



Full wwPDB NMR Structure Validation Report ⓘ

May 29, 2020 – 09:04 am BST

PDB ID : 5YJ5
Title : structure for wildtype Human prion protein (M129)
Authors : Zheng, Z.; Lin, D.
Deposited on : 2017-10-08

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ 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 : 20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
ShiftChecker : 2.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

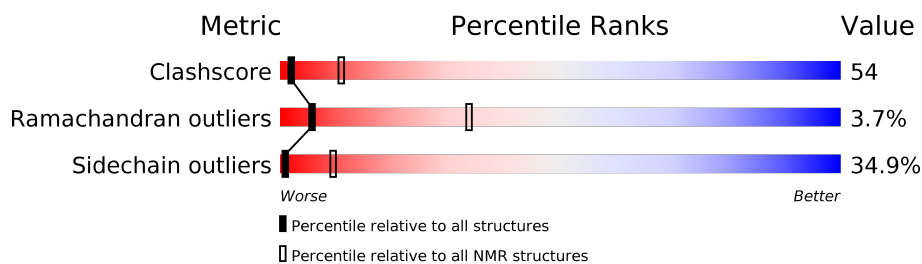
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment is 78%.

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



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and a grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	142	

2 Ensemble composition and analysis i

This entry contains 20 models. Model 6 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:128-A:166, A:171-A:221 (90)	0.30	6

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 5 clusters and 4 single-model clusters were found.

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

3 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 2207 atoms, of which 1073 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Major prion protein.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
1	A	142	2207	698	1073	204	220	12	0

There is a discrepancy between the modelled and reference sequences:

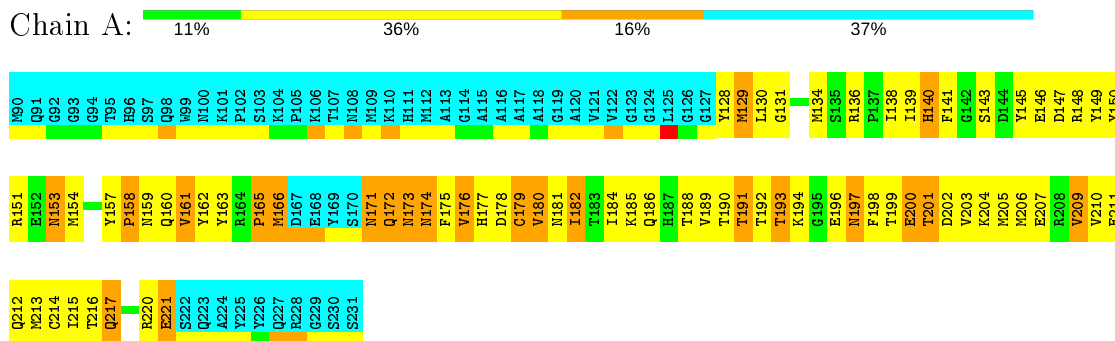
Chain	Residue	Modelled	Actual	Comment	Reference
A	90	MET	-	initiating methionine	UNP P04156

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: Major prion protein

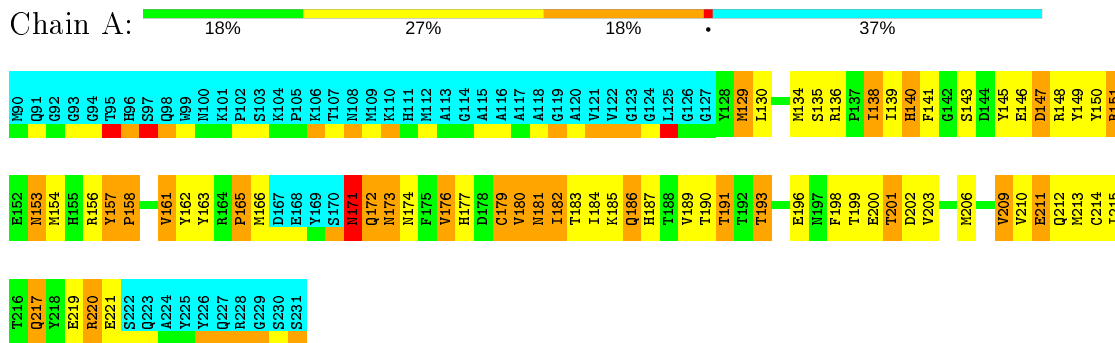


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

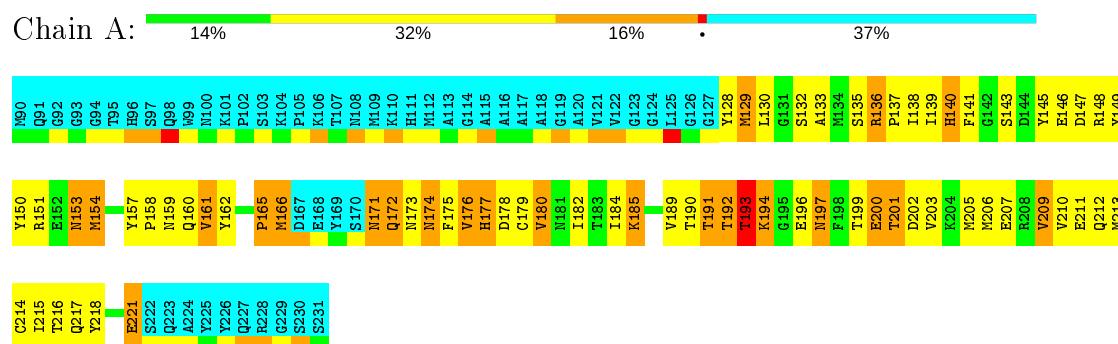
4.2.1 Score per residue for model 1

- Molecule 1: Major prion protein



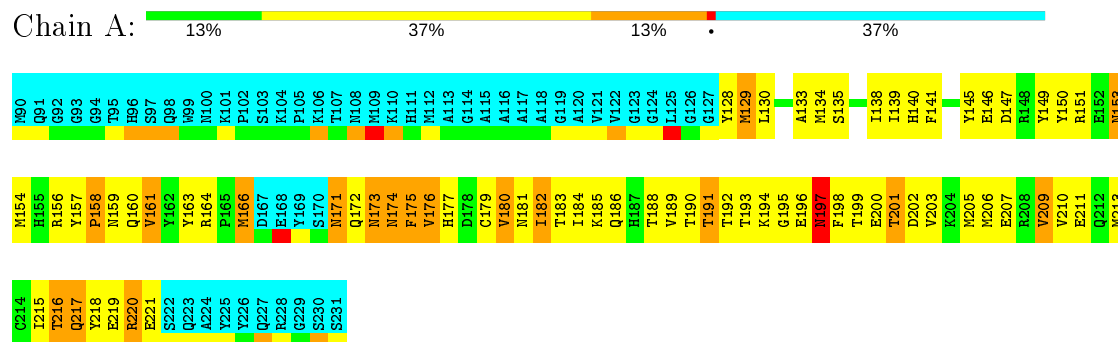
4.2.2 Score per residue for model 2

- Molecule 1: Major prion protein



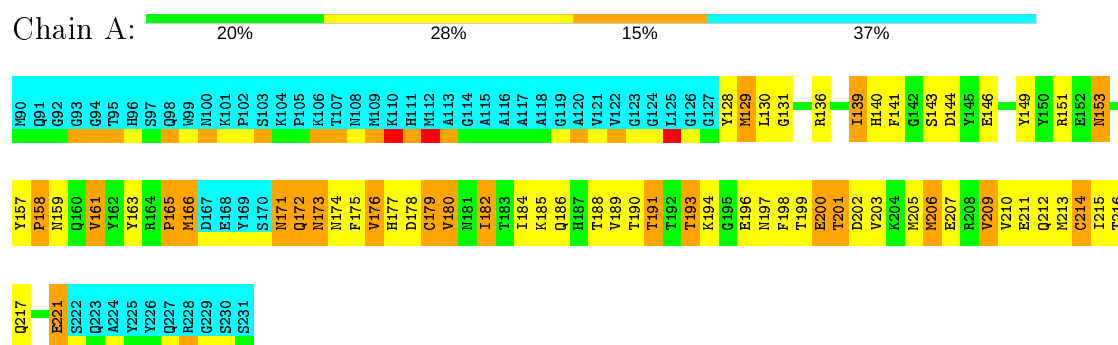
4.2.3 Score per residue for model 3

- Molecule 1: Major prion protein



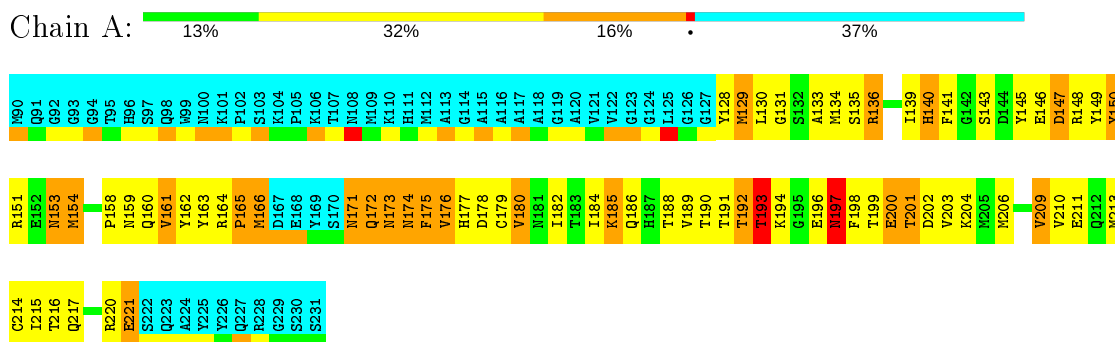
4.2.4 Score per residue for model 4

- Molecule 1: Major prion protein



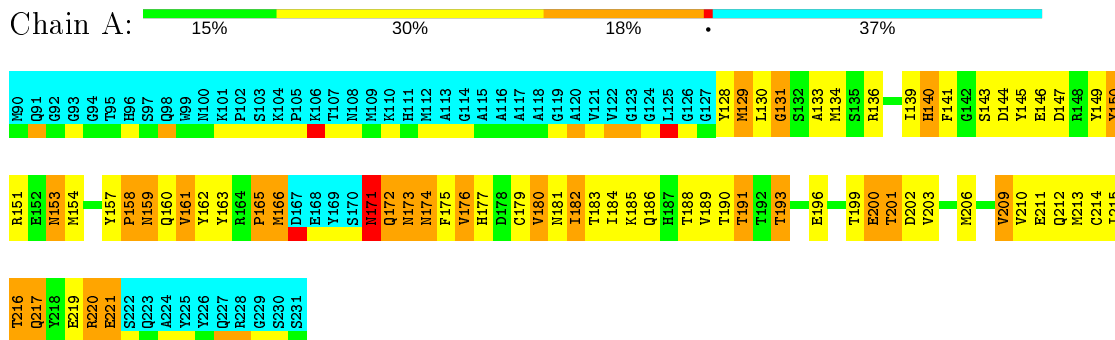
4.2.5 Score per residue for model 5

- Molecule 1: Major prion protein



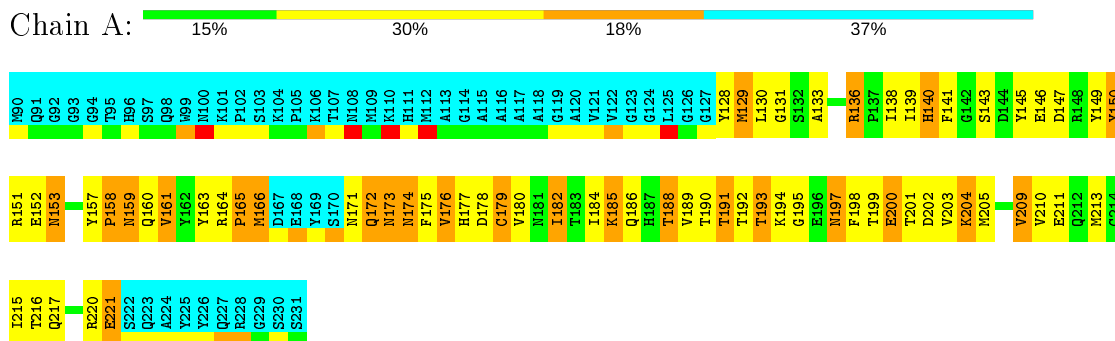
4.2.6 Score per residue for model 6 (medoid)

- Molecule 1: Major prion protein



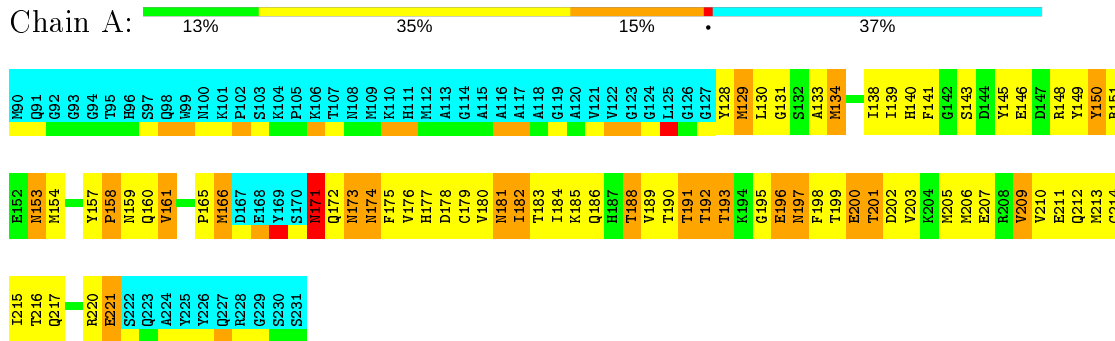
4.2.7 Score per residue for model 7

- Molecule 1: Major prion protein



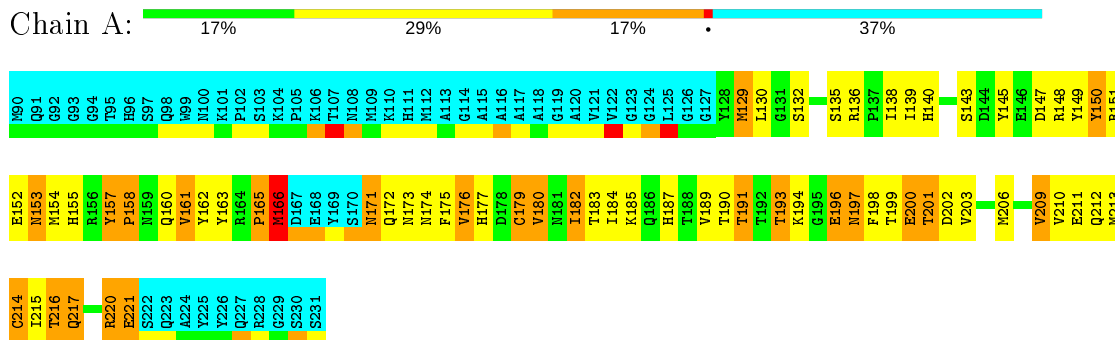
4.2.8 Score per residue for model 8

- Molecule 1: Major prion protein



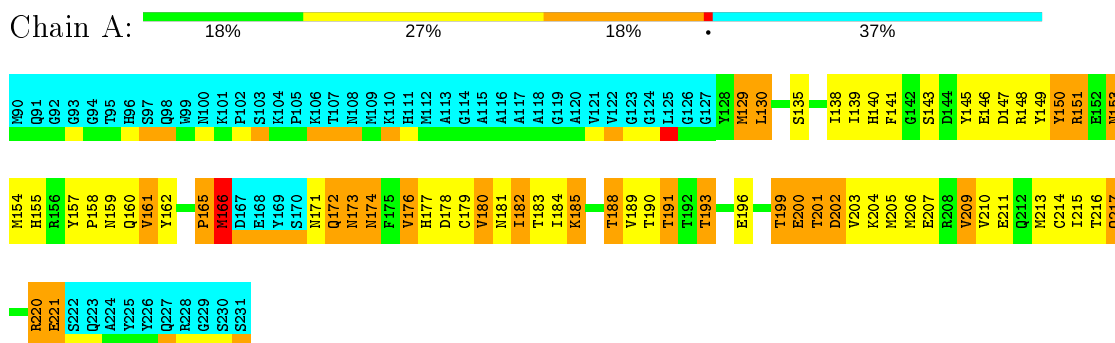
4.2.9 Score per residue for model 9

- Molecule 1: Major prion protein



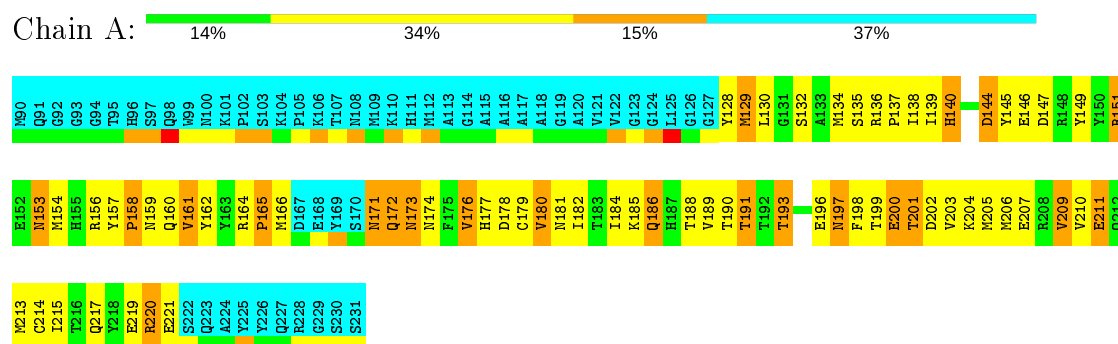
4.2.10 Score per residue for model 10

- Molecule 1: Major prion protein



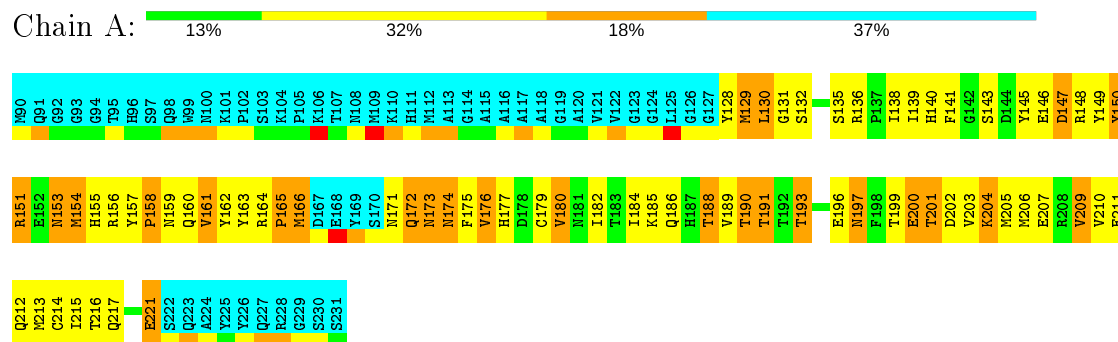
4.2.11 Score per residue for model 11

- Molecule 1: Major prion protein



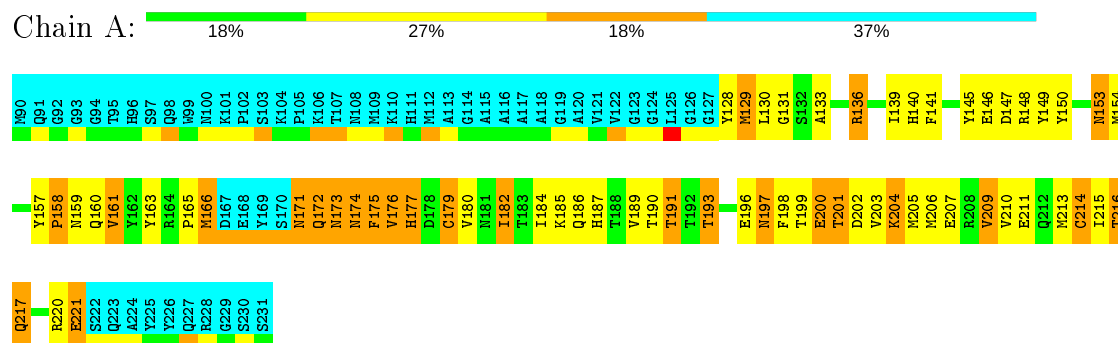
4.2.12 Score per residue for model 12

- Molecule 1: Major prion protein



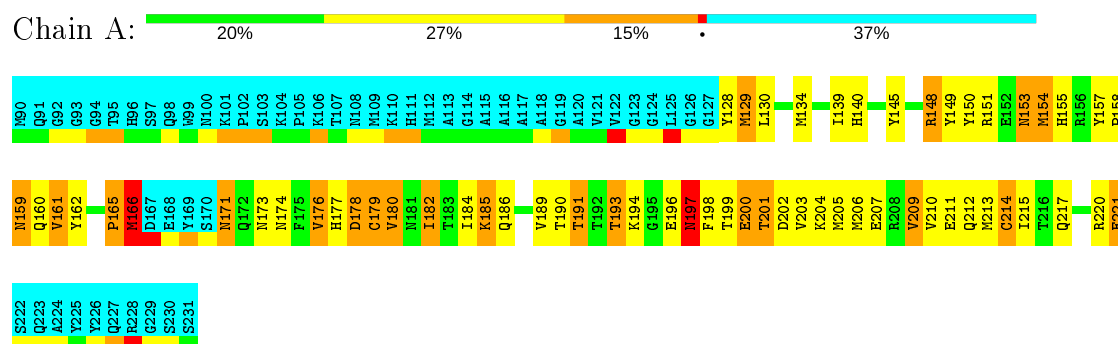
4.2.13 Score per residue for model 13

- Molecule 1: Major prion protein



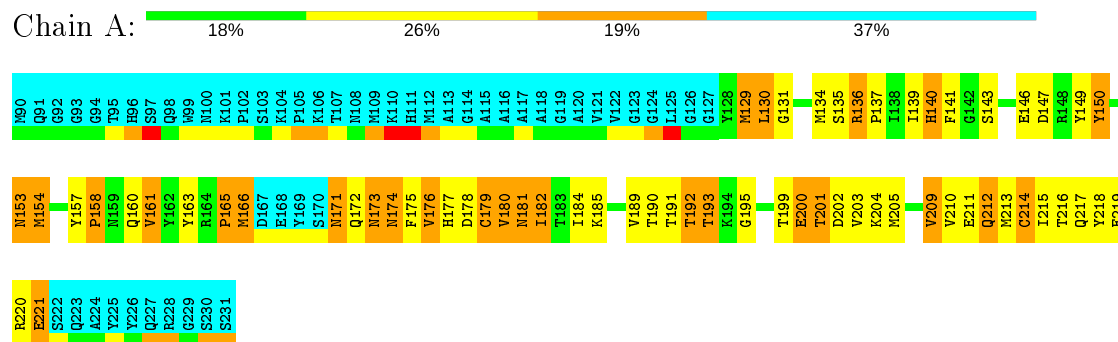
4.2.14 Score per residue for model 14

- Molecule 1: Major prion protein



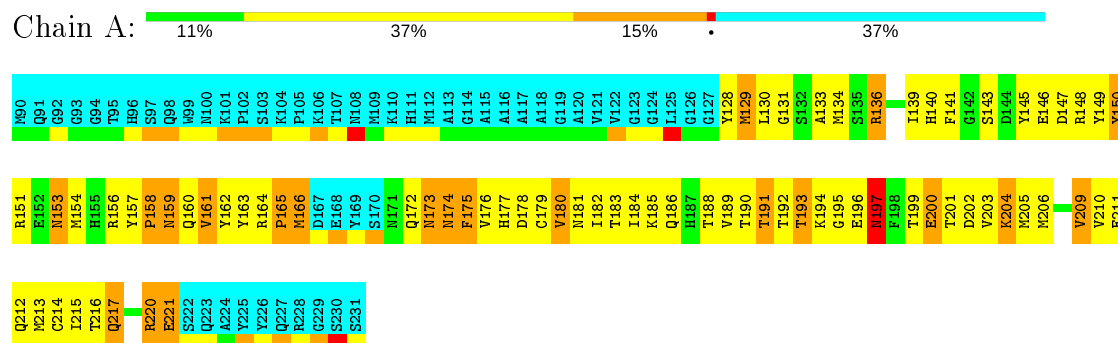
4.2.15 Score per residue for model 15

- Molecule 1: Major prion protein



4.2.16 Score per residue for model 16

- Molecule 1: Major prion protein



5 Refinement protocol and experimental data overview

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

Of the 500 calculated structures, 20 were deposited, based on the following criterion: *structures with the lowest energy*.

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

Software name	Classification	Version
X-PLOR NIH	structure calculation	
X-PLOR NIH	refinement	

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)	input_cs.cif
Number of chemical shift lists	1
Total number of shifts	1517
Number of shifts mapped to atoms	1517
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	78%

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	762	720	716	81±6
All	All	15240	14400	14320	1611

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 54.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:130:LEU:HD12	1:A:131:GLY:N	0.95	1.76	12	11
1:A:133:ALA:HB1	1:A:159:ASN:OD1	0.91	1.65	7	3
1:A:199:THR:O	1:A:203:VAL:HG23	0.86	1.69	10	20
1:A:153:ASN:N	1:A:153:ASN:ND2	0.83	2.27	18	12
1:A:172:GLN:O	1:A:176:VAL:HG13	0.82	1.73	17	11
1:A:163:TYR:CE1	1:A:217:GLN:NE2	0.82	2.48	4	3
1:A:153:ASN:ND2	1:A:153:ASN:N	0.82	2.27	8	8
1:A:163:TYR:CZ	1:A:217:GLN:NE2	0.81	2.49	9	5
1:A:189:VAL:HG23	1:A:190:THR:N	0.81	1.91	15	20
1:A:163:TYR:CE2	1:A:217:GLN:NE2	0.80	2.48	13	2
1:A:185:LYS:O	1:A:189:VAL:HG13	0.80	1.77	12	20
1:A:130:LEU:HD12	1:A:161:VAL:O	0.79	1.78	3	3
1:A:145:TYR:CE2	1:A:149:TYR:CE2	0.79	2.70	6	4
1:A:172:GLN:NE2	1:A:173:ASN:N	0.79	2.31	4	9

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:211:GLU:O	1:A:215:ILE:HD12	0.75	1.82	3	17
1:A:217:GLN:NE2	1:A:220:ARG:CZ	0.74	2.50	3	1
1:A:136:ARG:NE	1:A:136:ARG:H	0.73	1.80	19	1
1:A:138:ILE:CD1	1:A:151:ARG:NH2	0.73	2.51	1	1
1:A:139:ILE:HG22	1:A:140:HIS:N	0.73	1.97	12	19
1:A:179:CYS:SG	1:A:180:VAL:N	0.73	2.61	15	10
1:A:136:ARG:NH1	1:A:220:ARG:NH2	0.73	2.37	20	1
1:A:153:ASN:N	1:A:153:ASN:HD22	0.73	1.81	17	5
1:A:157:TYR:O	1:A:157:TYR:CD2	0.72	2.42	9	1
1:A:136:ARG:NH1	1:A:220:ARG:HH22	0.71	1.83	20	1
1:A:129:MET:SD	1:A:129:MET:C	0.71	2.69	6	3
1:A:129:MET:C	1:A:129:MET:SD	0.71	2.69	1	2
1:A:153:ASN:HD22	1:A:153:ASN:N	0.71	1.79	18	4
1:A:139:ILE:HG22	1:A:140:HIS:H	0.70	1.45	12	11
1:A:141:PHE:CD1	1:A:146:GLU:OE1	0.70	2.45	6	4
1:A:202:ASP:O	1:A:206:MET:SD	0.70	2.50	6	6
1:A:141:PHE:CG	1:A:146:GLU:OE1	0.69	2.45	4	10
1:A:171:ASN:N	1:A:171:ASN:ND2	0.69	2.38	11	1
1:A:141:PHE:CG	1:A:146:GLU:OE2	0.69	2.45	13	6
1:A:171:ASN:O	1:A:175:PHE:CD2	0.69	2.45	4	2
1:A:191:THR:O	1:A:196:GLU:N	0.69	2.25	8	11
1:A:189:VAL:HG23	1:A:190:THR:H	0.69	1.47	15	6
1:A:192:THR:O	1:A:194:LYS:N	0.69	2.26	5	4
1:A:209:VAL:CG1	1:A:210:VAL:N	0.69	2.55	10	20
1:A:136:ARG:NH1	1:A:137:PRO:O	0.69	2.25	2	2
1:A:140:HIS:N	1:A:140:HIS:ND1	0.69	2.40	7	6
1:A:189:VAL:O	1:A:193:THR:N	0.69	2.24	20	20
1:A:209:VAL:HG12	1:A:210:VAL:N	0.69	2.03	7	19
1:A:217:GLN:HE22	1:A:220:ARG:CZ	0.69	2.01	3	1
1:A:141:PHE:CD2	1:A:146:GLU:OE1	0.68	2.46	10	5
1:A:163:TYR:OH	1:A:217:GLN:NE2	0.68	2.27	5	6
1:A:141:PHE:CD2	1:A:146:GLU:OE2	0.68	2.47	19	5
1:A:210:VAL:O	1:A:213:MET:N	0.67	2.27	12	18
1:A:158:PRO:O	1:A:213:MET:SD	0.67	2.52	7	10
1:A:191:THR:OG1	1:A:198:PHE:CE2	0.67	2.47	14	8
1:A:154:MET:O	1:A:157:TYR:CD2	0.67	2.46	9	1
1:A:171:ASN:H	1:A:171:ASN:ND2	0.67	1.87	11	1
1:A:157:TYR:OH	1:A:205:MET:SD	0.67	2.53	14	10
1:A:189:VAL:O	1:A:192:THR:N	0.67	2.28	15	2
1:A:162:TYR:O	1:A:179:CYS:SG	0.67	2.52	10	5
1:A:197:ASN:N	1:A:197:ASN:OD1	0.67	2.27	2	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:199:THR:HG23	1:A:202:ASP:OD1	0.67	1.90	2	3
1:A:130:LEU:HD12	1:A:131:GLY:H	0.67	1.47	12	6
1:A:136:ARG:NE	1:A:137:PRO:O	0.67	2.27	15	1
1:A:138:ILE:HD13	1:A:138:ILE:H	0.66	1.50	18	1
1:A:133:ALA:HB1	1:A:159:ASN:ND2	0.66	2.05	8	7
1:A:149:TYR:O	1:A:153:ASN:ND2	0.66	2.28	8	16
1:A:176:VAL:CG2	1:A:177:HIS:N	0.66	2.58	13	20
1:A:179:CYS:O	1:A:182:ILE:N	0.66	2.28	19	9
1:A:189:VAL:CG2	1:A:190:THR:N	0.66	2.59	15	20
1:A:138:ILE:CD1	1:A:138:ILE:H	0.66	2.03	18	1
1:A:138:ILE:HD13	1:A:151:ARG:CZ	0.65	2.20	12	1
1:A:138:ILE:N	1:A:138:ILE:HD13	0.65	2.05	18	1
1:A:158:PRO:CG	1:A:206:MET:SD	0.65	2.85	1	5
1:A:130:LEU:HD12	1:A:161:VAL:C	0.65	2.12	18	6
1:A:150:TYR:CD2	1:A:205:MET:SD	0.65	2.90	20	1
1:A:145:TYR:OH	1:A:149:TYR:CZ	0.65	2.50	3	3
1:A:153:ASN:O	1:A:157:TYR:N	0.65	2.29	9	1
1:A:171:ASN:ND2	1:A:174:ASN:OD1	0.65	2.29	5	2
1:A:191:THR:OG1	1:A:198:PHE:CE1	0.65	2.47	18	2
1:A:129:MET:CE	1:A:130:LEU:C	0.64	2.66	18	15
1:A:166:MET:N	1:A:166:MET:SD	0.64	2.69	12	3
1:A:157:TYR:C	1:A:157:TYR:CD1	0.64	2.69	1	1
1:A:172:GLN:CD	1:A:173:ASN:N	0.64	2.51	7	7
1:A:185:LYS:O	1:A:189:VAL:HG22	0.64	1.93	15	20
1:A:129:MET:CE	1:A:130:LEU:O	0.64	2.46	9	17
1:A:190:THR:CG2	1:A:191:THR:N	0.63	2.61	2	19
1:A:220:ARG:HH21	1:A:220:ARG:N	0.63	1.91	16	1
1:A:171:ASN:HD22	1:A:171:ASN:H	0.63	1.36	11	1
1:A:138:ILE:CD1	1:A:151:ARG:HH21	0.62	2.05	1	1
1:A:130:LEU:HD21	1:A:160:GLN:OE1	0.62	1.93	18	4
1:A:171:ASN:N	1:A:171:ASN:OD1	0.62	2.31	17	2
1:A:130:LEU:HD13	1:A:162:TYR:CE1	0.62	2.29	18	1
1:A:197:ASN:OD1	1:A:197:ASN:N	0.62	2.31	16	2
1:A:174:ASN:ND2	1:A:174:ASN:C	0.62	2.53	10	5
1:A:133:ALA:N	1:A:160:GLN:HE21	0.62	1.92	18	1
1:A:150:TYR:O	1:A:154:MET:CB	0.61	2.48	13	16
1:A:161:VAL:CG1	1:A:214:CYS:SG	0.61	2.88	11	5
1:A:153:ASN:ND2	1:A:153:ASN:H	0.61	1.92	20	10
1:A:217:GLN:OE1	1:A:220:ARG:NH1	0.61	2.33	3	1
1:A:160:GLN:N	1:A:213:MET:HE1	0.61	2.09	12	12
1:A:153:ASN:H	1:A:153:ASN:ND2	0.61	1.92	8	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:172:GLN:HE21	1:A:173:ASN:N	0.61	1.93	1	7
1:A:171:ASN:O	1:A:175:PHE:N	0.61	2.34	6	3
1:A:201:THR:HG22	1:A:202:ASP:N	0.61	2.11	8	20
1:A:189:VAL:CG2	1:A:190:THR:H	0.61	2.09	15	8
1:A:174:ASN:C	1:A:174:ASN:HD22	0.60	2.00	8	5
1:A:153:ASN:O	1:A:156:ARG:N	0.60	2.34	11	2
1:A:136:ARG:H	1:A:136:ARG:CD	0.60	2.09	5	2
1:A:134:MET:SD	1:A:217:GLN:OE1	0.60	2.60	1	1
1:A:184:ILE:O	1:A:188:THR:OG1	0.60	2.19	8	12
1:A:140:HIS:C	1:A:141:PHE:CD2	0.60	2.75	16	1
1:A:180:VAL:O	1:A:184:ILE:CG1	0.59	2.50	19	20
1:A:174:ASN:ND2	1:A:174:ASN:O	0.59	2.34	20	4
1:A:171:ASN:OD1	1:A:171:ASN:N	0.59	2.34	3	4
1:A:174:ASN:HD22	1:A:174:ASN:C	0.59	1.98	10	4
1:A:130:LEU:HD13	1:A:162:TYR:CZ	0.59	2.33	6	3
1:A:192:THR:O	1:A:195:GLY:N	0.59	2.35	20	9
1:A:171:ASN:O	1:A:175:PHE:CB	0.59	2.50	17	2
1:A:145:TYR:OH	1:A:149:TYR:OH	0.59	2.20	5	13
1:A:145:TYR:CE1	1:A:149:TYR:CE2	0.59	2.90	13	1
1:A:185:LYS:O	1:A:189:VAL:CG1	0.58	2.51	12	17
1:A:209:VAL:HG12	1:A:210:VAL:H	0.58	1.58	9	9
1:A:172:GLN:CD	1:A:173:ASN:H	0.58	2.02	7	4
1:A:161:VAL:HG11	1:A:214:CYS:SG	0.58	2.38	8	4
1:A:136:ARG:CZ	1:A:216:THR:OG1	0.58	2.51	4	1
1:A:191:THR:OG1	1:A:198:PHE:CZ	0.58	2.52	18	2
1:A:214:CYS:O	1:A:217:GLN:OE1	0.58	2.21	13	2
1:A:172:GLN:HE21	1:A:172:GLN:C	0.58	2.02	1	2
1:A:176:VAL:O	1:A:180:VAL:HG12	0.57	1.99	7	18
1:A:210:VAL:O	1:A:211:GLU:C	0.57	2.41	11	20
1:A:139:ILE:CG2	1:A:140:HIS:N	0.57	2.68	1	9
1:A:174:ASN:C	1:A:174:ASN:ND2	0.57	2.57	8	5
1:A:166:MET:SD	1:A:166:MET:N	0.57	2.76	8	2
1:A:190:THR:OG1	1:A:194:LYS:NZ	0.57	2.38	4	1
1:A:197:ASN:C	1:A:197:ASN:OD1	0.57	2.44	7	2
1:A:200:GLU:CG	1:A:201:THR:N	0.56	2.68	6	20
1:A:129:MET:O	1:A:163:TYR:N	0.56	2.38	15	6
1:A:161:VAL:CG1	1:A:210:VAL:HG13	0.56	2.31	12	20
1:A:172:GLN:OE1	1:A:176:VAL:CG1	0.56	2.53	2	2
1:A:198:PHE:CD2	1:A:206:MET:HE1	0.56	2.35	5	2
1:A:176:VAL:O	1:A:179:CYS:N	0.56	2.39	17	8
1:A:182:ILE:O	1:A:185:LYS:N	0.56	2.38	6	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:136:ARG:CD	1:A:136:ARG:H	0.56	2.13	19	1
1:A:160:GLN:N	1:A:213:MET:CE	0.56	2.68	12	4
1:A:130:LEU:HD13	1:A:162:TYR:CE2	0.56	2.36	6	3
1:A:141:PHE:CG	1:A:146:GLU:CD	0.56	2.79	4	3
1:A:153:ASN:OD1	1:A:157:TYR:CE2	0.55	2.58	20	3
1:A:176:VAL:HG22	1:A:177:HIS:N	0.55	2.16	8	15
1:A:154:MET:SD	1:A:155:HIS:N	0.55	2.79	12	2
1:A:199:THR:OG1	1:A:202:ASP:OD1	0.55	2.24	6	5
1:A:217:GLN:OE1	1:A:220:ARG:CZ	0.55	2.54	19	2
1:A:197:ASN:C	1:A:197:ASN:HD22	0.55	2.04	12	1
1:A:145:TYR:CZ	1:A:149:TYR:CE2	0.55	2.95	1	7
1:A:139:ILE:CG2	1:A:140:HIS:H	0.55	2.13	12	4
1:A:196:GLU:O	1:A:197:ASN:CB	0.55	2.54	20	5
1:A:136:ARG:CB	1:A:212:GLN:OE1	0.55	2.55	6	1
1:A:163:TYR:OH	1:A:217:GLN:CD	0.55	2.45	6	3
1:A:179:CYS:O	1:A:180:VAL:C	0.55	2.44	18	9
1:A:178:ASP:OD2	1:A:178:ASP:O	0.54	2.24	4	2
1:A:138:ILE:N	1:A:138:ILE:CD1	0.54	2.67	18	1
1:A:129:MET:SD	1:A:130:LEU:O	0.54	2.65	14	1
1:A:172:GLN:CG	1:A:173:ASN:H	0.54	2.16	4	5
1:A:157:TYR:CG	1:A:157:TYR:O	0.54	2.60	1	1
1:A:129:MET:SD	1:A:130:LEU:C	0.54	2.85	14	2
1:A:159:ASN:ND2	1:A:159:ASN:C	0.54	2.61	20	1
1:A:159:ASN:OD1	1:A:159:ASN:O	0.54	2.25	10	1
1:A:196:GLU:C	1:A:197:ASN:OD1	0.54	2.45	2	1
1:A:149:TYR:O	1:A:152:GLU:N	0.54	2.39	9	1
1:A:202:ASP:N	1:A:202:ASP:OD1	0.54	2.41	10	3
1:A:153:ASN:OD1	1:A:157:TYR:OH	0.53	2.22	20	1
1:A:162:TYR:CD1	1:A:162:TYR:N	0.53	2.76	11	1
1:A:182:ILE:O	1:A:183:THR:C	0.53	2.46	6	7
1:A:153:ASN:OD1	1:A:157:TYR:CZ	0.53	2.61	20	1
1:A:130:LEU:HD21	1:A:160:GLN:CD	0.53	2.24	14	7
1:A:192:THR:C	1:A:194:LYS:N	0.53	2.61	5	3
1:A:136:ARG:HH12	1:A:220:ARG:HH22	0.53	1.43	20	1
1:A:163:TYR:CD2	1:A:163:TYR:O	0.53	2.62	6	1
1:A:199:THR:O	1:A:200:GLU:C	0.53	2.47	6	20
1:A:174:ASN:O	1:A:175:PHE:C	0.53	2.46	8	7
1:A:129:MET:HE2	1:A:130:LEU:N	0.52	2.18	14	5
1:A:190:THR:O	1:A:191:THR:C	0.52	2.47	1	11
1:A:199:THR:OG1	1:A:202:ASP:OD2	0.52	2.26	12	5
1:A:159:ASN:OD1	1:A:159:ASN:C	0.52	2.47	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:154:MET:O	1:A:156:ARG:N	0.52	2.43	17	4
1:A:130:LEU:HD21	1:A:160:GLN:NE2	0.52	2.19	6	1
1:A:147:ASP:OD2	1:A:151:ARG:NE	0.52	2.42	11	1
1:A:147:ASP:OD2	1:A:151:ARG:NH1	0.52	2.40	11	1
1:A:171:ASN:ND2	1:A:171:ASN:H	0.52	2.01	13	3
1:A:130:LEU:CD1	1:A:131:GLY:N	0.52	2.64	12	4
1:A:198:PHE:CD1	1:A:206:MET:HE1	0.52	2.40	18	1
1:A:162:TYR:N	1:A:162:TYR:CD1	0.52	2.78	18	3
1:A:196:GLU:C	1:A:197:ASN:CG	0.52	2.69	13	3
1:A:171:ASN:HD22	1:A:171:ASN:N	0.52	2.00	11	1
1:A:138:ILE:HD13	1:A:151:ARG:NH2	0.52	2.19	12	1
1:A:159:ASN:C	1:A:213:MET:CE	0.51	2.79	12	5
1:A:145:TYR:CZ	1:A:149:TYR:CE1	0.51	2.97	5	1
1:A:190:THR:O	1:A:193:THR:HG22	0.51	2.05	19	4
1:A:145:TYR:CE1	1:A:149:TYR:CZ	0.51	2.98	13	1
1:A:130:LEU:HD13	1:A:162:TYR:CD1	0.51	2.40	18	1
1:A:144:ASP:N	1:A:144:ASP:OD1	0.51	2.43	11	1
1:A:148:ARG:NH1	1:A:152:GLU:OE2	0.51	2.43	17	1
1:A:129:MET:HE3	1:A:130:LEU:N	0.51	2.21	8	10
1:A:145:TYR:CZ	1:A:149:TYR:CZ	0.51	2.99	8	2
1:A:178:ASP:O	1:A:178:ASP:OD2	0.51	2.28	8	3
1:A:159:ASN:C	1:A:159:ASN:ND2	0.51	2.63	14	2
1:A:138:ILE:CD1	1:A:147:ASP:OD2	0.51	2.59	2	1
1:A:180:VAL:O	1:A:181:ASN:C	0.51	2.49	6	7
1:A:138:ILE:HD11	1:A:151:ARG:NH2	0.51	2.21	1	1
1:A:172:GLN:CG	1:A:173:ASN:N	0.50	2.74	7	5
1:A:198:PHE:CD1	1:A:206:MET:HE3	0.50	2.42	3	2
1:A:193:THR:CG2	1:A:194:LYS:N	0.50	2.74	16	3
1:A:186:GLN:OE1	1:A:186:GLN:N	0.50	2.44	11	1
1:A:172:GLN:O	1:A:173:ASN:C	0.50	2.50	4	6
1:A:134:MET:O	1:A:157:TYR:OH	0.50	2.29	1	1
1:A:147:ASP:OD1	1:A:151:ARG:NH1	0.50	2.45	12	1
1:A:180:VAL:HG11	1:A:211:GLU:OE2	0.50	2.06	12	1
1:A:157:TYR:CD1	1:A:157:TYR:O	0.50	2.65	1	1
1:A:140:HIS:ND1	1:A:140:HIS:N	0.50	2.59	15	2
1:A:159:ASN:C	1:A:213:MET:HE1	0.50	2.27	12	3
1:A:187:HIS:CE1	1:A:198:PHE:CZ	0.50	3.00	13	2
1:A:196:GLU:O	1:A:197:ASN:CG	0.50	2.49	11	1
1:A:184:ILE:O	1:A:188:THR:CB	0.49	2.60	18	4
1:A:163:TYR:OH	1:A:217:GLN:OE1	0.49	2.28	6	1
1:A:136:ARG:CG	1:A:136:ARG:HH21	0.49	2.20	13	4

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:172:GLN:CD	1:A:172:GLN:C	0.49	2.71	20	3
1:A:218:TYR:CD2	1:A:218:TYR:C	0.49	2.85	18	1
1:A:172:GLN:C	1:A:172:GLN:CD	0.49	2.70	2	2
1:A:129:MET:CE	1:A:130:LEU:N	0.49	2.76	17	14
1:A:190:THR:HG23	1:A:191:THR:N	0.49	2.22	2	13
1:A:131:GLY:HA3	1:A:163:TYR:HH	0.49	1.67	6	1
1:A:139:ILE:C	1:A:140:HIS:ND1	0.49	2.66	18	2
1:A:141:PHE:CD2	1:A:141:PHE:N	0.49	2.81	16	1
1:A:192:THR:C	1:A:194:LYS:H	0.49	2.10	2	2
1:A:174:ASN:O	1:A:174:ASN:ND2	0.49	2.43	10	2
1:A:217:GLN:O	1:A:221:GLU:CG	0.49	2.61	18	5
1:A:199:THR:CG2	1:A:202:ASP:OD1	0.49	2.59	18	1
1:A:211:GLU:O	1:A:215:ILE:CD1	0.49	2.60	4	3
1:A:136:ARG:CZ	1:A:137:PRO:O	0.49	2.61	15	1
1:A:185:LYS:O	1:A:189:VAL:CG2	0.49	2.61	17	15
1:A:136:ARG:CG	1:A:136:ARG:NH2	0.49	2.74	13	2
1:A:134:MET:CG	1:A:213:MET:SD	0.49	3.00	20	1
1:A:200:GLU:HG2	1:A:201:THR:N	0.49	2.23	2	20
1:A:198:PHE:CD1	1:A:206:MET:CE	0.49	2.95	3	2
1:A:201:THR:O	1:A:202:ASP:C	0.48	2.52	5	20
1:A:198:PHE:CD2	1:A:206:MET:CE	0.48	2.96	5	1
1:A:172:GLN:HE21	1:A:176:VAL:CG1	0.48	2.20	8	1
1:A:157:TYR:O	1:A:159:ASN:N	0.48	2.46	4	3
1:A:213:MET:O	1:A:214:CYS:C	0.48	2.51	15	4
1:A:190:THR:O	1:A:194:LYS:CD	0.48	2.61	2	1
1:A:166:MET:SD	1:A:221:GLU:OE1	0.48	2.72	6	1
1:A:190:THR:O	1:A:194:LYS:CE	0.48	2.62	5	1
1:A:203:VAL:O	1:A:204:LYS:C	0.48	2.49	20	5
1:A:150:TYR:CD1	1:A:157:TYR:CE2	0.48	3.01	16	1
1:A:146:GLU:O	1:A:147:ASP:C	0.48	2.51	11	3
1:A:163:TYR:CD2	1:A:163:TYR:C	0.48	2.87	6	1
1:A:180:VAL:HG11	1:A:211:GLU:OE1	0.48	2.08	13	1
1:A:172:GLN:NE2	1:A:172:GLN:C	0.48	2.67	12	1
1:A:181:ASN:C	1:A:181:ASN:HD22	0.48	2.12	15	1
1:A:154:MET:C	1:A:156:ARG:N	0.48	2.64	17	4
1:A:139:ILE:HD11	1:A:209:VAL:HA	0.48	1.85	3	18
1:A:136:ARG:N	1:A:136:ARG:CD	0.48	2.77	19	3
1:A:215:ILE:O	1:A:216:THR:C	0.47	2.52	2	10
1:A:192:THR:O	1:A:193:THR:C	0.47	2.51	15	8
1:A:211:GLU:OE1	1:A:215:ILE:CD1	0.47	2.63	11	1
1:A:130:LEU:HD13	1:A:161:VAL:H	0.47	1.68	15	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:136:ARG:N	1:A:136:ARG:NE	0.47	2.57	19	1
1:A:134:MET:SD	1:A:216:THR:HG21	0.47	2.49	17	1
1:A:217:GLN:NE2	1:A:220:ARG:NH1	0.47	2.62	3	1
1:A:220:ARG:HD3	1:A:221:GLU:N	0.47	2.25	9	5
1:A:138:ILE:HG22	1:A:154:MET:SD	0.47	2.50	19	2
1:A:157:TYR:CE1	1:A:158:PRO:O	0.47	2.67	1	1
1:A:218:TYR:CD2	1:A:221:GLU:OE2	0.47	2.67	3	1
1:A:171:ASN:ND2	1:A:174:ASN:CB	0.47	2.78	5	1
1:A:176:VAL:O	1:A:177:HIS:C	0.47	2.52	11	7
1:A:164:ARG:O	1:A:165:PRO:O	0.47	2.33	20	7
1:A:136:ARG:CD	1:A:136:ARG:N	0.47	2.77	7	1
1:A:130:LEU:C	1:A:130:LEU:HD12	0.47	2.29	12	1
1:A:128:TYR:OH	1:A:178:ASP:OD2	0.47	2.32	19	1
1:A:130:LEU:CD1	1:A:161:VAL:O	0.47	2.63	1	3
1:A:218:TYR:CD1	1:A:218:TYR:C	0.47	2.88	15	1
1:A:145:TYR:CE2	1:A:149:TYR:CZ	0.47	3.03	10	3
1:A:172:GLN:C	1:A:172:GLN:NE2	0.47	2.68	19	2
1:A:153:ASN:O	1:A:154:MET:C	0.47	2.52	11	2
1:A:130:LEU:CB	1:A:162:TYR:CD2	0.47	2.98	17	1
1:A:141:PHE:CD1	1:A:146:GLU:OE2	0.46	2.68	13	2
1:A:163:TYR:CD1	1:A:217:GLN:NE2	0.46	2.83	4	1
1:A:204:LYS:O	1:A:205:MET:C	0.46	2.53	14	9
1:A:210:VAL:O	1:A:212:GLN:N	0.46	2.49	6	4
1:A:186:GLN:OE1	1:A:186:GLN:CA	0.46	2.63	1	2
1:A:217:GLN:HE22	1:A:220:ARG:NH1	0.46	2.07	3	1
1:A:178:ASP:O	1:A:178:ASP:OD1	0.46	2.33	19	1
1:A:150:TYR:CE2	1:A:157:TYR:CE1	0.46	3.04	7	2
1:A:155:HIS:O	1:A:155:HIS:ND1	0.46	2.49	10	2
1:A:165:PRO:O	1:A:166:MET:C	0.45	2.54	18	14
1:A:158:PRO:O	1:A:213:MET:HE1	0.45	2.12	4	1
1:A:147:ASP:CG	1:A:151:ARG:HH12	0.45	2.15	12	1
1:A:189:VAL:O	1:A:190:THR:C	0.45	2.53	15	1
1:A:157:TYR:O	1:A:158:PRO:C	0.45	2.55	11	4
1:A:130:LEU:HD11	1:A:160:GLN:HB3	0.45	1.89	3	2
1:A:174:ASN:O	1:A:178:ASP:OD1	0.45	2.35	7	1
1:A:159:ASN:C	1:A:159:ASN:OD1	0.45	2.55	18	2
1:A:192:THR:HG22	1:A:193:THR:N	0.45	2.27	5	1
1:A:158:PRO:HG3	1:A:206:MET:SD	0.45	2.51	1	2
1:A:206:MET:O	1:A:210:VAL:HG23	0.45	2.10	6	3
1:A:178:ASP:OD1	1:A:178:ASP:O	0.44	2.34	15	1
1:A:215:ILE:O	1:A:218:TYR:N	0.44	2.49	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:178:ASP:C	1:A:178:ASP:OD1	0.44	2.56	14	1
1:A:159:ASN:ND2	1:A:160:GLN:HG3	0.44	2.28	7	4
1:A:180:VAL:O	1:A:184:ILE:HG13	0.44	2.13	9	13
1:A:136:ARG:H	1:A:136:ARG:NE	0.44	2.11	5	1
1:A:134:MET:N	1:A:134:MET:SD	0.44	2.91	8	1
1:A:133:ALA:CB	1:A:159:ASN:ND2	0.44	2.81	16	1
1:A:136:ARG:NH2	1:A:136:ARG:CG	0.44	2.80	7	1
1:A:216:THR:O	1:A:219:GLU:N	0.44	2.51	15	1
1:A:138:ILE:CD1	1:A:147:ASP:OD1	0.44	2.65	9	1
1:A:179:CYS:O	1:A:183:THR:OG1	0.44	2.33	16	1
1:A:150:TYR:CE2	1:A:157:TYR:CD2	0.43	3.06	12	1
1:A:158:PRO:HG2	1:A:206:MET:SD	0.43	2.52	1	2
1:A:219:GLU:O	1:A:220:ARG:C	0.43	2.56	1	2
1:A:176:VAL:HG23	1:A:177:HIS:N	0.43	2.26	17	1
1:A:148:ARG:O	1:A:149:TYR:C	0.43	2.56	8	7
1:A:134:MET:HG2	1:A:213:MET:SD	0.43	2.53	20	1
1:A:206:MET:O	1:A:207:GLU:C	0.43	2.55	4	13
1:A:217:GLN:NE2	1:A:220:ARG:NE	0.43	2.66	3	1
1:A:217:GLN:O	1:A:220:ARG:CD	0.43	2.67	3	1
1:A:197:ASN:O	1:A:197:ASN:OD1	0.43	2.37	5	1
1:A:182:ILE:HG22	1:A:183:THR:N	0.43	2.29	6	1
1:A:216:THR:HG22	1:A:217:GLN:N	0.43	2.27	9	2
1:A:199:THR:OG1	1:A:202:ASP:CG	0.43	2.57	1	2
1:A:138:ILE:O	1:A:140:HIS:CE1	0.43	2.71	3	1
1:A:201:THR:O	1:A:205:MET:HG3	0.43	2.13	14	1
1:A:201:THR:CG2	1:A:202:ASP:N	0.43	2.82	11	2
1:A:186:GLN:CA	1:A:186:GLN:OE1	0.43	2.66	18	1
1:A:141:PHE:CB	1:A:146:GLU:OE1	0.43	2.67	12	1
1:A:172:GLN:NE2	1:A:176:VAL:CG1	0.43	2.81	8	1
1:A:141:PHE:CB	1:A:146:GLU:OE2	0.43	2.67	13	1
1:A:184:ILE:O	1:A:185:LYS:C	0.43	2.56	20	1
1:A:141:PHE:CE1	1:A:146:GLU:OE1	0.43	2.71	3	1
1:A:213:MET:O	1:A:217:GLN:CG	0.43	2.67	13	1
1:A:128:TYR:N	1:A:128:TYR:CD2	0.43	2.86	14	1
1:A:172:GLN:HG3	1:A:173:ASN:N	0.43	2.28	1	1
1:A:157:TYR:CD2	1:A:157:TYR:C	0.42	2.92	9	1
1:A:172:GLN:NE2	1:A:176:VAL:HG11	0.42	2.28	8	1
1:A:212:GLN:HA	1:A:215:ILE:HD12	0.42	1.91	15	1
1:A:172:GLN:HE21	1:A:173:ASN:CA	0.42	2.26	1	2
1:A:129:MET:SD	1:A:130:LEU:N	0.42	2.92	19	1
1:A:136:ARG:HH12	1:A:220:ARG:NH2	0.42	2.04	20	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:136:ARG:CB	1:A:137:PRO:CD	0.42	2.97	2	1
1:A:217:GLN:O	1:A:218:TYR:C	0.42	2.57	2	1
1:A:130:LEU:HB3	1:A:162:TYR:CE2	0.42	2.49	17	1
1:A:216:THR:O	1:A:217:GLN:C	0.42	2.57	8	3
1:A:199:THR:HG1	1:A:202:ASP:CG	0.42	2.18	1	1
1:A:197:ASN:C	1:A:197:ASN:ND2	0.42	2.71	12	1
1:A:221:GLU:C	1:A:221:GLU:OE1	0.42	2.58	3	2
1:A:136:ARG:NH2	1:A:136:ARG:HG3	0.42	2.29	13	1
1:A:130:LEU:HD12	1:A:130:LEU:C	0.42	2.35	17	3
1:A:172:GLN:HE22	1:A:173:ASN:HD22	0.42	1.56	16	1
1:A:138:ILE:HD13	1:A:151:ARG:HE	0.42	1.75	10	1
1:A:166:MET:N	1:A:221:GLU:OE1	0.42	2.52	17	1
1:A:134:MET:O	1:A:135:SER:C	0.42	2.58	5	1
1:A:154:MET:C	1:A:156:ARG:H	0.42	2.18	17	1
1:A:150:TYR:CD1	1:A:157:TYR:CE1	0.42	3.08	17	1
1:A:162:TYR:CD2	1:A:162:TYR:N	0.41	2.88	6	1
1:A:190:THR:OG1	1:A:194:LYS:CE	0.41	2.69	4	1
1:A:210:VAL:C	1:A:212:GLN:N	0.41	2.72	6	1
1:A:151:ARG:N	1:A:151:ARG:HH21	0.41	2.12	12	1
1:A:141:PHE:CB	1:A:146:GLU:CD	0.41	2.89	13	1
1:A:172:GLN:NE2	1:A:173:ASN:HA	0.41	2.30	16	1
1:A:128:TYR:OH	1:A:178:ASP:OD1	0.41	2.37	16	1
1:A:174:ASN:O	1:A:177:HIS:N	0.41	2.53	8	1
1:A:171:ASN:O	1:A:175:PHE:HB2	0.41	2.15	9	1
1:A:141:PHE:N	1:A:141:PHE:CD2	0.41	2.88	5	1
1:A:176:VAL:HG22	1:A:177:HIS:H	0.41	1.75	13	2
1:A:217:GLN:HA	1:A:217:GLN:NE2	0.41	2.31	8	1
1:A:129:MET:HE2	1:A:130:LEU:C	0.41	2.36	9	1
1:A:138:ILE:HD13	1:A:151:ARG:NE	0.41	2.31	10	1
1:A:154:MET:O	1:A:157:TYR:N	0.41	2.51	11	1
1:A:172:GLN:HG3	1:A:218:TYR:CZ	0.41	2.51	2	1
1:A:130:LEU:HB2	1:A:162:TYR:CE2	0.41	2.51	14	1
1:A:172:GLN:HG2	1:A:218:TYR:CZ	0.41	2.51	18	1
1:A:158:PRO:O	1:A:213:MET:CE	0.41	2.69	11	1
1:A:202:ASP:C	1:A:206:MET:SD	0.41	3.00	3	1
1:A:220:ARG:O	1:A:221:GLU:C	0.41	2.59	8	1
1:A:172:GLN:HG3	1:A:218:TYR:CE1	0.41	2.51	19	1
1:A:130:LEU:C	1:A:130:LEU:CD1	0.41	2.90	12	1
1:A:138:ILE:HB	1:A:150:TYR:CD2	0.41	2.51	12	1
1:A:166:MET:CB	1:A:221:GLU:CD	0.40	2.90	10	1
1:A:166:MET:SD	1:A:221:GLU:OE2	0.40	2.79	13	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:191:THR:HG23	1:A:197:ASN:N	0.40	2.31	14	1
1:A:172:GLN:O	1:A:175:PHE:N	0.40	2.54	6	1
1:A:220:ARG:HD2	1:A:220:ARG:N	0.40	2.31	8	1
1:A:150:TYR:CD2	1:A:157:TYR:CE2	0.40	3.10	12	1
1:A:134:MET:SD	1:A:216:THR:HG22	0.40	2.57	15	1
1:A:193:THR:HG23	1:A:194:LYS:CD	0.40	2.45	18	1
1:A:199:THR:N	1:A:202:ASP:OD1	0.40	2.51	18	1
1:A:136:ARG:HE	1:A:136:ARG:CA	0.40	2.29	2	1
1:A:129:MET:SD	1:A:129:MET:O	0.40	2.80	14	1
1:A:130:LEU:CD1	1:A:161:VAL:H	0.40	2.30	20	1

6.3 Torsion angles [i](#)

6.3.1 Protein backbone [i](#)

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	90/142 (63%)	70±2 (78±2%)	17±3 (19±3%)	3±1 (4±1%)	6	34
All	All	1800/2840 (63%)	1395 (78%)	338 (19%)	67 (4%)	6	34

All 11 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	158	PRO	19
1	A	165	PRO	17
1	A	197	ASN	12
1	A	166	MET	6
1	A	171	ASN	4
1	A	137	PRO	2
1	A	193	THR	2
1	A	196	GLU	2
1	A	128	TYR	1
1	A	131	GLY	1
1	A	142	GLY	1

6.3.2 Protein sidechains [i](#)

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	86/121 (71%)	56±3 (65±4%)	30±3 (35±4%)	1 9
All	All	1720/2420 (71%)	1120 (65%)	600 (35%)	1 9

All 62 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	173	ASN	20
1	A	161	VAL	20
1	A	153	ASN	20
1	A	182	ILE	20
1	A	209	VAL	20
1	A	174	ASN	20
1	A	129	MET	19
1	A	171	ASN	19
1	A	193	THR	18
1	A	151	ARG	18
1	A	176	VAL	18
1	A	221	GLU	17
1	A	180	VAL	17
1	A	200	GLU	17
1	A	191	THR	17
1	A	166	MET	17
1	A	201	THR	16
1	A	220	ARG	16
1	A	217	GLN	14
1	A	186	GLN	14
1	A	136	ARG	13
1	A	172	GLN	13
1	A	143	SER	12
1	A	150	TYR	12
1	A	214	CYS	12
1	A	147	ASP	12
1	A	179	CYS	12
1	A	140	HIS	11
1	A	212	GLN	9

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Mol	Chain	Res	Type	Models (Total)
1	A	216	THR	9
1	A	197	ASN	9
1	A	134	MET	9
1	A	135	SER	8
1	A	175	PHE	7
1	A	204	LYS	7
1	A	132	SER	7
1	A	185	LYS	7
1	A	154	MET	7
1	A	192	THR	6
1	A	144	ASP	5
1	A	159	ASN	5
1	A	138	ILE	5
1	A	130	LEU	5
1	A	188	THR	5
1	A	148	ARG	4
1	A	181	ASN	4
1	A	187	HIS	3
1	A	178	ASP	3
1	A	211	GLU	3
1	A	139	ILE	2
1	A	155	HIS	2
1	A	157	TYR	2
1	A	194	LYS	2
1	A	177	HIS	2
1	A	219	GLU	2
1	A	128	TYR	1
1	A	199	THR	1
1	A	206	MET	1
1	A	160	GLN	1
1	A	152	GLU	1
1	A	190	THR	1
1	A	202	ASP	1

6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

7 Chemical shift validation [i](#)

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

7.1 Chemical shift list 1

File name: input_cs.cif

Chemical shift list name: *assigned_chemical_shifts_1*

7.1.1 Bookkeeping [i](#)

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

Total number of shifts	1517
Number of shifts mapped to atoms	1517
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

7.1.2 Chemical shift referencing [i](#)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction \pm precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	139	0.19 \pm 0.08	None needed (< 0.5 ppm)
$^{13}\text{C}_\beta$	124	0.42 \pm 0.09	None needed (< 0.5 ppm)
$^{13}\text{C}'$	137	0.14 \pm 0.08	None needed (< 0.5 ppm)
^{15}N	129	-0.23 \pm 0.12	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 78%, i.e. 924 atoms were assigned a chemical shift out of a possible 1180. 8 out of 8 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	431/444 (97%)	172/177 (97%)	176/180 (98%)	83/87 (95%)
Sidechain	449/613 (73%)	293/362 (81%)	155/215 (72%)	1/36 (3%)

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	Total	¹ H	¹³ C	¹⁵ N
Aromatic	44/123 (36%)	44/63 (70%)	0/52 (0%)	0/8 (0%)
Overall	924/1180 (78%)	509/602 (85%)	331/447 (74%)	84/131 (64%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 78%, i.e. 1365 atoms were assigned a chemical shift out of a possible 1744. 11 out of 11 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹ H	¹³ C	¹⁵ N
Backbone	674/700 (96%)	269/279 (96%)	276/284 (97%)	129/137 (94%)
Sidechain	641/869 (74%)	422/516 (82%)	218/304 (72%)	1/49 (2%)
Aromatic	50/175 (29%)	50/89 (56%)	0/73 (0%)	0/13 (0%)
Overall	1365/1744 (78%)	741/884 (84%)	494/661 (75%)	130/199 (65%)

7.1.4 Statistically unusual chemical shifts [i](#)

There are no statistically unusual chemical shifts.

7.1.5 Random Coil Index (RCI) plots [i](#)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition.

Random coil index (RCI) for chain A:

