W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

Full wwPDB NMR Structure Validation Report (i)

Dec 24, 2024 – 07:31 PM EST

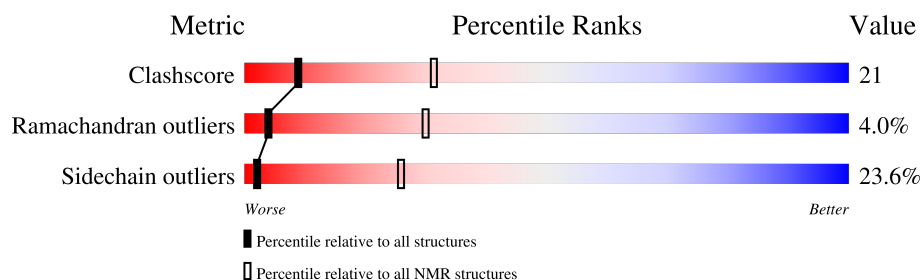|		
PDB ID	:	2M14
BMRB ID	:	18842
Title	:	NMR structure of the complex between the PH domain of the Tfb1 subunit from TFIIH and Rad4
Authors	:	Lafrance-Vanasse, J.; Arseneault, G.; Cappadocia, L.; Legault, P.; Omichinski, J.G.
Deposited on	:	2012-11-16

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 87%.

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	Percentile Ranks	Value
Clashscore		21
Ramachandran outliers		4.0%
Sidechain outliers		23.6%

Worse   *Better*

▌ Percentile relative to all structures
▯ Percentile relative to all NMR structures

Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	210492	14027
Ramachandran outliers	207382	12486
Sidechain outliers	206894	12463

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	42% 39% • 13% •
2	B	42	36% 64%

2 Ensemble composition and analysis ⓘ

This entry contains 20 models. Model 5 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *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:3-A:50, A:58-A:65, A:87-A:112 (82)	0.38	5
2	A:67-A:84 (18)	0.91	1

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

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

The models can be grouped into 3 clusters and 3 single-model clusters were found.

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

3 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 2035 atoms, of which 1012 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called RNA polymerase II transcription factor B subunit 1.

Mol	Chain	Residues	Atoms						Trace
1	A	115	Total	C	H	N	O	S	0
			1820	559	919	161	176	5	

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	PRO	-	expression tag	UNP P32776
A	116	GLY	-	expression tag	UNP P32776
A	117	ASN	-	expression tag	UNP P32776
A	118	SER	-	expression tag	UNP P32776
A	119	SER	-	expression tag	UNP P32776

- Molecule 2 is a protein called DNA repair protein RAD4.

Mol	Chain	Residues	Atoms					Trace
2	B	15	Total	C	H	N	O	0
			215	73	93	16	33	

There are 2 discrepancies between the modelled and reference sequences:

| Chain	Residue	Modelled	Actual	Comment	Reference
B	74	GLY	-	expression tag	UNP P14736
B	75	SER	-	expression tag	UNP P14736

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: RNA polymerase II transcription factor B subunit 1
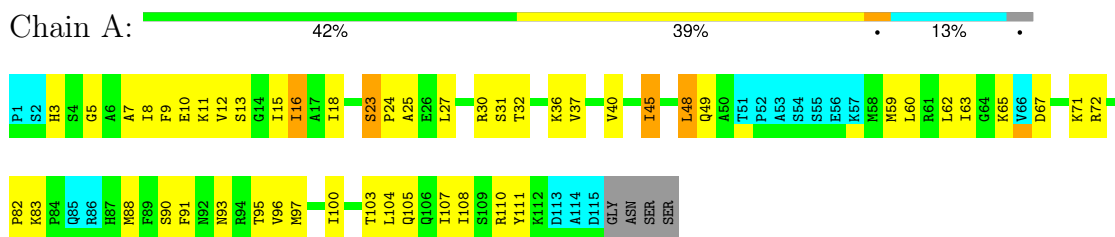
- Molecule 2: DNA repair protein RAD4
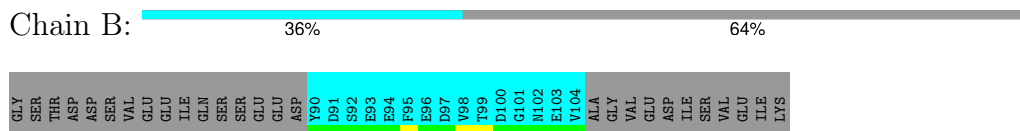
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

- Molecule 1: RNA polymerase II transcription factor B subunit 1

- Molecule 2: DNA repair protein RAD4

Chain B:
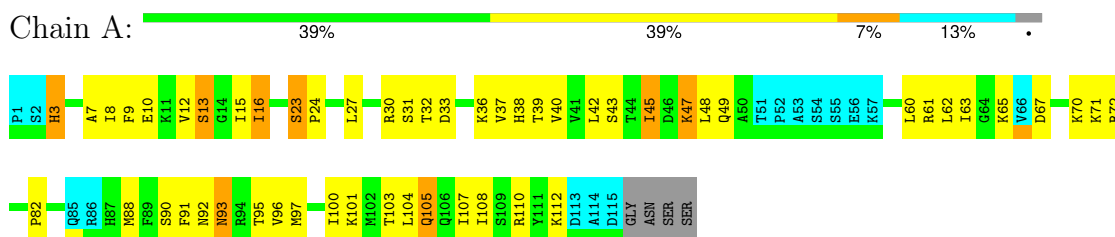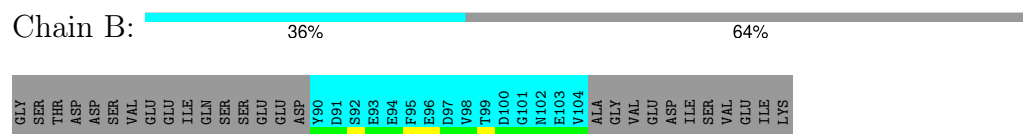
4.2.2 Score per residue for model 2

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:
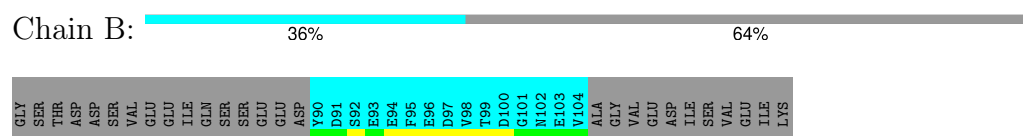
4.2.3 Score per residue for model 3

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:
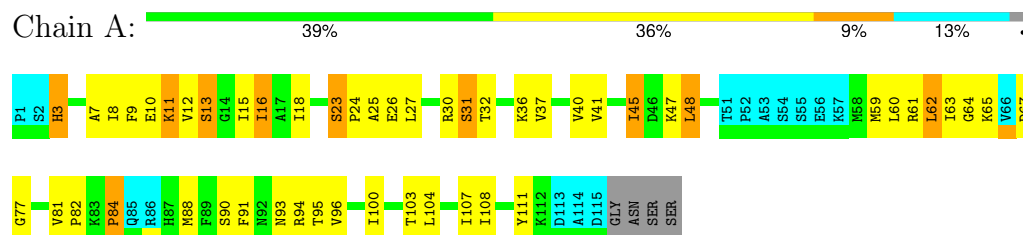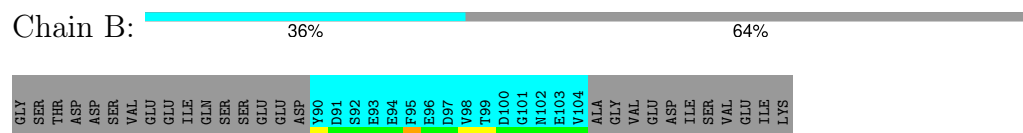
4.2.4 Score per residue for model 4

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.5 Score per residue for model 5 (medoid)

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.6 Score per residue for model 6

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.7 Score per residue for model 7

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.8 Score per residue for model 8

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.9 Score per residue for model 9

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:
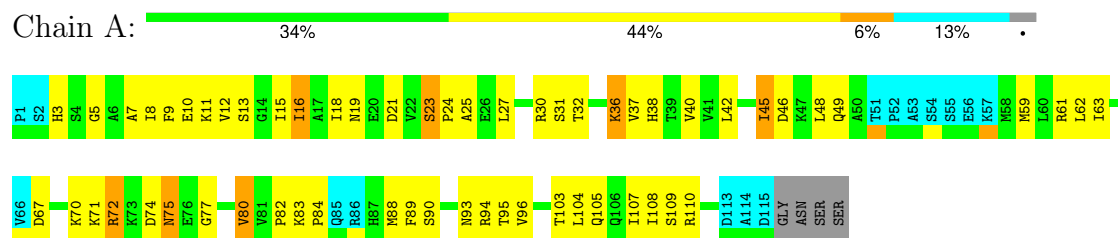
4.2.10 Score per residue for model 10

• Molecule 1: RNA polymerase II transcription factor B subunit 1
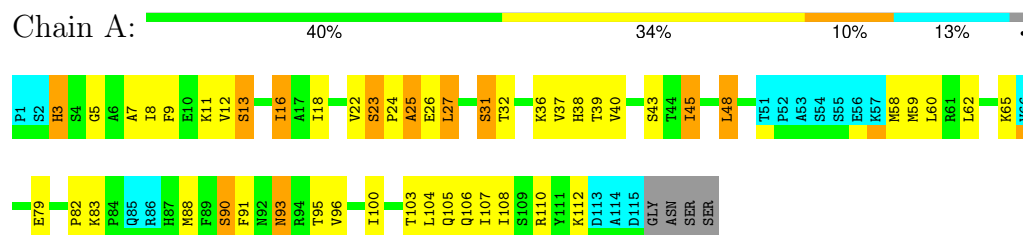
Chain A:

• Molecule 2: DNA repair protein RAD4
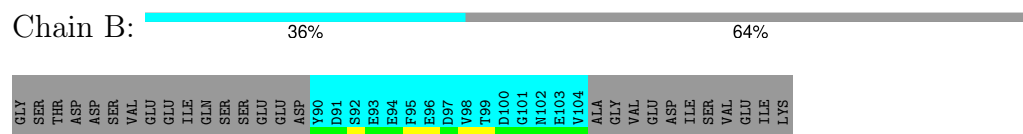
Chain B:

4.2.11 Score per residue for model 11

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:　36%　64%

GLY SER THR ASP ASP SER VAL GLU GLU ILE GLN SER SER GLU GLU ASP Y90 D91 S92 E93 E94 F95 E96 D97 V98 T99 D100 G101 N102 E103 V104 ALA GLY VAL GLU ASP ILE SER VAL GLU ILE LYS
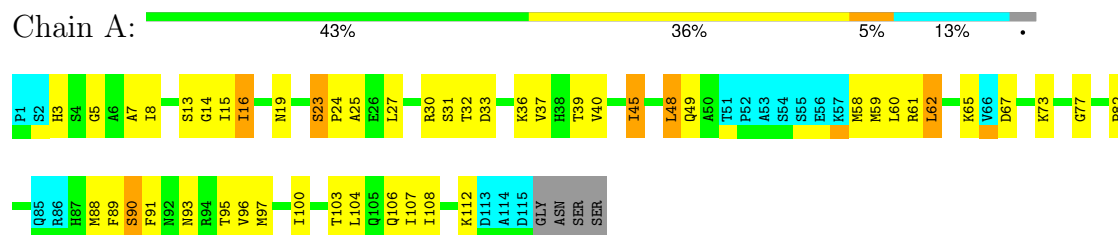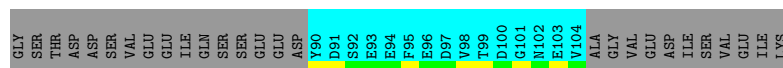
4.2.12 Score per residue for model 12

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:　34%　43%　7%　13%　•

P1 S2 H3 S4 G5 A6 A7 I8 F9 E10 K11 V12 S13 G14 I15 I16 A17 I18 N19 E20 D21 V22 S23 P24 A25 E26 L27 T28 W29 R30 S31 T32 D35 K36 V37 V40 V41 L42 I45 L48 T51 P52 A53 S54 S55 E56 K57 M58 M59 L60 R61 L62 I63 V66

D67 E68 S69 K70 K71 R72 K73 D74 N75 E76 G77 N78 E79 K83 P84 Q85 R86 H87 M88 F91 N92 N93 R94 T95 V96 M97 D98 N99 I100 T103 L104 I107 I108 Y111 K112 D113 A114 D115 GLY ASN SER SER

• Molecule 2: DNA repair protein RAD4

Chain B:　36%　64%

GLY SER THR ASP ASP SER VAL GLU GLU ILE GLN SER SER GLU GLU ASP Y90 D91 S92 E93 E94 F95 E96 D97 V98 T99 D100 G101 N102 E103 V104 ALA GLY VAL GLU ASP ILE SER VAL GLU ILE LYS

4.2.13 Score per residue for model 13

• Molecule 1: RNA polymerase II transcription factor B subunit 1

Chain A:　37%　40%　7%　13%　•

P1 S2 H3 S4 G5 A6 A7 I8 F9 E10 K11 V12 S13 G14 I15 I16 A17 I18 V22 S23 P24 A25 E26 L27 R30 S31 T32 K36 V37 H38 T39 V40 V41 L42 I45 D46 K47 L48 Q49 A50 T51 P52 A53 S54 S55 E56 K57 M58 M59 L60 R61 L62 I63 G64 K65 V66

K71 N78 E79 V80 K83 P84 Q85 R86 H87 M88 F89 S90 F91 R94 T95 V96 M97 D98 N99 I100 T103 L104 Q105 Q106 I107 I108 Y111 K112 D113 A114 D115 GLY ASN SER SER

• Molecule 2: DNA repair protein RAD4

Chain B:　36%　64%

GLY SER THR ASP ASP SER VAL GLU GLU ILE GLN SER SER GLU GLU ASP Y90 D91 S92 E93 E94 F95 E96 D97 V98 T99 D100 G101 N102 E103 V104 ALA GLY VAL GLU ASP ILE SER VAL GLU ILE LYS

4.2.14 Score per residue for model 14

• Molecule 1: RNA polymerase II transcription factor B subunit 1
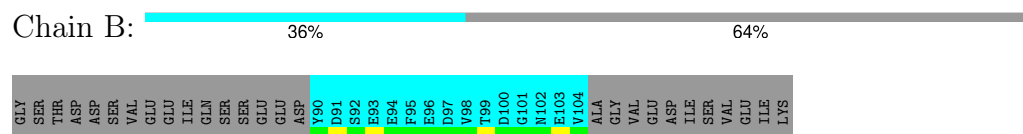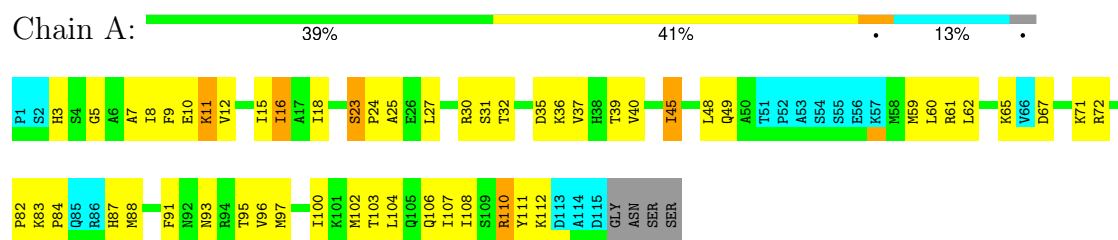
Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.15　Score per residue for model 15

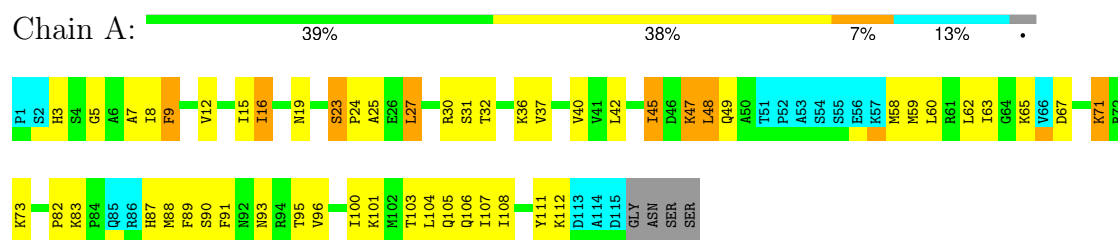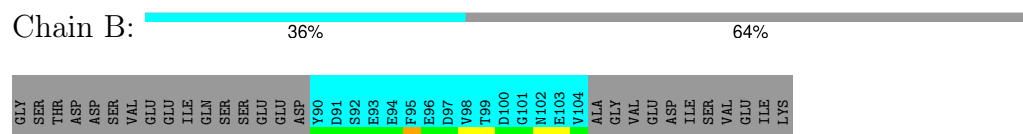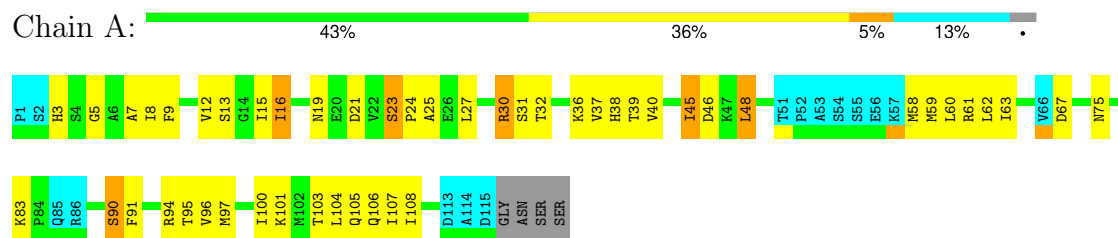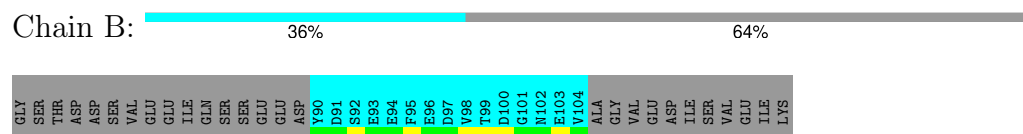• Molecule 1: RNA polymerase II transcription factor B subunit 1
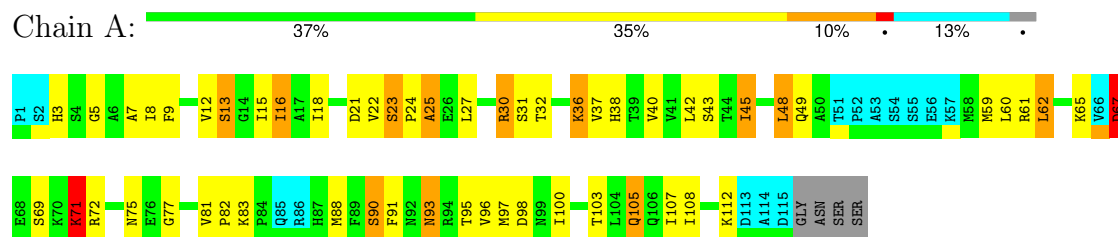
Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

4.2.16　Score per residue for model 16

• Molecule 1: RNA polymerase II transcription factor B subunit 1
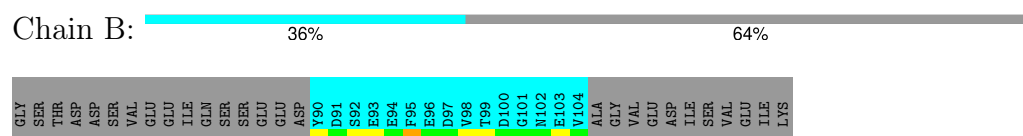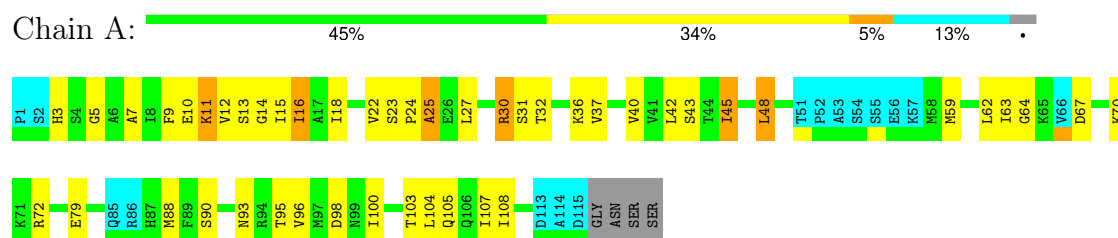
Chain A:

• Molecule 2: DNA repair protein RAD4
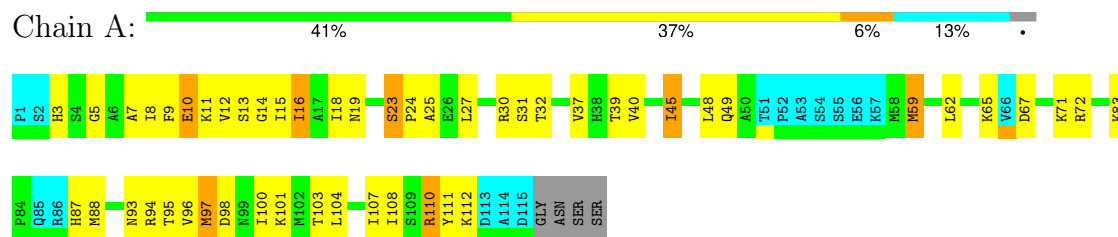
Chain B:

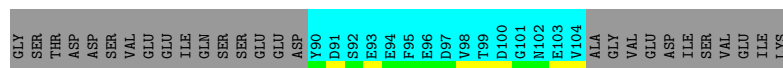### 4.2.17   Score per residue for model 17

• Molecule 1: RNA polymerase II transcription factor B subunit 1
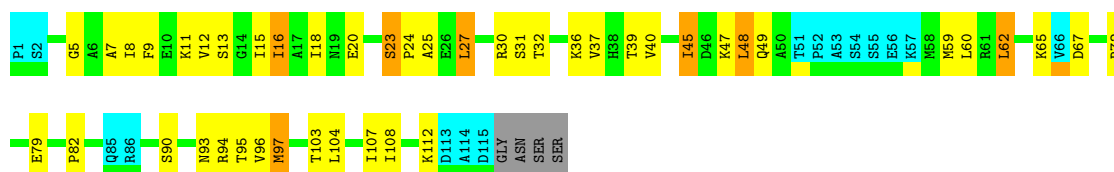
Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:

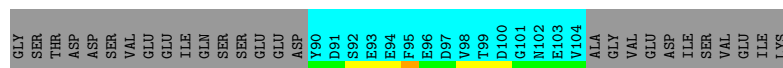### 4.2.18   Score per residue for model 18

• Molecule 1: RNA polymerase II transcription factor B subunit 1
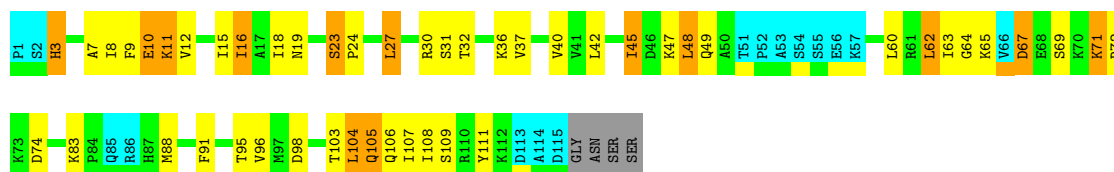
Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:
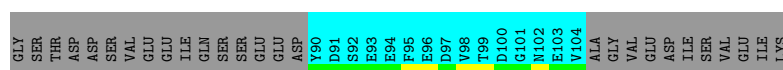
4.2.19   Score per residue for model 19

• Molecule 1: RNA polymerase II transcription factor B subunit 1

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Chain A:

• Molecule 2: DNA repair protein RAD4

Chain B:
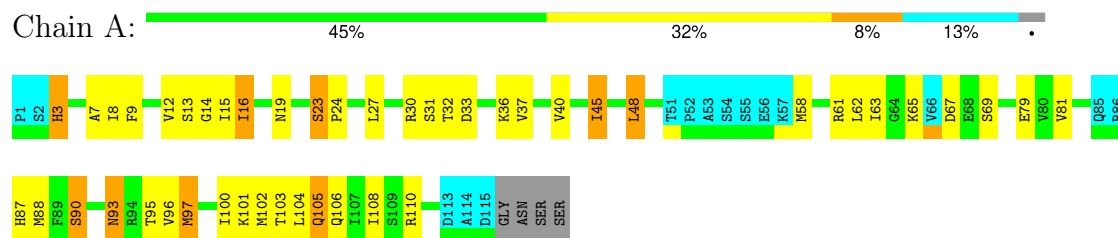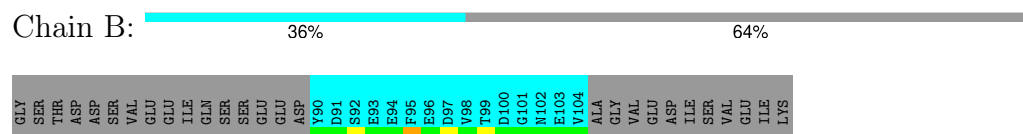
4.2.20 Score per residue for model 20

• Molecule 1: RNA polymerase II transcription factor B subunit 1
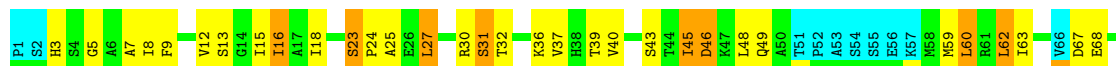
Chain A:

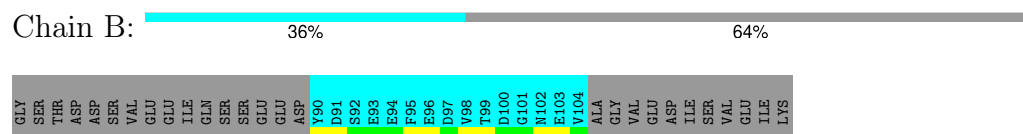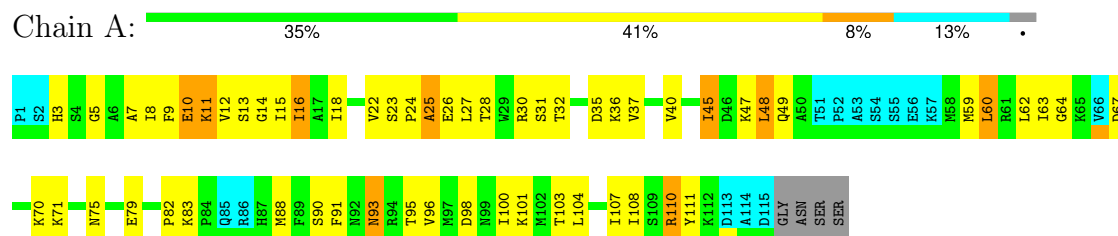• Molecule 2: DNA repair protein RAD4

Chain B:
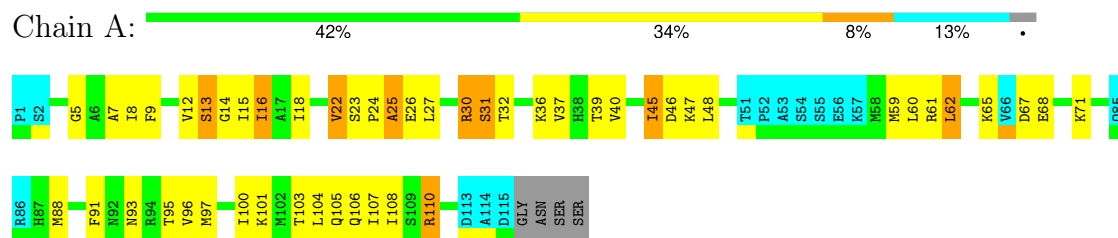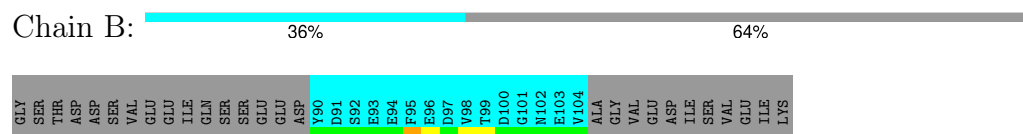
5 Refinement protocol and experimental data overview ⓘ

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

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

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

Software name	Classification	Version
CNS	refinement	
CNS	structure solution	

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 7 of this report.

Chemical shift file(s)	working_cs.cif
Number of chemical shift lists	1
Total number of shifts	1558
Number of shifts mapped to atoms	1530
Number of unparsed shifts	0
Number of shifts with mapping errors	28
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	87%

6 Model quality ⓘ

6.1 Standard geometry ⓘ

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 ⓘ

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	791	814	811	33±5
2	B	0	0	0	0±0
All	All	15820	16280	16220	657

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 21.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Models Total
1:A:45:ILE:HG21	1:A:62:LEU:HD23	1.04	1.28	6	2
1:A:48:LEU:HD13	1:A:108:ILE:HD11	0.95	1.38	3	6
1:A:60:LEU:HD22	1:A:91:PHE:CZ	0.89	2.03	18	7
1:A:45:ILE:HD12	1:A:62:LEU:HB3	0.83	1.50	6	2
1:A:60:LEU:HD13	1:A:91:PHE:CD1	0.80	2.12	13	7
1:A:40:VAL:HG13	1:A:45:ILE:HD11	0.79	1.55	18	18
1:A:9:PHE:O	1:A:12:VAL:HG12	0.78	1.77	16	19
1:A:12:VAL:HG11	1:A:36:LYS:CD	0.77	2.10	8	6
1:A:27:LEU:CD1	1:A:104:LEU:HD11	0.76	2.11	1	15
1:A:3:HIS:HA	1:A:103:THR:HG21	0.74	1.60	15	17
1:A:103:THR:O	1:A:107:ILE:HD12	0.72	1.84	4	10
1:A:47:LYS:CE	1:A:63:ILE:HG21	0.72	2.13	1	2
1:A:80:VAL:HG23	1:A:82:PRO:HD3	0.71	1.62	9	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:47:LYS:HE2	1:A:63:ILE:HG21	0.71	1.61	1	1
1:A:60:LEU:HD13	1:A:91:PHE:CE1	0.71	2.21	13	2
1:A:48:LEU:HD21	1:A:101:LYS:HA	0.70	1.63	16	1
1:A:12:VAL:HG11	1:A:36:LYS:HD2	0.70	1.63	18	8
1:A:104:LEU:CD1	1:A:108:ILE:HD11	0.70	2.17	18	1
1:A:7:ALA:CB	1:A:16:ILE:HD12	0.69	2.17	10	20
1:A:12:VAL:HG11	1:A:36:LYS:HD3	0.69	1.63	17	6
1:A:93:ASN:HB3	1:A:96:VAL:HG12	0.69	1.63	12	13
1:A:45:ILE:CG2	1:A:62:LEU:HD23	0.69	2.12	1	2
1:A:71:LYS:HE3	1:A:81:VAL:HG22	0.69	1.62	6	1
1:A:18:ILE:HG21	1:A:107:ILE:HD13	0.69	1.64	10	1
1:A:22:VAL:HG11	1:A:26:GLU:OE1	0.69	1.87	10	1
1:A:48:LEU:HD11	1:A:104:LEU:HD23	0.68	1.65	11	1
1:A:18:ILE:HG21	1:A:107:ILE:CD1	0.68	2.19	10	10
1:A:12:VAL:HG21	1:A:36:LYS:CD	0.68	2.18	10	1
1:A:104:LEU:HD12	1:A:108:ILE:HD11	0.68	1.65	18	1
1:A:45:ILE:HG23	1:A:63:ILE:O	0.68	1.89	18	1
1:A:27:LEU:HD12	1:A:104:LEU:HD11	0.67	1.66	1	5
1:A:48:LEU:CD1	1:A:108:ILE:HD11	0.67	2.19	6	6
1:A:12:VAL:HG21	1:A:36:LYS:HD3	0.66	1.67	10	1
1:A:22:VAL:HG21	1:A:26:GLU:CD	0.66	2.11	10	1
1:A:18:ILE:HG21	1:A:107:ILE:HD11	0.65	1.66	7	9
1:A:8:ILE:HD12	1:A:13:SER:HA	0.65	1.67	12	4
1:A:60:LEU:HD11	1:A:97:MET:HG3	0.65	1.69	14	3
1:A:48:LEU:CD1	1:A:104:LEU:HD23	0.65	2.22	7	3
1:A:100:ILE:HG23	1:A:104:LEU:HD13	0.64	1.68	20	8
1:A:48:LEU:HD12	1:A:62:LEU:HD13	0.64	1.68	20	3
1:A:12:VAL:HG11	1:A:36:LYS:CE	0.63	2.23	6	5
1:A:48:LEU:HD21	1:A:104:LEU:CB	0.63	2.23	19	5
1:A:48:LEU:HD23	1:A:104:LEU:HB3	0.63	1.69	10	1
1:A:48:LEU:HD23	1:A:104:LEU:CB	0.62	2.24	10	1
1:A:48:LEU:HB2	1:A:108:ILE:HD11	0.61	1.73	7	2
1:A:93:ASN:CB	1:A:96:VAL:HG12	0.61	2.26	20	12
1:A:71:LYS:HG3	1:A:81:VAL:HG22	0.59	1.72	3	1
1:A:48:LEU:HD21	1:A:104:LEU:HB2	0.59	1.73	19	1
1:A:48:LEU:HD13	1:A:104:LEU:HD23	0.58	1.75	7	4
1:A:25:ALA:HB3	1:A:107:ILE:CG2	0.58	2.28	17	12
1:A:25:ALA:HB3	1:A:107:ILE:HG23	0.58	1.76	11	9
1:A:12:VAL:HG11	1:A:36:LYS:HE2	0.57	1.75	13	4
1:A:27:LEU:N	1:A:40:VAL:O	0.56	2.35	7	18
1:A:8:ILE:HG23	1:A:12:VAL:O	0.56	2.00	4	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:ILE:HG13	1:A:13:SER:HA	0.55	1.78	11	10
1:A:48:LEU:HD12	1:A:108:ILE:HD12	0.55	1.77	12	1
1:A:7:ALA:HB3	1:A:16:ILE:HG13	0.55	1.78	9	2
1:A:3:HIS:CA	1:A:103:THR:HG21	0.55	2.31	1	5
1:A:91:PHE:CD2	1:A:96:VAL:HG22	0.55	2.37	20	1
1:A:3:HIS:CB	1:A:103:THR:HG21	0.54	2.33	18	3
1:A:23:SER:CB	1:A:24:PRO:HD3	0.54	2.33	3	15
1:A:16:ILE:CG2	1:A:100:ILE:HD12	0.54	2.33	10	13
1:A:22:VAL:HG21	1:A:26:GLU:HG3	0.54	1.80	20	2
1:A:5:GLY:N	1:A:100:ILE:HD11	0.54	2.18	6	1
1:A:59:MET:O	1:A:60:LEU:HD12	0.54	2.03	2	1
1:A:40:VAL:HG22	1:A:87:HIS:CD2	0.54	2.38	16	6
1:A:93:ASN:HB2	1:A:96:VAL:HG12	0.53	1.81	15	1
1:A:40:VAL:HG13	1:A:45:ILE:CD1	0.53	2.31	18	1
1:A:91:PHE:HZ	1:A:100:ILE:HG21	0.52	1.64	7	1
1:A:71:LYS:CE	1:A:81:VAL:HG22	0.52	2.34	6	1
1:A:18:ILE:HG13	1:A:27:LEU:HD12	0.52	1.80	18	4
1:A:59:MET:C	1:A:60:LEU:HD12	0.52	2.24	2	3
1:A:100:ILE:CG2	1:A:104:LEU:HD13	0.52	2.35	12	5
1:A:28:THR:HG21	1:A:30:ARG:NH1	0.52	2.19	10	1
1:A:22:VAL:HG21	1:A:26:GLU:OE2	0.52	2.05	10	1
1:A:78:ASN:O	1:A:80:VAL:HG13	0.51	2.05	13	2
1:A:42:LEU:HD12	1:A:104:LEU:HD11	0.51	1.82	18	1
1:A:45:ILE:HG21	1:A:62:LEU:CD1	0.51	2.35	18	1
1:A:62:LEU:HD11	1:A:104:LEU:CD2	0.51	2.35	1	1
1:A:91:PHE:HD2	1:A:96:VAL:HG13	0.51	1.65	18	3
1:A:60:LEU:HD13	1:A:91:PHE:CG	0.51	2.41	13	1
1:A:100:ILE:HG22	1:A:104:LEU:HD22	0.51	1.82	3	1
1:A:7:ALA:HB3	1:A:16:ILE:CG1	0.50	2.36	9	4
1:A:40:VAL:CG1	1:A:45:ILE:HD11	0.50	2.36	5	8
1:A:105:GLN:HA	1:A:108:ILE:CG1	0.49	2.37	19	9
1:A:8:ILE:HD12	1:A:90:SER:O	0.49	2.06	1	9
1:A:18:ILE:N	1:A:18:ILE:HD12	0.49	2.22	8	2
1:A:24:PRO:O	1:A:25:ALA:O	0.49	2.31	10	4
1:A:60:LEU:HD11	1:A:97:MET:HB2	0.49	1.83	17	1
1:A:9:PHE:CE2	1:A:38:HIS:CD2	0.49	3.00	6	2
1:A:42:LEU:HD12	1:A:108:ILE:HD11	0.49	1.85	15	1
1:A:9:PHE:CE2	1:A:38:HIS:CG	0.49	3.00	2	4
1:A:22:VAL:HG11	1:A:26:GLU:OE2	0.49	2.07	13	1
1:A:42:LEU:CD1	1:A:104:LEU:HD11	0.49	2.37	18	1
1:A:48:LEU:HD21	1:A:104:LEU:CD2	0.49	2.38	17	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:48:LEU:HD12	1:A:62:LEU:HD11	0.48	1.84	11	2
1:A:93:ASN:HB3	1:A:96:VAL:HG13	0.48	1.84	7	1
1:A:49:GLN:O	1:A:60:LEU:HD13	0.48	2.08	8	1
1:A:8:ILE:HG23	1:A:12:VAL:C	0.48	2.29	18	6
1:A:5:GLY:N	1:A:16:ILE:O	0.48	2.46	9	16
1:A:9:PHE:CZ	1:A:38:HIS:CE1	0.48	3.01	2	1
1:A:48:LEU:HD12	1:A:62:LEU:CD1	0.48	2.38	11	3
1:A:18:ILE:HD13	1:A:103:THR:CG2	0.48	2.38	20	1
1:A:12:VAL:HG11	1:A:36:LYS:HE3	0.48	1.86	15	1
1:A:3:HIS:O	1:A:18:ILE:HD12	0.48	2.08	3	2
1:A:8:ILE:HD12	1:A:13:SER:CA	0.48	2.37	12	4
1:A:48:LEU:HD22	1:A:48:LEU:C	0.47	2.28	12	1
1:A:42:LEU:HD13	1:A:45:ILE:HG13	0.47	1.84	1	1
1:A:93:ASN:CB	1:A:96:VAL:HG22	0.47	2.40	7	1
1:A:14:GLY:O	1:A:15:ILE:HD13	0.47	2.10	13	9
1:A:26:GLU:OE2	1:A:41:VAL:HG22	0.47	2.10	3	1
1:A:8:ILE:HD12	1:A:13:SER:CB	0.47	2.40	10	2
1:A:40:VAL:CG2	1:A:87:HIS:CD2	0.46	2.99	14	7
1:A:15:ILE:N	1:A:30:ARG:O	0.46	2.48	10	19
1:A:96:VAL:HG13	1:A:97:MET:N	0.46	2.25	6	7
1:A:16:ILE:HD11	1:A:89:PHE:CD1	0.46	2.46	11	2
1:A:8:ILE:N	1:A:8:ILE:HD13	0.46	2.26	10	1
1:A:49:GLN:N	1:A:61:ARG:O	0.46	2.49	1	2
1:A:93:ASN:HB3	1:A:96:VAL:HG22	0.46	1.87	7	1
1:A:42:LEU:HD12	1:A:108:ILE:CD1	0.46	2.39	9	1
1:A:23:SER:CB	1:A:24:PRO:CD	0.46	2.94	19	15
1:A:9:PHE:CZ	1:A:38:HIS:CD2	0.46	3.04	6	2
1:A:91:PHE:CZ	1:A:100:ILE:HG21	0.46	2.46	7	1
1:A:12:VAL:HG11	1:A:36:LYS:NZ	0.45	2.26	15	1
1:A:9:PHE:CD2	1:A:89:PHE:CE1	0.45	3.04	4	1
1:A:27:LEU:HD13	1:A:104:LEU:HD11	0.45	1.88	12	2
1:A:15:ILE:O	1:A:30:ARG:N	0.45	2.48	15	2
1:A:45:ILE:HA	1:A:63:ILE:O	0.45	2.11	3	8
1:A:3:HIS:O	1:A:3:HIS:CG	0.45	2.69	1	4
1:A:16:ILE:HG12	1:A:27:LEU:HD21	0.45	1.88	14	1
1:A:9:PHE:CZ	1:A:38:HIS:NE2	0.44	2.85	2	1
1:A:104:LEU:O	1:A:108:ILE:HG13	0.44	2.12	13	5
1:A:60:LEU:HB2	1:A:91:PHE:CE1	0.44	2.47	8	4
1:A:96:VAL:HG23	1:A:97:MET:N	0.44	2.27	7	1
1:A:73:LYS:O	1:A:80:VAL:HG22	0.44	2.12	7	1
1:A:27:LEU:HB2	1:A:42:LEU:HD21	0.43	1.90	6	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:48:LEU:HD13	1:A:108:ILE:CD1	0.43	2.38	6	1
1:A:48:LEU:CD1	1:A:48:LEU:N	0.43	2.81	18	1
1:A:104:LEU:O	1:A:108:ILE:HG12	0.43	2.13	18	1
1:A:10:GLU:O	1:A:11:LYS:CB	0.43	2.67	9	10
1:A:48:LEU:HG	1:A:49:GLN:N	0.43	2.28	8	4
1:A:93:ASN:CB	1:A:96:VAL:HG13	0.43	2.43	7	1
1:A:16:ILE:HG22	1:A:100:ILE:HD11	0.43	1.90	20	1
1:A:27:LEU:O	1:A:40:VAL:N	0.43	2.50	2	1
1:A:16:ILE:HD11	1:A:89:PHE:CE1	0.43	2.49	4	1
1:A:42:LEU:CB	1:A:107:ILE:HG21	0.42	2.44	1	1
1:A:74:ASP:O	1:A:75:ASN:CB	0.42	2.67	12	2
1:A:48:LEU:CD2	1:A:104:LEU:CB	0.42	2.96	10	1
1:A:91:PHE:CD2	1:A:96:VAL:HG13	0.42	2.48	18	1
1:A:16:ILE:HG23	1:A:27:LEU:HD11	0.42	1.90	19	1
1:A:48:LEU:HD11	1:A:104:LEU:HD22	0.42	1.89	20	1
1:A:63:ILE:HG22	1:A:64:GLY:N	0.42	2.30	10	4
1:A:60:LEU:HD22	1:A:91:PHE:CE2	0.42	2.49	7	1
1:A:7:ALA:C	1:A:8:ILE:HD13	0.42	2.35	10	1
1:A:42:LEU:O	1:A:111:TYR:CE2	0.42	2.73	13	4
1:A:48:LEU:CD1	1:A:104:LEU:HD22	0.42	2.45	20	1
1:A:110:ARG:CG	1:A:111:TYR:N	0.41	2.83	10	4
1:A:48:LEU:CB	1:A:108:ILE:CD1	0.41	2.99	7	1
1:A:64:GLY:O	1:A:84:PRO:CB	0.41	2.68	13	1
1:A:46:ASP:N	1:A:63:ILE:O	0.41	2.54	9	2
1:A:16:ILE:HG21	1:A:100:ILE:HD12	0.41	1.92	10	1
1:A:49:GLN:CB	1:A:61:ARG:O	0.41	2.69	6	1
1:A:7:ALA:CB	1:A:16:ILE:CD1	0.41	2.97	9	1
1:A:107:ILE:O	1:A:110:ARG:HB2	0.41	2.16	2	1
1:A:3:HIS:CD2	1:A:18:ILE:O	0.41	2.74	13	1
1:A:46:ASP:HB3	1:A:63:ILE:HG22	0.41	1.92	13	1
1:A:22:VAL:HG23	1:A:25:ALA:H	0.41	1.76	2	2
1:A:100:ILE:HG23	1:A:104:LEU:CD1	0.41	2.46	10	4
1:A:42:LEU:CB	1:A:107:ILE:CG2	0.41	2.99	9	1
1:A:48:LEU:CB	1:A:108:ILE:HD11	0.41	2.45	7	1
1:A:18:ILE:HD12	1:A:18:ILE:H	0.41	1.76	10	2
1:A:29:TRP:CH2	1:A:36:LYS:HB2	0.41	2.51	12	1
1:A:48:LEU:HD21	1:A:104:LEU:HD23	0.41	1.93	17	1
1:A:18:ILE:HD13	1:A:103:THR:HG21	0.41	1.91	20	1
1:A:45:ILE:HG21	1:A:62:LEU:HD11	0.40	1.92	17	1
1:A:93:ASN:CB	1:A:96:VAL:CG1	0.40	2.99	1	2
1:A:9:PHE:O	1:A:12:VAL:CG1	0.40	2.65	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:PHE:CD1	1:A:89:PHE:CE1	0.40	3.09	9	1
1:A:48:LEU:CD1	1:A:104:LEU:CD2	0.40	3.00	20	1
1:A:25:ALA:HB3	1:A:107:ILE:HG21	0.40	1.94	16	1

6.3 Torsion angles ⓘ

6.3.1 Protein backbone ⓘ

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	100/119 (84%)	84±2 (84±2%)	12±2 (12±2%)	4±2 (4±2%)	4	30
2	B	0	-	-	-	-	
All	All	2000/3220 (62%)	1675 (84%)	245 (12%)	80 (4%)	4	30

All 13 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	31	SER	20
1	A	45	ILE	20
1	A	71	LYS	8
1	A	25	ALA	7
1	A	77	GLY	6
1	A	67	ASP	4
1	A	79	GLU	4
1	A	22	VAL	3
1	A	68	GLU	2
1	A	72	ARG	2
1	A	80	VAL	2
1	A	3	HIS	1
1	A	84	PRO	1

6.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR

entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	90/106 (85%)	69±2 (76±3%)	21±2 (24±3%)	2	26
2	B	0	-	-	-	
All	All	1800/2880 (62%)	1375 (76%)	425 (24%)	2	26

All 60 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	16	ILE	20
1	A	23	SER	20
1	A	32	THR	20
1	A	37	VAL	20
1	A	95	THR	20
1	A	62	LEU	19
1	A	88	MET	16
1	A	48	LEU	14
1	A	65	LYS	13
1	A	83	LYS	13
1	A	72	ARG	12
1	A	39	THR	10
1	A	112	LYS	10
1	A	90	SER	10
1	A	110	ARG	9
1	A	106	GLN	9
1	A	11	LYS	8
1	A	71	LYS	8
1	A	94	ARG	8
1	A	19	ASN	8
1	A	47	LYS	7
1	A	93	ASN	7
1	A	101	LYS	7
1	A	27	LEU	7
1	A	49	GLN	7
1	A	98	ASP	7
1	A	13	SER	6
1	A	105	GLN	6
1	A	58	MET	6
1	A	61	ARG	6
1	A	3	HIS	5
1	A	43	SER	5

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Mol	Chain	Res	Type	Models (Total)
1	A	70	LYS	5
1	A	31	SER	5
1	A	69	SER	5
1	A	36	LYS	5
1	A	75	ASN	5
1	A	97	MET	5
1	A	10	GLU	4
1	A	33	ASP	4
1	A	67	ASP	4
1	A	21	ASP	4
1	A	30	ARG	4
1	A	111	TYR	3
1	A	46	ASP	3
1	A	59	MET	3
1	A	109	SER	3
1	A	35	ASP	3
1	A	79	GLU	3
1	A	73	LYS	2
1	A	60	LEU	2
1	A	102	MET	2
1	A	92	ASN	1
1	A	9	PHE	1
1	A	68	GLU	1
1	A	78	ASN	1
1	A	26	GLU	1
1	A	20	GLU	1
1	A	74	ASP	1
1	A	104	LEU	1

6.3.3　RNA ⓘ

There are no RNA molecules in this entry.

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

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

6.5　Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.6 Ligand geometry ⓘ

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 87% 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: *assigned_chem_shift_list_1*

7.1.1 Bookkeeping ⓘ

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

Total number of shifts	1558
Number of shifts mapped to atoms	1530
Number of unparsed shifts	0
Number of shifts with mapping errors	28
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	5

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

- No matching atom found in the structure. All 28 occurrences are reported below.

List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	116	GLY	H	8.261	0.002	1
1	A	116	GLY	HA2	3.985	0.001	1
1	A	116	GLY	C	174.403	0.000	1
1	A	116	GLY	N	108.892	0.016	1
1	A	117	ASN	H	8.325	0.001	1
1	A	117	ASN	HA	4.782	0.038	1
1	A	117	ASN	HB3	2.847	0.034	1
1	A	117	ASN	HD21	7.65	0.000	1
1	A	117	ASN	HD22	6.952	0.006	1
1	A	117	ASN	C	175.393	0.000	1
1	A	117	ASN	CA	53.211	0.000	1
1	A	117	ASN	CB	39.177	0.008	1
1	A	117	ASN	CG	177.343	0.007	1
1	A	117	ASN	N	118.783	0.010	1

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	117	ASN	ND2	113.002	0.085	1
1	A	118	SER	H	8.326	0.002	1
1	A	118	SER	HA	4.56	0.000	1
1	A	118	SER	HB2	3.934	0.000	1
1	A	118	SER	C	173.822	0.000	1
1	A	118	SER	CA	58.258	0.000	1
1	A	118	SER	CB	63.837	0.000	1
1	A	118	SER	N	116.594	0.002	1
1	A	119	SER	H	8.02	0.002	1
1	A	119	SER	HA	4.313	0.000	1
1	A	119	SER	HB2	3.881	0.000	1
1	A	119	SER	CA	59.963	0.000	1
1	A	119	SER	CB	64.69	0.000	1
1	A	119	SER	N	123.224	0.024	1

7.1.2 Chemical shift referencing ⓘ

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_\alpha$	131	-0.12 ± 0.06	None needed (< 0.5 ppm)
$^{13}C_\beta$	118	-0.12 ± 0.10	None needed (< 0.5 ppm)
$^{13}C'$	128	0.05 ± 0.07	None needed (< 0.5 ppm)
^{15}N	128	-0.06 ± 0.33	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 87%, i.e. 1205 atoms were assigned a chemical shift out of a possible 1392. 0 out of 14 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	493/499 (99%)	201/202 (100%)	196/200 (98%)	96/97 (99%)
Sidechain	658/818 (80%)	443/530 (84%)	203/254 (80%)	12/34 (35%)
Aromatic	54/75 (72%)	28/37 (76%)	25/31 (81%)	1/7 (14%)
Overall	1205/1392 (87%)	672/769 (87%)	424/485 (87%)	109/138 (79%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 88%, i.e. 1530 atoms were assigned a chemical shift out of a possible 1747. 0 out of 17 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	636/646 (98%)	259/261 (99%)	253/260 (97%)	124/125 (99%)
Sidechain	822/1007 (82%)	553/648 (85%)	255/319 (80%)	14/40 (35%)
Aromatic	72/94 (77%)	37/46 (80%)	34/41 (83%)	1/7 (14%)
Overall	1530/1747 (88%)	849/955 (89%)	542/620 (87%)	139/172 (81%)

7.1.4 Statistically unusual chemical shifts (i)

The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, ppm	Expected range, ppm	Z-score
1	A	110	ARG	NE	111.13	$76.53 - 92.65$	16.5
1	A	30	ARG	NE	111.05	$76.53 - 92.65$	16.4
1	A	94	ARG	NE	109.92	$76.53 - 92.65$	15.7
1	A	10	GLU	HG2	0.69	$1.24 - 3.30$	-7.7
1	A	10	GLU	HG3	0.95	$1.20 - 3.30$	-6.2

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:
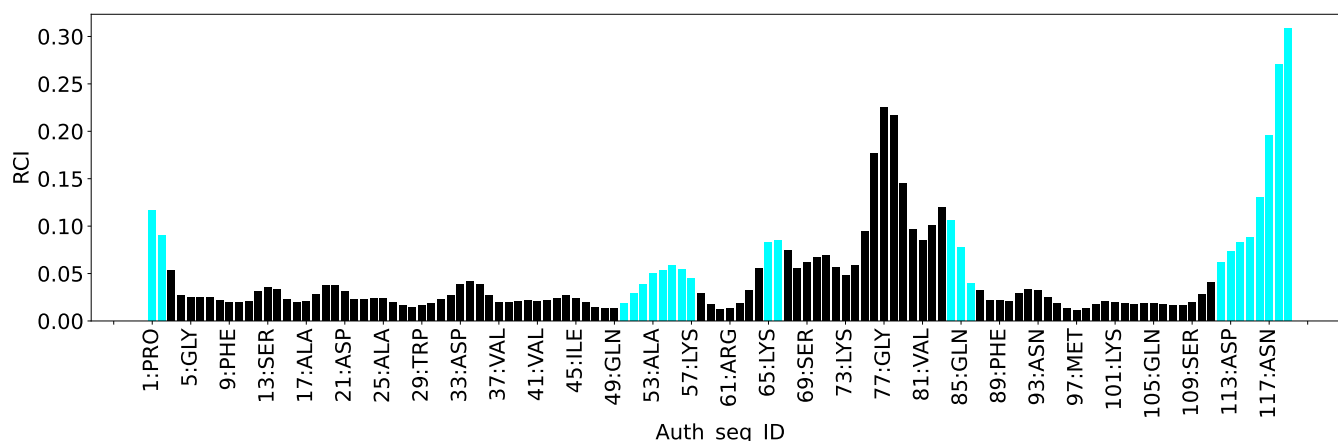
Random coil index (RCI) for chain B:
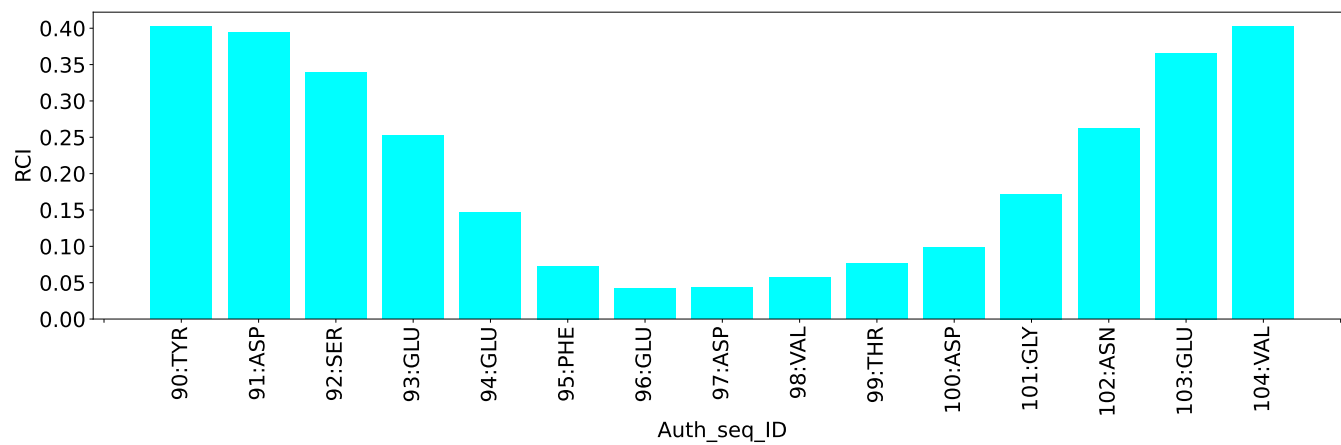
8 NMR restraints analysis ⓘ

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	1625
Intra-residue ($\lvert i\text{-}j \rvert$=0)	522
Sequential ($\lvert i\text{-}j \rvert$=1)	359
Medium range ($\lvert i\text{-}j \rvert$>1 and $\lvert i\text{-}j \rvert$<5)	200
Long range ($\lvert i\text{-}j \rvert$≥5)	484
Inter-chain	24
Hydrogen bond restraints	36
Disulfide bond restraints	0
Total dihedral-angle restraints	148
Number of unmapped restraints	0
Number of restraints per residue	11.0
Number of long range restraints per residue[1]	3.2

[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)	7.0	0.2
0.2-0.5 (Medium)	2.5	0.42
>0.5 (Large)	None	None

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

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

Bins (°)	Average number of violations per model	Max (°)
1.0-10.0 (Small)	1.2	2.34
10.0-20.0 (Medium)	None	None
>20.0 (Large)	None	None

9 Distance violation analysis ⓘ

9.1 Summary of distance violations ⓘ

The following table shows the summary of distance violations in different restraint categories based on the sequence separation of the atoms involved. Each category is further sub-divided into three sub-categories based on the atoms involved. Violations less than 0.1 Å are not included in the statistics.

Restraints type	Count	%[1]	Violated[3]			Consistently Violated[4]		
			Count	%[2]	%[1]	Count	%[2]	%[1]
Intra-residue (|i-j|=0)	522	32.1	5	1.0	0.3	2	0.4	0.1
Backbone-Backbone	5	0.3	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	362	22.3	5	1.4	0.3	2	0.6	0.1
Sidechain-Sidechain	155	9.5	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	359	22.1	16	4.5	1.0	2	0.6	0.1
Backbone-Backbone	161	9.9	11	6.8	0.7	1	0.6	0.1
Backbone-Sidechain	188	11.6	5	2.7	0.3	1	0.5	0.1
Sidechain-Sidechain	10	0.6	0	0.0	0.0	0	0.0	0.0
Medium range (|i-j|>1 & |i-j|<5)	200	12.3	5	2.5	0.3	0	0.0	0.0
Backbone-Backbone	70	4.3	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	94	5.8	2	2.1	0.1	0	0.0	0.0
Sidechain-Sidechain	36	2.2	3	8.3	0.2	0	0.0	0.0
Long range (|i-j|≥5)	484	29.8	5	1.0	0.3	0	0.0	0.0
Backbone-Backbone	83	5.1	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	210	12.9	1	0.5	0.1	0	0.0	0.0
Sidechain-Sidechain	191	11.8	4	2.1	0.2	0	0.0	0.0
Inter-chain	24	1.5	1	4.2	0.1	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	4	0.2	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	20	1.2	1	5.0	0.1	0	0.0	0.0
Hydrogen bond	36	2.2	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	1625	100.0	32	2.0	2.0	4	0.2	0.2
Backbone-Backbone	319	19.6	11	3.4	0.7	1	0.3	0.1
Backbone-Sidechain	894	55.0	13	1.5	0.8	3	0.3	0.2
Sidechain-Sidechain	412	25.4	8	1.9	0.5	0	0.0	0.0

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

9.1.1   Bar chart : Distribution of distance restraints and violations ⓘ
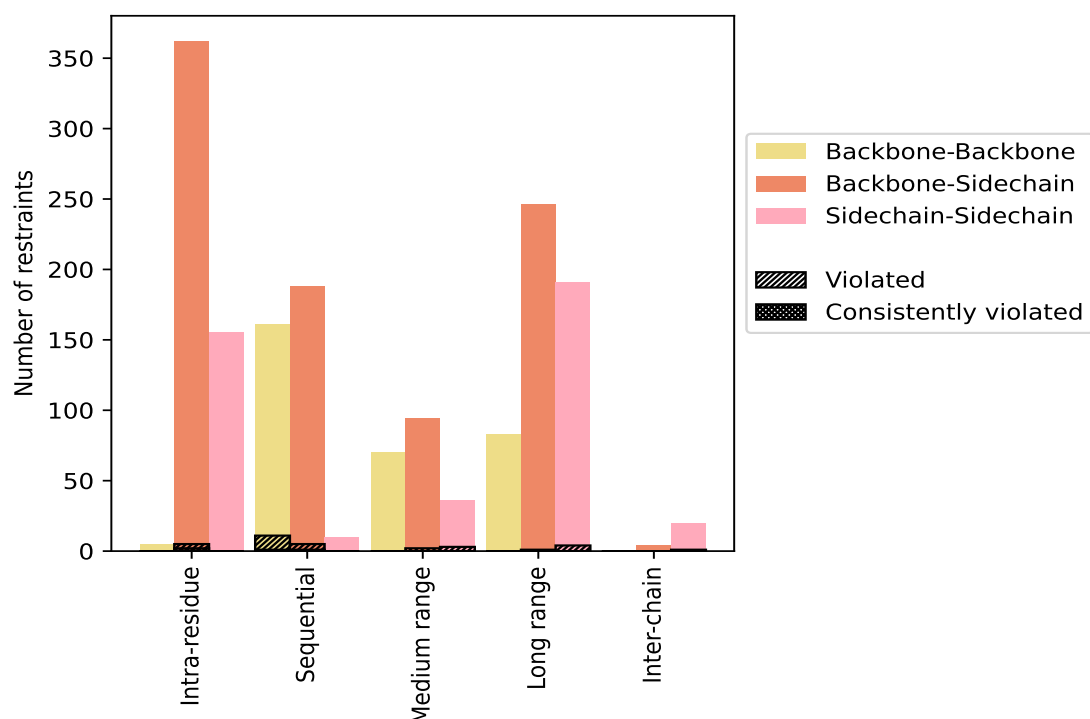
Violated and consistently violated restraints are shown using different hatch patterns in their respective categories. The hydrogen bonds and disulfied bonds are counted in their appropriate category on the x-axis

9.2   Distance violation statistics for each model ⓘ

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

Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
1	2	4	1	1	0	8	0.2	0.36	0.08	0.2
2	4	7	0	1	0	12	0.17	0.35	0.07	0.14
3	2	3	0	1	0	6	0.18	0.34	0.07	0.16
4	4	6	1	0	0	11	0.16	0.37	0.08	0.13
5	2	5	0	1	0	8	0.18	0.36	0.08	0.16
6	4	8	1	1	0	14	0.16	0.33	0.06	0.13
7	2	5	1	1	1	10	0.16	0.34	0.07	0.13
8	4	6	0	1	0	11	0.16	0.42	0.08	0.13
9	4	5	1	0	0	10	0.16	0.39	0.08	0.13
10	2	5	1	1	1	10	0.18	0.36	0.07	0.16

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| Model ID | Number of violations | | | | | | Mean (Å) | Max (Å) | SD[6] (Å) | Median (Å) |
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
11	4	7	0	2	0	13	0.15	0.36	0.07	0.12
12	3	5	0	1	1	10	0.17	0.35	0.09	0.12
13	3	6	1	0	0	10	0.17	0.36	0.07	0.13
14	4	4	0	0	0	8	0.15	0.38	0.09	0.12
15	2	5	2	0	0	9	0.21	0.36	0.07	0.21
16	4	5	1	0	0	10	0.16	0.36	0.08	0.14
17	4	5	0	3	0	12	0.16	0.36	0.07	0.13
18	4	5	0	0	1	10	0.18	0.36	0.07	0.16
19	4	8	1	2	0	15	0.15	0.36	0.07	0.12
20	2	7	1	2	1	13	0.15	0.35	0.07	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　ⓘ
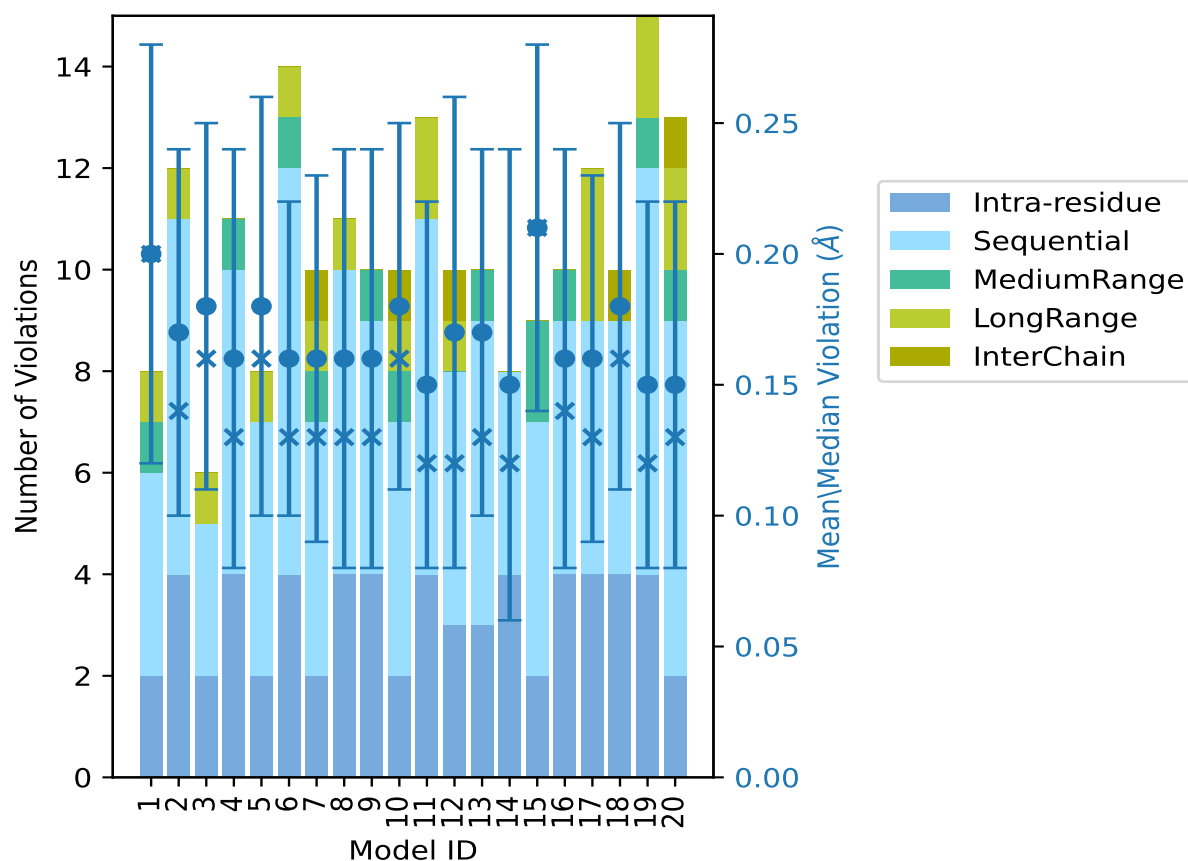
The mean(dot),median(x) and the standard deviation are shown in blue with respect to the y axis on the right

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, 1557(IR:517, SQ:343, MR:195, LR:479, IC:23) 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]	%
1	1	2	2	0	6	1	5.0
0	4	2	1	0	7	2	10.0
0	3	0	0	0	3	3	15.0
0	2	0	1	0	3	4	20.0
0	0	0	0	1	1	5	25.0
0	1	1	0	0	2	6	30.0
0	1	0	0	0	1	7	35.0
0	0	0	0	0	0	8	40.0
0	0	0	0	0	0	9	45.0
0	0	0	1	0	1	10	50.0
1	0	0	0	0	1	11	55.0
1	0	0	0	0	1	12	60.0
0	0	0	0	0	0	13	65.0
0	0	0	0	0	0	14	70.0
0	0	0	0	0	0	15	75.0
0	2	0	0	0	2	16	80.0
0	0	0	0	0	0	17	85.0
0	0	0	0	0	0	18	90.0
0	0	0	0	0	0	19	95.0
2	2	0	0	0	4	20	100.0

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

9.3.1 Bar graph : Distance violation statistics for the ensemble ⓘ
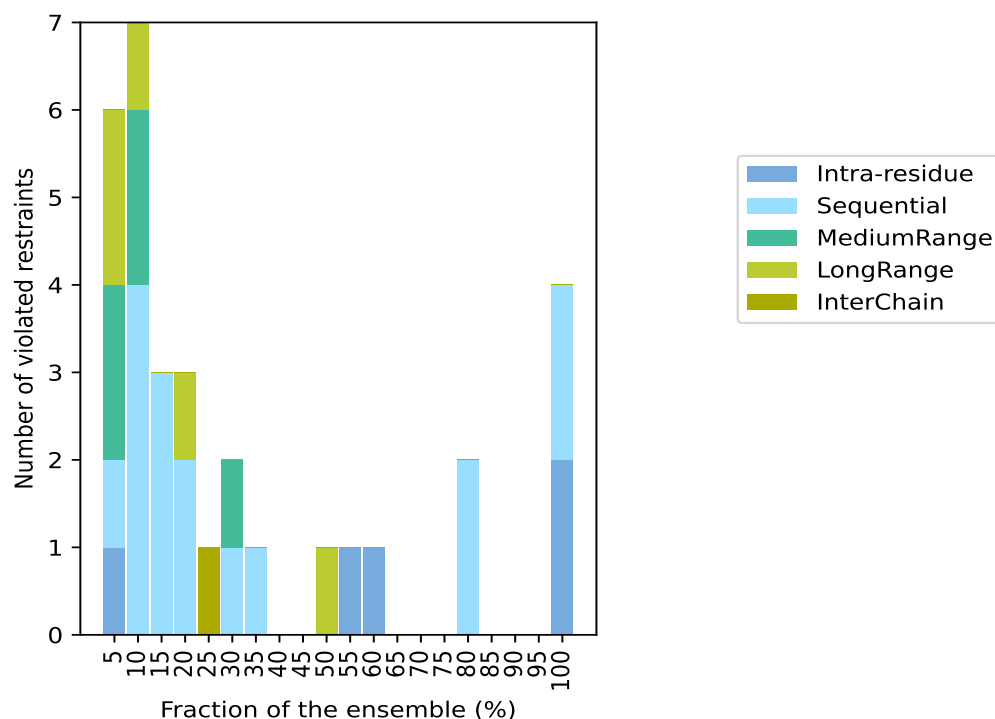
9.4 Most violated distance restraints in the ensemble ⓘ

9.4.1 Histogram : Distribution of mean distance violations ⓘ

The following histogram shows the distribution of the average value of the violation. The average is calculated for each restraint that is violated in more than one model over all the violated models in the ensemble
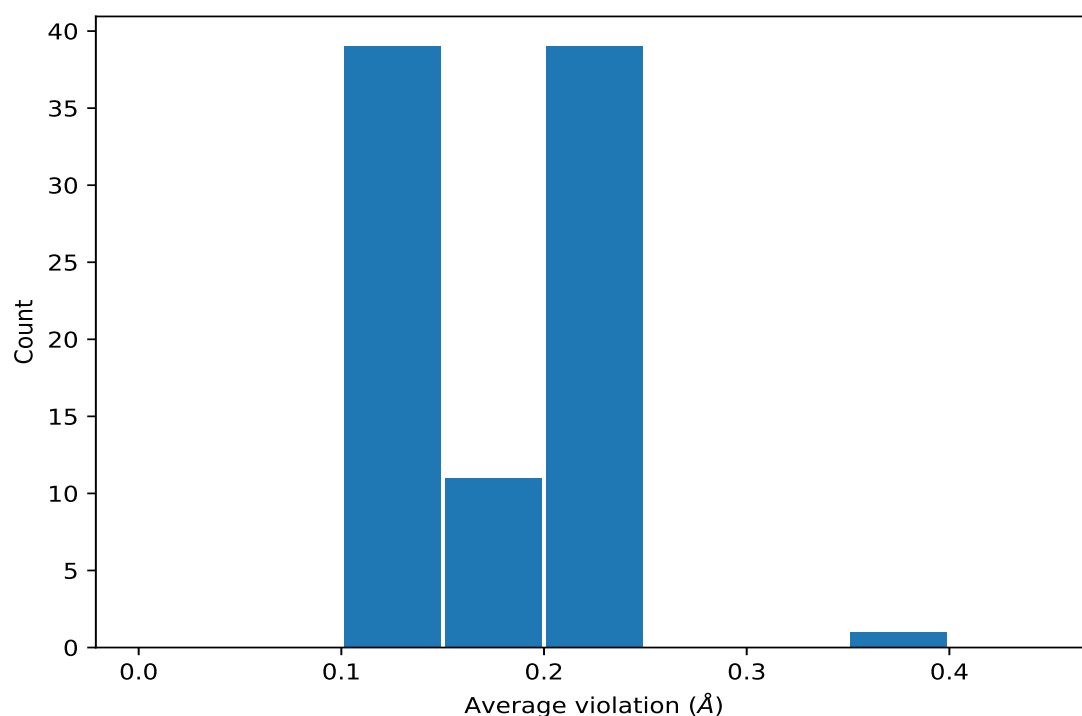
9.4.2   Table: Most violated distance restraints ⓘ

The following table provides the mean and the standard deviation of 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)
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	20	0.36	0.02	0.36
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	20	0.18	0.04	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	20	0.18	0.04	0.19
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	20	0.12	0.01	0.12
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	20	0.12	0.01	0.12
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	16	0.21	0.02	0.22
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	16	0.18	0.0	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	16	0.18	0.0	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	16	0.18	0.0	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	16	0.18	0.0	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	16	0.18	0.0	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	16	0.18	0.0	0.18
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	12	0.11	0.01	0.11
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	11	0.14	0.0	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	10	0.13	0.01	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	10	0.13	0.01	0.13

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	7	0.18	0.02	0.16
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	6	0.1	0.0	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	6	0.1	0.0	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	6	0.1	0.0	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	6	0.1	0.0	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	6	0.1	0.0	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	6	0.1	0.0	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	6	0.1	0.0	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	6	0.1	0.0	0.1
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	5	0.2	0.06	0.19

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Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	5	0.2	0.06	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	5	0.2	0.06	0.19
(1,474)	1:67:A:ASP:H	1:66:A:VAL:HB	4	0.14	0.02	0.14
(1,706)	1:103:A:THR:H	1:102:A:MET:HA	4	0.12	0.01	0.12
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB1	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB2	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB3	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB1	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB2	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB3	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB1	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB2	4	0.11	0.01	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB3	4	0.11	0.01	0.11
(1,736)	1:106:A:GLN:H	1:105:A:GLN:HA	3	0.12	0.0	0.12
(1,262)	1:34:A:GLY:H	1:33:A:ASP:HA	3	0.11	0.01	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB2	3	0.11	0.0	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB3	3	0.11	0.0	0.11
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE1	2	0.22	0.01	0.22
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE2	2	0.22	0.01	0.22
(1,1547)	1:110:A:ARG:HB2	1:107:A:ILE:HA	2	0.19	0.05	0.19
(1,1547)	1:110:A:ARG:HB3	1:107:A:ILE:HA	2	0.19	0.05	0.19
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD21	2	0.14	0.02	0.14
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD22	2	0.14	0.02	0.14
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD23	2	0.14	0.02	0.14
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD21	2	0.14	0.02	0.14
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD22	2	0.14	0.02	0.14
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD23	2	0.14	0.02	0.14
(1,1)	1:2:A:SER:H	1:1:A:PRO:HA	2	0.12	0.0	0.12
(1,517)	1:76:A:GLU:H	1:75:A:ASN:HA	2	0.12	0.0	0.12
(1,523)	1:77:A:GLY:H	1:76:A:GLU:HA	2	0.11	0.0	0.11
(1,248)	1:32:A:THR:H	1:33:A:ASP:HA	2	0.1	0.0	0.1

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

9.5 All violated distance restraints ⓘ

9.5.1 Histogram : Distribution of distance violations ⓘ

The following histogram shows the distribution of the absolute value of the violation for all violated restraints in the ensemble.
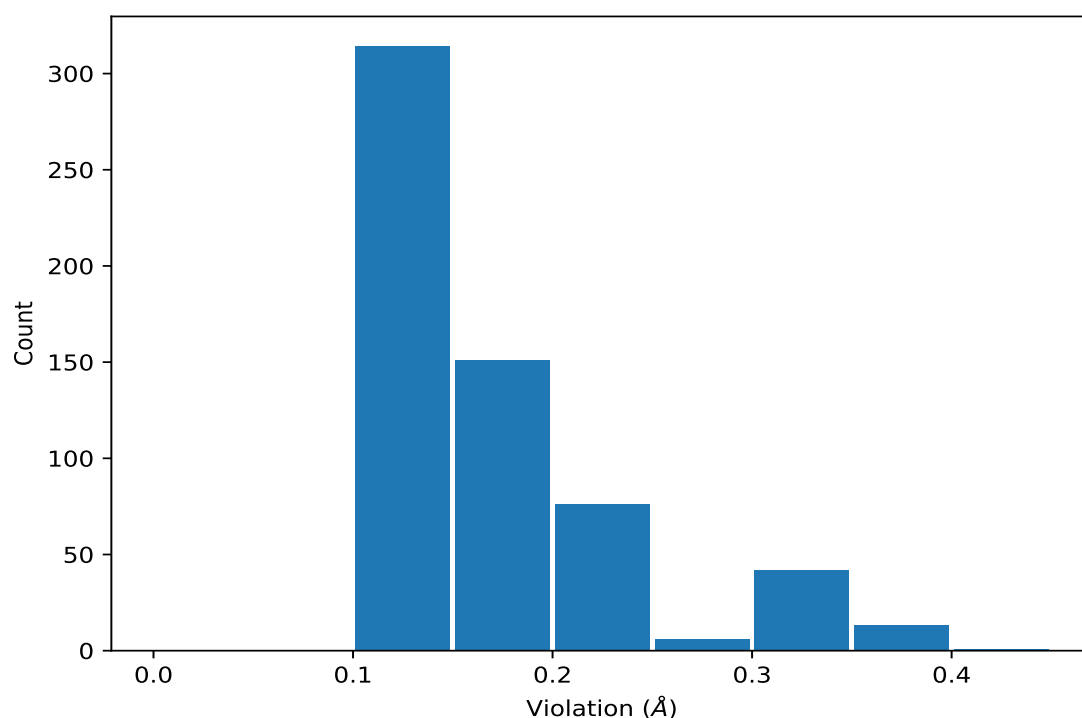
9.5.2 Table : All distance violations ⓘ

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)
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	8	0.42
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	9	0.39
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	14	0.38
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	4	0.37
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	1	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	5	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	10	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	11	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	13	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	15	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	16	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	17	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	18	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	19	0.36
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	2	0.35
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	12	0.35

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	20	0.35
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	3	0.34
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	7	0.34
(1,1565)	1:67:A:ASP:H	1:66:A:VAL:HA	6	0.33
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	12	0.31
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	12	0.31
(1,1548)	1:112:A:LYS:HE2	1:108:A:ILE:HG21	15	0.28
(1,1548)	1:112:A:LYS:HE2	1:108:A:ILE:HG22	15	0.28

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1548)	1:112:A:LYS:HE2	1:108:A:ILE:HG23	15	0.28
(1,1548)	1:112:A:LYS:HE3	1:108:A:ILE:HG21	15	0.28
(1,1548)	1:112:A:LYS:HE3	1:108:A:ILE:HG22	15	0.28
(1,1548)	1:112:A:LYS:HE3	1:108:A:ILE:HG23	15	0.28
(1,1547)	1:110:A:ARG:HB2	1:107:A:ILE:HA	1	0.24
(1,1547)	1:110:A:ARG:HB3	1:107:A:ILE:HA	1	0.24
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	6	0.24
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	7	0.24
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE1	13	0.23
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE2	13	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	1	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	1	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	4	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	4	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	5	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	5	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	6	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	6	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	15	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	15	0.23
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	2	0.23
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	20	0.23
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	9	0.22
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	9	0.22
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	18	0.22
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	18	0.22
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	12	0.22
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	15	0.22
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	16	0.22
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	17	0.22
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	18	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	18	0.21
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	18	0.21
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE1	15	0.21
(1,1546)	1:108:A:ILE:HA	1:111:A:TYR:HE2	15	0.21
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	2	0.21
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	2	0.21
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	2	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	1	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	5	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	10	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	11	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	18	0.21
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	19	0.21
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	8	0.2
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	13	0.2
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	4	0.2
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	10	0.19

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	10	0.19
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	10	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	16	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	16	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	16	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	16	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	16	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	16	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	3	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	3	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	11	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	11	0.19

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	17	0.19
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	17	0.19
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	1	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	2	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	4	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	5	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	6	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	7	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	8	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	8	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	8	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	8	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	8	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	8	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	10	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	11	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	12	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	15	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	17	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	18	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	19	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	19	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	19	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	19	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	19	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	19	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG11	20	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG12	20	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG13	20	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG21	20	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG22	20	0.18
(1,1553)	1:67:A:ASP:H	1:66:A:VAL:HG23	20	0.18
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	19	0.18
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	19	0.18
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	7	0.17
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	7	0.17
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	10	0.17
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	10	0.17
(1,474)	1:67:A:ASP:H	1:66:A:VAL:HB	3	0.17
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	13	0.16
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	13	0.16
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	6	0.16
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	10	0.16
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	15	0.16
(1,1525)	1:25:A:ALA:H	1:24:A:PRO:HA	20	0.16
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD21	10	0.15
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD22	10	0.15
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD23	10	0.15
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD21	10	0.15
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD22	10	0.15
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD23	10	0.15
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	11	0.15
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	11	0.15
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	20	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	20	0.14
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	20	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	20	0.14
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	20	0.14
(1,1547)	1:110:A:ARG:HB2	1:107:A:ILE:HA	9	0.14
(1,1547)	1:110:A:ARG:HB3	1:107:A:ILE:HA	9	0.14
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	14	0.14
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	14	0.14
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	16	0.14
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	16	0.14
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	1	0.14
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	6	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	3	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	3	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	8	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	8	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	19	0.14
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	19	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	2	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	4	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	8	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	9	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	11	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	16	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	17	0.14
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	19	0.14
(1,474)	1:67:A:ASP:H	1:66:A:VAL:HB	9	0.14
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	16	0.14
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD11	2:98:B:VAL:HG23	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD12	2:98:B:VAL:HG23	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD13	2:98:B:VAL:HG23	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD21	2:98:B:VAL:HG23	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD22	2:98:B:VAL:HG23	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG11	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG12	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG13	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG21	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG22	7	0.13
(1,1569)	1:48:A:LEU:HD23	2:98:B:VAL:HG23	7	0.13
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	8	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	8	0.13
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	12	0.13
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	12	0.13
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	3	0.13
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	8	0.13
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	13	0.13
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	15	0.13
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	18	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	5	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	5	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	6	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	6	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	17	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	17	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	20	0.13
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	20	0.13
(1,736)	1:106:A:GLN:H	1:105:A:GLN:HA	20	0.13
(1,706)	1:103:A:THR:H	1:102:A:MET:HA	18	0.13
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	6	0.13
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	14	0.13
(1,639)	1:95:A:THR:H	1:95:A:THR:HB	18	0.13
(1,475)	1:67:A:ASP:H	1:66:A:VAL:H	8	0.13
(1,474)	1:67:A:ASP:H	1:66:A:VAL:HB	14	0.13
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	2	0.13
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	4	0.13
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	7	0.13
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	13	0.13
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	17	0.13
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB1	11	0.12
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB2	11	0.12
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB3	11	0.12
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB1	11	0.12
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB2	11	0.12
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB3	11	0.12
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB1	11	0.12
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB2	11	0.12
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB3	11	0.12
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD21	19	0.12
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD22	19	0.12
(1,1445)	1:104:A:LEU:HB2	1:48:A:LEU:HD23	19	0.12
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD21	19	0.12
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD22	19	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1445)	1:104:A:LEU:HB3	1:48:A:LEU:HD23	19	0.12
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	9	0.12
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	14	0.12
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	18	0.12
(1,1149)	1:48:A:LEU:HB2	1:108:A:ILE:HD11	7	0.12
(1,1149)	1:48:A:LEU:HB2	1:108:A:ILE:HD12	7	0.12
(1,1149)	1:48:A:LEU:HB2	1:108:A:ILE:HD13	7	0.12
(1,1149)	1:48:A:LEU:HB3	1:108:A:ILE:HD11	7	0.12
(1,1149)	1:48:A:LEU:HB3	1:108:A:ILE:HD12	7	0.12
(1,1149)	1:48:A:LEU:HB3	1:108:A:ILE:HD13	7	0.12
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	2	0.12
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	5	0.12
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	10	0.12
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	17	0.12
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	1	0.12
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	1	0.12
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG12	2	0.12
(1,886)	1:13:A:SER:HA	1:8:A:ILE:HG13	2	0.12
(1,736)	1:106:A:GLN:H	1:105:A:GLN:HA	13	0.12
(1,736)	1:106:A:GLN:H	1:105:A:GLN:HA	19	0.12
(1,706)	1:103:A:THR:H	1:102:A:MET:HA	13	0.12
(1,517)	1:76:A:GLU:H	1:75:A:ASN:HA	9	0.12
(1,262)	1:34:A:GLY:H	1:33:A:ASP:HA	6	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	3	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	6	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	8	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	9	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	12	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	14	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	15	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	18	0.12
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	20	0.12
(1,67)	1:11:A:LYS:H	1:10:A:GLU:HA	11	0.12
(1,1)	1:2:A:SER:H	1:1:A:PRO:HA	4	0.12
(1,1)	1:2:A:SER:H	1:1:A:PRO:HA	6	0.12
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB2	2	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB3	2	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB2	8	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB3	8	0.11
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG12	20	0.11
(1,1532)	1:108:A:ILE:H	1:108:A:ILE:HG13	20	0.11
(1,1480)	1:108:A:ILE:HD11	1:48:A:LEU:HD11	17	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1480)	1:108:A:ILE:HD11	1:48:A:LEU:HD12	17	0.11
(1,1480)	1:108:A:ILE:HD11	1:48:A:LEU:HD13	17	0.11
(1,1480)	1:108:A:ILE:HD12	1:48:A:LEU:HD11	17	0.11
(1,1480)	1:108:A:ILE:HD12	1:48:A:LEU:HD12	17	0.11
(1,1480)	1:108:A:ILE:HD12	1:48:A:LEU:HD13	17	0.11
(1,1480)	1:108:A:ILE:HD13	1:48:A:LEU:HD11	17	0.11
(1,1480)	1:108:A:ILE:HD13	1:48:A:LEU:HD12	17	0.11
(1,1480)	1:108:A:ILE:HD13	1:48:A:LEU:HD13	17	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB1	12	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB2	12	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB3	12	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB1	12	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB2	12	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB3	12	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB1	12	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB2	12	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB3	12	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB1	20	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB2	20	0.11
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB3	20	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB1	20	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB2	20	0.11
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB3	20	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB1	20	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB2	20	0.11
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB3	20	0.11
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	16	0.11
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	16	0.11
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	16	0.11
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	16	0.11
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	16	0.11
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	16	0.11
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	20	0.11
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	20	0.11
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	20	0.11
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	20	0.11
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	20	0.11
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	20	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	2	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	4	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	6	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	8	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	11	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	16	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	17	0.11
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	19	0.11
(1,1278)	1:66:A:VAL:HA	1:66:A:VAL:HB	13	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	4	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	11	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	12	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	16	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	19	0.11
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	20	0.11
(1,706)	1:103:A:THR:H	1:102:A:MET:HA	19	0.11
(1,523)	1:77:A:GLY:H	1:76:A:GLU:HA	6	0.11
(1,523)	1:77:A:GLY:H	1:76:A:GLU:HA	7	0.11
(1,517)	1:76:A:GLU:H	1:75:A:ASN:HA	12	0.11
(1,474)	1:67:A:ASP:H	1:66:A:VAL:HB	13	0.11
(1,262)	1:34:A:GLY:H	1:33:A:ASP:HA	11	0.11
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	1	0.11
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	5	0.11
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	10	0.11
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	11	0.11
(1,217)	1:29:A:TRP:H	1:29:A:TRP:HD1	19	0.11
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB2	16	0.1
(1,1537)	1:113:A:ASP:H	1:112:A:LYS:HB3	16	0.1
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB1	17	0.1
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB2	17	0.1
(1,1466)	1:107:A:ILE:HG21	1:25:A:ALA:HB3	17	0.1
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB1	17	0.1
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB2	17	0.1
(1,1466)	1:107:A:ILE:HG22	1:25:A:ALA:HB3	17	0.1
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB1	17	0.1
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB2	17	0.1
(1,1466)	1:107:A:ILE:HG23	1:25:A:ALA:HB3	17	0.1
(1,1399)	1:96:A:VAL:HG21	1:93:A:ASN:HB2	7	0.1
(1,1399)	1:96:A:VAL:HG21	1:93:A:ASN:HB3	7	0.1
(1,1399)	1:96:A:VAL:HG22	1:93:A:ASN:HB2	7	0.1
(1,1399)	1:96:A:VAL:HG22	1:93:A:ASN:HB3	7	0.1
(1,1399)	1:96:A:VAL:HG23	1:93:A:ASN:HB2	7	0.1
(1,1399)	1:96:A:VAL:HG23	1:93:A:ASN:HB3	7	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	4	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	4	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	4	0.1

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| Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	4	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	4	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	4	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	6	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	6	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	6	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	6	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	6	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	6	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	10	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	10	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	10	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	10	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	10	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	10	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB2	19	0.1
(1,1394)	1:96:A:VAL:HG11	1:93:A:ASN:HB3	19	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB2	19	0.1
(1,1394)	1:96:A:VAL:HG12	1:93:A:ASN:HB3	19	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB2	19	0.1
(1,1394)	1:96:A:VAL:HG13	1:93:A:ASN:HB3	19	0.1
(1,1385)	1:95:A:THR:HA	1:95:A:THR:HB	12	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	2	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	2	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	5	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	5	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	9	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	9	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	11	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	11	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	17	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	17	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD2	19	0.1
(1,1167)	1:51:A:THR:HA	1:52:A:PRO:HD3	19	0.1
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	7	0.1
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	9	0.1
(1,1085)	1:41:A:VAL:HA	1:40:A:VAL:HB	14	0.1
(1,706)	1:103:A:THR:H	1:102:A:MET:HA	20	0.1
(1,262)	1:34:A:GLY:H	1:33:A:ASP:HA	19	0.1
(1,248)	1:32:A:THR:H	1:33:A:ASP:HA	4	0.1
(1,248)	1:32:A:THR:H	1:33:A:ASP:HA	14	0.1

10　Dihedral-angle violation analysis ⓘ

10.1　Summary of dihedral-angle violations ⓘ

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

Angle type	Count	$\%^1$	Violated[3]			Consistently Violated[4]		
			Count	$\%^2$	$\%^1$	Count	$\%^2$	$\%^1$
PHI	74	50.0	2	2.7	1.4	1	1.4	0.7
PSI	74	50.0	1	1.4	0.7	0	0.0	0.0
Total	148	100.0	3	2.0	2.0	1	0.7	0.7

[1] percentage calculated with respect to total number of dihedral-angle restraints, [2] percentage calculated with respect to number of restraints in a particular dihedral-angle type, [3] violated in at least one model, [4] violated in all the models

10.1.1　Bar chart : Distribution of dihedral-angles and violations ⓘ
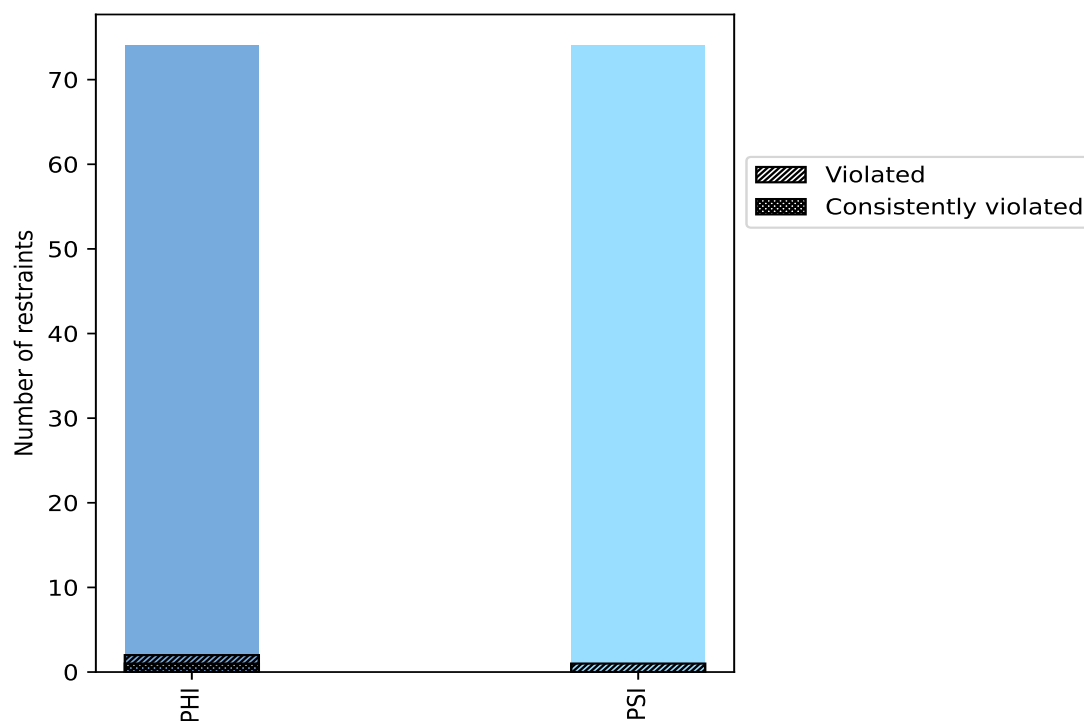

Violated and consistently violated restraints are shown using different hatch patterns in their respective categories

10.2　Dihedral-angle violation statistics for each model ⓘ

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

Model ID	Number of violations			Mean (°)	Max (°)	SD (°)	Median (°)
	PHI	PSI	Total				
1	1	0	1	1.82	1.82	0.0	1.82
2	1	0	1	1.08	1.08	0.0	1.08
3	1	0	1	1.35	1.35	0.0	1.35
4	2	1	3	1.57	2.34	0.54	1.25
5	1	0	1	1.34	1.34	0.0	1.34
6	1	0	1	1.72	1.72	0.0	1.72
7	1	0	1	1.44	1.44	0.0	1.44
8	1	0	1	1.11	1.11	0.0	1.11
9	1	0	1	1.24	1.24	0.0	1.24
10	1	0	1	1.32	1.32	0.0	1.32
11	1	0	1	1.73	1.73	0.0	1.73
12	1	0	1	1.5	1.5	0.0	1.5
13	2	1	3	1.59	2.27	0.49	1.38
14	1	0	1	1.32	1.32	0.0	1.32
15	1	0	1	1.41	1.41	0.0	1.41
16	1	0	1	1.42	1.42	0.0	1.42
17	1	0	1	1.42	1.42	0.0	1.42
18	1	0	1	1.23	1.23	0.0	1.23
19	1	0	1	1.6	1.6	0.0	1.6
20	1	0	1	1.23	1.23	0.0	1.23

10.2.1　Bar graph : Dihedral violation statistics for each model ⓘ
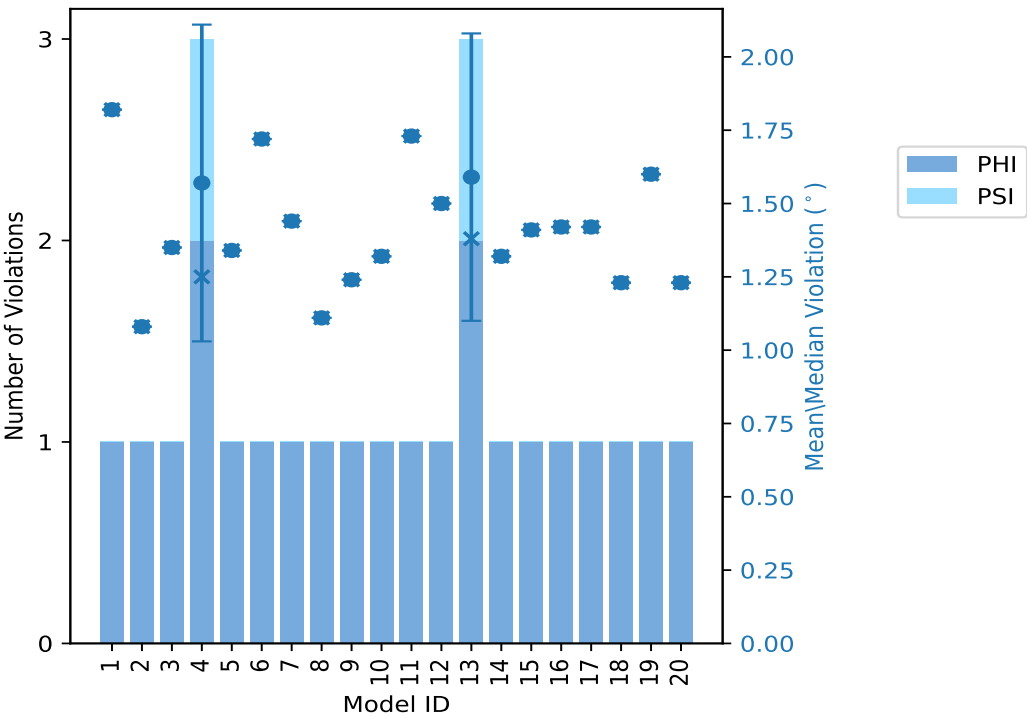
The mean(dot),median(x) and the standard deviation are shown in blue with respect to the y axis on the right

10.3　Dihedral-angle violation statistics for the ensemble ⓘ

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

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

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

[1] Number of models with violations

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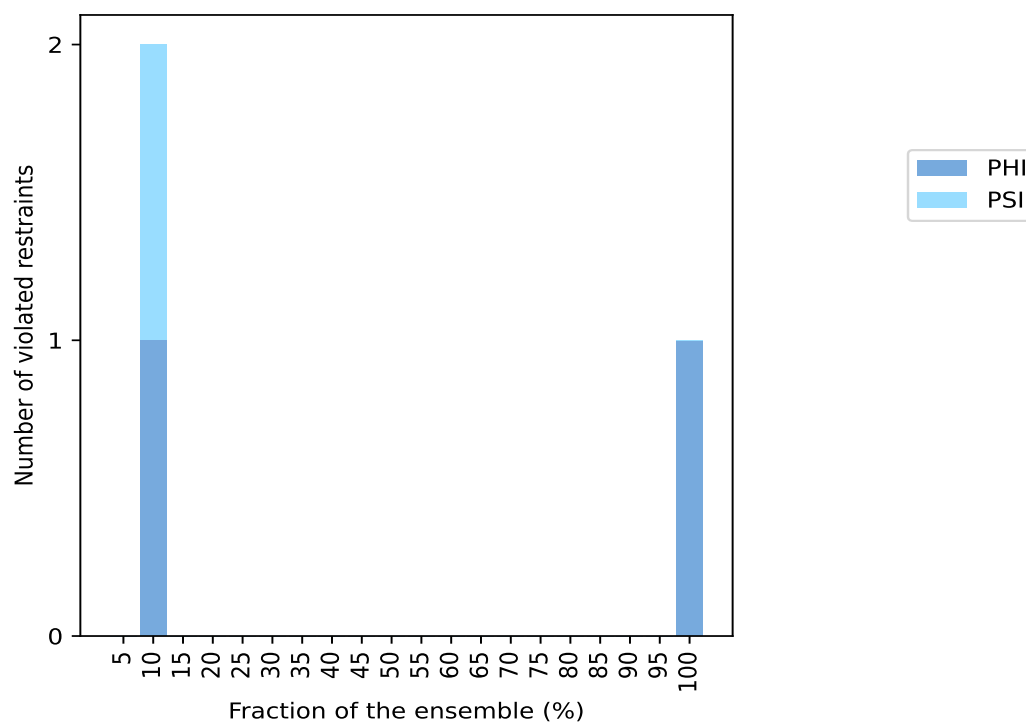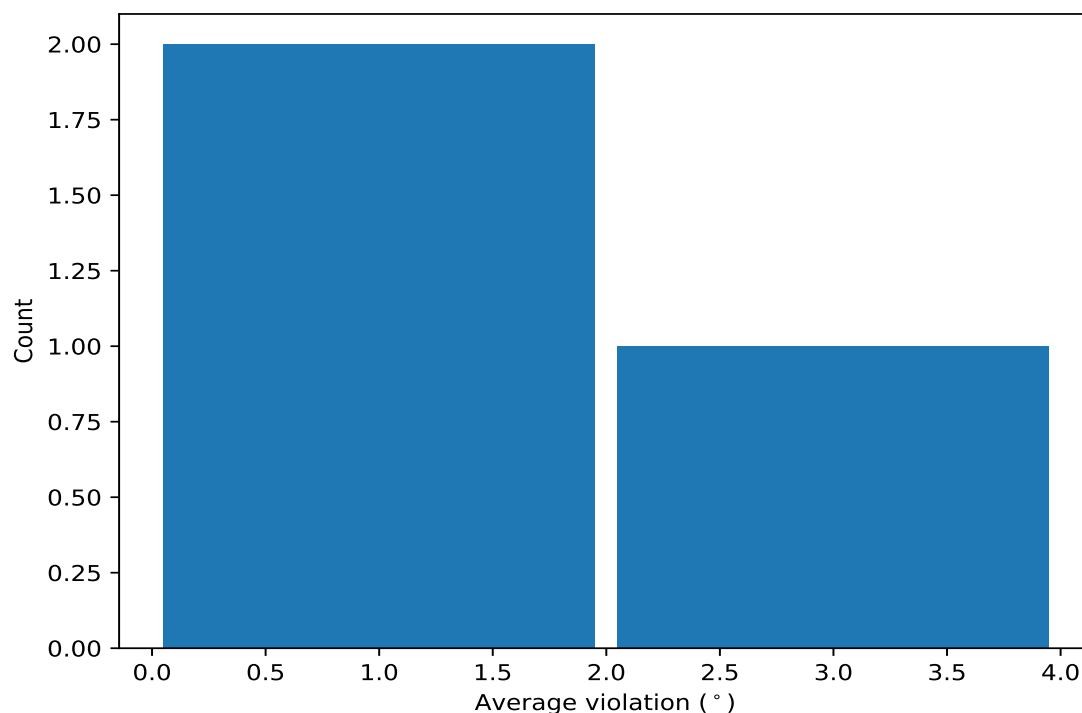

10.4　Most violated dihedral-angle restraints in the ensemble (i)

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

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

in the ensemble

10.4.2　Table: Most violated dihedral-angle restraints ⓘ

The following table provides the mean and the standard deviation of the violation for each restraint sorted by number of violated models and the mean value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint.
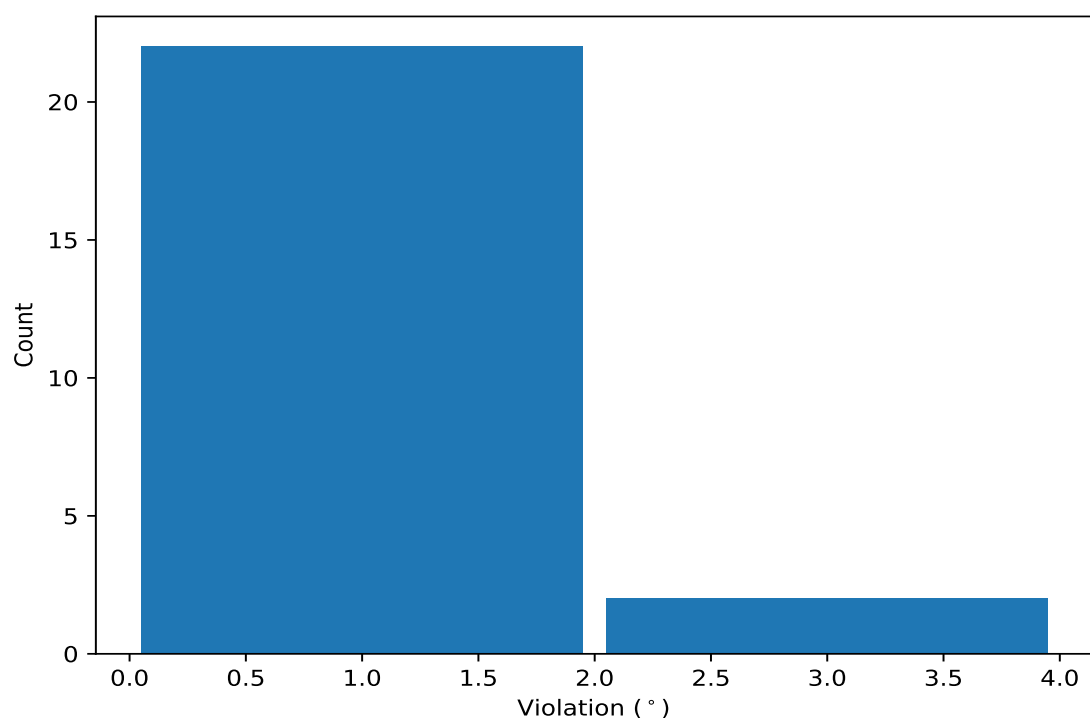
Key	Atom-1	Atom-2	Atom-3	Atom-4	Models[1]	Mean	SD[2]	Median
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	20	1.4	0.19	1.36
(1,59)	1:51:A:THR:C	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	2	2.3	0.03	2.3
(1,60)	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	1:53:A:ALA:N	2	1.12	0.0	1.12

[1] Number of violated models, [2]Standard deviation, All angle values are in degree (°)

10.5　All violated dihedral-angle restraints ⓘ

10.5.1　Histogram : Distribution of violations ⓘ

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

10.5.2   Table: All violated dihedral-angle restraints ⓘ

The following table lists the absolute value of the violation for each restraint in the ensemble sorted by its value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint.

Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,59)	1:51:A:THR:C	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	4	2.34
(1,59)	1:51:A:THR:C	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	13	2.27
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	1	1.82
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	11	1.73
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	6	1.72
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	19	1.6
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	12	1.5
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	7	1.44
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	16	1.42
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	17	1.42
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	15	1.41
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	13	1.38
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	3	1.35
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	5	1.34
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	10	1.32
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	14	1.32
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	4	1.25
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	9	1.24
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	18	1.23
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	20	1.23
(1,60)	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	1:53:A:ALA:N	4	1.13

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Key	Atom-1	Atom-2	Atom-3	Atom-4	Model ID	Violation (°)
(1,60)	1:52:A:PRO:N	1:52:A:PRO:CA	1:52:A:PRO:C	1:53:A:ALA:N	13	1.12
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	8	1.11
(1,45)	1:40:A:VAL:C	1:41:A:VAL:N	1:41:A:VAL:CA	1:41:A:VAL:C	2	1.08