Full wwPDB NMR Structure Validation Report (i)

Jun 6, 2023 – 04:39 pm BST

PDB ID	:	6SAP
BMRB ID	:	27977
Title	:	Structure of the PUB domain from Ubiquitin Regulatory X domain protein 1 (UBXD1)
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Deposited on	:	2019-07-17

This is a Full wwPDB NMR Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/NMRValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (i)) were used in the production of this report:

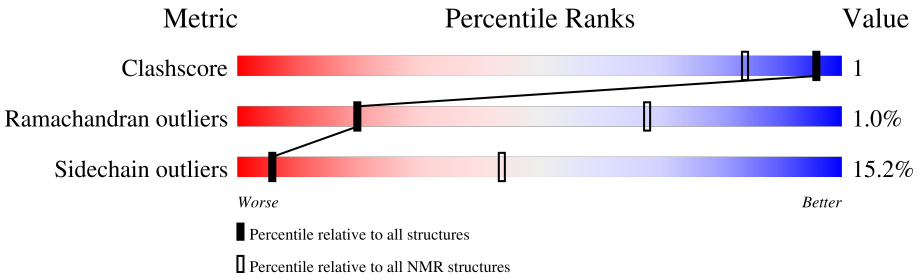
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal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

1 Overall quality at a glance

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

The overall completeness of chemical shifts assignment is 90%.

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	119	75% 11% • 13%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 20 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:151-A:228, A:238-A:262 (103)	0.93	20

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

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

The models can be grouped into 3 clusters. No single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1925 atoms, of which 952 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called UBX domain-containing protein 6.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	119	1925	616	952	164	190	3	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	GLY	-	expression tag	UNP Q9BZV1
A	-3	SER	-	expression tag	UNP Q9BZV1
A	-2	HIS	-	expression tag	UNP Q9BZV1
A	-1	MET	-	expression tag	UNP Q9BZV1

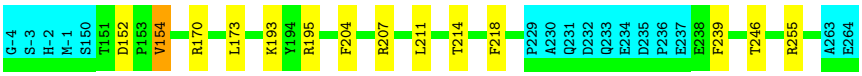
4 Residue-property plots

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: UBX domain-containing protein 6

Chain A: 



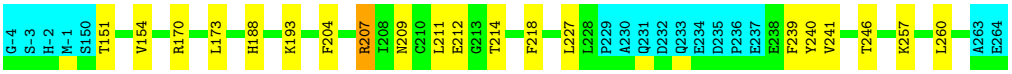
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: UBX domain-containing protein 6

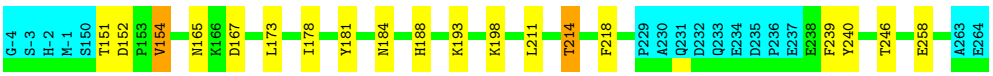
Chain A: 



4.2.2 Score per residue for model 2

• Molecule 1: UBX domain-containing protein 6

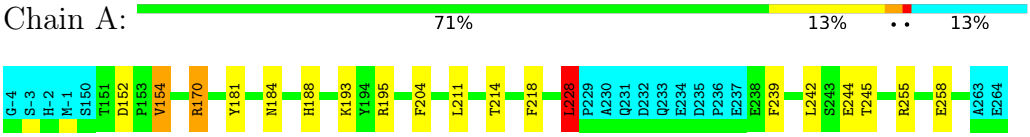
Chain A: 



4.2.3 Score per residue for model 3

• Molecule 1: UBX domain-containing protein 6

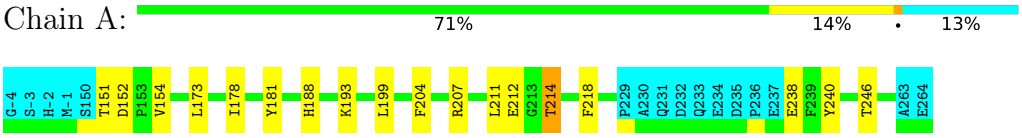
Chain A:



4.2.4 Score per residue for model 4

• Molecule 1: UBX domain-containing protein 6

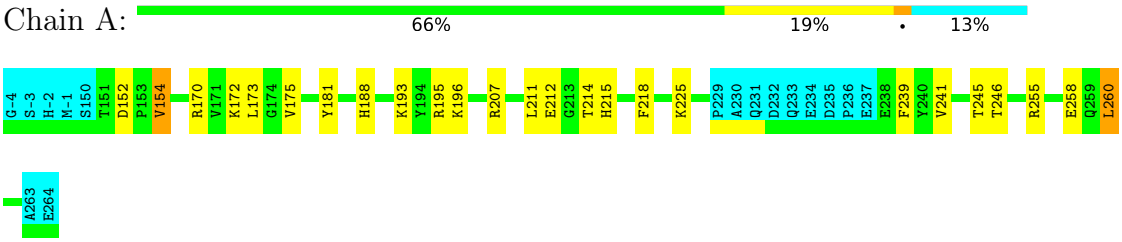
Chain A:



4.2.5 Score per residue for model 5

• Molecule 1: UBX domain-containing protein 6

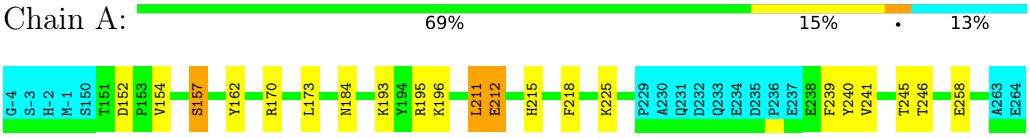
Chain A:



4.2.6 Score per residue for model 6

• Molecule 1: UBX domain-containing protein 6

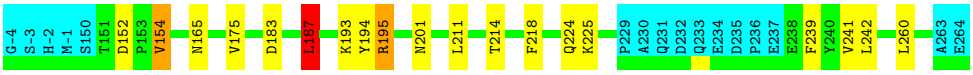
Chain A:



4.2.7 Score per residue for model 7

• Molecule 1: UBX domain-containing protein 6

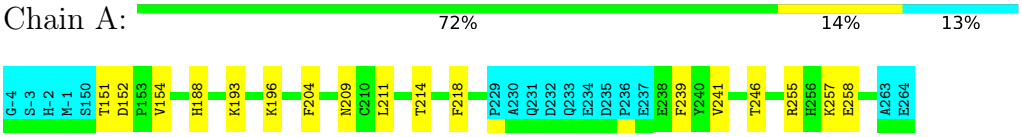
Chain A:



4.2.8 Score per residue for model 8

• Molecule 1: UBX domain-containing protein 6

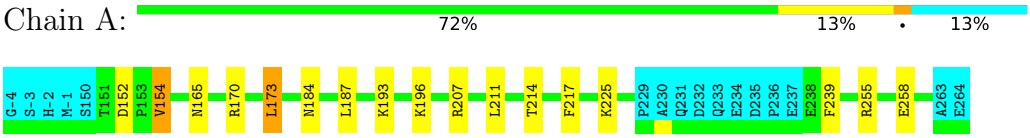
Chain A:



4.2.9 Score per residue for model 9

• Molecule 1: UBX domain-containing protein 6

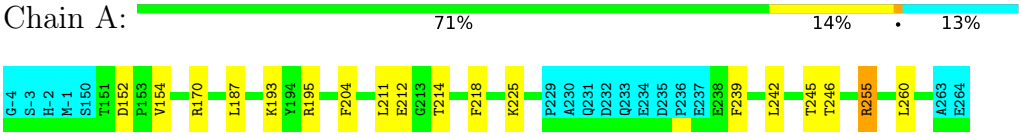
Chain A:



4.2.10 Score per residue for model 10

• Molecule 1: UBX domain-containing protein 6

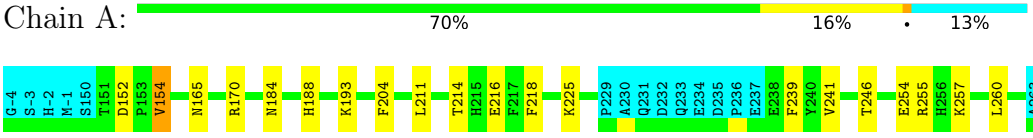
Chain A:



4.2.11 Score per residue for model 11

• Molecule 1: UBX domain-containing protein 6

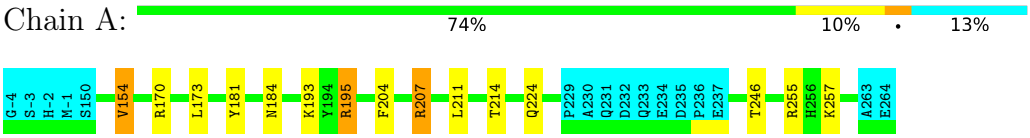
Chain A:



4.2.12 Score per residue for model 12

• Molecule 1: UBX domain-containing protein 6

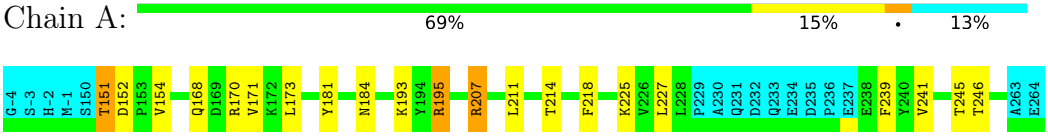
Chain A:



4.2.13 Score per residue for model 13

• Molecule 1: UBX domain-containing protein 6

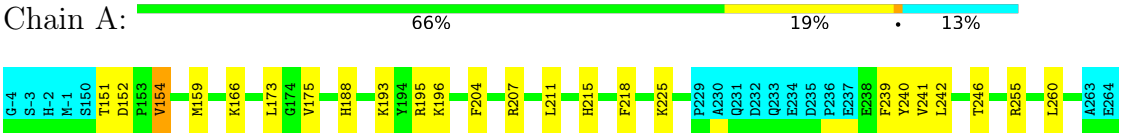
Chain A:



4.2.14 Score per residue for model 14

• Molecule 1: UBX domain-containing protein 6

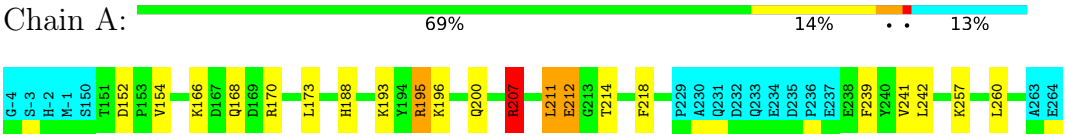
Chain A:



4.2.15 Score per residue for model 15

• Molecule 1: UBX domain-containing protein 6

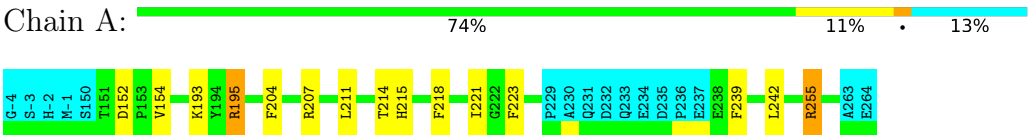
Chain A:



4.2.16 Score per residue for model 16

• Molecule 1: UBX domain-containing protein 6

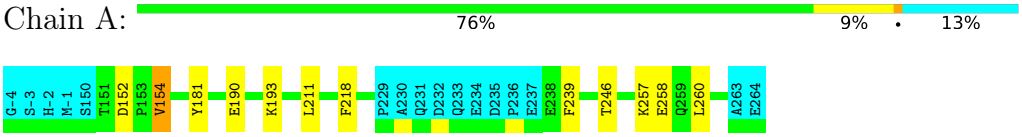
Chain A:



4.2.17 Score per residue for model 17

• Molecule 1: UBX domain-containing protein 6

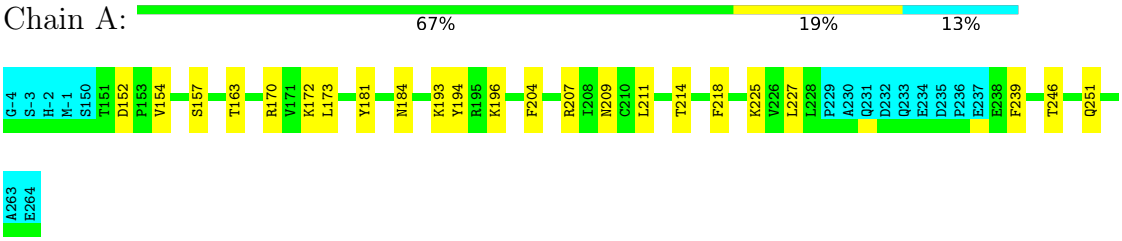
Chain A:



4.2.18 Score per residue for model 18

• Molecule 1: UBX domain-containing protein 6

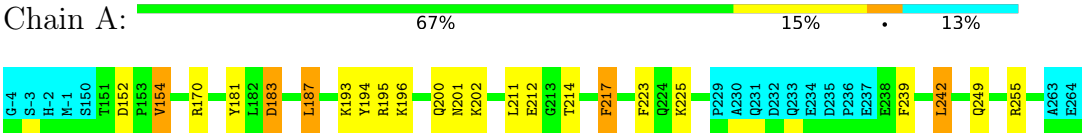
Chain A:



4.2.19 Score per residue for model 19

• Molecule 1: UBX domain-containing protein 6

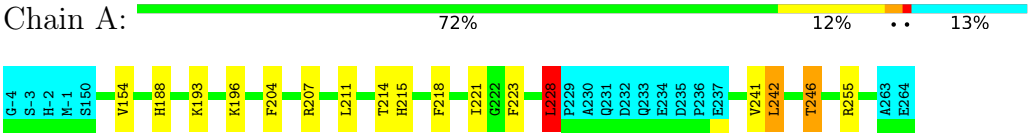
Chain A:



4.2.20 Score per residue for model 20 (medoid)

• Molecule 1: UBX domain-containing protein 6

Chain A:



5 Refinement protocol and experimental data overview

The models were refined using the following method: *molecular 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
CYANA	structure calculation	3.98.9
YASARA	refinement	11.12.31

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	1464
Number of shifts mapped to atoms	1464
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	90%

6 Model quality (i)

6.1 Standard geometry (i)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#Z>5	RMSZ	#Z>5
1	A	0.80±0.02	0±0/870 (0.0± 0.0%)	0.92±0.04	3±1/1174 (0.3± 0.1%)
All	All	0.80	1/17400 (0.0%)	0.92	69/23480 (0.3%)

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	0.1±0.2
All	All	0	1

All unique bond outliers are listed below.

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)	Models	
								Worst	Total
1	A	154	VAL	CB-CG1	-5.06	1.42	1.52	17	1

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	228	LEU	CB-CG-CD2	-8.58	96.41	111.00	3	2
1	A	152	ASP	N-CA-CB	-7.99	96.21	110.60	4	9
1	A	255	ARG	NE-CZ-NH1	6.71	123.66	120.30	20	11
1	A	151	THR	CA-C-N	-6.49	102.92	117.20	4	2
1	A	207	ARG	NE-CZ-NH1	6.02	123.31	120.30	20	7
1	A	258	GLU	N-CA-CB	-6.01	99.77	110.60	6	4
1	A	170	ARG	NE-CZ-NH1	5.95	123.27	120.30	1	12
1	A	195	ARG	NE-CZ-NH1	5.78	123.19	120.30	14	8
1	A	154	VAL	N-CA-C	-5.71	95.59	111.00	14	8
1	A	228	LEU	CB-CG-CD1	5.67	120.64	111.00	3	2

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	A	190	GLU	N-CA-CB	-5.48	100.73	110.60	17	1
1	A	187	LEU	CB-CG-CD1	5.26	119.94	111.00	7	1
1	A	157	SER	N-CA-CB	5.20	118.29	110.50	6	1
1	A	154	VAL	CB-CA-C	-5.00	101.89	111.40	17	1

There are no chirality outliers.

All unique planar outliers are listed below.

Mol	Chain	Res	Type	Group	Models (Total)
1	A	151	THR	Peptide	1

6.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	853	856	860	2±1
All	All	17060	17120	17200	32

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 1.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:211:LEU:HD13	1:A:212:GLU:H	0.58	1.59	6	2
1:A:178:ILE:HD11	1:A:214:THR:HG22	0.52	1.82	4	2
1:A:200:GLN:C	1:A:201:ASN:HD22	0.51	2.09	19	1
1:A:175:VAL:HG13	1:A:260:LEU:HD11	0.50	1.83	14	1
1:A:173:LEU:HD11	1:A:207:ARG:HB3	0.50	1.82	9	1
1:A:228:LEU:C	1:A:228:LEU:HD22	0.50	2.27	20	2
1:A:173:LEU:HD22	1:A:207:ARG:HD3	0.48	1.86	5	5
1:A:187:LEU:H	1:A:187:LEU:CD1	0.46	2.22	19	2
1:A:242:LEU:HD21	1:A:246:THR:HB	0.46	1.87	20	1
1:A:173:LEU:HD11	1:A:207:ARG:CB	0.46	2.41	15	1
1:A:175:VAL:HG22	1:A:260:LEU:HD11	0.44	1.90	7	1
1:A:223:PHE:CE2	1:A:242:LEU:HD23	0.43	2.48	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:183:ASP:HA	1:A:187:LEU:HD13	0.43	1.90	19	1
1:A:198:LYS:HB2	1:A:239:PHE:CE1	0.43	2.49	2	1
1:A:168:GLN:HA	1:A:171:VAL:HG23	0.42	1.90	13	1
1:A:221:ILE:HD11	1:A:223:PHE:CE1	0.42	2.49	20	1
1:A:199:LEU:HD13	1:A:238:GLU:HG3	0.42	1.90	4	1
1:A:175:VAL:HG13	1:A:260:LEU:HD13	0.41	1.91	5	1
1:A:154:VAL:HG12	1:A:217:PHE:CD2	0.41	2.50	19	1
1:A:173:LEU:HD22	1:A:207:ARG:HD2	0.41	1.91	12	1
1:A:221:ILE:HD11	1:A:223:PHE:CE2	0.41	2.51	16	1
1:A:223:PHE:CE1	1:A:242:LEU:HD23	0.40	2.52	20	1
1:A:173:LEU:HD23	1:A:173:LEU:C	0.40	2.37	2	1
1:A:173:LEU:C	1:A:173:LEU:HD23	0.40	2.36	6	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	103/119 (87%)	95±2 (93±2%)	6±2 (6±2%)	1±1 (1±1%)	20	68
All	All	2060/2380 (87%)	1909 (93%)	130 (6%)	21 (1%)	20	68

All 4 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	195	ARG	8
1	A	212	GLU	7
1	A	151	THR	3
1	A	165	ASN	3

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	94/107 (88%)	80±3 (85±3%)	14±3 (15±3%)	6 44
All	All	1880/2140 (88%)	1595 (85%)	285 (15%)	6 44

All 52 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	154	VAL	20
1	A	193	LYS	20
1	A	211	LEU	20
1	A	214	THR	17
1	A	218	PHE	17
1	A	239	PHE	16
1	A	246	THR	14
1	A	204	PHE	11
1	A	188	HIS	10
1	A	241	VAL	10
1	A	225	LYS	10
1	A	181	TYR	9
1	A	196	LYS	9
1	A	152	ASP	8
1	A	184	ASN	8
1	A	242	LEU	8
1	A	257	LYS	6
1	A	260	LEU	6
1	A	240	TYR	5
1	A	245	THR	5
1	A	215	HIS	5
1	A	187	LEU	4
1	A	209	ASN	3
1	A	227	LEU	3
1	A	258	GLU	3
1	A	194	TYR	3
1	A	228	LEU	2
1	A	172	LYS	2
1	A	157	SER	2
1	A	183	ASP	2
1	A	224	GLN	2
1	A	173	LEU	2
1	A	217	PHE	2
1	A	255	ARG	2

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Mol	Chain	Res	Type	Models (Total)
1	A	166	LYS	2
1	A	167	ASP	1
1	A	170	ARG	1
1	A	244	GLU	1
1	A	162	TYR	1
1	A	201	ASN	1
1	A	151	THR	1
1	A	165	ASN	1
1	A	216	GLU	1
1	A	254	GLU	1
1	A	159	MET	1
1	A	168	GLN	1
1	A	200	GLN	1
1	A	207	ARG	1
1	A	163	THR	1
1	A	251	GLN	1
1	A	202	LYS	1
1	A	249	GLN	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 90% for the well-defined parts and 88% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *starch_output*

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	1464
Number of shifts mapped to atoms	1464
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
$^{13}C_{\alpha}$	115	-0.17 ± 0.13	None needed (< 0.5 ppm)
$^{13}C_{\beta}$	112	0.38 ± 0.08	None needed (< 0.5 ppm)
$^{13}C'$	112	-0.21 ± 0.14	None needed (< 0.5 ppm)
^{15}N	107	0.42 ± 0.20	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 90%, i.e. 1343 atoms were assigned a chemical shift out of a possible 1492. 0 out of 18 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	503/512 (98%)	203/206 (99%)	203/206 (99%)	97/100 (97%)
Sidechain	735/855 (86%)	492/552 (89%)	238/270 (88%)	5/33 (15%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	105/125 (84%)	51/62 (82%)	49/58 (84%)	5/5 (100%)
Overall	1343/1492 (90%)	746/820 (91%)	490/534 (92%)	107/138 (78%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 88%, i.e. 1464 atoms were assigned a chemical shift out of a possible 1669. 0 out of 18 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	559/589 (95%)	225/237 (95%)	227/238 (95%)	107/114 (94%)
Sidechain	800/949 (84%)	536/611 (88%)	259/303 (85%)	5/35 (14%)
Aromatic	105/131 (80%)	51/66 (77%)	49/60 (82%)	5/5 (100%)
Overall	1464/1669 (88%)	812/914 (89%)	535/601 (89%)	117/154 (76%)

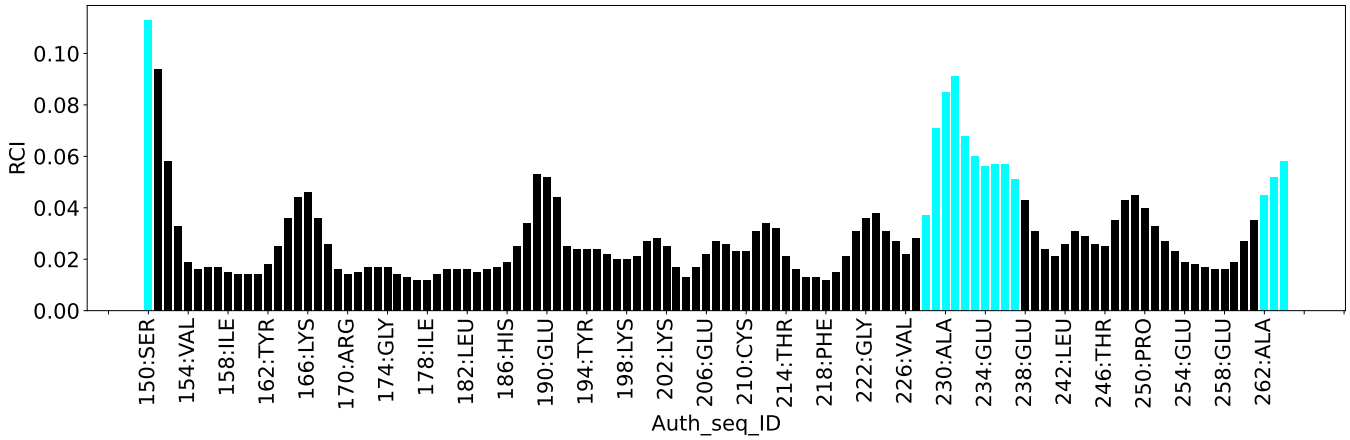
7.1.4 Statistically unusual chemical shifts (i)

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	1214
Intra-residue (|i-j|=0)	463
Sequential (|i-j|=1)	352
Medium range (|i-j|>1 and |i-j|<5)	207
Long range (|i-j|≥5)	192
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	0
Total dihedral-angle restraints	0
Number of unmapped restraints	0
Number of restraints per residue	10.2
Number of long range restraints per residue[1]	1.6

[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)	2.5	0.2
0.2-0.5 (Medium)	1.0	0.5
>0.5 (Large)	1.4	1.65

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)

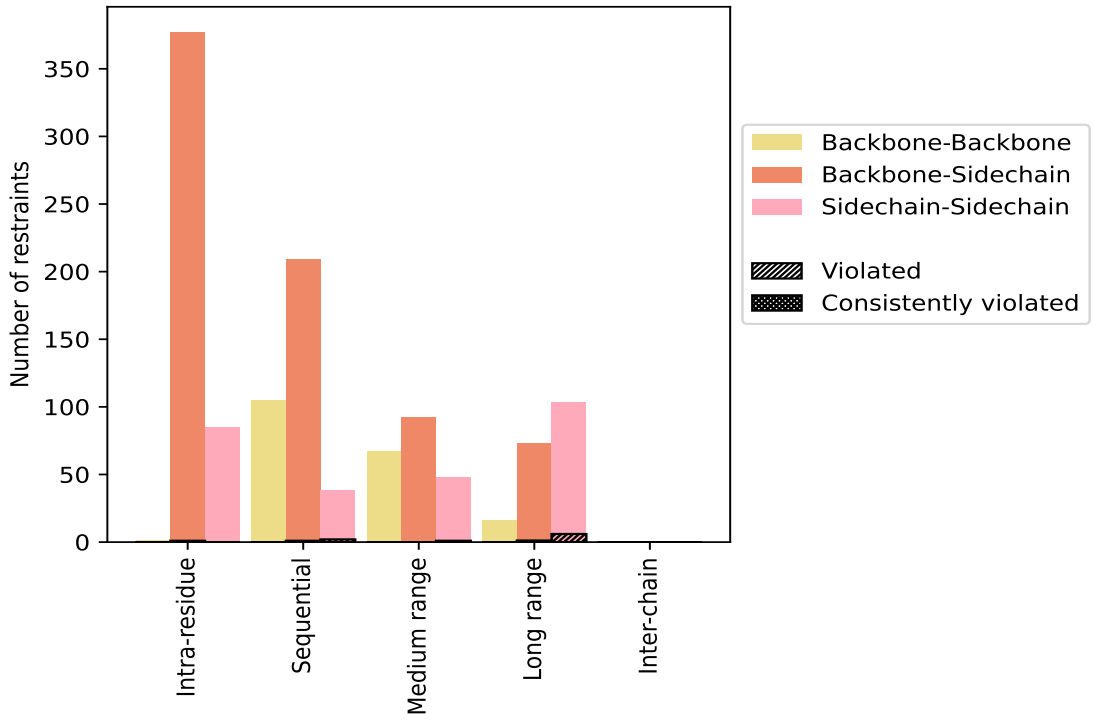
9.1 Summary of distance violations (i)

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)	463	38.1	1	0.2	0.1	0	0.0	0.0
Backbone-Backbone	1	0.1	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	377	31.1	1	0.3	0.1	0	0.0	0.0
Sidechain-Sidechain	85	7.0	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	352	29.0	3	0.9	0.2	0	0.0	0.0
Backbone-Backbone	105	8.6	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	209	17.2	1	0.5	0.1	0	0.0	0.0
Sidechain-Sidechain	38	3.1	2	5.3	0.2	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	207	17.1	1	0.5	0.1	0	0.0	0.0
Backbone-Backbone	67	5.5	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	92	7.6	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	48	4.0	1	2.1	0.1	0	0.0	0.0
Long range (|i-j|≥5)	192	15.8	7	3.6	0.6	1	0.5	0.1
Backbone-Backbone	16	1.3	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	73	6.0	1	1.4	0.1	1	1.4	0.1
Sidechain-Sidechain	103	8.5	6	5.8	0.5	0	0.0	0.0
Inter-chain	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Hydrogen bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Disulfide bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Total	1214	100.0	12	1.0	1.0	1	0.1	0.1
Backbone-Backbone	189	15.6	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	751	61.9	3	0.4	0.2	1	0.1	0.1
Sidechain-Sidechain	274	22.6	9	3.3	0.7	0	0.0	0.0

[1] percentage calculated with respect to the total number of distance restraints, [2] percentage calculated with respect to the number of restraints in a particular restraint category, [3] violated in at least one model, [4] violated in all the models

9.1.1 Bar chart : Distribution of distance restraints and violations



Violated and consistently violated restraints are shown using different hatch patterns in their respective categories. The hydrogen bonds and disulfied bonds are counted in their appropriate category on the x-axis

9.2 Distance violation statistics for each model

The following table provides the distance violation statistics for each model in the ensemble. Violations less than 0.1 Å are not included in the statistics.

Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
1	0	0	0	3	0	3	0.53	1.22	0.49	0.21
2	0	1	1	3	0	5	0.49	1.32	0.43	0.38
3	1	0	1	3	0	5	0.32	1.03	0.36	0.16
4	0	1	1	4	0	6	0.42	1.43	0.47	0.18
5	0	1	1	4	0	6	0.41	1.33	0.43	0.24
6	0	1	1	3	0	5	0.35	0.91	0.29	0.21
7	0	0	1	4	0	5	0.41	1.16	0.39	0.31
8	0	1	1	4	0	6	0.4	1.38	0.45	0.19
9	0	0	1	3	0	4	0.4	1.12	0.42	0.17
10	0	0	1	3	0	4	0.5	0.95	0.38	0.46
11	0	0	1	3	0	4	0.46	1.06	0.38	0.34

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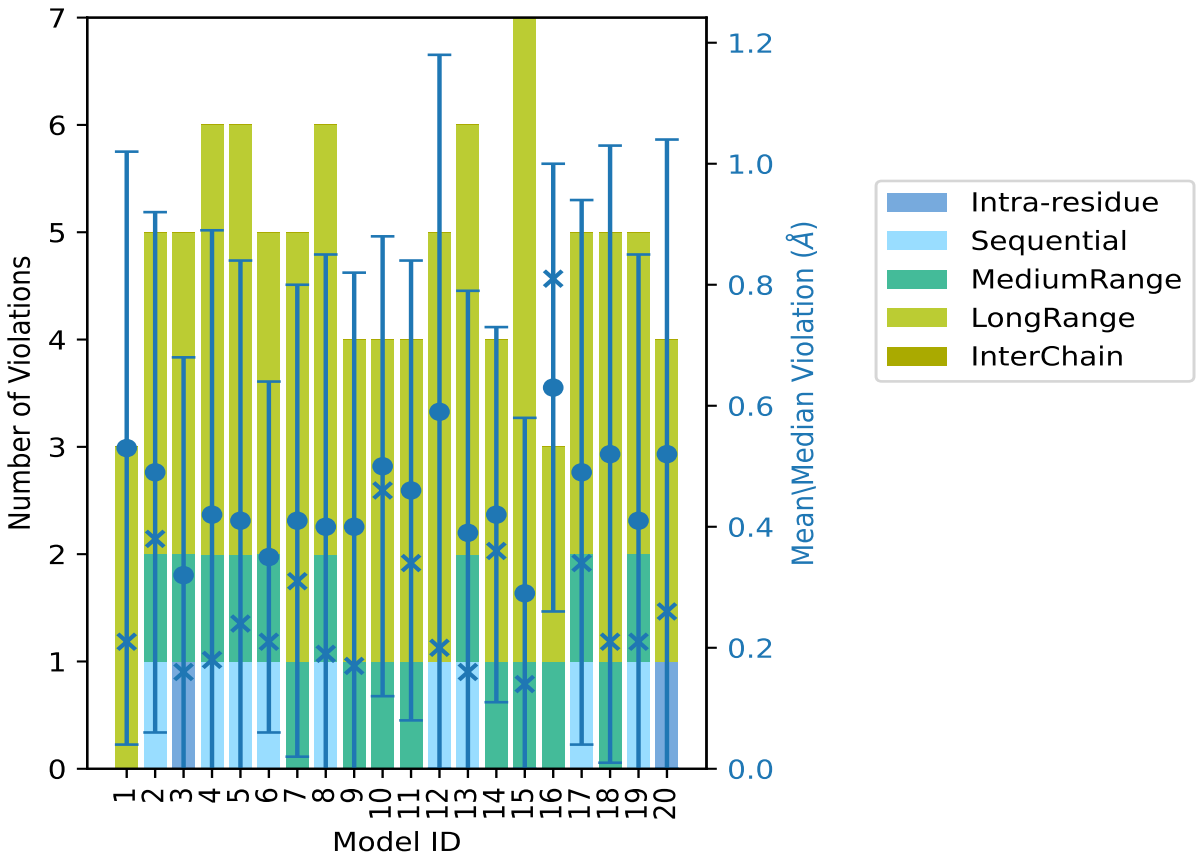
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	0	1	0	4	0	5	0.59	1.65	0.59	0.2
13	0	1	1	4	0	6	0.39	1.18	0.4	0.16
14	0	0	1	3	0	4	0.42	0.87	0.31	0.36
15	0	0	1	6	0	7	0.29	0.98	0.29	0.14
16	0	0	1	2	0	3	0.63	0.97	0.37	0.81
17	0	1	1	3	0	5	0.49	1.36	0.45	0.34
18	0	0	1	4	0	5	0.52	1.49	0.51	0.21
19	0	1	1	3	0	5	0.41	1.26	0.44	0.21
20	1	0	0	3	0	4	0.52	1.4	0.52	0.26

[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

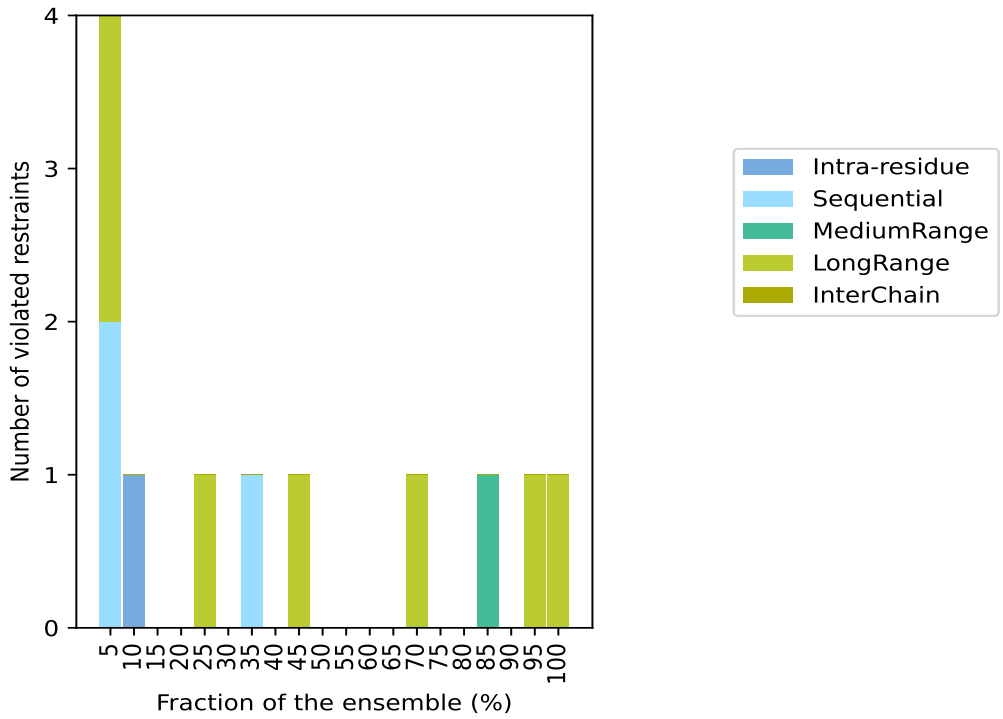
9.3 Distance violation statistics for the ensemble (i)

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, 1202(IR:462, SQ:349, MR:206, LR:185, 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	2	0	2	0	4	1	5.0
1	0	0	0	0	1	2	10.0
0	0	0	0	0	0	3	15.0
0	0	0	0	0	0	4	20.0
0	0	0	1	0	1	5	25.0
0	0	0	0	0	0	6	30.0
0	1	0	0	0	1	7	35.0
0	0	0	0	0	0	8	40.0
0	0	0	1	0	1	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	1	0	1	14	70.0
0	0	0	0	0	0	15	75.0
0	0	0	0	0	0	16	80.0
0	0	1	0	0	1	17	85.0
0	0	0	0	0	0	18	90.0
0	0	0	1	0	1	19	95.0
0	0	0	1	0	1	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

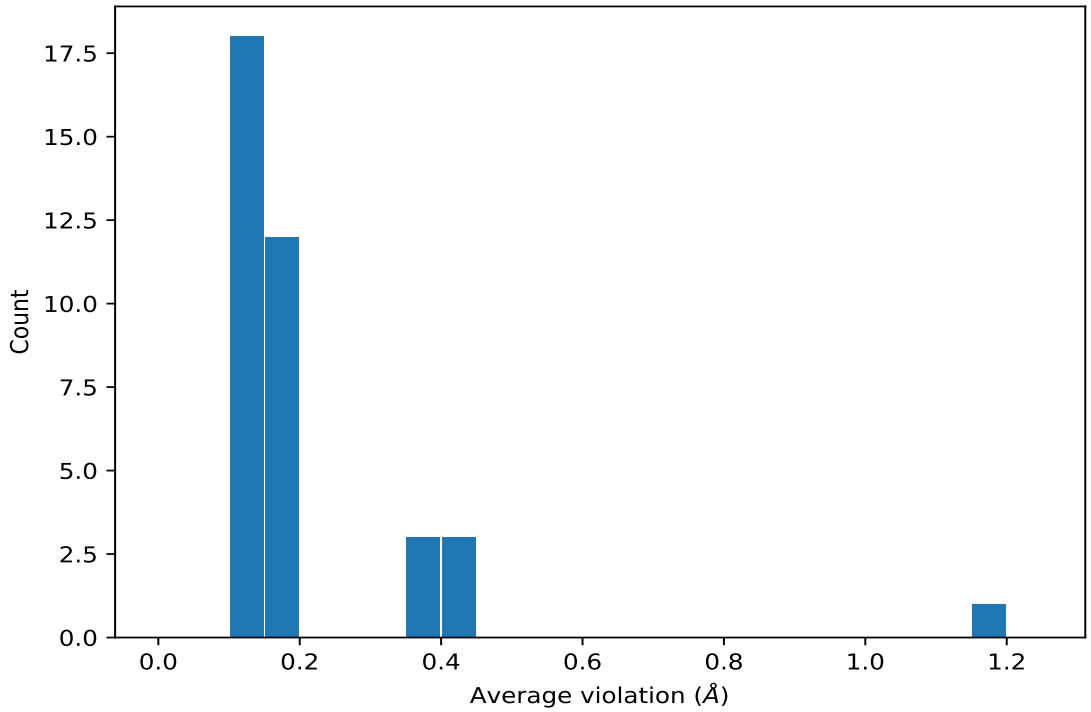
9.3.1 Bar graph : Distance violation statistics for the ensemble



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)
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	20	1.2	0.21	1.2
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	19	0.16	0.03	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	19	0.16	0.03	0.16
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	17	0.37	0.21	0.35
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	17	0.37	0.21	0.35
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	17	0.37	0.21	0.35
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	14	0.4	0.17	0.35
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	14	0.4	0.17	0.35
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	14	0.4	0.17	0.35

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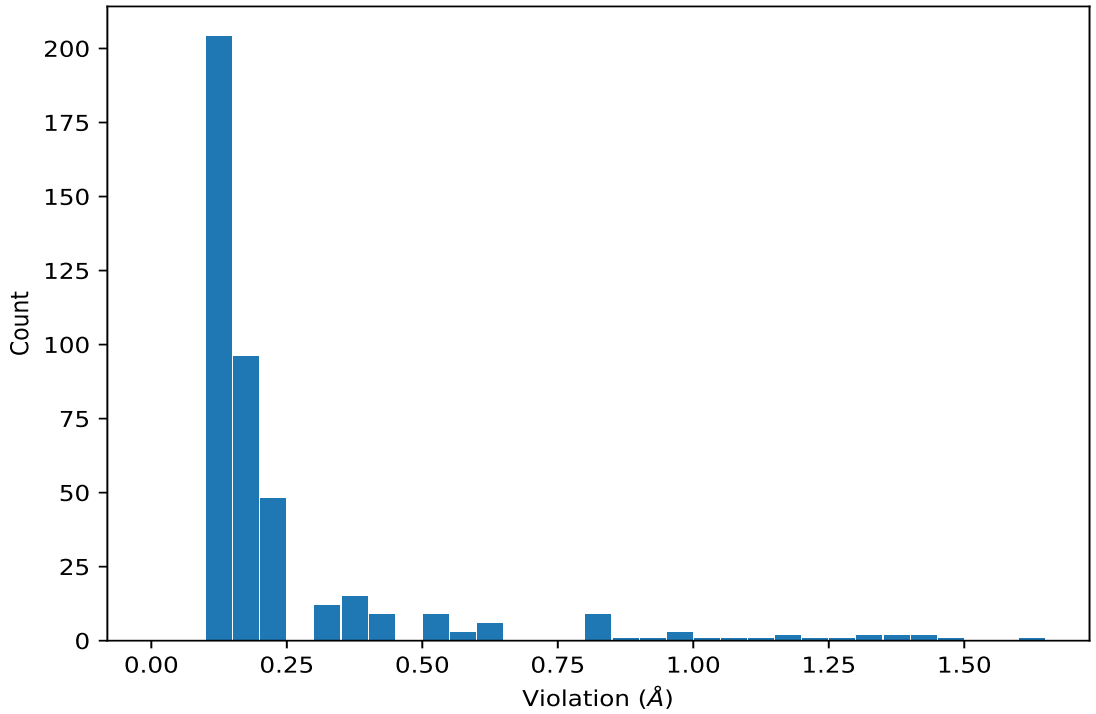
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	9	0.12	0.01	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	9	0.12	0.01	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	9	0.12	0.01	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	9	0.12	0.01	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	9	0.12	0.01	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	9	0.12	0.01	0.12
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	7	0.11	0.01	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	7	0.11	0.01	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	7	0.11	0.01	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	7	0.11	0.01	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	7	0.11	0.01	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	7	0.11	0.01	0.11
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	5	0.12	0.01	0.12
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD21	2	0.18	0.0	0.18
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD22	2	0.18	0.0	0.18
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD23	2	0.18	0.0	0.18

[1]Number of violated models, [2]Standard deviation

9.5 All violated distance restraints (i)

9.5.1 Histogram : Distribution of distance violations (i)

The following histogram shows the distribution of the absolute value of the violation for all violated restraints in the ensemble.



9.5.2 Table : All distance violations (i)

The following table lists the absolute value of the violation for each restraint in the ensemble sorted by its value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	12	1.65
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	18	1.49
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	4	1.43
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	20	1.4
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	8	1.38
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	17	1.36
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	5	1.33
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	2	1.32
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	19	1.26
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	1	1.22
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	13	1.18
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	7	1.16
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	9	1.12
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	11	1.06
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	3	1.03
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	15	0.98

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	16	0.97
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	10	0.95
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	6	0.91
(1,1167)	1:A:155:ALA:HA	1:A:259:GLN:HE21	14	0.87
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	16	0.81
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	16	0.81
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	16	0.81
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	12	0.81
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	12	0.81
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	12	0.81
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	10	0.8
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	10	0.8
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	10	0.8
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	13	0.62
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	13	0.62
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	13	0.62
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	18	0.6
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	18	0.6
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	18	0.6
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	14	0.57
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	14	0.57
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	14	0.57
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	11	0.52
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	11	0.52
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	11	0.52
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	17	0.5
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	17	0.5
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	17	0.5
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	4	0.5
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	4	0.5
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	4	0.5
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	5	0.44
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	5	0.44
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	5	0.44
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	2	0.42
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	2	0.42
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	2	0.42
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	8	0.41
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	8	0.41
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	8	0.41
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	15	0.38
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	15	0.38

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	15	0.38
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	2	0.38
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	2	0.38
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	2	0.38
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	6	0.35
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	6	0.35
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	6	0.35
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	7	0.35
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	7	0.35
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	7	0.35
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	20	0.35
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	20	0.35
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	20	0.35
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	17	0.34
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	17	0.34
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	17	0.34
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	19	0.34
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	19	0.34
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	19	0.34
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	5	0.33
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	5	0.33
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	5	0.33
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	7	0.31
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	7	0.31
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	7	0.31
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	18	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	18	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	18	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	19	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	19	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	19	0.21
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	1	0.21
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	1	0.21
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	1	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	2	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	2	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	2	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	2	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	2	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	2	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	2	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	2	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	2	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	6	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	6	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	6	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	6	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	6	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	6	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	6	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	6	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	6	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	8	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	8	0.21
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	8	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	8	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	8	0.21
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	8	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	8	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	8	0.21
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	8	0.21
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	9	0.2
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	9	0.2
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	9	0.2
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	12	0.2
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	12	0.2
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	12	0.2
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	12	0.2
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	12	0.2
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	12	0.2
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	12	0.2
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	12	0.2
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	12	0.2
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	15	0.19
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	15	0.19
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	15	0.19
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	13	0.19
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	13	0.19
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	13	0.19
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	13	0.19
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	13	0.19
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	13	0.19
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	13	0.19
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	13	0.19

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	13	0.19
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD21	3	0.18
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD22	3	0.18
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD23	3	0.18
(1,418)	1:A:154:VAL:HG21	1:A:259:GLN:HE21	6	0.18
(1,418)	1:A:154:VAL:HG22	1:A:259:GLN:HE21	6	0.18
(1,418)	1:A:154:VAL:HG23	1:A:259:GLN:HE21	6	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	4	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	4	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	4	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	4	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	4	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	4	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	4	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	4	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	4	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	18	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	18	0.18
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	18	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	18	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	18	0.18
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	18	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	18	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	18	0.18
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	18	0.18
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	4	0.17
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	4	0.17
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	4	0.17
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	8	0.17
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	8	0.17
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	8	0.17
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD21	20	0.17
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD22	20	0.17
(1,851)	1:A:228:LEU:HA	1:A:228:LEU:HD23	20	0.17
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	11	0.17
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	11	0.17
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	11	0.17
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	11	0.17
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	11	0.17
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	11	0.17
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	11	0.17
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	11	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	11	0.17
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	3	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	3	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	3	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	3	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	3	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	3	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	3	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	3	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	3	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	17	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	17	0.16
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	17	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	17	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	17	0.16
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	17	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	17	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	17	0.16
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	17	0.16
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	20	0.15
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	20	0.15
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	20	0.15
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	20	0.15
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	20	0.15
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	20	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	1	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	1	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	1	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	1	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	1	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	1	0.15
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	1	0.15
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	1	0.15
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	1	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	14	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	14	0.15
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	14	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	14	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	14	0.15
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	14	0.15
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	14	0.15
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	14	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	14	0.15
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	9	0.14
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	9	0.14
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	9	0.14
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	9	0.14
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	9	0.14
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	9	0.14
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	12	0.14
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	12	0.14
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	12	0.14
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	12	0.14
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	12	0.14
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	12	0.14
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	5	0.14
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	5	0.14
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	5	0.14
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	5	0.14
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	5	0.14
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	5	0.14
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	15	0.14
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	15	0.14
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	15	0.14
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	15	0.14
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	15	0.14
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	15	0.14
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	15	0.14
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	15	0.14
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	15	0.14
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	12	0.13
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	12	0.13
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	12	0.13
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	12	0.13
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	12	0.13
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	12	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	7	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	7	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	7	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	7	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	7	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	7	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	7	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	7	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	7	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	9	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	9	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	9	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	9	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	9	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	9	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	9	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	9	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	9	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	10	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	10	0.13
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	10	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	10	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	10	0.13
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	10	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	10	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	10	0.13
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	10	0.13
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	3	0.12
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	3	0.12
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	3	0.12
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB1	13	0.12
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB2	13	0.12
(1,966)	1:A:259:GLN:HE21	1:A:262:ALA:HB3	13	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	8	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	8	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	8	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	8	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	8	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	8	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	18	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	18	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	18	0.12
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	18	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	18	0.12
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	18	0.12
(1,836)	1:A:173:LEU:HD11	1:A:207:ARG:HG2	15	0.12
(1,836)	1:A:173:LEU:HD12	1:A:207:ARG:HG2	15	0.12
(1,836)	1:A:173:LEU:HD13	1:A:207:ARG:HG2	15	0.12
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	4	0.12
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	4	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	4	0.12
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	4	0.12
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	4	0.12
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	4	0.12
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	15	0.12
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	15	0.12
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	15	0.12
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	15	0.12
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	15	0.12
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	15	0.12
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	5	0.12
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	5	0.12
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	5	0.12
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	5	0.12
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	5	0.12
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	5	0.12
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	5	0.12
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	5	0.12
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	5	0.12
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	3	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	3	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	3	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	3	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	3	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	3	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	7	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	7	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	7	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	7	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	7	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	7	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	13	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	13	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	13	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	13	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	13	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	13	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB2	14	0.11
(1,926)	1:A:226:VAL:HG11	1:A:239:PHE:HB3	14	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB2	14	0.11
(1,926)	1:A:226:VAL:HG12	1:A:239:PHE:HB3	14	0.11
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB2	14	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,926)	1:A:226:VAL:HG13	1:A:239:PHE:HB3	14	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	2	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	2	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	2	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	2	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	2	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	2	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	5	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	5	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	5	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	5	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	5	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	5	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	6	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	6	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	6	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	6	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	6	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	6	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	8	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	8	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	8	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	8	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	8	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	8	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	13	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	13	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	13	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	13	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	13	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	13	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD21	19	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD22	19	0.11
(1,853)	1:A:259:GLN:HG2	1:A:260:LEU:HD23	19	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD21	19	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD22	19	0.11
(1,853)	1:A:259:GLN:HG3	1:A:260:LEU:HD23	19	0.11
(1,829)	1:A:214:THR:HG21	1:A:215:HIS:HA	17	0.11
(1,829)	1:A:214:THR:HG22	1:A:215:HIS:HA	17	0.11
(1,829)	1:A:214:THR:HG23	1:A:215:HIS:HA	17	0.11
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	10	0.11
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	10	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	10	0.11
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	10	0.11
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	10	0.11
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	10	0.11
(1,750)	1:A:175:VAL:HG11	1:A:260:LEU:HG	11	0.11
(1,750)	1:A:175:VAL:HG12	1:A:260:LEU:HG	11	0.11
(1,750)	1:A:175:VAL:HG13	1:A:260:LEU:HG	11	0.11
(1,750)	1:A:175:VAL:HG21	1:A:260:LEU:HG	11	0.11
(1,750)	1:A:175:VAL:HG22	1:A:260:LEU:HG	11	0.11
(1,750)	1:A:175:VAL:HG23	1:A:260:LEU:HG	11	0.11
(1,626)	1:A:230:ALA:HB1	1:A:231:GLN:HG2	4	0.11
(1,626)	1:A:230:ALA:HB1	1:A:231:GLN:HG3	4	0.11
(1,626)	1:A:230:ALA:HB2	1:A:231:GLN:HG2	4	0.11
(1,626)	1:A:230:ALA:HB2	1:A:231:GLN:HG3	4	0.11
(1,626)	1:A:230:ALA:HB3	1:A:231:GLN:HG2	4	0.11
(1,626)	1:A:230:ALA:HB3	1:A:231:GLN:HG3	4	0.11
(1,1072)	1:A:158:ILE:HD11	1:A:259:GLN:HB2	15	0.11
(1,1072)	1:A:158:ILE:HD12	1:A:259:GLN:HB2	15	0.11
(1,1072)	1:A:158:ILE:HD13	1:A:259:GLN:HB2	15	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	16	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	16	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	16	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	16	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	16	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	16	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	16	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	16	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	16	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG21	19	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG22	19	0.11
(1,1012)	1:A:154:VAL:HG21	1:A:221:ILE:HG23	19	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG21	19	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG22	19	0.11
(1,1012)	1:A:154:VAL:HG22	1:A:221:ILE:HG23	19	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG21	19	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG22	19	0.11
(1,1012)	1:A:154:VAL:HG23	1:A:221:ILE:HG23	19	0.11

10 Dihedral-angle violation analysis (i)

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