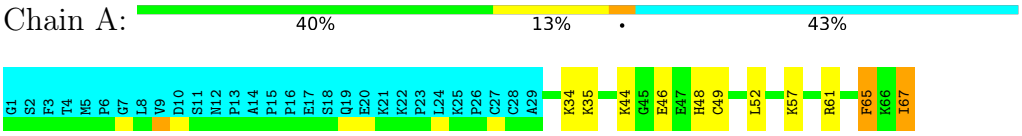
Chain A:



4.2.11 Score per residue for model 11

• Molecule 1: Cytochrome c oxidase copper chaperone

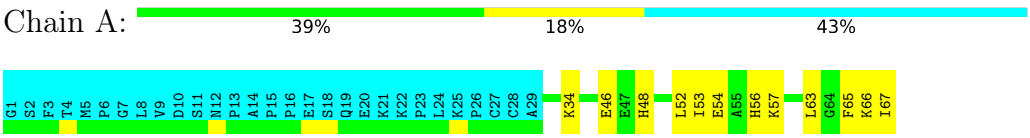
Chain A:



4.2.12 Score per residue for model 12

• Molecule 1: Cytochrome c oxidase copper chaperone

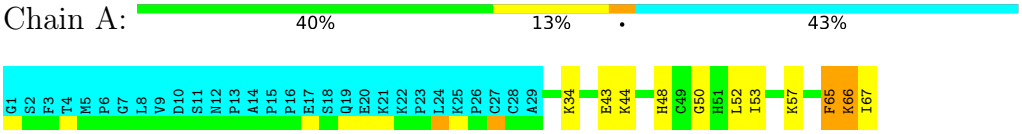
Chain A:



4.2.13 Score per residue for model 13

• Molecule 1: Cytochrome c oxidase copper chaperone

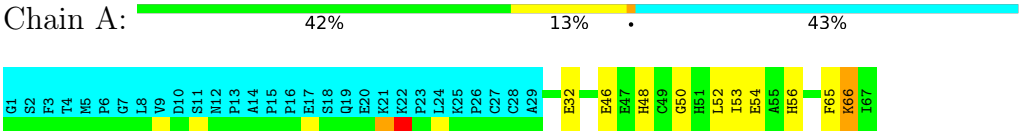
Chain A:



4.2.14 Score per residue for model 14

• Molecule 1: Cytochrome c oxidase copper chaperone

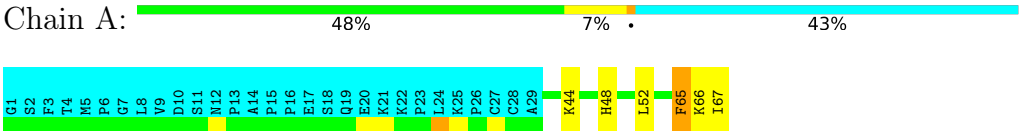
Chain A:



4.2.15 Score per residue for model 15

• Molecule 1: Cytochrome c oxidase copper chaperone

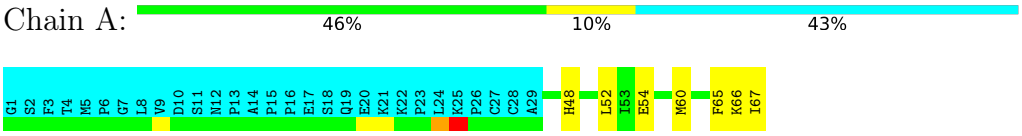
Chain A:



4.2.16 Score per residue for model 16

• Molecule 1: Cytochrome c oxidase copper chaperone

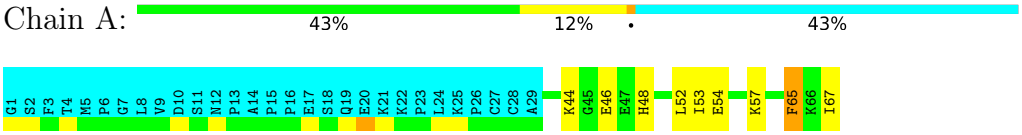
Chain A:



4.2.17 Score per residue for model 17

• Molecule 1: Cytochrome c oxidase copper chaperone

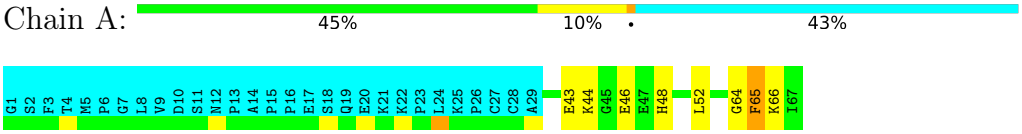
Chain A:



4.2.18 Score per residue for model 18

• Molecule 1: Cytochrome c oxidase copper chaperone

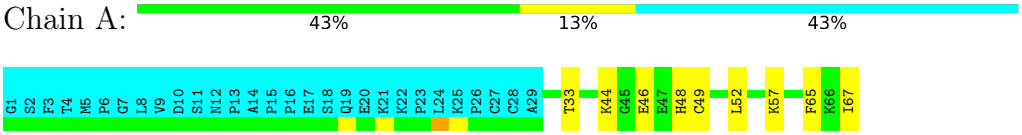
Chain A:



4.2.19 Score per residue for model 19

• Molecule 1: Cytochrome c oxidase copper chaperone

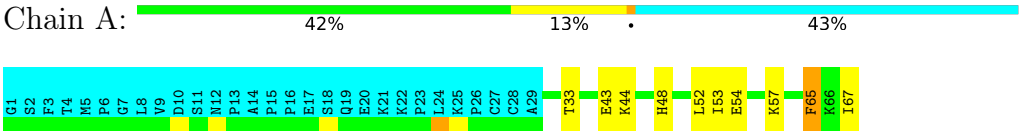
Chain A:



4.2.20 Score per residue for model 20

• Molecule 1: Cytochrome c oxidase copper chaperone

Chain A:



5 Refinement protocol and experimental data overview

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

Of the 400 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	2.1
Amber	refinement	8.0
TALOS	structure solution	

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	711
Number of shifts mapped to atoms	711
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	83%

6 Model quality

6.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CU1

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	0.84±0.02	0±0/301 (0.0± 0.0%)	1.70±0.03	2±1/397 (0.5± 0.4%)
All	All	0.84	0/6020 (0.0%)	1.70	40/7940 (0.5%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	Chirality	Planarity
1	A	0.0±0.0	0.9±0.7
All	All	0	19

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	54	GLU	CB-CG-CD	6.06	122.90	112.60	16	2
1	A	48	HIS	CB-CG-CD2	-5.87	123.58	131.20	7	20
1	A	65	PHE	CA-CB-CG	5.55	119.35	113.80	15	1
1	A	30	CYS	CB-CA-C	5.37	115.01	111.20	9	2
1	A	43	GLU	CA-CB-CG	5.33	124.77	114.10	20	1
1	A	34	LYS	CA-C-N	5.28	127.67	120.54	13	2
1	A	34	LYS	C-N-CA	5.28	127.67	120.54	13	2
1	A	66	LYS	CA-C-N	5.23	131.11	121.70	10	1
1	A	66	LYS	C-N-CA	5.23	131.11	121.70	10	1
1	A	60	MET	CA-C-N	5.20	127.98	120.38	10	1
1	A	60	MET	C-N-CA	5.20	127.98	120.38	10	1
1	A	56	HIS	CB-CG-CD2	-5.18	124.46	131.20	4	3

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	A	31	PRO	CA-C-N	5.10	127.06	120.44	4	1
1	A	31	PRO	C-N-CA	5.10	127.06	120.44	4	1
1	A	61	ARG	N-CA-CB	-5.03	102.19	110.14	10	1

There are no chirality outliers.

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

Mol	Chain	Res	Type	Group	Models (Total)
1	A	65	PHE	Sidechain,Peptide	13
1	A	61	ARG	Sidechain	2
1	A	64	GLY	Peptide	2
1	A	66	LYS	Peptide	1

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	297	295	295	1±1
All	All	5960	5900	5900	15

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 1.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:50:GLY:HA2	1:A:53:ILE:HD12	0.68	1.65	13	8
1:A:53:ILE:HG22	1:A:57:LYS:HD3	0.54	1.80	17	3
1:A:53:ILE:HG22	1:A:57:LYS:CD	0.44	2.42	12	1
1:A:65:PHE:C	1:A:66:LYS:HE3	0.43	2.38	14	2
1:A:61:ARG:HE	1:A:67:ILE:C	0.41	2.22	11	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	37/67 (55%)	34±1 (93±2%)	3±1 (7±2%)	0±0 (0±0%)	100	100
All	All	740/1340 (55%)	689 (93%)	51 (7%)	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	31/56 (55%)	25±1 (81±4%)	6±1 (19±4%)	3	34
All	All	620/1120 (55%)	502 (81%)	118 (19%)	3	34

All 17 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	52	LEU	20
1	A	46	GLU	13
1	A	65	PHE	13
1	A	44	LYS	12
1	A	67	ILE	12
1	A	66	LYS	10
1	A	54	GLU	9
1	A	33	THR	6
1	A	57	LYS	6
1	A	35	LYS	4
1	A	43	GLU	3
1	A	32	GLU	3
1	A	63	LEU	2

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Mol	Chain	Res	Type	Models (Total)
1	A	49	CYS	2
1	A	61	ARG	1
1	A	34	LYS	1
1	A	60	MET	1

6.3.3 RNA

There are no RNA molecules in this entry.

6.4 Non-standard residues in protein, DNA, RNA chains

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

6.5 Carbohydrates

There are no oligosaccharides in this entry.

6.6 Ligand geometry

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

6.7 Other polymers

There are no such molecules in this entry.

6.8 Polymer linkage issues

There are no chain breaks in this entry.

7 Chemical shift validation

The completeness of assignment taking into account all chemical shift lists is 83% for the well-defined parts and 82% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *assigned_chem_shift_list_1*

7.1.1 Bookkeeping

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	711
Number of shifts mapped to atoms	711
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

7.1.2 Chemical shift referencing

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_{\alpha}$	65	2.65 ± 0.40	Should be applied
$^{13}C_{\beta}$	61	2.89 ± 0.14	Should be applied
$^{13}C'$	0	—	None (insufficient data)
^{15}N	56	-0.21 ± 0.24	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 83%, i.e. 425 atoms were assigned a chemical shift out of a possible 515. 0 out of 2 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	151/191 (79%)	77/78 (99%)	38/76 (50%)	36/37 (97%)
Sidechain	257/290 (89%)	175/187 (94%)	82/92 (89%)	0/11 (0%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	17/34 (50%)	11/17 (65%)	0/11 (0%)	6/6 (100%)
Overall	425/515 (83%)	263/282 (93%)	120/179 (67%)	42/54 (78%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 82%, i.e. 711 atoms were assigned a chemical shift out of a possible 866. 0 out of 5 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	246/326 (75%)	125/132 (95%)	65/134 (49%)	56/60 (93%)
Sidechain	448/496 (90%)	304/321 (95%)	142/159 (89%)	2/16 (12%)
Aromatic	17/44 (39%)	11/22 (50%)	0/16 (0%)	6/6 (100%)
Overall	711/866 (82%)	440/475 (93%)	207/309 (67%)	64/82 (78%)

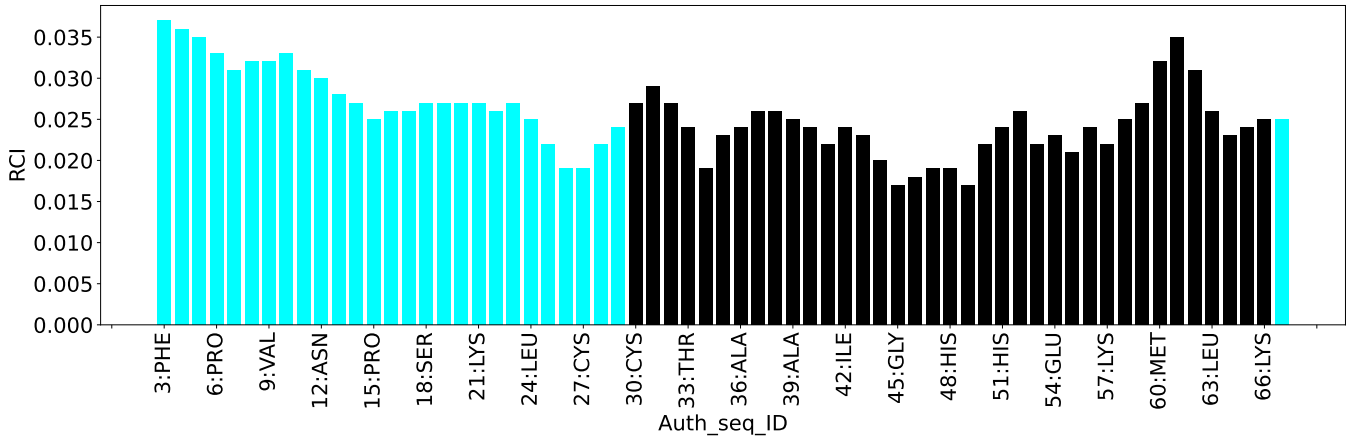
7.1.4 Statistically unusual chemical shifts (i)

There are no statistically unusual chemical shifts.

7.1.5 Random Coil Index (RCI) plots (i)

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

Random coil index (RCI) for chain A:



8 NMR restraints analysis

8.1 Conformationally restricting restraints

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

Description	Value
Total distance restraints	815
Intra-residue (|i-j|=0)	256
Sequential (|i-j|=1)	252
Medium range (|i-j|>1 and |i-j|<5)	185
Long range (|i-j|≥5)	119
Inter-chain	1
Hydrogen bond restraints	0
Disulfide bond restraints	2
Total dihedral-angle restraints	56
Number of unmapped restraints	0
Number of restraints per residue	12.8
Number of long range restraints per residue[1]	1.8

[1]Long range hydrogen bonds and disulfide bonds are counted as long range restraints while calculating the number of long range restraints per residue

8.2 Residual restraint violations

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

8.2.1 Average number of distance violations per model

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

Bins (Å)	Average number of violations per model	Max (Å)
0.1-0.2 (Small)	12.9	0.2
0.2-0.5 (Medium)	1.2	0.37
>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)	5.0	9.96
10.0-20.0 (Medium)	1.1	17.01
>20.0 (Large)	0.2	36.85

9 Distance violation analysis (i)

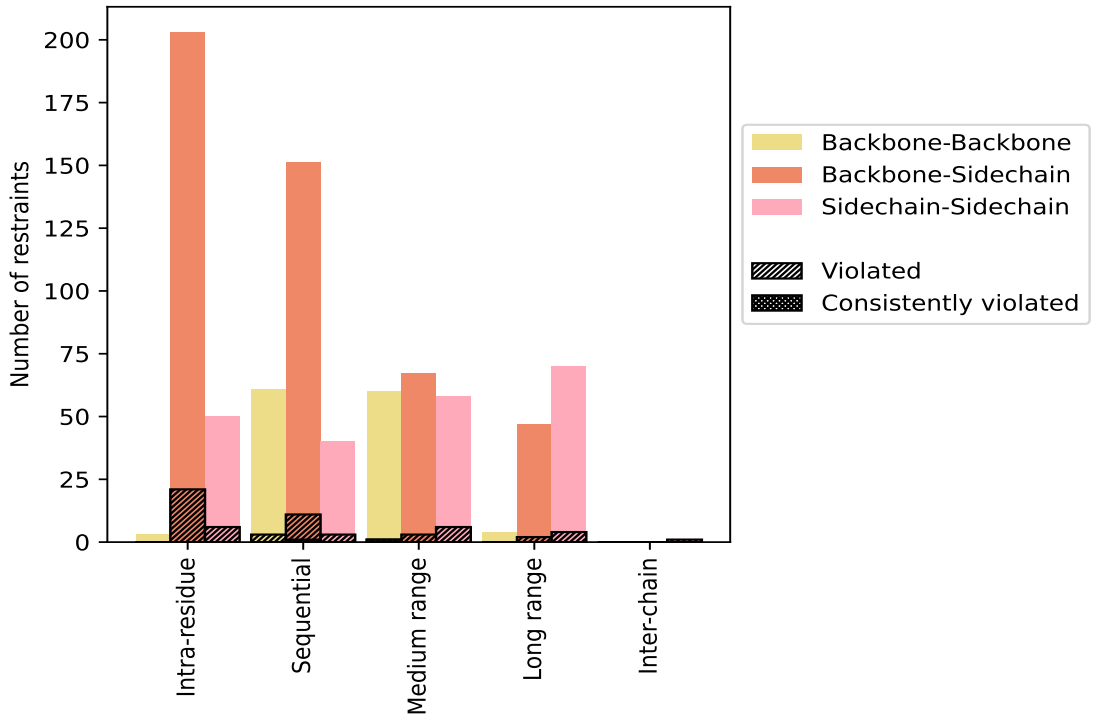
9.1 Summary of distance violations (i)

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)	256	31.4	27	10.5	3.3	0	0.0	0.0
Backbone-Backbone	3	0.4	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	203	24.9	21	10.3	2.6	0	0.0	0.0
Sidechain-Sidechain	50	6.1	6	12.0	0.7	0	0.0	0.0
Sequential (|i-j|=1)	252	30.9	17	6.7	2.1	1	0.4	0.1
Backbone-Backbone	61	7.5	3	4.9	0.4	0	0.0	0.0
Backbone-Sidechain	151	18.5	11	7.3	1.3	1	0.7	0.1
Sidechain-Sidechain	40	4.9	3	7.5	0.4	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	185	22.7	10	5.4	1.2	1	0.5	0.1
Backbone-Backbone	60	7.4	1	1.7	0.1	1	1.7	0.1
Backbone-Sidechain	67	8.2	3	4.5	0.4	0	0.0	0.0
Sidechain-Sidechain	58	7.1	6	10.3	0.7	0	0.0	0.0
Long range (|i-j|≥5)	119	14.6	6	5.0	0.7	0	0.0	0.0
Backbone-Backbone	4	0.5	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	47	5.8	2	4.3	0.2	0	0.0	0.0
Sidechain-Sidechain	68	8.3	4	5.9	0.5	0	0.0	0.0
Inter-chain	1	0.1	1	100.0	0.1	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	1	0.1	1	100.0	0.1	0	0.0	0.0
Hydrogen bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Disulfide bond	2	0.2	0	0.0	0.0	0	0.0	0.0
Total	815	100.0	61	7.5	7.5	2	0.2	0.2
Backbone-Backbone	128	15.7	4	3.1	0.5	1	0.8	0.1
Backbone-Sidechain	468	57.4	37	7.9	4.5	1	0.2	0.1
Sidechain-Sidechain	219	26.9	20	9.1	2.5	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



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

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	1	3	3	2	1	10	0.13	0.17	0.02	0.12
2	6	4	3	2	1	16	0.15	0.36	0.06	0.13
3	8	3	4	1	1	17	0.15	0.33	0.05	0.13
4	8	6	5	3	1	23	0.14	0.31	0.04	0.12
5	4	3	2	1	1	11	0.14	0.24	0.04	0.13
6	4	4	2	3	1	14	0.14	0.21	0.04	0.12
7	7	4	4	0	1	16	0.15	0.23	0.04	0.13
8	6	1	4	0	1	12	0.16	0.31	0.06	0.16
9	9	1	3	2	1	16	0.14	0.26	0.04	0.13
10	9	3	2	0	1	15	0.16	0.3	0.06	0.13

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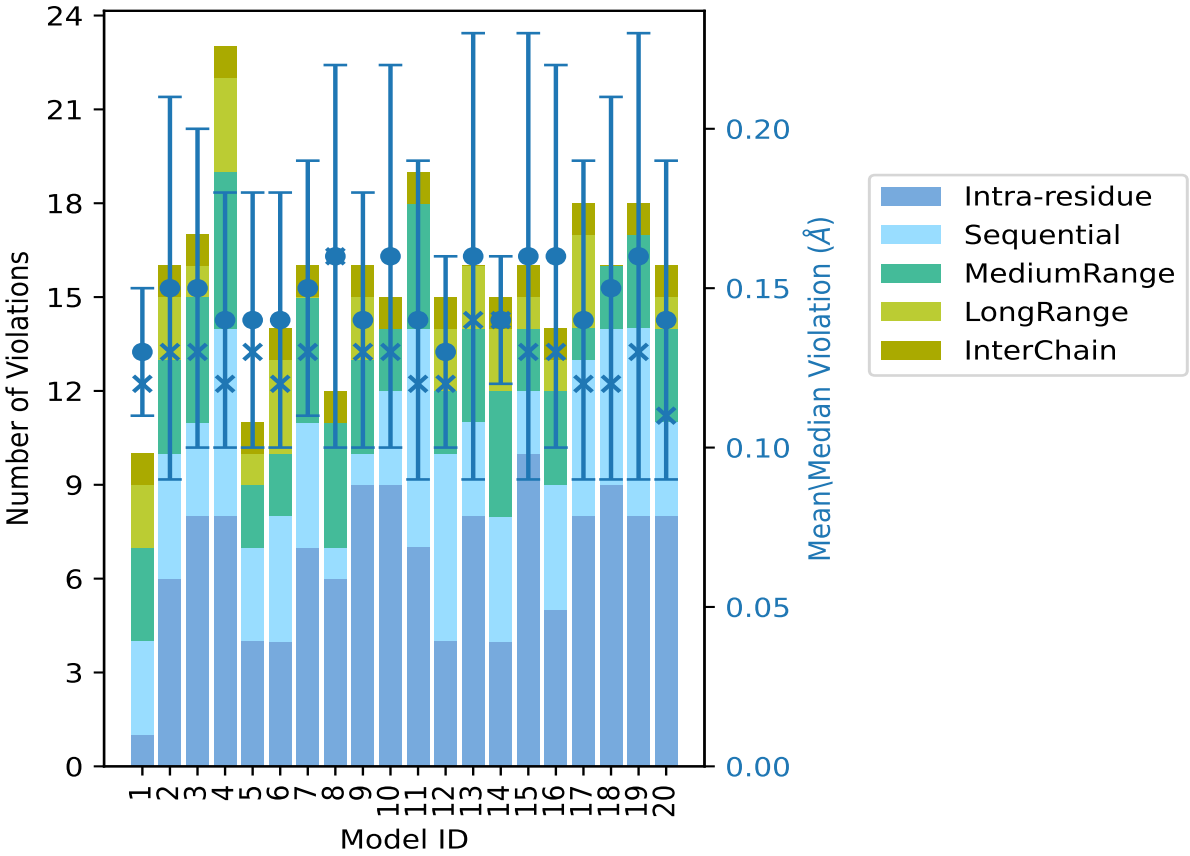
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
11	7	7	4	0	1	19	0.14	0.32	0.05	0.12
12	4	6	2	2	1	15	0.13	0.22	0.03	0.12
13	8	3	3	2	0	16	0.16	0.34	0.07	0.14
14	4	4	4	2	1	15	0.14	0.19	0.02	0.14
15	10	2	2	1	1	16	0.16	0.36	0.07	0.13
16	5	4	3	1	1	14	0.16	0.37	0.06	0.13
17	8	5	1	3	1	18	0.14	0.32	0.05	0.12
18	9	5	2	0	0	16	0.15	0.36	0.06	0.12
19	8	6	3	0	1	18	0.16	0.36	0.07	0.13
20	8	3	3	1	1	16	0.14	0.32	0.05	0.11

[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



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

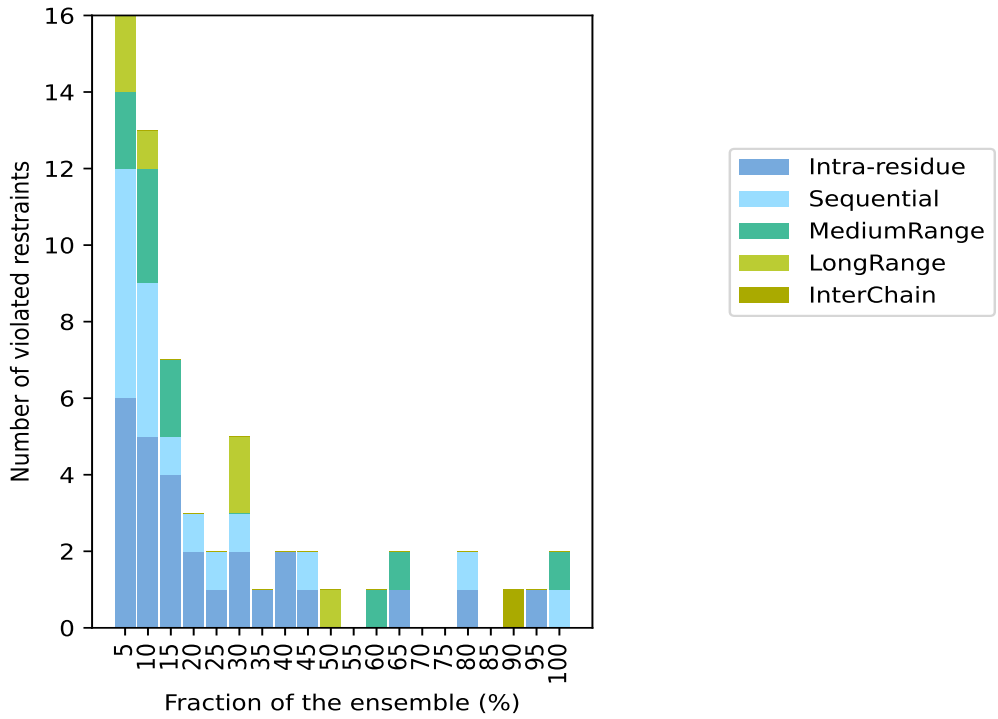
9.3 Distance violation statistics for the ensemble (i)

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, 752(IR:229, SQ:235, MR:175, LR:113, 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]	%
6	6	2	2	0	16	1	5.0
5	4	3	1	0	13	2	10.0
4	1	2	0	0	7	3	15.0
2	1	0	0	0	3	4	20.0
1	1	0	0	0	2	5	25.0
2	1	0	2	0	5	6	30.0
1	0	0	0	0	1	7	35.0
2	0	0	0	0	2	8	40.0
1	1	0	0	0	2	9	45.0
0	0	0	1	0	1	10	50.0
0	0	0	0	0	0	11	55.0
0	0	1	0	0	1	12	60.0
1	0	1	0	0	2	13	65.0
0	0	0	0	0	0	14	70.0
0	0	0	0	0	0	15	75.0
1	1	0	0	0	2	16	80.0
0	0	0	0	0	0	17	85.0
0	0	0	0	1	1	18	90.0
1	0	0	0	0	1	19	95.0
0	1	1	0	0	2	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

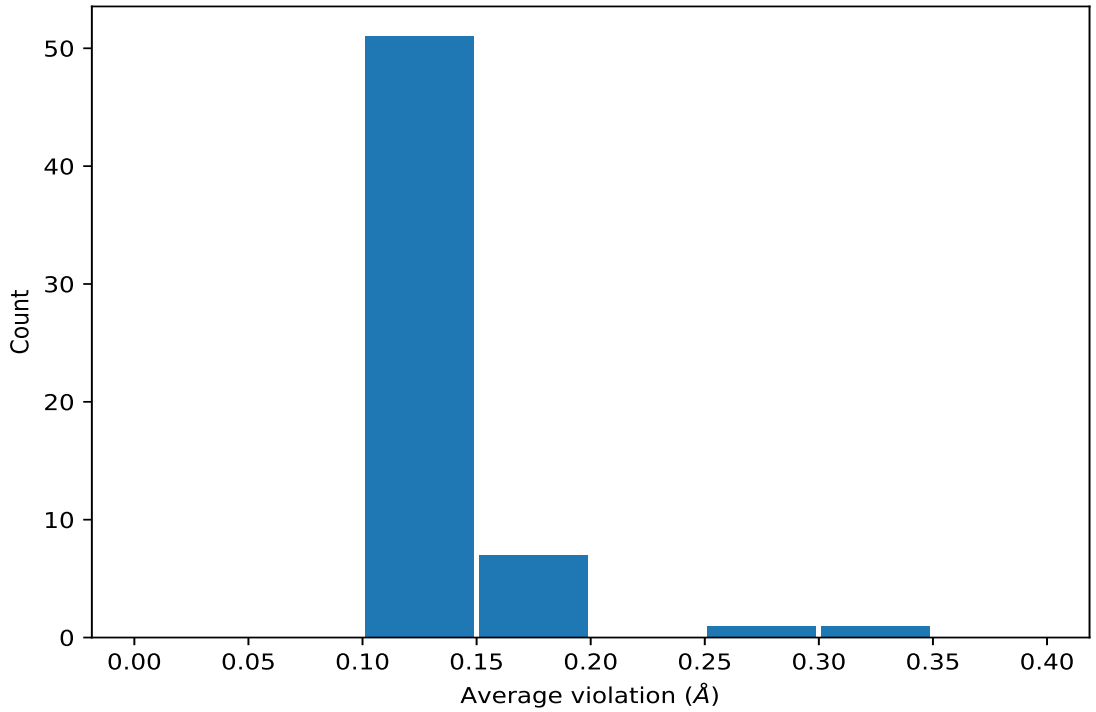
9.3.1 Bar graph : Distance violation statistics for the ensemble



9.4 Most violated distance restraints in the ensemble

9.4.1 Histogram : Distribution of mean distance violations

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

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)
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	20	0.16	0.02	0.17
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	20	0.13	0.01	0.13
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	19	0.18	0.02	0.18
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	18	0.13	0.01	0.12
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	16	0.15	0.03	0.14
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	16	0.15	0.03	0.14
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	16	0.15	0.03	0.14
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	16	0.11	0.01	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	16	0.11	0.01	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	16	0.11	0.01	0.11
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	13	0.3	0.04	0.32
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	13	0.13	0.02	0.12
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	13	0.13	0.02	0.12
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	13	0.13	0.02	0.12
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	12	0.11	0.01	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	12	0.11	0.01	0.11

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	10	0.12	0.02	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	9	0.12	0.01	0.12
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	9	0.11	0.01	0.11
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	8	0.32	0.08	0.36
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	8	0.16	0.01	0.17
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	7	0.15	0.02	0.14
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	6	0.13	0.02	0.14
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	6	0.13	0.02	0.14
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	6	0.13	0.04	0.11
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	6	0.13	0.02	0.13
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	6	0.12	0.01	0.12
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	6	0.12	0.01	0.12
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	6	0.11	0.01	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	6	0.11	0.01	0.11
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	5	0.17	0.04	0.18
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	5	0.13	0.02	0.13
(1,401)	1:32:A:GLU:HA	1:32:A:GLU:HG3	4	0.15	0.0	0.15
(1,217)	1:54:A:GLU:H	1:54:A:GLU:HG2	4	0.13	0.01	0.13
(1,557)	1:35:A:LYS:HB2	1:36:A:ALA:H	4	0.12	0.0	0.12
(1,16)	1:67:A:ILE:HA	1:67:A:ILE:HG13	3	0.18	0.06	0.21
(1,486)	1:5:A:MET:HA	1:5:A:MET:HG3	3	0.18	0.01	0.18
(1,36)	1:43:A:GLU:HA	1:43:A:GLU:HB3	3	0.15	0.02	0.16
(1,260)	1:44:A:LYS:HG2	1:48:A:HIS:H	3	0.14	0.02	0.15
(1,441)	1:44:A:LYS:HE2	1:48:A:HIS:HB2	3	0.13	0.01	0.14
(1,542)	1:17:A:GLU:H	1:17:A:GLU:HB2	3	0.13	0.02	0.13
(1,743)	1:31:A:PRO:HD3	1:32:A:GLU:HG2	3	0.12	0.01	0.12
(1,281)	1:29:A:ALA:HA	1:30:A:CYS:H	2	0.16	0.01	0.16
(1,335)	1:66:A:LYS:HD2	1:67:A:ILE:H	2	0.14	0.02	0.14
(1,335)	1:66:A:LYS:HD3	1:67:A:ILE:H	2	0.14	0.02	0.14
(1,495)	1:32:A:GLU:HA	1:32:A:GLU:HG2	2	0.14	0.01	0.14
(1,72)	1:53:A:ILE:HG21	1:57:A:LYS:HE3	2	0.13	0.03	0.13
(1,72)	1:53:A:ILE:HG22	1:57:A:LYS:HE3	2	0.13	0.03	0.13
(1,72)	1:53:A:ILE:HG23	1:57:A:LYS:HE3	2	0.13	0.03	0.13
(1,500)	1:20:A:GLU:HA	1:20:A:GLU:HG2	2	0.13	0.02	0.13
(1,480)	1:60:A:MET:HA	1:65:A:PHE:HB3	2	0.12	0.01	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD2	2	0.12	0.0	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD3	2	0.12	0.0	0.12
(1,116)	1:17:A:GLU:HB3	1:18:A:SER:H	2	0.12	0.0	0.12
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD2	2	0.12	0.0	0.12
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD3	2	0.12	0.0	0.12
(1,493)	1:58:A:GLU:HG3	1:59:A:CYS:H	2	0.12	0.0	0.12
(1,513)	1:19:A:GLN:HA	1:19:A:GLN:HB2	2	0.11	0.01	0.11

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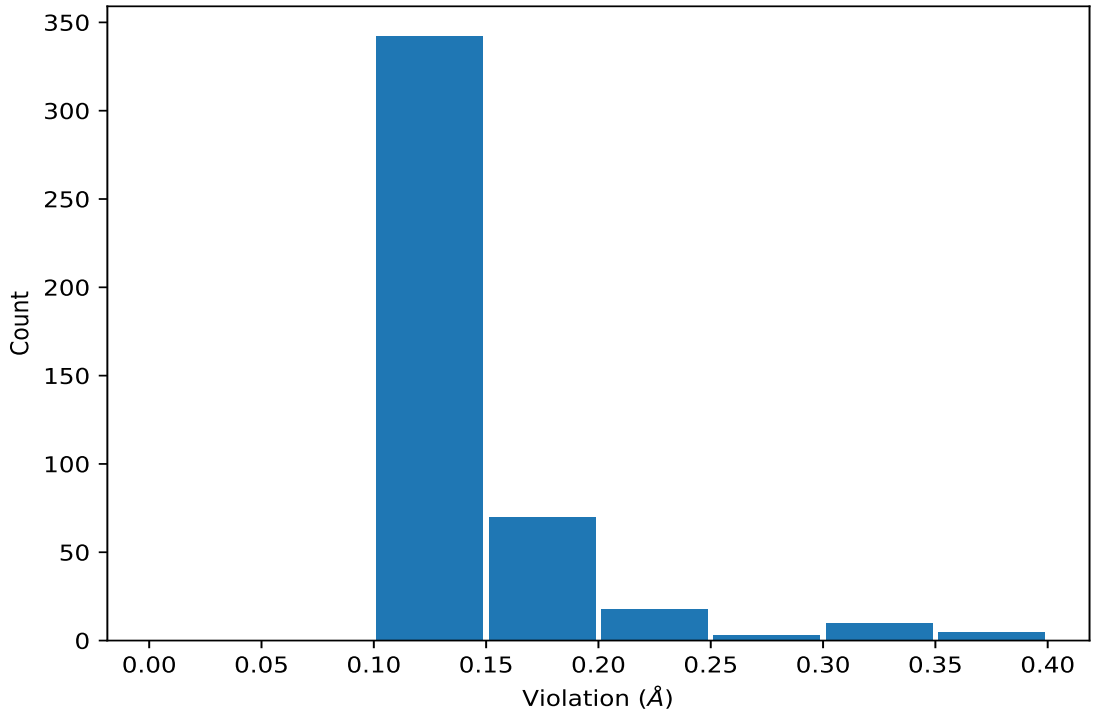
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,517)	1:54:A:GLU:HA	1:54:A:GLU:HB2	2	0.11	0.0	0.11
(1,577)	1:61:A:ARG:HG2	1:65:A:PHE:HB3	2	0.11	0.0	0.11

[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)
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	16	0.37
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	2	0.36

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	15	0.36
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	18	0.36
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	19	0.36
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	13	0.34
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	3	0.33
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	13	0.33
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	11	0.32
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	15	0.32
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	17	0.32
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	19	0.32
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	20	0.32
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	4	0.31
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	8	0.31
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	10	0.3
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	10	0.28
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	9	0.26
(1,16)	1:67:A:ILE:HA	1:67:A:ILE:HG13	5	0.24
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	7	0.23
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	12	0.22
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	12	0.22
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	12	0.22
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	10	0.21
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	6	0.21
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	6	0.21
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	6	0.21
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	6	0.21
(1,16)	1:67:A:ILE:HA	1:67:A:ILE:HG13	15	0.21
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	8	0.2
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	3	0.2
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	7	0.2
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	2	0.2
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	2	0.2
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	2	0.2
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	16	0.2
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	2	0.19
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	6	0.19
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	12	0.19
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	14	0.19
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	15	0.19
(1,486)	1:5:A:MET:HA	1:5:A:MET:HG3	10	0.19
(1,135)	1:44:A:LYS:HA	1:44:A:LYS:HG3	18	0.19
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	10	0.19

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	18	0.19
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	11	0.19
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	8	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	4	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	5	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	7	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	11	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	13	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	16	0.18
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	20	0.18
(1,486)	1:5:A:MET:HA	1:5:A:MET:HG3	13	0.18
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	4	0.18
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	4	0.18
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	4	0.18
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	2	0.18
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	4	0.18
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	8	0.18
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	7	0.18
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	4	0.17
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	4	0.17
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	4	0.17
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	3	0.17
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	15	0.17
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	17	0.17
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	18	0.17
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	19	0.17
(1,486)	1:5:A:MET:HA	1:5:A:MET:HG3	8	0.17
(1,281)	1:29:A:ALA:HA	1:30:A:CYS:H	18	0.17
(1,260)	1:44:A:LYS:HG2	1:48:A:HIS:H	7	0.17
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	14	0.17
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	14	0.17
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	14	0.17
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	1	0.17
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	6	0.17
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	14	0.17
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	15	0.17
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	19	0.17
(1,38)	1:58:A:GLU:HA	1:61:A:ARG:HD3	8	0.17
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	2	0.16
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	14	0.16
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	9	0.16
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	2	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	2	0.16
(1,574)	1:21:A:LYS:H	1:21:A:LYS:HB3	2	0.16
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	17	0.16
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	18	0.16
(1,542)	1:17:A:GLU:H	1:17:A:GLU:HB2	19	0.16
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	19	0.16
(1,335)	1:66:A:LYS:HD2	1:67:A:ILE:H	18	0.16
(1,335)	1:66:A:LYS:HD3	1:67:A:ILE:H	18	0.16
(1,281)	1:29:A:ALA:HA	1:30:A:CYS:H	12	0.16
(1,202)	1:19:A:GLN:H	1:19:A:GLN:HB3	4	0.16
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	1	0.16
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	1	0.16
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	1	0.16
(1,72)	1:53:A:ILE:HG21	1:57:A:LYS:HE3	7	0.16
(1,72)	1:53:A:ILE:HG22	1:57:A:LYS:HE3	7	0.16
(1,72)	1:53:A:ILE:HG23	1:57:A:LYS:HE3	7	0.16
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	3	0.16
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	5	0.16
(1,36)	1:43:A:GLU:HA	1:43:A:GLU:HB3	3	0.16
(1,36)	1:43:A:GLU:HA	1:43:A:GLU:HB3	13	0.16
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	3	0.15
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	1	0.15
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	1	0.15
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	1	0.15
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	3	0.15
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	3	0.15
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	3	0.15
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	14	0.15
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	14	0.15
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	14	0.15
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	13	0.15
(1,622)	1:21:A:LYS:HB2	1:21:A:LYS:HG3	16	0.15
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	7	0.15
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	7	0.15
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	15	0.15
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	15	0.15
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	6	0.15
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	9	0.15
(1,500)	1:20:A:GLU:HA	1:20:A:GLU:HG2	17	0.15
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	9	0.15
(1,401)	1:32:A:GLU:HA	1:32:A:GLU:HG3	8	0.15
(1,401)	1:32:A:GLU:HA	1:32:A:GLU:HG3	14	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,401)	1:32:A:GLU:HA	1:32:A:GLU:HG3	17	0.15
(1,401)	1:32:A:GLU:HA	1:32:A:GLU:HG3	19	0.15
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	14	0.15
(1,260)	1:44:A:LYS:HG2	1:48:A:HIS:H	9	0.15
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	4	0.15
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	12	0.15
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	17	0.15
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	20	0.15
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	3	0.15
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	12	0.14
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	14	0.14
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	20	0.14
(1,790)	1:29:A:ALA:HB1	1:24:A:LEU:HG	17	0.14
(1,790)	1:29:A:ALA:HB2	1:24:A:LEU:HG	17	0.14
(1,790)	1:29:A:ALA:HB3	1:24:A:LEU:HG	17	0.14
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	16	0.14
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	16	0.14
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	5	0.14
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	9	0.14
(1,495)	1:32:A:GLU:HA	1:32:A:GLU:HG2	5	0.14
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	11	0.14
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	17	0.14
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	20	0.14
(1,441)	1:44:A:LYS:HE2	1:48:A:HIS:HB2	8	0.14
(1,441)	1:44:A:LYS:HE2	1:48:A:HIS:HB2	10	0.14
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	12	0.14
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	14	0.14
(1,217)	1:54:A:GLU:H	1:54:A:GLU:HG2	4	0.14
(1,213)	1:8:A:LEU:HG	1:9:A:VAL:H	11	0.14
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	13	0.14
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	13	0.14
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	13	0.14
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	16	0.14
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	16	0.14
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	16	0.14
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	19	0.14
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	19	0.14
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	19	0.14
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	20	0.14
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	11	0.14
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	13	0.14
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	2	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	5	0.13
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	6	0.13
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	16	0.13
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	15	0.13
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	15	0.13
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	9	0.13
(1,743)	1:31:A:PRO:HD3	1:32:A:GLU:HG2	11	0.13
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	16	0.13
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	16	0.13
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	16	0.13
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	19	0.13
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	19	0.13
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	19	0.13
(1,557)	1:35:A:LYS:HB2	1:36:A:ALA:H	16	0.13
(1,546)	1:61:A:ARG:H	1:61:A:ARG:HB3	3	0.13
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	2	0.13
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	7	0.13
(1,542)	1:17:A:GLU:H	1:17:A:GLU:HB2	10	0.13
(1,539)	1:63:A:LEU:HB2	1:65:A:PHE:HZ	3	0.13
(1,495)	1:32:A:GLU:HA	1:32:A:GLU:HG2	10	0.13
(1,480)	1:60:A:MET:HA	1:65:A:PHE:HB3	12	0.13
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	15	0.13
(1,464)	1:44:A:LYS:HB2	1:44:A:LYS:HE2	19	0.13
(1,383)	1:18:A:SER:HB2	1:19:A:GLN:HA	19	0.13
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	4	0.13
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	11	0.13
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	16	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	1	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	2	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	3	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	6	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	7	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	9	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	11	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	16	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	18	0.13
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	20	0.13
(1,217)	1:54:A:GLU:H	1:54:A:GLU:HG2	9	0.13
(1,217)	1:54:A:GLU:H	1:54:A:GLU:HG2	14	0.13
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	3	0.13
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	3	0.13
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	3	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	3	0.13
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	3	0.13
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	5	0.13
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	5	0.13
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	5	0.13
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	17	0.13
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	17	0.13
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	17	0.13
(1,93)	1:54:A:GLU:HB3	1:54:A:GLU:HG3	3	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	13	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	13	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	13	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	16	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	16	0.13
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	16	0.13
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	7	0.13
(1,61)	1:50:A:GLY:HA3	1:53:A:ILE:H	9	0.13
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	4	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	7	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	9	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	11	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	15	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	17	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	19	0.12
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	13	0.12
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	13	0.12
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	3	0.12
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	3	0.12
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	1	0.12
(1,743)	1:31:A:PRO:HD3	1:32:A:GLU:HG2	19	0.12
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	13	0.12
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	13	0.12
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	13	0.12
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	11	0.12
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	11	0.12
(1,557)	1:35:A:LYS:HB2	1:36:A:ALA:H	4	0.12
(1,557)	1:35:A:LYS:HB2	1:36:A:ALA:H	5	0.12
(1,557)	1:35:A:LYS:HB2	1:36:A:ALA:H	13	0.12
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	15	0.12
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	7	0.12
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	4	0.12
(1,513)	1:19:A:GLN:HA	1:19:A:GLN:HB2	4	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,493)	1:58:A:GLU:HG3	1:59:A:CYS:H	1	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD2	4	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD3	4	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD2	14	0.12
(1,490)	1:54:A:GLU:HG2	1:57:A:LYS:HD3	14	0.12
(1,480)	1:60:A:MET:HA	1:65:A:PHE:HB3	6	0.12
(1,441)	1:44:A:LYS:HE2	1:48:A:HIS:HB2	4	0.12
(1,335)	1:66:A:LYS:HD2	1:67:A:ILE:H	17	0.12
(1,335)	1:66:A:LYS:HD3	1:67:A:ILE:H	17	0.12
(1,264)	1:10:A:ASP:HA	1:11:A:SER:H	6	0.12
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	8	0.12
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	10	0.12
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	13	0.12
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	15	0.12
(1,175)	1:9:A:VAL:HA	1:10:A:ASP:H	11	0.12
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	4	0.12
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	4	0.12
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	13	0.12
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	13	0.12
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	14	0.12
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	14	0.12
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	7	0.12
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	7	0.12
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	7	0.12
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	11	0.12
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	11	0.12
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	11	0.12
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD2	16	0.12
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD3	16	0.12
(1,116)	1:17:A:GLU:HB3	1:18:A:SER:H	12	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	4	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	10	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	12	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	15	0.12
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	19	0.12
(1,71)	1:57:A:LYS:HB2	1:57:A:LYS:HE3	3	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	5	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	5	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	5	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	6	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	6	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	6	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	7	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	7	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	7	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	12	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	12	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	12	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	19	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	19	0.12
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	19	0.12
(1,36)	1:43:A:GLU:HA	1:43:A:GLU:HB3	18	0.12
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	1	0.11
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	8	0.11
(3,1)	2:68:A:CU1:CU	1:27:A:CYS:SG	10	0.11
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	4	0.11
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	4	0.11
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	9	0.11
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	9	0.11
(1,788)	1:65:A:PHE:HE1	1:60:A:MET:HA	20	0.11
(1,788)	1:65:A:PHE:HE2	1:60:A:MET:HA	20	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	1	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	1	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	2	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	2	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	4	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	4	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	14	0.11
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	14	0.11
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	4	0.11
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	17	0.11
(1,743)	1:31:A:PRO:HD3	1:32:A:GLU:HG2	14	0.11
(1,642)	1:63:A:LEU:HD21	1:64:A:GLY:H	18	0.11
(1,642)	1:63:A:LEU:HD22	1:64:A:GLY:H	18	0.11
(1,642)	1:63:A:LEU:HD23	1:64:A:GLY:H	18	0.11
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	2	0.11
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	2	0.11
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	2	0.11
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	5	0.11
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	5	0.11
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	5	0.11
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	6	0.11
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	6	0.11
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	6	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	7	0.11
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	7	0.11
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	7	0.11
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	12	0.11
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	12	0.11
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD2	20	0.11
(1,587)	1:35:A:LYS:HA	1:35:A:LYS:HD3	20	0.11
(1,577)	1:61:A:ARG:HG2	1:65:A:PHE:HB3	11	0.11
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	11	0.11
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	15	0.11
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	18	0.11
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	19	0.11
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	20	0.11
(1,517)	1:54:A:GLU:HA	1:54:A:GLU:HB2	18	0.11
(1,500)	1:20:A:GLU:HA	1:20:A:GLU:HG2	15	0.11
(1,493)	1:58:A:GLU:HG3	1:59:A:CYS:H	2	0.11
(1,475)	1:48:A:HIS:H	1:48:A:HIS:HB3	18	0.11
(1,260)	1:44:A:LYS:HG2	1:48:A:HIS:H	18	0.11
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	5	0.11
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	17	0.11
(1,235)	1:56:A:HIS:HB2	1:57:A:LYS:H	19	0.11
(1,217)	1:54:A:GLU:H	1:54:A:GLU:HG2	10	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	2	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	2	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	9	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	9	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	11	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	11	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	15	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	15	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	19	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	19	0.11
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	20	0.11
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	20	0.11
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	10	0.11
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	10	0.11
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	10	0.11
(1,149)	1:62:A:ALA:HB1	1:63:A:LEU:HG	20	0.11
(1,149)	1:62:A:ALA:HB2	1:63:A:LEU:HG	20	0.11
(1,149)	1:62:A:ALA:HB3	1:63:A:LEU:HG	20	0.11
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD2	13	0.11
(1,122)	1:35:A:LYS:HB3	1:35:A:LYS:HD3	13	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,116)	1:17:A:GLU:HB3	1:18:A:SER:H	4	0.11
(1,106)	1:43:A:GLU:H	1:43:A:GLU:HB3	9	0.11
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	11	0.11
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	17	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	1	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	1	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	1	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	2	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	2	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	2	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	10	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	10	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	10	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	11	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	11	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	11	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	17	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	17	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	17	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	20	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	20	0.11
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	20	0.11
(1,786)	1:26:A:PRO:HB2	1:65:A:PHE:HZ	6	0.1
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD1	17	0.1
(1,783)	1:26:A:PRO:HB2	1:65:A:PHE:HD2	17	0.1
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	6	0.1
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	12	0.1
(1,748)	1:37:A:ARG:HG2	1:56:A:HIS:HD2	13	0.1
(1,746)	1:65:A:PHE:HD1	1:66:A:LYS:HB2	17	0.1
(1,746)	1:65:A:PHE:HD2	1:66:A:LYS:HB2	17	0.1
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	11	0.1
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	11	0.1
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	11	0.1
(1,641)	1:63:A:LEU:HD21	1:65:A:PHE:HB3	20	0.1
(1,641)	1:63:A:LEU:HD22	1:65:A:PHE:HB3	20	0.1
(1,641)	1:63:A:LEU:HD23	1:65:A:PHE:HB3	20	0.1
(1,577)	1:61:A:ARG:HG2	1:65:A:PHE:HB3	1	0.1
(1,544)	1:35:A:LYS:H	1:35:A:LYS:HB3	20	0.1
(1,542)	1:17:A:GLU:H	1:17:A:GLU:HB2	12	0.1
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	2	0.1
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	12	0.1
(1,533)	1:20:A:GLU:HB2	1:21:A:LYS:H	18	0.1

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	3	0.1
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	8	0.1
(1,531)	1:44:A:LYS:H	1:44:A:LYS:HB2	17	0.1
(1,517)	1:54:A:GLU:HA	1:54:A:GLU:HB2	10	0.1
(1,513)	1:19:A:GLN:HA	1:19:A:GLN:HB2	9	0.1
(1,381)	1:8:A:LEU:HA	1:9:A:VAL:HB	6	0.1
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	8	0.1
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	8	0.1
(1,165)	1:26:A:PRO:HG2	1:28:A:CYS:H	16	0.1
(1,165)	1:26:A:PRO:HG3	1:28:A:CYS:H	16	0.1
(1,86)	1:53:A:ILE:HB	1:54:A:GLU:HA	7	0.1
(1,72)	1:53:A:ILE:HG21	1:57:A:LYS:HE3	12	0.1
(1,72)	1:53:A:ILE:HG22	1:57:A:LYS:HE3	12	0.1
(1,72)	1:53:A:ILE:HG23	1:57:A:LYS:HE3	12	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	4	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	4	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	4	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	14	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	14	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	14	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD11	18	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD12	18	0.1
(1,68)	1:63:A:LEU:HB3	1:63:A:LEU:HD13	18	0.1
(1,48)	1:24:A:LEU:HA	1:24:A:LEU:HB3	9	0.1
(1,31)	1:54:A:GLU:HA	1:54:A:GLU:HG3	20	0.1
(1,16)	1:67:A:ILE:HA	1:67:A:ILE:HG13	4	0.1

10 Dihedral-angle violation analysis

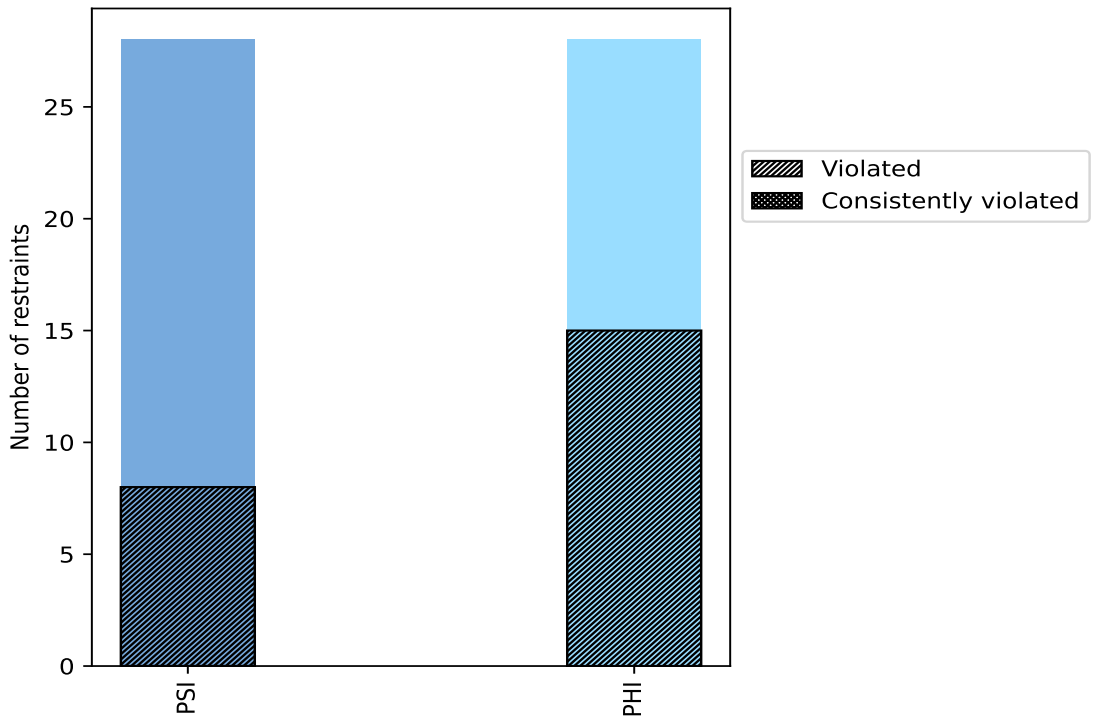
10.1 Summary of dihedral-angle violations

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	28	50.0	8	28.6	14.3	0	0.0	0.0
PHI	28	50.0	15	53.6	26.8	0	0.0	0.0
Total	56	100.0	23	41.1	41.1	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



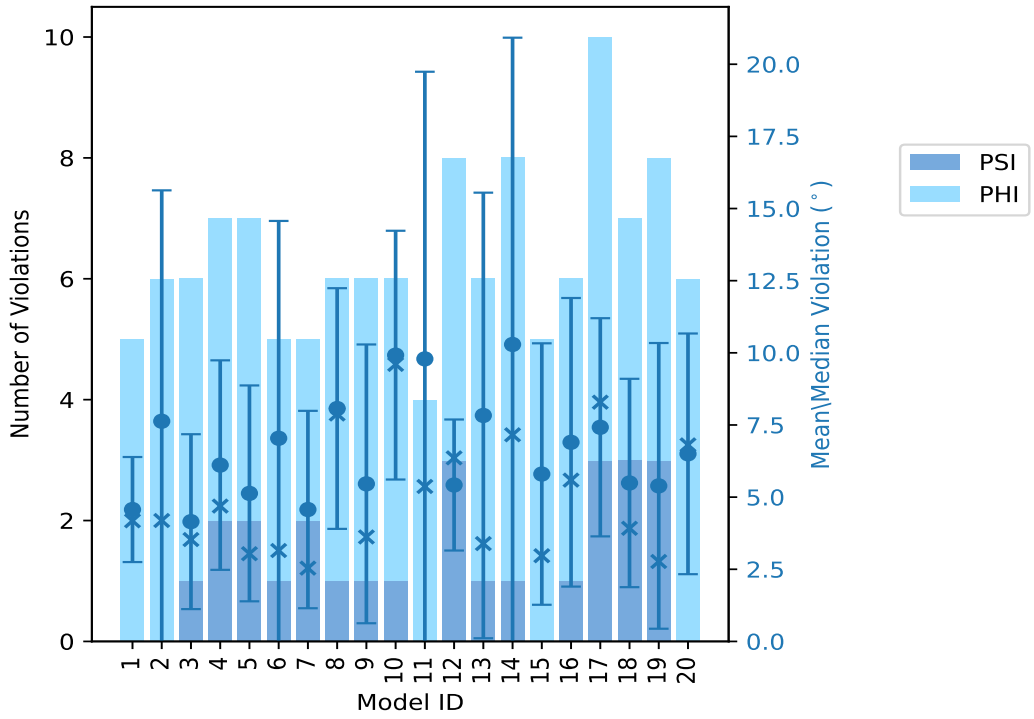
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

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	0	5	5	4.57	6.65	1.82	4.18
2	0	6	6	7.63	24.84	8.0	4.19
3	1	5	6	4.15	9.89	3.03	3.53
4	2	5	7	6.11	12.37	3.63	4.69
5	2	5	7	5.13	12.83	3.74	3.04
6	1	4	5	7.04	21.77	7.53	3.15
7	2	3	5	4.57	10.77	3.42	2.54
8	1	5	6	8.07	13.04	4.17	7.88
9	1	5	6	5.46	16.06	4.83	3.62
10	1	5	6	9.92	17.01	4.31	9.6
11	0	4	4	9.79	26.77	9.95	5.37
12	3	5	8	5.42	8.1	2.27	6.36
13	1	5	6	7.83	21.64	7.72	3.39
14	1	7	8	10.29	36.85	10.63	7.16
15	0	5	5	5.8	13.57	4.53	2.97
16	1	5	6	6.9	14.8	5.0	5.59
17	3	7	10	7.42	12.59	3.78	8.29
18	3	4	7	5.49	12.05	3.61	3.92
19	3	5	8	5.39	15.19	4.95	2.77
20	0	6	6	6.5	13.42	4.17	6.81

10.2.1 Bar graph : Dihedral violation statistics for each model



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

10.3 Dihedral-angle violation statistics for the ensemble

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

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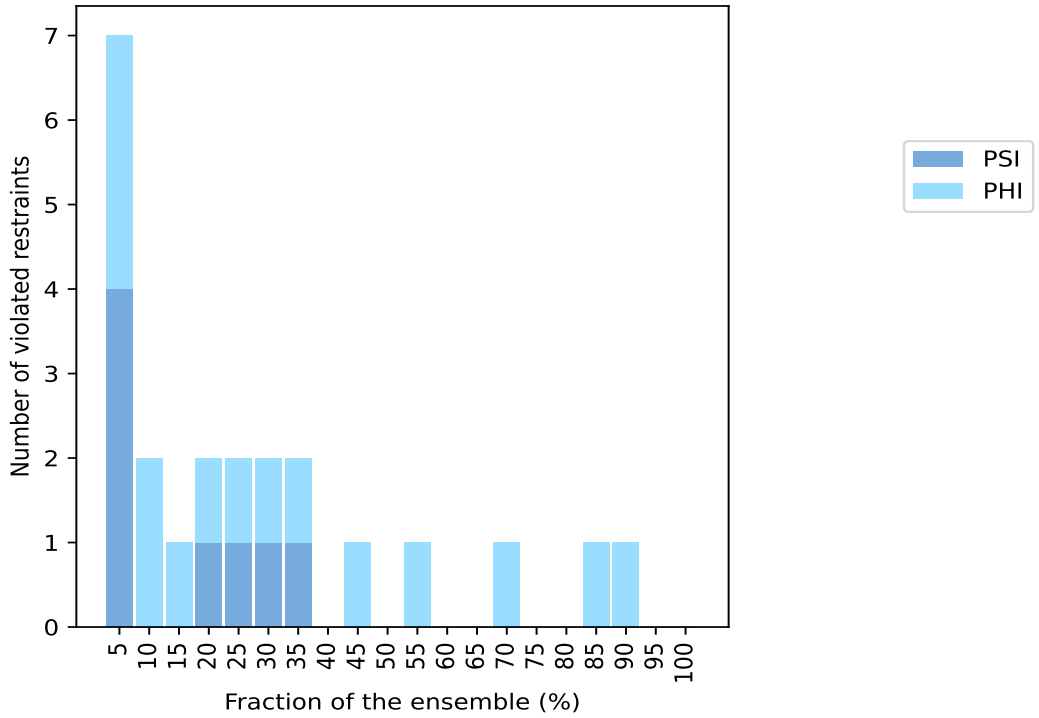
Number of violated restraints			Fraction of the ensemble	
PSI	PHI	Total	Count[1]	%
0	0	0	12	60.0
0	0	0	13	65.0
0	1	1	14	70.0
0	0	0	15	75.0
0	0	0	16	80.0
0	1	1	17	85.0
0	1	1	18	90.0
0	0	0	19	95.0
0	0	0	20	100.0

[1] Number of models with violations

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

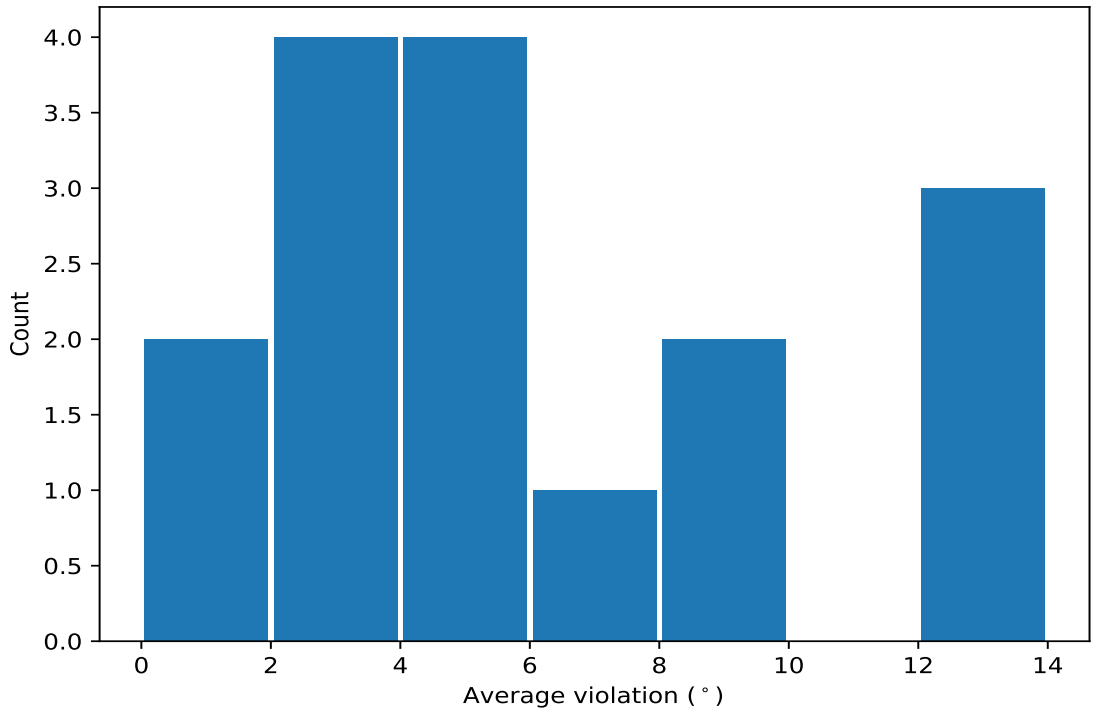


10.4 Most violated dihedral-angle restraints in the ensemble

10.4.1 Histogram : Distribution of mean dihedral-angle violations

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

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.

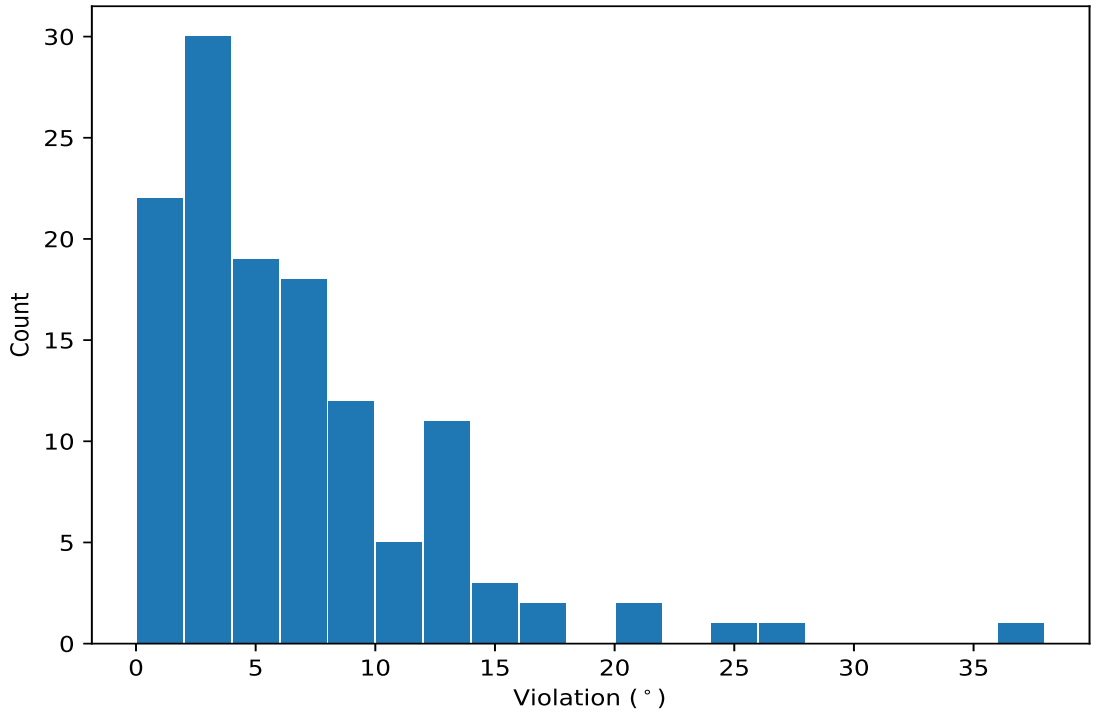
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models[1]	Mean	SD[2]	Median
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	18	4.5	1.84	4.5
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	17	8.06	4.08	7.0
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	14	12.43	5.89	11.4
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	11	4.9	1.72	5.09
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	9	13.28	11.13	8.28
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	7	12.04	2.83	12.76
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	7	2.12	0.47	2.27
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	6	5.79	2.54	5.93
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	6	1.84	0.65	1.57
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	5	8.49	3.73	9.29
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	5	4.4	2.55	3.92
(1,24)	1:40:A:CYS:N	1:40:A:CYS:CA	1:40:A:CYS:C	1:41:A:ILE:N	4	2.1	0.64	2.07
(1,45)	1:56:A:HIS:C	1:57:A:LYS:N	1:57:A:LYS:CA	1:57:A:LYS:C	4	1.96	0.75	1.84
(1,37)	1:52:A:LEU:C	1:53:A:ILE:N	1:53:A:ILE:CA	1:53:A:ILE:C	3	2.25	0.59	2.21
(1,15)	1:34:A:LYS:C	1:35:A:LYS:N	1:35:A:LYS:CA	1:35:A:LYS:C	2	6.55	4.91	6.55
(1,1)	1:13:A:PRO:C	1:14:A:ALA:N	1:14:A:ALA:CA	1:14:A:ALA:C	2	3.17	1.58	3.17

[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 (°)
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	14	36.85
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	11	26.77
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	2	24.84
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	6	21.77
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	13	21.64
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	10	17.01
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	9	16.06
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	19	15.19
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	13	14.95
(1,39)	1:53:A:ILE:C	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	16	14.8
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	15	13.57
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	20	13.42
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	8	13.04
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	5	12.83

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	8	12.8
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	10	12.76
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	17	12.59
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	14	12.4
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	4	12.37
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	16	12.14
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	18	12.05
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	19	11.93
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	10	11.49
(1,15)	1:34:A:LYS:C	1:35:A:LYS:N	1:35:A:LYS:CA	1:35:A:LYS:C	17	11.46
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	17	11.32
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	7	10.77
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	14	9.96
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	3	9.89
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	8	9.8
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	4	9.64
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	17	9.29
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	17	8.98
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	20	8.83
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	15	8.29
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	18	8.28
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	2	8.27
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	12	8.1
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	14	8.06
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	4	7.91
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	10	7.72
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	20	7.68
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	17	7.6
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	18	7.52
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	5	7.3
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	12	7.0
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	12	6.97
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	1	6.65
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	1	6.65
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	12	6.41
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	11	6.4
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	5	6.38
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	10	6.38
(1,38)	1:53:A:ILE:N	1:53:A:ILE:CA	1:53:A:ILE:C	1:54:A:GLU:N	16	6.36
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	12	6.31
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	14	6.25
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	6	6.16
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	8	5.97
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	20	5.94
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	7	5.74
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	14	5.65
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	19	5.63
(1,10)	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	1:33:A:THR:N	3	5.45
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	2	5.22
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	8	5.18
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	12	5.09

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	9	4.97
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	16	4.82
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	13	4.76
(1,1)	1:13:A:PRO:C	1:14:A:ALA:N	1:14:A:ALA:CA	1:14:A:ALA:C	3	4.75
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	4	4.69
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	17	4.66
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	17	4.61
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	11	4.34
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	1	4.18
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	10	4.15
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	18	3.92
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	9	3.72
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	9	3.52
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	1	3.27
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	18	3.19
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	2	3.16
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	6	3.15
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	5	3.04
(1,24)	1:40:A:CYS:N	1:40:A:CYS:CA	1:40:A:CYS:C	1:41:A:ILE:N	19	3.0
(1,16)	1:35:A:LYS:N	1:35:A:LYS:CA	1:35:A:LYS:C	1:36:A:ALA:N	4	3.0
(1,37)	1:52:A:LEU:C	1:53:A:ILE:N	1:53:A:ILE:CA	1:53:A:ILE:C	4	2.99
(1,45)	1:56:A:HIS:C	1:57:A:LYS:N	1:57:A:LYS:CA	1:57:A:LYS:C	15	2.97
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	6	2.88
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	2	2.86
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	19	2.54
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	7	2.54
(1,56)	1:65:A:PHE:N	1:65:A:PHE:CA	1:65:A:PHE:C	1:66:A:LYS:N	5	2.44
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	15	2.43
(1,45)	1:56:A:HIS:C	1:57:A:LYS:N	1:57:A:LYS:CA	1:57:A:LYS:C	9	2.41
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	5	2.36
(1,24)	1:40:A:CYS:N	1:40:A:CYS:CA	1:40:A:CYS:C	1:41:A:ILE:N	7	2.32
(1,7)	1:27:A:CYS:C	1:28:A:CYS:N	1:28:A:CYS:CA	1:28:A:CYS:C	3	2.31
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	17	2.3
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	19	2.27
(1,37)	1:52:A:LEU:C	1:53:A:ILE:N	1:53:A:ILE:CA	1:53:A:ILE:C	18	2.21
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	4	2.15
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	1	2.11
(1,31)	1:45:A:GLY:C	1:46:A:GLU:N	1:46:A:GLU:CA	1:46:A:GLU:C	20	2.09
(1,14)	1:34:A:LYS:N	1:34:A:LYS:CA	1:34:A:LYS:C	1:35:A:LYS:N	9	2.06
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	13	2.03
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	13	1.99
(1,9)	1:31:A:PRO:C	1:32:A:GLU:N	1:32:A:GLU:CA	1:32:A:GLU:C	16	1.86
(1,24)	1:40:A:CYS:N	1:40:A:CYS:CA	1:40:A:CYS:C	1:41:A:ILE:N	12	1.82
(1,33)	1:50:A:GLY:C	1:51:A:HIS:N	1:51:A:HIS:CA	1:51:A:HIS:C	15	1.73
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	12	1.66
(1,53)	1:61:A:ARG:C	1:62:A:ALA:N	1:62:A:ALA:CA	1:62:A:ALA:C	14	1.65
(1,15)	1:34:A:LYS:C	1:35:A:LYS:N	1:35:A:LYS:CA	1:35:A:LYS:C	11	1.64
(1,35)	1:51:A:HIS:C	1:52:A:LEU:N	1:52:A:LEU:CA	1:52:A:LEU:C	8	1.63
(1,1)	1:13:A:PRO:C	1:14:A:ALA:N	1:14:A:ALA:CA	1:14:A:ALA:C	13	1.59
(1,37)	1:52:A:LEU:C	1:53:A:ILE:N	1:53:A:ILE:CA	1:53:A:ILE:C	5	1.55
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	14	1.53

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	7	1.48
(1,25)	1:40:A:CYS:C	1:41:A:ILE:N	1:41:A:ILE:CA	1:41:A:ILE:C	2	1.42
(1,3)	1:21:A:LYS:C	1:22:A:LYS:N	1:22:A:LYS:CA	1:22:A:LYS:C	16	1.4
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	17	1.36
(1,40)	1:54:A:GLU:N	1:54:A:GLU:CA	1:54:A:GLU:C	1:55:A:ALA:N	19	1.33
(1,45)	1:56:A:HIS:C	1:57:A:LYS:N	1:57:A:LYS:CA	1:57:A:LYS:C	3	1.27
(1,49)	1:59:A:CYS:C	1:60:A:MET:N	1:60:A:MET:CA	1:60:A:MET:C	3	1.25
(1,34)	1:51:A:HIS:N	1:51:A:HIS:CA	1:51:A:HIS:C	1:52:A:LEU:N	18	1.25
(1,24)	1:40:A:CYS:N	1:40:A:CYS:CA	1:40:A:CYS:C	1:41:A:ILE:N	6	1.25
(1,45)	1:56:A:HIS:C	1:57:A:LYS:N	1:57:A:LYS:CA	1:57:A:LYS:C	19	1.21
(1,5)	1:26:A:PRO:C	1:27:A:CYS:N	1:27:A:CYS:CA	1:27:A:CYS:C	20	1.04