Full wwPDB NMR Structure Validation Report (i)

Jun 5, 2023 – 05:24 AM EDT

PDB ID	:	2LQB
BMRB ID	:	18301
Title	:	Metal binding repeat 2 of the Wilson disease protein (ATP7B)
Authors	:	Nokhrin, S.; Dolgova, N.V.; Yu, C.; Dmitriev, O.Y.
Deposited on	:	2012-02-28

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:

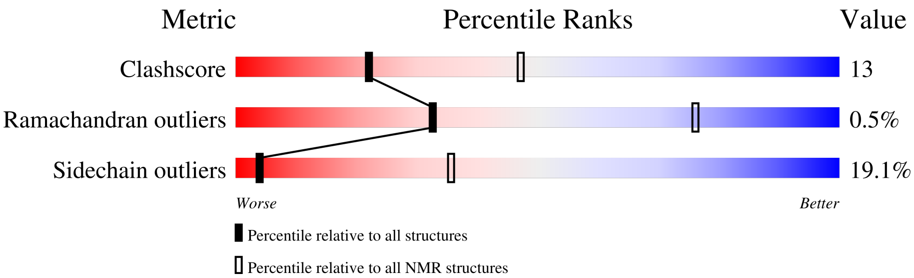
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal 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 78%.

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	76	

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 10 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *closest to the average*.

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:6-A:16, A:21-A:73 (64)	0.51	10

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 2 single-model clusters were found.

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

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 1185 atoms, of which 599 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Copper-transporting ATPase 2.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	76	1185	364	599	105	112	5	0

There are 4 discrepancies between the modelled and reference sequences:

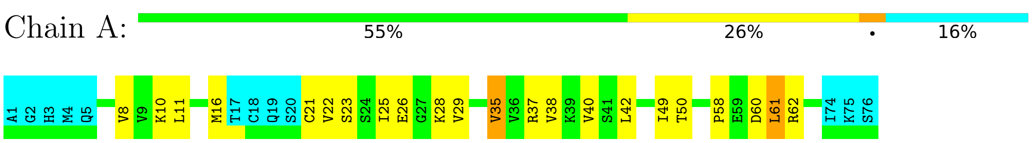
Chain	Residue	Modelled	Actual	Comment	Reference
A	1	ALA	-	expression tag	UNP P35670
A	2	GLY	-	expression tag	UNP P35670
A	3	HIS	-	expression tag	UNP P35670
A	4	MET	-	expression tag	UNP P35670

4 Residue-property plots (i)

4.1 Average score per residue in the NMR ensemble

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

• Molecule 1: Copper-transporting ATPase 2

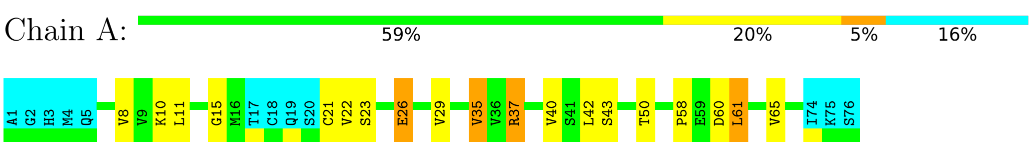


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

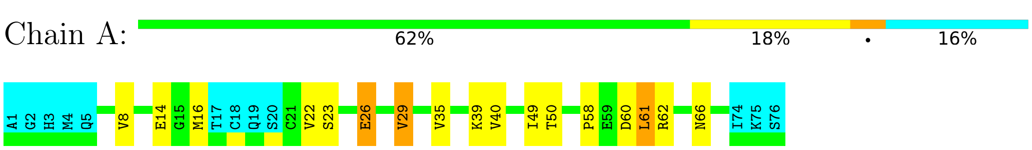
4.2.1 Score per residue for model 1

• Molecule 1: Copper-transporting ATPase 2



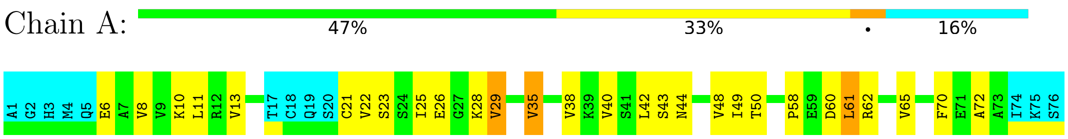
4.2.2 Score per residue for model 2

• Molecule 1: Copper-transporting ATPase 2



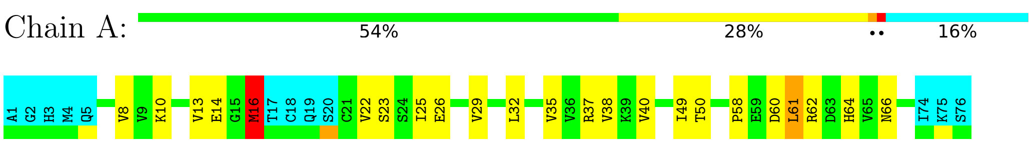
4.2.3 Score per residue for model 3

- Molecule 1: Copper-transporting ATPase 2



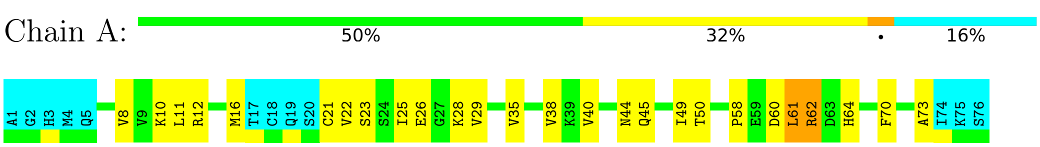
4.2.4 Score per residue for model 4

- Molecule 1: Copper-transporting ATPase 2



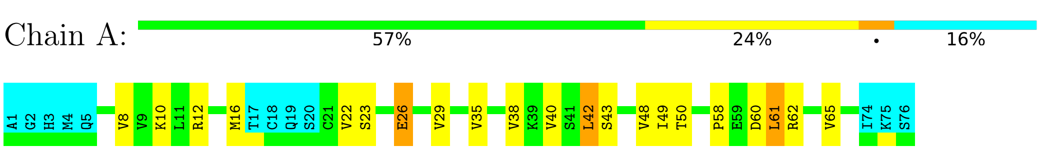
4.2.5 Score per residue for model 5

- Molecule 1: Copper-transporting ATPase 2



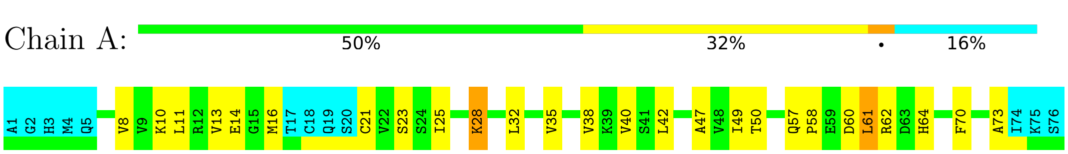
4.2.6 Score per residue for model 6

- Molecule 1: Copper-transporting ATPase 2



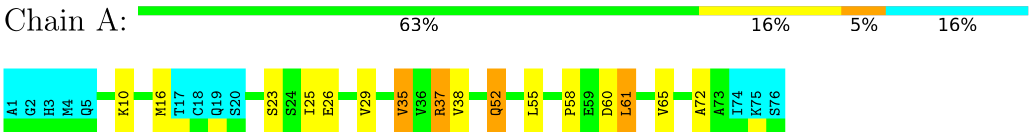
4.2.7 Score per residue for model 7

- Molecule 1: Copper-transporting ATPase 2



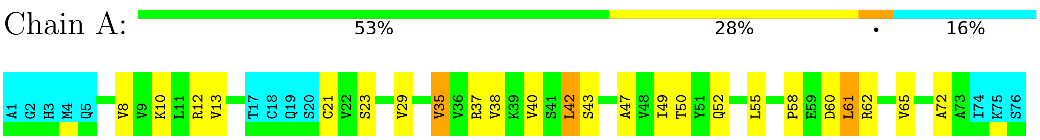
4.2.8 Score per residue for model 8

• Molecule 1: Copper-transporting ATPase 2



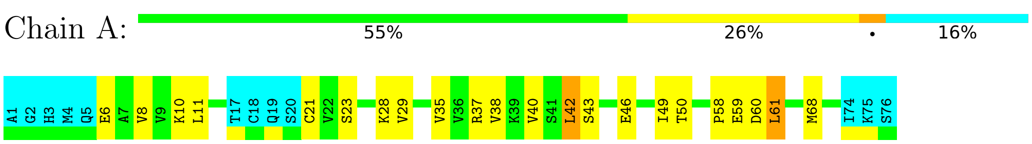
4.2.9 Score per residue for model 9

• Molecule 1: Copper-transporting ATPase 2



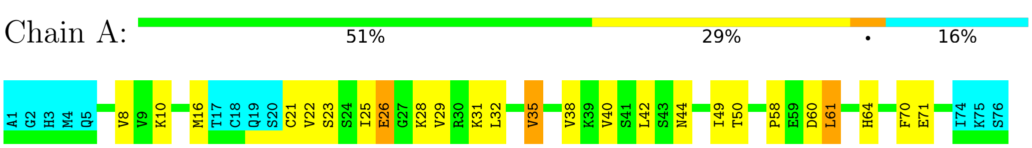
4.2.10 Score per residue for model 10 (medoid)

• Molecule 1: Copper-transporting ATPase 2



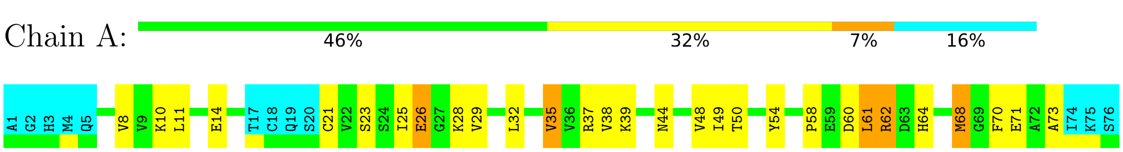
4.2.11 Score per residue for model 11

• Molecule 1: Copper-transporting ATPase 2



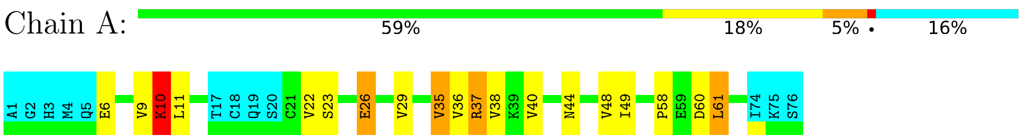
4.2.12 Score per residue for model 12

• Molecule 1: Copper-transporting ATPase 2



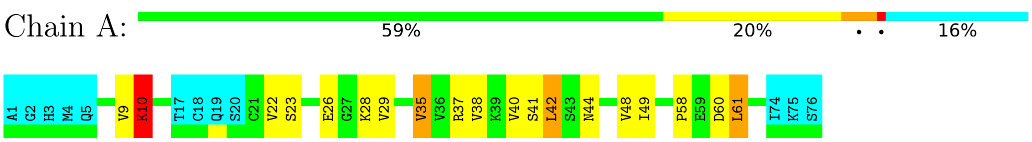
4.2.13 Score per residue for model 13

- Molecule 1: Copper-transporting ATPase 2



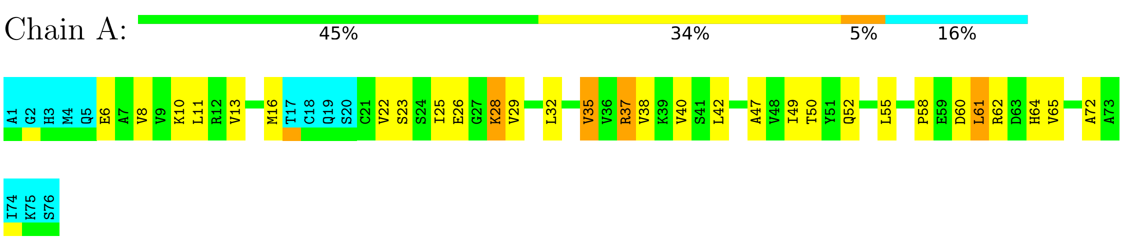
4.2.14 Score per residue for model 14

- Molecule 1: Copper-transporting ATPase 2



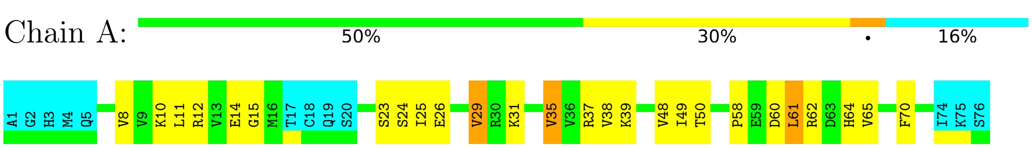
4.2.15 Score per residue for model 15

- Molecule 1: Copper-transporting ATPase 2



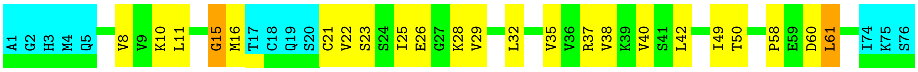
4.2.16 Score per residue for model 16

- Molecule 1: Copper-transporting ATPase 2



4.2.17 Score per residue for model 17

- Molecule 1: Copper-transporting ATPase 2



4.2.18 Score per residue for model 18

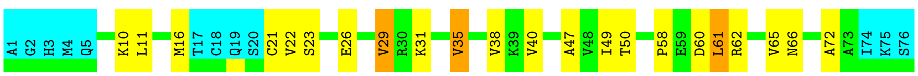
- Molecule 1: Copper-transporting ATPase 2

Chain A:

4.2.19 Score per residue for model 19

- Molecule 1: Copper-transporting ATPase 2

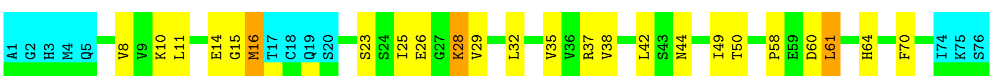
Chain A:



4.2.20 Score per residue for model 20

- Molecule 1: Copper-transporting ATPase 2

Chain A:



5 Refinement protocol and experimental data overview (i)

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

Of the 100 calculated structures, 20 were deposited, based on the following criterion: *target function*.

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

Software name	Classification	Version
CYANA	structure solution	3.0
CYANA	refinement	3.0

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	766
Number of shifts mapped to atoms	766
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	78%

6 Model quality (i)

6.1 Standard geometry (i)

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	499	513	513	13±4
All	All	9980	10260	10260	259

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 13.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:VAL:HG22	1:A:50:THR:HG23	0.87	1.43	10	16
1:A:49:ILE:HG21	1:A:61:LEU:HD13	0.85	1.46	9	18
1:A:42:LEU:HD13	1:A:43:SER:N	0.82	1.90	9	4
1:A:42:LEU:HD22	1:A:42:LEU:C	0.76	2.01	18	4
1:A:65:VAL:HG11	1:A:72:ALA:HB3	0.70	1.61	19	4
1:A:29:VAL:HG13	1:A:35:VAL:CG1	0.66	2.21	8	3
1:A:32:LEU:HD21	1:A:64:HIS:CE1	0.65	2.27	7	5
1:A:42:LEU:HD22	1:A:42:LEU:O	0.64	1.92	6	4
1:A:26:GLU:O	1:A:29:VAL:HG12	0.63	1.94	14	7
1:A:29:VAL:HG22	1:A:38:VAL:HG23	0.63	1.71	5	2
1:A:29:VAL:HG23	1:A:35:VAL:CG1	0.62	2.24	12	4
1:A:58:PRO:HA	1:A:61:LEU:HD23	0.61	1.73	18	20
1:A:11:LEU:HD23	1:A:73:ALA:C	0.61	2.16	7	2
1:A:61:LEU:O	1:A:65:VAL:HG23	0.61	1.96	16	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:22:VAL:HG22	1:A:40:VAL:CG1	0.61	2.26	13	3
1:A:22:VAL:HA	1:A:25:ILE:HD12	0.60	1.72	17	4
1:A:29:VAL:CG2	1:A:38:VAL:HG22	0.60	2.26	20	3
1:A:13:VAL:HG22	1:A:72:ALA:HB2	0.59	1.72	3	1
1:A:29:VAL:HG23	1:A:38:VAL:HG23	0.59	1.72	11	1
1:A:38:VAL:CG2	1:A:40:VAL:HG23	0.59	2.27	7	4
1:A:25:ILE:HD11	1:A:70:PHE:CZ	0.58	2.32	3	4
1:A:29:VAL:HG13	1:A:35:VAL:HG13	0.58	1.73	8	3
1:A:10:LYS:HB2	1:A:48:VAL:HG22	0.58	1.76	14	2
1:A:11:LEU:HD13	1:A:49:ILE:CD1	0.57	2.28	16	6
1:A:25:ILE:HD11	1:A:70:PHE:CE2	0.57	2.34	5	3
1:A:22:VAL:HG13	1:A:40:VAL:HB	0.57	1.75	13	8
1:A:29:VAL:CG2	1:A:38:VAL:HG23	0.56	2.29	11	1
1:A:11:LEU:HD12	1:A:65:VAL:HG11	0.56	1.78	3	1
1:A:35:VAL:HG22	1:A:50:THR:O	0.56	2.01	19	3
1:A:42:LEU:HD13	1:A:43:SER:H	0.56	1.61	9	4
1:A:29:VAL:HG21	1:A:37:ARG:HA	0.56	1.76	1	4
1:A:13:VAL:CG2	1:A:47:ALA:HB2	0.56	2.31	18	4
1:A:11:LEU:CD1	1:A:65:VAL:HG11	0.55	2.31	3	1
1:A:61:LEU:HD12	1:A:61:LEU:O	0.55	2.02	18	5
1:A:52:GLN:HB3	1:A:55:LEU:HD12	0.54	1.79	8	1
1:A:8:VAL:HG22	1:A:50:THR:CG2	0.54	2.29	4	16
1:A:12:ARG:HG3	1:A:73:ALA:HB3	0.54	1.78	5	1
1:A:49:ILE:CG2	1:A:61:LEU:HD13	0.53	2.33	18	6
1:A:42:LEU:C	1:A:42:LEU:CD2	0.53	2.73	9	4
1:A:9:VAL:O	1:A:10:LYS:C	0.53	2.47	14	2
1:A:29:VAL:CG2	1:A:38:VAL:HG13	0.53	2.34	19	1
1:A:29:VAL:HG11	1:A:37:ARG:HA	0.51	1.82	15	3
1:A:13:VAL:HG11	1:A:16:MET:HE3	0.51	1.83	4	1
1:A:42:LEU:O	1:A:42:LEU:HD13	0.51	2.05	1	1
1:A:38:VAL:HG12	1:A:49:ILE:HG23	0.50	1.83	13	4
1:A:11:LEU:CD1	1:A:49:ILE:HD12	0.50	2.36	19	1
1:A:40:VAL:HG22	1:A:47:ALA:HA	0.50	1.83	15	3
1:A:29:VAL:HG22	1:A:35:VAL:CG1	0.49	2.38	3	3
1:A:22:VAL:HG22	1:A:40:VAL:HG12	0.49	1.83	13	1
1:A:13:VAL:HG21	1:A:16:MET:CE	0.49	2.37	4	1
1:A:25:ILE:HG23	1:A:68:MET:SD	0.48	2.48	12	1
1:A:11:LEU:HD12	1:A:49:ILE:CD1	0.48	2.39	15	1
1:A:65:VAL:HG11	1:A:72:ALA:CB	0.48	2.39	9	2
1:A:22:VAL:HG21	1:A:42:LEU:HB2	0.47	1.85	15	1
1:A:25:ILE:HG22	1:A:38:VAL:HG21	0.47	1.87	4	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:40:VAL:HG13	1:A:47:ALA:HA	0.47	1.86	19	1
1:A:32:LEU:HD11	1:A:64:HIS:CD2	0.47	2.45	11	2
1:A:49:ILE:HG21	1:A:61:LEU:CD1	0.47	2.30	9	2
1:A:42:LEU:HD12	1:A:43:SER:N	0.46	2.26	3	1
1:A:52:GLN:HB2	1:A:55:LEU:HD12	0.45	1.87	9	2
1:A:25:ILE:CG2	1:A:38:VAL:HG21	0.45	2.41	15	1
1:A:38:VAL:HG22	1:A:40:VAL:HG23	0.45	1.88	15	1
1:A:22:VAL:HG13	1:A:40:VAL:CG1	0.44	2.41	19	1
1:A:42:LEU:O	1:A:42:LEU:HD23	0.44	2.13	17	1
1:A:25:ILE:HG22	1:A:38:VAL:HG11	0.44	1.90	8	1
1:A:25:ILE:HD11	1:A:70:PHE:CE1	0.43	2.49	20	1
1:A:22:VAL:HG22	1:A:40:VAL:HB	0.43	1.90	3	1
1:A:9:VAL:HG21	1:A:61:LEU:HD11	0.43	1.89	13	1
1:A:13:VAL:HG21	1:A:16:MET:HE1	0.43	1.90	4	1
1:A:9:VAL:CG2	1:A:61:LEU:HD11	0.43	2.44	13	1
1:A:10:LYS:HB3	1:A:48:VAL:HG13	0.42	1.91	13	1
1:A:8:VAL:CG2	1:A:50:THR:HG23	0.42	2.34	20	3
1:A:32:LEU:HD21	1:A:64:HIS:NE2	0.42	2.30	4	1
1:A:40:VAL:HG13	1:A:46:GLU:O	0.41	2.15	10	1
1:A:42:LEU:HD13	1:A:42:LEU:C	0.41	2.35	1	1
1:A:28:LYS:O	1:A:32:LEU:HD23	0.41	2.15	20	4
1:A:6:GLU:CD	1:A:36:VAL:HG21	0.41	2.36	13	1
1:A:16:MET:HE1	1:A:42:LEU:O	0.41	2.16	15	1
1:A:38:VAL:HG23	1:A:48:VAL:O	0.41	2.16	3	4
1:A:6:GLU:OE1	1:A:36:VAL:HG21	0.41	2.16	13	1
1:A:11:LEU:HD13	1:A:49:ILE:HD12	0.41	1.91	16	1
1:A:29:VAL:HG23	1:A:38:VAL:HG13	0.41	1.92	19	1
1:A:29:VAL:HG23	1:A:38:VAL:HG22	0.41	1.91	20	1
1:A:38:VAL:HG22	1:A:40:VAL:H	0.40	1.76	7	1
1:A:38:VAL:HG13	1:A:48:VAL:O	0.40	2.16	12	1
1:A:13:VAL:HG12	1:A:15:GLY:H	0.40	1.77	18	1
1:A:11:LEU:HD13	1:A:49:ILE:HD13	0.40	1.92	20	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	64/76 (84%)	60±1 (93±2%)	4±1 (6±1%)	0±1 (1±1%)	32	76
All	All	1280/1520 (84%)	1192 (93%)	81 (6%)	7 (1%)	32	76

All 3 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	16	MET	4
1	A	10	LYS	2
1	A	15	GLY	1

6.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	56/66 (85%)	45±2 (81±3%)	11±2 (19±3%)	4	36
All	All	1120/1320 (85%)	906 (81%)	214 (19%)	4	36

All 30 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	23	SER	20
1	A	35	VAL	20
1	A	60	ASP	20
1	A	61	LEU	20
1	A	10	LYS	18
1	A	26	GLU	15
1	A	21	CYS	11
1	A	37	ARG	10
1	A	62	ARG	9
1	A	28	LYS	9
1	A	16	MET	8
1	A	44	ASN	7
1	A	14	GLU	6
1	A	42	LEU	6
1	A	29	VAL	4

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Mol	Chain	Res	Type	Models (Total)
1	A	39	LYS	4
1	A	66	ASN	4
1	A	12	ARG	4
1	A	6	GLU	3
1	A	31	LYS	3
1	A	64	HIS	2
1	A	68	MET	2
1	A	71	GLU	2
1	A	43	SER	1
1	A	57	GLN	1
1	A	52	GLN	1
1	A	59	GLU	1
1	A	54	TYR	1
1	A	41	SER	1
1	A	24	SER	1

6.3.3 RNA (i)

There are no RNA molecules in this entry.

6.4 Non-standard residues in protein, DNA, RNA chains (i)

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

6.5 Carbohydrates (i)

There are no monosaccharides in this entry.

6.6 Ligand geometry (i)

There are no ligands in this entry.

6.7 Other polymers (i)

There are no such molecules in this entry.

6.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

7 Chemical shift validation (i)

The completeness of assignment taking into account all chemical shift lists is 78% for the well-defined parts and 74% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *assigned_chem_shift_list_1*

7.1.1 Bookkeeping (i)

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

Total number of shifts	766
Number of shifts mapped to atoms	766
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 (i)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_\alpha$	71	-0.50 ± 0.17	Should be checked
$^{13}C_\beta$	63	0.28 ± 0.12	None needed (< 0.5 ppm)
$^{13}C'$	67	-0.14 ± 0.25	None needed (< 0.5 ppm)
^{15}N	69	-0.11 ± 0.75	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments (i)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 78%, i.e. 697 atoms were assigned a chemical shift out of a possible 888. 0 out of 16 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	309/320 (97%)	126/130 (97%)	122/128 (95%)	61/62 (98%)
Sidechain	380/533 (71%)	251/347 (72%)	129/164 (79%)	0/22 (0%)

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	8/35 (23%)	8/17 (47%)	0/17 (0%)	0/1 (0%)
Overall	697/888 (78%)	385/494 (78%)	251/309 (81%)	61/85 (72%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 74%, i.e. 766 atoms were assigned a chemical shift out of a possible 1034. 0 out of 16 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	348/381 (91%)	141/155 (91%)	138/152 (91%)	69/74 (93%)
Sidechain	410/611 (67%)	267/398 (67%)	143/188 (76%)	0/25 (0%)
Aromatic	8/42 (19%)	8/21 (38%)	0/19 (0%)	0/2 (0%)
Overall	766/1034 (74%)	416/574 (72%)	281/359 (78%)	69/101 (68%)

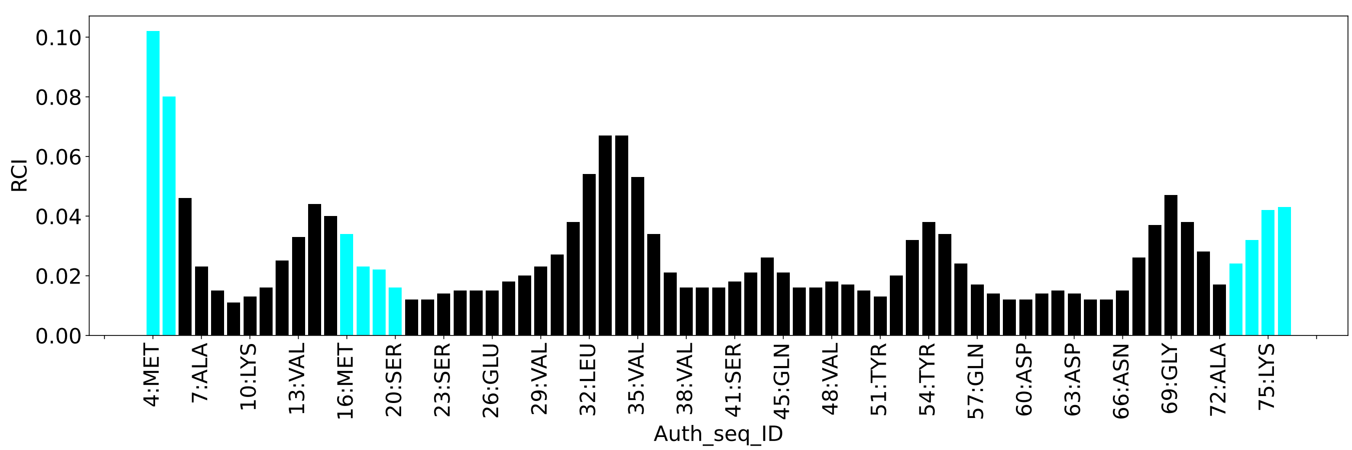
7.1.4 Statistically unusual chemical shifts (i)

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	861
Intra-residue (|i-j|=0)	244
Sequential (|i-j|=1)	269
Medium range (|i-j|>1 and |i-j|<5)	119
Long range (|i-j|≥5)	229
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	11.3
Number of long range restraints per residue[1]	3.0

[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)	6.6	0.2
0.2-0.5 (Medium)	2.5	0.5
>0.5 (Large)	0.1	0.56

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)

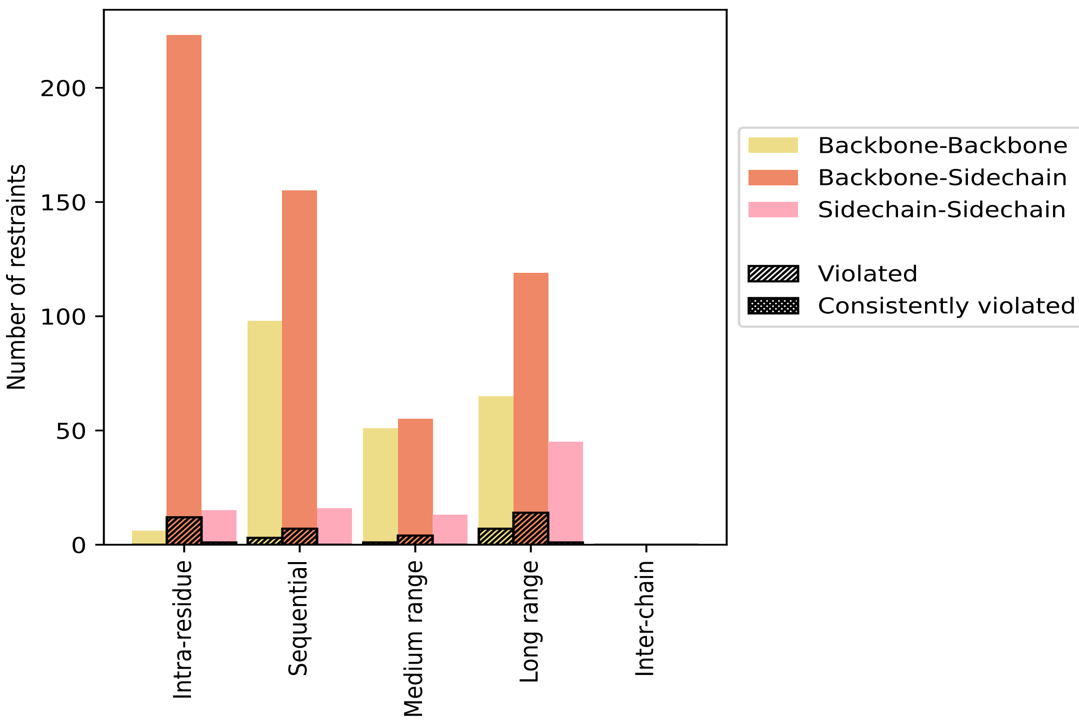
9.1 Summary of distance violations (i)

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)	244	28.3	13	5.3	1.5	0	0.0	0.0
Backbone-Backbone	6	0.7	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	223	25.9	12	5.4	1.4	0	0.0	0.0
Sidechain-Sidechain	15	1.7	1	6.7	0.1	0	0.0	0.0
Sequential (|i-j|=1)	269	31.2	10	3.7	1.2	0	0.0	0.0
Backbone-Backbone	98	11.4	3	3.1	0.3	0	0.0	0.0
Backbone-Sidechain	155	18.0	7	4.5	0.8	0	0.0	0.0
Sidechain-Sidechain	16	1.9	0	0.0	0.0	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	119	13.8	5	4.2	0.6	0	0.0	0.0
Backbone-Backbone	51	5.9	1	2.0	0.1	0	0.0	0.0
Backbone-Sidechain	55	6.4	4	7.3	0.5	0	0.0	0.0
Sidechain-Sidechain	13	1.5	0	0.0	0.0	0	0.0	0.0
Long range (|i-j|≥5)	229	26.6	22	9.6	2.6	0	0.0	0.0
Backbone-Backbone	65	7.5	7	10.8	0.8	0	0.0	0.0
Backbone-Sidechain	119	13.8	14	11.8	1.6	0	0.0	0.0
Sidechain-Sidechain	45	5.2	1	2.2	0.1	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	861	100.0	50	5.8	5.8	0	0.0	0.0
Backbone-Backbone	220	25.6	11	5.0	1.3	0	0.0	0.0
Backbone-Sidechain	552	64.1	37	6.7	4.3	0	0.0	0.0
Sidechain-Sidechain	89	10.3	2	2.2	0.2	0	0.0	0.0

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

9.1.1 Bar chart : Distribution of distance restraints and violations (i)



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

9.2 Distance violation statistics for each model (i)

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

Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
1	0	0	2	4	0	6	0.12	0.16	0.02	0.12
2	1	0	1	4	0	6	0.15	0.19	0.02	0.14
3	2	1	1	2	0	6	0.2	0.41	0.1	0.15
4	1	1	2	3	0	7	0.21	0.55	0.14	0.15
5	3	1	3	4	0	11	0.2	0.42	0.12	0.13
6	1	0	1	4	0	6	0.14	0.18	0.02	0.14
7	1	3	0	7	0	11	0.19	0.47	0.11	0.14
8	0	1	1	6	0	8	0.24	0.56	0.17	0.18
9	0	3	1	7	0	11	0.15	0.27	0.05	0.13
10	2	1	1	3	0	7	0.19	0.36	0.08	0.14
11	6	1	1	4	0	12	0.21	0.41	0.09	0.18

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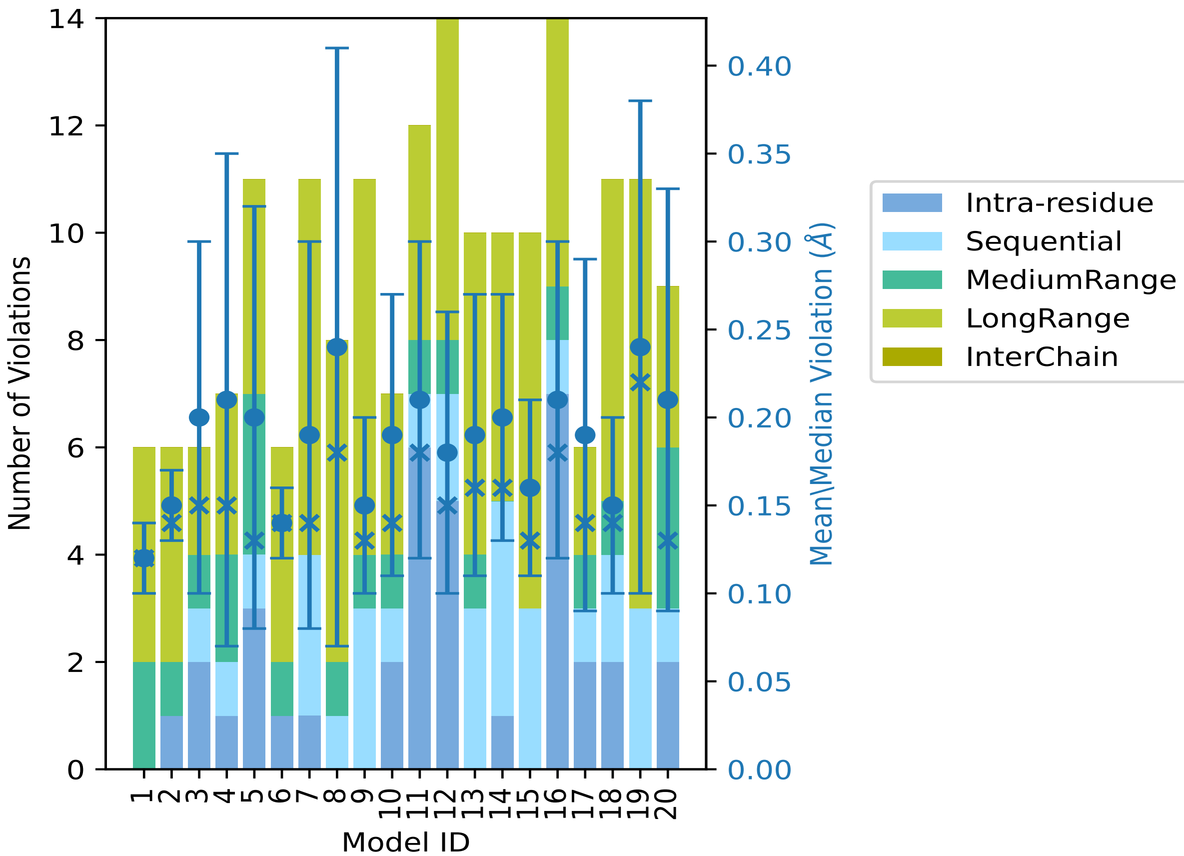
Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	5	2	1	6	0	14	0.18	0.37	0.08	0.15
13	0	3	1	6	0	10	0.19	0.33	0.08	0.16
14	1	4	0	5	0	10	0.2	0.33	0.07	0.16
15	0	3	0	7	0	10	0.16	0.28	0.05	0.13
16	7	1	1	5	0	14	0.21	0.37	0.09	0.18
17	2	1	1	2	0	6	0.19	0.4	0.1	0.14
18	2	2	1	6	0	11	0.15	0.28	0.05	0.14
19	0	3	0	8	0	11	0.24	0.56	0.14	0.22
20	2	1	3	3	0	9	0.21	0.46	0.12	0.13

[1]Intra-residue restraints, [2]Sequential restraints, [3]Medium range restraints, [4]Long range restraints, [5]Inter-chain restraints, [6]Standard deviation

9.2.1 Bar graph : Distance Violation statistics for each model (i)



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

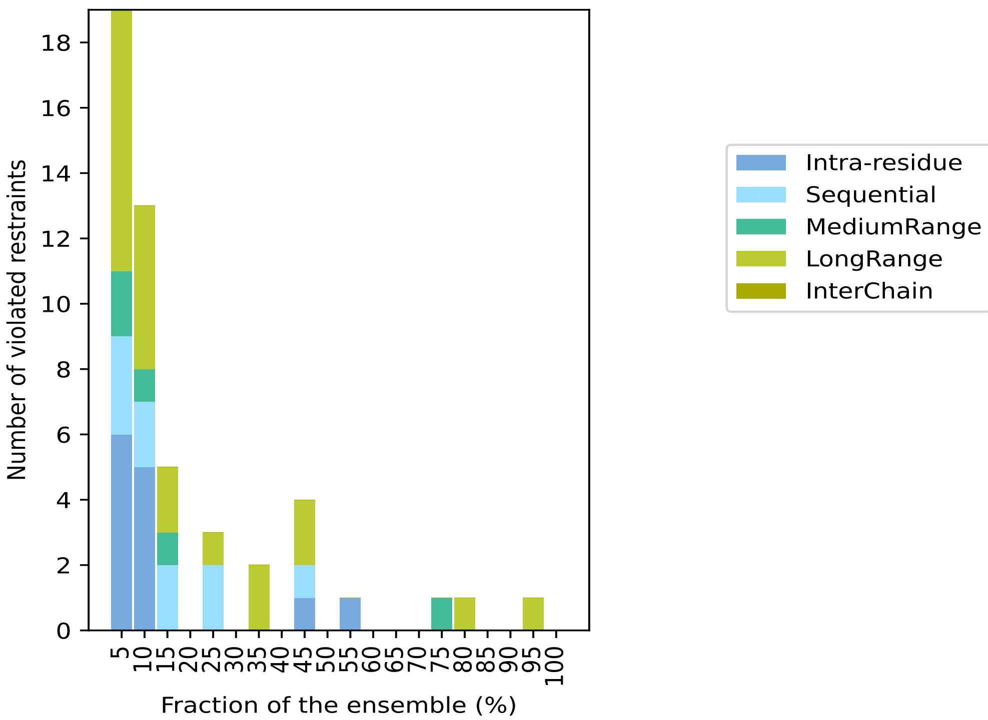
9.3 Distance violation statistics for the ensemble (i)

Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 811(IR:231, SQ:259, MR:114, LR:207, IC:0) restraints are not violated in the ensemble.

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

[1]Intra-residue restraints, [2]Sequential restraints, [3]Medium range restraints, [4]Long range restraints, [5]Inter-chain restraints, [6] Number of models with violations

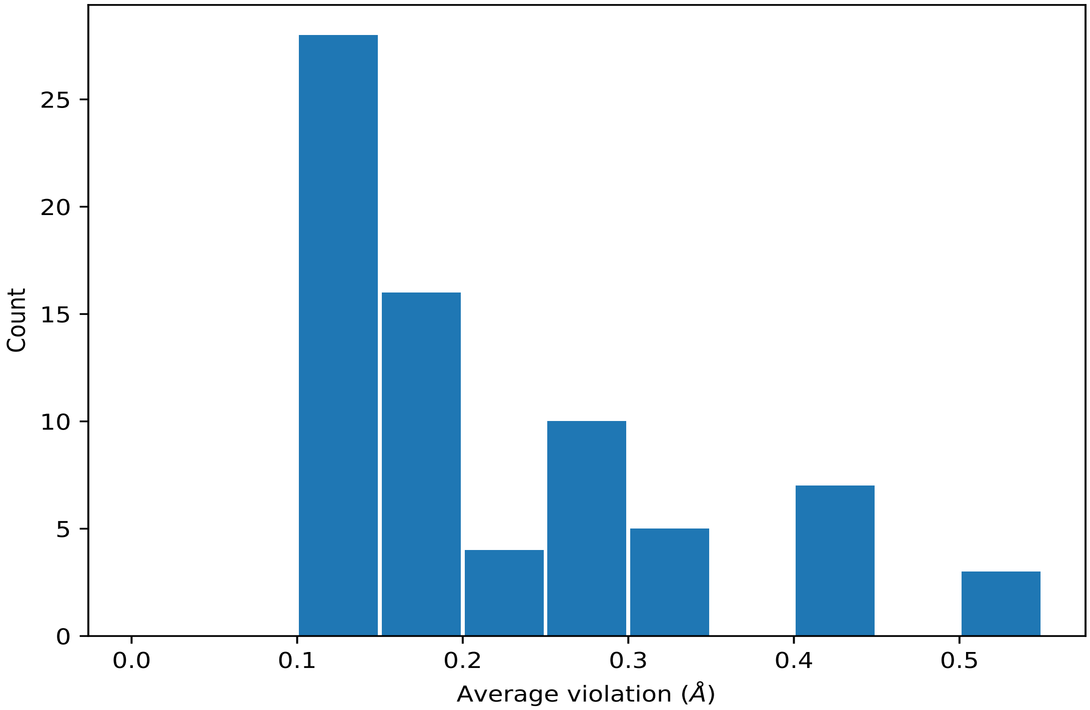
9.3.1 Bar graph : Distance violation statistics for the ensemble (i)



9.4 Most violated distance restraints in the ensemble (i)

9.4.1 Histogram : Distribution of mean distance violations (i)

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



9.4.2 Table: Most violated distance restraints (i)

The following table provides the mean and the standard deviation of the violation for each restraint sorted by number of violated models and the mean value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	19	0.15	0.03	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	19	0.15	0.03	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	19	0.15	0.03	0.14
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	16	0.14	0.03	0.13
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	15	0.12	0.01	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	15	0.12	0.01	0.12
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	11	0.14	0.01	0.14
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	9	0.4	0.03	0.4
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	9	0.23	0.02	0.22
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	9	0.15	0.03	0.14
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	9	0.12	0.01	0.12
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	7	0.14	0.03	0.14
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	7	0.14	0.03	0.14
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	7	0.14	0.02	0.14
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	7	0.14	0.02	0.14
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	7	0.14	0.02	0.14

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	5	0.29	0.03	0.28
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	5	0.29	0.03	0.28
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	5	0.23	0.0	0.23
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	5	0.11	0.0	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	5	0.11	0.0	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	5	0.11	0.0	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	5	0.11	0.0	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	5	0.11	0.0	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	5	0.11	0.0	0.11
(1,687)	1:A:8:VAL:HG11	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,687)	1:A:8:VAL:HG12	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,687)	1:A:8:VAL:HG13	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,687)	1:A:8:VAL:HG21	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,687)	1:A:8:VAL:HG22	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,687)	1:A:8:VAL:HG23	1:A:51:TYR:H	3	0.42	0.19	0.56
(1,690)	1:A:9:VAL:HG11	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,690)	1:A:9:VAL:HG12	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,690)	1:A:9:VAL:HG13	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,690)	1:A:9:VAL:HG21	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,690)	1:A:9:VAL:HG22	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,690)	1:A:9:VAL:HG23	1:A:10:LYS:H	3	0.26	0.03	0.28
(1,761)	1:A:29:VAL:HG11	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,761)	1:A:29:VAL:HG12	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,761)	1:A:29:VAL:HG13	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,761)	1:A:29:VAL:HG21	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,761)	1:A:29:VAL:HG22	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,761)	1:A:29:VAL:HG23	1:A:30:ARG:H	3	0.17	0.01	0.17
(1,16)	1:A:34:GLY:H	1:A:55:LEU:HB2	3	0.13	0.02	0.12
(1,62)	1:A:35:VAL:HG21	1:A:37:ARG:H	3	0.11	0.0	0.11
(1,62)	1:A:35:VAL:HG22	1:A:37:ARG:H	3	0.11	0.0	0.11
(1,62)	1:A:35:VAL:HG23	1:A:37:ARG:H	3	0.11	0.0	0.11
(1,326)	1:A:8:VAL:HG11	1:A:51:TYR:H	2	0.5	0.0	0.5
(1,326)	1:A:8:VAL:HG12	1:A:51:TYR:H	2	0.5	0.0	0.5
(1,326)	1:A:8:VAL:HG13	1:A:51:TYR:H	2	0.5	0.0	0.5
(1,296)	1:A:9:VAL:HA	1:A:10:LYS:H	2	0.33	0.0	0.33
(1,436)	1:A:31:LYS:HA	1:A:31:LYS:HG2	2	0.32	0.0	0.32
(1,478)	1:A:9:VAL:HA	1:A:10:LYS:HB3	2	0.32	0.01	0.32
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG2	2	0.31	0.0	0.31
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG3	2	0.31	0.0	0.31
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD2	2	0.3	0.01	0.3
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD3	2	0.3	0.01	0.3
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD2	2	0.24	0.05	0.24

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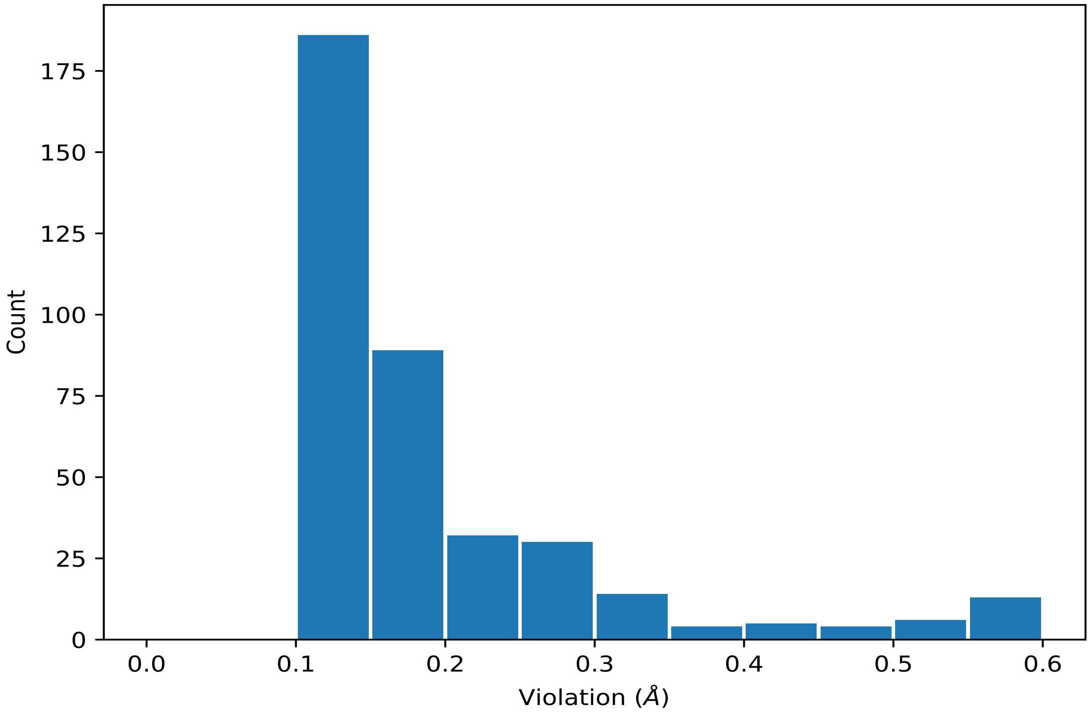
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD3	2	0.24	0.05	0.24
(1,334)	1:A:6:GLU:HA	1:A:51:TYR:H	2	0.16	0.01	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG11	2	0.16	0.0	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG12	2	0.16	0.0	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG13	2	0.16	0.0	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG21	2	0.16	0.0	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG22	2	0.16	0.0	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG23	2	0.16	0.0	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG21	2	0.16	0.01	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG22	2	0.16	0.01	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG23	2	0.16	0.01	0.16
(1,179)	1:A:11:LEU:H	1:A:46:GLU:HA	2	0.15	0.02	0.15
(1,243)	1:A:66:ASN:H	1:A:69:GLY:H	2	0.11	0.0	0.11
(1,756)	1:A:28:LYS:HG2	1:A:68:MET:H	2	0.11	0.0	0.11
(1,756)	1:A:28:LYS:HG3	1:A:68:MET:H	2	0.11	0.0	0.11

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

9.5 All violated distance restraints (i)

9.5.1 Histogram : Distribution of distance violations (i)

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



9.5.2 Table : All distance violations (i)

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

Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,687)	1:A:8:VAL:HG11	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG12	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG13	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG21	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG22	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG23	1:A:51:TYR:H	8	0.56
(1,687)	1:A:8:VAL:HG11	1:A:51:TYR:H	19	0.56
(1,687)	1:A:8:VAL:HG12	1:A:51:TYR:H	19	0.56
(1,687)	1:A:8:VAL:HG13	1:A:51:TYR:H	19	0.56
(1,687)	1:A:8:VAL:HG21	1:A:51:TYR:H	19	0.56
(1,687)	1:A:8:VAL:HG22	1:A:51:TYR:H	19	0.56
(1,687)	1:A:8:VAL:HG23	1:A:51:TYR:H	19	0.56
(1,254)	1:A:75:LYS:H	1:A:76:SER:H	4	0.55
(1,326)	1:A:8:VAL:HG11	1:A:51:TYR:H	8	0.5
(1,326)	1:A:8:VAL:HG12	1:A:51:TYR:H	8	0.5
(1,326)	1:A:8:VAL:HG13	1:A:51:TYR:H	8	0.5

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,326)	1:A:8:VAL:HG11	1:A:51:TYR:H	19	0.5
(1,326)	1:A:8:VAL:HG12	1:A:51:TYR:H	19	0.5
(1,326)	1:A:8:VAL:HG13	1:A:51:TYR:H	19	0.5
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	7	0.47
(1,373)	1:A:25:ILE:HB	1:A:25:ILE:HD11	20	0.46
(1,373)	1:A:25:ILE:HB	1:A:25:ILE:HD12	20	0.46
(1,373)	1:A:25:ILE:HB	1:A:25:ILE:HD13	20	0.46
(1,275)	1:A:12:ARG:H	1:A:12:ARG:HB2	5	0.42
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	3	0.41
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	5	0.41
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	11	0.41
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	17	0.4
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	20	0.38
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	12	0.37
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	16	0.37
(1,342)	1:A:71:GLU:HB3	1:A:72:ALA:H	10	0.36
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	7	0.34
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	7	0.34
(1,296)	1:A:9:VAL:HA	1:A:10:LYS:H	13	0.33
(1,296)	1:A:9:VAL:HA	1:A:10:LYS:H	14	0.33
(1,478)	1:A:9:VAL:HA	1:A:10:LYS:HB3	13	0.32
(1,436)	1:A:31:LYS:HA	1:A:31:LYS:HG2	11	0.32
(1,436)	1:A:31:LYS:HA	1:A:31:LYS:HG2	16	0.32
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG2	11	0.31
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG3	11	0.31
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG2	16	0.31
(1,769)	1:A:31:LYS:HA	1:A:31:LYS:HG3	16	0.31
(1,478)	1:A:9:VAL:HA	1:A:10:LYS:HB3	14	0.31
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD2	16	0.31
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD3	16	0.31
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD2	16	0.29
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD3	16	0.29
(1,30)	1:A:54:TYR:H	1:A:54:TYR:HB2	12	0.29
(1,690)	1:A:9:VAL:HG11	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG12	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG13	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG21	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG22	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG23	1:A:10:LYS:H	13	0.28
(1,690)	1:A:9:VAL:HG11	1:A:10:LYS:H	14	0.28
(1,690)	1:A:9:VAL:HG12	1:A:10:LYS:H	14	0.28
(1,690)	1:A:9:VAL:HG13	1:A:10:LYS:H	14	0.28

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,690)	1:A:9:VAL:HG21	1:A:10:LYS:H	14	0.28
(1,690)	1:A:9:VAL:HG22	1:A:10:LYS:H	14	0.28
(1,690)	1:A:9:VAL:HG23	1:A:10:LYS:H	14	0.28
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	5	0.28
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD2	11	0.28
(1,452)	1:A:31:LYS:HA	1:A:31:LYS:HD3	11	0.28
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	15	0.28
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	15	0.28
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	18	0.28
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	18	0.28
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	9	0.27
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	9	0.27
(1,430)	1:A:39:LYS:HG2	1:A:40:VAL:H	19	0.27
(1,430)	1:A:39:LYS:HG3	1:A:40:VAL:H	19	0.27
(1,28)	1:A:54:TYR:H	1:A:54:TYR:HB3	12	0.27
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	20	0.26
(1,713)	1:A:12:ARG:HB2	1:A:73:ALA:H	5	0.25
(1,713)	1:A:12:ARG:HB3	1:A:73:ALA:H	5	0.25
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	3	0.24
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	9	0.23
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	18	0.23
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	19	0.23
(1,690)	1:A:9:VAL:HG11	1:A:10:LYS:H	19	0.22
(1,690)	1:A:9:VAL:HG12	1:A:10:LYS:H	19	0.22
(1,690)	1:A:9:VAL:HG13	1:A:10:LYS:H	19	0.22
(1,690)	1:A:9:VAL:HG21	1:A:10:LYS:H	19	0.22
(1,690)	1:A:9:VAL:HG22	1:A:10:LYS:H	19	0.22
(1,690)	1:A:9:VAL:HG23	1:A:10:LYS:H	19	0.22
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	10	0.22
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	12	0.22
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	16	0.22
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	17	0.22
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	7	0.22
(1,368)	1:A:39:LYS:HA	1:A:40:VAL:H	15	0.22
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	19	0.22
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	11	0.21
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	4	0.21
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	4	0.21
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	4	0.21
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	14	0.21
(1,584)	1:A:71:GLU:HA	1:A:71:GLU:HB3	7	0.2
(1,571)	1:A:54:TYR:HD1	1:A:55:LEU:HA	12	0.2

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,571)	1:A:54:TYR:HD2	1:A:55:LEU:HA	12	0.2
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	10	0.2
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	10	0.2
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	10	0.2
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	13	0.2
(1,256)	1:A:74:ILE:HG21	1:A:76:SER:H	4	0.2
(1,256)	1:A:74:ILE:HG22	1:A:76:SER:H	4	0.2
(1,256)	1:A:74:ILE:HG23	1:A:76:SER:H	4	0.2
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	2	0.19
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	2	0.19
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	2	0.19
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	8	0.19
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	8	0.19
(1,761)	1:A:29:VAL:HG11	1:A:30:ARG:H	8	0.18
(1,761)	1:A:29:VAL:HG12	1:A:30:ARG:H	8	0.18
(1,761)	1:A:29:VAL:HG13	1:A:30:ARG:H	8	0.18
(1,761)	1:A:29:VAL:HG21	1:A:30:ARG:H	8	0.18
(1,761)	1:A:29:VAL:HG22	1:A:30:ARG:H	8	0.18
(1,761)	1:A:29:VAL:HG23	1:A:30:ARG:H	8	0.18
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	15	0.18
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	15	0.18
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	15	0.18
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	6	0.18
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	6	0.18
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	6	0.18
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	16	0.18
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	16	0.18
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	16	0.18
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD2	11	0.18
(1,453)	1:A:31:LYS:H	1:A:31:LYS:HD3	11	0.18
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	12	0.18
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	12	0.18
(1,761)	1:A:29:VAL:HG11	1:A:30:ARG:H	9	0.17
(1,761)	1:A:29:VAL:HG12	1:A:30:ARG:H	9	0.17
(1,761)	1:A:29:VAL:HG13	1:A:30:ARG:H	9	0.17
(1,761)	1:A:29:VAL:HG21	1:A:30:ARG:H	9	0.17
(1,761)	1:A:29:VAL:HG22	1:A:30:ARG:H	9	0.17
(1,761)	1:A:29:VAL:HG23	1:A:30:ARG:H	9	0.17
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	16	0.17
(1,334)	1:A:6:GLU:HA	1:A:51:TYR:H	8	0.17
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	2	0.17
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	11	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,761)	1:A:29:VAL:HG11	1:A:30:ARG:H	15	0.16
(1,761)	1:A:29:VAL:HG12	1:A:30:ARG:H	15	0.16
(1,761)	1:A:29:VAL:HG13	1:A:30:ARG:H	15	0.16
(1,761)	1:A:29:VAL:HG21	1:A:30:ARG:H	15	0.16
(1,761)	1:A:29:VAL:HG22	1:A:30:ARG:H	15	0.16
(1,761)	1:A:29:VAL:HG23	1:A:30:ARG:H	15	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG11	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG12	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG13	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG21	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG22	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG23	3	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG11	16	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG12	16	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG13	16	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG21	16	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG22	16	0.16
(1,758)	1:A:29:VAL:H	1:A:29:VAL:HG23	16	0.16
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	9	0.16
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	9	0.16
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	9	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG21	13	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG22	13	0.16
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG23	13	0.16
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	14	0.16
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	14	0.16
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	14	0.16
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	1	0.16
(1,179)	1:A:11:LEU:H	1:A:46:GLU:HA	14	0.16
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	6	0.16
(1,687)	1:A:8:VAL:HG11	1:A:51:TYR:H	14	0.15
(1,687)	1:A:8:VAL:HG12	1:A:51:TYR:H	14	0.15
(1,687)	1:A:8:VAL:HG13	1:A:51:TYR:H	14	0.15
(1,687)	1:A:8:VAL:HG21	1:A:51:TYR:H	14	0.15
(1,687)	1:A:8:VAL:HG22	1:A:51:TYR:H	14	0.15
(1,687)	1:A:8:VAL:HG23	1:A:51:TYR:H	14	0.15
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	7	0.15
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	7	0.15
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	7	0.15
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	6	0.15
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	14	0.15
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG21	14	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG22	14	0.15
(1,564)	1:A:10:LYS:HA	1:A:48:VAL:HG23	14	0.15
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	18	0.15
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	18	0.15
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	18	0.15
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	20	0.15
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	20	0.15
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	20	0.15
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	13	0.15
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	13	0.15
(1,334)	1:A:6:GLU:HA	1:A:51:TYR:H	19	0.15
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	4	0.15
(1,16)	1:A:34:GLY:H	1:A:55:LEU:HB2	12	0.15
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	18	0.14
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	18	0.14
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	18	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	2	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	10	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	11	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	17	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	18	0.14
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	3	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	3	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	3	0.14
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	11	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	11	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	11	0.14
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	12	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	12	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	12	0.14
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	13	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	13	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	13	0.14
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	19	0.14
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	19	0.14
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	19	0.14
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	7	0.14
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	7	0.14
(1,337)	1:A:9:VAL:H	1:A:49:ILE:H	19	0.14
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	10	0.14
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	11	0.14
(1,273)	1:A:12:ARG:H	1:A:12:ARG:HB3	18	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	15	0.14
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	16	0.14
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	18	0.14
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	4	0.13
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	5	0.13
(1,593)	1:A:68:MET:HA	1:A:68:MET:HG3	12	0.13
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	2	0.13
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	9	0.13
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	1	0.13
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	1	0.13
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	1	0.13
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	5	0.13
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	5	0.13
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	5	0.13
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	9	0.13
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	9	0.13
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	9	0.13
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	17	0.13
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	17	0.13
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	17	0.13
(1,444)	1:A:55:LEU:HA	1:A:55:LEU:HG	12	0.13
(1,383)	1:A:25:ILE:HG21	1:A:68:MET:H	10	0.13
(1,383)	1:A:25:ILE:HG22	1:A:68:MET:H	10	0.13
(1,383)	1:A:25:ILE:HG23	1:A:68:MET:H	10	0.13
(1,344)	1:A:66:ASN:HA	1:A:72:ALA:H	7	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	2	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	3	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	5	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	6	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	18	0.13
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	20	0.13
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	8	0.13
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	8	0.13
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	10	0.13
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	10	0.13
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	18	0.13
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	18	0.13
(1,179)	1:A:11:LEU:H	1:A:46:GLU:HA	13	0.13
(1,115)	1:A:28:LYS:HB2	1:A:29:VAL:H	14	0.13
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	19	0.12
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	19	0.12
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	19	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	19	0.12
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	19	0.12
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	19	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	12	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	12	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	12	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	20	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	20	0.12
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	20	0.12
(1,62)	1:A:35:VAL:HG21	1:A:37:ARG:H	20	0.12
(1,62)	1:A:35:VAL:HG22	1:A:37:ARG:H	20	0.12
(1,62)	1:A:35:VAL:HG23	1:A:37:ARG:H	20	0.12
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	4	0.12
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	6	0.12
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	7	0.12
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	13	0.12
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	15	0.12
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	7	0.12
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	7	0.12
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	7	0.12
(1,554)	1:A:36:VAL:HG21	1:A:52:GLN:HA	8	0.12
(1,554)	1:A:36:VAL:HG22	1:A:52:GLN:HA	8	0.12
(1,554)	1:A:36:VAL:HG23	1:A:52:GLN:HA	8	0.12
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	19	0.12
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	19	0.12
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	12	0.12
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	16	0.12
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	17	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	2	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	2	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	3	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	3	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	4	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	4	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	5	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	5	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	6	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	6	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	11	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	11	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	16	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	16	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	17	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	17	0.12
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	20	0.12
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	20	0.12
(1,220)	1:A:32:LEU:H	1:A:35:VAL:HG11	1	0.12
(1,220)	1:A:32:LEU:H	1:A:35:VAL:HG12	1	0.12
(1,220)	1:A:32:LEU:H	1:A:35:VAL:HG13	1	0.12
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	7	0.12
(1,173)	1:A:29:VAL:H	1:A:38:VAL:H	9	0.12
(1,16)	1:A:34:GLY:H	1:A:55:LEU:HB2	15	0.12
(1,92)	1:A:34:GLY:HA2	1:A:55:LEU:H	12	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	1	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	1	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	1	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	1	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	1	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	1	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	7	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	7	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	7	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	7	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	7	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	7	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	9	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	9	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	9	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	9	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	9	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	9	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB2	15	0.11
(1,819)	1:A:56:ILE:HD11	1:A:61:LEU:HB3	15	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB2	15	0.11
(1,819)	1:A:56:ILE:HD12	1:A:61:LEU:HB3	15	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB2	15	0.11
(1,819)	1:A:56:ILE:HD13	1:A:61:LEU:HB3	15	0.11
(1,798)	1:A:41:SER:HB2	1:A:46:GLU:H	9	0.11
(1,798)	1:A:41:SER:HB3	1:A:46:GLU:H	9	0.11
(1,756)	1:A:28:LYS:HG2	1:A:68:MET:H	11	0.11
(1,756)	1:A:28:LYS:HG3	1:A:68:MET:H	11	0.11
(1,756)	1:A:28:LYS:HG2	1:A:68:MET:H	16	0.11
(1,756)	1:A:28:LYS:HG3	1:A:68:MET:H	16	0.11
(1,718)	1:A:13:VAL:HG11	1:A:45:GLN:HA	16	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,718)	1:A:13:VAL:HG12	1:A:45:GLN:HA	16	0.11
(1,718)	1:A:13:VAL:HG13	1:A:45:GLN:HA	16	0.11
(1,718)	1:A:13:VAL:HG21	1:A:45:GLN:HA	16	0.11
(1,718)	1:A:13:VAL:HG22	1:A:45:GLN:HA	16	0.11
(1,718)	1:A:13:VAL:HG23	1:A:45:GLN:HA	16	0.11
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG21	8	0.11
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG22	8	0.11
(1,635)	1:A:35:VAL:HA	1:A:56:ILE:HG23	8	0.11
(1,62)	1:A:35:VAL:HG21	1:A:37:ARG:H	5	0.11
(1,62)	1:A:35:VAL:HG22	1:A:37:ARG:H	5	0.11
(1,62)	1:A:35:VAL:HG23	1:A:37:ARG:H	5	0.11
(1,62)	1:A:35:VAL:HG21	1:A:37:ARG:H	12	0.11
(1,62)	1:A:35:VAL:HG22	1:A:37:ARG:H	12	0.11
(1,62)	1:A:35:VAL:HG23	1:A:37:ARG:H	12	0.11
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	1	0.11
(1,575)	1:A:8:VAL:HA	1:A:51:TYR:HA	18	0.11
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	15	0.11
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	15	0.11
(1,44)	1:A:51:TYR:HE1	1:A:60:ASP:H	18	0.11
(1,44)	1:A:51:TYR:HE2	1:A:60:ASP:H	18	0.11
(1,323)	1:A:8:VAL:HB	1:A:51:TYR:H	15	0.11
(1,243)	1:A:66:ASN:H	1:A:69:GLY:H	5	0.11
(1,243)	1:A:66:ASN:H	1:A:69:GLY:H	20	0.11
(1,239)	1:A:12:ARG:HB3	1:A:73:ALA:H	5	0.11
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	1	0.11
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	1	0.11
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	9	0.11
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	9	0.11
(1,229)	1:A:54:TYR:HD1	1:A:56:ILE:H	13	0.11
(1,229)	1:A:54:TYR:HD2	1:A:56:ILE:H	13	0.11
(1,16)	1:A:34:GLY:H	1:A:55:LEU:HB2	9	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