WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB NMR Structure Validation Report ⓘ

Jun 6, 2023 – 01:38 pm BST

PDB ID	:	5JDP
BMRB ID	:	30065
Title	:	E73V mutant of the human voltage-dependent anion channel
Authors	:	Jaremko, M.; Jaremko, L.; Villinger, S.; Schmidt, C.; Giller, K.; Griesinger, C.; Becker, S.; Zweckstetter, M.
Deposited on	:	2016-04-17

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

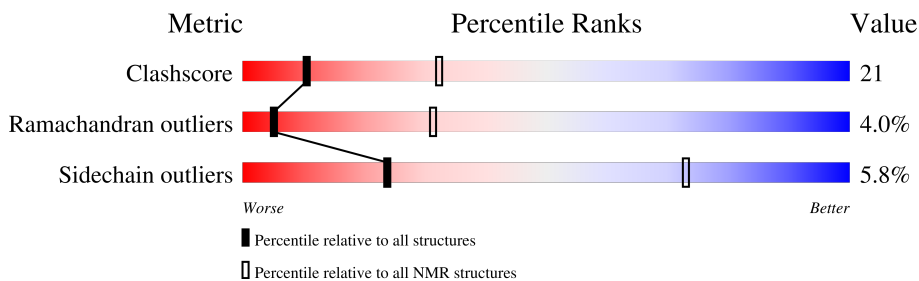|		
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
BMRB Restraints Analysis	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)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

1 Overall quality at a glance ⓘ

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

The overall completeness of chemical shifts assignment is 27%.

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		5.8%

Worse *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all NMR structures

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	285	58% 28% · 11%

2 Ensemble composition and analysis ⓘ

This entry contains 20 models. Model 4 is the overall representative, medoid model (most similar to other models).

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:2-A:18, A:24-A:89, A:93-A:103, A:109-A:197, A:202-A:211, A:216-A:250, A:254-A:265, A:271-A:283 (253)	0.96	4

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 4 single-model clusters were found.

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

3 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 4346 atoms, of which 2162 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Voltage-dependent anion-selective channel protein 1.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	285	4346	1379	2162	371	430	4	0

There are 4 discrepancies between the modelled and reference sequences:
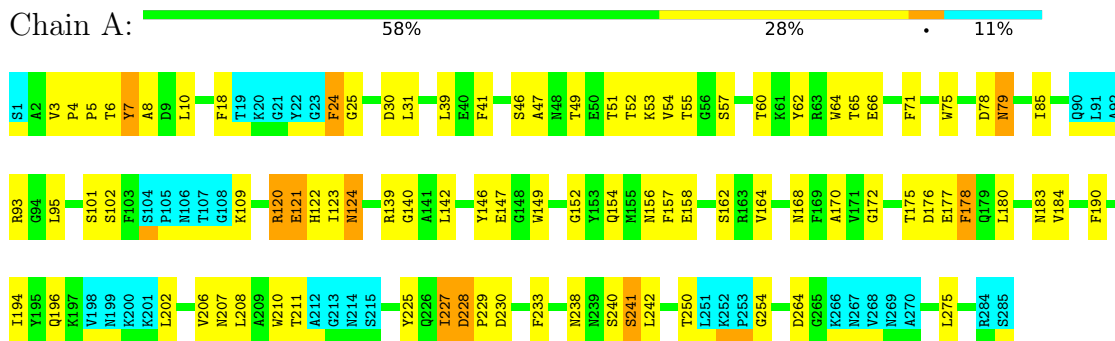
Chain	Residue	Modelled	Actual	Comment	Reference
A	1	SER	-	expression tag	UNP P21796
A	73	VAL	GLU	conflict	UNP P21796
A	284	ARG	-	expression tag	UNP P21796
A	285	SER	-	expression tag	UNP P21796

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.

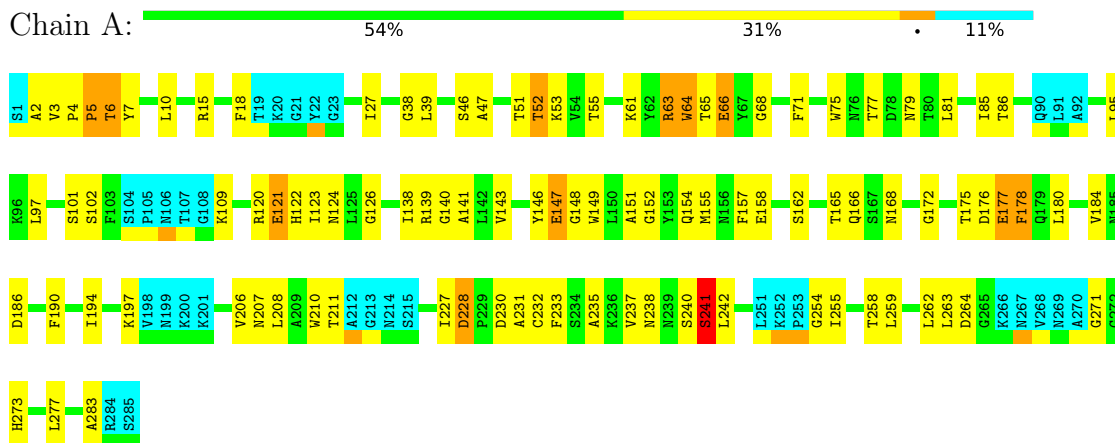- Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2 Scores per residue for each member of the ensemble
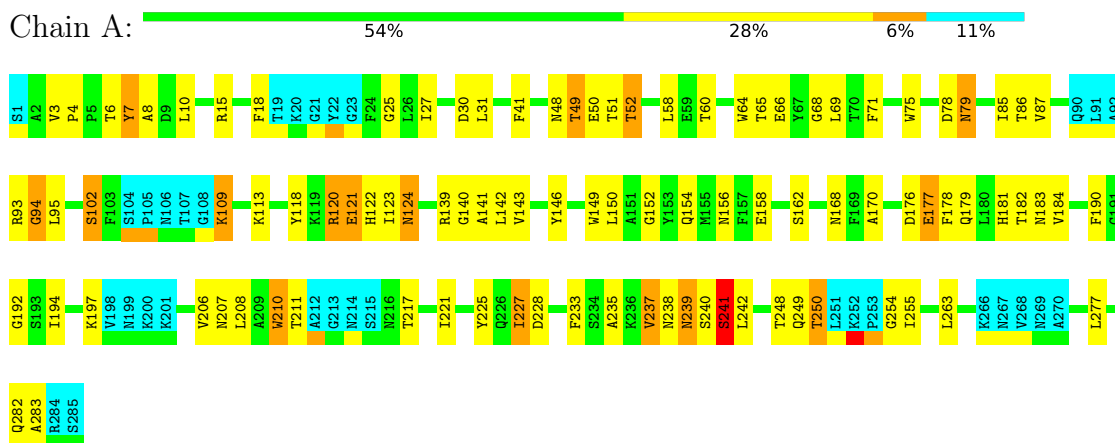
Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

- Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.2 Score per residue for model 2

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.3 Score per residue for model 3

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.4 Score per residue for model 4 (medoid)

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.5 Score per residue for model 5

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.6 Score per residue for model 6

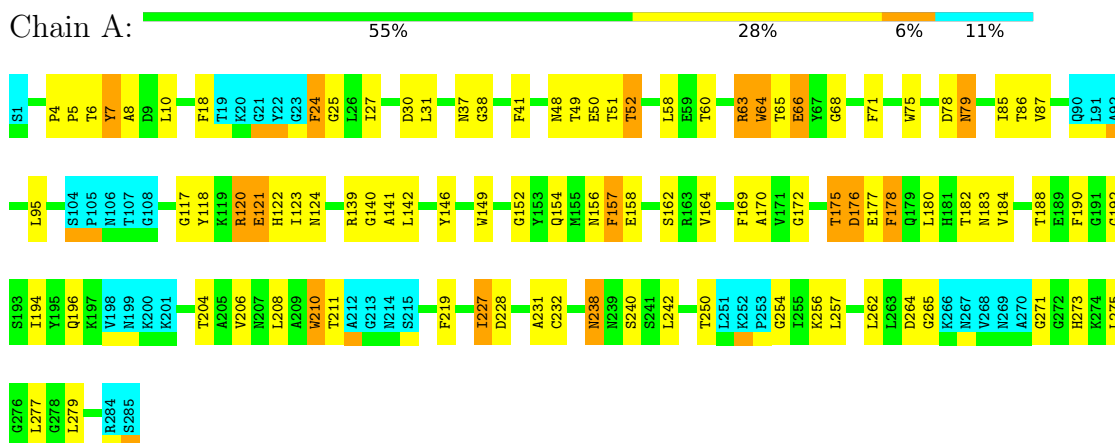• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.7 Score per residue for model 7

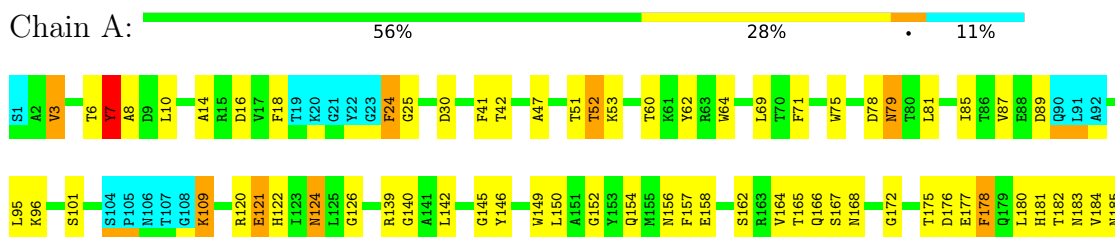• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.8 Score per residue for model 8

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

4.2.9 Score per residue for model 9

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

4.2.10 Score per residue for model 10

• Molecule 1: Voltage-dependent anion-selective channel protein 1
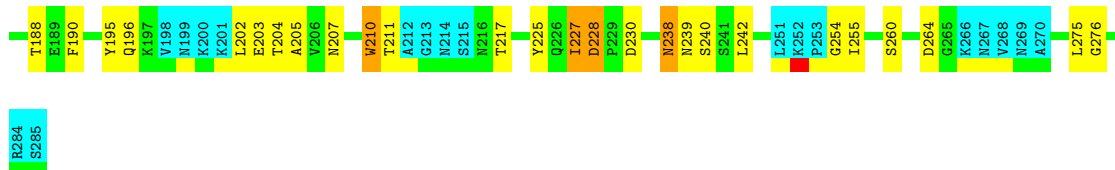
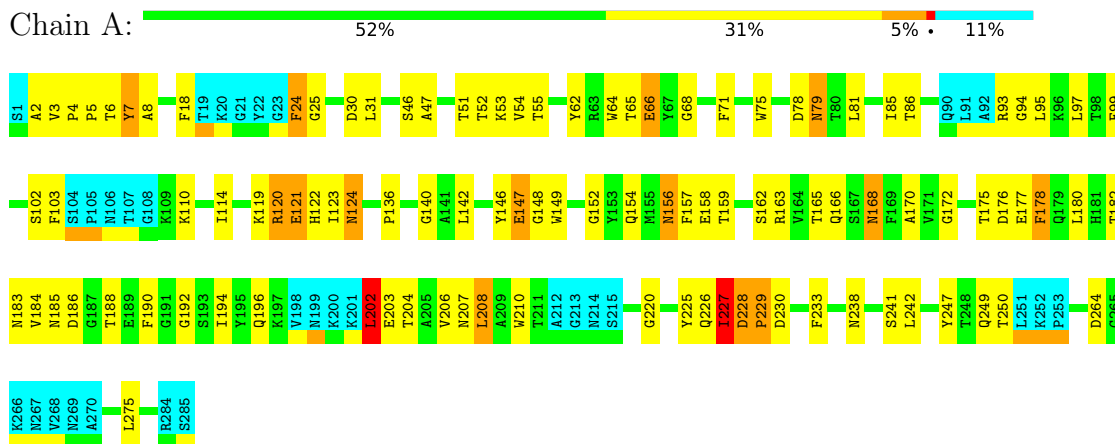Chain A:

4.2.11 Score per residue for model 11

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.12 Score per residue for model 12

• Molecule 1: Voltage-dependent anion-selective channel protein 1

4.2.13 Score per residue for model 13

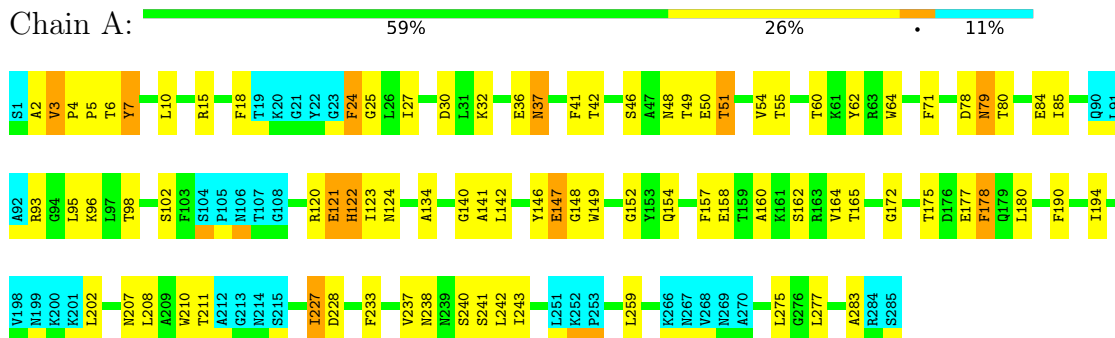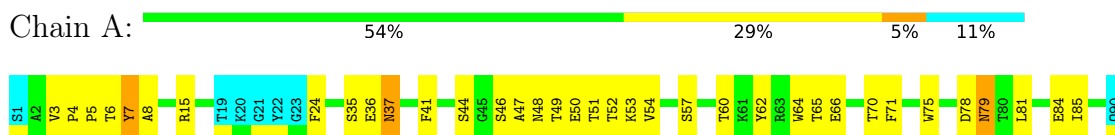● Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

57% 28% • 11%

4.2.14 Score per residue for model 14

● Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

52% 31% 5% 11%

4.2.15 Score per residue for model 15

● Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

52% 29% 7% 11%

L275 G276 L277 Q282 A283 R284 S285

4.2.16   Score per residue for model 16

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A: 52%   32%   •   11%

S1 A2 V3 P4 P5 T6 Y7 A8 D9 L10 S13 D16 V17 F18 T19 K20 G21 Y22 G23 F24 G25 D30 L31 F41 T42 S43 S44 G45 S46 A47 T51 T52 K53 V54 T55 G56 S57 T60 R63 W64 T65 E66 Y67 G68 F71 D78 N79 I85 T86

Q90 L91 A92 L95 K96 L97 S101 S102 F103 S104 P105 N106 T107 G108 G117 R120 E121 H122 I123 N124 P136 G140 A141 L142 Y146 W149 G152 Y153 Q154 M155 N156 F157 E158 T159 S162 R163 V164 T165 N168 F169 A170 V171 G172 Y173 K174 T175 F178 Q179

L180 H181 T182 N183 V184 N185 F190 G191 G192 S193 I194 Y195 Q196 K197 V198 N199 K200 K201 L202 E203 T204 A205 V206 N207 L208 A209 W210 T211 A212 G213 N214 S215 F219 G220 I221 A222 Y225 G226 I227 D228 F233 S234 A235 K236 V237 N238 N239 S240 S241 L242 T250 L251 K252 P253 G254

I255 S260 D264 G265 K266 N267 V268 N269 A270 G271 G272 L275 R284 S285

4.2.17   Score per residue for model 17

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A: 52%   32%   •   11%

S1 A2 V3 P4 P5 T6 Y7 A8 D9 L10 S13 D16 V17 F18 T19 K20 G21 Y22 G23 F24 G25 D30 L31 F41 T42 S43 S44 G45 S46 A47 T51 T52 K53 V54 T55 G56 S57 T60 R63 W64 T65 E66 Y67 G68 F71 D78 N79 I85 T86

Q90 L91 A92 L95 K96 L97 S101 S102 F103 S104 P105 N106 T107 G108 G117 R120 E121 H122 I123 N124 P136 G140 A141 L142 Y146 W149 G152 Y153 Q154 M155 N156 F157 E158 T159 S162 R163 V164 T165 N168 F169 A170 V171 G172 Y173 K174 T175 F178 Q179

L180 H181 T182 N183 V184 N185 F190 G191 G192 S193 I194 Y195 Q196 K197 V198 N199 K200 K201 L202 E203 T204 A205 V206 N207 L208 A209 W210 T211 A212 G213 N214 S215 F219 G220 I221 A222 Y225 G226 I227 D228 F233 S234 A235 K236 V237 N238 N239 S240 S241 L242 T250 L251 K252 P253 G254

I255 S260 D264 G265 K266 N267 V268 N269 A270 G271 G272 L275 R284 S285

4.2.18   Score per residue for model 18

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A: 53%   29%   6% •   11%

S1 A2 V3 P4 P5 T6 Y7 A8 D9 L10 G11 A14 R15 F18 T19 K20 G21 Y22 G23 F24 G25 L26 I27 D30 L31 L39 E40 F41 S44 G45 S46 A47 N48 T49 E50 T51 V54 T55 G56 S57 T60 K61 Y62 R63 W64 T65 E66 L69 T70 F71 T77

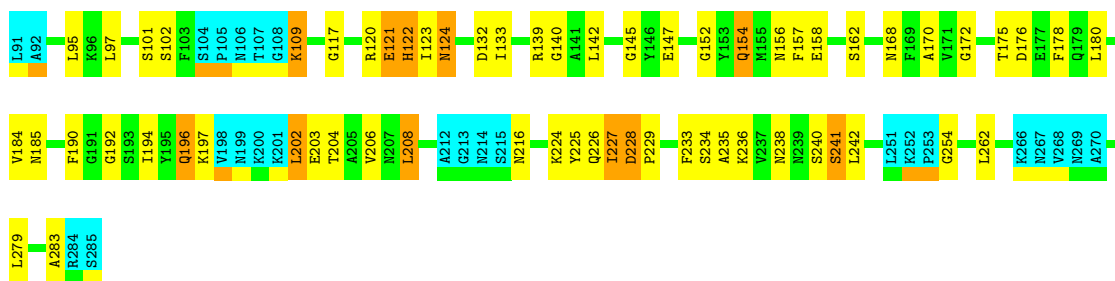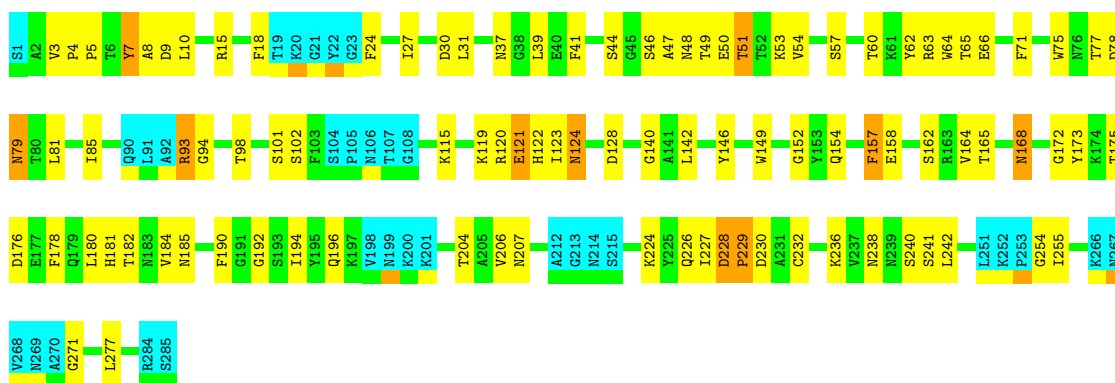### 4.2.19 Score per residue for model 19

• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

4.2.20 Score per residue for model 20

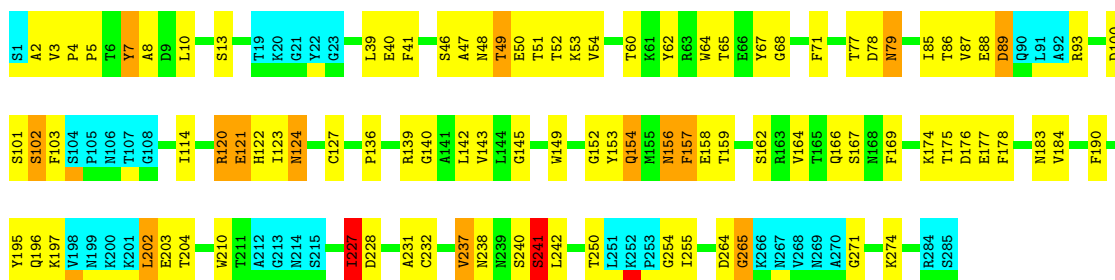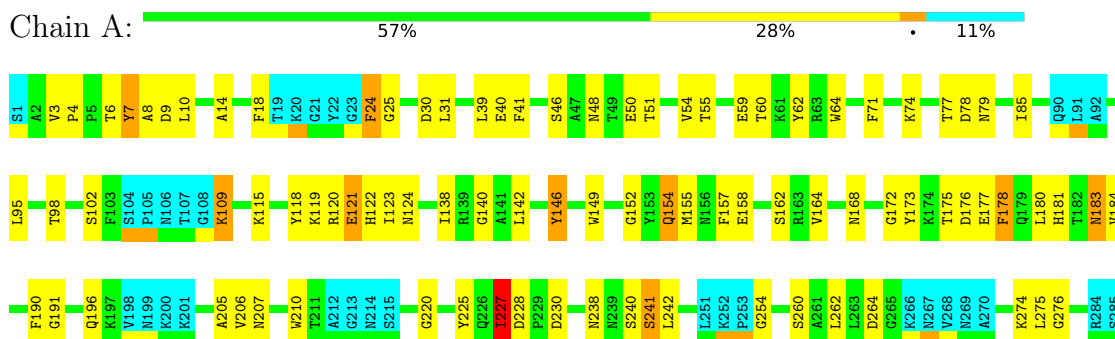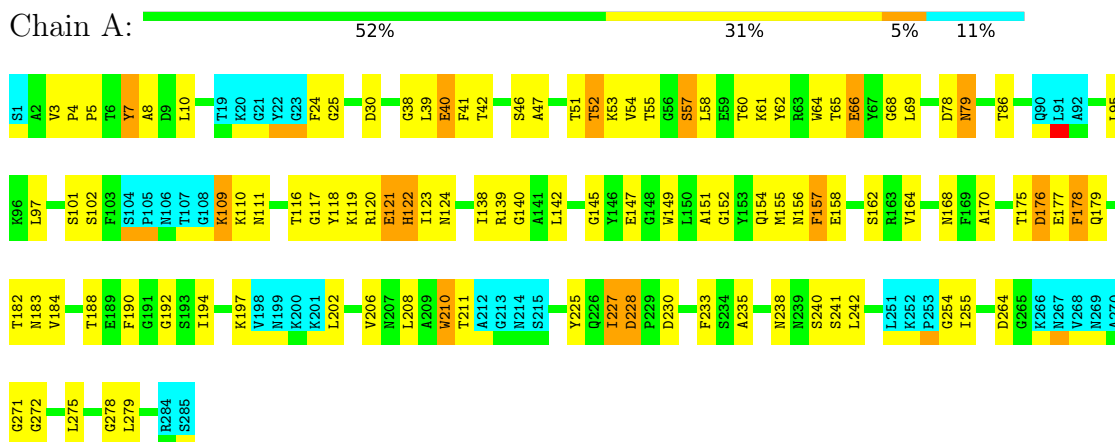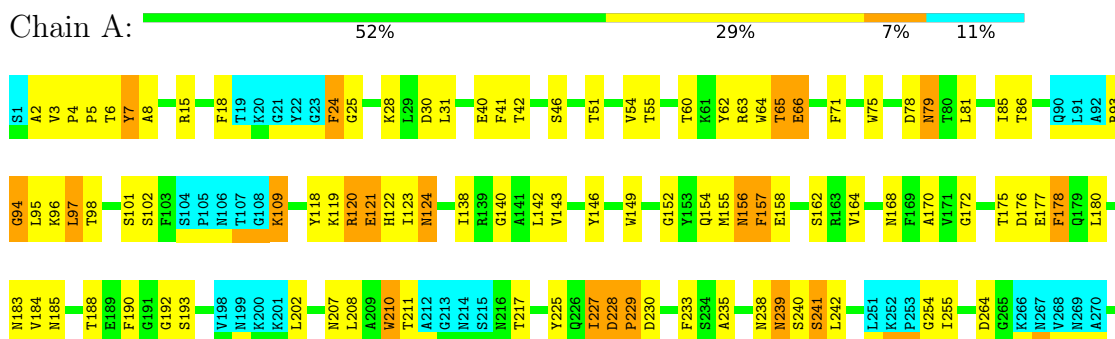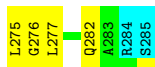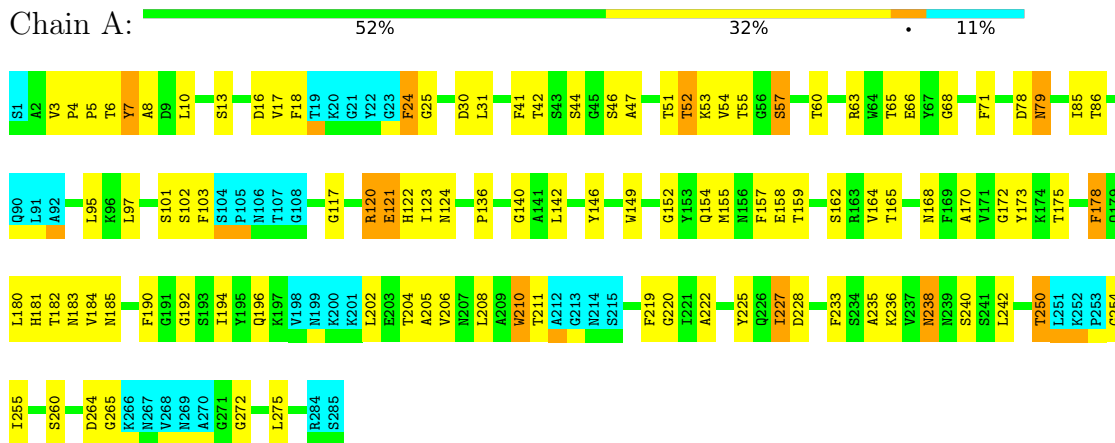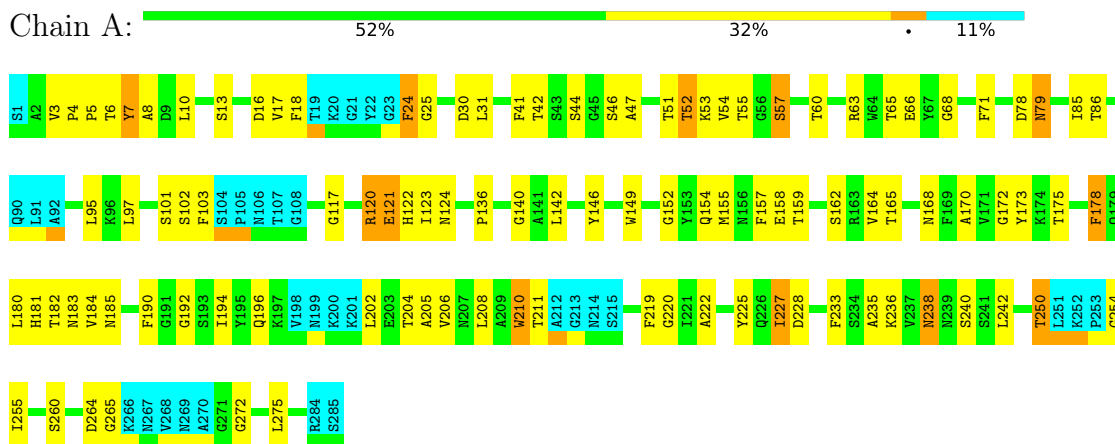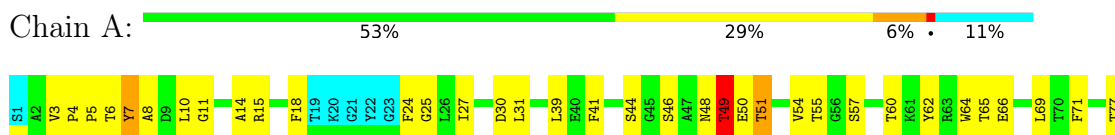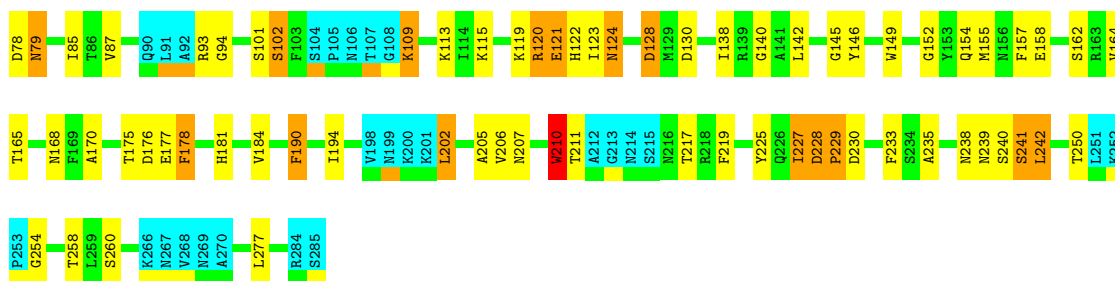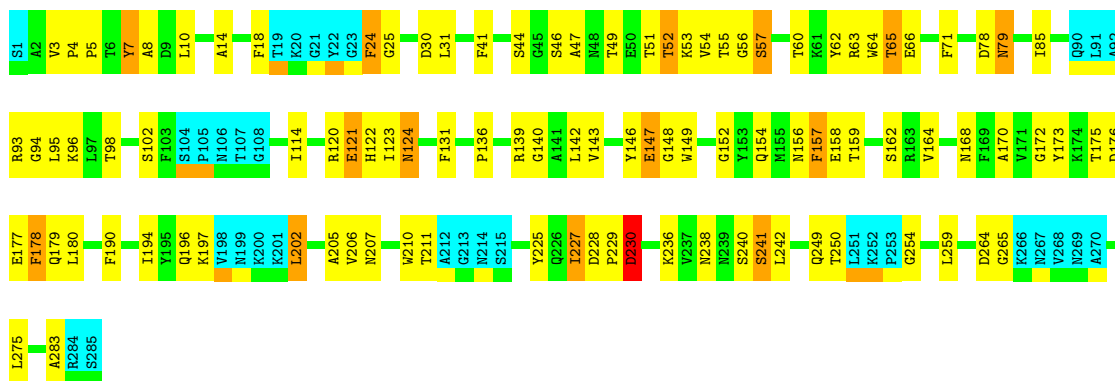• Molecule 1: Voltage-dependent anion-selective channel protein 1

Chain A:

5   Refinement protocol and experimental data overview ⓘ

Of the ? calculated structures, 20 were deposited, based on the following criterion: ?.

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

Software name	Classification	Version
Xplor-NIH	refinement	
Xplor-NIH	structure calculation	

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

Chemical shift file(s)	working_cs.cif
Number of chemical shift lists	1
Total number of shifts	971
Number of shifts mapped to atoms	971
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	27%

6 Model quality ⓘ

6.1 Standard geometry ⓘ

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#Z>5	RMSZ	#Z>5
1	A	0.69±0.01	0±0/1992 (0.0± 0.0%)	0.88±0.01	1±1/2694 (0.0± 0.0%)
All	All	0.69	0/39840 (0.0%)	0.88	23/53880 (0.0%)

There are no bond-length outliers.

All unique angle outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models Worst	Total
1	A	227	ILE	CA-CB-CG1	7.61	125.45	111.00	20	3
1	A	227	ILE	CA-CB-CG2	6.56	124.02	110.90	1	3
1	A	227	ILE	CB-CA-C	6.56	124.72	111.60	9	10
1	A	227	ILE	CG1-CB-CG2	6.48	125.65	111.40	6	4
1	A	227	ILE	CB-CG1-CD1	-5.49	98.52	113.90	13	2
1	A	210	TRP	CD1-NE1-CE2	5.03	113.53	109.00	18	1

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	1953	1920	1920	81±9
All	All	39060	38400	38400	1627

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	Total
1:A:238:ASN:ND2	1:A:242:LEU:H	0.92	1.60	3	4
1:A:238:ASN:HD21	1:A:242:LEU:H	0.79	1.20	3	4
1:A:259:LEU:HD22	1:A:259:LEU:N	0.77	1.93	11	2
1:A:63:ARG:O	1:A:64:TRP:CG	0.77	2.38	1	2
1:A:238:ASN:HD21	1:A:242:LEU:HD13	0.77	1.39	10	7
1:A:178:PHE:CE1	1:A:194:ILE:HG23	0.76	2.15	19	1
1:A:2:ALA:O	1:A:3:VAL:HG13	0.76	1.80	6	4
1:A:175:THR:HG21	1:A:178:PHE:CE1	0.74	2.17	9	1
1:A:146:TYR:O	1:A:148:GLY:N	0.73	2.21	5	6
1:A:7:TYR:CG	1:A:8:ALA:N	0.72	2.57	20	18
1:A:149:TRP:CD1	1:A:149:TRP:N	0.72	2.56	13	16
1:A:46:SER:O	1:A:54:VAL:HG13	0.70	1.86	18	3
1:A:5:PRO:O	1:A:124:ASN:ND2	0.69	2.24	6	2
1:A:7:TYR:CD2	1:A:8:ALA:N	0.68	2.61	4	9
1:A:10:LEU:HD11	1:A:181:HIS:CE1	0.67	2.24	4	2
1:A:87:VAL:O	1:A:87:VAL:HG23	0.67	1.90	2	1
1:A:242:LEU:HD12	1:A:242:LEU:N	0.66	2.05	8	7
1:A:114:ILE:HD12	1:A:131:PHE:CE2	0.66	2.25	19	1
1:A:184:VAL:HG13	1:A:190:PHE:CE2	0.66	2.25	2	7
1:A:10:LEU:HD23	1:A:150:LEU:HD13	0.66	1.67	2	1
1:A:210:TRP:CG	1:A:211:THR:N	0.66	2.64	3	7
1:A:142:LEU:O	1:A:152:GLY:HA2	0.66	1.91	20	19
1:A:10:LEU:HD21	1:A:181:HIS:CE1	0.66	2.25	16	2
1:A:5:PRO:O	1:A:6:THR:HG23	0.65	1.90	1	2
1:A:146:TYR:O	1:A:149:TRP:CD1	0.64	2.50	18	10
1:A:120:ARG:O	1:A:121:GLU:O	0.64	2.15	1	15
1:A:140:GLY:O	1:A:154:GLN:HA	0.64	1.92	13	19
1:A:62:TYR:CZ	1:A:64:TRP:CD1	0.64	2.86	5	2
1:A:18:PHE:CG	1:A:207:ASN:ND2	0.64	2.65	6	3
1:A:4:PRO:CB	1:A:10:LEU:HD11	0.64	2.23	19	2
1:A:228:ASP:N	1:A:229:PRO:CD	0.64	2.61	5	2
1:A:183:ASN:OD1	1:A:184:VAL:N	0.64	2.31	9	3
1:A:219:PHE:CE2	1:A:239:ASN:ND2	0.64	2.66	18	2
1:A:74:LYS:NZ	1:A:76:ASN:ND2	0.64	2.46	20	1
1:A:202:LEU:HD21	1:A:225:TYR:CE2	0.63	2.29	4	2
1:A:238:ASN:OD1	1:A:242:LEU:N	0.63	2.30	5	9
1:A:124:ASN:HD22	1:A:143:VAL:HG21	0.63	1.53	9	2
1:A:210:TRP:NE1	1:A:217:THR:OG1	0.63	2.31	18	1
1:A:87:VAL:O	1:A:87:VAL:HG13	0.63	1.94	3	2
1:A:238:ASN:C	1:A:238:ASN:HD22	0.63	1.97	4	4
1:A:178:PHE:CD1	1:A:196:GLN:NE2	0.62	2.67	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:175:THR:OG1	1:A:178:PHE:N	0.62	2.32	13	7
1:A:271:GLY:O	1:A:273:HIS:CE1	0.62	2.52	1	1
1:A:6:THR:HG22	1:A:141:ALA:HB3	0.62	1.71	3	2
1:A:5:PRO:N	1:A:119:LYS:HZ1	0.62	1.92	18	1
1:A:149:TRP:C	1:A:150:LEU:HD12	0.62	2.14	4	1
1:A:190:PHE:CD2	1:A:210:TRP:NE1	0.62	2.68	6	5
1:A:93:ARG:O	1:A:95:LEU:N	0.62	2.33	20	6
1:A:225:TYR:CE2	1:A:227:ILE:HB	0.62	2.30	16	5
1:A:178:PHE:CD1	1:A:178:PHE:N	0.62	2.67	12	2
1:A:71:PHE:CD2	1:A:85:ILE:HG23	0.61	2.30	10	5
1:A:184:VAL:HG13	1:A:190:PHE:CE1	0.61	2.30	7	8
1:A:238:ASN:ND2	1:A:242:LEU:HD13	0.61	2.09	7	5
1:A:4:PRO:O	1:A:124:ASN:ND2	0.61	2.34	9	5
1:A:7:TYR:CD1	1:A:8:ALA:N	0.61	2.68	8	4
1:A:178:PHE:CE2	1:A:194:ILE:HG23	0.61	2.31	2	2
1:A:62:TYR:CE1	1:A:64:TRP:NE1	0.61	2.68	9	7
1:A:233:PHE:CZ	1:A:235:ALA:HB2	0.61	2.31	16	10
1:A:190:PHE:CE1	1:A:210:TRP:CZ2	0.61	2.89	16	2
1:A:175:THR:O	1:A:177:GLU:N	0.61	2.34	10	9
1:A:62:TYR:CE2	1:A:64:TRP:NE1	0.61	2.69	7	6
1:A:7:TYR:C	1:A:7:TYR:CD2	0.61	2.74	10	4
1:A:249:GLN:O	1:A:250:THR:OG1	0.61	2.17	10	2
1:A:7:TYR:C	1:A:7:TYR:CD1	0.60	2.75	2	6
1:A:64:TRP:O	1:A:66:GLU:N	0.60	2.34	5	8
1:A:38:GLY:O	1:A:61:LYS:O	0.60	2.20	14	4
1:A:217:THR:O	1:A:239:ASN:ND2	0.60	2.35	4	2
1:A:139:ARG:NH1	1:A:156:ASN:ND2	0.60	2.50	20	1
1:A:190:PHE:CD1	1:A:210:TRP:NE1	0.60	2.69	12	3
1:A:238:ASN:ND2	1:A:240:SER:OG	0.60	2.35	8	7
1:A:238:ASN:OD1	1:A:242:LEU:HD12	0.60	1.97	3	2
1:A:7:TYR:CZ	1:A:183:ASN:ND2	0.60	2.69	3	2
1:A:71:PHE:CD1	1:A:85:ILE:HG23	0.60	2.31	16	5
1:A:227:ILE:HB	1:A:229:PRO:HD2	0.60	1.71	18	2
1:A:3:VAL:O	1:A:3:VAL:HG23	0.60	1.95	2	2
1:A:139:ARG:HE	1:A:156:ASN:ND2	0.60	1.95	19	4
1:A:3:VAL:HG13	1:A:3:VAL:O	0.60	1.95	9	3
1:A:95:LEU:HD23	1:A:96:LYS:N	0.60	2.12	6	2
1:A:75:TRP:CE2	1:A:81:LEU:HD22	0.59	2.32	4	4
1:A:7:TYR:H	1:A:141:ALA:CB	0.59	2.11	1	2
1:A:7:TYR:CD2	1:A:170:ALA:HB2	0.59	2.33	12	7
1:A:276:GLY:C	1:A:277:LEU:HD12	0.59	2.18	12	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:173:TYR:CD1	1:A:173:TYR:N	0.59	2.70	19	1
1:A:69:LEU:CD2	1:A:87:VAL:HG22	0.59	2.28	4	2
1:A:206:VAL:HG13	1:A:220:GLY:O	0.59	1.98	5	3
1:A:259:LEU:N	1:A:259:LEU:CD2	0.59	2.66	11	2
1:A:210:TRP:CD1	1:A:211:THR:N	0.58	2.71	3	1
1:A:158:GLU:O	1:A:162:SER:N	0.58	2.37	11	20
1:A:156:ASN:HD22	1:A:156:ASN:N	0.58	1.94	15	1
1:A:184:VAL:HG13	1:A:190:PHE:CZ	0.58	2.33	7	6
1:A:32:LYS:NZ	1:A:256:LYS:NZ	0.58	2.51	20	1
1:A:139:ARG:NE	1:A:156:ASN:ND2	0.58	2.52	7	2
1:A:75:TRP:CE2	1:A:81:LEU:CD2	0.58	2.87	5	2
1:A:140:GLY:O	1:A:154:GLN:NE2	0.58	2.37	5	4
1:A:39:LEU:HD22	1:A:41:PHE:CE1	0.58	2.34	11	3
1:A:9:ASP:OD1	1:A:115:LYS:NZ	0.57	2.37	12	1
1:A:6:THR:HG23	1:A:124:ASN:ND2	0.57	2.14	1	1
1:A:124:ASN:HD22	1:A:143:VAL:CG2	0.57	2.11	9	2
1:A:238:ASN:HD21	1:A:242:LEU:N	0.57	1.97	4	2
1:A:122:HIS:ND1	1:A:122:HIS:C	0.57	2.57	4	1
1:A:3:VAL:O	1:A:5:PRO:HD3	0.57	1.99	1	1
1:A:202:LEU:CD1	1:A:203:GLU:H	0.57	2.13	5	1
1:A:32:LYS:O	1:A:283:ALA:HB3	0.57	2.00	6	1
1:A:2:ALA:HB2	1:A:174:LYS:NZ	0.57	2.14	9	1
1:A:176:ASP:O	1:A:178:PHE:CG	0.57	2.58	7	3
1:A:48:ASN:O	1:A:51:THR:N	0.57	2.38	18	4
1:A:190:PHE:CD2	1:A:190:PHE:N	0.57	2.72	16	10
1:A:48:ASN:O	1:A:50:GLU:N	0.57	2.38	7	7
1:A:7:TYR:CE1	1:A:183:ASN:ND2	0.57	2.73	20	2
1:A:190:PHE:N	1:A:190:PHE:CD1	0.56	2.73	4	7
1:A:7:TYR:OH	1:A:168:ASN:ND2	0.56	2.39	2	5
1:A:147:GLU:O	1:A:149:TRP:NE1	0.56	2.39	5	5
1:A:227:ILE:HG22	1:A:228:ASP:N	0.56	2.15	4	2
1:A:142:LEU:HD12	1:A:142:LEU:N	0.56	2.15	16	3
1:A:7:TYR:CD2	1:A:7:TYR:C	0.56	2.79	11	5
1:A:202:LEU:HD11	1:A:225:TYR:CD1	0.56	2.35	11	1
1:A:178:PHE:N	1:A:178:PHE:CD2	0.56	2.71	5	3
1:A:194:ILE:HD11	1:A:208:LEU:HD11	0.56	1.78	1	2
1:A:121:GLU:O	1:A:123:ILE:N	0.56	2.39	15	19
1:A:24:PHE:CD2	1:A:260:SER:OG	0.56	2.59	16	2
1:A:71:PHE:CE2	1:A:85:ILE:HG23	0.55	2.36	6	8
1:A:44:SER:OG	1:A:57:SER:N	0.55	2.40	18	5
1:A:168:ASN:N	1:A:168:ASN:OD1	0.55	2.39	5	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:96:LYS:NZ	1:A:98:THR:OG1	0.55	2.38	15	3
1:A:192:GLY:N	1:A:208:LEU:O	0.55	2.40	7	9
1:A:157:PHE:CE2	1:A:164:VAL:CG2	0.55	2.90	11	3
1:A:24:PHE:CB	1:A:260:SER:HG	0.55	2.13	18	1
1:A:95:LEU:HD23	1:A:95:LEU:C	0.55	2.21	6	2
1:A:140:GLY:N	1:A:154:GLN:HE22	0.55	1.99	16	3
1:A:124:ASN:N	1:A:124:ASN:OD1	0.55	2.39	2	1
1:A:9:ASP:OD2	1:A:115:LYS:NZ	0.55	2.40	13	2
1:A:13:SER:O	1:A:17:VAL:HG23	0.54	2.02	16	3
1:A:282:GLN:O	1:A:283:ALA:HB3	0.54	2.01	11	2
1:A:156:ASN:N	1:A:156:ASN:OD1	0.54	2.38	9	1
1:A:203:GLU:O	1:A:204:THR:HG23	0.54	2.01	12	3
1:A:39:LEU:HD22	1:A:41:PHE:CE2	0.54	2.38	13	3
1:A:150:LEU:HD12	1:A:150:LEU:N	0.54	2.18	4	1
1:A:118:TYR:CZ	1:A:119:LYS:O	0.54	2.60	14	2
1:A:124:ASN:ND2	1:A:143:VAL:HG21	0.54	2.16	19	2
1:A:118:TYR:CE2	1:A:119:LYS:O	0.54	2.61	14	1
1:A:7:TYR:CE1	1:A:168:ASN:ND2	0.54	2.75	1	1
1:A:18:PHE:CD1	1:A:207:ASN:ND2	0.54	2.76	18	2
1:A:143:VAL:C	1:A:144:LEU:HD22	0.54	2.23	10	1
1:A:156:ASN:N	1:A:156:ASN:ND2	0.54	2.52	15	1
1:A:194:ILE:HD12	1:A:206:VAL:HB	0.54	1.80	2	14
1:A:25:GLY:O	1:A:49:THR:HG23	0.54	2.03	11	4
1:A:30:ASP:OD2	1:A:31:LEU:N	0.54	2.41	8	8
1:A:4:PRO:HB2	1:A:10:LEU:HD11	0.54	1.79	19	2
1:A:51:THR:C	1:A:52:THR:HG23	0.54	2.22	10	2
1:A:10:LEU:HD23	1:A:11:GLY:N	0.54	2.18	18	2
1:A:157:PHE:CE1	1:A:164:VAL:CG2	0.54	2.91	13	7
1:A:172:GLY:HA2	1:A:180:LEU:O	0.54	2.03	8	13
1:A:103:PHE:N	1:A:103:PHE:CD2	0.54	2.75	9	1
1:A:4:PRO:O	1:A:124:ASN:CB	0.53	2.56	3	15
1:A:32:LYS:HZ2	1:A:256:LYS:NZ	0.53	1.99	20	1
1:A:30:ASP:OD1	1:A:31:LEU:N	0.53	2.40	11	6
1:A:7:TYR:CD1	1:A:7:TYR:C	0.53	2.82	20	1
1:A:146:TYR:O	1:A:149:TRP:HD1	0.53	1.86	16	3
1:A:272:GLY:O	1:A:273:HIS:CD2	0.53	2.61	12	1
1:A:62:TYR:CE1	1:A:64:TRP:CD1	0.53	2.96	9	5
1:A:228:ASP:OD1	1:A:230:ASP:N	0.53	2.42	14	2
1:A:64:TRP:C	1:A:66:GLU:H	0.53	2.06	10	7
1:A:238:ASN:ND2	1:A:242:LEU:N	0.53	2.46	4	2
1:A:158:GLU:N	1:A:158:GLU:OE1	0.53	2.41	5	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:115:LYS:NZ	1:A:128:ASP:OD1	0.53	2.41	18	1
1:A:142:LEU:O	1:A:152:GLY:CA	0.53	2.56	9	8
1:A:94:GLY:O	1:A:118:TYR:CD1	0.53	2.61	15	1
1:A:168:ASN:ND2	1:A:183:ASN:ND2	0.53	2.57	15	1
1:A:44:SER:HG	1:A:57:SER:CB	0.53	2.16	19	1
1:A:225:TYR:CZ	1:A:227:ILE:HB	0.53	2.37	2	4
1:A:3:VAL:O	1:A:124:ASN:ND2	0.53	2.42	11	1
1:A:226:GLN:NE2	1:A:228:ASP:O	0.53	2.41	12	1
1:A:14:ALA:HB1	1:A:205:ALA:HB1	0.53	1.80	4	4
1:A:183:ASN:ND2	1:A:191:GLY:O	0.53	2.42	10	1
1:A:99:PHE:CE1	1:A:114:ILE:HG23	0.53	2.39	5	1
1:A:139:ARG:NH2	1:A:156:ASN:ND2	0.53	2.57	9	1
1:A:254:GLY:N	1:A:282:GLN:OE1	0.52	2.41	10	1
1:A:210:TRP:C	1:A:210:TRP:CD1	0.52	2.82	16	6
1:A:202:LEU:HD12	1:A:203:GLU:H	0.52	1.64	5	1
1:A:63:ARG:O	1:A:65:THR:N	0.52	2.42	15	4
1:A:18:PHE:CB	1:A:207:ASN:ND2	0.52	2.73	18	9
1:A:178:PHE:CZ	1:A:196:GLN:CD	0.52	2.82	8	1
1:A:219:PHE:CZ	1:A:239:ASN:OD1	0.52	2.62	12	2
1:A:4:PRO:O	1:A:124:ASN:CG	0.52	2.48	8	13
1:A:7:TYR:CD1	1:A:170:ALA:HB2	0.52	2.39	2	7
1:A:69:LEU:CD2	1:A:87:VAL:HG12	0.52	2.33	20	2
1:A:6:THR:O	1:A:10:LEU:N	0.52	2.43	6	2
1:A:122:HIS:CD2	1:A:145:GLY:O	0.52	2.62	4	1
1:A:7:TYR:CD2	1:A:154:GLN:OE1	0.52	2.63	6	1
1:A:202:LEU:HG	1:A:203:GLU:N	0.52	2.19	7	2
1:A:25:GLY:H	1:A:275:LEU:C	0.52	2.08	6	11
1:A:238:ASN:ND2	1:A:240:SER:H	0.52	2.02	16	4
1:A:103:PHE:CD1	1:A:103:PHE:N	0.52	2.78	16	3
1:A:210:TRP:CD1	1:A:210:TRP:C	0.52	2.83	3	3
1:A:238:ASN:HD21	1:A:242:LEU:CD1	0.52	2.16	10	8
1:A:27:ILE:HG23	1:A:277:LEU:HB2	0.52	1.81	18	4
1:A:70:THR:O	1:A:84:GLU:O	0.52	2.28	7	2
1:A:113:LYS:NZ	1:A:130:ASP:OD1	0.52	2.43	18	1
1:A:219:PHE:CZ	1:A:239:ASN:ND2	0.51	2.78	18	2
1:A:183:ASN:ND2	1:A:183:ASN:O	0.51	2.42	13	1
1:A:190:PHE:CD1	1:A:210:TRP:CZ2	0.51	2.97	9	4
1:A:241:SER:C	1:A:242:LEU:HD12	0.51	2.25	19	5
1:A:242:LEU:N	1:A:242:LEU:CD1	0.51	2.74	8	6
1:A:264:ASP:H	1:A:273:HIS:CE1	0.51	2.23	1	1
1:A:7:TYR:CE2	1:A:8:ALA:HB2	0.51	2.40	4	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:122:HIS:ND1	1:A:145:GLY:O	0.51	2.42	7	1
1:A:230:ASP:OD2	1:A:230:ASP:N	0.51	2.41	15	1
1:A:44:SER:OG	1:A:57:SER:CB	0.51	2.58	19	3
1:A:176:ASP:C	1:A:178:PHE:H	0.51	2.09	1	5
1:A:124:ASN:ND2	1:A:143:VAL:HG11	0.51	2.19	2	1
1:A:257:LEU:HD23	1:A:279:LEU:CD2	0.51	2.36	3	1
1:A:69:LEU:HD23	1:A:87:VAL:HG22	0.51	1.82	12	2
1:A:7:TYR:OH	1:A:183:ASN:ND2	0.51	2.44	15	3
1:A:71:PHE:CE1	1:A:85:ILE:HG23	0.51	2.40	12	8
1:A:25:GLY:CA	1:A:275:LEU:O	0.51	2.59	15	13
1:A:124:ASN:ND2	1:A:124:ASN:C	0.51	2.64	8	1
1:A:190:PHE:CG	1:A:210:TRP:CE2	0.51	2.99	6	5
1:A:195:TYR:CZ	1:A:203:GLU:OE1	0.51	2.63	4	1
1:A:124:ASN:ND2	1:A:143:VAL:CG2	0.51	2.74	9	2
1:A:238:ASN:ND2	1:A:238:ASN:C	0.51	2.64	3	4
1:A:35:SER:O	1:A:37:ASN:N	0.51	2.44	7	1
1:A:18:PHE:CG	1:A:207:ASN:OD1	0.51	2.64	10	1
1:A:50:GLU:C	1:A:51:THR:HG23	0.51	2.24	13	1
1:A:71:PHE:CZ	1:A:85:ILE:HG23	0.51	2.41	3	4
1:A:219:PHE:CZ	1:A:239:ASN:CG	0.51	2.84	18	2
1:A:157:PHE:CZ	1:A:164:VAL:CG2	0.51	2.93	19	1
1:A:150:LEU:N	1:A:150:LEU:CD1	0.51	2.74	4	1
1:A:227:ILE:HG23	1:A:231:ALA:HB3	0.51	1.83	9	1
1:A:51:THR:O	1:A:52:THR:CB	0.51	2.59	19	8
1:A:249:GLN:O	1:A:250:THR:CB	0.51	2.58	2	1
1:A:75:TRP:CD2	1:A:81:LEU:HD22	0.51	2.40	7	2
1:A:178:PHE:CD1	1:A:196:GLN:CD	0.51	2.84	12	2
1:A:48:ASN:ND2	1:A:51:THR:OG1	0.51	2.44	11	1
1:A:118:TYR:CE1	1:A:119:LYS:O	0.51	2.64	13	1
1:A:10:LEU:N	1:A:10:LEU:CD1	0.50	2.74	9	2
1:A:190:PHE:CG	1:A:210:TRP:NE1	0.50	2.79	6	1
1:A:78:ASP:O	1:A:79:ASN:ND2	0.50	2.44	5	6
1:A:228:ASP:OD2	1:A:230:ASP:N	0.50	2.44	4	1
1:A:173:TYR:HB2	1:A:180:LEU:HD12	0.50	1.82	13	3
1:A:65:THR:HG22	1:A:65:THR:O	0.50	2.05	20	1
1:A:157:PHE:CD1	1:A:164:VAL:HG22	0.50	2.42	13	3
1:A:78:ASP:O	1:A:79:ASN:CB	0.50	2.60	7	19
1:A:182:THR:HG22	1:A:192:GLY:HA2	0.50	1.83	3	7
1:A:122:HIS:ND1	1:A:122:HIS:O	0.50	2.45	4	1
1:A:46:SER:O	1:A:55:THR:N	0.50	2.45	5	9
1:A:77:THR:O	1:A:79:ASN:ND2	0.50	2.44	8	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:4:PRO:C	1:A:119:LYS:NZ	0.50	2.65	18	1
1:A:5:PRO:CG	1:A:143:VAL:HG11	0.50	2.36	1	1
1:A:65:THR:O	1:A:66:GLU:O	0.50	2.29	3	2
1:A:139:ARG:C	1:A:154:GLN:HE22	0.50	2.10	1	1
1:A:95:LEU:HD12	1:A:117:GLY:O	0.50	2.07	7	5
1:A:164:VAL:O	1:A:165:THR:HG23	0.50	2.07	4	6
1:A:238:ASN:ND2	1:A:242:LEU:HD12	0.50	2.22	20	3
1:A:173:TYR:HB3	1:A:180:LEU:HD12	0.50	1.83	16	2
1:A:27:ILE:HG23	1:A:277:LEU:CB	0.50	2.37	18	1
1:A:260:SER:OG	1:A:276:GLY:N	0.50	2.44	20	1
1:A:226:GLN:OE1	1:A:232:CYS:SG	0.50	2.69	12	1
1:A:118:TYR:OH	1:A:120:ARG:CZ	0.50	2.60	15	1
1:A:179:GLN:OE1	1:A:181:HIS:NE2	0.50	2.44	11	2
1:A:46:SER:O	1:A:54:VAL:HA	0.50	2.06	10	12
1:A:227:ILE:O	1:A:228:ASP:CB	0.50	2.59	8	2
1:A:102:SER:OG	1:A:103:PHE:CE1	0.50	2.65	12	1
1:A:176:ASP:O	1:A:178:PHE:CD1	0.50	2.65	1	3
1:A:238:ASN:HD21	1:A:242:LEU:CG	0.50	2.19	14	3
1:A:78:ASP:O	1:A:78:ASP:OD1	0.49	2.31	5	2
1:A:48:ASN:C	1:A:50:GLU:H	0.49	2.11	11	4
1:A:94:GLY:O	1:A:118:TYR:CD2	0.49	2.65	2	1
1:A:41:PHE:CZ	1:A:60:THR:HG23	0.49	2.42	13	4
1:A:13:SER:OG	1:A:195:TYR:CD1	0.49	2.64	12	1
1:A:3:VAL:CA	1:A:124:ASN:HD21	0.49	2.20	14	1
1:A:175:THR:C	1:A:177:GLU:N	0.49	2.66	20	9
1:A:196:GLN:NE2	1:A:204:THR:OG1	0.49	2.45	8	1
1:A:5:PRO:C	1:A:6:THR:HG23	0.49	2.28	1	1
1:A:184:VAL:HG22	1:A:190:PHE:CE1	0.49	2.43	1	1
1:A:263:LEU:HD12	1:A:263:LEU:N	0.49	2.23	2	2
1:A:41:PHE:CE2	1:A:60:THR:OG1	0.49	2.63	3	9
1:A:119:LYS:CG	1:A:124:ASN:HD22	0.49	2.20	14	1
1:A:41:PHE:CE1	1:A:60:THR:OG1	0.49	2.63	8	5
1:A:50:GLU:O	1:A:51:THR:CB	0.49	2.60	8	3
1:A:87:VAL:O	1:A:87:VAL:CG2	0.49	2.61	2	1
1:A:124:ASN:ND2	1:A:143:VAL:CG1	0.49	2.75	2	1
1:A:27:ILE:HG23	1:A:277:LEU:HB3	0.49	1.84	3	2
1:A:168:ASN:ND2	1:A:185:ASN:OD1	0.49	2.45	15	3
1:A:202:LEU:CD1	1:A:203:GLU:N	0.49	2.76	5	1
1:A:40:GLU:OE1	1:A:63:ARG:NH2	0.49	2.45	15	1
1:A:17:VAL:HG12	1:A:222:ALA:HB1	0.49	1.84	16	2
1:A:5:PRO:O	1:A:6:THR:CG2	0.49	2.60	6	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Models Total
1:A:176:ASP:O	1:A:178:PHE:CD2	0.49	2.65	7	1
1:A:240:SER:OG	1:A:242:LEU:HD13	0.49	2.07	19	2
1:A:102:SER:C	1:A:103:PHE:CG	0.49	2.86	9	2
1:A:230:ASP:N	1:A:230:ASP:OD1	0.49	2.42	13	1
1:A:32:LYS:NZ	1:A:256:LYS:HZ3	0.49	2.05	20	1
1:A:157:PHE:CZ	1:A:164:VAL:HG23	0.49	2.43	9	1
1:A:57:SER:OG	1:A:58:LEU:N	0.49	2.46	14	1
1:A:58:LEU:HD12	1:A:75:TRP:CE3	0.48	2.43	3	3
1:A:6:THR:HG22	1:A:126:GLY:HA3	0.48	1.85	4	1
1:A:119:LYS:O	1:A:120:ARG:CB	0.48	2.61	15	2
1:A:48:ASN:O	1:A:52:THR:OG1	0.48	2.30	7	2
1:A:238:ASN:OD1	1:A:240:SER:OG	0.48	2.31	16	2
1:A:229:PRO:O	1:A:230:ASP:CB	0.48	2.61	19	2
1:A:168:ASN:HD21	1:A:183:ASN:ND2	0.48	2.06	15	2
1:A:5:PRO:C	1:A:124:ASN:ND2	0.48	2.67	3	4
1:A:7:TYR:CE2	1:A:183:ASN:ND2	0.48	2.81	3	1
1:A:237:VAL:HG13	1:A:243:ILE:HG12	0.48	1.85	6	1
1:A:176:ASP:O	1:A:178:PHE:N	0.48	2.46	1	4
1:A:149:TRP:N	1:A:149:TRP:HD1	0.48	2.04	8	6
1:A:63:ARG:O	1:A:64:TRP:CB	0.48	2.61	3	1
1:A:62:TYR:OH	1:A:64:TRP:CE2	0.48	2.65	5	1
1:A:240:SER:OG	1:A:242:LEU:CD1	0.48	2.61	13	4
1:A:183:ASN:ND2	1:A:183:ASN:C	0.48	2.65	13	1
1:A:64:TRP:C	1:A:66:GLU:N	0.48	2.67	5	8
1:A:63:ARG:CZ	1:A:65:THR:HG21	0.48	2.39	16	2
1:A:250:THR:OG1	1:A:255:ILE:O	0.48	2.26	10	1
1:A:154:GLN:NE2	1:A:155:MET:N	0.48	2.60	16	2
1:A:225:TYR:C	1:A:232:CYS:SG	0.48	2.92	20	1
1:A:95:LEU:C	1:A:95:LEU:HD23	0.48	2.29	2	1
1:A:221:ILE:HD12	1:A:237:VAL:CG1	0.48	2.38	2	1
1:A:242:LEU:CD2	1:A:264:ASP:OD2	0.48	2.62	3	3
1:A:202:LEU:HD12	1:A:202:LEU:H	0.48	1.68	18	1
1:A:175:THR:O	1:A:178:PHE:O	0.48	2.30	19	2
1:A:258:THR:O	1:A:277:LEU:HD23	0.48	2.08	18	1
1:A:179:GLN:O	1:A:194:ILE:HG23	0.48	2.09	20	1
1:A:39:LEU:O	1:A:61:LYS:O	0.47	2.32	12	3
1:A:196:GLN:OE1	1:A:204:THR:OG1	0.47	2.32	20	5
1:A:4:PRO:O	1:A:124:ASN:OD1	0.47	2.32	12	2
1:A:74:LYS:HZ3	1:A:76:ASN:ND2	0.47	2.07	20	1
1:A:233:PHE:CE1	1:A:247:TYR:CE1	0.47	3.02	5	1
1:A:8:ALA:O	1:A:15:ARG:NH2	0.47	2.47	18	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:18:PHE:O	1:A:236:LYS:NZ	0.47	2.41	19	1
1:A:138:ILE:O	1:A:155:MET:O	0.47	2.32	18	8
1:A:147:GLU:C	1:A:149:TRP:CD1	0.47	2.88	5	5
1:A:258:THR:C	1:A:259:LEU:HD12	0.47	2.29	1	1
1:A:139:ARG:NH1	1:A:156:ASN:HD21	0.47	2.06	7	1
1:A:240:SER:O	1:A:241:SER:CB	0.47	2.62	18	12
1:A:154:GLN:OE1	1:A:168:ASN:ND2	0.47	2.46	8	4
1:A:157:PHE:CD2	1:A:164:VAL:CG2	0.47	2.97	11	2
1:A:225:TYR:O	1:A:227:ILE:HD12	0.47	2.10	14	2
1:A:10:LEU:N	1:A:10:LEU:HD12	0.47	2.24	9	1
1:A:18:PHE:CB	1:A:207:ASN:OD1	0.47	2.63	10	1
1:A:25:GLY:N	1:A:275:LEU:O	0.47	2.47	15	3
1:A:175:THR:OG1	1:A:178:PHE:O	0.47	2.33	4	6
1:A:3:VAL:HG13	1:A:122:HIS:N	0.47	2.24	6	1
1:A:227:ILE:HG23	1:A:229:PRO:HD2	0.47	1.85	8	1
1:A:156:ASN:ND2	1:A:166:GLN:OE1	0.47	2.47	9	1
1:A:3:VAL:C	1:A:124:ASN:ND2	0.47	2.68	11	1
1:A:25:GLY:O	1:A:49:THR:CG2	0.47	2.63	11	1
1:A:177:GLU:OE1	1:A:197:LYS:O	0.47	2.32	14	1
1:A:10:LEU:HD22	1:A:181:HIS:CE1	0.47	2.45	20	2
1:A:157:PHE:CD1	1:A:164:VAL:CG2	0.47	2.97	12	4
1:A:97:LEU:C	1:A:97:LEU:CD1	0.47	2.83	15	1
1:A:10:LEU:HD12	1:A:10:LEU:N	0.47	2.25	2	1
1:A:139:ARG:CZ	1:A:156:ASN:HD21	0.47	2.23	7	1
1:A:227:ILE:O	1:A:228:ASP:OD2	0.47	2.32	7	1
1:A:217:THR:O	1:A:239:ASN:OD1	0.47	2.32	2	2
1:A:202:LEU:HD12	1:A:202:LEU:N	0.47	2.25	14	3
1:A:242:LEU:CD2	1:A:264:ASP:OD1	0.47	2.63	4	1
1:A:48:ASN:CB	1:A:52:THR:OG1	0.47	2.63	7	1
1:A:39:LEU:C	1:A:61:LYS:O	0.47	2.54	14	3
1:A:3:VAL:CG1	1:A:122:HIS:N	0.46	2.78	6	1
1:A:69:LEU:HD12	1:A:69:LEU:N	0.46	2.26	10	1
1:A:176:ASP:OD1	1:A:176:ASP:O	0.46	2.34	11	3
1:A:184:VAL:HG13	1:A:190:PHE:CD2	0.46	2.45	2	3
1:A:260:SER:OG	1:A:276:GLY:O	0.46	2.33	4	4
1:A:41:PHE:CD2	1:A:60:THR:OG1	0.46	2.63	2	1
1:A:186:ASP:O	1:A:188:THR:HG23	0.46	2.10	5	1
1:A:24:PHE:N	1:A:24:PHE:CD2	0.46	2.82	14	1
1:A:24:PHE:CE1	1:A:262:LEU:HD22	0.46	2.46	7	1
1:A:97:LEU:C	1:A:97:LEU:HD13	0.46	2.30	15	1
1:A:178:PHE:C	1:A:178:PHE:CD1	0.46	2.85	15	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:227:ILE:HB	1:A:229:PRO:CD	0.46	2.41	18	1
1:A:77:THR:C	1:A:79:ASN:N	0.46	2.69	9	5
1:A:239:ASN:C	1:A:239:ASN:ND2	0.46	2.67	15	2
1:A:5:PRO:O	1:A:6:THR:C	0.46	2.54	12	8
1:A:103:PHE:CD1	1:A:110:LYS:NZ	0.46	2.81	5	1
1:A:210:TRP:CD1	1:A:217:THR:OG1	0.46	2.62	18	1
1:A:173:TYR:CD1	1:A:180:LEU:HD23	0.46	2.46	19	1
1:A:183:ASN:O	1:A:183:ASN:OD1	0.46	2.33	2	1
1:A:262:LEU:HD23	1:A:274:LYS:CD	0.46	2.40	13	1
1:A:177:GLU:OE1	1:A:177:GLU:N	0.46	2.49	6	1
1:A:178:PHE:N	1:A:178:PHE:CD1	0.46	2.78	16	2
1:A:41:PHE:CE2	1:A:60:THR:CG2	0.46	2.99	16	5
1:A:178:PHE:CD2	1:A:179:GLN:N	0.46	2.84	14	2
1:A:175:THR:O	1:A:176:ASP:C	0.46	2.54	8	5
1:A:175:THR:OG1	1:A:178:PHE:CG	0.46	2.69	12	1
1:A:77:THR:C	1:A:79:ASN:H	0.46	2.14	1	2
1:A:62:TYR:CE2	1:A:64:TRP:CD1	0.46	3.04	4	3
1:A:145:GLY:O	1:A:146:TYR:CD2	0.46	2.68	18	1
1:A:68:GLY:O	1:A:86:THR:O	0.46	2.34	1	8
1:A:165:THR:OG1	1:A:166:GLN:N	0.46	2.48	1	3
1:A:166:GLN:NE2	1:A:186:ASP:OD1	0.46	2.49	1	1
1:A:3:VAL:C	1:A:124:ASN:HD21	0.45	2.14	11	1
1:A:113:LYS:NZ	1:A:139:ARG:HH12	0.45	2.10	2	1
1:A:225:TYR:O	1:A:225:TYR:CG	0.45	2.70	5	3
1:A:157:PHE:CD2	1:A:164:VAL:HG22	0.45	2.46	11	1
1:A:238:ASN:OD1	1:A:242:LEU:O	0.45	2.35	13	7
1:A:178:PHE:CD1	1:A:178:PHE:C	0.45	2.90	11	1
1:A:259:LEU:HD12	1:A:259:LEU:N	0.45	2.26	1	2
1:A:169:PHE:O	1:A:183:ASN:OD1	0.45	2.33	9	2
1:A:41:PHE:CE1	1:A:60:THR:CG2	0.45	2.99	14	5
1:A:7:TYR:CE2	1:A:183:ASN:CB	0.45	3.00	9	1
1:A:175:THR:OG1	1:A:178:PHE:CD2	0.45	2.65	15	3
1:A:93:ARG:O	1:A:119:LYS:O	0.45	2.34	18	1
1:A:6:THR:CG2	1:A:124:ASN:ND2	0.45	2.79	1	1
1:A:143:VAL:HG22	1:A:152:GLY:CA	0.45	2.41	1	1
1:A:168:ASN:OD1	1:A:185:ASN:OD1	0.45	2.35	7	4
1:A:139:ARG:CZ	1:A:156:ASN:ND2	0.45	2.79	20	2
1:A:47:ALA:HA	1:A:53:LYS:O	0.45	2.11	4	12
1:A:139:ARG:HH21	1:A:156:ASN:ND2	0.45	2.09	11	1
1:A:219:PHE:CE2	1:A:239:ASN:CB	0.45	3.00	11	1
1:A:46:SER:OG	1:A:55:THR:O	0.45	2.35	6	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:250:THR:CG2	1:A:255:ILE:O	0.45	2.64	16	3
1:A:46:SER:OG	1:A:55:THR:OG1	0.45	2.35	11	2
1:A:134:ALA:O	1:A:160:ALA:HB3	0.45	2.11	6	1
1:A:241:SER:OG	1:A:264:ASP:OD2	0.45	2.35	15	1
1:A:231:ALA:C	1:A:232:CYS:SG	0.45	2.95	1	2
1:A:78:ASP:O	1:A:79:ASN:CG	0.45	2.55	7	12
1:A:75:TRP:C	1:A:75:TRP:CD1	0.45	2.89	3	2
1:A:227:ILE:CG2	1:A:228:ASP:N	0.45	2.80	14	2
1:A:98:THR:O	1:A:98:THR:HG22	0.45	2.11	13	3
1:A:178:PHE:C	1:A:178:PHE:CD2	0.45	2.90	9	1
1:A:118:TYR:OH	1:A:120:ARG:NE	0.45	2.50	15	1
1:A:56:GLY:C	1:A:57:SER:OG	0.45	2.55	19	1
1:A:202:LEU:CG	1:A:203:GLU:N	0.44	2.80	7	1
1:A:88:GLU:O	1:A:89:ASP:CB	0.44	2.65	9	1
1:A:175:THR:C	1:A:177:GLU:H	0.44	2.14	18	3
1:A:7:TYR:CZ	1:A:8:ALA:HB2	0.44	2.47	20	1
1:A:49:THR:HG22	1:A:50:GLU:N	0.44	2.26	9	1
1:A:67:TYR:O	1:A:69:LEU:CD1	0.44	2.65	10	1
1:A:5:PRO:N	1:A:119:LYS:NZ	0.44	2.65	18	1
1:A:5:PRO:O	1:A:6:THR:CB	0.44	2.64	1	1
1:A:5:PRO:HG2	1:A:143:VAL:HG11	0.44	1.87	1	1
1:A:177:GLU:CD	1:A:197:LYS:O	0.44	2.56	2	1
1:A:178:PHE:CG	1:A:196:GLN:NE2	0.44	2.85	12	1
1:A:121:GLU:C	1:A:123:ILE:H	0.44	2.15	10	17
1:A:7:TYR:CD1	1:A:170:ALA:CB	0.44	3.01	2	1
1:A:30:ASP:OD2	1:A:42:THR:HG23	0.44	2.11	14	3
1:A:136:PRO:O	1:A:159:THR:OG1	0.44	2.31	5	5
1:A:203:GLU:O	1:A:204:THR:CG2	0.44	2.65	5	3
1:A:100:ASP:OD2	1:A:101:SER:N	0.44	2.51	11	2
1:A:153:TYR:CZ	1:A:167:SER:OG	0.44	2.70	9	1
1:A:102:SER:OG	1:A:111:ASN:ND2	0.44	2.51	11	1
1:A:219:PHE:CE2	1:A:239:ASN:CG	0.44	2.90	18	1
1:A:143:VAL:HA	1:A:151:ALA:O	0.44	2.12	1	1
1:A:195:TYR:CE1	1:A:203:GLU:OE1	0.44	2.71	4	1
1:A:46:SER:CB	1:A:55:THR:O	0.44	2.65	13	3
1:A:202:LEU:HD23	1:A:224:LYS:O	0.44	2.13	7	1
1:A:5:PRO:C	1:A:124:ASN:HD21	0.44	2.14	9	2
1:A:169:PHE:O	1:A:183:ASN:CG	0.44	2.56	9	1
1:A:175:THR:HG1	1:A:178:PHE:N	0.44	2.10	16	2
1:A:225:TYR:C	1:A:225:TYR:CD1	0.44	2.89	5	2
1:A:47:ALA:CB	1:A:53:LYS:O	0.44	2.66	14	7

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:6:THR:CG2	1:A:141:ALA:HB3	0.44	2.40	2	2
1:A:6:THR:O	1:A:7:TYR:C	0.44	2.56	1	6
1:A:36:GLU:O	1:A:37:ASN:O	0.44	2.36	6	1
1:A:250:THR:HG22	1:A:250:THR:O	0.44	2.13	9	1
1:A:183:ASN:OD1	1:A:183:ASN:C	0.44	2.55	10	3
1:A:30:ASP:OD1	1:A:30:ASP:C	0.44	2.56	20	2
1:A:74:LYS:HZ1	1:A:76:ASN:ND2	0.44	2.11	20	1
1:A:230:ASP:CG	1:A:250:THR:O	0.44	2.56	5	2
1:A:178:PHE:CD1	1:A:179:GLN:N	0.44	2.85	19	1
1:A:111:ASN:N	1:A:111:ASN:ND2	0.43	2.66	14	1
1:A:7:TYR:CZ	1:A:168:ASN:ND2	0.43	2.86	1	1
1:A:178:PHE:CE2	1:A:196:GLN:NE2	0.43	2.86	5	1
1:A:65:THR:C	1:A:67:TYR:H	0.43	2.16	9	1
1:A:140:GLY:O	1:A:154:GLN:CD	0.43	2.57	16	2
1:A:139:ARG:NH1	1:A:166:GLN:OE1	0.43	2.51	4	1
1:A:175:THR:HG1	1:A:178:PHE:H	0.43	1.54	18	3
1:A:13:SER:OG	1:A:195:TYR:CE1	0.43	2.64	9	1
1:A:145:GLY:HA2	1:A:149:TRP:O	0.43	2.13	14	3
1:A:97:LEU:CD1	1:A:116:THR:OG1	0.43	2.66	20	2
1:A:30:ASP:OD2	1:A:42:THR:CG2	0.43	2.66	16	2
1:A:87:VAL:O	1:A:87:VAL:CG1	0.43	2.66	3	2
1:A:238:ASN:OD1	1:A:242:LEU:CD1	0.43	2.66	3	1
1:A:10:LEU:HD21	1:A:181:HIS:NE2	0.43	2.29	13	1
1:A:5:PRO:O	1:A:6:THR:OG1	0.43	2.36	1	1
1:A:178:PHE:CD2	1:A:178:PHE:C	0.43	2.91	2	1
1:A:175:THR:CG2	1:A:178:PHE:CE1	0.43	2.97	9	1
1:A:24:PHE:CG	1:A:262:LEU:HD12	0.43	2.49	11	1
1:A:227:ILE:HG23	1:A:231:ALA:CB	0.43	2.43	9	1
1:A:264:ASP:O	1:A:265:GLY:C	0.43	2.57	12	2
1:A:190:PHE:CD2	1:A:210:TRP:CZ2	0.43	3.06	10	1
1:A:202:LEU:HD11	1:A:225:TYR:CE1	0.43	2.49	11	2
1:A:225:TYR:CD2	1:A:227:ILE:HG22	0.43	2.48	13	1
1:A:2:ALA:O	1:A:3:VAL:C	0.43	2.56	1	1
1:A:30:ASP:OD1	1:A:42:THR:CG2	0.43	2.66	15	1
1:A:10:LEU:CD2	1:A:181:HIS:CE1	0.43	3.00	16	3
1:A:10:LEU:HD23	1:A:10:LEU:C	0.43	2.33	18	2
1:A:51:THR:C	1:A:52:THR:OG1	0.43	2.57	2	9
1:A:238:ASN:OD1	1:A:238:ASN:C	0.43	2.57	1	3
1:A:247:TYR:CE2	1:A:249:GLN:CG	0.43	3.02	5	1
1:A:154:GLN:O	1:A:167:SER:OG	0.42	2.31	4	1
1:A:167:SER:C	1:A:168:ASN:ND2	0.42	2.72	11	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:278:GLY:C	1:A:279:LEU:HD12	0.42	2.34	14	1
1:A:126:GLY:O	1:A:140:GLY:CA	0.42	2.68	1	1
1:A:30:ASP:OD2	1:A:30:ASP:C	0.42	2.56	3	3
1:A:182:THR:O	1:A:183:ASN:OD1	0.42	2.36	4	1
1:A:158:GLU:OE1	1:A:163:ARG:O	0.42	2.36	5	1
1:A:260:SER:OG	1:A:276:GLY:CA	0.42	2.67	20	1
1:A:41:PHE:CD1	1:A:60:THR:OG1	0.42	2.64	14	1
1:A:279:LEU:HD12	1:A:279:LEU:N	0.42	2.29	14	1
1:A:71:PHE:CD2	1:A:71:PHE:N	0.42	2.88	11	2
1:A:177:GLU:OE2	1:A:197:LYS:O	0.42	2.37	1	1
1:A:75:TRP:CD1	1:A:75:TRP:C	0.42	2.90	2	1
1:A:69:LEU:HD22	1:A:87:VAL:HG22	0.42	1.91	4	1
1:A:18:PHE:CD2	1:A:207:ASN:ND2	0.42	2.87	6	1
1:A:2:ALA:HB2	1:A:174:LYS:HZ3	0.42	1.71	9	1
1:A:51:THR:O	1:A:52:THR:OG1	0.42	2.37	12	5
1:A:156:ASN:OD1	1:A:166:GLN:OE1	0.42	2.37	5	1
1:A:175:THR:O	1:A:178:PHE:N	0.42	2.52	8	1
1:A:241:SER:O	1:A:265:GLY:CA	0.42	2.68	12	1
1:A:93:ARG:CD	1:A:120:ARG:HH21	0.42	2.27	18	1
1:A:4:PRO:C	1:A:124:ASN:HD22	0.42	2.17	1	1
1:A:10:LEU:CD2	1:A:10:LEU:N	0.42	2.83	3	1
1:A:202:LEU:HD11	1:A:225:TYR:CE2	0.42	2.50	4	1
1:A:225:TYR:CE1	1:A:227:ILE:HB	0.42	2.49	5	1
1:A:7:TYR:CE2	1:A:168:ASN:CB	0.42	3.02	8	1
1:A:240:SER:O	1:A:241:SER:OG	0.42	2.35	18	1
1:A:264:ASP:OD2	1:A:264:ASP:C	0.42	2.58	1	2
1:A:102:SER:O	1:A:109:LYS:O	0.42	2.37	2	2
1:A:250:THR:HG22	1:A:256:LYS:NZ	0.42	2.29	3	1
1:A:47:ALA:HB1	1:A:53:LYS:O	0.42	2.15	14	1
1:A:28:LYS:NZ	1:A:44:SER:OG	0.42	2.52	20	1
1:A:202:LEU:HD23	1:A:226:GLN:HB3	0.42	1.90	5	1
1:A:128:ASP:OD1	1:A:128:ASP:C	0.42	2.58	8	1
1:A:282:GLN:O	1:A:283:ALA:CB	0.42	2.66	11	1
1:A:175:THR:OG1	1:A:178:PHE:CB	0.42	2.67	12	1
1:A:63:ARG:NH1	1:A:65:THR:HG21	0.42	2.30	16	2
1:A:233:PHE:CE1	1:A:235:ALA:HB2	0.42	2.50	18	1
1:A:122:HIS:CG	1:A:145:GLY:O	0.42	2.73	7	2
1:A:102:SER:O	1:A:103:PHE:CB	0.42	2.67	9	2
1:A:114:ILE:O	1:A:127:CYS:O	0.42	2.37	9	1
1:A:103:PHE:CD2	1:A:103:PHE:N	0.42	2.87	12	1
1:A:196:GLN:HB3	1:A:204:THR:OG1	0.42	2.15	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:102:SER:OG	1:A:103:PHE:CD1	0.41	2.73	12	1
1:A:220:GLY:HA2	1:A:238:ASN:HA	0.41	1.92	16	2
1:A:219:PHE:CD1	1:A:219:PHE:C	0.41	2.94	3	1
1:A:177:GLU:OE1	1:A:178:PHE:CZ	0.41	2.73	4	1
1:A:260:SER:CB	1:A:276:GLY:O	0.41	2.68	12	2
1:A:178:PHE:CE1	1:A:196:GLN:OE1	0.41	2.73	8	1
1:A:37:ASN:O	1:A:37:ASN:OD1	0.41	2.38	11	1
1:A:18:PHE:CB	1:A:207:ASN:HD22	0.41	2.28	12	1
1:A:168:ASN:OD1	1:A:184:VAL:O	0.41	2.38	2	2
1:A:3:VAL:HG13	1:A:122:HIS:H	0.41	1.75	6	1
1:A:202:LEU:HD22	1:A:226:GLN:HB2	0.41	1.92	7	1
1:A:177:GLU:OE2	1:A:178:PHE:CZ	0.41	2.73	20	2
1:A:238:ASN:HD21	1:A:242:LEU:HG	0.41	1.75	14	1
1:A:164:VAL:O	1:A:165:THR:CG2	0.41	2.68	4	4
1:A:132:ASP:OD2	1:A:133:ILE:N	0.41	2.53	7	1
1:A:68:GLY:C	1:A:69:LEU:HD12	0.41	2.36	10	1
1:A:219:PHE:O	1:A:238:ASN:HA	0.41	2.15	16	2
1:A:230:ASP:OD2	1:A:231:ALA:N	0.41	2.54	20	1
1:A:172:GLY:CA	1:A:180:LEU:O	0.41	2.69	16	3
1:A:2:ALA:O	1:A:3:VAL:CG1	0.41	2.69	11	2
1:A:39:LEU:O	1:A:40:GLU:C	0.41	2.59	14	1
1:A:62:TYR:O	1:A:69:LEU:O	0.41	2.37	14	1
1:A:263:LEU:N	1:A:263:LEU:CD1	0.41	2.82	2	1
1:A:228:ASP:CB	1:A:229:PRO:CD	0.41	2.99	20	2
1:A:3:VAL:CA	1:A:124:ASN:OD1	0.41	2.69	4	1
1:A:30:ASP:OD1	1:A:43:SER:O	0.41	2.38	11	1
1:A:225:TYR:CE2	1:A:227:ILE:HG23	0.41	2.51	20	1
1:A:5:PRO:O	1:A:10:LEU:CD1	0.41	2.68	14	1
1:A:39:LEU:O	1:A:40:GLU:O	0.41	2.38	14	1
1:A:238:ASN:HD21	1:A:242:LEU:HD12	0.41	1.75	20	1
1:A:176:ASP:C	1:A:178:PHE:N	0.41	2.74	1	1
1:A:5:PRO:CA	1:A:119:LYS:HZ1	0.41	2.29	8	1
1:A:183:ASN:OD1	1:A:191:GLY:O	0.41	2.37	13	1
1:A:140:GLY:O	1:A:154:GLN:OE1	0.41	2.39	16	2
1:A:56:GLY:O	1:A:57:SER:OG	0.41	2.36	19	1
1:A:271:GLY:O	1:A:273:HIS:ND1	0.41	2.53	1	1
1:A:170:ALA:HB2	1:A:183:ASN:ND2	0.41	2.30	3	1
1:A:144:LEU:HD22	1:A:144:LEU:N	0.41	2.31	10	1
1:A:227:ILE:HD13	1:A:227:ILE:HG21	0.41	1.74	19	1
1:A:190:PHE:CB	1:A:210:TRP:CE2	0.40	3.05	5	1
1:A:168:ASN:ND2	1:A:168:ASN:N	0.40	2.68	8	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Total
1:A:39:LEU:O	1:A:61:LYS:N	0.40	2.54	12	1
1:A:110:LYS:C	1:A:111:ASN:HD22	0.40	2.19	14	1
1:A:151:ALA:HB1	1:A:170:ALA:O	0.40	2.17	14	1
1:A:178:PHE:CD2	1:A:178:PHE:N	0.40	2.85	20	1
1:A:95:LEU:C	1:A:95:LEU:CD2	0.40	2.90	2	1
1:A:202:LEU:N	1:A:202:LEU:CD1	0.40	2.84	4	1
1:A:216:ASN:O	1:A:216:ASN:OD1	0.40	2.39	7	1
1:A:157:PHE:CE2	1:A:164:VAL:HG23	0.40	2.50	9	1
1:A:65:THR:O	1:A:66:GLU:C	0.40	2.60	14	1
1:A:271:GLY:O	1:A:272:GLY:C	0.40	2.59	14	1
1:A:225:TYR:CD1	1:A:225:TYR:C	0.40	2.92	15	1
1:A:51:THR:OG1	1:A:53:LYS:CG	0.40	2.70	1	1
1:A:190:PHE:N	1:A:190:PHE:CD2	0.40	2.89	7	1
1:A:102:SER:O	1:A:103:PHE:CG	0.40	2.75	9	1
1:A:194:ILE:O	1:A:205:ALA:HB1	0.40	2.17	16	2
1:A:242:LEU:HD11	1:A:264:ASP:CG	0.40	2.37	16	2
1:A:3:VAL:C	1:A:124:ASN:OD1	0.40	2.60	4	1
1:A:237:VAL:O	1:A:237:VAL:HG22	0.40	2.16	9	1
1:A:180:LEU:C	1:A:180:LEU:HD23	0.40	2.36	15	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	253/285 (89%)	223±3 (88±1%)	20±3 (8±1%)	10±2 (4±1%)	5	31
All	All	5060/5700 (89%)	4458 (88%)	401 (8%)	201 (4%)	5	31

All 33 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	121	GLU	19
1	A	122	HIS	19
1	A	79	ASN	18

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Mol	Chain	Res	Type	Models (Total)
1	A	120	ARG	14
1	A	24	PHE	13
1	A	241	SER	11
1	A	49	THR	9
1	A	109	LYS	9
1	A	176	ASP	9
1	A	94	GLY	8
1	A	66	GLU	7
1	A	147	GLU	7
1	A	65	THR	7
1	A	265	GLY	6
1	A	37	ASN	5
1	A	202	LEU	4
1	A	228	ASP	4
1	A	229	PRO	4
1	A	177	GLU	3
1	A	283	ALA	3
1	A	250	THR	3
1	A	93	ARG	3
1	A	63	ARG	2
1	A	64	TRP	2
1	A	38	GLY	2
1	A	230	ASP	2
1	A	40	GLU	2
1	A	5	PRO	1
1	A	6	THR	1
1	A	7	TYR	1
1	A	36	GLU	1
1	A	89	ASP	1
1	A	51	THR	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	207/232 (89%)	195±2 (94±1%)	12±2 (6±1%)	24	73
All	All	4140/4640 (89%)	3901 (94%)	239 (6%)	24	73

All 51 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	228	ASP	18
1	A	7	TYR	18
1	A	102	SER	17
1	A	157	PHE	16
1	A	178	PHE	16
1	A	227	ILE	14
1	A	52	THR	11
1	A	124	ASN	11
1	A	101	SER	10
1	A	210	TRP	10
1	A	3	VAL	9
1	A	241	SER	8
1	A	175	THR	5
1	A	51	THR	5
1	A	262	LEU	4
1	A	156	ASN	4
1	A	238	ASN	4
1	A	202	LEU	4
1	A	57	SER	4
1	A	237	VAL	3
1	A	65	THR	3
1	A	154	GLN	3
1	A	230	ASP	3
1	A	193	SER	3
1	A	239	ASN	2
1	A	97	LEU	2
1	A	168	ASN	2
1	A	208	LEU	2
1	A	196	GLN	2
1	A	232	CYS	2
1	A	40	GLU	2
1	A	150	LEU	2
1	A	49	THR	2
1	A	207	ASN	1
1	A	84	GLU	1
1	A	211	THR	1
1	A	233	PHE	1
1	A	279	LEU	1
1	A	71	PHE	1
1	A	259	LEU	1
1	A	39	LEU	1

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Mol	Chain	Res	Type	Models (Total)
1	A	59	GLU	1
1	A	146	TYR	1
1	A	183	ASN	1
1	A	86	THR	1
1	A	128	ASP	1
1	A	190	PHE	1
1	A	242	LEU	1
1	A	87	VAL	1
1	A	180	LEU	1
1	A	280	GLU	1

6.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.6 Ligand geometry ⓘ

There are no ligands in this entry.

6.7 Other polymers ⓘ

There are no such molecules in this entry.

6.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

7 Chemical shift validation ⓘ

The completeness of assignment taking into account all chemical shift lists is 27% for the well-defined parts and 26% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *assigned_chem_shift_list*

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	971
Number of shifts mapped to atoms	971
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

7.1.2 Chemical shift referencing ⓘ

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_\alpha$	263	0.42 ± 0.06	None needed (< 0.5 ppm)
$^{13}C_\beta$	0	—	None (insufficient data)
$^{13}C'$	203	0.78 ± 0.09	Should be applied
^{15}N	248	-0.86 ± 0.37	Should be applied

7.1.3 Completeness of resonance assignments ⓘ

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 27%, i.e. 899 atoms were assigned a chemical shift out of a possible 3326. 0 out of 37 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	890/1285 (69%)	230/530 (43%)	430/506 (85%)	230/249 (92%)
Sidechain	0/1742 (0%)	0/1131 (0%)	0/549 (0%)	0/62 (0%)

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PROTEIN DATA BANK

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	Total	^{1}H	^{13}C	^{15}N
Aromatic	9/299 (3%)	5/146 (3%)	0/146 (0%)	4/7 (57%)
Overall	899/3326 (27%)	235/1807 (13%)	430/1201 (36%)	234/318 (74%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 26%, i.e. 971 atoms were assigned a chemical shift out of a possible 3726. 0 out of 41 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	962/1445 (67%)	248/596 (42%)	466/570 (82%)	248/279 (89%)
Sidechain	0/1973 (0%)	0/1279 (0%)	0/618 (0%)	0/76 (0%)
Aromatic	9/308 (3%)	5/150 (3%)	0/151 (0%)	4/7 (57%)
Overall	971/3726 (26%)	253/2025 (12%)	466/1339 (35%)	252/362 (70%)

7.1.4 Statistically unusual chemical shifts ⓘ

There are no statistically unusual chemical shifts.

7.1.5 Random Coil Index (RCI) plots ⓘ

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 (i)

8.1 Conformationally restricting restraints (i)

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	931
Intra-residue ($\lvert i-j \rvert = 0$)	2
Sequential ($\lvert i-j \rvert = 1$)	224
Medium range ($\lvert i-j \rvert > 1$ and $\lvert i-j \rvert < 5$)	115
Long range ($\lvert i-j \rvert \geq 5$)	334
Inter-chain	0
Hydrogen bond restraints	256
Disulfide bond restraints	0
Total dihedral-angle restraints	452
Number of unmapped restraints	0
Number of restraints per residue	4.9
Number of long range restraints per residue[1]	2.0

[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 (i)

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 (i)

Distance violations less than 0.1 Å are not included in the calculation.

Bins (Å)	Average number of violations per model	Max (Å)
0.1-0.2 (Small)	2.2	0.18
0.2-0.5 (Medium)	None	None
>0.5 (Large)	None	None

8.2.2　Average number of dihedral-angle violations per model ⓘ

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

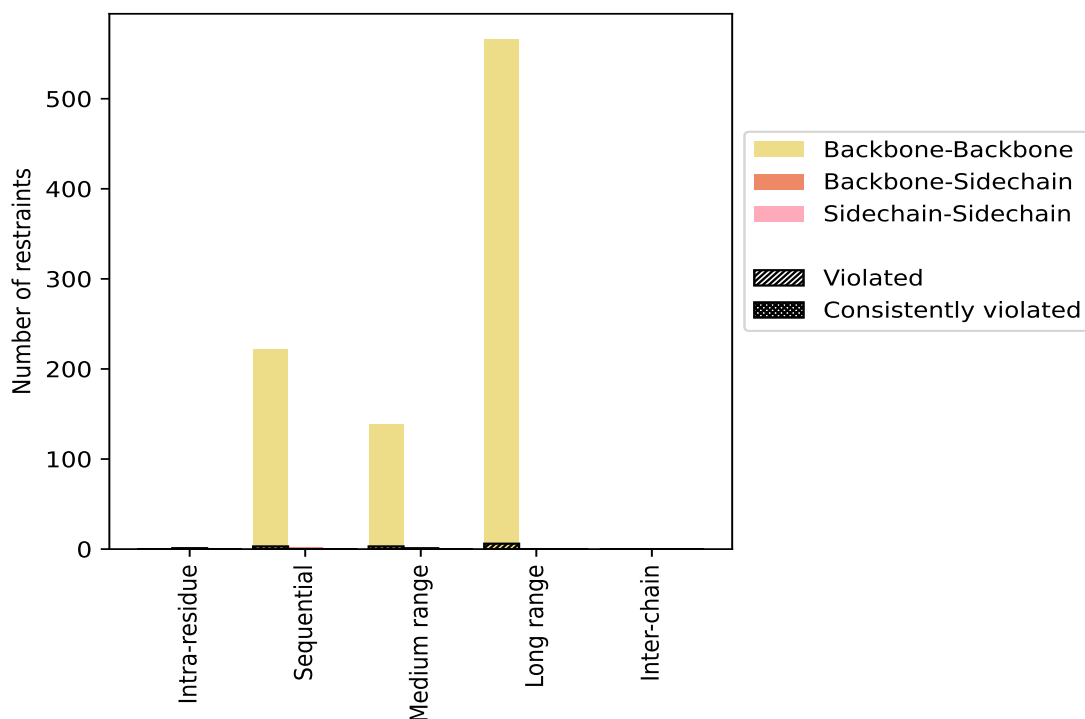| Bins (°)	Average number of violations per model	Max (°)
1.0-10.0 (Small)	0.1	1.1
10.0-20.0 (Medium)	None	None
>20.0 (Large)	None	None

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)	2	0.2	1	50.0	0.1	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	2	0.2	1	50.0	0.1	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Sequential (|i-j|=1)	224	24.1	3	1.3	0.3	0	0.0	0.0
Backbone-Backbone	222	23.8	3	1.4	0.3	0	0.0	0.0
Backbone-Sidechain	2	0.2	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
Medium range (|i-j|>1 & |i-j|<5)	115	12.4	2	1.7	0.2	0	0.0	0.0
Backbone-Backbone	114	12.2	1	0.9	0.1	0	0.0	0.0
Backbone-Sidechain	1	0.1	1	100.0	0.1	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Long range (|i-j|≥5)	334	35.9	6	1.8	0.6	0	0.0	0.0
Backbone-Backbone	334	35.9	6	1.8	0.6	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
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	256	27.5	2	0.8	0.2	0	0.0	0.0
Disulfide bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Total	931	100.0	14	1.5	1.5	0	0.0	0.0
Backbone-Backbone	926	99.5	12	1.3	1.3	0	0.0	0.0
Backbone-Sidechain	5	0.5	2	40.0	0.2	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0

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

9.1.1   Bar chart : Distribution of distance restraints and violations ⓘ

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

9.2   Distance violation statistics for each model ⓘ

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

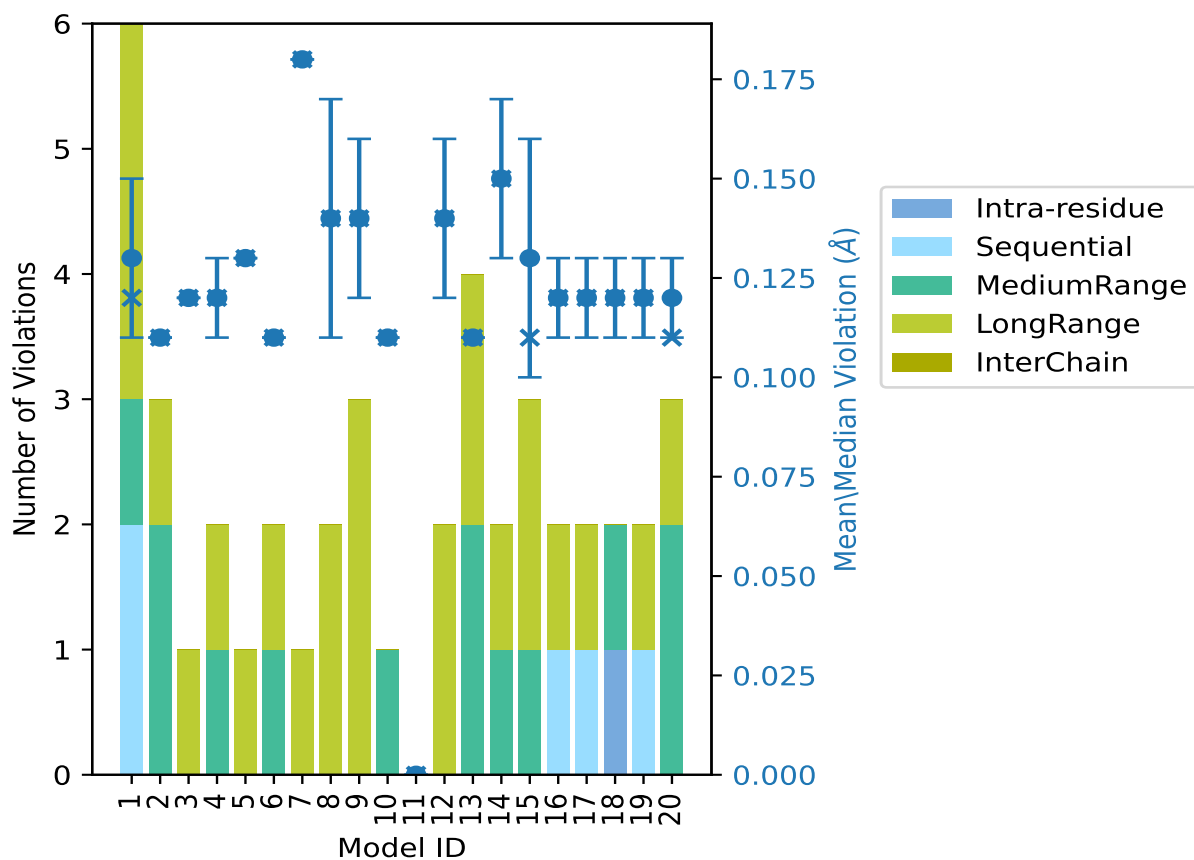| Model ID	Number of violations						Mean (Å)	Max (Å)	SD[6] (Å)	Median (Å)
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
1	0	2	1	3	0	6	0.13	0.16	0.02	0.12
2	0	0	2	1	0	3	0.11	0.11	0.0	0.11
3	0	0	0	1	0	1	0.12	0.12	0.0	0.12
4	0	0	1	1	0	2	0.12	0.13	0.01	0.12
5	0	0	0	1	0	1	0.13	0.13	0.0	0.13
6	0	0	1	1	0	2	0.11	0.11	0.0	0.11
7	0	0	0	1	0	1	0.18	0.18	0.0	0.18
8	0	0	0	2	0	2	0.14	0.17	0.03	0.14
9	0	0	0	3	0	3	0.14	0.16	0.02	0.14
10	0	0	1	0	0	1	0.11	0.11	0.0	0.11
11	0	0	0	0	0	0	0.0	0.0	0.0	0.0

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| Model ID | Number of violations | | | | | | Mean (Å) | Max (Å) | SD[6] (Å) | Median (Å) |
	IR[1]	SQ[2]	MR[3]	LR[4]	IC[5]	Total				
12	0	0	0	2	0	2	0.14	0.15	0.02	0.14
13	0	0	2	2	0	4	0.11	0.11	0.0	0.11
14	0	0	1	1	0	2	0.15	0.17	0.02	0.15
15	0	0	1	2	0	3	0.13	0.17	0.03	0.11
16	0	1	0	1	0	2	0.12	0.13	0.01	0.12
17	0	1	0	1	0	2	0.12	0.13	0.01	0.12
18	1	0	1	0	0	2	0.12	0.13	0.01	0.12
19	0	1	0	1	0	2	0.12	0.13	0.01	0.12
20	0	0	2	1	0	3	0.12	0.13	0.01	0.11

[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
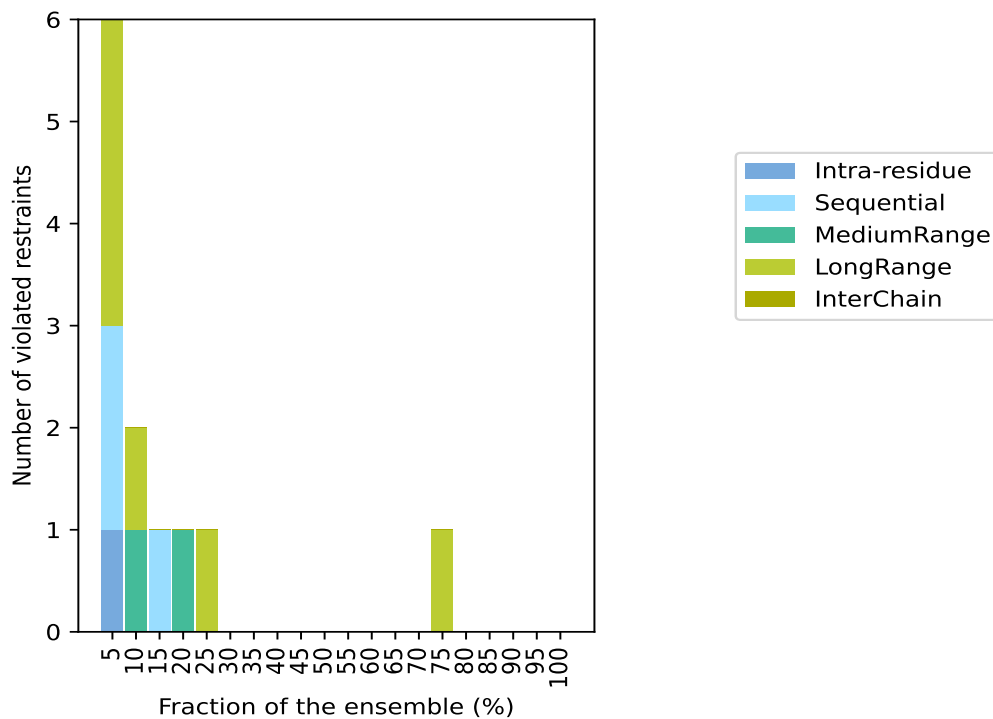on the right

9.3   Distance violation statistics for the ensemble ⓘ

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, 663(IR:1, SQ:221, MR:113, LR:328, 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]	%
1	2	0	3	0	6	1	5.0
0	0	1	1	0	2	2	10.0
0	1	0	0	0	1	3	15.0
0	0	1	0	0	1	4	20.0
0	0	0	1	0	1	5	25.0
0	0	0	0	0	0	6	30.0
0	0	0	0	0	0	7	35.0
0	0	0	0	0	0	8	40.0
0	0	0	0	0	0	9	45.0
0	0	0	0	0	0	10	50.0
0	0	0	0	0	0	11	55.0
0	0	0	0	0	0	12	60.0
0	0	0	0	0	0	13	65.0
0	0	0	0	0	0	14	70.0
0	0	0	1	0	1	15	75.0
0	0	0	0	0	0	16	80.0
0	0	0	0	0	0	17	85.0
0	0	0	0	0	0	18	90.0
0	0	0	0	0	0	19	95.0
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

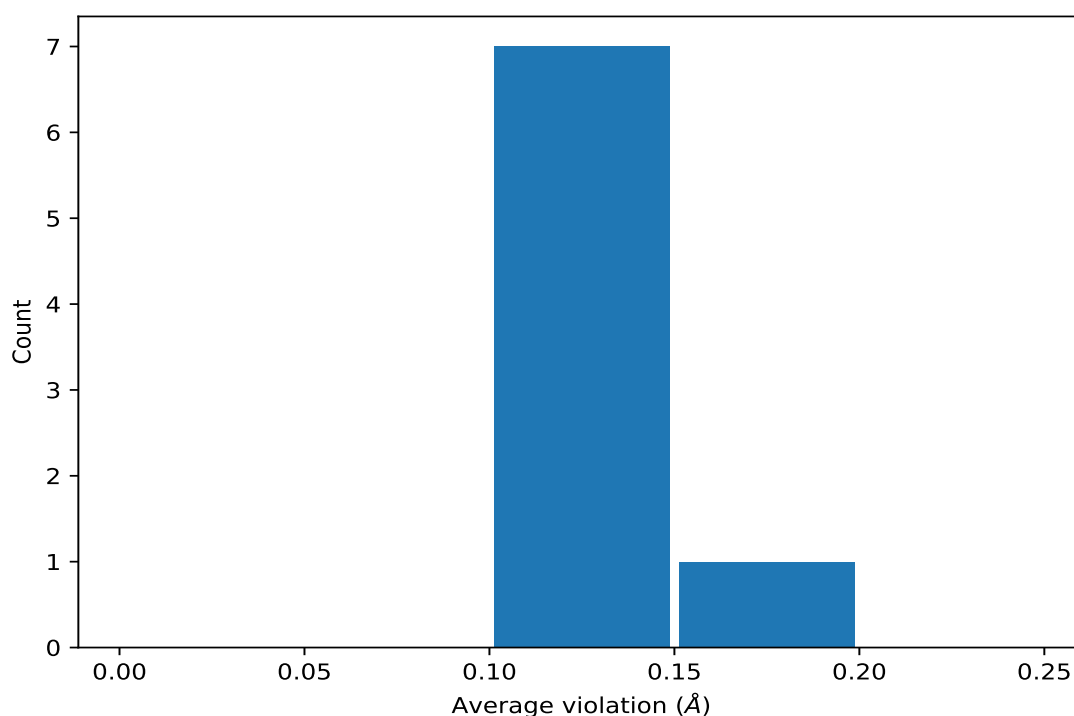### 9.3.1 Bar graph : Distance violation statistics for the ensemble ⓘ

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.
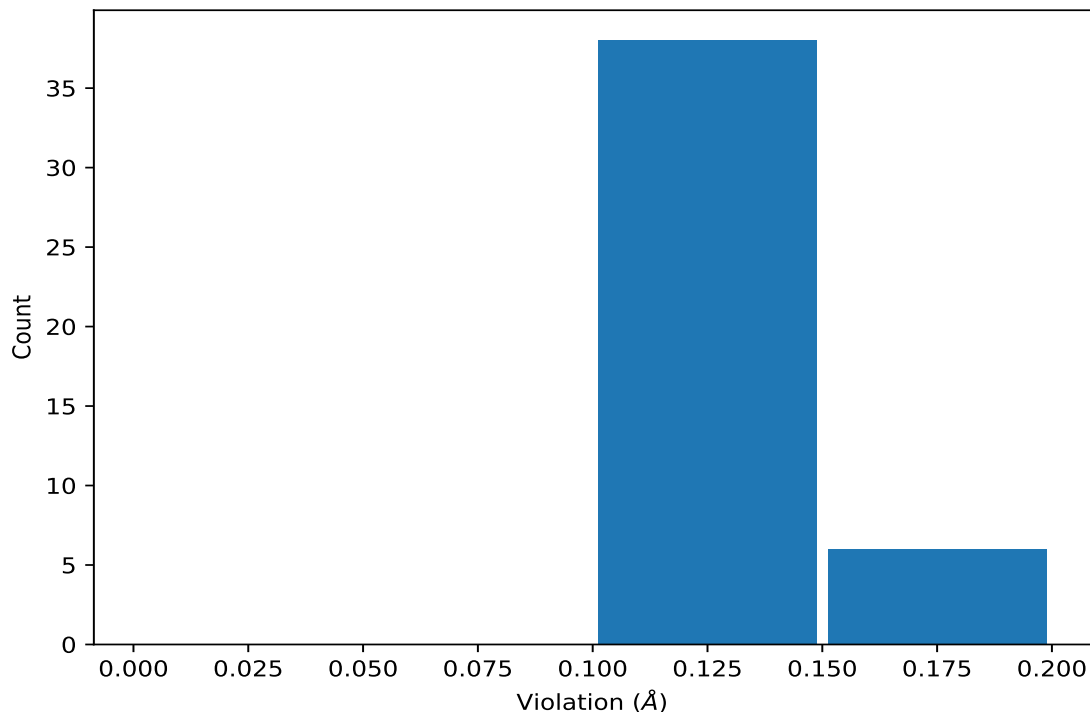
Key	Atom-1	Atom-2	Models[1]	Mean (Å)	SD[1] (Å)	Median (Å)
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	15	0.13	0.02	0.13
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	5	0.12	0.01	0.12
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	5	0.11	0.0	0.11
(1,382)	1:A:146:TYR:H	1:A:149:TRP:HE1	4	0.11	0.0	0.11
(1,653)	1:A:265:GLY:H	1:A:266:LYS:H	3	0.12	0.0	0.12
(1,35)	1:A:265:GLY:H	1:A:269:ASN:H	2	0.17	0.0	0.17
(2,1)	1:A:12:LYS:H	1:A:9:ASP:O	2	0.12	0.01	0.12
(1,555)	1:A:221:ILE:H	1:A:236:LYS:H	2	0.12	0.0	0.12

[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)
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	7	0.18
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	8	0.17
(1,35)	1:A:265:GLY:H	1:A:269:ASN:H	14	0.17
(1,35)	1:A:265:GLY:H	1:A:269:ASN:H	15	0.17
(1,663)	1:A:270:ALA:H	1:A:271:GLY:H	1	0.16
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	9	0.16
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	12	0.15
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	9	0.14
(1,36)	1:A:266:LYS:H	1:A:271:GLY:H	1	0.14
(2,1)	1:A:12:LYS:H	1:A:9:ASP:O	1	0.13

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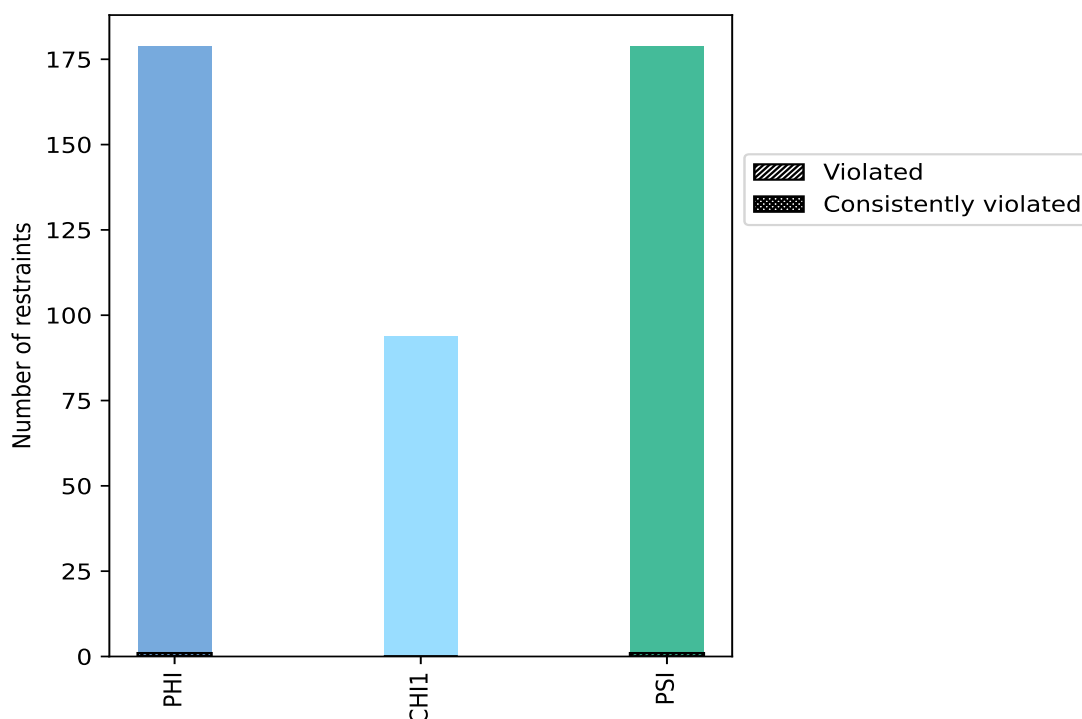| Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	4	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	5	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	14	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	16	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	17	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	19	0.13
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	20	0.13
(1,538)	1:A:210:TRP:H	1:A:210:TRP:HE1	18	0.13
(1,653)	1:A:265:GLY:H	1:A:266:LYS:H	16	0.12
(1,653)	1:A:265:GLY:H	1:A:266:LYS:H	17	0.12
(1,653)	1:A:265:GLY:H	1:A:266:LYS:H	19	0.12
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	1	0.12
(1,555)	1:A:221:ILE:H	1:A:236:LYS:H	9	0.12
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	3	0.12
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	12	0.12
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	2	0.11
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	10	0.11
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	13	0.11
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	18	0.11
(2,115)	1:A:149:TRP:H	1:A:146:TYR:O	20	0.11
(2,1)	1:A:12:LYS:H	1:A:9:ASP:O	6	0.11
(1,655)	1:A:266:LYS:H	1:A:267:ASN:H	1	0.11
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	6	0.11
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	13	0.11
(1,6)	1:A:47:ALA:H	1:A:54:VAL:H	15	0.11
(1,555)	1:A:221:ILE:H	1:A:236:LYS:H	2	0.11
(1,382)	1:A:146:TYR:H	1:A:149:TRP:HE1	2	0.11
(1,382)	1:A:146:TYR:H	1:A:149:TRP:HE1	4	0.11
(1,382)	1:A:146:TYR:H	1:A:149:TRP:HE1	13	0.11
(1,382)	1:A:146:TYR:H	1:A:149:TRP:HE1	20	0.11
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	13	0.11
(1,366)	1:A:141:ALA:H	1:A:153:TYR:H	15	0.11
(1,256)	1:A:90:GLN:H	1:A:97:LEU:H	8	0.11
(1,1)	1:A:6:THR:H	1:A:141:ALA:H	1	0.11

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	179	39.6	1	0.6	0.2	0	0.0	0.0
CHI1	94	20.8	0	0.0	0.0	0	0.0	0.0
PSI	179	39.6	1	0.6	0.2	0	0.0	0.0
Total	452	100.0	2	0.4	0.4	0	0.0	0.0

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

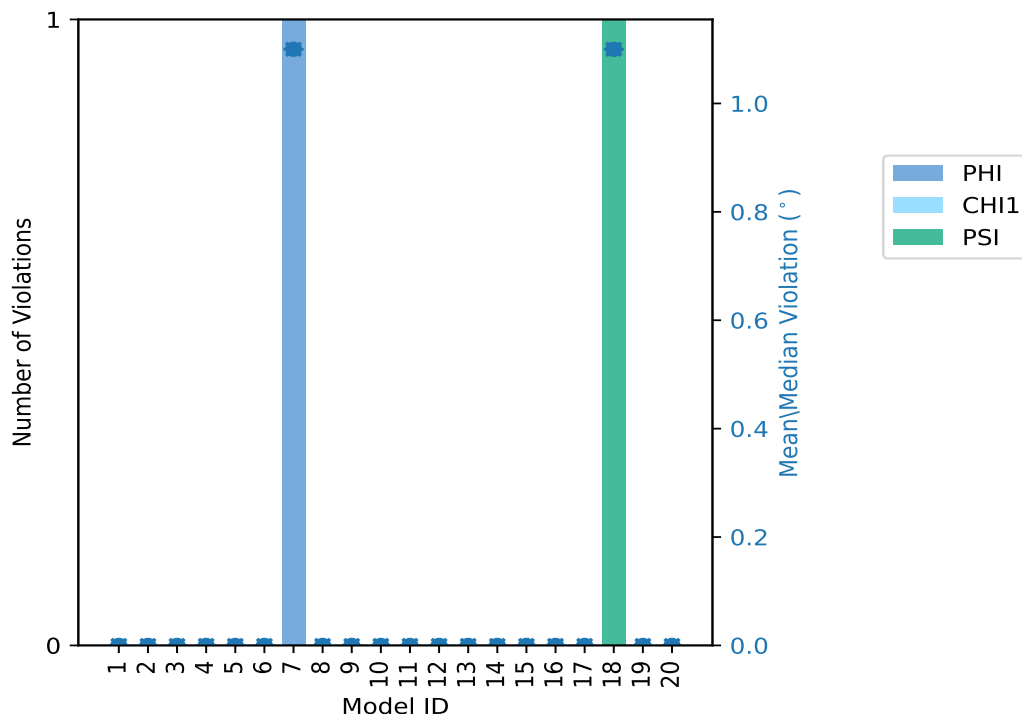### 10.1.1 Bar chart : Distribution of dihedral-angles and violations ⓘ

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

10.2　Dihedral-angle violation statistics for each model (i)

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	CHI1	PSI	Total				
1	0	0	0	0	0.0	0.0	0.0	0.0
2	0	0	0	0	0.0	0.0	0.0	0.0
3	0	0	0	0	0.0	0.0	0.0	0.0
4	0	0	0	0	0.0	0.0	0.0	0.0
5	0	0	0	0	0.0	0.0	0.0	0.0
6	0	0	0	0	0.0	0.0	0.0	0.0
7	1	0	0	1	1.1	1.1	0.0	1.1
8	0	0	0	0	0.0	0.0	0.0	0.0
9	0	0	0	0	0.0	0.0	0.0	0.0
10	0	0	0	0	0.0	0.0	0.0	0.0
11	0	0	0	0	0.0	0.0	0.0	0.0
12	0	0	0	0	0.0	0.0	0.0	0.0
13	0	0	0	0	0.0	0.0	0.0	0.0
14	0	0	0	0	0.0	0.0	0.0	0.0
15	0	0	0	0	0.0	0.0	0.0	0.0
16	0	0	0	0	0.0	0.0	0.0	0.0
17	0	0	0	0	0.0	0.0	0.0	0.0
18	0	0	1	1	1.1	1.1	0.0	1.1
19	0	0	0	0	0.0	0.0	0.0	0.0
20	0	0	0	0	0.0	0.0	0.0	0.0

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.

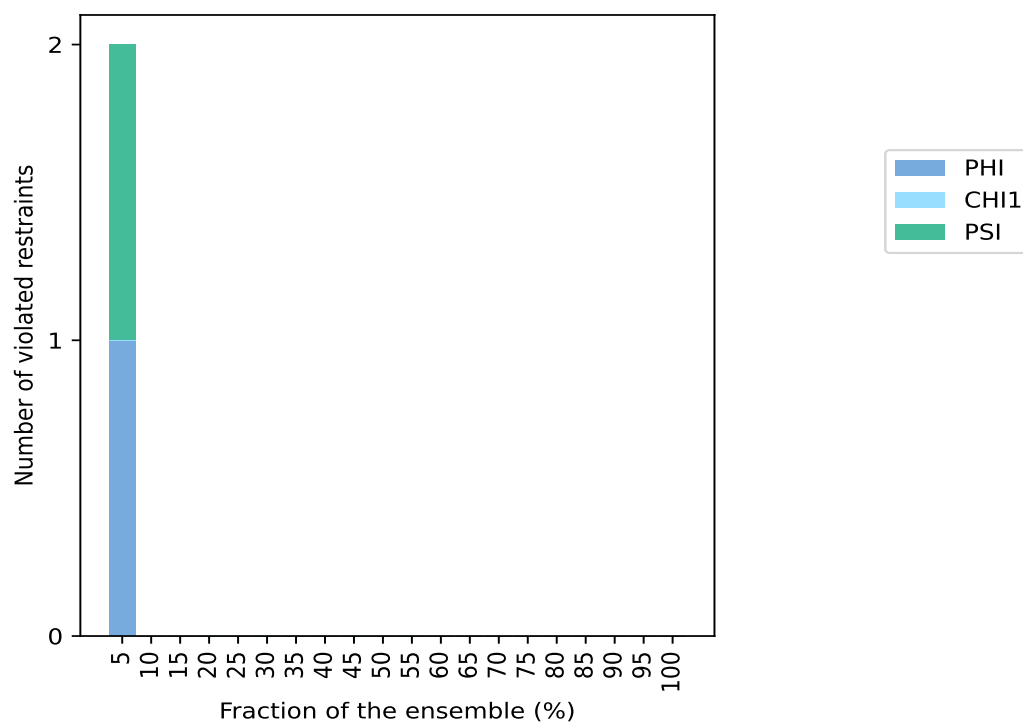| Number of violated restraints				Fraction of the ensemble	
PHI	CHI1	PSI	Total	Count[1]	%
1	0	1	2	1	5.0
0	0	0	0	2	10.0
0	0	0	0	3	15.0
0	0	0	0	4	20.0
0	0	0	0	5	25.0
0	0	0	0	6	30.0
0	0	0	0	7	35.0
0	0	0	0	8	40.0
0	0	0	0	9	45.0
0	0	0	0	10	50.0
0	0	0	0	11	55.0

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| Number of violated restraints | | | | Fraction of the ensemble | |
PHI	CHI1	PSI	Total	Count[1]	%
0	0	0	0	12	60.0
0	0	0	0	13	65.0
0	0	0	0	14	70.0
0	0	0	0	15	75.0
0	0	0	0	16	80.0
0	0	0	0	17	85.0
0	0	0	0	18	90.0
0	0	0	0	19	95.0
0	0	0	0	20	100.0

[1] Number of models with violations

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

10.4   Most violated dihedral-angle restraints in the ensemble ⓘ

No violations found

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.
Data insufficient to plot histogram

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 (°)
(1,221)	1:A:123:ILE:C	1:A:124:ASN:N	1:A:124:ASN:CA	1:A:124:ASN:C	7	1.1
(1,220)	1:A:119:LYS:N	1:A:119:LYS:CA	1:A:119:LYS:C	1:A:120:ARG:N	18	1.1