



Full wwPDB NMR Structure Validation Report ⓘ

Mar 9, 2026 – 09:22 AM UTC

PDB ID : 2CTR / pdb_00002ctr
Title : Solution structure of J-domain from human DnaJ subfamily B member 9
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Deposited on : 2005-05-24

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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

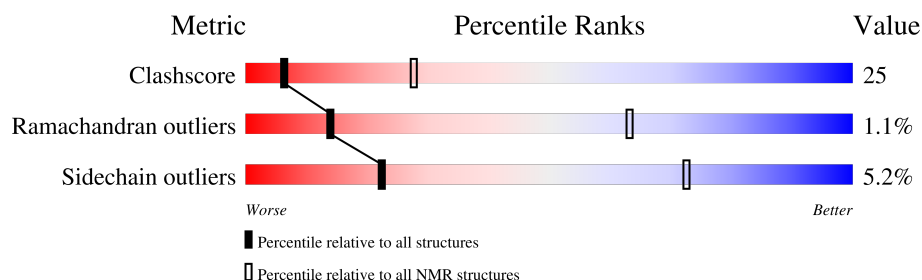
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

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	229148	14424
Ramachandran outliers	224038	12848
Sidechain outliers	223484	12823

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	88	

2 Ensemble composition and analysis

This entry contains 20 models. Model 14 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:7-A:76 (70)	0.38	14

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 2 clusters. No single-model clusters were found.

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

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 1315 atoms, of which 645 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called DnaJ homolog subfamily B member 9.

Mol	Chain	Residues	Atoms						Trace
1	A	88	Total	C	H	N	O	S	0
			1315	413	645	120	136	1	

There are 13 discrepancies between the modelled and reference sequences:

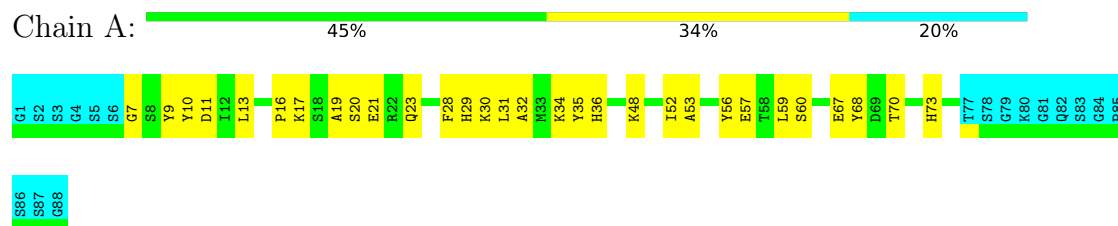
Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	cloning artifact	UNP Q9UBS3
A	2	SER	-	cloning artifact	UNP Q9UBS3
A	3	SER	-	cloning artifact	UNP Q9UBS3
A	4	GLY	-	cloning artifact	UNP Q9UBS3
A	5	SER	-	cloning artifact	UNP Q9UBS3
A	6	SER	-	cloning artifact	UNP Q9UBS3
A	7	GLY	-	cloning artifact	UNP Q9UBS3
A	83	SER	-	cloning artifact	UNP Q9UBS3
A	84	GLY	-	cloning artifact	UNP Q9UBS3
A	85	PRO	-	cloning artifact	UNP Q9UBS3
A	86	SER	-	cloning artifact	UNP Q9UBS3
A	87	SER	-	cloning artifact	UNP Q9UBS3
A	88	GLY	-	cloning artifact	UNP Q9UBS3

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: DnaJ homolog subfamily B member 9

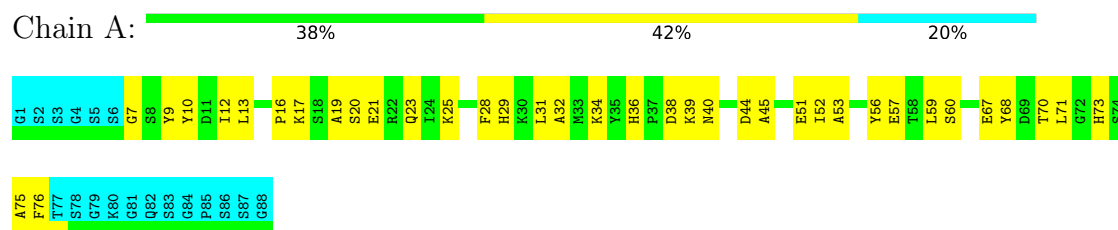


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

- Molecule 1: DnaJ homolog subfamily B member 9



4.2.2 Score per residue for model 2

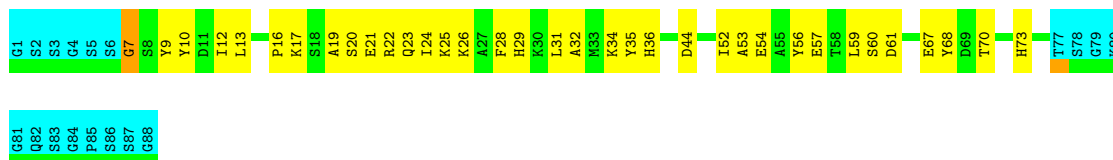
- Molecule 1: DnaJ homolog subfamily B member 9





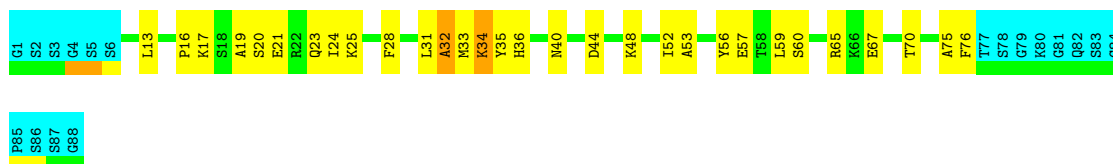
4.2.3 Score per residue for model 3

- Molecule 1: DnaJ homolog subfamily B member 9



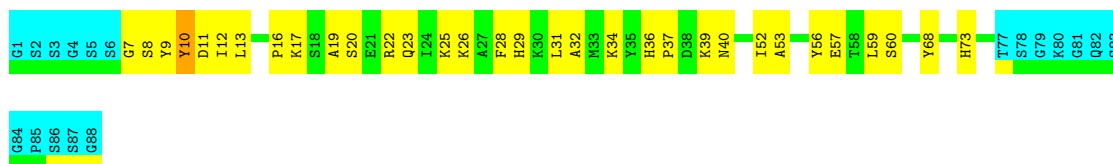
4.2.4 Score per residue for model 4

- Molecule 1: DnaJ homolog subfamily B member 9



4.2.5 Score per residue for model 5

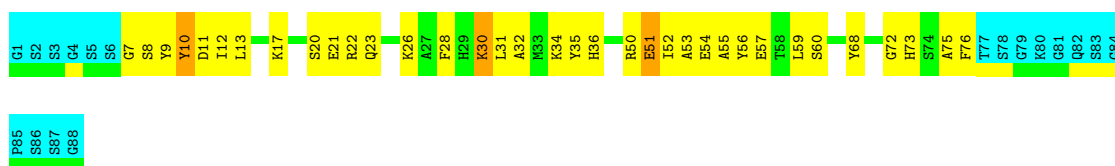
- Molecule 1: DnaJ homolog subfamily B member 9



4.2.6 Score per residue for model 6

- Molecule 1: DnaJ homolog subfamily B member 9

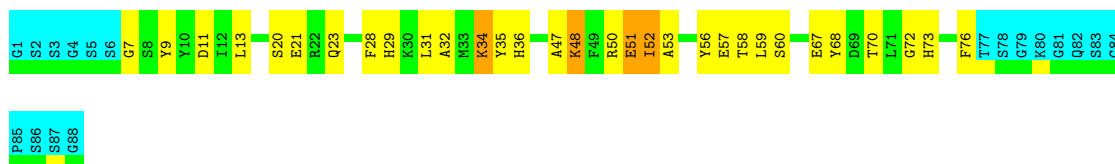




4.2.7 Score per residue for model 7

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 44% 31% 5% 20%



4.2.8 Score per residue for model 8

- Molecule 1: DnaJ homolog subfamily B member 9

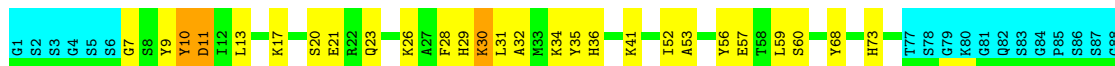
Chain A: 47% 32% 20%



4.2.9 Score per residue for model 9

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 49% 27% 20%



4.2.10 Score per residue for model 10

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 40% 38% 20%



G79
K80
Q81
Q82
S83
G84
P85
S86
S87
G88

4.2.11 Score per residue for model 11

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 50% 28% 20%

G1 S2 S3 S4 S5 S6 S7 S8 S9 Y9 Y10 D11 D12 L13 L14 L15 K17 S20 S21 E21 E22 Q23 F28 H29 K30 L31 L32 A32 F33 K34 Y35 H36 M40 A45 I52 A53 Y56 E57 T58 L59 S60 Y68 F76 T77 S78 G79 K80 Q82 S83 S84 P85 S86 S87 G88

4.2.12 Score per residue for model 12

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 49% 31% 20%

G1 S2 S3 S4 S5 S6 S7 S8 S9 Y10 Y11 L13 L14 P16 A19 S20 S21 E21 E22 Q23 K26 A27 F28 H29 K30 L31 A32 M33 K34 Y35 H36 I52 A55 E57 T58 L59 S60 D61 A62 M63 Y68 H73 T77 S78 G79 K80 Q82 S83 S84 P85 S86 S87

G88

4.2.13 Score per residue for model 13

- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 47% 30% 20%

G1 S2 S3 S4 S5 S6 Y9 Y10 D11 D12 L13 L14 V15 P16 A19 S20 S21 E21 E22 Q23 A27 F28 H29 K30 L31 A32 M33 K34 Y35 H36 K48 I52 A55 Y56 E57 T58 L59 S60 E67 Y68 D69 T70 L71 G72 H73 T77 S78 G79 K80 Q82 S83 S84

P85
S86
S87
G88

4.2.14 Score per residue for model 14 (medoid)

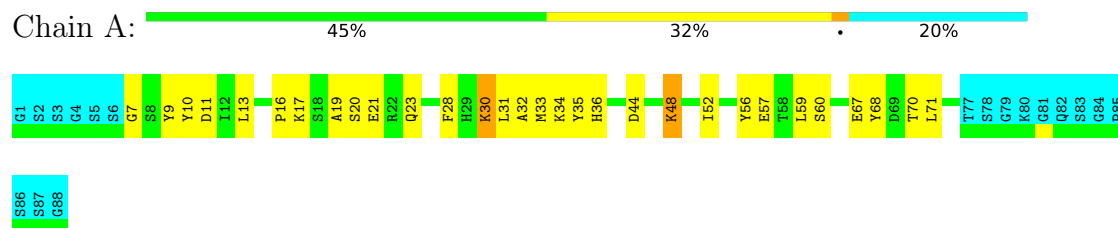
- Molecule 1: DnaJ homolog subfamily B member 9

Chain A: 53% 23% 20%

G1 S2 S3 S4 S5 S6 S7 S8 S9 Y9 Y10 D11 D12 L13 L14 S20 S21 E21 E22 Q23 F28 H29 K30 L31 A32 K33 K34 Y35 H36 K41 I52 Y56 E57 T58 L59 S60 H73 T77 S78 G79 K80 Q82 S83 S84 P85 S86 S87 G88

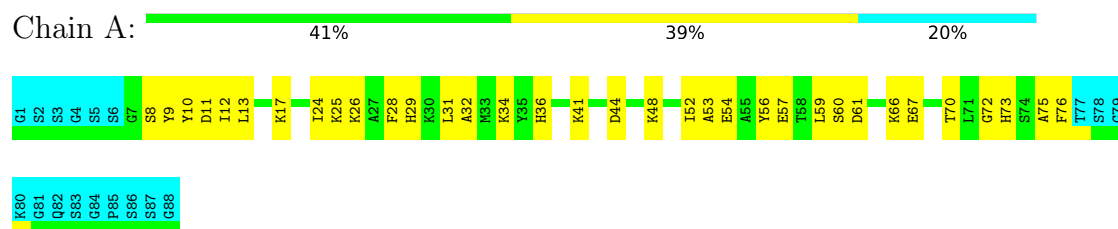
4.2.15 Score per residue for model 15

- Molecule 1: DnaJ homolog subfamily B member 9



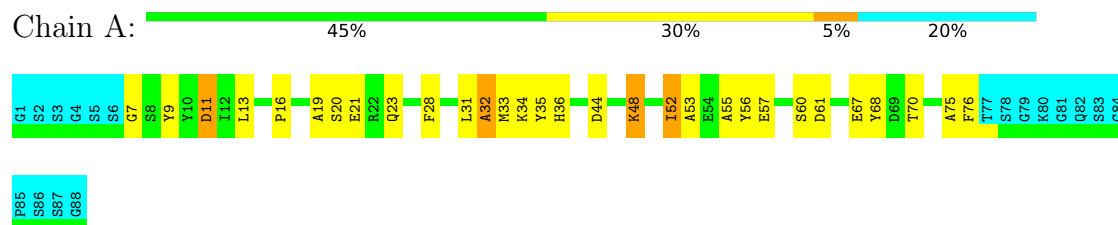
4.2.16 Score per residue for model 16

- Molecule 1: DnaJ homolog subfamily B member 9



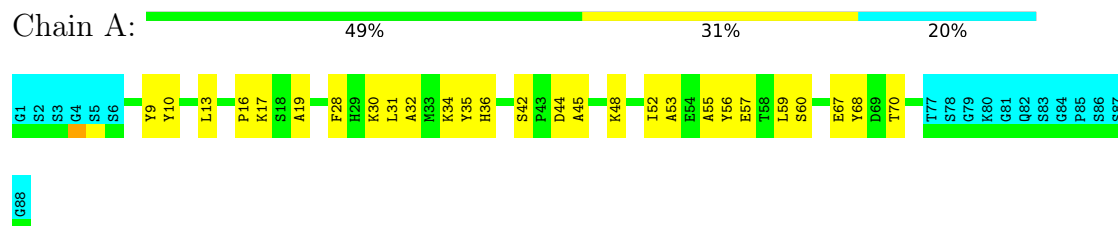
4.2.17 Score per residue for model 17

- Molecule 1: DnaJ homolog subfamily B member 9



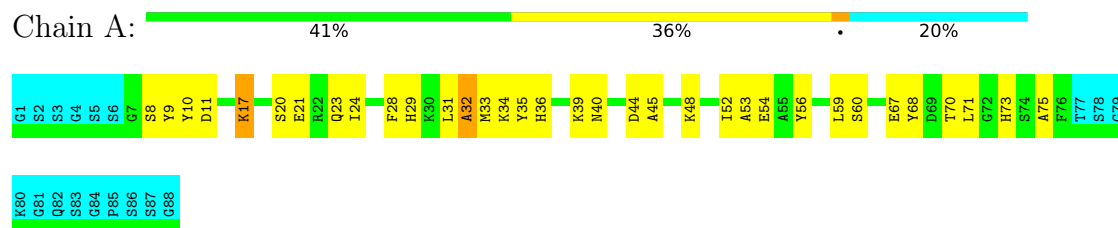
4.2.18 Score per residue for model 18

- Molecule 1: DnaJ homolog subfamily B member 9



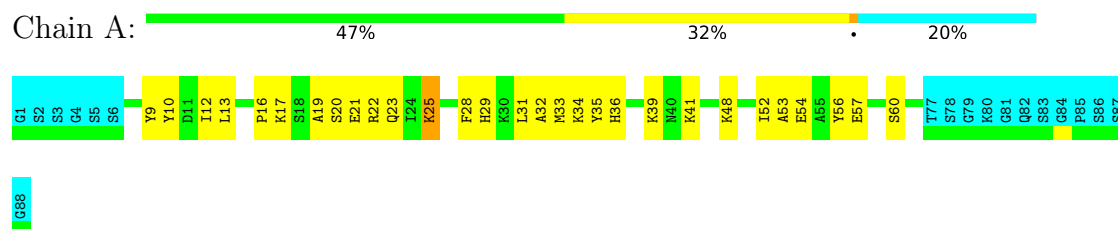
4.2.19 Score per residue for model 19

- Molecule 1: DnaJ homolog subfamily B member 9



4.2.20 Score per residue for model 20

- Molecule 1: DnaJ homolog subfamily B member 9



5 Refinement protocol and experimental data overview ⓘ

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

Of the 100 calculated structures, 20 were deposited, based on the following criterion: *target function, structures with the lowest energy, structures with the least restraint violations*.

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

Software name	Classification	Version
CYANA	structure solution	2.0.17
CYANA	refinement	2.0.17

No chemical shift data was provided.

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	566	552	552	28±5
All	All	11320	11040	11040	570

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 25.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:TYR:CE2	1:A:68:TYR:CE2	0.79	2.70	13	7
1:A:13:LEU:O	1:A:31:LEU:HD11	0.75	1.81	13	19
1:A:9:TYR:CD2	1:A:68:TYR:CZ	0.74	2.75	12	6
1:A:28:PHE:CD2	1:A:56:TYR:CG	0.73	2.75	7	16
1:A:13:LEU:HD12	1:A:59:LEU:HD12	0.70	1.62	7	15
1:A:9:TYR:CD2	1:A:68:TYR:CE2	0.70	2.80	13	8
1:A:28:PHE:CD1	1:A:52:ILE:HG22	0.70	2.22	5	20
1:A:9:TYR:CD2	1:A:68:TYR:CE1	0.65	2.85	18	3
1:A:9:TYR:CE2	1:A:68:TYR:CE1	0.64	2.85	10	3
1:A:35:TYR:CD2	1:A:52:ILE:HD11	0.63	2.29	2	4
1:A:28:PHE:CE1	1:A:52:ILE:HG22	0.63	2.28	11	15
1:A:9:TYR:CE2	1:A:68:TYR:CD1	0.62	2.88	10	1
1:A:10:TYR:CD2	1:A:17:LYS:CD	0.62	2.83	5	5
1:A:40:ASN:CG	1:A:45:ALA:HB2	0.60	2.22	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:21:GLU:CD	1:A:21:GLU:C	0.60	2.69	8	1
1:A:51:GLU:CD	1:A:51:GLU:N	0.59	2.60	7	2
1:A:73:HIS:O	1:A:73:HIS:CD2	0.58	2.56	14	2
1:A:13:LEU:CD1	1:A:59:LEU:HD12	0.57	2.28	7	3
1:A:28:PHE:HD1	1:A:52:ILE:HG22	0.57	1.60	6	5
1:A:28:PHE:CE2	1:A:56:TYR:CD2	0.57	2.91	4	5
1:A:9:TYR:CE2	1:A:68:TYR:CD2	0.57	2.93	6	3
1:A:67:GLU:HA	1:A:70:THR:HG22	0.57	1.75	15	12
1:A:40:ASN:ND2	1:A:45:ALA:HB2	0.55	2.16	11	1
1:A:68:TYR:O	1:A:68:TYR:CD1	0.55	2.60	1	3
1:A:7:GLY:O	1:A:73:HIS:CE1	0.54	2.60	1	4
1:A:28:PHE:CD2	1:A:56:TYR:CD2	0.53	2.96	4	3
1:A:10:TYR:CD2	1:A:17:LYS:HD3	0.53	2.39	1	7
1:A:16:PRO:CD	1:A:19:ALA:HB2	0.53	2.34	18	12
1:A:30:LYS:CG	1:A:31:LEU:N	0.52	2.72	13	4
1:A:35:TYR:CE1	1:A:48:LYS:HD3	0.52	2.39	15	3
1:A:71:LEU:O	1:A:75:ALA:HB3	0.52	2.05	1	2
1:A:68:TYR:CD1	1:A:72:GLY:O	0.51	2.64	7	1
1:A:16:PRO:HD2	1:A:19:ALA:HB2	0.51	1.83	18	10
1:A:32:ALA:O	1:A:36:HIS:N	0.51	2.44	19	20
1:A:24:ILE:HD13	1:A:59:LEU:O	0.51	2.06	19	1
1:A:31:LEU:O	1:A:34:LYS:N	0.50	2.45	3	20
1:A:56:TYR:O	1:A:57:GLU:C	0.50	2.55	20	18
1:A:50:ARG:C	1:A:51:GLU:OE1	0.50	2.55	7	2
1:A:20:SER:O	1:A:21:GLU:C	0.50	2.54	8	15
1:A:56:TYR:O	1:A:60:SER:N	0.50	2.45	16	20
1:A:34:LYS:HD2	1:A:35:TYR:CE2	0.50	2.42	19	5
1:A:9:TYR:O	1:A:12:ILE:N	0.50	2.45	8	8
1:A:9:TYR:O	1:A:10:TYR:C	0.49	2.55	6	16
1:A:31:LEU:O	1:A:32:ALA:C	0.49	2.55	4	19
1:A:28:PHE:CD2	1:A:56:TYR:CD1	0.49	3.01	7	2
1:A:75:ALA:O	1:A:76:PHE:C	0.49	2.55	16	6
1:A:10:TYR:CD2	1:A:17:LYS:CE	0.49	2.95	19	1
1:A:28:PHE:CE1	1:A:53:ALA:HA	0.49	2.43	6	1
1:A:20:SER:O	1:A:23:GLN:N	0.49	2.46	12	17
1:A:10:TYR:CG	1:A:17:LYS:HE3	0.49	2.43	19	1
1:A:35:TYR:CD1	1:A:48:LYS:CB	0.48	2.96	7	3
1:A:56:TYR:CE2	1:A:60:SER:HB2	0.48	2.43	18	2
1:A:56:TYR:CE1	1:A:60:SER:HB2	0.48	2.43	2	1
1:A:22:ARG:O	1:A:26:LYS:CG	0.48	2.62	12	3
1:A:56:TYR:CZ	1:A:60:SER:OG	0.48	2.65	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:28:PHE:O	1:A:29:HIS:C	0.48	2.56	11	11
1:A:56:TYR:O	1:A:59:LEU:N	0.48	2.47	18	4
1:A:9:TYR:HB3	1:A:55:ALA:HB1	0.48	1.86	12	1
1:A:56:TYR:CE1	1:A:60:SER:OG	0.48	2.67	19	1
1:A:40:ASN:CG	1:A:45:ALA:CB	0.48	2.86	1	1
1:A:35:TYR:CE1	1:A:48:LYS:CD	0.48	2.96	13	3
1:A:35:TYR:CE1	1:A:48:LYS:HE2	0.48	2.43	2	3
1:A:9:TYR:O	1:A:11:ASP:N	0.48	2.46	6	8
1:A:12:ILE:HG21	1:A:51:GLU:HG3	0.47	1.84	1	1
1:A:63:ASN:OD1	1:A:63:ASN:C	0.47	2.57	10	1
1:A:10:TYR:CG	1:A:17:LYS:CE	0.47	2.97	19	1
1:A:9:TYR:CD1	1:A:55:ALA:HA	0.47	2.45	13	5
1:A:58:THR:HG21	1:A:68:TYR:HB2	0.47	1.87	7	1
1:A:71:LEU:O	1:A:75:ALA:CB	0.47	2.63	1	1
1:A:35:TYR:CD2	1:A:52:ILE:CD1	0.47	2.97	2	2
1:A:24:ILE:HG21	1:A:59:LEU:HB2	0.47	1.87	16	1
1:A:59:LEU:HD21	1:A:68:TYR:CD2	0.46	2.45	15	4
1:A:72:GLY:O	1:A:73:HIS:C	0.46	2.58	16	1
1:A:25:LYS:O	1:A:29:HIS:CD2	0.46	2.68	20	2
1:A:28:PHE:CZ	1:A:53:ALA:HA	0.46	2.45	18	11
1:A:10:TYR:CE2	1:A:68:TYR:CE2	0.46	3.04	9	1
1:A:76:PHE:C	1:A:76:PHE:CD1	0.45	2.93	1	3
1:A:25:LYS:HA	1:A:56:TYR:CE1	0.45	2.46	16	4
1:A:9:TYR:C	1:A:11:ASP:N	0.45	2.74	2	11
1:A:8:SER:HA	1:A:73:HIS:CE1	0.45	2.47	5	2
1:A:21:GLU:OE2	1:A:25:LYS:CG	0.45	2.65	8	1
1:A:31:LEU:O	1:A:33:MET:N	0.45	2.50	17	5
1:A:53:ALA:O	1:A:56:TYR:N	0.45	2.49	6	3
1:A:34:LYS:HD3	1:A:35:TYR:CE2	0.45	2.46	9	3
1:A:60:SER:OG	1:A:61:ASP:N	0.44	2.50	16	1
1:A:10:TYR:CE1	1:A:59:LEU:HD22	0.44	2.47	19	1
1:A:22:ARG:O	1:A:26:LYS:CD	0.44	2.65	6	1
1:A:70:THR:HG23	1:A:71:LEU:HG	0.44	1.88	15	3
1:A:19:ALA:O	1:A:65:ARG:NH2	0.44	2.51	2	2
1:A:24:ILE:HG21	1:A:59:LEU:O	0.44	2.11	4	1
1:A:30:LYS:HG3	1:A:31:LEU:N	0.44	2.27	6	6
1:A:10:TYR:CD2	1:A:17:LYS:HE2	0.44	2.47	19	1
1:A:53:ALA:O	1:A:54:GLU:C	0.44	2.61	19	5
1:A:40:ASN:ND2	1:A:45:ALA:CB	0.44	2.81	11	1
1:A:76:PHE:O	1:A:76:PHE:CD1	0.44	2.71	8	1
1:A:21:GLU:OE2	1:A:25:LYS:CD	0.44	2.66	8	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:15:VAL:CG1	1:A:27:ALA:CB	0.43	2.96	13	1
1:A:32:ALA:O	1:A:36:HIS:CA	0.43	2.66	9	6
1:A:34:LYS:HE3	1:A:35:TYR:CZ	0.43	2.49	19	2
1:A:59:LEU:HD21	1:A:68:TYR:CE2	0.43	2.49	15	3
1:A:10:TYR:CE1	1:A:17:LYS:HA	0.43	2.48	9	1
1:A:13:LEU:O	1:A:31:LEU:CD1	0.43	2.64	20	1
1:A:36:HIS:O	1:A:40:ASN:CB	0.43	2.66	4	2
1:A:28:PHE:CD2	1:A:56:TYR:CB	0.43	3.02	5	4
1:A:16:PRO:HG2	1:A:19:ALA:HB2	0.42	1.90	1	1
1:A:24:ILE:HG22	1:A:56:TYR:CD1	0.42	2.48	19	2
1:A:51:GLU:N	1:A:51:GLU:OE1	0.42	2.51	6	2
1:A:17:LYS:O	1:A:65:ARG:NH2	0.42	2.52	4	1
1:A:21:GLU:O	1:A:22:ARG:C	0.42	2.62	8	1
1:A:21:GLU:O	1:A:24:ILE:N	0.42	2.53	8	1
1:A:24:ILE:HG22	1:A:56:TYR:HD1	0.42	1.75	16	1
1:A:42:SER:OG	1:A:45:ALA:HB2	0.42	2.15	18	1
1:A:76:PHE:CD1	1:A:76:PHE:C	0.42	2.97	11	2
1:A:56:TYR:CZ	1:A:60:SER:HB2	0.42	2.49	10	2
1:A:25:LYS:HG3	1:A:26:LYS:N	0.42	2.30	16	1
1:A:8:SER:O	1:A:9:TYR:C	0.42	2.63	11	4
1:A:72:GLY:O	1:A:76:PHE:N	0.41	2.53	6	2
1:A:20:SER:O	1:A:22:ARG:N	0.41	2.52	20	1
1:A:47:ALA:O	1:A:48:LYS:C	0.41	2.63	7	1
1:A:58:THR:CG2	1:A:68:TYR:HB2	0.41	2.45	7	1
1:A:56:TYR:CE2	1:A:60:SER:HB3	0.41	2.49	5	2
1:A:56:TYR:O	1:A:60:SER:CB	0.41	2.68	19	1
1:A:36:HIS:CG	1:A:37:PRO:HD2	0.41	2.51	5	1
1:A:10:TYR:CE2	1:A:17:LYS:HA	0.41	2.50	8	1
1:A:71:LEU:C	1:A:75:ALA:HB3	0.41	2.40	1	1
1:A:47:ALA:O	1:A:50:ARG:N	0.41	2.53	7	1
1:A:40:ASN:HB3	1:A:45:ALA:CB	0.41	2.46	19	1
1:A:20:SER:C	1:A:22:ARG:N	0.41	2.78	20	1
1:A:38:ASP:OD1	1:A:38:ASP:N	0.41	2.53	1	1
1:A:9:TYR:N	1:A:68:TYR:OH	0.41	2.54	6	1
1:A:35:TYR:CE1	1:A:48:LYS:HG3	0.41	2.51	7	1
1:A:7:GLY:O	1:A:73:HIS:NE2	0.40	2.54	3	1
1:A:26:LYS:O	1:A:30:LYS:CE	0.40	2.69	9	1
1:A:35:TYR:CD1	1:A:48:LYS:HB3	0.40	2.51	13	1
1:A:10:TYR:CB	1:A:17:LYS:CE	0.40	2.99	19	1
1:A:10:TYR:CD2	1:A:17:LYS:HD2	0.40	2.51	5	1
1:A:68:TYR:CE2	1:A:73:HIS:HB2	0.40	2.51	6	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	70/88 (80%)	58±2 (83±3%)	11±2 (16±3%)	1±1 (1±1%)	14	63
All	All	1400/1760 (80%)	1157 (83%)	227 (16%)	16 (1%)	14	63

All 3 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	7	GLY	7
1	A	10	TYR	6
1	A	32	ALA	3

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	58/70 (83%)	55±1 (95±2%)	3±1 (5±2%)	22	72
All	All	1160/1400 (83%)	1100 (95%)	60 (5%)	22	72

All 18 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	44	ASP	8
1	A	48	LYS	8
1	A	11	ASP	7
1	A	30	LYS	6
1	A	39	LYS	4
1	A	17	LYS	4
1	A	41	LYS	4

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Mol	Chain	Res	Type	Models (Total)
1	A	61	ASP	3
1	A	52	ILE	3
1	A	25	LYS	2
1	A	34	LYS	2
1	A	51	GLU	2
1	A	63	ASN	2
1	A	8	SER	1
1	A	21	GLU	1
1	A	26	LYS	1
1	A	33	MET	1
1	A	66	LYS	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 oligosaccharides 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

No chemical shift data were provided