Full wwPDB NMR Structure Validation Report (i)

Feb 22, 2022 – 12:25 PM EST

PDB ID	:	1WF1
Title	:	Solution structure of RRM domain in RNA-binding protein NP_057951
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Deposited on	:	2004-05-25

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 (i) symbol.

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

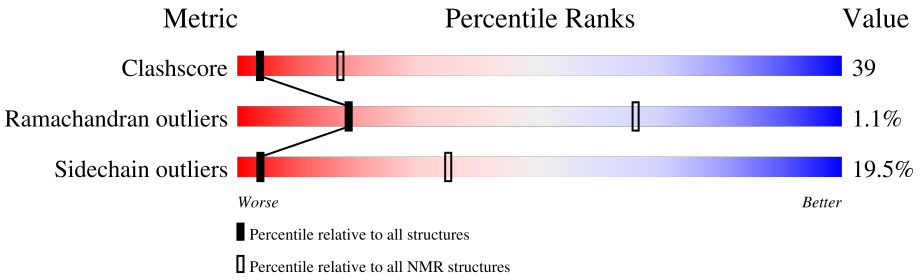
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.26
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.26

1 Overall quality at a glance (i)

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	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

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

Mol	Chain	Length	Quality of chain
1	A	110	22% 40% • 36%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 20 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:28-A:97 (70)	0.13	20

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 5 single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1618 atoms, of which 808 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called RNA-binding protein Raly.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	110	1618	495	808	152	160	3	0

There are 13 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	cloning artifact	UNP Q9UKM9
A	2	SER	-	cloning artifact	UNP Q9UKM9
A	3	SER	-	cloning artifact	UNP Q9UKM9
A	4	GLY	-	cloning artifact	UNP Q9UKM9
A	5	SER	-	cloning artifact	UNP Q9UKM9
A	6	SER	-	cloning artifact	UNP Q9UKM9
A	7	GLY	-	cloning artifact	UNP Q9UKM9
A	105	SER	-	cloning artifact	UNP Q9UKM9
A	106	GLY	-	cloning artifact	UNP Q9UKM9
A	107	PRO	-	cloning artifact	UNP Q9UKM9
A	108	SER	-	cloning artifact	UNP Q9UKM9
A	109	SER	-	cloning artifact	UNP Q9UKM9
A	110	GLY	-	cloning artifact	UNP Q9UKM9

4 Residue-property plots (i)

4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

• Molecule 1: RNA-binding protein Raly

Chain A: 22% 40% • 36%

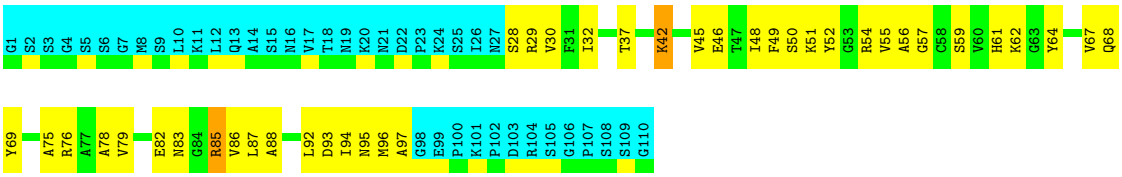
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: RNA-binding protein Raly

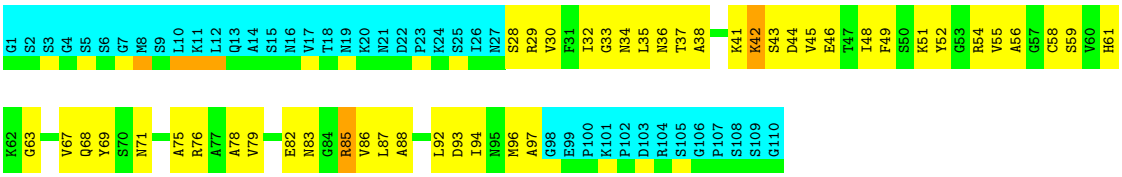
Chain A: 27% 35% • 36%



4.2.2 Score per residue for model 2

• Molecule 1: RNA-binding protein Raly

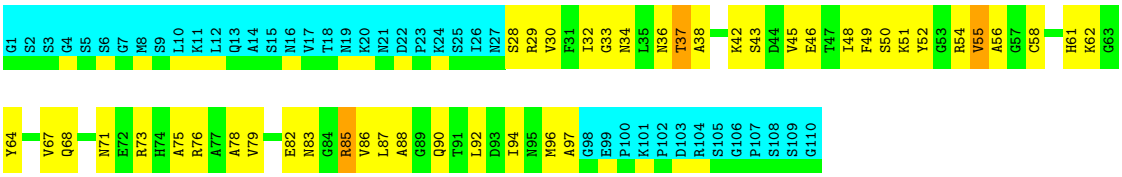
Chain A: 22% 40% • 36%



4.2.3 Score per residue for model 3

- Molecule 1: RNA-binding protein Raly

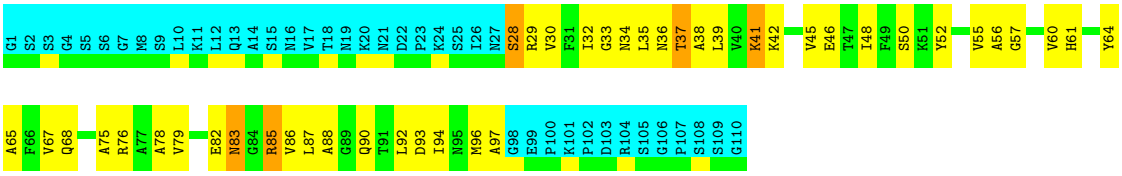
Chain A: 24% 37% • 36%



4.2.4 Score per residue for model 4

- Molecule 1: RNA-binding protein Raly

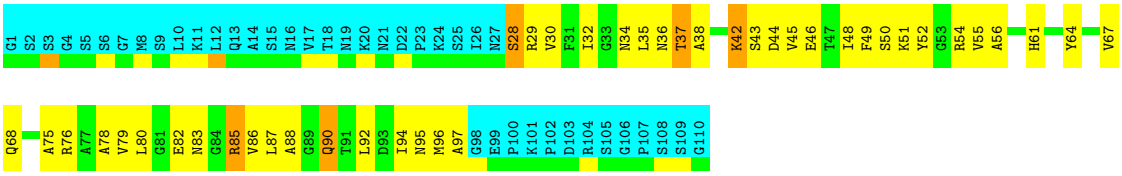
Chain A: 25% 35% 5% 36%



4.2.5 Score per residue for model 5

- Molecule 1: RNA-binding protein Raly

Chain A: 25% 35% 5% 36%



4.2.6 Score per residue for model 6

- Molecule 1: RNA-binding protein Raly

Chain A: 23% 38% • 36%

G1 S2 S3 G4 S5 S6 G7 M8 S9 L10 K11 L12 Q13 A14 S15 N16 V17 T18 N19 K20 N21 D22 P23 K24 S25 I26 N27 S28 R29 V30 F31 I32 G33 N34 L35 N36 T37 A38 K42 S43 D44 V45 E46 T47 I48 F49 S50 K51 Y52 G53 R54 V55 A56 G57 C58 S59 V60 H61 K62

G63 Y64 A65 F66 V67 Q68 N71 A75 R76 A77 A78 V79 E82 N83 G84 R85 V86 L87 A88 G89 Q90 T91 L92 D93 I94 N95 M96 A97 G98 E99 P100 K101 P102 D103 R104 S105 G106 P107 S108 S109 G110

4.2.7 Score per residue for model 7

- Molecule 1: RNA-binding protein Raly

Chain A: 20% 41% • 36%

G1 S2 S3 G4 S5 S6 G7 M8 S9 L10 K11 L12 Q13 A14 S15 N16 V17 T18 N19 K20 N21 D22 P23 K24 S25 I26 N27 S28 R29 V30 F31 I32 N36 T37 A38 L39 V40 K41 K42 S43 D44 V45 E46 T47 I48 F49 S50 K51 Y52 G53 R54 V55 A56 G57 C58 H61 K62 G63

Y64 A65 F66 V67 Q68 Y69 S70 N71 A75 R76 A77 A78 V79 L80 G81 E82 N83 G84 R85 V86 L87 A88 T91 L92 D93 I94 N95 M96 A97 G98 E99 P100 K101 P102 D103 R104 S105 G106 P107 S108 S109 G110

4.2.8 Score per residue for model 8

- Molecule 1: RNA-binding protein Raly

Chain A: 23% 35% 6% 36%

G1 S2 S3 G4 S5 S6 G7 M8 S9 L10 K11 L12 Q13 A14 S15 N16 V17 T18 N19 K20 N21 D22 P23 K24 S25 I26 N27 S28 R29 V30 F31 I32 G33 N34 L35 N36 T37 K42 V45 E46 T47 I48 F49 S50 K51 Y52 G53 R54 V55 A56 S59 V60 H61 Y64 V67

Q68 Y69 S70 N71 H74 A75 R76 A77 A78 V79 L80 G81 E82 N83 G84 R85 V86 L87 A88 G89 Q90 T91 L92 D93 I94 N95 M96 A97 G98 E99 P100 K101 P102 D103 R104 S105 G106 P107 S108 S109 G110

4.2.9 Score per residue for model 9

- Molecule 1: RNA-binding protein Raly

Chain A: 25% 36% • 36%

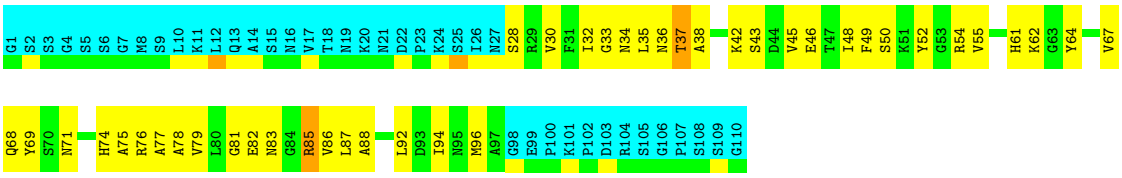
G1 S2 S3 G4 S5 S6 G7 M8 S9 L10 K11 L12 Q13 A14 S15 N16 V17 T18 N19 K20 N21 D22 P23 K24 S25 I26 N27 S28 R29 V30 F31 I32 G33 N34 L35 N36 T37 A38 K42 S43 D44 V45 E46 T47 I48 F49 S50 K51 Y52 G53 R54 V55 A56 G57 C58 H61 Y64

A65 Q68 Y69 A75 R76 A77 A78 V79 L80 G81 E82 N83 G84 R85 V86 L87 A88 G89 Q90 T91 L92 D93 I94 N95 M96 A97 G98 E99 P100 K101 P102 D103 R104 S105 G106 P107 S108 S109 G110

4.2.10 Score per residue for model 10

- Molecule 1: RNA-binding protein Raly

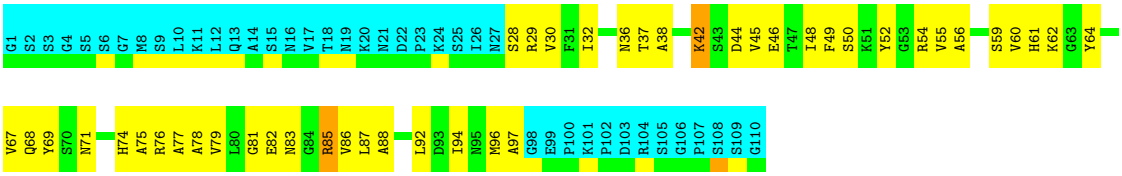
Chain A: 25% 36% • 36%



4.2.11 Score per residue for model 11

- Molecule 1: RNA-binding protein Raly

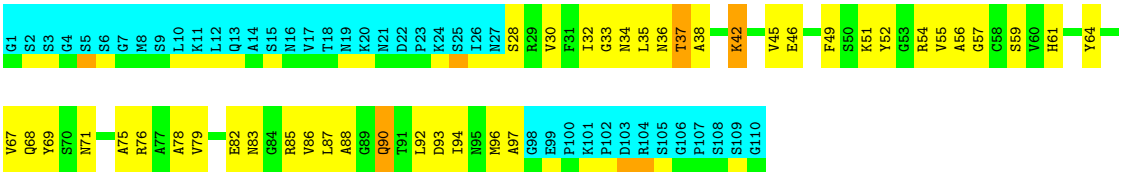
Chain A: 24% 38% • 36%



4.2.12 Score per residue for model 12

- Molecule 1: RNA-binding protein Raly

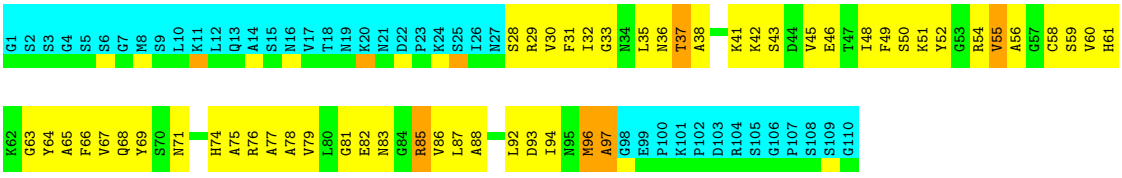
Chain A: 25% 35% • 36%



4.2.13 Score per residue for model 13

- Molecule 1: RNA-binding protein Raly

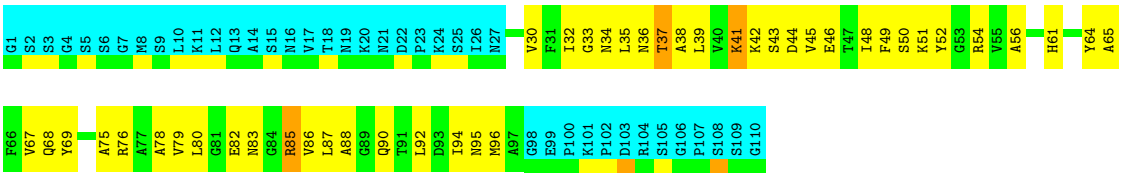
Chain A: 15% 44% 5% 36%



4.2.14 Score per residue for model 14

- Molecule 1: RNA-binding protein Raly

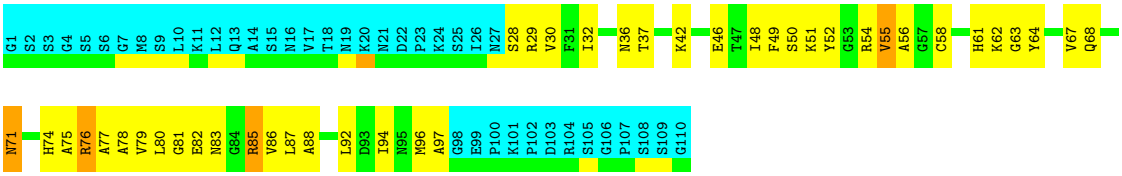
Chain A: 24% 37% • 36%



4.2.15 Score per residue for model 15

- Molecule 1: RNA-binding protein Raly

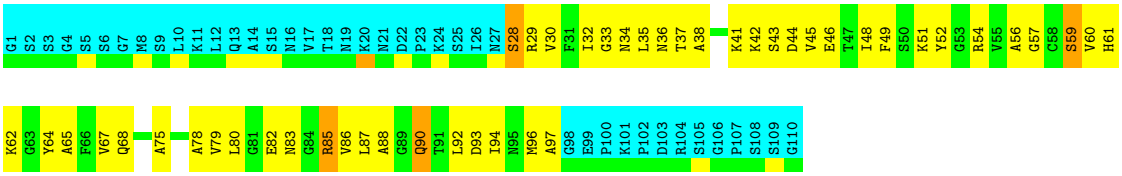
Chain A: 25% 35% • 36%



4.2.16 Score per residue for model 16

- Molecule 1: RNA-binding protein Raly

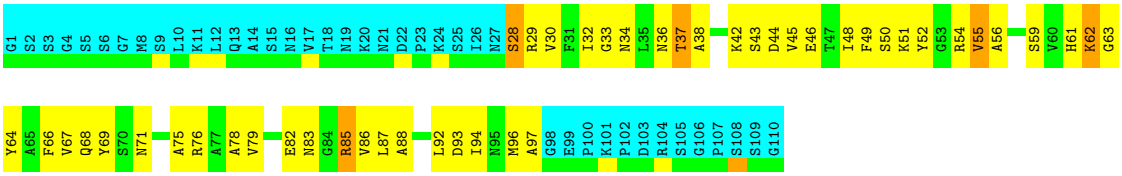
Chain A: 21% 39% • 36%



4.2.17 Score per residue for model 17

- Molecule 1: RNA-binding protein Raly

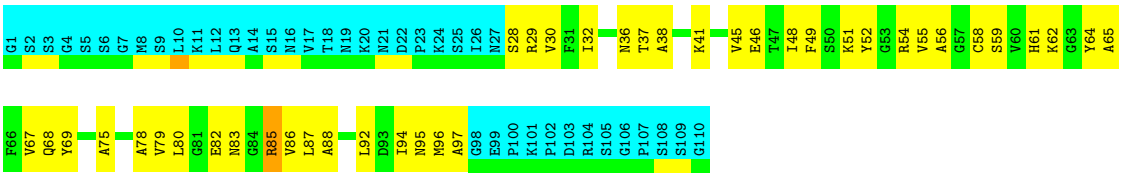
Chain A: 21% 38% 5% 36%



4.2.18 Score per residue for model 18

- Molecule 1: RNA-binding protein Raly

Chain A: 26% 36% • 36%



4.2.19 Score per residue for model 19

- Molecule 1: RNA-binding protein Raly

Chain A: 25% 37% • 36%

4.2.20 Score per residue for model 20 (medoid)

- Molecule 1: RNA-binding protein Raly

Chain A: 27% 34% • 36%

5 Refinement protocol and experimental data overview (i)

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

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

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

Software name	Classification	Version
CYANA	structure solution	1.0.8
CYANA	refinement	1.0.8

No chemical shift data was provided.

6 Model quality (i)

6.1 Standard geometry (i)

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 (i)

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	534	538	538	41±5
All	All	10680	10760	10760	827

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 39.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:37:THR:HG21	1:A:61:HIS:O	0.87	1.68	17	17
1:A:58:CYS:SG	1:A:67:VAL:HG13	0.85	2.10	19	1
1:A:79:VAL:HG21	1:A:96:MET:HG2	0.71	1.61	13	2
1:A:52:TYR:CD2	1:A:78:ALA:HB2	0.70	2.22	2	13
1:A:52:TYR:CD2	1:A:78:ALA:CB	0.69	2.75	2	14
1:A:35:LEU:O	1:A:37:THR:HG23	0.69	1.88	9	9
1:A:32:ILE:CD1	1:A:67:VAL:HG23	0.69	2.18	20	18
1:A:61:HIS:CG	1:A:64:TYR:CE2	0.67	2.83	19	6
1:A:75:ALA:O	1:A:79:VAL:HG23	0.67	1.90	19	20
1:A:87:LEU:O	1:A:88:ALA:HB3	0.67	1.90	2	20
1:A:67:VAL:HG12	1:A:69:TYR:CE2	0.65	2.27	13	7
1:A:42:LYS:HZ3	1:A:60:VAL:HG23	0.65	1.50	16	1
1:A:78:ALA:HB1	1:A:82:GLU:OE2	0.65	1.91	11	2
1:A:42:LYS:NZ	1:A:60:VAL:HG23	0.64	2.07	16	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:30:VAL:HG22	1:A:79:VAL:HG22	0.64	1.69	19	20
1:A:49:PHE:CE2	1:A:82:GLU:CD	0.64	2.71	15	2
1:A:32:ILE:HD11	1:A:49:PHE:CE2	0.63	2.29	19	1
1:A:30:VAL:CG1	1:A:94:ILE:CG2	0.61	2.78	13	18
1:A:48:ILE:HG22	1:A:82:GLU:OE2	0.61	1.95	8	5
1:A:49:PHE:CE2	1:A:82:GLU:OE1	0.61	2.53	11	2
1:A:52:TYR:CE2	1:A:82:GLU:OE2	0.61	2.54	15	2
1:A:45:VAL:HA	1:A:48:ILE:HD12	0.59	1.72	2	17
1:A:29:ARG:HB3	1:A:97:ALA:HB3	0.59	1.74	11	8
1:A:61:HIS:CB	1:A:64:TYR:CE2	0.57	2.88	19	8
1:A:61:HIS:CB	1:A:64:TYR:CZ	0.57	2.87	19	3
1:A:87:LEU:HB3	1:A:92:LEU:HD21	0.56	1.78	1	3
1:A:32:ILE:CD1	1:A:67:VAL:CG2	0.55	2.84	8	6
1:A:87:LEU:O	1:A:88:ALA:CB	0.55	2.54	17	20
1:A:42:LYS:HA	1:A:45:VAL:HG12	0.54	1.78	19	10
1:A:32:ILE:HD11	1:A:67:VAL:HG23	0.54	1.80	10	1
1:A:30:VAL:HG22	1:A:79:VAL:CG2	0.53	2.33	6	16
1:A:30:VAL:HG13	1:A:94:ILE:CG2	0.53	2.34	13	19
1:A:80:LEU:N	1:A:80:LEU:HD12	0.53	2.18	15	3
1:A:49:PHE:CD2	1:A:82:GLU:OE2	0.53	2.62	11	2
1:A:79:VAL:O	1:A:83:ASN:CB	0.53	2.56	15	19
1:A:49:PHE:HA	1:A:52:TYR:CD2	0.53	2.39	2	2
1:A:85:ARG:O	1:A:92:LEU:N	0.52	2.42	12	20
1:A:69:TYR:CD1	1:A:74:HIS:HB3	0.52	2.39	8	3
1:A:42:LYS:HZ1	1:A:59:SER:N	0.52	2.03	16	1
1:A:82:GLU:CB	1:A:94:ILE:CD1	0.52	2.87	15	20
1:A:42:LYS:HA	1:A:60:VAL:HG21	0.52	1.82	13	2
1:A:58:CYS:SG	1:A:67:VAL:HG22	0.52	2.45	19	2
1:A:37:THR:CG2	1:A:61:HIS:O	0.51	2.58	3	9
1:A:56:ALA:HB3	1:A:68:GLN:CD	0.51	2.25	8	1
1:A:71:ASN:CB	1:A:74:HIS:CD2	0.51	2.92	8	2
1:A:62:LYS:CG	1:A:62:LYS:O	0.51	2.58	18	1
1:A:42:LYS:O	1:A:46:GLU:CG	0.51	2.59	12	14
1:A:61:HIS:CD2	1:A:64:TYR:CE2	0.51	2.99	7	1
1:A:55:VAL:HG21	1:A:58:CYS:HB2	0.51	1.81	13	2
1:A:69:TYR:OH	1:A:78:ALA:CB	0.50	2.60	20	5
1:A:39:LEU:O	1:A:41:LYS:CE	0.50	2.60	14	2
1:A:46:GLU:O	1:A:50:SER:CB	0.50	2.59	9	7
1:A:32:ILE:HD11	1:A:67:VAL:CG2	0.50	2.36	20	4
1:A:52:TYR:CD2	1:A:78:ALA:HA	0.50	2.42	6	9
1:A:64:TYR:CD1	1:A:64:TYR:N	0.50	2.78	15	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:82:GLU:O	1:A:83:ASN:C	0.49	2.50	18	20
1:A:46:GLU:OE1	1:A:55:VAL:HG22	0.49	2.06	17	2
1:A:48:ILE:O	1:A:51:LYS:CE	0.49	2.60	6	4
1:A:52:TYR:CE2	1:A:78:ALA:HA	0.49	2.42	5	13
1:A:52:TYR:CD2	1:A:82:GLU:OE2	0.49	2.66	11	2
1:A:56:ALA:HB3	1:A:68:GLN:HB3	0.49	1.84	8	1
1:A:61:HIS:HB3	1:A:64:TYR:CZ	0.48	2.43	19	1
1:A:69:TYR:CD1	1:A:74:HIS:CB	0.48	2.96	8	1
1:A:75:ALA:C	1:A:79:VAL:HG23	0.48	2.28	15	3
1:A:29:ARG:HB3	1:A:97:ALA:HB2	0.48	1.84	13	1
1:A:61:HIS:HB2	1:A:64:TYR:CD2	0.48	2.44	20	6
1:A:67:VAL:CG1	1:A:69:TYR:CE2	0.48	2.97	13	3
1:A:79:VAL:O	1:A:83:ASN:N	0.47	2.47	18	5
1:A:29:ARG:CG	1:A:30:VAL:N	0.47	2.77	6	8
1:A:82:GLU:CB	1:A:94:ILE:HD12	0.47	2.40	6	14
1:A:28:SER:OG	1:A:75:ALA:HB2	0.47	2.08	20	3
1:A:49:PHE:CZ	1:A:82:GLU:HG3	0.47	2.45	12	1
1:A:52:TYR:CE2	1:A:82:GLU:HG2	0.47	2.44	1	10
1:A:56:ALA:N	1:A:68:GLN:O	0.47	2.48	8	17
1:A:42:LYS:CE	1:A:58:CYS:O	0.47	2.63	15	3
1:A:61:HIS:O	1:A:63:GLY:N	0.47	2.48	17	3
1:A:61:HIS:HB2	1:A:64:TYR:CE2	0.47	2.45	11	5
1:A:35:LEU:HD13	1:A:92:LEU:HD22	0.47	1.84	10	1
1:A:29:ARG:HG2	1:A:97:ALA:HB2	0.47	1.85	17	3
1:A:49:PHE:CE2	1:A:82:GLU:HG3	0.47	2.45	8	12
1:A:71:ASN:HB3	1:A:74:HIS:CD2	0.47	2.45	13	2
1:A:46:GLU:OE1	1:A:55:VAL:CG2	0.46	2.63	3	3
1:A:40:VAL:CG2	1:A:87:LEU:CD2	0.46	2.93	7	1
1:A:37:THR:OG1	1:A:63:GLY:N	0.46	2.49	7	3
1:A:36:ASN:O	1:A:38:ALA:N	0.46	2.49	13	10
1:A:46:GLU:O	1:A:50:SER:N	0.46	2.49	10	8
1:A:68:GLN:NE2	1:A:69:TYR:O	0.46	2.48	8	1
1:A:49:PHE:HA	1:A:52:TYR:CE2	0.46	2.45	2	1
1:A:49:PHE:CE1	1:A:82:GLU:OE1	0.46	2.69	3	1
1:A:36:ASN:C	1:A:38:ALA:N	0.46	2.70	20	17
1:A:71:ASN:HB2	1:A:74:HIS:CD2	0.45	2.45	8	1
1:A:75:ALA:O	1:A:78:ALA:N	0.45	2.49	20	17
1:A:35:LEU:CD1	1:A:92:LEU:HD22	0.45	2.41	4	2
1:A:34:ASN:OD1	1:A:90:GLN:NE2	0.45	2.49	9	5
1:A:61:HIS:HB2	1:A:64:TYR:CZ	0.45	2.47	15	1
1:A:61:HIS:O	1:A:64:TYR:O	0.45	2.34	17	18

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:31:PHE:CD2	1:A:31:PHE:O	0.45	2.70	13	1
1:A:28:SER:O	1:A:68:GLN:NE2	0.45	2.50	10	13
1:A:32:ILE:N	1:A:65:ALA:O	0.45	2.48	13	8
1:A:83:ASN:ND2	1:A:94:ILE:O	0.45	2.50	18	3
1:A:42:LYS:HB2	1:A:60:VAL:HG21	0.45	1.88	11	1
1:A:33:GLY:C	1:A:35:LEU:N	0.45	2.69	4	6
1:A:71:ASN:HB2	1:A:74:HIS:CG	0.45	2.47	8	2
1:A:49:PHE:CD2	1:A:82:GLU:CD	0.45	2.90	11	2
1:A:46:GLU:OE1	1:A:55:VAL:HG21	0.45	2.12	2	1
1:A:75:ALA:O	1:A:79:VAL:N	0.45	2.48	20	13
1:A:46:GLU:OE2	1:A:58:CYS:CB	0.45	2.65	18	1
1:A:49:PHE:CE1	1:A:82:GLU:OE2	0.45	2.70	19	1
1:A:80:LEU:N	1:A:80:LEU:CD1	0.44	2.79	15	2
1:A:49:PHE:O	1:A:52:TYR:N	0.44	2.50	1	7
1:A:77:ALA:O	1:A:81:GLY:N	0.44	2.48	11	6
1:A:82:GLU:HB3	1:A:94:ILE:CD1	0.44	2.43	12	19
1:A:59:SER:O	1:A:66:PHE:N	0.44	2.49	13	2
1:A:32:ILE:HG12	1:A:49:PHE:CZ	0.44	2.47	16	3
1:A:37:THR:HG21	1:A:64:TYR:N	0.44	2.27	13	1
1:A:36:ASN:C	1:A:37:THR:OG1	0.44	2.55	18	8
1:A:35:LEU:O	1:A:37:THR:N	0.44	2.51	20	2
1:A:49:PHE:C	1:A:51:LYS:N	0.43	2.71	20	7
1:A:75:ALA:O	1:A:76:ARG:C	0.43	2.56	15	1
1:A:33:GLY:O	1:A:35:LEU:N	0.43	2.51	4	3
1:A:57:GLY:O	1:A:68:GLN:N	0.43	2.50	4	5
1:A:46:GLU:CD	1:A:58:CYS:HG	0.43	2.15	2	1
1:A:82:GLU:HB2	1:A:94:ILE:CD1	0.43	2.43	15	4
1:A:44:ASP:C	1:A:46:GLU:N	0.43	2.71	16	4
1:A:35:LEU:C	1:A:37:THR:N	0.43	2.70	20	4
1:A:29:ARG:CD	1:A:97:ALA:HB2	0.43	2.44	16	1
1:A:37:THR:HG21	1:A:64:TYR:O	0.42	2.13	7	1
1:A:78:ALA:O	1:A:82:GLU:OE1	0.42	2.38	11	2
1:A:61:HIS:N	1:A:64:TYR:O	0.42	2.50	8	2
1:A:29:ARG:NE	1:A:97:ALA:HB2	0.42	2.30	19	1
1:A:49:PHE:O	1:A:51:LYS:N	0.42	2.52	1	2
1:A:78:ALA:O	1:A:82:GLU:CD	0.42	2.58	15	1
1:A:29:ARG:CG	1:A:97:ALA:HB2	0.42	2.44	16	2
1:A:35:LEU:O	1:A:36:ASN:C	0.42	2.59	20	1
1:A:33:GLY:O	1:A:34:ASN:C	0.41	2.59	14	10
1:A:52:TYR:OH	1:A:81:GLY:C	0.41	2.59	15	1
1:A:40:VAL:CG2	1:A:87:LEU:HD21	0.41	2.46	7	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:52:TYR:CZ	1:A:78:ALA:HA	0.41	2.51	14	1
1:A:91:THR:O	1:A:92:LEU:C	0.41	2.58	7	1
1:A:52:TYR:CE1	1:A:81:GLY:HA3	0.41	2.51	15	1
1:A:58:CYS:SG	1:A:67:VAL:CG1	0.41	2.97	19	1
1:A:28:SER:O	1:A:68:GLN:CD	0.41	2.60	4	5
1:A:52:TYR:CG	1:A:78:ALA:HB2	0.41	2.50	13	2
1:A:34:ASN:O	1:A:90:GLN:CD	0.40	2.60	6	1
1:A:30:VAL:HG13	1:A:94:ILE:HG22	0.40	1.93	13	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	70/110 (64%)	58±2 (83±3%)	11±2 (16±3%)	1±1 (1±1%)	18	66
All	All	1400/2200 (64%)	1159 (83%)	225 (16%)	16 (1%)	18	66

All 4 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	37	THR	10
1	A	62	LYS	3
1	A	97	ALA	2
1	A	83	ASN	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	55/88 (62%)	44±2 (81±4%)	11±2 (19±4%)	4 35
All	All	1100/1760 (62%)	886 (81%)	214 (19%)	4 35

All 23 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	96	MET	20
1	A	54	ARG	19
1	A	85	ARG	19
1	A	86	VAL	19
1	A	76	ARG	18
1	A	55	VAL	15
1	A	93	ASP	11
1	A	43	SER	11
1	A	90	GLN	10
1	A	59	SER	9
1	A	62	LYS	9
1	A	71	ASN	9
1	A	42	LYS	8
1	A	95	ASN	7
1	A	28	SER	7
1	A	41	LYS	6
1	A	80	LEU	5
1	A	51	LYS	4
1	A	44	ASP	3
1	A	70	SER	2
1	A	73	ARG	1
1	A	68	GLN	1
1	A	87	LEU	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 monosaccharides 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)

No chemical shift data were provided