



Full wwPDB NMR Structure Validation Report ⓘ

Feb 12, 2017 – 08:53 pm GMT

PDB ID : 1Z87
Title : solution structure of the split PH-PDZ Supramodule of alpha-Syntrophin
Authors : Yan, J.; Xu, W.; Wen, W.; Long, J.F.; Adams, M.E.; Froehner, S.C.; Zhang, M.
Deposited on : 2005-03-30

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<http://wwpdb.org/validation/2016/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

Cyrange : Kirchner and Güntert (2011)
NmrClust : Kelley et al. (1996)
MolProbity : 4.02b-467
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
ShiftChecker : trunk28760
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : recalc28949

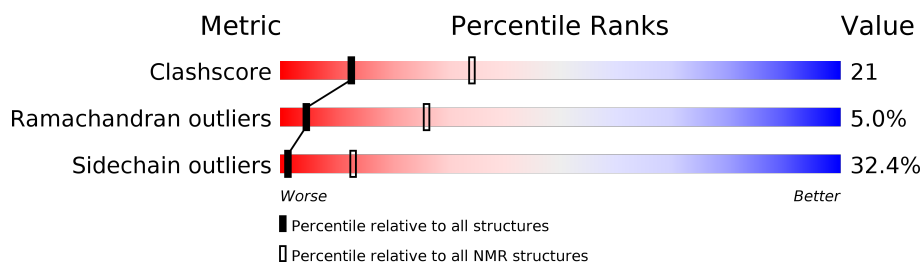
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment is 75%.

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



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	125131	11601
Ramachandran outliers	121729	10391
Sidechain outliers	121581	10367

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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	263	<div> <div>30%</div> <div>30%</div> <div>.</div> <div>37%</div> </div>

2 Ensemble composition and analysis

This entry contains 15 models. Model 3 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:8-A:17, A:27-A:45, A:206-A:221, A:228-A:264 (82)	0.45	1
2	A:79-A:163 (85)	0.46	3

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 1 single-model cluster was found.

Cluster number	Models
1	1, 2, 3, 6, 8, 11, 12
2	4, 5, 9, 10, 15
3	7, 13
Single-model clusters	14

3 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 3906 atoms, of which 1960 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Alpha-1-syntrophin.

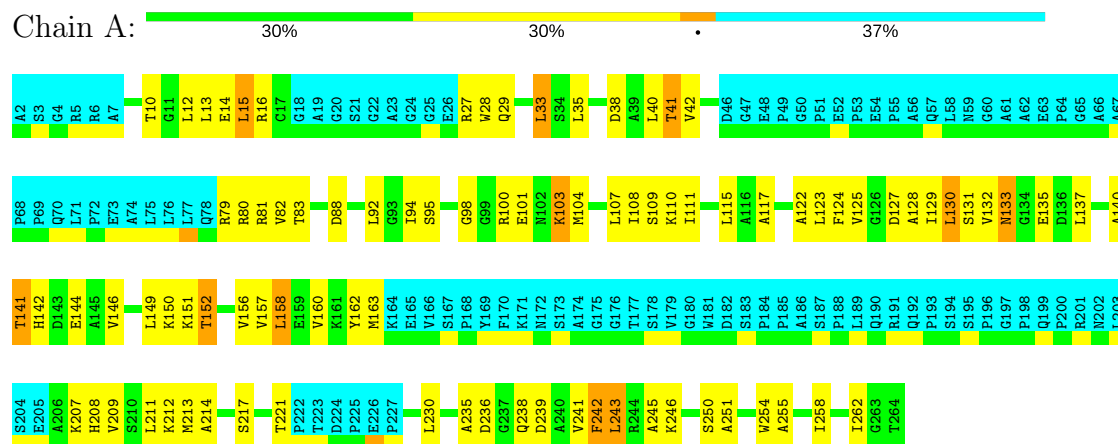
Mol	Chain	Residues	Atoms						Trace
1	A	263	Total	C	H	N	O	S	0
			3906	1207	1960	355	378	6	

4 Residue-property plots [i](#)

4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA and DNA 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: Alpha-1-syntrophin

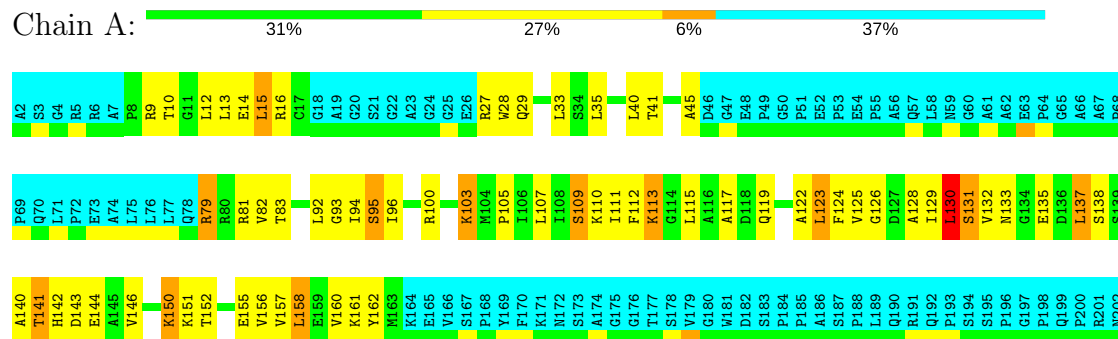


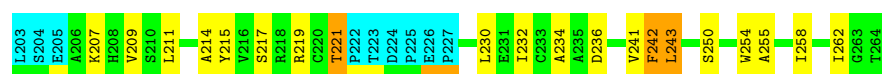
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

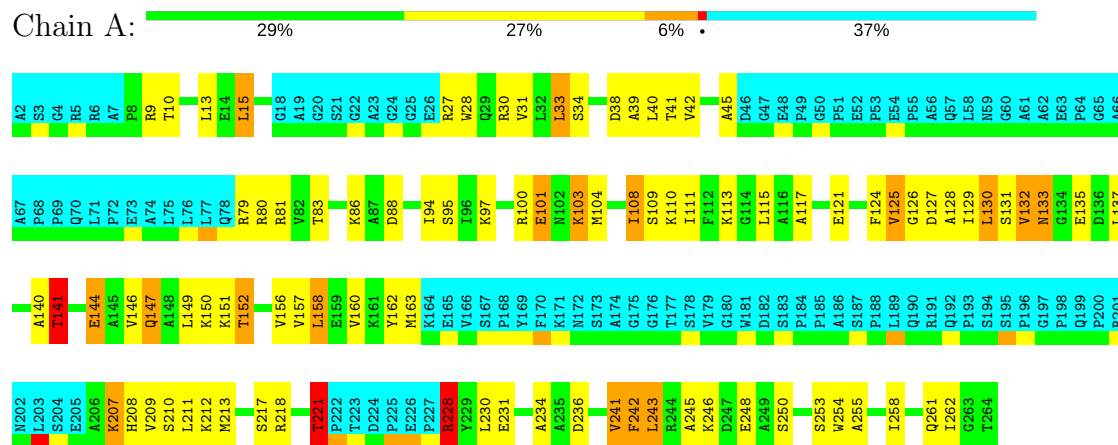
- Molecule 1: Alpha-1-syntrophin





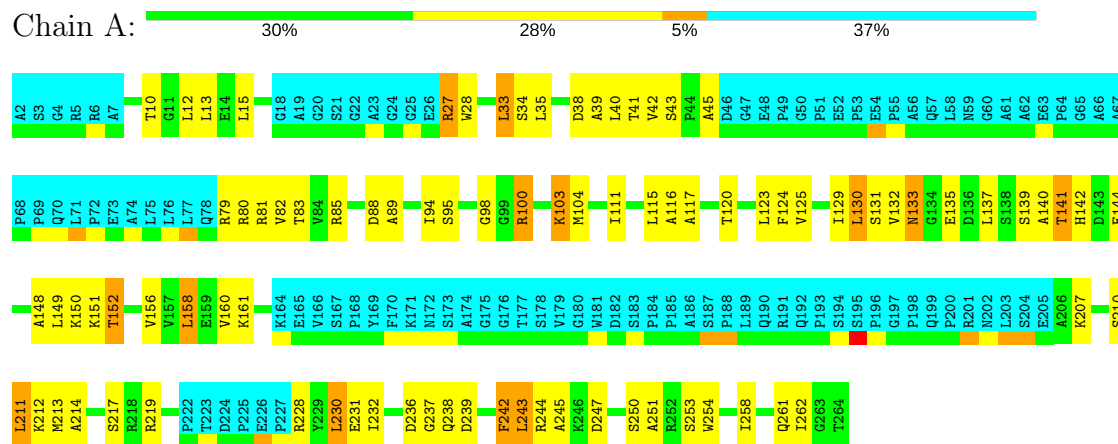
4.2.2 Score per residue for model 2

- Molecule 1: Alpha-1-syntrophin



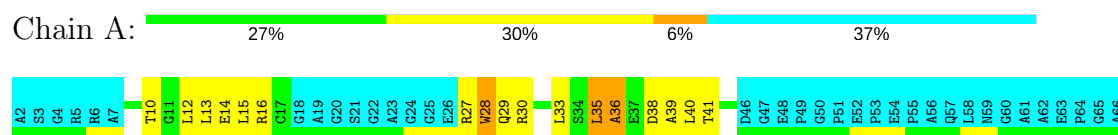
4.2.3 Score per residue for model 3 (medoid)

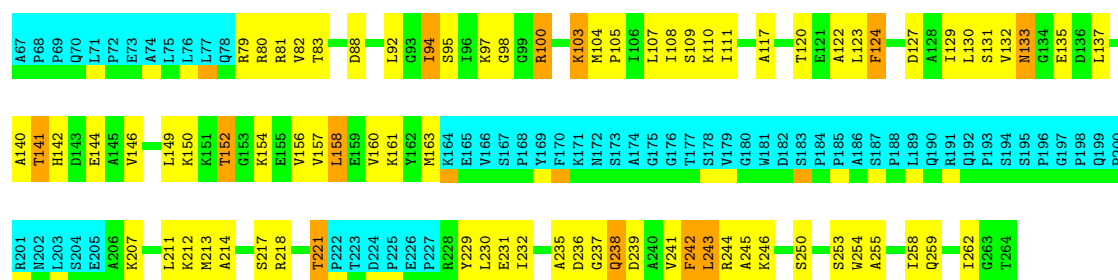
- Molecule 1: Alpha-1-syntrophin



4.2.4 Score per residue for model 4

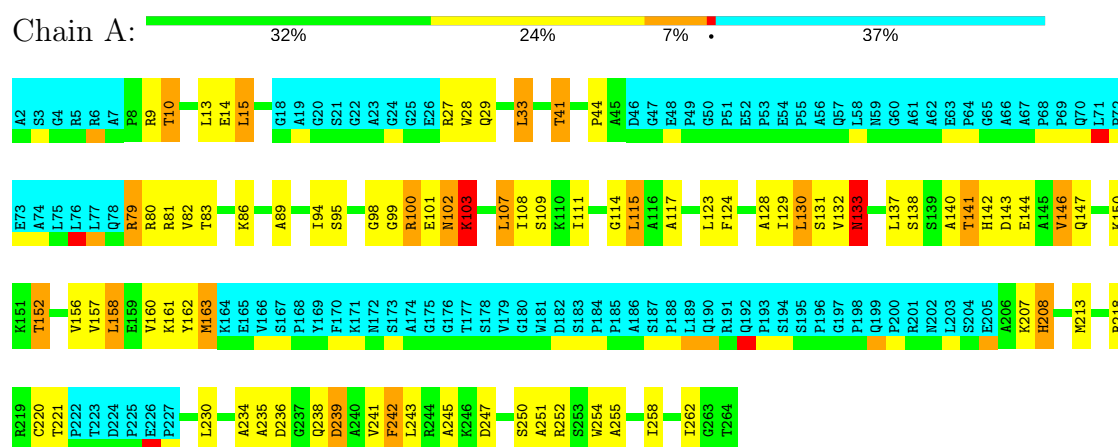
- Molecule 1: Alpha-1-syntrophin





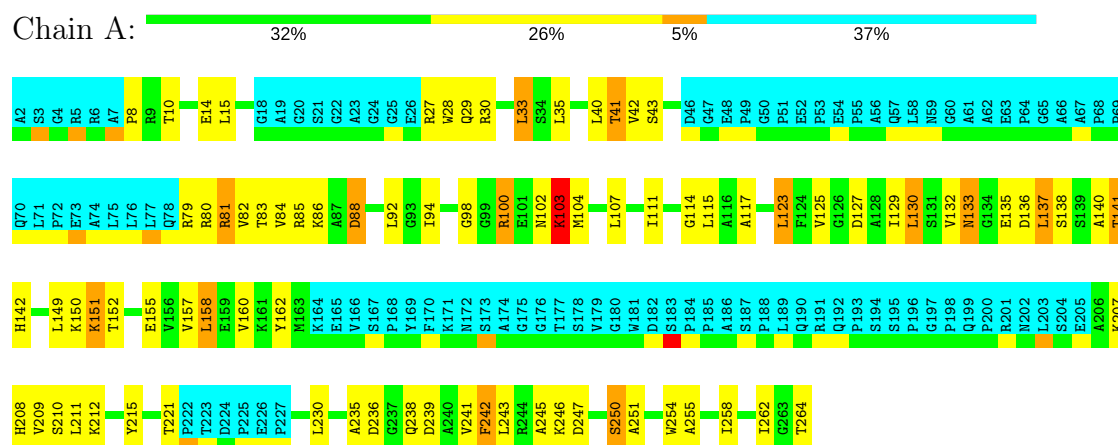
4.2.5 Score per residue for model 5

- Molecule 1: Alpha-1-syntrophin



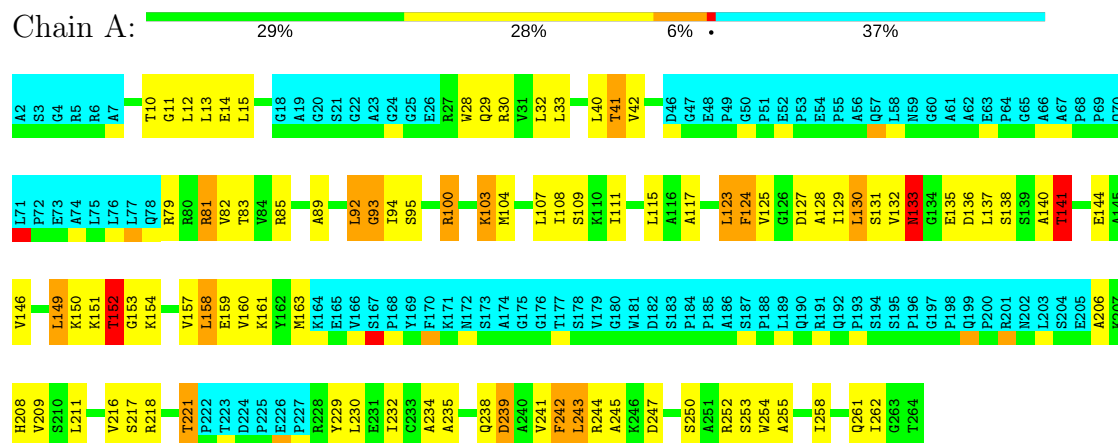
4.2.6 Score per residue for model 6

- Molecule 1: Alpha-1-syntrophin



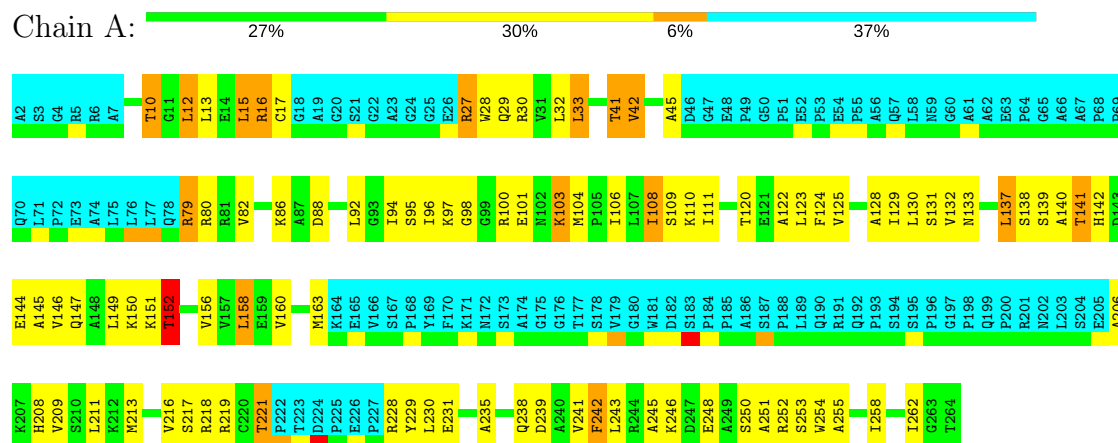
4.2.7 Score per residue for model 7

- Molecule 1: Alpha-1-syntrophin



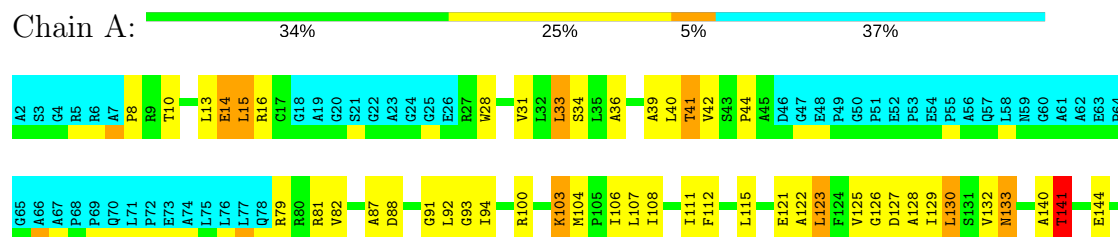
4.2.8 Score per residue for model 8

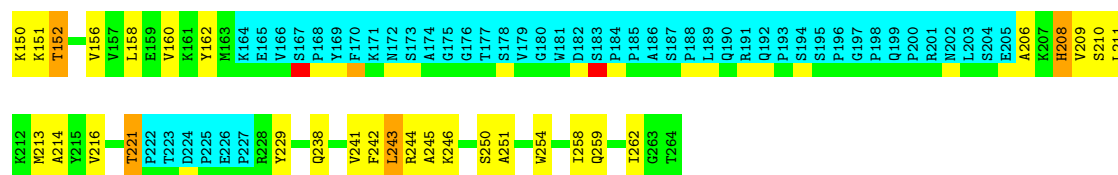
- Molecule 1: Alpha-1-syntrophin



4.2.9 Score per residue for model 9

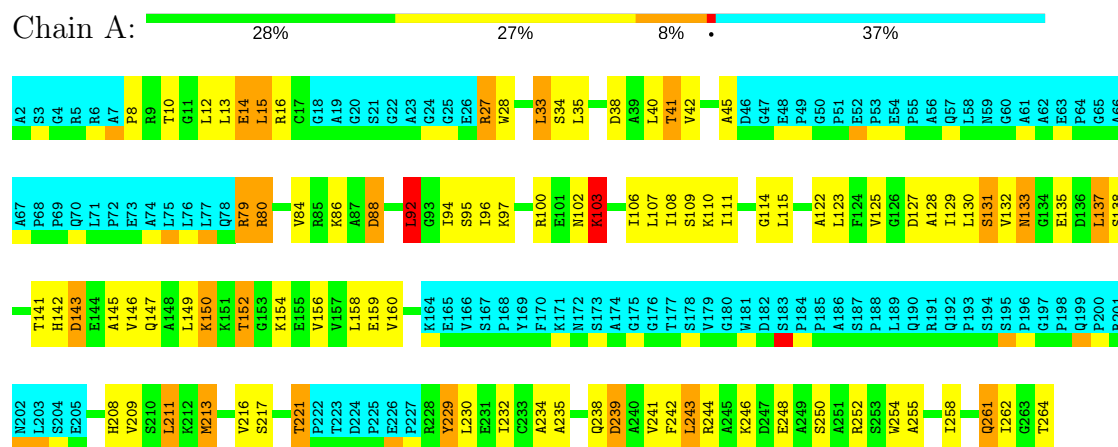
- Molecule 1: Alpha-1-syntrophin





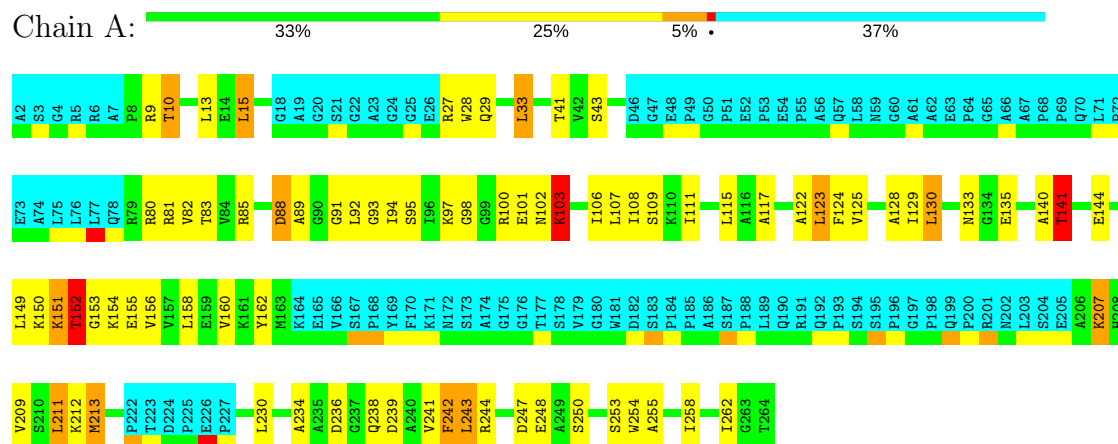
4.2.10 Score per residue for model 10

- Molecule 1: Alpha-1-syntrophin



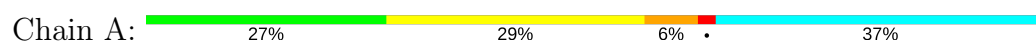
4.2.11 Score per residue for model 11

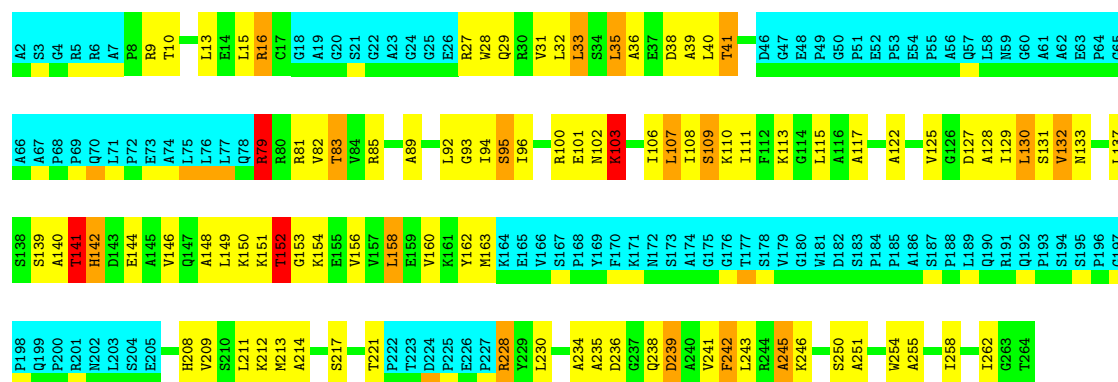
- Molecule 1: Alpha-1-syntrophin



4.2.12 Score per residue for model 12

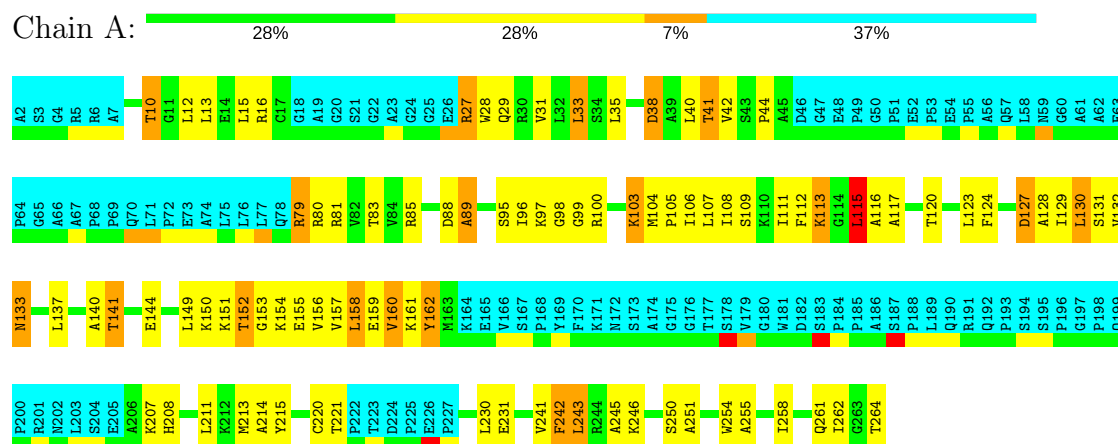
- Molecule 1: Alpha-1-syntrophin





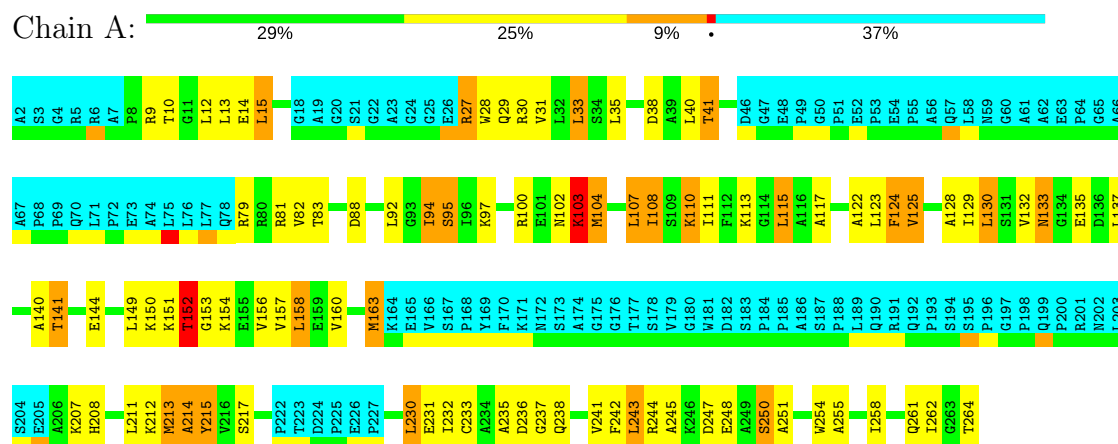
4.2.13 Score per residue for model 13

- Molecule 1: Alpha-1-syntrophin



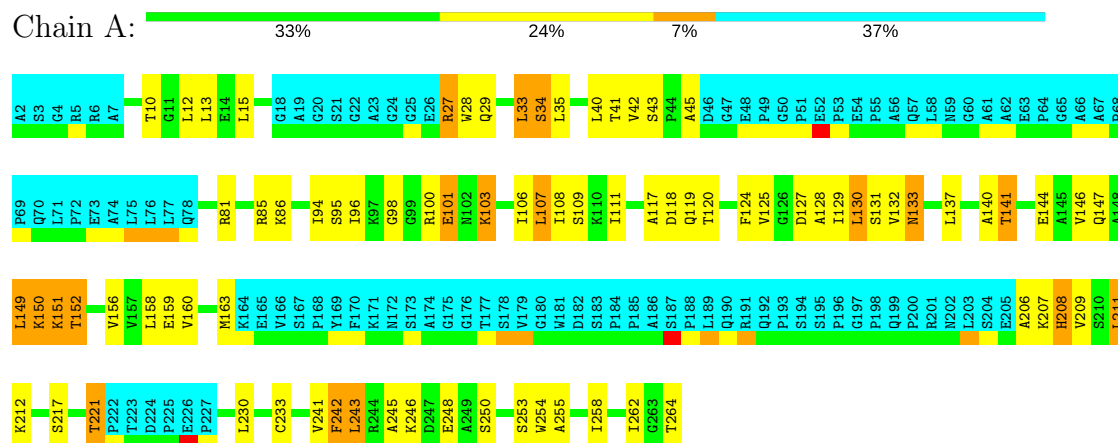
4.2.14 Score per residue for model 14

- Molecule 1: Alpha-1-syntrophin



4.2.15 Score per residue for model 15

• Molecule 1: Alpha-1-syntrophin



5 Refinement protocol and experimental data overview

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

Of the 200 calculated structures, 15 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	1.1

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)	BMRB entry 6752
Number of chemical shift lists	1
Total number of shifts	2542
Number of shifts mapped to atoms	2542
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	75%

No validations of the models with respect to experimental NMR restraints is performed at this time.

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	1271	1326	1324	54±7
All	All	19065	19890	19860	816

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:230:LEU:HD21	1:A:255:ALA:HB2	1.04	1.27	15	7
1:A:96:ILE:HD11	1:A:146:VAL:HG22	0.98	1.26	8	1
1:A:258:ILE:HG22	1:A:262:ILE:HD11	0.98	1.34	6	4
1:A:83:THR:HG23	1:A:157:VAL:HG22	0.93	1.37	5	7
1:A:245:ALA:HB2	1:A:251:ALA:HB2	0.92	1.39	14	1
1:A:13:LEU:HD13	1:A:243:LEU:HD13	0.90	1.41	14	2
1:A:132:VAL:HG13	1:A:158:LEU:HD12	0.87	1.45	3	5
1:A:108:ILE:HG21	1:A:111:ILE:HD11	0.86	1.47	13	5
1:A:152:THR:HG21	1:A:156:VAL:HG13	0.85	1.46	9	8
1:A:230:LEU:HD22	1:A:255:ALA:HB2	0.84	1.49	1	4
1:A:140:ALA:HB1	1:A:144:GLU:CB	0.82	2.04	1	13
1:A:258:ILE:HG22	1:A:262:ILE:CD1	0.81	2.06	2	11
1:A:13:LEU:CD1	1:A:243:LEU:HD13	0.80	2.07	14	1
1:A:245:ALA:HB3	1:A:251:ALA:HB2	0.80	1.52	6	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:230:LEU:CD2	1:A:255:ALA:HB2	0.80	2.06	5	8
1:A:111:ILE:HG23	1:A:117:ALA:HB1	0.79	1.53	14	10
1:A:230:LEU:HD21	1:A:255:ALA:CB	0.79	2.06	15	1
1:A:40:LEU:HD23	1:A:211:LEU:HD12	0.78	1.56	7	2
1:A:40:LEU:HD23	1:A:211:LEU:HD21	0.77	1.53	10	3
1:A:82:VAL:HG13	1:A:122:ALA:HB3	0.77	1.56	14	7
1:A:149:LEU:HD12	1:A:150:LYS:N	0.77	1.93	2	9
1:A:140:ALA:HB1	1:A:144:GLU:HB3	0.77	1.55	13	13
1:A:130:LEU:HD12	1:A:131:SER:OG	0.76	1.81	1	1
1:A:232:ILE:CD1	1:A:243:LEU:HD21	0.75	2.11	14	1
1:A:258:ILE:CG2	1:A:262:ILE:HD11	0.74	2.12	6	7
1:A:129:ILE:HA	1:A:160:VAL:HG12	0.73	1.60	6	14
1:A:242:PHE:O	1:A:243:LEU:HD22	0.72	1.84	5	4
1:A:12:LEU:O	1:A:13:LEU:HD23	0.72	1.84	1	5
1:A:12:LEU:HD21	1:A:45:ALA:CB	0.72	2.15	1	2
1:A:137:LEU:HD23	1:A:140:ALA:HB3	0.72	1.62	8	2
1:A:132:VAL:HG23	1:A:158:LEU:HD12	0.72	1.60	9	3
1:A:235:ALA:HB3	1:A:238:GLN:HG3	0.71	1.61	14	2
1:A:211:LEU:HD12	1:A:262:ILE:HG12	0.70	1.61	15	2
1:A:100:ARG:CB	1:A:141:THR:HG22	0.70	2.16	3	4
1:A:152:THR:OG1	1:A:156:VAL:HG22	0.69	1.87	11	2
1:A:33:LEU:HD12	1:A:42:VAL:HG13	0.69	1.62	7	6
1:A:242:PHE:C	1:A:243:LEU:HD13	0.69	2.07	13	9
1:A:242:PHE:C	1:A:243:LEU:HD22	0.69	2.07	8	4
1:A:36:ALA:HB3	1:A:39:ALA:O	0.68	1.88	9	3
1:A:213:MET:HB3	1:A:235:ALA:HB2	0.68	1.63	8	1
1:A:245:ALA:CB	1:A:251:ALA:HB2	0.68	2.17	14	5
1:A:108:ILE:HG21	1:A:111:ILE:CD1	0.68	2.17	13	3
1:A:13:LEU:HD21	1:A:254:TRP:NE1	0.68	2.03	10	8
1:A:146:VAL:HG12	1:A:150:LYS:CE	0.67	2.19	15	1
1:A:209:VAL:CG1	1:A:234:ALA:HB2	0.67	2.20	11	4
1:A:82:VAL:HG21	1:A:123:LEU:HG	0.66	1.65	1	1
1:A:232:ILE:HD12	1:A:243:LEU:HD11	0.66	1.67	3	4
1:A:235:ALA:HB3	1:A:238:GLN:OE1	0.66	1.90	12	1
1:A:94:ILE:HG23	1:A:117:ALA:HB2	0.66	1.66	11	7
1:A:28:TRP:N	1:A:28:TRP:CD1	0.66	2.61	4	8
1:A:13:LEU:HD13	1:A:243:LEU:CD1	0.65	2.21	14	1
1:A:209:VAL:HG13	1:A:239:ASP:HB2	0.65	1.66	11	1
1:A:14:GLU:C	1:A:15:LEU:HD23	0.65	2.12	10	2
1:A:214:ALA:HB3	1:A:262:ILE:HD13	0.65	1.67	1	5
1:A:98:GLY:HA3	1:A:106:ILE:HD13	0.65	1.66	11	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:94:ILE:HG22	1:A:111:ILE:HA	0.65	1.69	2	12
1:A:15:LEU:HD23	1:A:16:ARG:O	0.65	1.91	8	2
1:A:146:VAL:HG12	1:A:150:LYS:HE3	0.65	1.69	15	1
1:A:115:LEU:N	1:A:115:LEU:HD22	0.65	2.07	13	1
1:A:107:LEU:CD2	1:A:128:ALA:HB2	0.65	2.22	10	7
1:A:40:LEU:CD2	1:A:211:LEU:HD21	0.65	2.21	10	1
1:A:123:LEU:N	1:A:123:LEU:HD13	0.64	2.07	6	1
1:A:96:ILE:HD12	1:A:142:HIS:CE1	0.64	2.26	8	1
1:A:38:ASP:C	1:A:211:LEU:HD13	0.64	2.12	14	2
1:A:207:LYS:HE2	1:A:241:VAL:HG13	0.64	1.68	2	1
1:A:221:THR:HG21	1:A:229:TYR:CE2	0.64	2.27	7	1
1:A:15:LEU:HD22	1:A:242:PHE:O	0.64	1.93	14	4
1:A:93:GLY:HA3	1:A:115:LEU:HD13	0.62	1.71	1	3
1:A:156:VAL:HG12	1:A:158:LEU:HD12	0.62	1.71	4	4
1:A:107:LEU:HD23	1:A:128:ALA:HB2	0.62	1.72	5	4
1:A:243:LEU:HD13	1:A:243:LEU:N	0.62	2.10	4	4
1:A:221:THR:HG21	1:A:229:TYR:CZ	0.62	2.29	7	1
1:A:137:LEU:HD22	1:A:140:ALA:CB	0.61	2.25	7	2
1:A:85:ARG:O	1:A:89:ALA:HB3	0.61	1.96	3	3
1:A:12:LEU:HD21	1:A:45:ALA:HB2	0.61	1.72	3	2
1:A:140:ALA:HB1	1:A:144:GLU:HB2	0.61	1.72	4	10
1:A:258:ILE:HG22	1:A:262:ILE:HD12	0.61	1.73	14	10
1:A:35:LEU:HD21	1:A:261:GLN:HG3	0.61	1.70	3	3
1:A:152:THR:OG1	1:A:153:GLY:N	0.60	2.31	11	4
1:A:245:ALA:HB1	1:A:250:SER:CB	0.60	2.26	4	3
1:A:211:LEU:HD12	1:A:262:ILE:CG1	0.60	2.26	15	2
1:A:101:GLU:N	1:A:141:THR:HG22	0.60	2.11	8	2
1:A:235:ALA:HB3	1:A:238:GLN:HG2	0.60	1.73	7	4
1:A:13:LEU:HD12	1:A:33:LEU:HB2	0.60	1.74	3	1
1:A:137:LEU:HB3	1:A:140:ALA:HB3	0.60	1.73	13	3
1:A:214:ALA:O	1:A:262:ILE:HD13	0.60	1.96	4	1
1:A:92:LEU:O	1:A:92:LEU:HD12	0.59	1.97	6	1
1:A:13:LEU:HD22	1:A:244:ARG:O	0.59	1.97	4	1
1:A:211:LEU:HD22	1:A:262:ILE:HG12	0.59	1.75	10	2
1:A:107:LEU:HD23	1:A:128:ALA:HA	0.59	1.73	11	1
1:A:82:VAL:HG11	1:A:123:LEU:HG	0.59	1.73	14	1
1:A:243:LEU:N	1:A:243:LEU:HD13	0.59	2.13	2	4
1:A:94:ILE:HD13	1:A:94:ILE:N	0.59	2.13	4	1
1:A:30:ARG:HD2	1:A:45:ALA:HB3	0.59	1.73	8	1
1:A:137:LEU:HD12	1:A:140:ALA:HB3	0.58	1.74	1	1
1:A:211:LEU:HD23	1:A:262:ILE:HG13	0.58	1.72	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:114:GLY:O	1:A:115:LEU:HD12	0.58	1.97	6	2
1:A:234:ALA:HB3	1:A:239:ASP:CB	0.58	2.28	7	3
1:A:42:VAL:O	1:A:206:ALA:HB1	0.58	1.99	7	4
1:A:40:LEU:HD23	1:A:211:LEU:HD11	0.58	1.75	12	2
1:A:94:ILE:HD12	1:A:96:ILE:CG2	0.58	2.28	8	2
1:A:94:ILE:HD12	1:A:96:ILE:HG23	0.57	1.75	8	3
1:A:116:ALA:O	1:A:120:THR:HG23	0.57	1.99	13	2
1:A:40:LEU:HD23	1:A:211:LEU:CD1	0.57	2.28	1	2
1:A:111:ILE:HG23	1:A:117:ALA:CB	0.57	2.26	14	3
1:A:108:ILE:O	1:A:125:VAL:HG23	0.57	2.00	7	1
1:A:245:ALA:HB2	1:A:251:ALA:CB	0.56	2.25	14	1
1:A:243:LEU:HD22	1:A:243:LEU:N	0.56	2.16	13	2
1:A:82:VAL:HG13	1:A:122:ALA:CB	0.56	2.30	11	2
1:A:211:LEU:HD21	1:A:262:ILE:HA	0.56	1.76	7	1
1:A:41:THR:HG23	1:A:208:HIS:CG	0.56	2.35	10	6
1:A:129:ILE:CA	1:A:160:VAL:HG12	0.56	2.30	1	12
1:A:83:THR:CG2	1:A:157:VAL:HG22	0.56	2.27	6	3
1:A:123:LEU:O	1:A:123:LEU:HD12	0.56	2.01	5	1
1:A:132:VAL:HG22	1:A:158:LEU:HG	0.56	1.78	14	4
1:A:39:ALA:N	1:A:211:LEU:HD13	0.56	2.16	3	1
1:A:82:VAL:HG21	1:A:123:LEU:HD12	0.56	1.77	6	1
1:A:35:LEU:HD12	1:A:40:LEU:HB3	0.56	1.78	3	2
1:A:245:ALA:HB1	1:A:250:SER:HB2	0.56	1.76	4	2
1:A:39:ALA:N	1:A:211:LEU:HD12	0.56	2.16	2	1
1:A:11:GLY:O	1:A:32:LEU:HD12	0.56	2.01	7	1
1:A:38:ASP:O	1:A:211:LEU:HD13	0.56	2.01	14	1
1:A:100:ARG:HB3	1:A:141:THR:HG22	0.56	1.78	3	2
1:A:13:LEU:HD13	1:A:243:LEU:CD2	0.55	2.31	11	3
1:A:108:ILE:HG13	1:A:123:LEU:HD21	0.55	1.78	10	1
1:A:123:LEU:HD13	1:A:123:LEU:N	0.55	2.15	11	1
1:A:243:LEU:N	1:A:243:LEU:HD22	0.55	2.17	3	1
1:A:143:ASP:O	1:A:146:VAL:HG12	0.55	2.01	10	2
1:A:10:THR:HG22	1:A:33:LEU:O	0.55	2.01	13	3
1:A:15:LEU:HD12	1:A:243:LEU:HD12	0.54	1.79	1	1
1:A:108:ILE:O	1:A:125:VAL:HG13	0.54	2.02	11	1
1:A:132:VAL:HG21	1:A:137:LEU:HD11	0.54	1.79	12	1
1:A:132:VAL:HG12	1:A:158:LEU:HD12	0.54	1.78	2	1
1:A:15:LEU:HD23	1:A:15:LEU:N	0.54	2.16	9	2
1:A:209:VAL:HG22	1:A:239:ASP:OD2	0.54	2.03	12	1
1:A:13:LEU:HD12	1:A:33:LEU:HD13	0.54	1.80	8	3
1:A:91:GLY:O	1:A:115:LEU:HD22	0.54	2.02	9	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:243:LEU:HD22	1:A:243:LEU:H	0.54	1.61	7	2
1:A:125:VAL:HG13	1:A:125:VAL:O	0.54	2.02	2	2
1:A:40:LEU:HD12	1:A:40:LEU:O	0.54	2.03	9	3
1:A:106:ILE:HG23	1:A:142:HIS:CE1	0.54	2.38	8	1
1:A:232:ILE:CD1	1:A:243:LEU:HD11	0.54	2.33	4	2
1:A:96:ILE:HD11	1:A:146:VAL:CG2	0.54	2.19	8	1
1:A:114:GLY:O	1:A:115:LEU:HD22	0.53	2.02	10	1
1:A:152:THR:CG2	1:A:156:VAL:HG22	0.53	2.33	13	1
1:A:243:LEU:H	1:A:243:LEU:HD22	0.53	1.62	3	1
1:A:230:LEU:HD11	1:A:251:ALA:HB1	0.53	1.79	14	1
1:A:152:THR:HG21	1:A:156:VAL:HA	0.53	1.79	5	1
1:A:132:VAL:HG13	1:A:158:LEU:CD1	0.53	2.34	7	2
1:A:38:ASP:HA	1:A:211:LEU:HD22	0.53	1.78	13	1
1:A:40:LEU:O	1:A:40:LEU:HD12	0.53	2.04	6	2
1:A:229:TYR:CZ	1:A:242:PHE:CD1	0.53	2.97	8	1
1:A:214:ALA:HB3	1:A:262:ILE:CD1	0.53	2.33	1	1
1:A:152:THR:HG21	1:A:156:VAL:CG1	0.53	2.33	15	3
1:A:13:LEU:HD13	1:A:243:LEU:HD23	0.53	1.81	1	2
1:A:125:VAL:O	1:A:125:VAL:HG13	0.53	2.03	14	1
1:A:96:ILE:HD12	1:A:106:ILE:CG2	0.53	2.34	15	3
1:A:125:VAL:HG22	1:A:125:VAL:O	0.53	2.04	3	2
1:A:137:LEU:HD23	1:A:140:ALA:CB	0.52	2.32	8	2
1:A:127:ASP:HB3	1:A:160:VAL:HG11	0.52	1.79	13	1
1:A:100:ARG:HB2	1:A:141:THR:HG22	0.52	1.79	5	3
1:A:41:THR:HG1	1:A:208:HIS:CD2	0.52	2.22	14	4
1:A:209:VAL:HG12	1:A:211:LEU:H	0.52	1.63	15	5
1:A:156:VAL:HG12	1:A:158:LEU:CD1	0.52	2.34	14	2
1:A:82:VAL:HG11	1:A:123:LEU:CD1	0.52	2.34	11	1
1:A:137:LEU:HD13	1:A:140:ALA:HB3	0.52	1.81	14	2
1:A:113:LYS:HB3	1:A:115:LEU:HD13	0.52	1.81	13	1
1:A:82:VAL:CG1	1:A:122:ALA:HB3	0.52	2.35	11	1
1:A:108:ILE:N	1:A:108:ILE:CD1	0.51	2.74	2	1
1:A:33:LEU:HD13	1:A:243:LEU:HG	0.51	1.82	5	2
1:A:96:ILE:CD1	1:A:142:HIS:CE1	0.51	2.94	8	1
1:A:11:GLY:C	1:A:32:LEU:HD12	0.51	2.26	7	1
1:A:94:ILE:CG2	1:A:117:ALA:HB2	0.51	2.36	3	3
1:A:215:TYR:CE1	1:A:264:THR:HG21	0.51	2.40	6	1
1:A:94:ILE:H	1:A:94:ILE:HD13	0.50	1.65	4	1
1:A:215:TYR:CD1	1:A:264:THR:HG21	0.50	2.41	14	1
1:A:210:SER:O	1:A:211:LEU:HD23	0.50	2.06	2	1
1:A:82:VAL:HG11	1:A:123:LEU:HD23	0.50	1.82	7	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:112:PHE:O	1:A:115:LEU:HD12	0.50	2.05	1	1
1:A:114:GLY:C	1:A:115:LEU:HD22	0.50	2.27	10	1
1:A:132:VAL:HG13	1:A:158:LEU:HG	0.50	1.82	4	1
1:A:96:ILE:HD12	1:A:142:HIS:CD2	0.50	2.42	10	2
1:A:81:ARG:HG2	1:A:81:ARG:O	0.50	2.06	7	1
1:A:28:TRP:CD1	1:A:28:TRP:N	0.50	2.79	9	7
1:A:137:LEU:HD11	1:A:148:ALA:CB	0.50	2.37	3	1
1:A:229:TYR:CZ	1:A:242:PHE:CE1	0.50	3.00	8	1
1:A:209:VAL:HG22	1:A:239:ASP:CB	0.50	2.37	11	1
1:A:132:VAL:CG1	1:A:158:LEU:HD12	0.50	2.27	3	2
1:A:207:LYS:CE	1:A:241:VAL:HG13	0.49	2.37	2	1
1:A:81:ARG:O	1:A:81:ARG:CG	0.49	2.60	7	1
1:A:146:VAL:HA	1:A:149:LEU:HD23	0.49	1.83	15	2
1:A:96:ILE:HD12	1:A:106:ILE:HG21	0.49	1.84	12	1
1:A:92:LEU:HD21	1:A:149:LEU:HD13	0.49	1.83	8	1
1:A:15:LEU:HD12	1:A:31:VAL:HG21	0.49	1.85	2	1
1:A:149:LEU:HD12	1:A:149:LEU:C	0.49	2.28	11	2
1:A:16:ARG:CG	1:A:28:TRP:CD1	0.49	2.95	4	1
1:A:115:LEU:HD23	1:A:117:ALA:HB3	0.49	1.83	13	1
1:A:132:VAL:CG2	1:A:137:LEU:HD12	0.49	2.38	7	1
1:A:129:ILE:HG21	1:A:132:VAL:CG2	0.49	2.38	4	1
1:A:30:ARG:O	1:A:31:VAL:HG13	0.49	2.07	14	1
1:A:88:ASP:O	1:A:89:ALA:HB2	0.49	2.08	13	1
1:A:245:ALA:HB2	1:A:254:TRP:HD1	0.49	1.67	2	1
1:A:82:VAL:HG22	1:A:122:ALA:HB1	0.49	1.84	12	1
1:A:108:ILE:CD1	1:A:108:ILE:N	0.49	2.75	8	2
1:A:102:ASN:C	1:A:103:LYS:HG3	0.48	2.26	10	1
1:A:213:MET:HA	1:A:264:THR:HG21	0.48	1.85	10	1
1:A:209:VAL:HG22	1:A:239:ASP:HB3	0.48	1.85	11	1
1:A:94:ILE:HG23	1:A:117:ALA:CB	0.48	2.39	7	3
1:A:229:TYR:CZ	1:A:242:PHE:CZ	0.48	3.01	10	1
1:A:229:TYR:CE1	1:A:242:PHE:CD1	0.48	3.01	8	1
1:A:229:TYR:CE2	1:A:242:PHE:CE1	0.48	3.02	8	1
1:A:97:LYS:N	1:A:142:HIS:CE1	0.48	2.81	8	1
1:A:132:VAL:HG12	1:A:158:LEU:CD1	0.48	2.37	2	1
1:A:38:ASP:C	1:A:211:LEU:HD12	0.48	2.28	2	1
1:A:92:LEU:HD22	1:A:149:LEU:HD13	0.48	1.84	7	1
1:A:128:ALA:HB3	1:A:163:MET:SD	0.48	2.49	5	1
1:A:242:PHE:CD1	1:A:243:LEU:N	0.48	2.82	14	2
1:A:130:LEU:HD23	1:A:130:LEU:N	0.48	2.23	13	1
1:A:150:LYS:HG2	1:A:151:LYS:N	0.48	2.24	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:209:VAL:HG13	1:A:234:ALA:HB2	0.48	1.86	11	1
1:A:100:ARG:HG3	1:A:141:THR:HG23	0.48	1.86	7	1
1:A:82:VAL:HG11	1:A:123:LEU:HD13	0.48	1.86	11	1
1:A:133:ASN:HD21	1:A:156:VAL:HG13	0.48	1.67	14	1
1:A:149:LEU:C	1:A:149:LEU:HD12	0.47	2.29	3	5
1:A:83:THR:O	1:A:120:THR:HG21	0.47	2.09	4	1
1:A:82:VAL:HG11	1:A:123:LEU:HD12	0.47	1.87	1	1
1:A:98:GLY:N	1:A:142:HIS:CD2	0.47	2.83	3	4
1:A:105:PRO:O	1:A:107:LEU:HD12	0.47	2.08	1	3
1:A:108:ILE:HD11	1:A:123:LEU:HD21	0.47	1.85	9	1
1:A:35:LEU:HD11	1:A:258:ILE:HG12	0.47	1.87	12	1
1:A:31:VAL:HG12	1:A:44:PRO:HA	0.47	1.87	13	2
1:A:150:LYS:CG	1:A:151:LYS:N	0.47	2.77	3	5
1:A:216:VAL:CG2	1:A:217:SER:N	0.47	2.77	8	1
1:A:137:LEU:HD21	1:A:145:ALA:HA	0.46	1.86	10	1
1:A:147:GLN:HA	1:A:150:LYS:HD2	0.46	1.87	15	1
1:A:80:ARG:HH11	1:A:122:ALA:HB1	0.46	1.70	10	1
1:A:211:LEU:HD22	1:A:262:ILE:HA	0.46	1.87	2	1
1:A:245:ALA:HB1	1:A:250:SER:OG	0.46	2.11	15	1
1:A:79:ARG:HD3	1:A:130:LEU:HD11	0.46	1.86	13	2
1:A:108:ILE:HD11	1:A:123:LEU:HD11	0.46	1.88	10	1
1:A:41:THR:HB	1:A:208:HIS:CD2	0.46	2.46	15	1
1:A:41:THR:HG1	1:A:208:HIS:CE1	0.46	2.28	12	2
1:A:132:VAL:HG23	1:A:158:LEU:CD1	0.46	2.39	15	1
1:A:35:LEU:HD23	1:A:261:GLN:HB2	0.46	1.86	10	1
1:A:98:GLY:N	1:A:142:HIS:CE1	0.46	2.84	8	1
1:A:155:GLU:CG	1:A:155:GLU:O	0.46	2.64	13	3
1:A:40:LEU:HD23	1:A:211:LEU:HD22	0.45	1.87	15	1
1:A:137:LEU:CD2	1:A:140:ALA:HB3	0.45	2.37	8	1
1:A:212:LYS:O	1:A:213:MET:CB	0.45	2.64	14	1
1:A:111:ILE:O	1:A:111:ILE:HG22	0.45	2.12	14	3
1:A:245:ALA:HB1	1:A:250:SER:HB3	0.45	1.88	2	2
1:A:83:THR:HG23	1:A:157:VAL:CG2	0.45	2.26	5	1
1:A:15:LEU:CD1	1:A:243:LEU:HD12	0.45	2.41	11	1
1:A:250:SER:O	1:A:254:TRP:CD1	0.45	2.70	2	15
1:A:13:LEU:HB2	1:A:243:LEU:HD12	0.45	1.88	5	1
1:A:137:LEU:HD11	1:A:148:ALA:HB1	0.45	1.88	3	1
1:A:216:VAL:HG21	1:A:259:GLN:CG	0.45	2.42	9	1
1:A:140:ALA:O	1:A:141:THR:O	0.45	2.35	1	7
1:A:211:LEU:O	1:A:262:ILE:HG23	0.45	2.12	4	1
1:A:147:GLN:HA	1:A:150:LYS:HG2	0.45	1.88	2	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:123:LEU:HD22	1:A:123:LEU:H	0.45	1.72	11	1
1:A:115:LEU:N	1:A:115:LEU:CD2	0.45	2.78	13	1
1:A:33:LEU:HD12	1:A:42:VAL:CG1	0.45	2.42	13	1
1:A:13:LEU:HD12	1:A:33:LEU:HD22	0.45	1.89	11	1
1:A:137:LEU:HD13	1:A:140:ALA:CB	0.45	2.42	14	1
1:A:148:ALA:O	1:A:152:THR:HG22	0.44	2.12	12	1
1:A:12:LEU:CD2	1:A:45:ALA:HB2	0.44	2.40	3	1
1:A:96:ILE:CG1	1:A:142:HIS:CE1	0.44	3.00	8	1
1:A:15:LEU:HD22	1:A:243:LEU:HB3	0.44	1.90	9	1
1:A:129:ILE:HG22	1:A:130:LEU:N	0.44	2.28	1	12
1:A:132:VAL:O	1:A:133:ASN:C	0.44	2.56	4	10
1:A:97:LYS:CA	1:A:142:HIS:CE1	0.44	3.00	8	1
1:A:108:ILE:HG22	1:A:125:VAL:HA	0.44	1.90	2	1
1:A:235:ALA:HB3	1:A:238:GLN:CG	0.44	2.43	7	1
1:A:34:SER:HB2	1:A:41:THR:HG23	0.44	1.90	15	1
1:A:92:LEU:HD21	1:A:94:ILE:HG12	0.44	1.87	1	1
1:A:106:ILE:HG22	1:A:129:ILE:HD12	0.44	1.90	11	1
1:A:146:VAL:O	1:A:149:LEU:HG	0.43	2.13	12	1
1:A:230:LEU:HD11	1:A:251:ALA:CB	0.43	2.42	14	1
1:A:35:LEU:HD11	1:A:211:LEU:HD21	0.43	1.90	1	1
1:A:243:LEU:CD1	1:A:243:LEU:N	0.43	2.82	10	1
1:A:221:THR:CG2	1:A:229:TYR:CE2	0.43	2.99	7	1
1:A:103:LYS:CD	1:A:103:LYS:N	0.43	2.82	5	2
1:A:103:LYS:N	1:A:103:LYS:CD	0.43	2.81	11	3
1:A:216:VAL:HG11	1:A:258:ILE:HB	0.43	1.89	7	2
1:A:79:ARG:CD	1:A:130:LEU:HD11	0.43	2.44	13	1
1:A:152:THR:CG2	1:A:156:VAL:HG13	0.43	2.41	4	1
1:A:97:LYS:C	1:A:142:HIS:CE1	0.43	2.92	8	1
1:A:129:ILE:HG12	1:A:158:LEU:HD23	0.43	1.90	7	1
1:A:209:VAL:HG12	1:A:210:SER:N	0.43	2.29	9	1
1:A:145:ALA:O	1:A:149:LEU:HD23	0.43	2.14	8	1
1:A:216:VAL:CG1	1:A:258:ILE:HG21	0.43	2.44	7	1
1:A:123:LEU:C	1:A:123:LEU:HD12	0.42	2.35	5	1
1:A:13:LEU:HD12	1:A:243:LEU:HG	0.42	1.89	2	1
1:A:242:PHE:CD1	1:A:242:PHE:O	0.42	2.72	2	1
1:A:229:TYR:CD1	1:A:229:TYR:O	0.42	2.72	4	1
1:A:232:ILE:HD12	1:A:243:LEU:HD21	0.42	1.87	14	1
1:A:13:LEU:CD1	1:A:33:LEU:HD22	0.42	2.44	11	1
1:A:94:ILE:CG2	1:A:117:ALA:CB	0.42	2.98	4	6
1:A:95:SER:O	1:A:109:SER:CB	0.42	2.67	1	2
1:A:214:ALA:HB3	1:A:262:ILE:HG21	0.42	1.90	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:82:VAL:HG12	1:A:83:THR:N	0.42	2.28	6	5
1:A:96:ILE:HG13	1:A:142:HIS:NE2	0.42	2.29	8	1
1:A:115:LEU:CD2	1:A:117:ALA:HB3	0.42	2.45	13	1
1:A:82:VAL:O	1:A:157:VAL:HA	0.42	2.14	7	1
1:A:93:GLY:CA	1:A:115:LEU:HD13	0.42	2.44	1	1
1:A:232:ILE:HB	1:A:241:VAL:HG23	0.42	1.92	1	1
1:A:213:MET:CE	1:A:213:MET:O	0.42	2.68	11	1
1:A:221:THR:CG2	1:A:229:TYR:CE1	0.42	3.03	10	1
1:A:10:THR:CG2	1:A:32:LEU:HD21	0.42	2.44	8	1
1:A:108:ILE:HG21	1:A:111:ILE:CG1	0.42	2.45	5	2
1:A:82:VAL:HG21	1:A:123:LEU:HD23	0.42	1.91	5	1
1:A:84:VAL:HG11	1:A:92:LEU:CD1	0.42	2.44	10	1
1:A:142:HIS:O	1:A:146:VAL:HG23	0.42	2.14	8	2
1:A:42:VAL:HG12	1:A:43:SER:N	0.42	2.30	6	1
1:A:211:LEU:HD11	1:A:262:ILE:HG12	0.42	1.91	7	1
1:A:102:ASN:O	1:A:103:LYS:HG2	0.41	2.15	11	4
1:A:133:ASN:OD1	1:A:152:THR:HG23	0.41	2.14	5	1
1:A:42:VAL:HG23	1:A:207:LYS:O	0.41	2.15	15	1
1:A:216:VAL:CG1	1:A:258:ILE:CG2	0.41	2.98	7	2
1:A:107:LEU:HD21	1:A:128:ALA:HB2	0.41	1.92	9	1
1:A:31:VAL:HG12	1:A:32:LEU:N	0.41	2.30	12	1
1:A:211:LEU:HD23	1:A:262:ILE:CG1	0.41	2.45	3	3
1:A:101:GLU:N	1:A:141:THR:HG23	0.41	2.30	2	1
1:A:95:SER:O	1:A:110:LYS:N	0.41	2.54	14	1
1:A:16:ARG:HG3	1:A:28:TRP:CD1	0.41	2.49	4	1
1:A:262:ILE:HG22	1:A:264:THR:H	0.41	1.76	15	1
1:A:123:LEU:O	1:A:124:PHE:CG	0.41	2.73	1	1
1:A:100:ARG:HB2	1:A:141:THR:HG23	0.41	1.91	6	1
1:A:40:LEU:HB3	1:A:211:LEU:HD11	0.41	1.92	4	1
1:A:242:PHE:C	1:A:242:PHE:CD1	0.41	2.94	5	1
1:A:123:LEU:H	1:A:123:LEU:HD13	0.41	1.73	6	1
1:A:84:VAL:HG12	1:A:85:ARG:N	0.41	2.31	6	1
1:A:132:VAL:HG12	1:A:158:LEU:HG	0.41	1.92	12	1
1:A:102:ASN:C	1:A:103:LYS:CD	0.41	2.89	6	3
1:A:128:ALA:O	1:A:130:LEU:HD23	0.41	2.16	2	1
1:A:131:SER:O	1:A:159:GLU:CB	0.41	2.69	10	2
1:A:106:ILE:HG23	1:A:142:HIS:ND1	0.41	2.31	8	1
1:A:128:ALA:HB2	1:A:163:MET:HG3	0.41	1.93	2	1
1:A:147:GLN:O	1:A:151:LYS:HG3	0.41	2.15	15	1
1:A:81:ARG:N	1:A:81:ARG:HD2	0.41	2.30	7	1
1:A:234:ALA:HB3	1:A:239:ASP:HB3	0.41	1.93	7	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:112:PHE:CD1	1:A:112:PHE:N	0.41	2.88	13	1
1:A:82:VAL:O	1:A:158:LEU:N	0.41	2.53	1	1
1:A:93:GLY:O	1:A:112:PHE:CD1	0.41	2.74	9	1
1:A:106:ILE:H	1:A:106:ILE:HD12	0.41	1.76	9	1
1:A:211:LEU:HD21	1:A:262:ILE:HG12	0.41	1.93	7	1
1:A:207:LYS:HD2	1:A:241:VAL:HG22	0.40	1.92	11	1
1:A:15:LEU:HD12	1:A:243:LEU:HD11	0.40	1.91	5	1
1:A:128:ALA:HB3	1:A:163:MET:CE	0.40	2.45	8	1
1:A:258:ILE:CG2	1:A:262:ILE:CD1	0.40	2.99	14	2
1:A:102:ASN:O	1:A:104:MET:N	0.40	2.55	14	1
1:A:213:MET:HE3	1:A:213:MET:O	0.40	2.17	11	1
1:A:230:LEU:HD21	1:A:251:ALA:HB1	0.40	1.93	3	1
1:A:16:ARG:HG2	1:A:28:TRP:CD1	0.40	2.51	4	1
1:A:12:LEU:HD21	1:A:30:ARG:HD3	0.40	1.93	8	1
1:A:146:VAL:O	1:A:150:LYS:CB	0.40	2.69	1	1
1:A:106:ILE:HD12	1:A:106:ILE:H	0.40	1.77	10	1
1:A:35:LEU:HD13	1:A:254:TRP:CZ3	0.40	2.51	4	1
1:A:115:LEU:HD12	1:A:115:LEU:N	0.40	2.32	2	1
1:A:150:LYS:HG3	1:A:151:LYS:N	0.40	2.32	2	1
1:A:13:LEU:HD22	1:A:245:ALA:HA	0.40	1.92	13	1
1:A:133:ASN:ND2	1:A:156:VAL:HG13	0.40	2.32	14	1
1:A:15:LEU:HD23	1:A:16:ARG:N	0.40	2.31	12	1
1:A:39:ALA:CA	1:A:211:LEU:HD12	0.40	2.47	4	1
1:A:132:VAL:CG1	1:A:158:LEU:CD1	0.40	2.99	2	1
1:A:128:ALA:CB	1:A:163:MET:CE	0.40	2.99	14	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	166/263 (63%)	127±3 (77±2%)	31±3 (18±2%)	8±2 (5±1%)	5	26
All	All	2490/3945 (63%)	1905 (77%)	460 (18%)	125 (5%)	5	26

All 32 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	103	LYS	15
1	A	133	ASN	15
1	A	141	THR	15
1	A	27	ARG	10
1	A	79	ARG	9
1	A	125	VAL	7
1	A	124	PHE	5
1	A	152	THR	5
1	A	221	THR	4
1	A	88	ASP	4
1	A	45	ALA	3
1	A	126	GLY	3
1	A	89	ALA	3
1	A	237	GLY	3
1	A	228	ARG	2
1	A	93	GLY	2
1	A	113	LYS	2
1	A	151	LYS	2
1	A	99	GLY	2
1	A	115	LEU	2
1	A	245	ALA	1
1	A	214	ALA	1
1	A	211	LEU	1
1	A	213	MET	1
1	A	44	PRO	1
1	A	36	ALA	1
1	A	153	GLY	1
1	A	248	GLU	1
1	A	92	LEU	1
1	A	87	ALA	1
1	A	130	LEU	1
1	A	91	GLY	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	131/201 (65%)	89±6 (68±4%)	42±6 (32±4%)	1 13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1965/3015 (65%)	1328 (68%)	637 (32%)	1 13

All 107 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	152	THR	15
1	A	130	LEU	15
1	A	103	LYS	15
1	A	10	THR	15
1	A	33	LEU	14
1	A	41	THR	14
1	A	15	LEU	13
1	A	81	ARG	13
1	A	158	LEU	13
1	A	95	SER	13
1	A	100	ARG	13
1	A	241	VAL	12
1	A	242	PHE	12
1	A	29	GLN	11
1	A	243	LEU	11
1	A	109	SER	11
1	A	131	SER	10
1	A	79	ARG	9
1	A	213	MET	9
1	A	80	ARG	9
1	A	221	THR	9
1	A	246	LYS	9
1	A	123	LEU	9
1	A	104	MET	9
1	A	217	SER	9
1	A	127	ASP	9
1	A	27	ARG	9
1	A	236	ASP	9
1	A	135	GLU	9
1	A	14	GLU	8
1	A	239	ASP	8
1	A	162	TYR	8
1	A	124	PHE	8
1	A	207	LYS	8
1	A	88	ASP	8
1	A	110	LYS	7

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Mol	Chain	Res	Type	Models (Total)
1	A	154	LYS	7
1	A	212	LYS	7
1	A	92	LEU	7
1	A	253	SER	7
1	A	150	LYS	7
1	A	138	SER	6
1	A	247	ASP	6
1	A	97	LYS	6
1	A	244	ARG	6
1	A	161	LYS	6
1	A	16	ARG	6
1	A	86	LYS	6
1	A	231	GLU	6
1	A	9	ARG	6
1	A	218	ARG	5
1	A	115	LEU	5
1	A	141	THR	5
1	A	248	GLU	5
1	A	101	GLU	5
1	A	38	ASP	5
1	A	163	MET	5
1	A	151	LYS	5
1	A	137	LEU	5
1	A	238	GLN	5
1	A	34	SER	5
1	A	107	LEU	5
1	A	208	HIS	4
1	A	228	ARG	4
1	A	252	ARG	4
1	A	35	LEU	4
1	A	113	LYS	4
1	A	30	ARG	4
1	A	147	GLN	4
1	A	215	TYR	3
1	A	43	SER	3
1	A	12	LEU	3
1	A	133	ASN	3
1	A	211	LEU	3
1	A	261	GLN	3
1	A	139	SER	3
1	A	219	ARG	3
1	A	85	ARG	3

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Mol	Chain	Res	Type	Models (Total)
1	A	146	VAL	3
1	A	108	ILE	3
1	A	250	SER	2
1	A	120	THR	2
1	A	220	CYS	2
1	A	42	VAL	2
1	A	94	ILE	2
1	A	143	ASP	2
1	A	132	VAL	2
1	A	210	SER	2
1	A	159	GLU	2
1	A	229	TYR	2
1	A	121	GLU	2
1	A	136	ASP	2
1	A	230	LEU	2
1	A	83	THR	2
1	A	149	LEU	2
1	A	233	CYS	2
1	A	119	GLN	2
1	A	259	GLN	1
1	A	144	GLU	1
1	A	264	THR	1
1	A	102	ASN	1
1	A	155	GLU	1
1	A	160	VAL	1
1	A	28	TRP	1
1	A	17	CYS	1
1	A	118	ASP	1
1	A	142	HIS	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 carbohydrates 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 75% for the well-defined parts and 72% for the entire structure.

7.1 Chemical shift list 1

File name: BMRB entry 6752

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	2542
Number of shifts mapped to atoms	2542
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	1

7.1.2 Chemical shift referencing

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction \pm precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	250	-0.64 ± 0.05	Should be applied
$^{13}\text{C}_\beta$	196	-0.59 ± 0.08	Should be applied
$^{13}\text{C}'$	0	—	None (insufficient data)
^{15}N	230	-0.81 ± 0.23	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 75%, i.e. 1523 atoms were assigned a chemical shift out of a possible 2030. 28 out of 31 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	649/829 (78%)	327/331 (99%)	163/334 (49%)	159/164 (97%)
Sidechain	843/1110 (76%)	556/646 (86%)	280/402 (70%)	7/62 (11%)

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	Total	¹ H	¹³ C	¹⁵ N
Aromatic	31/91 (34%)	29/47 (62%)	0/38 (0%)	2/6 (33%)
Overall	1523/2030 (75%)	912/1024 (89%)	443/774 (57%)	168/232 (72%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 72%, i.e. 2210 atoms were assigned a chemical shift out of a possible 3072. 34 out of 40 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹ H	¹³ C	¹⁵ N
Backbone	961/1271 (76%)	481/504 (95%)	250/526 (48%)	230/241 (95%)
Sidechain	1206/1681 (72%)	807/993 (81%)	387/603 (64%)	12/85 (14%)
Aromatic	43/120 (36%)	40/62 (65%)	0/51 (0%)	3/7 (43%)
Overall	2210/3072 (72%)	1328/1559 (85%)	637/1180 (54%)	245/333 (74%)

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.

Mol	Chain	Res	Type	Atom	Shift, ppm	Expected range, ppm	Z-score
1	A	244	ARG	HD2	1.77	4.27 – 1.97	-5.9

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.

Random coil index (RCI) for chain A:

