



Full wwPDB NMR Structure Validation Report ⓘ

Mar 9, 2026 – 03:59 PM UTC

PDB ID : 2K02 / pdb_00002k02
BMRB ID : 15634
Title : Solution Structure of Putative Ferrous Iron Transport Protein C (FeoC) of
Klebsiella pneumoniae
Authors : Hung, K.; Lin, Y.; Chen, J.; Huang, T.
Deposited on : 2008-01-23

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

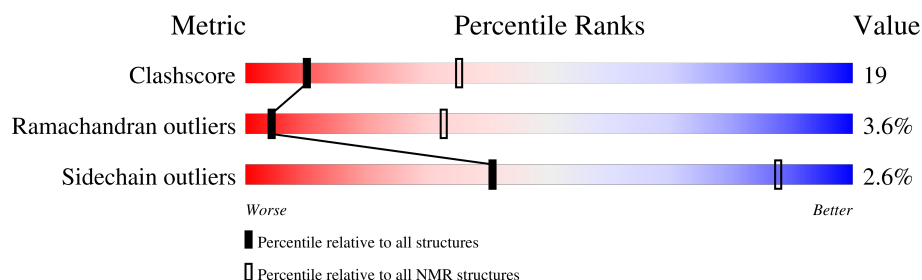
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment is 81%.

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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	87	

2 Ensemble composition and analysis

This entry contains 20 models. Model 2 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *lowest energy*.

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

Well-defined (core) protein residues			
Well-defined core	Residue range (total)	Backbone RMSD (Å)	Medoid model
1	A:4-A:52, A:72-A:78 (56)	0.62	2

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 1 single-model cluster was found.

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

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 1115 atoms, of which 510 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Ferrous iron transport protein C.

Mol	Chain	Residues	Atoms						Trace
1	A	79	Total	C	H	N	O	S	0
			1115	370	510	111	113	11	

There are 8 discrepancies between the modelled and reference sequences:

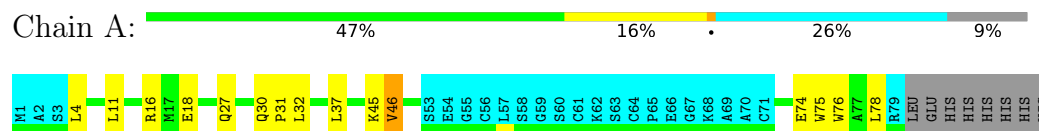
Chain	Residue	Modelled	Actual	Comment	Reference
A	80	LEU	-	expression tag	UNP A6TF33
A	81	GLU	-	expression tag	UNP A6TF33
A	82	HIS	-	expression tag	UNP A6TF33
A	83	HIS	-	expression tag	UNP A6TF33
A	84	HIS	-	expression tag	UNP A6TF33
A	85	HIS	-	expression tag	UNP A6TF33
A	86	HIS	-	expression tag	UNP A6TF33
A	87	HIS	-	expression tag	UNP A6TF33

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: Ferrous iron transport protein C

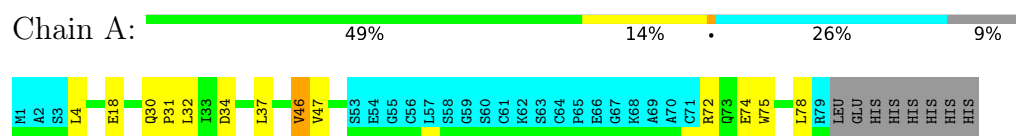


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

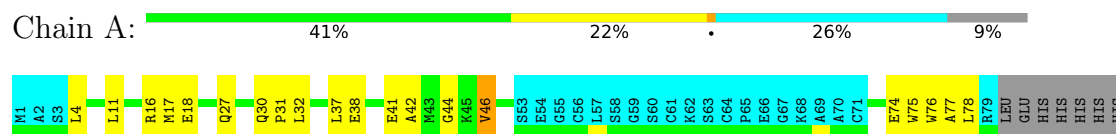
4.2.1 Score per residue for model 1

- Molecule 1: Ferrous iron transport protein C



4.2.2 Score per residue for model 2 (medoid)

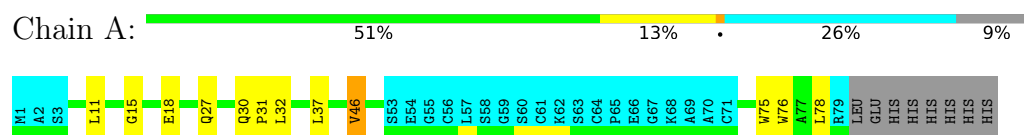
- Molecule 1: Ferrous iron transport protein C



HIS

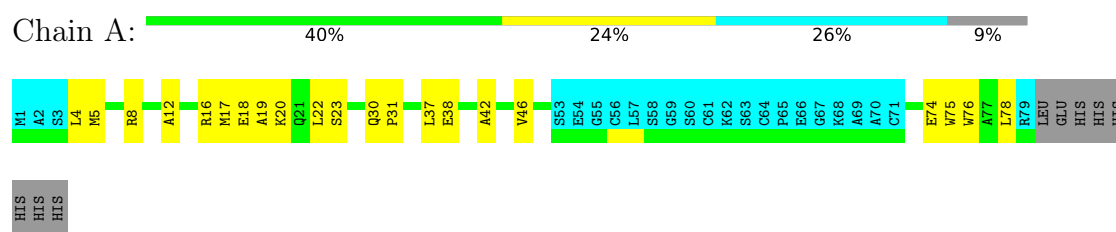
4.2.3 Score per residue for model 3

- Molecule 1: Ferrous iron transport protein C



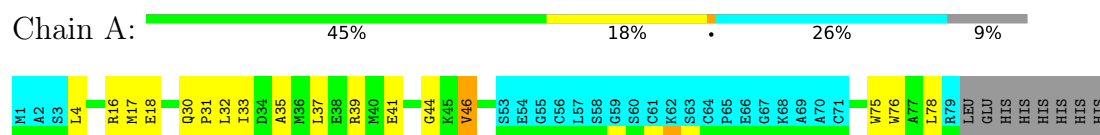
4.2.4 Score per residue for model 4

- Molecule 1: Ferrous iron transport protein C



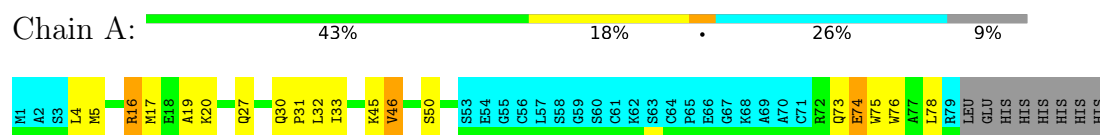
4.2.5 Score per residue for model 5

- Molecule 1: Ferrous iron transport protein C



4.2.6 Score per residue for model 6

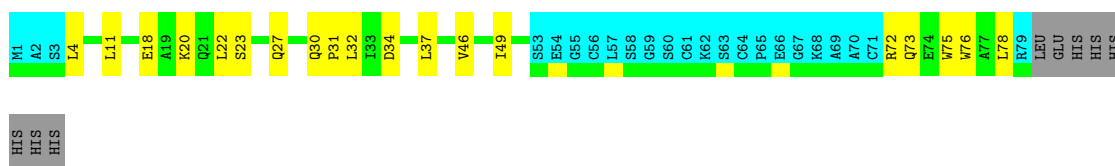
- Molecule 1: Ferrous iron transport protein C



4.2.7 Score per residue for model 7

- Molecule 1: Ferrous iron transport protein C

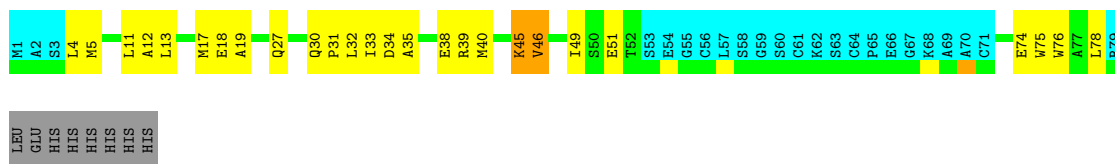




4.2.8 Score per residue for model 8

- Molecule 1: Ferrous iron transport protein C

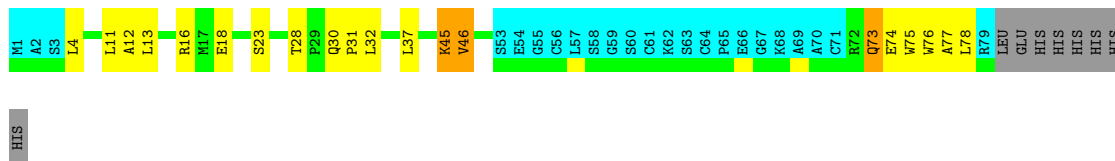
Chain A: 34% 28% 26% 9%



4.2.9 Score per residue for model 9

- Molecule 1: Ferrous iron transport protein C

Chain A: 41% 20% 26% 9%



4.2.10 Score per residue for model 10

- Molecule 1: Ferrous iron transport protein C

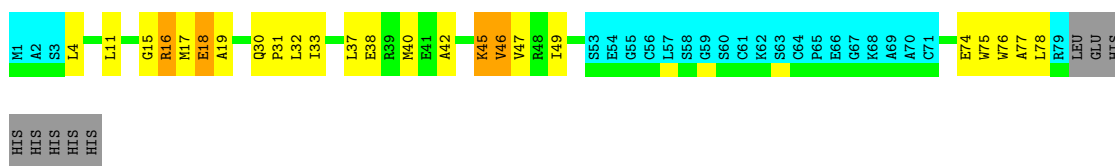
Chain A: 43% 21% 26% 9%



4.2.11 Score per residue for model 11

- Molecule 1: Ferrous iron transport protein C

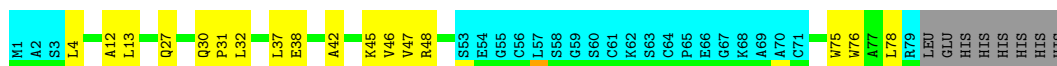
Chain A: 37% 23% 5% 26% 9%



4.2.12 Score per residue for model 12

- Molecule 1: Ferrous iron transport protein C

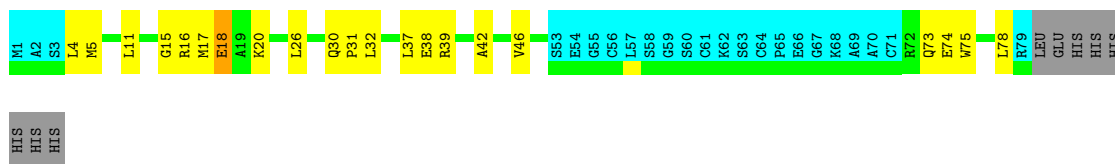
Chain A: 45% 20% 26% 9%



4.2.13 Score per residue for model 13

- Molecule 1: Ferrous iron transport protein C

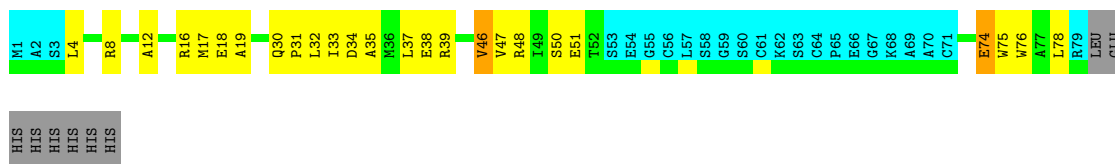
Chain A: 40% 23% 26% 9%



4.2.14 Score per residue for model 14

- Molecule 1: Ferrous iron transport protein C

Chain A: 36% 26% 26% 9%



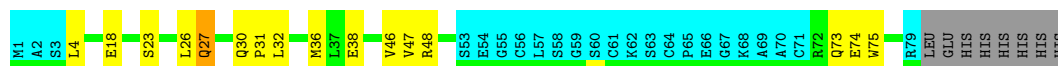
4.2.15 Score per residue for model 15

- Molecule 1: Ferrous iron transport protein C

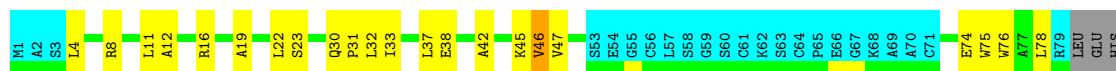
Chain A: 39% 24% 26% 9%



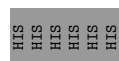
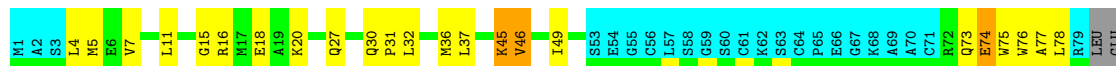
- Molecule 1: Ferrous iron transport protein C



- Molecule 1: Ferrous iron transport protein C

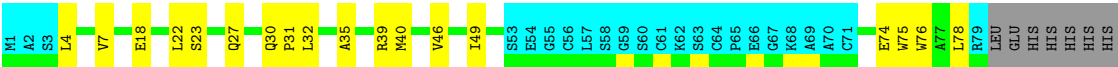


- Molecule 1: Ferrous iron transport protein C



- Molecule 1: Ferrous iron transport protein C

Chain A:



HIS

4.2.20 Score per residue for model 20

- Molecule 1: Ferrous iron transport protein C



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5 Refinement protocol and experimental data overview

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

Of the 100 calculated structures, 20 were deposited, based on the following criterion: *structures with the lowest energy*.

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

Software name	Classification	Version
CNS	refinement	1.2

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	917
Number of shifts mapped to atoms	778
Number of unparsed shifts	0
Number of shifts with mapping errors	139
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	81%

6 Model quality [i](#)

6.1 Standard geometry [i](#)

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	454	391	473	18±4
All	All	9080	7820	9460	357

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 19.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:32:LEU:O	1:A:32:LEU:HD13	0.72	1.85	13	4
1:A:32:LEU:HD13	1:A:32:LEU:O	0.71	1.86	5	8
1:A:78:LEU:HD12	1:A:78:LEU:N	0.64	2.08	12	19
1:A:76:TRP:CZ3	1:A:78:LEU:HD11	0.61	2.30	15	6
1:A:76:TRP:CH2	1:A:78:LEU:HD11	0.59	2.33	15	3
1:A:76:TRP:CD1	1:A:78:LEU:HD11	0.59	2.32	4	1
1:A:4:LEU:C	1:A:4:LEU:HD12	0.58	2.23	6	19
1:A:32:LEU:HD13	1:A:32:LEU:C	0.57	2.24	15	7
1:A:32:LEU:C	1:A:32:LEU:HD13	0.57	2.23	1	12
1:A:22:LEU:HD12	1:A:23:SER:N	0.56	2.15	19	3
1:A:19:ALA:HB3	1:A:33:ILE:HG23	0.55	1.79	20	1
1:A:37:LEU:HD12	1:A:74:GLU:HG3	0.54	1.77	4	3
1:A:37:LEU:HD12	1:A:74:GLU:CG	0.54	2.33	4	1
1:A:4:LEU:HD13	1:A:40:MET:HE3	0.53	1.81	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:4:LEU:HD13	1:A:40:MET:CE	0.53	2.33	10	1
1:A:75:TRP:CD1	1:A:76:TRP:N	0.53	2.77	5	6
1:A:76:TRP:CZ2	1:A:78:LEU:HD11	0.53	2.39	7	1
1:A:12:ALA:C	1:A:13:LEU:HD12	0.53	2.28	9	3
1:A:76:TRP:CZ3	1:A:78:LEU:CD1	0.53	2.92	15	2
1:A:22:LEU:HD12	1:A:22:LEU:C	0.53	2.29	19	2
1:A:18:GLU:CB	1:A:75:TRP:CD1	0.52	2.93	11	5
1:A:7:VAL:O	1:A:11:LEU:HD23	0.52	2.04	15	1
1:A:11:LEU:HD12	1:A:76:TRP:CE3	0.52	2.40	15	1
1:A:30:GLN:N	1:A:31:PRO:CD	0.51	2.73	17	20
1:A:18:GLU:CG	1:A:75:TRP:CE3	0.51	2.93	10	4
1:A:11:LEU:HD11	1:A:76:TRP:O	0.51	2.06	10	1
1:A:46:VAL:CG2	1:A:76:TRP:CZ2	0.50	2.95	15	2
1:A:7:VAL:HG21	1:A:36:MET:SD	0.50	2.45	18	1
1:A:46:VAL:HG12	1:A:47:VAL:HG23	0.50	1.83	17	2
1:A:37:LEU:N	1:A:37:LEU:HD12	0.50	2.22	20	5
1:A:46:VAL:HG11	1:A:78:LEU:HA	0.49	1.84	1	4
1:A:26:LEU:HD22	1:A:26:LEU:N	0.49	2.23	13	3
1:A:37:LEU:HD22	1:A:37:LEU:N	0.49	2.23	9	1
1:A:37:LEU:CD1	1:A:37:LEU:N	0.49	2.76	3	2
1:A:13:LEU:CD1	1:A:13:LEU:N	0.48	2.76	12	3
1:A:11:LEU:CB	1:A:76:TRP:CE3	0.48	2.96	18	2
1:A:18:GLU:OE2	1:A:75:TRP:CE3	0.48	2.67	9	2
1:A:37:LEU:HD12	1:A:37:LEU:N	0.48	2.23	14	1
1:A:78:LEU:N	1:A:78:LEU:CD1	0.48	2.77	12	17
1:A:18:GLU:OE1	1:A:75:TRP:CE2	0.48	2.67	7	1
1:A:37:LEU:N	1:A:37:LEU:CD1	0.48	2.77	14	3
1:A:19:ALA:HB3	1:A:33:ILE:CG2	0.47	2.39	14	5
1:A:18:GLU:CD	1:A:75:TRP:CE3	0.47	2.93	15	2
1:A:37:LEU:N	1:A:37:LEU:HD22	0.47	2.23	5	3
1:A:11:LEU:HD12	1:A:11:LEU:N	0.47	2.24	7	2
1:A:16:ARG:N	1:A:16:ARG:CD	0.47	2.78	15	3
1:A:18:GLU:OE2	1:A:75:TRP:CZ3	0.47	2.68	16	4
1:A:32:LEU:HD12	1:A:36:MET:CE	0.47	2.40	20	1
1:A:4:LEU:CD1	1:A:40:MET:CE	0.47	2.93	10	1
1:A:75:TRP:CD1	1:A:75:TRP:C	0.47	2.92	12	4
1:A:11:LEU:HB2	1:A:76:TRP:CE3	0.47	2.45	18	1
1:A:49:ILE:HG21	1:A:75:TRP:CZ3	0.46	2.46	7	1
1:A:4:LEU:HD13	1:A:40:MET:SD	0.45	2.51	8	1
1:A:18:GLU:HB2	1:A:75:TRP:CD1	0.45	2.47	11	4
1:A:17:MET:O	1:A:75:TRP:CD1	0.45	2.69	6	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:46:VAL:HG23	1:A:47:VAL:N	0.45	2.27	16	1
1:A:11:LEU:HD13	1:A:17:MET:HB2	0.45	1.87	10	1
1:A:4:LEU:HD12	1:A:5:MET:N	0.44	2.27	15	7
1:A:76:TRP:NE1	1:A:78:LEU:HD11	0.44	2.28	4	1
1:A:38:GLU:O	1:A:42:ALA:N	0.44	2.51	10	7
1:A:8:ARG:O	1:A:12:ALA:HB2	0.44	2.13	4	2
1:A:35:ALA:O	1:A:39:ARG:CB	0.44	2.66	8	5
1:A:40:MET:SD	1:A:76:TRP:CE2	0.44	3.11	20	1
1:A:16:ARG:O	1:A:17:MET:CG	0.43	2.66	6	8
1:A:22:LEU:C	1:A:22:LEU:HD12	0.43	2.38	4	2
1:A:75:TRP:C	1:A:75:TRP:CD1	0.43	2.96	15	3
1:A:77:ALA:C	1:A:78:LEU:HD12	0.43	2.38	18	1
1:A:18:GLU:HG3	1:A:75:TRP:CE3	0.43	2.48	20	2
1:A:47:VAL:HG12	1:A:77:ALA:O	0.43	2.13	20	1
1:A:7:VAL:HG22	1:A:22:LEU:CD2	0.43	2.43	19	1
1:A:18:GLU:HB3	1:A:75:TRP:CD1	0.43	2.49	11	1
1:A:50:SER:CB	1:A:74:GLU:OE2	0.43	2.67	20	3
1:A:16:ARG:N	1:A:16:ARG:HD2	0.43	2.29	15	4
1:A:30:GLN:N	1:A:31:PRO:HD2	0.43	2.29	2	6
1:A:7:VAL:HG22	1:A:22:LEU:HD21	0.43	1.90	19	1
1:A:17:MET:O	1:A:76:TRP:N	0.43	2.52	8	1
1:A:20:LYS:CD	1:A:73:GLN:OE1	0.43	2.67	6	1
1:A:49:ILE:HD12	1:A:49:ILE:N	0.43	2.28	15	1
1:A:19:ALA:HB2	1:A:37:LEU:HD11	0.43	1.90	20	1
1:A:49:ILE:N	1:A:49:ILE:HD12	0.43	2.29	19	1
1:A:45:LYS:O	1:A:46:VAL:CG2	0.43	2.67	8	2
1:A:45:LYS:C	1:A:46:VAL:CG2	0.42	2.92	18	2
1:A:47:VAL:CG2	1:A:77:ALA:O	0.42	2.67	11	1
1:A:46:VAL:HG21	1:A:76:TRP:CZ2	0.42	2.48	15	1
1:A:37:LEU:CB	1:A:74:GLU:OE2	0.42	2.67	17	3
1:A:34:ASP:OD1	1:A:35:ALA:N	0.42	2.52	15	1
1:A:11:LEU:HB2	1:A:76:TRP:CZ3	0.42	2.49	17	1
1:A:20:LYS:CD	1:A:73:GLN:CD	0.42	2.92	18	1
1:A:32:LEU:C	1:A:32:LEU:CD1	0.42	2.92	15	3
1:A:32:LEU:HD12	1:A:36:MET:HE3	0.42	1.91	20	1
1:A:38:GLU:CG	1:A:74:GLU:OE1	0.42	2.67	17	1
1:A:37:LEU:CD1	1:A:74:GLU:O	0.42	2.67	13	4
1:A:30:GLN:N	1:A:30:GLN:OE1	0.42	2.53	5	1
1:A:11:LEU:N	1:A:11:LEU:CD1	0.42	2.83	7	1
1:A:18:GLU:OE2	1:A:18:GLU:N	0.42	2.53	14	1
1:A:37:LEU:CD2	1:A:74:GLU:C	0.42	2.92	20	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:20:LYS:CB	1:A:73:GLN:OE1	0.42	2.68	13	2
1:A:34:ASP:OD1	1:A:72:ARG:CD	0.42	2.68	7	1
1:A:20:LYS:C	1:A:23:SER:HG	0.42	2.23	4	1
1:A:38:GLU:N	1:A:74:GLU:OE2	0.42	2.53	17	1
1:A:41:GLU:O	1:A:44:GLY:N	0.42	2.53	2	2
1:A:26:LEU:N	1:A:26:LEU:CD2	0.42	2.83	13	1
1:A:49:ILE:O	1:A:75:TRP:N	0.42	2.52	19	4
1:A:23:SER:O	1:A:28:THR:N	0.42	2.53	9	1
1:A:38:GLU:OE2	1:A:48:ARG:NH2	0.42	2.53	16	1
1:A:73:GLN:NE2	1:A:73:GLN:C	0.41	2.78	9	1
1:A:34:ASP:O	1:A:38:GLU:CB	0.41	2.67	14	1
1:A:17:MET:HA	1:A:75:TRP:CZ2	0.41	2.51	2	1
1:A:11:LEU:O	1:A:15:GLY:N	0.41	2.53	3	2
1:A:11:LEU:HB3	1:A:76:TRP:CZ3	0.41	2.50	2	1
1:A:23:SER:O	1:A:27:GLN:N	0.41	2.53	16	3
1:A:39:ARG:C	1:A:39:ARG:CD	0.41	2.92	13	1
1:A:34:ASP:OD2	1:A:72:ARG:NE	0.41	2.54	1	1
1:A:19:ALA:O	1:A:23:SER:N	0.41	2.53	4	2
1:A:40:MET:HG2	1:A:76:TRP:CH2	0.41	2.49	19	1
1:A:11:LEU:HD12	1:A:15:GLY:O	0.41	2.14	13	1
1:A:4:LEU:C	1:A:4:LEU:CD1	0.41	2.93	6	2
1:A:11:LEU:HD11	1:A:76:TRP:CG	0.41	2.51	8	1
1:A:16:ARG:HG3	1:A:77:ALA:HB1	0.41	1.92	9	1
1:A:34:ASP:O	1:A:38:GLU:CG	0.41	2.69	8	1
1:A:30:GLN:O	1:A:33:ILE:N	0.41	2.53	5	1
1:A:19:ALA:HB1	1:A:33:ILE:HG23	0.41	1.92	6	1
1:A:45:LYS:C	1:A:46:VAL:HG23	0.41	2.41	8	3
1:A:8:ARG:O	1:A:12:ALA:CB	0.41	2.68	17	2
1:A:37:LEU:CD1	1:A:74:GLU:C	0.41	2.94	18	1
1:A:76:TRP:CH2	1:A:78:LEU:CD1	0.40	3.03	15	1
1:A:16:ARG:CG	1:A:77:ALA:HB1	0.40	2.47	2	1
1:A:51:GLU:CB	1:A:75:TRP:CZ2	0.40	3.04	8	1
1:A:28:THR:HG23	1:A:29:PRO:HD2	0.40	1.94	10	1
1:A:16:ARG:HD2	1:A:16:ARG:N	0.40	2.31	17	1
1:A:40:MET:O	1:A:45:LYS:CE	0.40	2.70	11	1
1:A:47:VAL:HG22	1:A:48:ARG:N	0.40	2.32	12	1
1:A:47:VAL:HG12	1:A:48:ARG:N	0.40	2.31	14	1
1:A:51:GLU:HG2	1:A:75:TRP:CZ2	0.40	2.52	14	1
1:A:4:LEU:N	1:A:36:MET:SD	0.40	2.95	16	1

6.3 Torsion angles

6.3.1 Protein backbone

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	56/87 (64%)	46±9 (83±16%)	5±2 (9±3%)	2±1 (3±2%)	4	33
All	All	1072/1740 (62%)	929 (87%)	104 (10%)	39 (4%)	4	32

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	46	VAL	18
1	A	27	GLN	10
1	A	45	LYS	7
1	A	16	ARG	2
1	A	15	GLY	1
1	A	29	PRO	1

6.3.2 Protein sidechains

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	48/73 (66%)	42±13 (87±27%)	1±1 (2±1%)	44	89
All	All	853/1460 (58%)	831 (97%)	22 (3%)	41	88

All 7 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	74	GLU	9
1	A	46	VAL	5
1	A	18	GLU	3
1	A	73	GLN	2

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Mol	Chain	Res	Type	Models (Total)
1	A	22	LEU	1
1	A	76	TRP	1
1	A	32	LEU	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 oligosaccharides in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

7 Chemical shift validation

The completeness of assignment taking into account all chemical shift lists is 81% for the well-defined parts and 83% 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	917
Number of shifts mapped to atoms	778
Number of unparsed shifts	0
Number of shifts with mapping errors	139
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	1

The following assigned chemical shifts were not mapped to the molecules present in the coordinate file.

- No matching atom found in the structure. All 139 occurrences are reported below.

List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	3	SER	HB3	4.29	0.03	2
1	A	4	LEU	HB3	1.737	0.002	2
1	A	5	MET	HB3	1.967	0.002	1
1	A	5	MET	HG3	2.56	0.002	1
1	A	6	GLU	HB3	2.267	0.013	2
1	A	8	ARG	HB3	2.026	0.002	2
1	A	8	ARG	HD3	3.188	0.002	2
1	A	8	ARG	HG3	1.796	0.002	2
1	A	9	ASP	HB3	2.672	0.006	2
1	A	10	MET	HB3	2.182	0.004	2
1	A	10	MET	HG3	2.476	0.003	1
1	A	11	LEU	HB3	1.946	0.003	2
1	A	13	LEU	HB3	1.826	0.005	2
1	A	14	GLN	HB3	2.233	0.003	2

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	14	GLN	HG3	2.452	0.004	1
1	A	16	ARG	HB3	1.737	0.002	2
1	A	16	ARG	HD3	2.558	0.004	2
1	A	16	ARG	HG3	1.502	0.002	2
1	A	17	MET	HB3	2.252	0.004	2
1	A	17	MET	HG3	2.66	0.005	2
1	A	18	GLU	HB3	2.221	0.003	2
1	A	18	GLU	HG3	1.577	0.003	1
1	A	20	LYS	HB3	1.866	0.001	2
1	A	20	LYS	HD3	1.636	0.012	1
1	A	20	LYS	HE3	2.941	0.001	1
1	A	20	LYS	HG3	1.367	0.002	1
1	A	21	GLN	HB3	2.399	0.001	2
1	A	21	GLN	HG3	2.455	0.002	1
1	A	22	LEU	HB3	1.959	0.004	2
1	A	23	SER	HB3	3.908	0.002	2
1	A	25	ARG	HB3	1.843	0.002	1
1	A	25	ARG	HD3	3.204	0.001	1
1	A	25	ARG	HG3	1.803	0.011	1
1	A	26	LEU	HB3	1.618	0.001	1
1	A	27	GLN	HB3	2.144	0.001	2
1	A	27	GLN	HG3	2.267	0.006	1
1	A	29	PRO	HB3	2.436	0.004	2
1	A	29	PRO	HG3	2.129	0.03	2
1	A	30	GLN	HB3	2.154	0.009	2
1	A	30	GLN	HG3	2.45	0.002	2
1	A	31	PRO	HB3	2.346	0.005	2
1	A	31	PRO	HD3	3.758	0.01	2
1	A	31	PRO	HG3	2.032	0.003	2
1	A	32	LEU	HB3	1.765	0.003	2
1	A	33	ILE	HG13	1.402	0.003	2
1	A	34	ASP	HB3	2.582	0.002	1
1	A	36	MET	HB3	2.178	0.002	2
1	A	36	MET	HG3	2.686	0.002	2
1	A	37	LEU	HB3	0.945	0.009	2
1	A	38	GLU	HB3	2.076	0.002	1
1	A	38	GLU	HG3	2.534	0.002	2
1	A	39	ARG	HB3	1.955	0.003	1
1	A	39	ARG	HD3	3.182	0.002	1
1	A	39	ARG	HG3	1.752	0.002	2
1	A	40	MET	HB3	1.954	0.003	1

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	40	MET	HG3	2.839	0.002	2
1	A	41	GLU	HB3	2.584	0.017	2
1	A	41	GLU	HG3	2.438	0.002	1
1	A	43	MET	HB3	2.369	0.002	2
1	A	43	MET	HG3	2.817	0.004	2
1	A	45	LYS	HB3	1.896	0.03	2
1	A	48	ARG	HB3	0.857	0.004	2
1	A	48	ARG	HD3	2.779	0.001	2
1	A	48	ARG	HG3	0.334	0.002	1
1	A	49	ILE	HG13	1.262	0.002	2
1	A	50	SER	HB3	3.727	0.002	1
1	A	51	GLU	HB3	2.075	0.001	2
1	A	51	GLU	HG3	2.177	0.002	1
1	A	53	SER	HB3	3.871	0.001	2
1	A	54	GLU	HB3	2.028	0.003	2
1	A	54	GLU	HG3	2.248	0.002	1
1	A	56	CYS	HB3	2.877	0.03	1
1	A	57	LEU	HB3	1.631	0.003	2
1	A	58	SER	HB3	3.87	0.03	2
1	A	60	SER	HB3	3.869	0.03	2
1	A	61	CYS	HB3	2.916	0.004	1
1	A	62	LYS	HB3	1.811	0.005	2
1	A	62	LYS	HD3	1.629	0.002	1
1	A	62	LYS	HE3	2.942	0.004	1
1	A	62	LYS	HG3	1.393	0.001	1
1	A	63	SER	HB3	3.872	0.003	2
1	A	64	CYS	HB3	2.859	0.001	1
1	A	65	PRO	HB3	2.269	0.001	2
1	A	65	PRO	HD3	3.719	0.003	1
1	A	65	PRO	HG3	1.976	0.002	1
1	A	66	GLU	HB3	2.031	0.007	2
1	A	66	GLU	HG3	2.249	0.003	1
1	A	68	LYS	HB3	1.792	0.008	2
1	A	68	LYS	HD3	1.623	0.002	1
1	A	68	LYS	HE3	2.944	0.001	1
1	A	68	LYS	HG3	1.372	0.004	1
1	A	71	CYS	HB3	2.871	0.001	1
1	A	72	ARG	HB3	1.734	0.003	2
1	A	72	ARG	HD3	3.096	0.007	1
1	A	72	ARG	HG3	1.542	0.001	2
1	A	73	GLN	HB3	1.742	0.002	2

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	73	GLN	HG3	1.976	0.001	1
1	A	74	GLU	HB3	1.66	0.003	1
1	A	74	GLU	HG3	1.867	0.001	2
1	A	75	TRP	HB3	2.897	0.005	1
1	A	76	TRP	HB3	2.883	0.004	1
1	A	78	LEU	HB3	1.623	0.005	2
1	A	79	ARG	HB3	1.721	0.007	2
1	A	79	ARG	HD3	3.033	0.004	1
1	A	79	ARG	HG3	1.417	0.001	1
1	A	80	LEU	H	8.463	0.014	1
1	A	80	LEU	HA	4.357	0.004	1
1	A	80	LEU	HB2	1.414	0.004	2
1	A	80	LEU	HB3	1.506	0.011	2
1	A	80	LEU	HD11	0.783	0.008	2
1	A	80	LEU	HD12	0.783	0.008	2
1	A	80	LEU	HD13	0.783	0.008	2
1	A	80	LEU	HD21	0.846	0.002	2
1	A	80	LEU	HD22	0.846	0.002	2
1	A	80	LEU	HD23	0.846	0.002	2
1	A	80	LEU	HG	1.465	0.003	1
1	A	80	LEU	C	176.737	0.03	1
1	A	80	LEU	CA	54.51	0.03	1
1	A	80	LEU	CB	42.6	0.03	1
1	A	80	LEU	CD1	23.256	0.03	2
1	A	80	LEU	CD2	24.83	0.03	2
1	A	80	LEU	CG	26.688	0.03	1
1	A	80	LEU	N	126.653	0.032	1
1	A	81	GLU	H	8.44	0.012	1
1	A	81	GLU	HA	4.178	0.005	1
1	A	81	GLU	HB2	1.83	0.002	1
1	A	81	GLU	HB3	1.83	0.002	1
1	A	81	GLU	HG2	2.106	0.001	2
1	A	81	GLU	HG3	2.178	0.001	2
1	A	81	GLU	C	176.094	0.03	1
1	A	81	GLU	CA	56.23	0.03	1
1	A	81	GLU	CB	30.534	0.03	1
1	A	81	GLU	CG	35.808	0.03	1
1	A	81	GLU	N	122.313	0.028	1
1	A	86	HIS	H	8.55	0.03	1
1	A	86	HIS	C	174.475	0.03	1
1	A	86	HIS	N	120.049	0.03	1

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	87	HIS	H	8.526	0.03	1
1	A	87	HIS	N	119.917	0.03	1

7.1.2 Chemical shift referencing [i](#)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction $\pm$ precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	80	-0.21 ± 0.16	None needed (< 0.5 ppm)
$^{13}\text{C}_\beta$	75	0.04 ± 0.23	None needed (< 0.5 ppm)
$^{13}\text{C}'$	77	-0.49 ± 0.10	None needed (< 0.5 ppm)
^{15}N	77	0.21 ± 0.45	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 81%, i.e. 669 atoms were assigned a chemical shift out of a possible 822. 0 out of 11 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	273/278 (98%)	111/112 (99%)	109/112 (97%)	53/54 (98%)
Sidechain	396/520 (76%)	271/339 (80%)	125/156 (80%)	0/25 (0%)
Aromatic	0/24 (0%)	0/12 (0%)	0/10 (0%)	0/2 (0%)
Overall	669/822 (81%)	382/463 (83%)	234/278 (84%)	53/81 (65%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 83%, i.e. 883 atoms were assigned a chemical shift out of a possible 1067. 0 out of 12 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	381/394 (97%)	156/160 (98%)	152/158 (96%)	73/76 (96%)
Sidechain	502/649 (77%)	343/423 (81%)	159/196 (81%)	0/30 (0%)
Aromatic	0/24 (0%)	0/12 (0%)	0/10 (0%)	0/2 (0%)
Overall	883/1067 (83%)	499/595 (84%)	311/364 (85%)	73/108 (68%)

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 con-

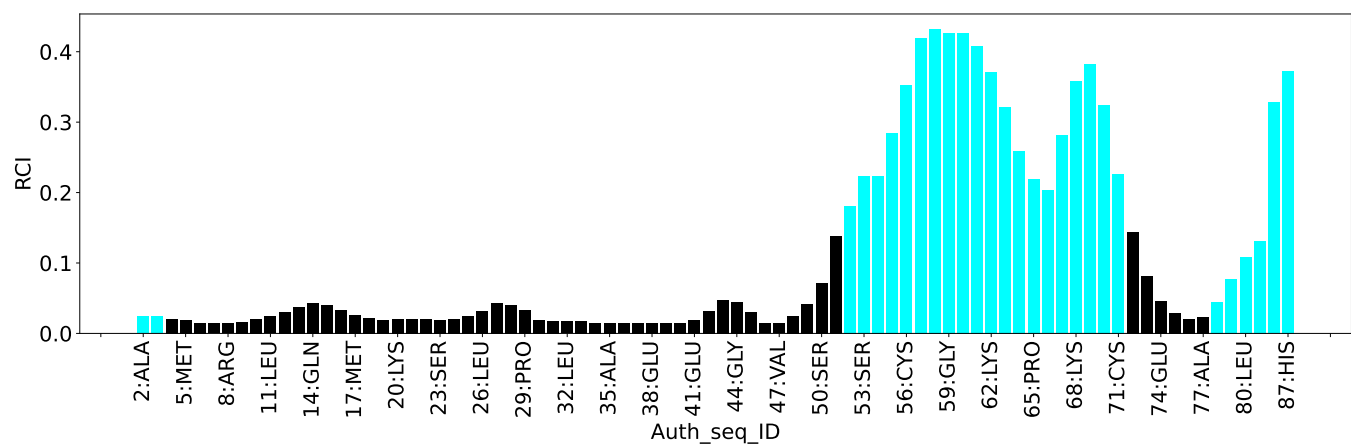
taining paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, ppm	Expected range, ppm	Z-score
1	A	37	LEU	HB2	-0.84	-0.07 – 3.30	-7.3

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	1121
Intra-residue ($ i-j =0$)	568
Sequential ($ i-j =1$)	260
Medium range ($ i-j >1$ and $ i-j <5$)	118
Long range ($ i-j \geq 5$)	129
Inter-chain	0
Hydrogen bond restraints	46
Disulfide bond restraints	0
Total dihedral-angle restraints	100
Number of unmapped restraints	5
Number of restraints per residue	14.0
Number of long range restraints per residue ¹	1.7

¹Long 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)	6.8	0.2
0.2-0.5 (Medium)	19.1	0.5
>0.5 (Large)	17.2	2.3

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

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

Bins (°)	Average number of violations per model	Max (°)
1.0-10.0 (Small)	0.3	1.64
10.0-20.0 (Medium)	None	None
>20.0 (Large)	None	None

9 Distance violation analysis ⓘ

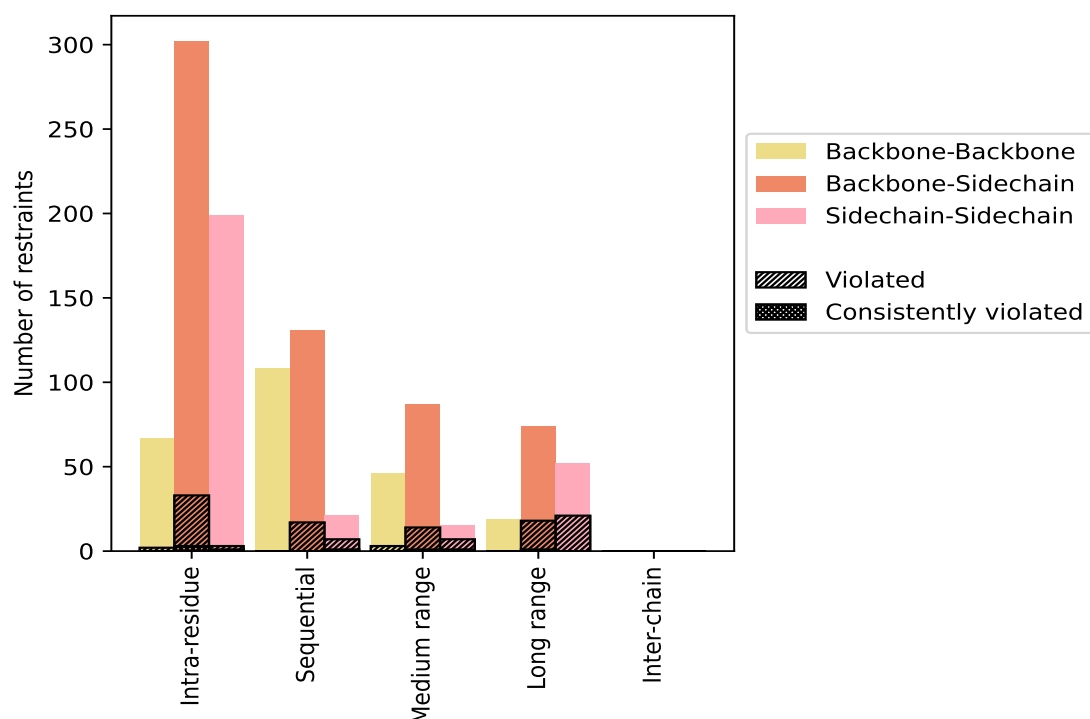
9.1 Summary of distance violations ⓘ

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)	568	50.7	38	6.7	3.4	4	0.7	0.4
Backbone-Backbone	67	6.0	2	3.0	0.2	0	0.0	0.0
Backbone-Sidechain	302	26.9	33	10.9	2.9	3	1.0	0.3
Sidechain-Sidechain	199	17.8	3	1.5	0.3	1	0.5	0.1
Sequential (i-j =1)	260	23.2	24	9.2	2.1	1	0.4	0.1
Backbone-Backbone	108	9.6	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	131	11.7	17	13.0	1.5	0	0.0	0.0
Sidechain-Sidechain	21	1.9	7	33.3	0.6	1	4.8	0.1
Medium range (i-j >1 & i-j <5)	118	10.5	24	20.3	2.1	2	1.7	0.2
Backbone-Backbone	46	4.1	3	6.5	0.3	0	0.0	0.0
Backbone-Sidechain	57	5.1	14	24.6	1.2	1	1.8	0.1
Sidechain-Sidechain	15	1.3	7	46.7	0.6	1	6.7	0.1
Long range (i-j ≥5)	129	11.5	39	30.2	3.5	1	0.8	0.1
Backbone-Backbone	19	1.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	58	5.2	18	31.0	1.6	1	1.7	0.1
Sidechain-Sidechain	52	4.6	21	40.4	1.9	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	46	4.1	0	0.0	0.0	0	0.0	0.0
Disulfide bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Total	1121	100.0	125	11.2	11.2	8	0.7	0.7
Backbone-Backbone	240	21.4	5	2.1	0.4	0	0.0	0.0
Backbone-Sidechain	594	53.0	82	13.8	7.3	5	0.8	0.4
Sidechain-Sidechain	287	25.6	38	13.2	3.4	3	1.0	0.3

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	11	6	13	13	0	43	0.57	1.9	0.46	0.34
2	12	6	8	9	0	35	0.47	1.7	0.36	0.3
3	12	8	7	15	0	42	0.58	2.05	0.48	0.4
4	18	7	10	14	0	49	0.55	1.97	0.44	0.35
5	10	7	11	8	0	36	0.51	1.71	0.39	0.34
6	12	10	14	14	0	50	0.58	2.26	0.52	0.38
7	13	3	6	20	0	42	0.61	1.91	0.49	0.37
8	15	10	11	12	0	48	0.55	1.71	0.41	0.42
9	16	7	10	15	0	48	0.55	2.3	0.47	0.4
10	12	12	7	14	0	45	0.63	1.82	0.44	0.46

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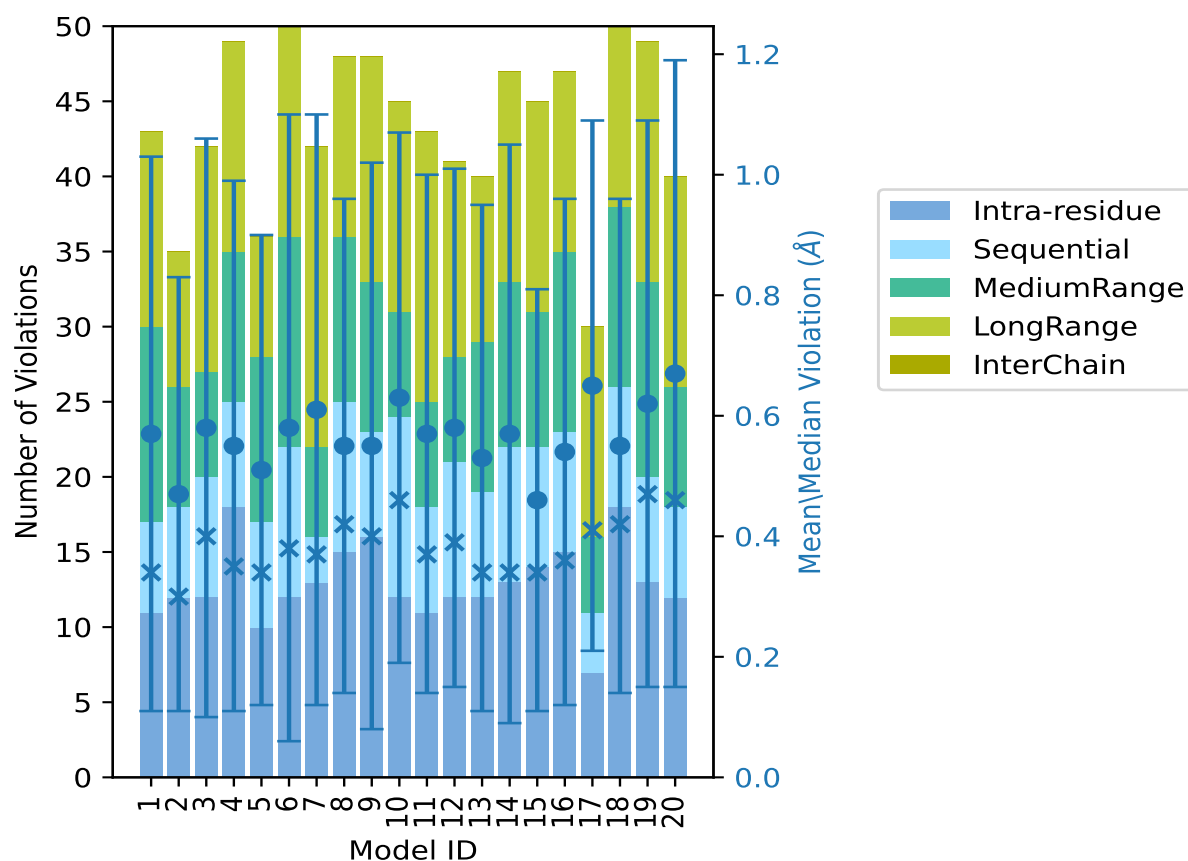
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Model ID	Number of violations						Mean (Å)	Max (Å)	SD ⁶ (Å)	Median (Å)
	IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵	Total				
11	11	7	7	18	0	43	0.57	1.62	0.43	0.37
12	12	9	7	13	0	41	0.58	2.02	0.43	0.39
13	12	7	10	11	0	40	0.53	1.77	0.42	0.34
14	13	9	11	14	0	47	0.57	2.05	0.48	0.34
15	14	8	9	14	0	45	0.46	1.52	0.35	0.34
16	15	8	12	12	0	47	0.54	1.52	0.42	0.36
17	7	4	5	14	0	30	0.65	1.55	0.44	0.41
18	18	8	12	12	0	50	0.55	1.77	0.41	0.42
19	13	7	13	16	0	49	0.62	1.97	0.47	0.47
20	12	6	8	14	0	40	0.67	2.01	0.52	0.46

¹Intra-residue restraints, ²Sequential restraints, ³Medium range restraints, ⁴Long range restraints,

⁵Inter-chain restraints, ⁶Standard deviation

9.2.1 Bar graph : Distance Violation statistics for each model ⓘ



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

9.3 Distance violation statistics for the ensemble

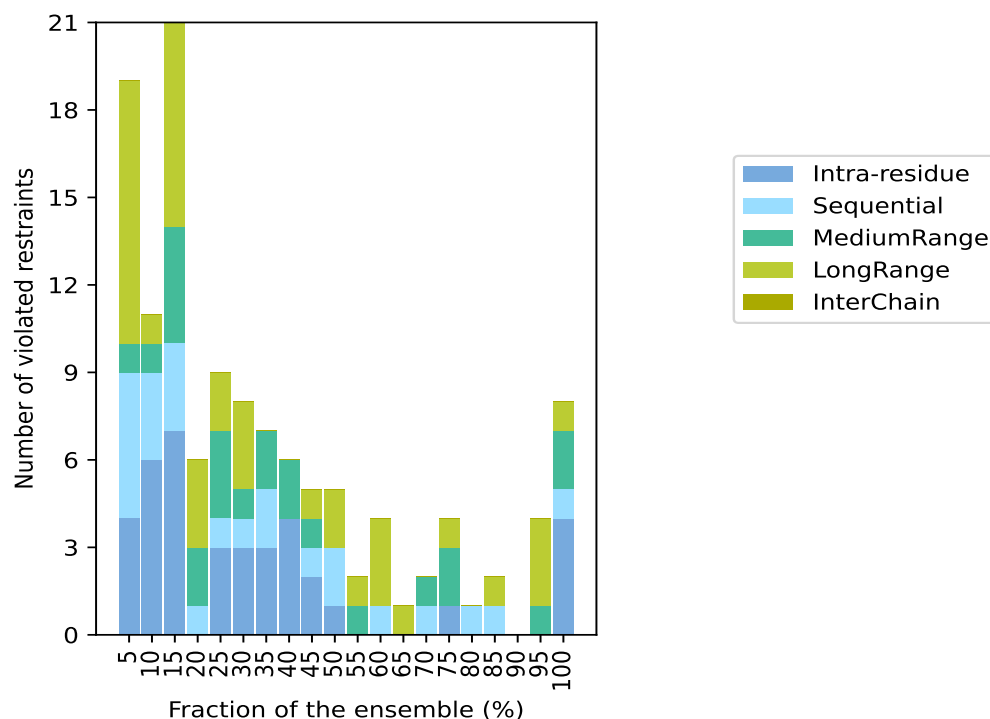
Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 950(IR:530, SQ:236, MR:94, LR:90, IC:0) restraints are not violated in the ensemble.

Number of violated restraints						Fraction of the ensemble	
IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵	Total	Count ⁶	%
4	5	1	9	0	19	1	5.0
6	3	1	1	0	11	2	10.0
7	3	4	7	0	21	3	15.0
0	1	2	3	0	6	4	20.0
3	1	3	2	0	9	5	25.0
3	1	1	3	0	8	6	30.0
3	2	2	0	0	7	7	35.0
4	0	2	0	0	6	8	40.0
2	1	1	1	0	5	9	45.0
1	2	0	2	0	5	10	50.0
0	0	1	1	0	2	11	55.0
0	1	0	3	0	4	12	60.0
0	0	0	1	0	1	13	65.0
0	1	1	0	0	2	14	70.0
1	0	2	1	0	4	15	75.0
0	1	0	0	0	1	16	80.0
0	1	0	1	0	2	17	85.0
0	0	0	0	0	0	18	90.0
0	0	1	3	0	4	19	95.0
4	1	2	1	0	8	20	100.0

¹Intra-residue restraints, ²Sequential restraints, ³Medium range restraints, ⁴Long range restraints,

⁵Inter-chain restraints, ⁶ Number of models with violations

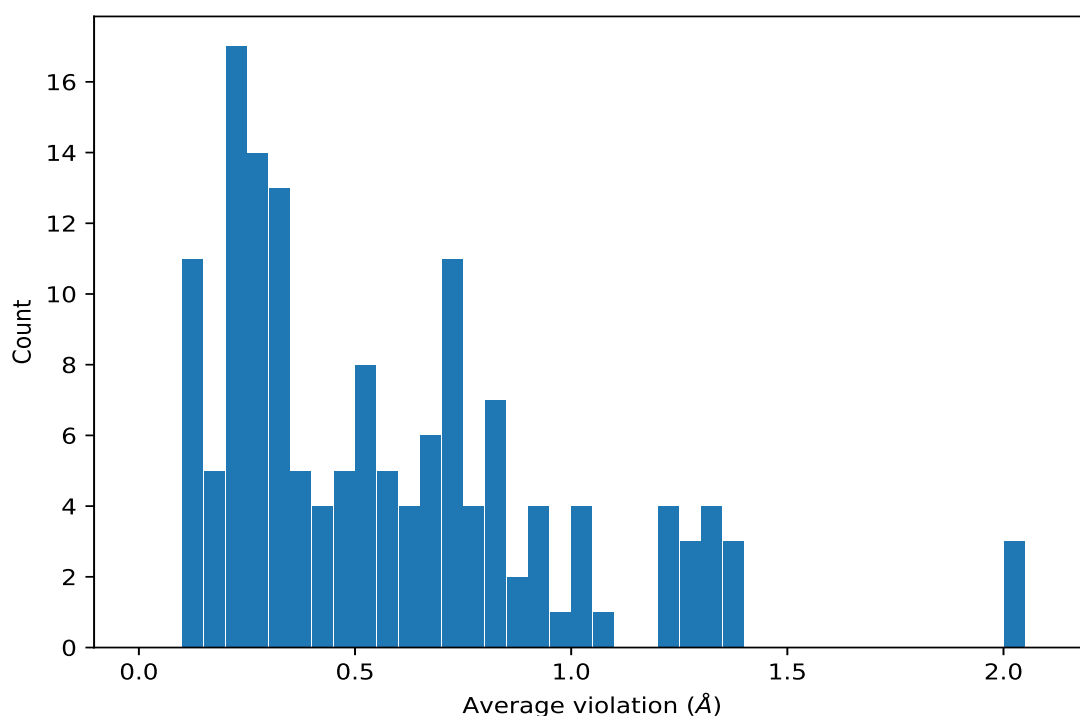
9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)



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)
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	20	0.99	0.09	0.98
(3,698)	1:50:A:SER:HB2	1:38:A:GLU:H	20	0.29	0.03	0.3
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	20	0.22	0.0	0.22
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	20	0.15	0.05	0.14
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	20	0.15	0.05	0.14
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	19	1.32	0.34	1.39
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD21	19	0.53	0.19	0.5
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	19	0.53	0.19	0.5
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD22	19	0.53	0.19	0.5
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	19	0.27	0.05	0.27
(1,48)	1:28:A:THR:HG23	1:27:A:GLN:HA	17	0.61	0.15	0.53
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	17	0.61	0.15	0.53
(1,48)	1:28:A:THR:HG21	1:27:A:GLN:HA	17	0.61	0.15	0.53
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	16	0.31	0.17	0.25
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	15	0.43	0.04	0.45
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	14	0.21	0.09	0.18

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Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	13	0.67	0.37	0.41
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	13	0.67	0.37	0.41
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	13	0.67	0.37	0.41
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	12	0.86	0.32	0.93
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	12	0.67	0.45	0.62
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	12	0.67	0.45	0.62
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	12	0.67	0.45	0.62
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	12	0.61	0.44	0.55
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	12	0.31	0.04	0.32
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	10	1.24	0.31	1.32
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	10	1.04	0.39	1.17
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	10	0.73	0.4	0.98
(1,56)	1:38:A:GLU:HG2	1:38:A:GLU:H	10	0.73	0.4	0.98
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	10	0.35	0.01	0.34
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	9	1.35	0.46	1.36
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	9	1.35	0.46	1.36
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	9	1.35	0.46	1.36
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	9	0.46	0.17	0.46
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	9	0.45	0.52	0.19
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	9	0.26	0.01	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	9	0.26	0.01	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	9	0.26	0.01	0.27
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	9	0.14	0.03	0.13
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	8	0.79	0.01	0.79
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	8	0.24	0.1	0.2
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	8	0.23	0.0	0.23
(1,58)	1:39:A:ARG:HB2	1:36:A:MET:HA	8	0.14	0.03	0.14
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	7	1.21	0.02	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	7	1.21	0.02	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	7	1.21	0.02	1.2
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD22	7	0.95	0.37	1.07
(1,6)	1:7:A:VAL:H	1:22:A:LEU:HD21	7	0.95	0.37	1.07
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD21	7	0.95	0.37	1.07
(1,6)	1:7:A:VAL:H	1:22:A:LEU:HD22	7	0.95	0.37	1.07
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	7	0.8	0.02	0.79
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	7	0.42	0.0	0.42
(1,76)	1:60:A:SER:HA	1:63:A:SER:HA	7	0.38	0.16	0.32
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	7	0.38	0.16	0.32
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	7	0.27	0.04	0.29
(1,87)	1:70:A:ALA:HB2	1:70:A:ALA:H	7	0.27	0.04	0.29
(1,87)	1:70:A:ALA:HB3	1:70:A:ALA:H	7	0.27	0.04	0.29
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	6	2.03	0.16	2.04

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Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	6	2.03	0.16	2.04
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	6	2.03	0.16	2.04
(3,674)	1:47:A:VAL:HG21	1:79:A:ARG:HD2	6	1.04	0.77	0.93
(3,674)	1:47:A:VAL:HG22	1:79:A:ARG:HD2	6	1.04	0.77	0.93
(3,674)	1:47:A:VAL:HG23	1:79:A:ARG:HD2	6	1.04	0.77	0.93
(3,314)	1:62:A:LYS:H	1:62:A:LYS:HE2	6	0.58	0.05	0.58
(1,73)	1:60:A:SER:HB2	1:60:A:SER:H	6	0.52	0.24	0.4
(1,73)	1:63:A:SER:HB2	1:63:A:SER:H	6	0.52	0.24	0.4
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	6	0.45	0.15	0.39
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	6	0.45	0.15	0.39
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	6	0.45	0.15	0.39
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	6	0.38	0.2	0.4
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	6	0.38	0.2	0.4
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	6	0.38	0.2	0.4
(3,761)	1:66:A:GLU:HG2	1:68:A:LYS:HA	6	0.35	0.08	0.37
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	5	1.31	0.33	1.3
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	5	1.31	0.33	1.3
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	5	1.31	0.33	1.3
(1,43)	1:24:A:ALA:HA	1:27:A:GLN:H	5	0.33	0.06	0.37
(1,43)	1:35:A:ALA:HA	1:36:A:MET:H	5	0.33	0.06	0.37
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	5	0.2	0.0	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	5	0.2	0.0	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	5	0.2	0.0	0.2
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	5	0.19	0.06	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	5	0.19	0.06	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	5	0.19	0.06	0.23
(3,349)	1:73:A:GLN:H	1:73:A:GLN:HG2	5	0.14	0.05	0.12
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD11	4	1.26	0.76	1.2
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD12	4	1.26	0.76	1.2
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD13	4	1.26	0.76	1.2
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG21	4	0.56	0.51	0.3
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG22	4	0.56	0.51	0.3
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG23	4	0.56	0.51	0.3
(3,93)	1:18:A:GLU:H	1:21:A:GLN:HG2	4	0.15	0.05	0.14
(3,129)	1:24:A:ALA:H	1:25:A:ARG:HB2	4	0.15	0.02	0.15
(3,787)	1:72:A:ARG:HG2	1:72:A:ARG:H	3	1.07	0.08	1.12
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG21	3	0.83	0.45	0.87
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG22	3	0.83	0.45	0.87
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG23	3	0.83	0.45	0.87
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD21	3	0.81	0.32	0.78
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD22	3	0.81	0.32	0.78
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD23	3	0.81	0.32	0.78

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Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(3,428)	1:13:A:LEU:HD21	1:13:A:LEU:HA	3	0.76	0.0	0.76
(3,428)	1:13:A:LEU:HD22	1:13:A:LEU:HA	3	0.76	0.0	0.76
(3,428)	1:13:A:LEU:HD23	1:13:A:LEU:HA	3	0.76	0.0	0.76
(3,742)	1:62:A:LYS:HE2	1:63:A:SER:HA	3	0.58	0.25	0.73
(3,760)	1:66:A:GLU:HG2	1:68:A:LYS:HB2	3	0.41	0.04	0.4
(3,837)	1:78:A:LEU:HD21	1:11:A:LEU:HB2	3	0.35	0.1	0.36
(3,837)	1:78:A:LEU:HD22	1:11:A:LEU:HB2	3	0.35	0.1	0.36
(3,837)	1:78:A:LEU:HD23	1:11:A:LEU:HB2	3	0.35	0.1	0.36
(1,83)	1:63:A:SER:HA	1:64:A:CYS:H	3	0.33	0.11	0.38
(1,83)	1:63:A:SER:HA	1:63:A:SER:H	3	0.33	0.11	0.38
(1,83)	1:60:A:SER:HA	1:60:A:SER:H	3	0.33	0.11	0.38
(3,260)	1:48:A:ARG:H	1:48:A:ARG:HG2	3	0.31	0.05	0.34
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD21	3	0.3	0.02	0.29
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD22	3	0.3	0.02	0.29
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD23	3	0.3	0.02	0.29
(3,584)	1:35:A:ALA:HB1	1:34:A:ASP:HB2	3	0.27	0.07	0.25
(3,584)	1:35:A:ALA:HB2	1:34:A:ASP:HB2	3	0.27	0.07	0.25
(3,584)	1:35:A:ALA:HB3	1:34:A:ASP:HB2	3	0.27	0.07	0.25
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD21	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD22	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD23	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD21	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD22	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD23	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD21	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD22	3	0.21	0.01	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD23	3	0.21	0.01	0.21
(3,567)	1:33:A:ILE:HB	1:73:A:GLN:HG2	3	0.18	0.04	0.16
(3,689)	1:49:A:ILE:HG21	1:75:A:TRP:HB2	3	0.12	0.0	0.12
(3,689)	1:49:A:ILE:HG22	1:75:A:TRP:HB2	3	0.12	0.0	0.12
(3,689)	1:49:A:ILE:HG23	1:75:A:TRP:HB2	3	0.12	0.0	0.12
(3,814)	1:75:A:TRP:HA	1:74:A:GLU:HG2	3	0.1	0.0	0.1
(3,624)	1:39:A:ARG:HB2	1:38:A:GLU:HG2	2	0.89	0.27	0.89
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG21	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG22	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG23	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG21	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG22	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG23	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG21	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG22	2	0.71	0.59	0.71
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG23	2	0.71	0.59	0.71

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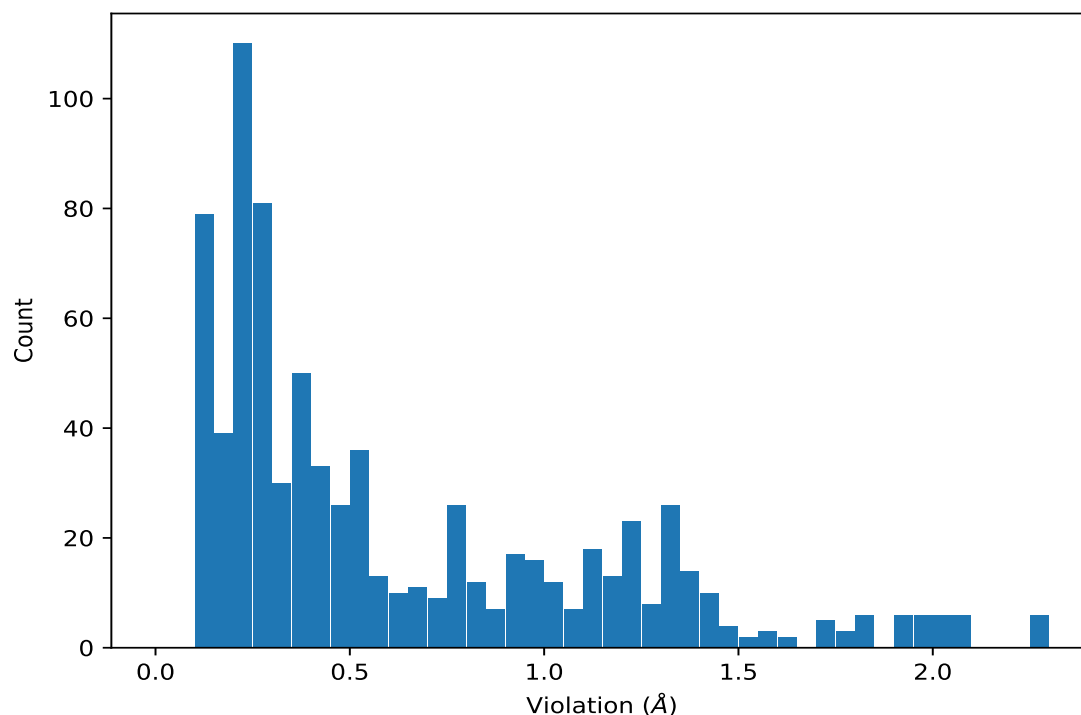
Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,81)	1:60:A:SER:HA	1:60:A:SER:HB2	2	0.53	0.0	0.53
(1,81)	1:63:A:SER:HA	1:63:A:SER:HB2	2	0.53	0.0	0.53
(3,763)	1:66:A:GLU:HB2	1:66:A:GLU:HA	2	0.52	0.0	0.52
(1,79)	1:62:A:LYS:HA	1:62:A:LYS:HG2	2	0.44	0.01	0.44
(3,704)	1:51:A:GLU:HG2	1:52:A:THR:H	2	0.22	0.04	0.22
(3,641)	1:41:A:GLU:HG2	1:41:A:GLU:HA	2	0.16	0.01	0.16

¹Number of violated models, ²Standard 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)
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	9	2.3
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	9	2.3
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	9	2.3
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD11	6	2.26
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD12	6	2.26
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD13	6	2.26
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	3	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	3	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	3	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	14	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	14	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	14	2.05
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	12	2.02
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	12	2.02
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	12	2.02
(3,674)	1:47:A:VAL:HG21	1:79:A:ARG:HD2	20	2.01
(3,674)	1:47:A:VAL:HG22	1:79:A:ARG:HD2	20	2.01
(3,674)	1:47:A:VAL:HG23	1:79:A:ARG:HD2	20	2.01
(3,674)	1:47:A:VAL:HG21	1:79:A:ARG:HD2	19	1.97
(3,674)	1:47:A:VAL:HG22	1:79:A:ARG:HD2	19	1.97
(3,674)	1:47:A:VAL:HG23	1:79:A:ARG:HD2	19	1.97
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	4	1.97
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	4	1.97
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	4	1.97
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	7	1.91
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	7	1.91
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	7	1.91
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	1	1.9
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	1	1.9
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	1	1.9
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	10	1.82
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	10	1.82
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	10	1.82
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	3	1.81
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	3	1.81
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	3	1.81
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD11	7	1.77
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD12	7	1.77
(3,373)	1:78:A:LEU:H	1:11:A:LEU:HD13	7	1.77
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	4	1.74
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	20	1.72
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD11	8	1.71
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD12	8	1.71

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD13	8	1.71
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	1	1.63
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	6	1.62
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	8	1.59
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	17	1.55
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	3	1.55
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	16	1.52
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	16	1.52
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	15	1.48
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	7	1.46
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	18	1.46
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	4	1.45
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG21	10	1.44
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG22	10	1.44
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG23	10	1.44
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	6	1.42
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	6	1.42
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	6	1.42
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	17	1.4
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	17	1.4
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	17	1.4
(1,6)	1:7:A:VAL:H	1:22:A:LEU:HD22	11	1.4
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	7	1.39
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	7	1.39
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	7	1.39
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	11	1.39
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD21	9	1.39
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	14	1.37
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG21	17	1.36
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG22	17	1.36
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG23	17	1.36
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	11	1.36
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	14	1.36
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	14	1.36
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	14	1.36
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	13	1.35
(3,674)	1:47:A:VAL:HG21	1:79:A:ARG:HD2	12	1.34
(3,674)	1:47:A:VAL:HG22	1:79:A:ARG:HD2	12	1.34
(3,674)	1:47:A:VAL:HG23	1:79:A:ARG:HD2	12	1.34
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	5	1.34
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	11	1.33
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	11	1.33

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	11	1.33
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	19	1.32
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	19	1.32
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	19	1.32
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	10	1.31
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	10	1.31
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	10	1.31
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG21	10	1.3
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG22	10	1.3
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG23	10	1.3
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG21	10	1.3
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG22	10	1.3
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG23	10	1.3
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG21	10	1.3
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG22	10	1.3
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG23	10	1.3
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	4	1.3
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	4	1.3
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	4	1.3
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	10	1.3
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	10	1.29
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	4	1.28
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	18	1.27
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	11	1.26
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	11	1.26
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	11	1.26
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	13	1.25
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	3	1.25
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	7	1.24
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	17	1.24
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	18	1.23
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	19	1.23
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	19	1.23
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	19	1.23
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	13	1.22
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	7	1.22
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	7	1.22
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	7	1.22
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD21	4	1.21
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD22	4	1.21
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD23	4	1.21
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	10	1.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	3	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	3	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	3	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	4	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	4	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	4	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	9	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	9	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	9	1.2
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	12	1.19
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	12	1.19
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	12	1.19
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD21	14	1.19
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD22	14	1.19
(3,416)	1:11:A:LEU:HA	1:11:A:LEU:HD23	14	1.19
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	12	1.18
(3,846)	1:45:A:LYS:HA	1:46:A:VAL:HG21	16	1.16
(3,846)	1:45:A:LYS:HA	1:46:A:VAL:HG22	16	1.16
(3,846)	1:45:A:LYS:HA	1:46:A:VAL:HG23	16	1.16
(3,624)	1:39:A:ARG:HB2	1:38:A:GLU:HG2	17	1.16
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	15	1.16
(1,6)	1:7:A:VAL:H	1:22:A:LEU:HD21	8	1.15
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	14	1.14
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	19	1.14
(3,787)	1:72:A:ARG:HG2	1:72:A:ARG:H	6	1.13
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	11	1.13
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	3	1.12
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	3	1.12
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	3	1.12
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	9	1.12
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	9	1.12
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	9	1.12
(3,787)	1:72:A:ARG:HG2	1:72:A:ARG:H	20	1.12
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	12	1.12
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	14	1.11
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	5	1.11
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	17	1.1
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	17	1.1
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	17	1.1
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	14	1.1
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	8	1.08
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	8	1.08

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD22	12	1.07
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	6	1.06
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	6	1.06
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	18	1.05
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	16	1.05
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	2	1.04
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	2	1.04
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	2	1.04
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	1	1.03
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	2	1.02
(1,56)	1:38:A:GLU:HG2	1:38:A:GLU:H	10	1.01
(1,56)	1:38:A:GLU:HG2	1:38:A:GLU:H	12	1.01
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	13	1.0
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	13	1.0
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	13	1.0
(1,56)	1:38:A:GLU:HG2	1:38:A:GLU:H	16	1.0
(1,56)	1:38:A:GLU:HG2	1:38:A:GLU:H	18	1.0
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	19	0.99
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	9	0.99
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	16	0.99
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	17	0.99
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	5	0.99
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	14	0.98
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	15	0.98
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	18	0.97
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	19	0.97
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	13	0.96
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	8	0.96
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	8	0.96
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	8	0.96
(3,787)	1:72:A:ARG:HG2	1:72:A:ARG:H	18	0.95
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	20	0.95
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	4	0.95
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	8	0.94
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	7	0.93
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	10	0.93
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	19	0.93
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	19	0.93
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	19	0.93
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	12	0.92
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	12	0.92
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	12	0.92

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	3	0.92
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	8	0.92
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	19	0.92
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	5	0.92
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	7	0.91
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	7	0.91
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	7	0.91
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	6	0.9
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	11	0.89
(1,73)	1:63:A:SER:HB2	1:63:A:SER:H	10	0.89
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG21	20	0.87
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG22	20	0.87
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG23	20	0.87
(1,48)	1:28:A:THR:HG23	1:27:A:GLN:HA	1	0.85
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	4	0.85
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	1	0.83
(3,555)	1:32:A:LEU:HB2	1:33:A:ILE:HG12	20	0.82
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	10	0.82
(1,48)	1:28:A:THR:HG23	1:27:A:GLN:HA	14	0.82
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	4	0.81
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	19	0.81
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	12	0.81
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	19	0.8
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	6	0.8
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	3	0.8
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	6	0.8
(1,73)	1:63:A:SER:HB2	1:63:A:SER:H	19	0.8
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	1	0.79
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	2	0.79
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	13	0.79
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	15	0.79
(3,502)	1:22:A:LEU:HD11	1:7:A:VAL:HA	20	0.79
(3,502)	1:22:A:LEU:HD12	1:7:A:VAL:HA	20	0.79
(3,502)	1:22:A:LEU:HD13	1:7:A:VAL:HA	20	0.79
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	5	0.79
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	17	0.79
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	20	0.79
(1,48)	1:28:A:THR:HG21	1:27:A:GLN:HA	9	0.79
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD21	19	0.78
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD22	19	0.78
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD23	19	0.78
(3,508)	1:23:A:SER:HB2	1:23:A:SER:H	7	0.78

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,232)	1:42:A:ALA:H	1:43:A:MET:HB2	3	0.78
(3,742)	1:62:A:LYS:HE2	1:63:A:SER:HA	20	0.77
(3,428)	1:13:A:LEU:HD21	1:13:A:LEU:HA	8	0.76
(3,428)	1:13:A:LEU:HD22	1:13:A:LEU:HA	8	0.76
(3,428)	1:13:A:LEU:HD23	1:13:A:LEU:HA	8	0.76
(3,428)	1:13:A:LEU:HD21	1:13:A:LEU:HA	9	0.76
(3,428)	1:13:A:LEU:HD22	1:13:A:LEU:HA	9	0.76
(3,428)	1:13:A:LEU:HD23	1:13:A:LEU:HA	9	0.76
(3,428)	1:13:A:LEU:HD21	1:13:A:LEU:HA	12	0.76
(3,428)	1:13:A:LEU:HD22	1:13:A:LEU:HA	12	0.76
(3,428)	1:13:A:LEU:HD23	1:13:A:LEU:HA	12	0.76
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	15	0.74
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	15	0.74
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	15	0.74
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	18	0.74
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	5	0.73
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	20	0.72
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	20	0.72
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	20	0.72
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	18	0.71
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	19	0.69
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	19	0.69
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	19	0.69
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	7	0.68
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	7	0.68
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	7	0.68
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD11	10	0.68
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD12	10	0.68
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD13	10	0.68
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	20	0.67
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	10	0.65
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD22	16	0.64
(3,63)	1:13:A:LEU:H	1:14:A:GLN:HG2	12	0.63
(3,624)	1:39:A:ARG:HB2	1:38:A:GLU:HG2	8	0.62
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	4	0.62
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	4	0.62
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	4	0.62
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	14	0.62
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	8	0.61
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD22	14	0.61
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	1	0.6
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD21	1	0.58

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,597)	1:37:A:LEU:HD21	1:74:A:GLU:H	10	0.57
(3,597)	1:37:A:LEU:HD22	1:74:A:GLU:H	10	0.57
(3,597)	1:37:A:LEU:HD23	1:74:A:GLU:H	10	0.57
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	4	0.57
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	1	0.56
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	1	0.56
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	1	0.56
(3,314)	1:62:A:LYS:H	1:62:A:LYS:HE2	12	0.56
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	16	0.55
(3,314)	1:62:A:LYS:H	1:62:A:LYS:HE2	4	0.55
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD21	17	0.55
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	18	0.55
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	13	0.54
(1,48)	1:28:A:THR:HG21	1:27:A:GLN:HA	11	0.54
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	15	0.54
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	18	0.53
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	18	0.53
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	18	0.53
(1,81)	1:60:A:SER:HA	1:60:A:SER:HB2	3	0.53
(1,81)	1:63:A:SER:HA	1:63:A:SER:HB2	14	0.53
(1,76)	1:60:A:SER:HA	1:63:A:SER:HA	3	0.53
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	19	0.53
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	8	0.53
(1,48)	1:28:A:THR:HG21	1:27:A:GLN:HA	10	0.53
(3,763)	1:66:A:GLU:HB2	1:66:A:GLU:HA	4	0.52
(3,763)	1:66:A:GLU:HB2	1:66:A:GLU:HA	18	0.52
(3,406)	1:7:A:VAL:HG11	1:37:A:LEU:HD21	15	0.52
(3,406)	1:7:A:VAL:HG11	1:37:A:LEU:HD22	15	0.52
(3,406)	1:7:A:VAL:HG11	1:37:A:LEU:HD23	15	0.52
(3,406)	1:7:A:VAL:HG12	1:37:A:LEU:HD21	15	0.52
(3,406)	1:7:A:VAL:HG12	1:37:A:LEU:HD22	15	0.52
(3,406)	1:7:A:VAL:HG12	1:37:A:LEU:HD23	15	0.52
(3,406)	1:7:A:VAL:HG13	1:37:A:LEU:HD21	15	0.52
(3,406)	1:7:A:VAL:HG13	1:37:A:LEU:HD22	15	0.52
(3,406)	1:7:A:VAL:HG13	1:37:A:LEU:HD23	15	0.52
(1,68)	1:66:A:GLU:HA	1:66:A:GLU:HB2	4	0.52
(1,48)	1:28:A:THR:HG21	1:27:A:GLN:HA	19	0.52
(1,6)	1:7:A:VAL:H	1:11:A:LEU:HD22	3	0.52
(1,6)	1:7:A:VAL:H	1:22:A:LEU:HD21	7	0.52
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD11	20	0.5
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD12	20	0.5
(3,467)	1:18:A:GLU:HA	1:37:A:LEU:HD13	20	0.5

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,314)	1:62:A:LYS:H	1:62:A:LYS:HE2	1	0.5
(3,5)	1:77:A:ALA:H	1:16:A:ARG:HG2	9	0.5
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD22	7	0.5
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	3	0.5
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	6	0.5
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	16	0.5
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	19	0.49
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	11	0.49
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	8	0.49
(1,48)	1:28:A:THR:HG22	1:27:A:GLN:HA	2	0.49
(1,48)	1:28:A:THR:HG23	1:27:A:GLN:HA	13	0.49
(1,48)	1:28:A:THR:HG23	1:27:A:GLN:HA	12	0.48
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	16	0.47
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	11	0.46
(3,837)	1:78:A:LEU:HD21	1:11:A:LEU:HB2	9	0.46
(3,837)	1:78:A:LEU:HD22	1:11:A:LEU:HB2	9	0.46
(3,837)	1:78:A:LEU:HD23	1:11:A:LEU:HB2	9	0.46
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	1	0.46
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	5	0.46
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	6	0.46
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	16	0.46
(3,116)	1:22:A:LEU:H	1:22:A:LEU:HD21	10	0.46
(3,116)	1:22:A:LEU:H	1:22:A:LEU:HD22	10	0.46
(3,116)	1:22:A:LEU:H	1:22:A:LEU:HD23	10	0.46
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	3	0.45
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	8	0.45
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	9	0.45
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	11	0.45
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	20	0.45
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	1	0.45
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	15	0.45
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD22	10	0.45
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	14	0.44
(1,83)	1:60:A:SER:HA	1:60:A:SER:H	14	0.44
(1,73)	1:60:A:SER:HB2	1:60:A:SER:H	4	0.44
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD21	20	0.43
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD22	20	0.43
(4,59)	1:26:A:LEU:HG	1:22:A:LEU:HD23	20	0.43
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	18	0.43
(3,591)	1:36:A:MET:HG2	1:4:A:LEU:HG	9	0.43
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	8	0.43
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	8	0.43

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	8	0.43
(1,79)	1:62:A:LYS:HA	1:62:A:LYS:HG2	8	0.43
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD21	13	0.43
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	4	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	8	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	9	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	11	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	16	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	17	0.42
(3,714)	1:54:A:GLU:HB2	1:54:A:GLU:HA	19	0.42
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	18	0.41
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	18	0.41
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	18	0.41
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	3	0.41
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	3	0.41
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	3	0.41
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG21	15	0.4
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG22	15	0.4
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG23	15	0.4
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	6	0.4
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	10	0.4
(3,760)	1:66:A:GLU:HG2	1:68:A:LYS:HB2	6	0.4
(3,448)	1:20:A:LYS:HB2	1:74:A:GLU:H	2	0.4
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	4	0.39
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	6	0.39
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	6	0.39
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	6	0.39
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD11	16	0.39
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD12	16	0.39
(3,293)	1:55:A:GLY:H	1:57:A:LEU:HD13	16	0.39
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	5	0.39
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD23	3	0.39
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	20	0.38
(3,843)	1:45:A:LYS:HA	1:40:A:MET:HG2	6	0.38
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	14	0.38
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	14	0.38
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	14	0.38
(1,83)	1:63:A:SER:HA	1:63:A:SER:H	6	0.38
(1,43)	1:35:A:ALA:HA	1:36:A:MET:H	13	0.38
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	18	0.37
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	11	0.37
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	11	0.37

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	11	0.37
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	17	0.37
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	17	0.37
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	17	0.37
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	8	0.37
(3,584)	1:35:A:ALA:HB1	1:34:A:ASP:HB2	15	0.37
(3,584)	1:35:A:ALA:HB2	1:34:A:ASP:HB2	15	0.37
(3,584)	1:35:A:ALA:HB3	1:34:A:ASP:HB2	15	0.37
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD21	11	0.37
(1,43)	1:35:A:ALA:HA	1:36:A:MET:H	10	0.37
(1,43)	1:35:A:ALA:HA	1:36:A:MET:H	18	0.37
(3,837)	1:78:A:LEU:HD21	1:11:A:LEU:HB2	15	0.36
(3,837)	1:78:A:LEU:HD22	1:11:A:LEU:HB2	15	0.36
(3,837)	1:78:A:LEU:HD23	1:11:A:LEU:HB2	15	0.36
(3,760)	1:66:A:GLU:HG2	1:68:A:LYS:HB2	9	0.36
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	12	0.36
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	11	0.36
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	6	0.36
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	11	0.36
(3,260)	1:48:A:ARG:H	1:48:A:ARG:HG2	18	0.36
(1,73)	1:60:A:SER:HB2	1:60:A:SER:H	7	0.36
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	2	0.35
(3,768)	1:67:A:GLY:HA3	1:67:A:GLY:H	15	0.35
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	4	0.35
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	10	0.35
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	16	0.35
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	16	0.35
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	16	0.35
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	8	0.35
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	13	0.35
(1,73)	1:63:A:SER:HB2	1:63:A:SER:H	12	0.35
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	9	0.34
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	16	0.34
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	17	0.34
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	18	0.34
(3,260)	1:48:A:ARG:H	1:48:A:ARG:HG2	15	0.34
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	15	0.33
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	4	0.33
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	14	0.33
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD21	4	0.33
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD22	4	0.33
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD23	4	0.33

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	12	0.33
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	17	0.32
(3,636)	1:40:A:MET:HA	1:40:A:MET:HG2	13	0.32
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	20	0.32
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	20	0.32
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	20	0.32
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	15	0.32
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	1	0.31
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	1	0.31
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	1	0.31
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	4	0.31
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	4	0.31
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	4	0.31
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	8	0.31
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	11	0.3
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	10	0.3
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	4	0.3
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	10	0.3
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	11	0.3
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	8	0.29
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	8	0.29
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	8	0.29
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD21	17	0.29
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD22	17	0.29
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD23	17	0.29
(3,526)	1:26:A:LEU:HD21	1:26:A:LEU:HA	13	0.29
(3,526)	1:26:A:LEU:HD22	1:26:A:LEU:HA	13	0.29
(3,526)	1:26:A:LEU:HD23	1:26:A:LEU:HA	13	0.29
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	7	0.29
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	1	0.29
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	13	0.29
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	17	0.29
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	2	0.28
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	18	0.28
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	16	0.28
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD21	12	0.28
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD22	12	0.28
(3,628)	1:39:A:ARG:HD2	1:4:A:LEU:HD23	12	0.28
(3,267)	1:49:A:ILE:H	1:48:A:ARG:HG2	2	0.28
(1,87)	1:70:A:ALA:HB2	1:70:A:ALA:H	7	0.28
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	5	0.28
(1,73)	1:63:A:SER:HB2	1:63:A:SER:H	18	0.28

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	1	0.27
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	3	0.27
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	7	0.27
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	10	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	1	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	1	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	1	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	4	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	4	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	4	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	7	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	7	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	7	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	8	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	8	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	8	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	18	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	18	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	18	0.27
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	19	0.27
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	19	0.27
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	19	0.27
(1,76)	1:60:A:SER:HA	1:63:A:SER:HA	1	0.27
(1,43)	1:24:A:ALA:HA	1:27:A:GLN:H	8	0.27
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	2	0.26
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	4	0.26
(4,32)	1:39:A:ARG:H	1:41:A:GLU:HB2	4	0.26
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	19	0.26
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	19	0.26
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	19	0.26
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	6	0.26
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	6	0.26
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	6	0.26
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	13	0.26
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	13	0.26
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	13	0.26
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	5	0.26
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	5	0.26
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	5	0.26
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	12	0.26
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG21	10	0.25
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG22	10	0.25

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(4,84)	1:22:A:LEU:HB2	1:7:A:VAL:HG23	10	0.25
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	6	0.25
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	6	0.25
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	6	0.25
(3,839)	1:78:A:LEU:HD11	1:15:A:GLY:HA3	16	0.25
(3,839)	1:78:A:LEU:HD12	1:15:A:GLY:HA3	16	0.25
(3,839)	1:78:A:LEU:HD13	1:15:A:GLY:HA3	16	0.25
(3,761)	1:66:A:GLU:HG2	1:68:A:LYS:HA	9	0.25
(3,744)	1:20:A:LYS:HD2	1:51:A:GLU:H	5	0.25
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	2	0.25
(3,698)	1:50:A:SER:HB2	1:38:A:GLU:H	17	0.25
(3,584)	1:35:A:ALA:HB1	1:34:A:ASP:HB2	10	0.25
(3,584)	1:35:A:ALA:HB2	1:34:A:ASP:HB2	10	0.25
(3,584)	1:35:A:ALA:HB3	1:34:A:ASP:HB2	10	0.25
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	10	0.25
(1,43)	1:24:A:ALA:HA	1:27:A:GLN:H	11	0.25
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	3	0.24
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	9	0.24
(3,761)	1:66:A:GLU:HG2	1:68:A:LYS:HA	13	0.24
(3,698)	1:50:A:SER:HB2	1:38:A:GLU:H	10	0.24
(3,567)	1:33:A:ILE:HB	1:73:A:GLN:HG2	16	0.24
(3,260)	1:48:A:ARG:H	1:48:A:ARG:HG2	16	0.24
(3,742)	1:62:A:LYS:HE2	1:63:A:SER:HA	14	0.23
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	5	0.23
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	7	0.23
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	8	0.23
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	16	0.23
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	18	0.23
(3,407)	1:7:A:VAL:HG11	1:7:A:VAL:H	11	0.23
(3,407)	1:7:A:VAL:HG12	1:7:A:VAL:H	11	0.23
(3,407)	1:7:A:VAL:HG13	1:7:A:VAL:H	11	0.23
(3,349)	1:73:A:GLN:H	1:73:A:GLN:HG2	4	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	1	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	1	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	1	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	19	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	19	0.23
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	19	0.23
(1,54)	1:37:A:LEU:HA	1:4:A:LEU:HD22	12	0.23
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	16	0.23
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	13	0.22
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD21	13	0.22

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD22	13	0.22
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD23	13	0.22
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD21	13	0.22
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD22	13	0.22
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD23	13	0.22
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD21	13	0.22
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD22	13	0.22
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD23	13	0.22
(3,837)	1:78:A:LEU:HD21	1:11:A:LEU:HB2	2	0.22
(3,837)	1:78:A:LEU:HD22	1:11:A:LEU:HB2	2	0.22
(3,837)	1:78:A:LEU:HD23	1:11:A:LEU:HB2	2	0.22
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	5	0.22
(3,698)	1:50:A:SER:HB2	1:38:A:GLU:H	15	0.22
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	9	0.22
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	14	0.22
(3,408)	1:9:A:ASP:HA	1:9:A:ASP:HB2	15	0.22
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	9	0.22
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	12	0.22
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	6	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	1	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	2	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	3	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	4	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	5	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	6	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	7	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	10	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	11	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	13	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	14	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	15	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	16	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	17	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	18	0.22
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	19	0.22
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG21	3	0.21
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG22	3	0.21
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG23	3	0.21
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG21	17	0.21
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG22	17	0.21
(4,85)	1:22:A:LEU:HG	1:7:A:VAL:HG23	17	0.21
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD21	1	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD22	1	0.21
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD23	1	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD21	1	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD22	1	0.21
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD23	1	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD21	1	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD22	1	0.21
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD23	1	0.21
(3,93)	1:18:A:GLU:H	1:21:A:GLN:HG2	1	0.21
(1,87)	1:70:A:ALA:HB1	1:70:A:ALA:H	4	0.21
(1,87)	1:70:A:ALA:HB3	1:70:A:ALA:H	9	0.21
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	8	0.21
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	9	0.21
(1,36)	1:13:A:LEU:HA	1:13:A:LEU:HB2	12	0.21
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	8	0.2
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD21	4	0.2
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD22	4	0.2
(3,877)	1:7:A:VAL:HG11	1:11:A:LEU:HD23	4	0.2
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD21	4	0.2
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD22	4	0.2
(3,877)	1:7:A:VAL:HG12	1:11:A:LEU:HD23	4	0.2
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD21	4	0.2
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD22	4	0.2
(3,877)	1:7:A:VAL:HG13	1:11:A:LEU:HD23	4	0.2
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	2	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	2	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	2	0.2
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	3	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	3	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	3	0.2
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	12	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	12	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	12	0.2
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	19	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	19	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	19	0.2
(3,676)	1:47:A:VAL:HG11	1:47:A:VAL:HA	20	0.2
(3,676)	1:47:A:VAL:HG12	1:47:A:VAL:HA	20	0.2
(3,676)	1:47:A:VAL:HG13	1:47:A:VAL:HA	20	0.2
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	4	0.2
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	5	0.2
(1,9)	1:21:A:GLN:H	1:22:A:LEU:HD11	8	0.2

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	11	0.19
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	14	0.19
(3,584)	1:35:A:ALA:HB1	1:34:A:ASP:HB2	3	0.19
(3,584)	1:35:A:ALA:HB2	1:34:A:ASP:HB2	3	0.19
(3,584)	1:35:A:ALA:HB3	1:34:A:ASP:HB2	3	0.19
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	2	0.19
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	6	0.19
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	10	0.19
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	16	0.19
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	2	0.19
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	9	0.19
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	9	0.18
(3,704)	1:51:A:GLU:HG2	1:52:A:THR:H	19	0.18
(3,592)	1:36:A:MET:HG2	1:4:A:LEU:HD11	9	0.18
(3,592)	1:36:A:MET:HG2	1:4:A:LEU:HD12	9	0.18
(3,592)	1:36:A:MET:HG2	1:4:A:LEU:HD13	9	0.18
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	14	0.18
(1,84)	1:65:A:PRO:HB2	1:65:A:PRO:HA	17	0.18
(1,83)	1:63:A:SER:HA	1:64:A:CYS:H	20	0.18
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	11	0.18
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	5	0.17
(3,129)	1:24:A:ALA:H	1:25:A:ARG:HB2	5	0.17
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	19	0.17
(1,76)	1:60:A:SER:HA	1:58:A:SER:HA	18	0.17
(3,641)	1:41:A:GLU:HG2	1:41:A:GLU:HA	9	0.16
(3,567)	1:33:A:ILE:HB	1:73:A:GLN:HG2	6	0.16
(3,129)	1:24:A:ALA:H	1:25:A:ARG:HB2	15	0.16
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	1	0.16
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	14	0.16
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	3	0.16
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	7	0.15
(3,641)	1:41:A:GLU:HG2	1:41:A:GLU:HA	3	0.15
(3,567)	1:33:A:ILE:HB	1:73:A:GLN:HG2	20	0.15
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	1	0.15
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	3	0.15
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	5	0.15
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	6	0.15
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	6	0.15
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	10	0.15
(4,53)	1:9:A:ASP:HA	1:8:A:ARG:HD2	16	0.14
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	1	0.14
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	1	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	1	0.14
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG21	4	0.14
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG22	4	0.14
(4,19)	1:20:A:LYS:H	1:7:A:VAL:HG23	4	0.14
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	14	0.14
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	14	0.14
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	14	0.14
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	15	0.14
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	18	0.14
(3,129)	1:24:A:ALA:H	1:25:A:ARG:HB2	14	0.14
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	15	0.14
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	2	0.14
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	12	0.14
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	13	0.14
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	16	0.14
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	19	0.14
(1,58)	1:39:A:ARG:HB2	1:36:A:MET:HA	20	0.14
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	15	0.14
(3,633)	1:40:A:MET:HG2	1:41:A:GLU:HG2	19	0.13
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	2	0.13
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	13	0.13
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	16	0.13
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	8	0.13
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	18	0.13
(1,12)	1:22:A:LEU:H	1:21:A:GLN:HB2	8	0.13
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG21	7	0.12
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG22	7	0.12
(3,881)	1:22:A:LEU:HD11	1:7:A:VAL:HG23	7	0.12
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG21	7	0.12
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG22	7	0.12
(3,881)	1:22:A:LEU:HD12	1:7:A:VAL:HG23	7	0.12
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG21	7	0.12
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG22	7	0.12
(3,881)	1:22:A:LEU:HD13	1:7:A:VAL:HG23	7	0.12
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	4	0.12
(3,689)	1:49:A:ILE:HG21	1:75:A:TRP:HB2	3	0.12
(3,689)	1:49:A:ILE:HG22	1:75:A:TRP:HB2	3	0.12
(3,689)	1:49:A:ILE:HG23	1:75:A:TRP:HB2	3	0.12
(3,689)	1:49:A:ILE:HG21	1:75:A:TRP:HB2	11	0.12
(3,689)	1:49:A:ILE:HG22	1:75:A:TRP:HB2	11	0.12
(3,689)	1:49:A:ILE:HG23	1:75:A:TRP:HB2	11	0.12
(3,607)	1:37:A:LEU:HD11	1:19:A:ALA:H	11	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,607)	1:37:A:LEU:HD12	1:19:A:ALA:H	11	0.12
(3,607)	1:37:A:LEU:HD13	1:19:A:ALA:H	11	0.12
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	7	0.12
(3,129)	1:24:A:ALA:H	1:25:A:ARG:HB2	1	0.12
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	13	0.12
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	13	0.12
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	13	0.12
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	3	0.12
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	4	0.12
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	7	0.12
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	15	0.12
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	6	0.12
(3,713)	1:6:A:GLU:HB2	1:7:A:VAL:HG21	12	0.11
(3,713)	1:6:A:GLU:HB2	1:7:A:VAL:HG22	12	0.11
(3,713)	1:6:A:GLU:HB2	1:7:A:VAL:HG23	12	0.11
(3,709)	1:71:A:CYS:HA	1:31:A:PRO:HG2	12	0.11
(3,689)	1:49:A:ILE:HG21	1:75:A:TRP:HB2	13	0.11
(3,689)	1:49:A:ILE:HG22	1:75:A:TRP:HB2	13	0.11
(3,689)	1:49:A:ILE:HG23	1:75:A:TRP:HB2	13	0.11
(3,479)	1:20:A:LYS:HG2	1:21:A:GLN:HA	4	0.11
(3,437)	1:14:A:GLN:HA	1:14:A:GLN:HG2	14	0.11
(3,93)	1:18:A:GLU:H	1:21:A:GLN:HG2	10	0.11
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD11	6	0.11
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD12	6	0.11
(3,47)	1:11:A:LEU:H	1:13:A:LEU:HD13	6	0.11
(1,92)	1:45:A:LYS:HA	1:43:A:MET:H	18	0.11
(1,78)	1:68:A:LYS:HA	1:68:A:LYS:HB2	9	0.11
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	10	0.11
(1,78)	1:62:A:LYS:HA	1:62:A:LYS:HB2	20	0.11
(1,56)	1:38:A:GLU:HG2	1:39:A:ARG:H	20	0.11
(3,814)	1:75:A:TRP:HA	1:74:A:GLU:HG2	6	0.1
(3,814)	1:75:A:TRP:HA	1:74:A:GLU:HG2	16	0.1
(3,814)	1:75:A:TRP:HA	1:74:A:GLU:HG2	18	0.1
(3,93)	1:18:A:GLU:H	1:21:A:GLN:HG2	13	0.1

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

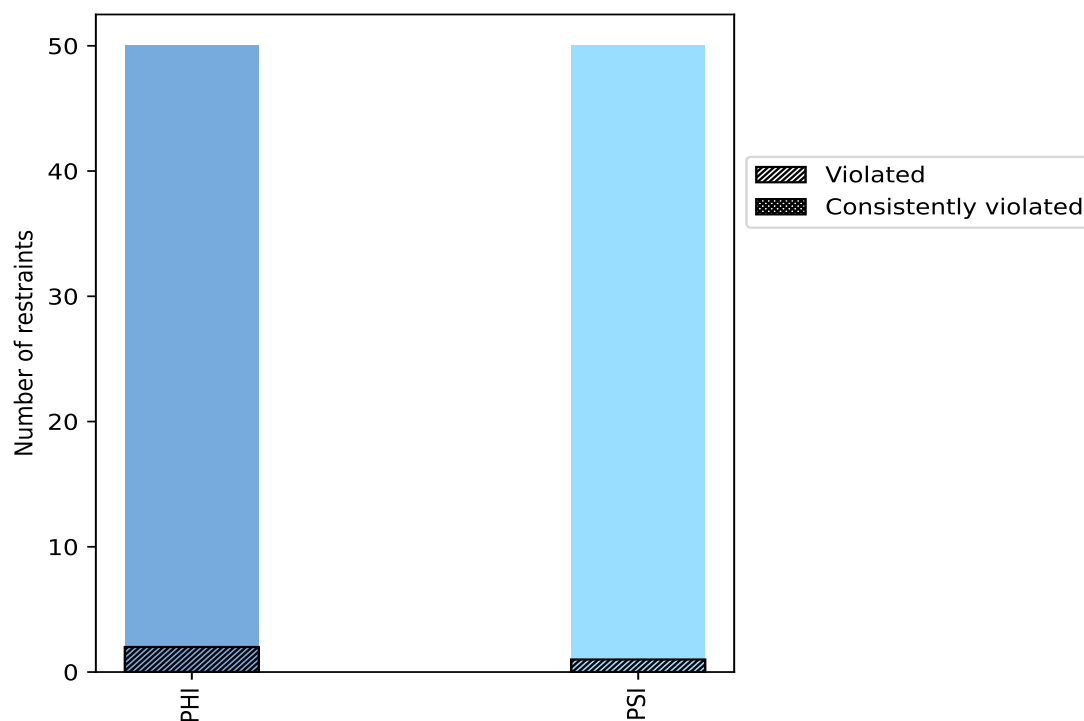
10.1 Summary of dihedral-angle violations [i](#)

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

Angle type	Count	% ¹	Violated ³			Consistently Violated ⁴		
			Count	% ²	% ¹	Count	% ²	% ¹
PHI	50	50.0	2	4.0	2.0	0	0.0	0.0
PSI	50	50.0	1	2.0	1.0	0	0.0	0.0
Total	100	100.0	3	3.0	3.0	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](#)



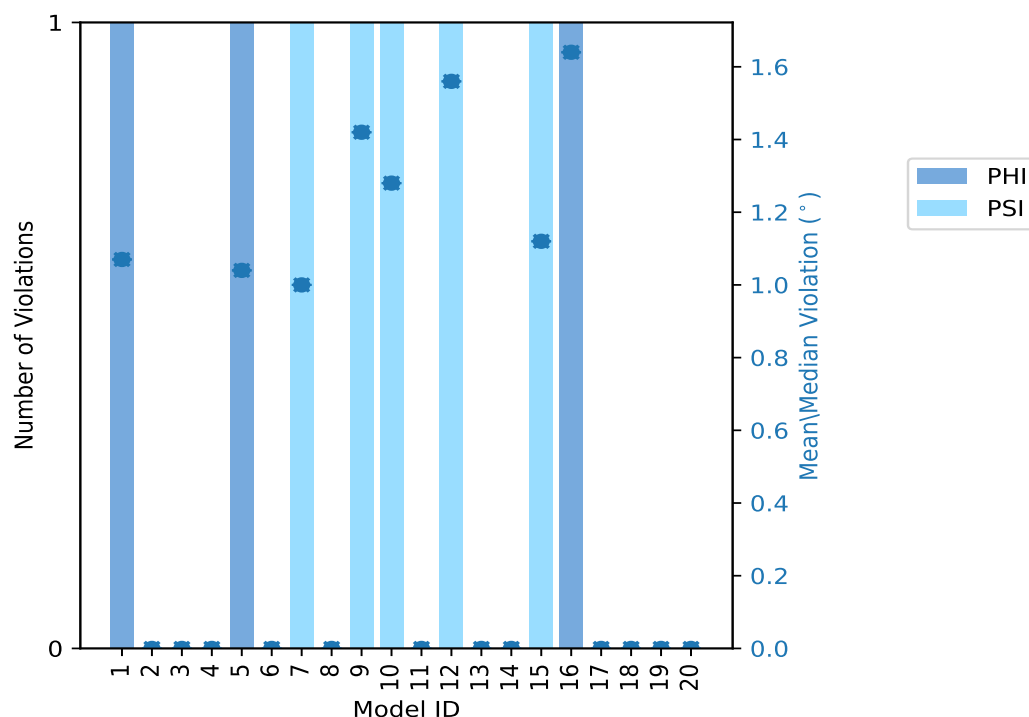
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

10.2 Dihedral-angle violation statistics for each model

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

Model ID	Number of violations			Mean (°)	Max (°)	SD (°)	Median (°)
	PHI	PSI	Total				
1	1	0	1	1.07	1.07	0.0	1.07
2	0	0	0	0.0	0.0	0.0	0.0
3	0	0	0	0.0	0.0	0.0	0.0
4	0	0	0	0.0	0.0	0.0	0.0
5	1	0	1	1.04	1.04	0.0	1.04
6	0	0	0	0.0	0.0	0.0	0.0
7	0	1	1	1.0	1.0	0.0	1.0
8	0	0	0	0.0	0.0	0.0	0.0
9	0	1	1	1.42	1.42	0.0	1.42
10	0	1	1	1.28	1.28	0.0	1.28
11	0	0	0	0.0	0.0	0.0	0.0
12	0	1	1	1.56	1.56	0.0	1.56
13	0	0	0	0.0	0.0	0.0	0.0
14	0	0	0	0.0	0.0	0.0	0.0
15	0	1	1	1.12	1.12	0.0	1.12
16	1	0	1	1.64	1.64	0.0	1.64
17	0	0	0	0.0	0.0	0.0	0.0
18	0	0	0	0.0	0.0	0.0	0.0
19	0	0	0	0.0	0.0	0.0	0.0
20	0	0	0	0.0	0.0	0.0	0.0

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



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

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

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

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

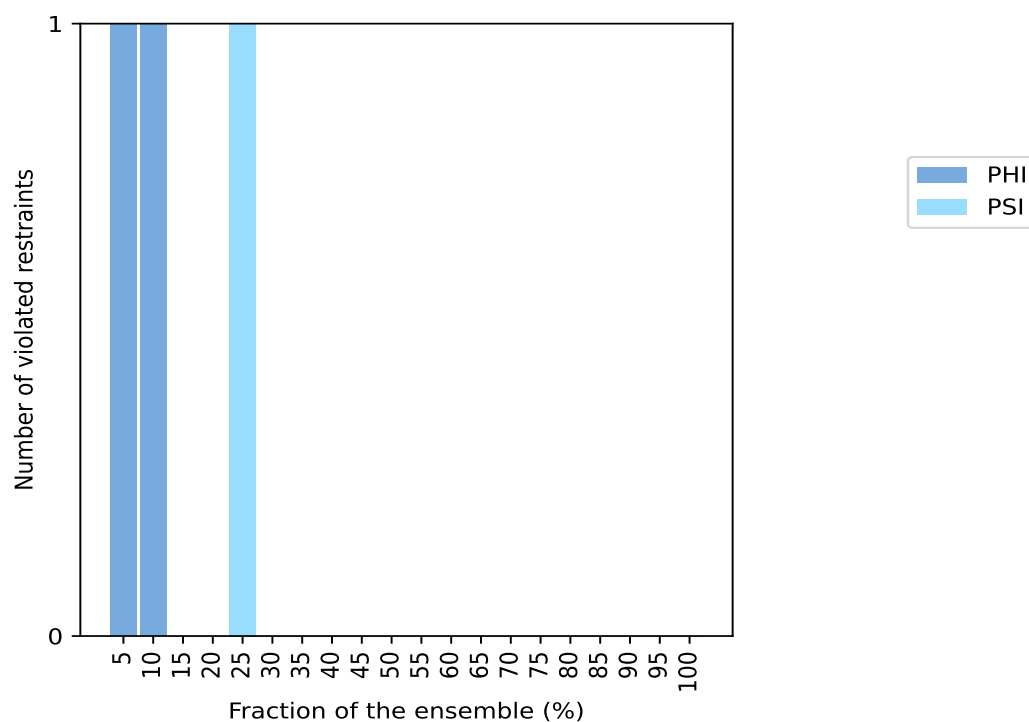
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Number of violated restraints			Fraction of the ensemble	
PHI	PSI	Total	Count ¹	%
0	0	0	12	60.0
0	0	0	13	65.0
0	0	0	14	70.0
0	0	0	15	75.0
0	0	0	16	80.0
0	0	0	17	85.0
0	0	0	18	90.0
0	0	0	19	95.0
0	0	0	20	100.0

¹ Number of models with violations

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

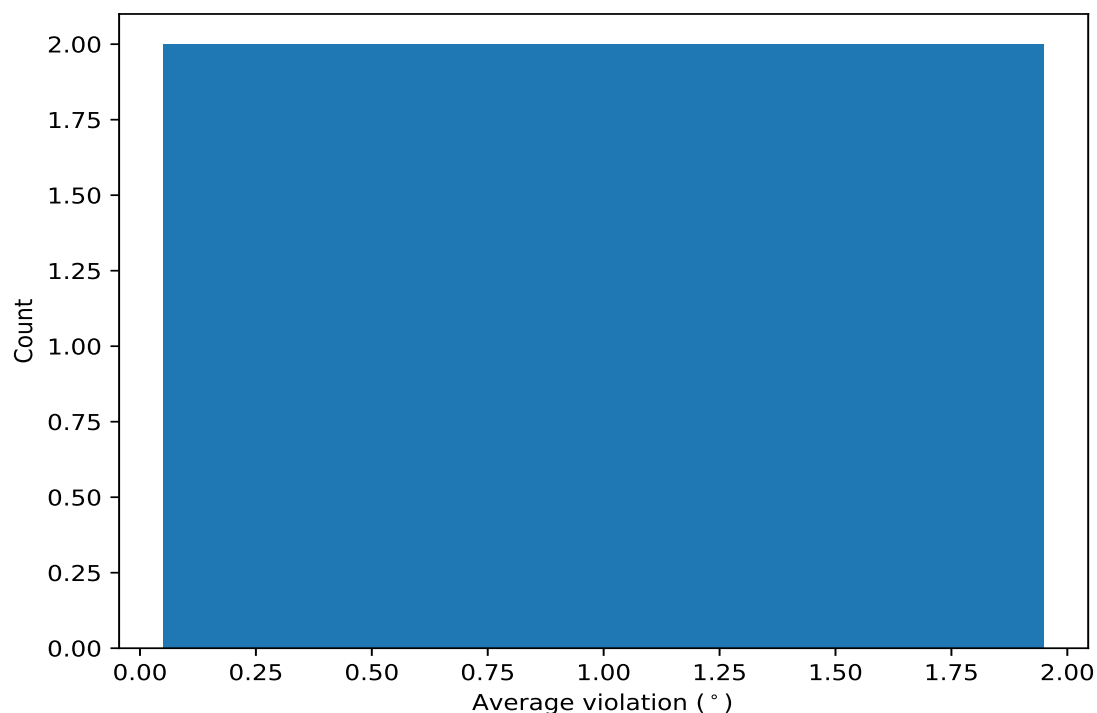


10.4 Most violated dihedral-angle restraints in the ensemble [i](#)

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

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

in the ensemble



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

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

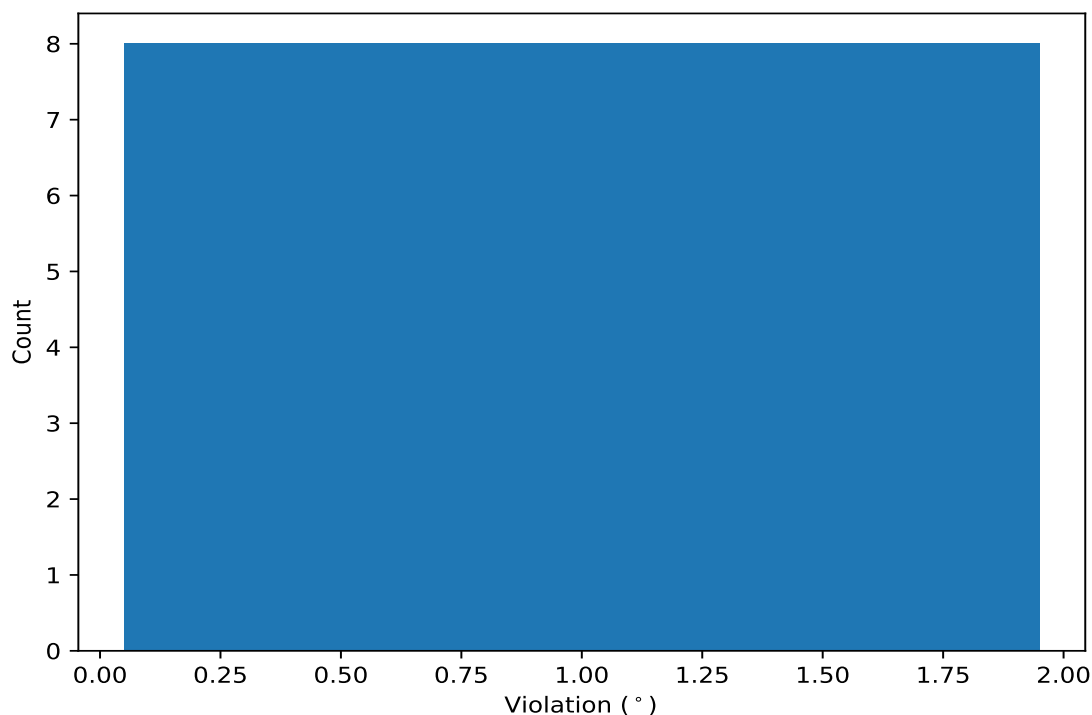
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models ¹	Mean	SD ²	Median
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	5	1.28	0.2	1.28
(1,34)	1:41:A:GLU:C	1:42:A:ALA:N	1:42:A:ALA:CA	1:42:A:ALA:C	2	1.06	0.02	1.06

¹ Number of violated models, ²Standard 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 (°)
(1,36)	1:46:A:VAL:C	1:47:A:VAL:N	1:47:A:VAL:CA	1:47:A:VAL:C	16	1.64
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	12	1.56
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	9	1.42
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	10	1.28
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	15	1.12
(1,34)	1:41:A:GLU:C	1:42:A:ALA:N	1:42:A:ALA:CA	1:42:A:ALA:C	1	1.07
(1,34)	1:41:A:GLU:C	1:42:A:ALA:N	1:42:A:ALA:CA	1:42:A:ALA:C	5	1.04
(1,55)	1:6:A:GLU:N	1:6:A:GLU:CA	1:6:A:GLU:C	1:7:A:VAL:N	7	1.0