Full wwPDB NMR Structure Validation Report

Jun 3, 2023 – 03:49 PM EDT

PDB ID	:	6UM9
BMRB ID	:	30679
Title	:	Gypsy Moth Pheromone-binding protein 1 (LdisPBP1) NMR Structure at pH 4.5
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Deposited on	:	2019-10-09

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:

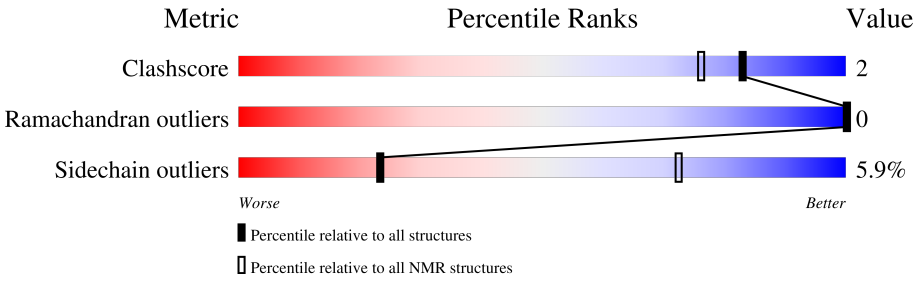
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal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

1 Overall quality at a glance (i)

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

The overall completeness of chemical shifts assignment is 94%.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and a grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Mol	Chain	Length	Quality of chain
1	A	143	77% 7% • 15%

2 Ensemble composition and analysis

This entry contains 20 models. Model 5 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *target function*.

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:15-A:36, A:44-A:143 (122)	0.25	5

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 4 clusters and 5 single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 2247 atoms, of which 1125 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Pheromone binding protein 1.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	143	2247	711	1125	185	210	16	0

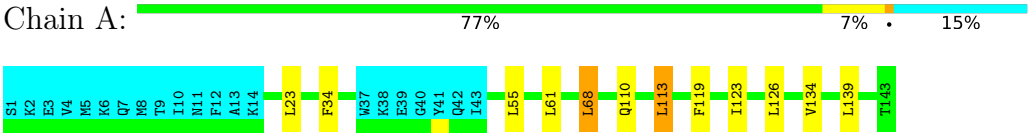
4 Residue-property plots

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: Pheromone binding protein 1

Chain A:



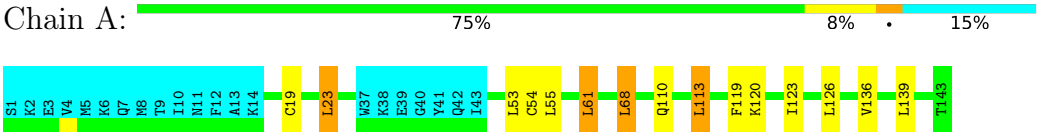
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: Pheromone binding protein 1

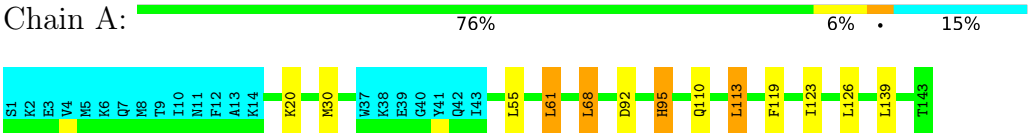
Chain A:



4.2.2 Score per residue for model 2

• Molecule 1: Pheromone binding protein 1

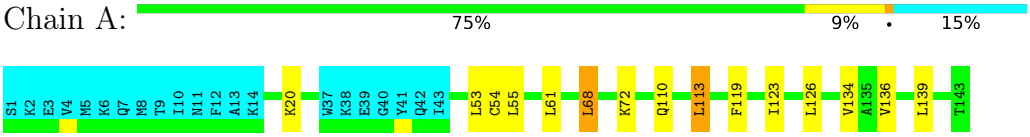
Chain A:



4.2.3 Score per residue for model 3

• Molecule 1: Pheromone binding protein 1

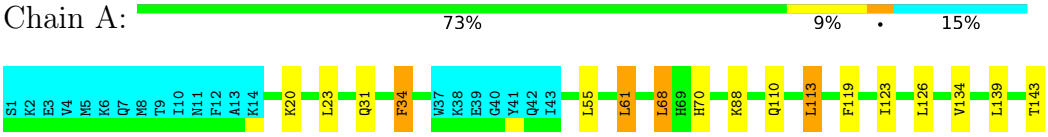
Chain A:



4.2.4 Score per residue for model 4

• Molecule 1: Pheromone binding protein 1

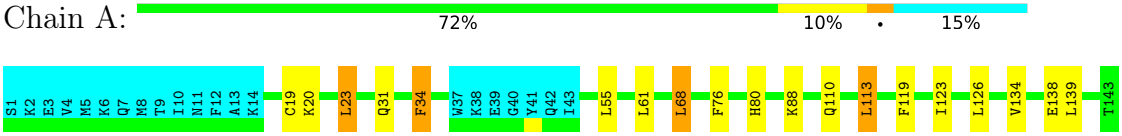
Chain A:



4.2.5 Score per residue for model 5 (medoid)

• Molecule 1: Pheromone binding protein 1

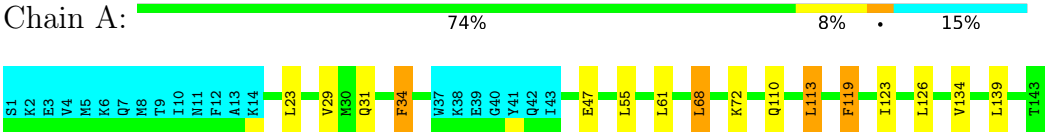
Chain A:



4.2.6 Score per residue for model 6

• Molecule 1: Pheromone binding protein 1

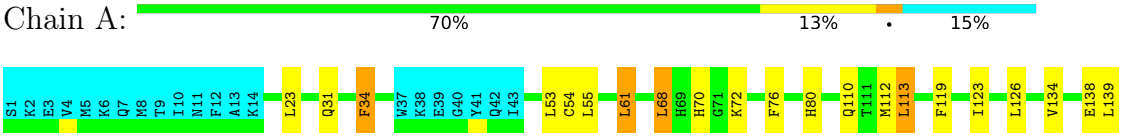
Chain A:



4.2.7 Score per residue for model 7

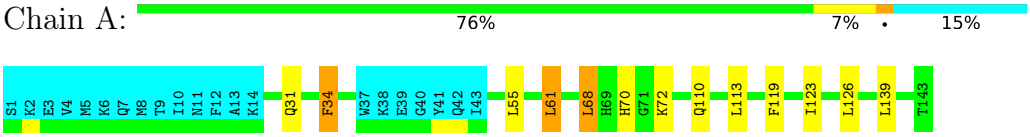
• Molecule 1: Pheromone binding protein 1

Chain A:



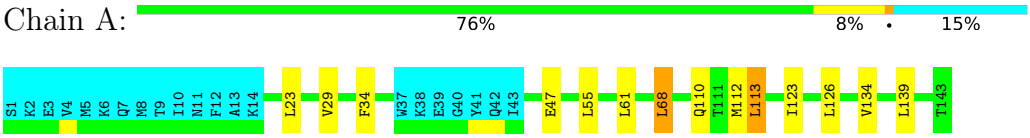
4.2.8 Score per residue for model 8

• Molecule 1: Pheromone binding protein 1



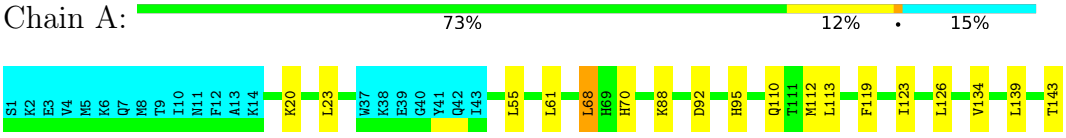
4.2.9 Score per residue for model 9

• Molecule 1: Pheromone binding protein 1



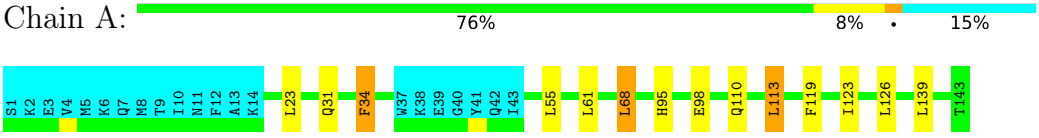
4.2.10 Score per residue for model 10

• Molecule 1: Pheromone binding protein 1



4.2.11 Score per residue for model 11

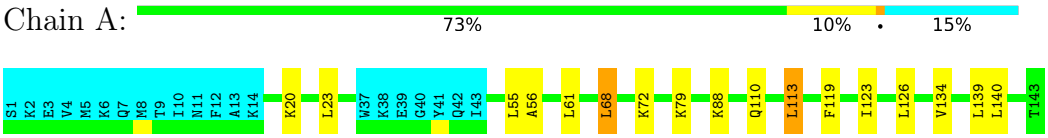
• Molecule 1: Pheromone binding protein 1



4.2.12 Score per residue for model 12

• Molecule 1: Pheromone binding protein 1

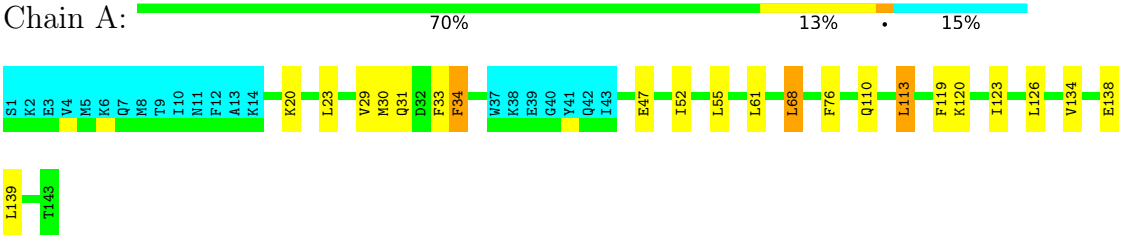
Chain A:



4.2.13 Score per residue for model 13

• Molecule 1: Pheromone binding protein 1

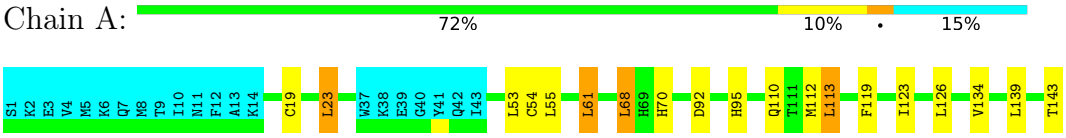
Chain A:



4.2.14 Score per residue for model 14

• Molecule 1: Pheromone binding protein 1

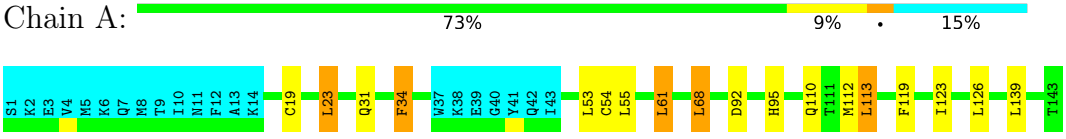
Chain A:



4.2.15 Score per residue for model 15

• Molecule 1: Pheromone binding protein 1

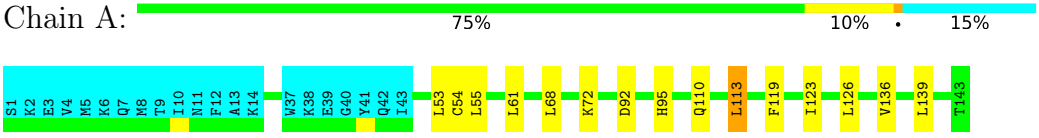
Chain A:



4.2.16 Score per residue for model 16

• Molecule 1: Pheromone binding protein 1

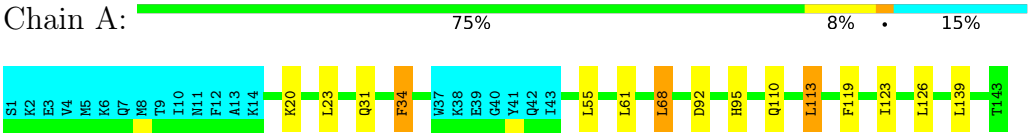
Chain A:



4.2.17 Score per residue for model 17

• Molecule 1: Pheromone binding protein 1

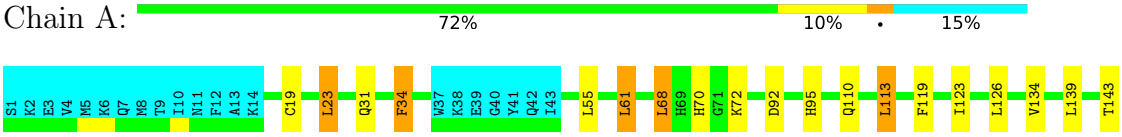
Chain A:



4.2.18 Score per residue for model 18

• Molecule 1: Pheromone binding protein 1

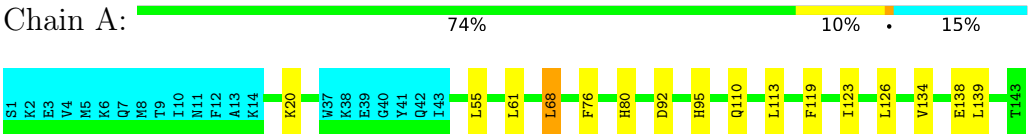
Chain A:



4.2.19 Score per residue for model 19

• Molecule 1: Pheromone binding protein 1

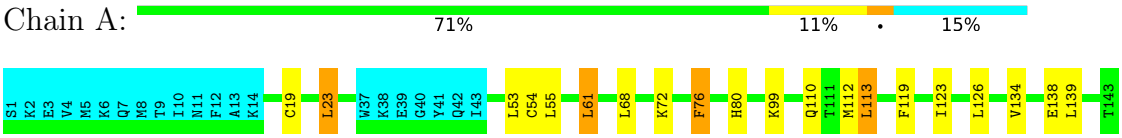
Chain A:



4.2.20 Score per residue for model 20

• Molecule 1: Pheromone binding protein 1

Chain A:



5 Refinement protocol and experimental data overview

The models were refined using the following method: *STAP*.

Of the 20 calculated structures, 20 were deposited, based on the following criterion: *all calculated structures submitted*.

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

Software name	Classification	Version
NMRe	refinement	
CYANA	structure calculation	

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	1746
Number of shifts mapped to atoms	1746
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	94%

6 Model quality

6.1 Standard geometry

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	0.71±0.01	0±0/959 (0.0± 0.0%)	1.11±0.02	5±1/1291 (0.4± 0.1%)
All	All	0.71	0/19180 (0.0%)	1.11	101/25820 (0.4%)

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	0.7±0.7
All	All	0	13

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	55	LEU	CB-CG-CD2	6.38	121.85	111.00	6	20
1	A	76	PHE	CB-CG-CD2	-6.34	116.36	120.80	5	4
1	A	95	HIS	CA-CB-CG	6.33	124.37	113.60	2	1
1	A	23	LEU	CB-CG-CD2	6.21	121.55	111.00	14	15
1	A	76	PHE	CB-CG-CD1	6.09	125.07	120.80	5	3
1	A	61	LEU	CB-CG-CD2	6.00	121.19	111.00	10	20
1	A	79	LYS	N-CA-CB	-5.91	99.97	110.60	12	1
1	A	113	LEU	CB-CG-CD2	5.78	120.83	111.00	9	17
1	A	68	LEU	CB-CG-CD2	5.68	120.66	111.00	13	18
1	A	139	LEU	CB-CA-C	-5.36	100.02	110.20	9	1
1	A	119	PHE	CB-CG-CD1	-5.15	117.19	120.80	6	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	34	PHE	Sidechain	11
1	A	80	HIS	Sidechain	2

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	944	940	935	4±1
All	All	18880	18800	18700	90

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 2.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:123:ILE:HA	1:A:126:LEU:HD12	0.65	1.68	14	20
1:A:92:ASP:HA	1:A:95:HIS:CD2	0.61	2.31	2	7
1:A:76:PHE:CE1	1:A:80:HIS:CE1	0.58	2.92	20	2
1:A:70:HIS:CE1	1:A:143:THR:HG22	0.51	2.41	7	5
1:A:119:PHE:CD1	1:A:139:LEU:HD11	0.49	2.42	7	19
1:A:120:LYS:HD2	1:A:123:ILE:HD11	0.49	1.85	13	2
1:A:19:CYS:SG	1:A:23:LEU:HD11	0.47	2.50	14	5
1:A:95:HIS:HA	1:A:98:GLU:CG	0.47	2.40	11	1
1:A:92:ASP:HA	1:A:95:HIS:HD2	0.46	1.70	10	2
1:A:31:GLN:HA	1:A:34:PHE:CD2	0.44	2.48	5	10
1:A:29:VAL:HG11	1:A:47:GLU:CD	0.43	2.34	13	3
1:A:95:HIS:HA	1:A:98:GLU:HG3	0.43	1.90	11	1
1:A:53:LEU:HD12	1:A:54:CYS:N	0.42	2.29	1	7
1:A:70:HIS:HE1	1:A:143:THR:HG22	0.41	1.74	4	1
1:A:56:ALA:HB2	1:A:140:LEU:HD22	0.41	1.93	12	1
1:A:33:PHE:CD2	1:A:52:ILE:HG12	0.41	2.51	13	1
1:A:19:CYS:O	1:A:23:LEU:HG	0.41	2.16	5	2
1:A:76:PHE:CZ	1:A:80:HIS:CE1	0.40	3.08	19	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	121/143 (85%)	120±1 (99±1%)	1±1 (1±1%)	0±0 (0±0%)	100	100
All	All	2420/2860 (85%)	2400 (99%)	20 (1%)	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	103/122 (84%)	97±1 (94±1%)	6±1 (6±1%)	23	72
All	All	2060/2440 (84%)	1939 (94%)	121 (6%)	23	72

All 14 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	68	LEU	20
1	A	110	GLN	20
1	A	113	LEU	20
1	A	134	VAL	13
1	A	61	LEU	9
1	A	20	LYS	9
1	A	72	LYS	8
1	A	112	MET	6
1	A	138	GLU	5
1	A	88	LYS	4
1	A	136	VAL	3
1	A	30	MET	2
1	A	70	HIS	1

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Mol	Chain	Res	Type	Models (Total)
1	A	99	LYS	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 monosaccharides in this entry.

6.6 Ligand geometry

There are no ligands in this entry.

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 94% for the well-defined parts and 90% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *LdisPBP1_shifts_validn.star*

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	1746
Number of shifts mapped to atoms	1746
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
$^{13}C_{\alpha}$	138	-0.50 ± 0.10	Should be checked
$^{13}C_{\beta}$	133	0.31 ± 0.11	None needed (< 0.5 ppm)
$^{13}C'$	137	-0.37 ± 0.19	None needed (< 0.5 ppm)
^{15}N	132	0.67 ± 0.26	Should be applied

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 94%, i.e. 1539 atoms were assigned a chemical shift out of a possible 1638. 0 out of 22 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	603/606 (100%)	243/244 (100%)	243/244 (100%)	117/118 (99%)
Sidechain	848/930 (91%)	580/609 (95%)	258/298 (87%)	10/23 (43%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	88/102 (86%)	39/51 (76%)	38/40 (95%)	11/11 (100%)
Overall	1539/1638 (94%)	862/904 (95%)	539/582 (93%)	138/152 (91%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 90%, i.e. 1745 atoms were assigned a chemical shift out of a possible 1946. 0 out of 23 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	680/712 (96%)	273/287 (95%)	275/286 (96%)	132/139 (95%)
Sidechain	959/1101 (87%)	658/719 (92%)	288/352 (82%)	13/30 (43%)
Aromatic	106/133 (80%)	48/66 (73%)	47/55 (85%)	11/12 (92%)
Overall	1745/1946 (90%)	979/1072 (91%)	610/693 (88%)	156/181 (86%)

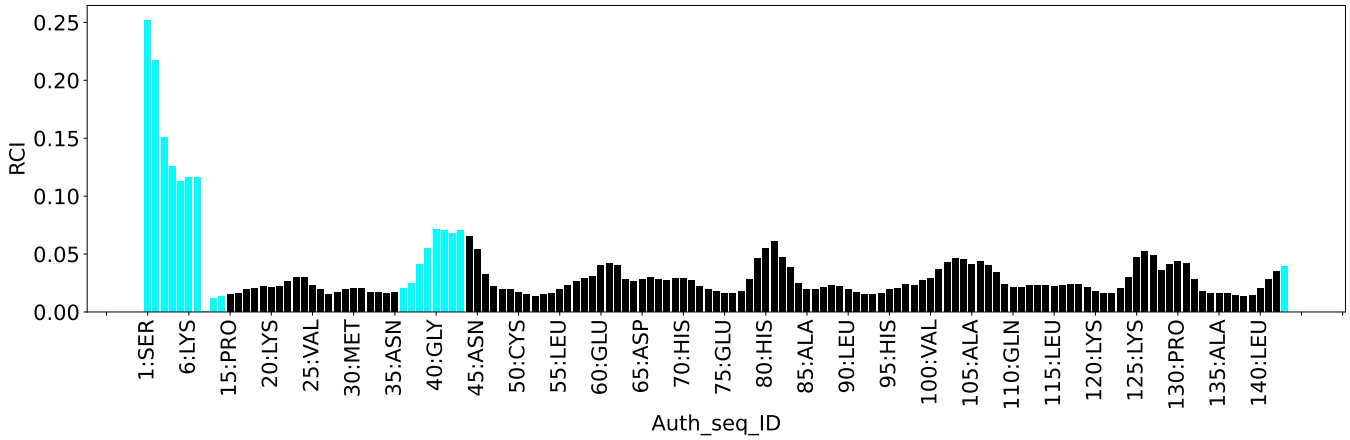
7.1.4 Statistically unusual chemical shifts (i)

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	3053
Intra-residue (|i-j|=0)	672
Sequential (|i-j|=1)	794
Medium range (|i-j|>1 and |i-j|<5)	860
Long range (|i-j|≥5)	709
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	18
Total dihedral-angle restraints	0
Number of unmapped restraints	4
Number of restraints per residue	21.3
Number of long range restraints per residue[1]	5.1

[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)	0.3	0.2
0.2-0.5 (Medium)	1.1	0.5
>0.5 (Large)	14.2	3.87

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

Dihedral-angle violations less than 1° are not included in the calculation.There are no dihedral-angle violations

9 Distance violation analysis (i)

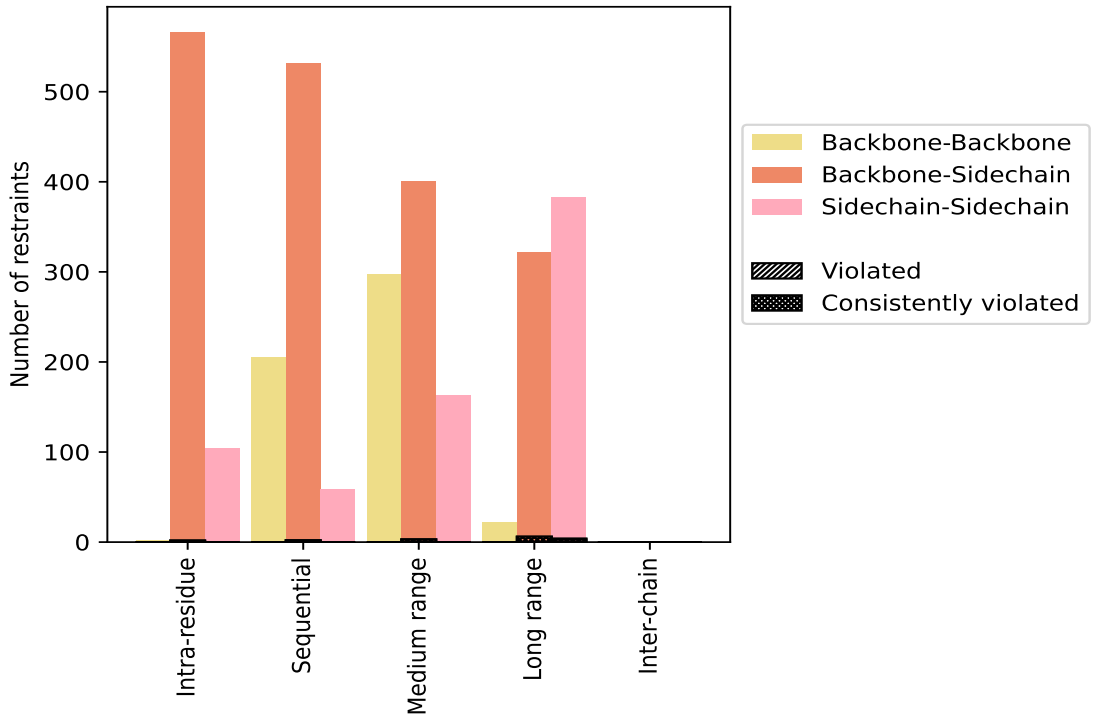
9.1 Summary of distance violations (i)

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)	672	22.0	2	0.3	0.1	1	0.1	0.0
Backbone-Backbone	2	0.1	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	566	18.5	2	0.4	0.1	1	0.2	0.0
Sidechain-Sidechain	104	3.4	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	794	26.0	2	0.3	0.1	2	0.3	0.1
Backbone-Backbone	205	6.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	531	17.4	2	0.4	0.1	2	0.4	0.1
Sidechain-Sidechain	58	1.9	0	0.0	0.0	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	860	28.2	3	0.3	0.1	3	0.3	0.1
Backbone-Backbone	297	9.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	400	13.1	3	0.8	0.1	3	0.8	0.1
Sidechain-Sidechain	163	5.3	0	0.0	0.0	0	0.0	0.0
Long range (|i-j|≥5)	709	23.2	9	1.3	0.3	9	1.3	0.3
Backbone-Backbone	22	0.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	322	10.5	6	1.9	0.2	6	1.9	0.2
Sidechain-Sidechain	365	12.0	3	0.8	0.1	3	0.8	0.1
Inter-chain	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Hydrogen bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Disulfide bond	18	0.6	1	5.6	0.0	0	0.0	0.0
Total	3053	100.0	17	0.6	0.6	15	0.5	0.5
Backbone-Backbone	526	17.2	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	1819	59.6	13	0.7	0.4	12	0.7	0.4
Sidechain-Sidechain	708	23.2	4	0.6	0.1	3	0.4	0.1

[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	2	3	10	0	16	1.8	3.72	1.1	1.54
2	1	2	3	9	0	15	1.93	3.77	1.1	1.54
3	1	2	3	9	0	15	1.89	3.7	1.07	1.56
4	2	2	3	9	0	16	1.71	3.5	1.15	1.42
5	2	2	3	9	0	16	1.72	3.53	1.11	1.44
6	1	2	3	9	0	15	1.94	3.83	1.09	1.57
7	1	2	3	9	0	15	1.89	3.54	1.04	1.59
8	1	2	3	9	0	15	1.89	3.75	1.07	1.56
9	2	2	3	9	0	16	1.69	3.65	1.17	1.42
10	1	2	3	9	0	15	1.86	3.56	1.06	1.6
11	2	2	3	9	0	16	1.74	3.58	1.18	1.41

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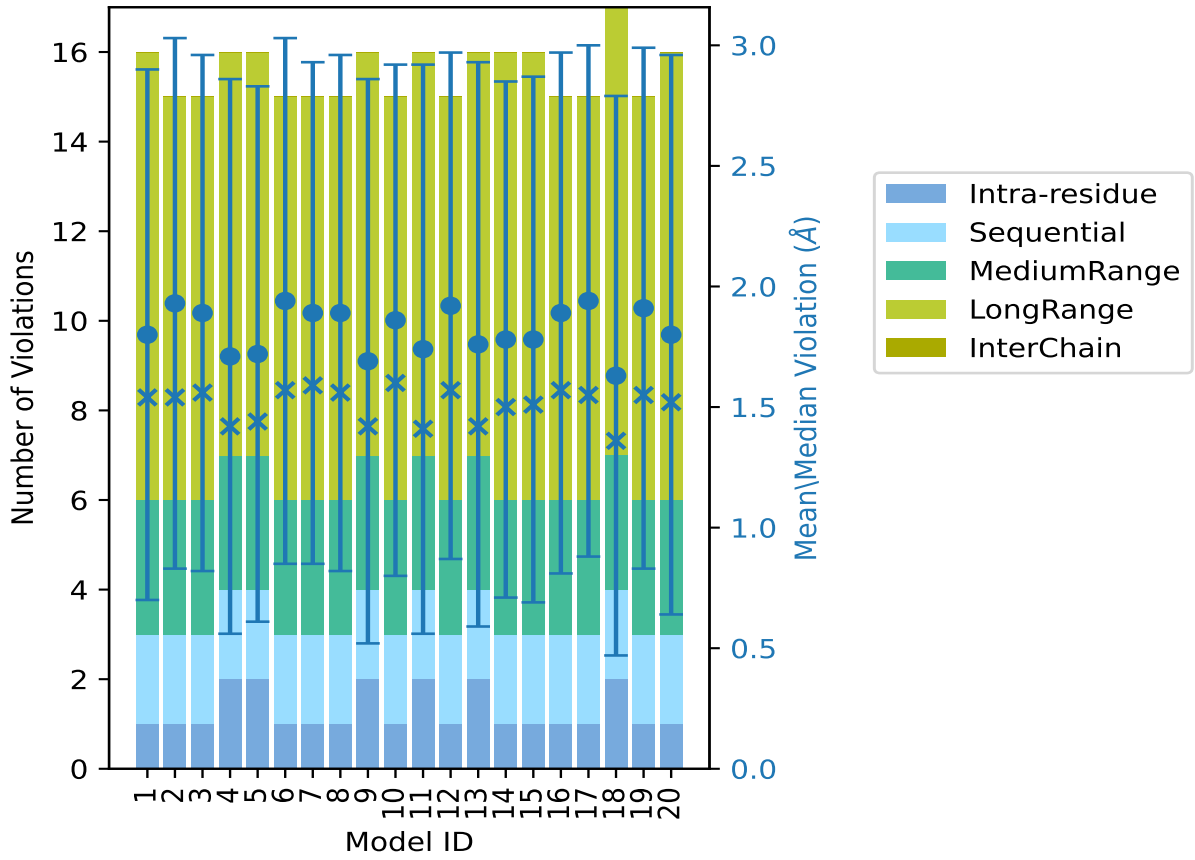
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	1	2	3	9	0	15	1.92	3.69	1.05	1.57
13	2	2	3	9	0	16	1.76	3.58	1.17	1.42
14	1	2	3	10	0	16	1.78	3.57	1.07	1.5
15	1	2	3	10	0	16	1.78	3.6	1.09	1.51
16	1	2	3	9	0	15	1.89	3.75	1.08	1.57
17	1	2	3	9	0	15	1.94	3.87	1.06	1.55
18	2	2	3	10	0	17	1.63	3.56	1.16	1.36
19	1	2	3	9	0	15	1.91	3.79	1.08	1.55
20	1	2	3	10	0	16	1.8	3.73	1.16	1.52

[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

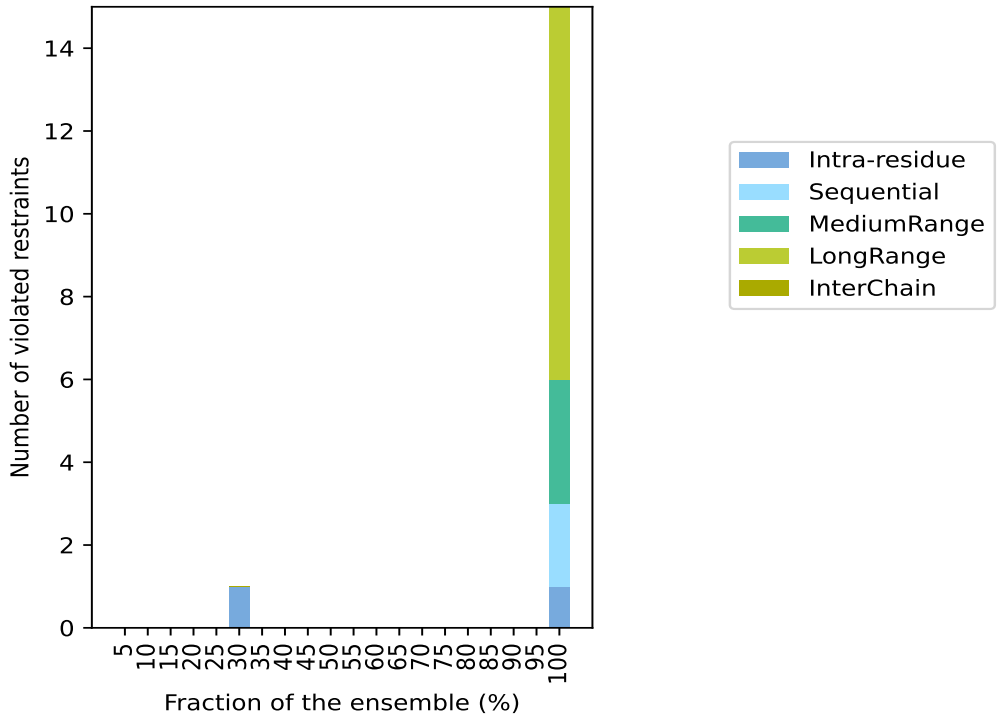
9.3 Distance violation statistics for the ensemble (i)

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, 3019(IR:670, SQ:792, MR:857, LR:700, IC:0) restraints are not violated in the ensemble.

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

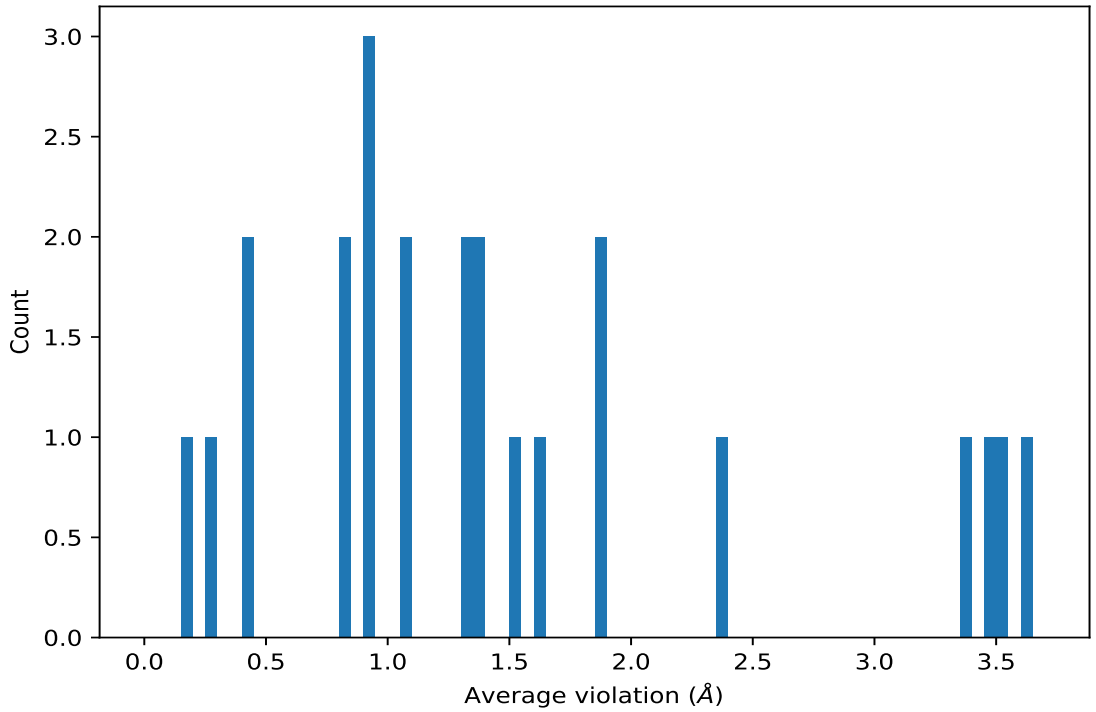
9.3.1 Bar graph : Distance violation statistics for the ensemble



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 (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)
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	20	3.65	0.13	3.64
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	20	3.55	0.07	3.56
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	20	3.49	0.07	3.48
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	20	3.35	0.14	3.4
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	20	2.35	0.06	2.34
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	20	1.85	0.09	1.83
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	20	1.85	0.09	1.83
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	20	1.64	0.02	1.64
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	20	1.54	0.06	1.56
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	20	1.4	0.11	1.42
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	20	1.4	0.11	1.42
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	20	1.34	0.06	1.35
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	20	1.34	0.06	1.35
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	20	1.05	0.15	1.05
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	20	1.05	0.15	1.05
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	20	0.94	0.09	0.94

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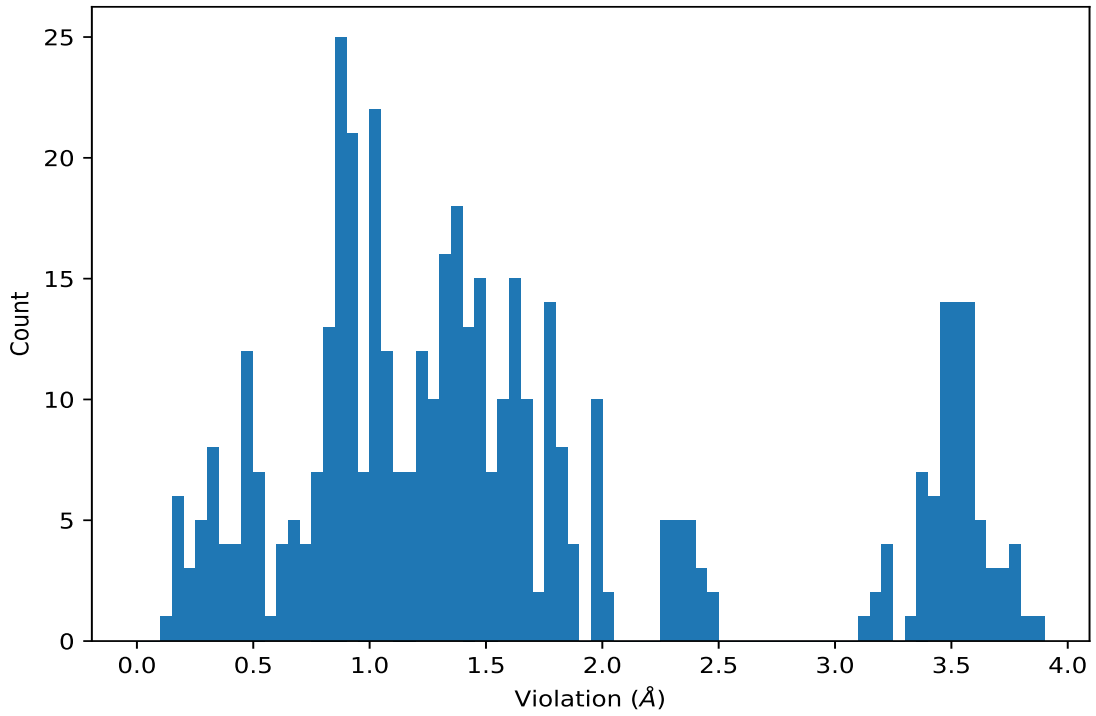
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	20	0.94	0.09	0.94
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	20	0.94	0.09	0.94
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	20	0.82	0.11	0.86
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	20	0.82	0.15	0.81
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	20	0.41	0.12	0.43
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	20	0.41	0.12	0.43
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	6	0.19	0.03	0.2
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	5	0.26	0.0	0.26

[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)
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	17	3.87
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	6	3.83
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	19	3.79
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	2	3.77
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	8	3.75
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	16	3.75
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	20	3.73
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	1	3.72
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	3	3.7
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	12	3.69
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	9	3.65
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	17	3.65
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	6	3.63
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	8	3.62
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	2	3.61
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	15	3.6
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	19	3.6
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	20	3.59
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	1	3.59
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	12	3.59
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	16	3.59
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	11	3.58
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	13	3.58
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	3	3.58
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	20	3.58
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	14	3.57
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	15	3.56
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	10	3.56
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	11	3.56
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	18	3.56
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	10	3.55
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	7	3.54
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	14	3.54
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	11	3.54
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	9	3.53
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	13	3.53
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	5	3.53
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	13	3.53
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	15	3.52
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	18	3.52
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	2	3.51

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	13	3.51
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	17	3.51
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	7	3.51
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	4	3.5
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	4	3.49
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	14	3.49
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	18	3.48
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	2	3.48
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	5	3.48
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	7	3.48
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	6	3.47
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	11	3.46
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	16	3.46
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	4	3.45
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	5	3.45
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	19	3.45
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	6	3.45
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	10	3.45
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	12	3.42
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	8	3.41
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	3	3.41
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	4	3.41
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	7	3.41
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	20	3.41
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	1	3.39
(3,1522)	1:A:53:LEU:HD12	1:A:113:LEU:H	9	3.39
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	12	3.38
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	19	3.38
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	3	3.37
(3,294)	1:A:53:LEU:HD12	1:A:112:MET:HA	1	3.36
(3,1793)	1:A:53:LEU:HD12	1:A:112:MET:H	9	3.35
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	16	3.31
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	10	3.23
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	18	3.22
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	15	3.21
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	8	3.2
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	14	3.16
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	5	3.15
(3,2029)	1:A:53:LEU:HD23	1:A:57:LYS:H	17	3.11
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	20	2.48
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	17	2.45
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	13	2.43

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	2	2.41
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	6	2.41
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	11	2.38
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	19	2.38
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	16	2.37
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	8	2.35
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	18	2.35
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	5	2.32
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	4	2.31
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	15	2.31
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	3	2.3
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	12	2.3
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	1	2.29
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	9	2.28
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	10	2.28
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	14	2.28
(3,295)	1:A:53:LEU:HD12	1:A:112:MET:HB2	7	2.26
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	9	2.02
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	9	2.02
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	13	1.99
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	13	1.99
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	18	1.98
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	18	1.98
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	4	1.96
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	4	1.96
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	5	1.96
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	5	1.96
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	11	1.95
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	11	1.95
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	20	1.89
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	20	1.89
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	10	1.88
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	10	1.88
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	7	1.84
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	7	1.84
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	2	1.83
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	2	1.83
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	14	1.83
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	14	1.83
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	15	1.8
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	15	1.8
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	12	1.79

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	12	1.79
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	6	1.78
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	6	1.78
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	16	1.78
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	16	1.78
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	19	1.76
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	19	1.76
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	1	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	1	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	3	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	3	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	8	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	8	1.75
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG2	17	1.74
(3,2714)	1:A:53:LEU:HD12	1:A:112:MET:HG3	17	1.74
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	12	1.66
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	1	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	2	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	3	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	6	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	8	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	11	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	16	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	18	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	19	1.65
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	4	1.64
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	5	1.64
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	13	1.64
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	20	1.64
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	14	1.64
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	7	1.63
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	14	1.63
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	15	1.63
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	17	1.63
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	1	1.62
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	10	1.62
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	15	1.62
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	20	1.62
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	9	1.6
(3,459)	1:A:53:LEU:HA	1:A:53:LEU:HD23	10	1.6
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	7	1.59
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	12	1.57

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	16	1.57
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	6	1.57
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	6	1.57
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	3	1.56
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	8	1.56
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	19	1.55
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	17	1.55
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	17	1.55
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	2	1.54
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	17	1.53
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	8	1.51
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	8	1.51
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	18	1.5
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	12	1.5
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	12	1.5
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	6	1.49
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	5	1.48
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	4	1.47
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	19	1.47
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	19	1.47
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	9	1.46
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	1	1.46
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	1	1.46
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	2	1.46
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	2	1.46
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	3	1.46
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	3	1.46
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	11	1.45
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	17	1.45
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	17	1.45
(3,1965)	1:A:53:LEU:HD22	1:A:54:CYS:H	13	1.43
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	20	1.43
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	20	1.43
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	16	1.42
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	16	1.42
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	5	1.41
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	5	1.41
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	10	1.41
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	10	1.41
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	13	1.41
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	13	1.41
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	15	1.4

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	15	1.4
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	9	1.39
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	9	1.39
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	13	1.38
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	13	1.38
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	14	1.38
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	14	1.38
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	15	1.38
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	15	1.38
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	8	1.37
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	8	1.37
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	11	1.37
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	11	1.37
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	4	1.36
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	4	1.36
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	18	1.36
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	18	1.36
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	14	1.36
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	14	1.36
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	7	1.34
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	7	1.34
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	7	1.34
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	7	1.34
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	6	1.33
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	6	1.33
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	19	1.33
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	19	1.33
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	18	1.33
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	18	1.33
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	2	1.32
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	2	1.32
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	11	1.32
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	11	1.32
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	12	1.3
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	12	1.3
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	3	1.29
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	3	1.29
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	16	1.28
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	16	1.28
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	6	1.26
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	6	1.26
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	4	1.26

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	4	1.26
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	5	1.26
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	5	1.26
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	1	1.24
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	1	1.24
(3,1084)	1:A:53:LEU:HD22	1:A:54:CYS:HA	20	1.24
(3,1084)	1:A:53:LEU:HD23	1:A:54:CYS:HA	20	1.24
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	10	1.24
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	10	1.24
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	12	1.23
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	12	1.23
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	17	1.22
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	17	1.22
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	1	1.2
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	1	1.2
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	8	1.18
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	8	1.18
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	19	1.18
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	19	1.18
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	10	1.16
(3,1075)	1:A:53:LEU:HD12	1:A:109:CYS:HA	9	1.16
(3,1075)	1:A:53:LEU:HD13	1:A:109:CYS:HA	9	1.16
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	17	1.14
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	17	1.14
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	17	1.14
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	2	1.13
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	2	1.13
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	3	1.12
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	3	1.12
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	20	1.09
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	20	1.09
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	6	1.06
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	6	1.06
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	6	1.06
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	12	1.05
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	12	1.05
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	12	1.05
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	11	1.05
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	11	1.05
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	16	1.05
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	16	1.05
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	7	1.04

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	7	1.04
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	7	1.04
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	14	1.04
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	14	1.03
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	14	1.03
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	15	1.03
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	15	1.03
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	2	1.02
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	2	1.02
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	2	1.02
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	1	1.01
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	1	1.01
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	1	1.01
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	5	1.01
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	5	1.01
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	5	1.01
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	13	1.01
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	13	1.01
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	19	1.0
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	19	1.0
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	19	1.0
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	15	0.98
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	14	0.96
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	14	0.96
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	14	0.96
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	7	0.95
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	7	0.95
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	7	0.95
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	3	0.94
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	3	0.94
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	3	0.94
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	16	0.94
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	16	0.94
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	16	0.94
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	6	0.94
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	12	0.94
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	8	0.92
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	8	0.92
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	8	0.92
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	13	0.91
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	13	0.91
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	13	0.91

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	3	0.91
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	7	0.91
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	15	0.91
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	15	0.9
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	15	0.9
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	15	0.9
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	8	0.9
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	10	0.89
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	10	0.89
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	18	0.89
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	18	0.89
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	18	0.88
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	18	0.88
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	18	0.88
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	20	0.88
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	2	0.88
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	4	0.87
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	4	0.87
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	4	0.87
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	5	0.87
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	5	0.87
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	1	0.87
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	14	0.87
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	16	0.86
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	1	0.86
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	20	0.86
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	20	0.85
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	20	0.85
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	20	0.85
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	3	0.85
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	16	0.85
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	19	0.85
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	10	0.84
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	10	0.84
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	10	0.84
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	4	0.84
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	4	0.84
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	12	0.84
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	10	0.83
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	19	0.82
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	17	0.82
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	11	0.81

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	11	0.81
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	11	0.81
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	2	0.8
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	8	0.79
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	11	0.79
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	9	0.78
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	17	0.78
(3,316)	1:A:53:LEU:HD11	1:A:108:PRO:HA	9	0.75
(3,316)	1:A:53:LEU:HD12	1:A:108:PRO:HA	9	0.75
(3,316)	1:A:53:LEU:HD13	1:A:108:PRO:HA	9	0.75
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	6	0.73
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	13	0.72
(3,2153)	1:A:53:LEU:HD12	1:A:109:CYS:H	9	0.7
(3,2153)	1:A:53:LEU:HD13	1:A:109:CYS:H	9	0.7
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	5	0.68
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	17	0.66
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	17	0.66
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	18	0.66
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	9	0.65
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	4	0.64
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	4	0.64
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	11	0.63
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	18	0.6
(3,1074)	1:A:50:CYS:HA	1:A:53:LEU:HD13	5	0.59
(3,1080)	1:A:51:VAL:H	1:A:53:LEU:HD22	13	0.54
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	12	0.53
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	12	0.53
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	6	0.51
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	6	0.51
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	2	0.5
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	2	0.5
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	1	0.49
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	1	0.49
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	5	0.49
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	5	0.49
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	14	0.49
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	14	0.49
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	7	0.48
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	7	0.48
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	19	0.48
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	19	0.48
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	16	0.45

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	16	0.45
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	3	0.41
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	3	0.41
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	15	0.4
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	15	0.4
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	10	0.38
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	10	0.38
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	8	0.36
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	8	0.36
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	4	0.3
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	4	0.3
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	13	0.3
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	13	0.3
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	18	0.3
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	18	0.3
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	20	0.3
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	20	0.3
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	1	0.27
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	14	0.26
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	15	0.26
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	18	0.26
(1,2)	1:A:19:CYS:SG	1:A:54:CYS:CB	20	0.26
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	5	0.22
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	18	0.21
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	4	0.2
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	9	0.19
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	13	0.19
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	9	0.18
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	9	0.18
(3,318)	1:A:53:LEU:HD11	1:A:108:PRO:HB2	11	0.17
(3,318)	1:A:53:LEU:HD13	1:A:108:PRO:HB2	11	0.17
(3,1069)	1:A:53:LEU:H	1:A:53:LEU:HD12	11	0.12

10 Dihedral-angle violation analysis (i)

Dihedral angle analysis failed due to data error in the dihedral angle restraints, possibly missing target value