Full wwPDB NMR Structure Validation Report (i)

Feb 28, 2022 – 06:11 PM EST

PDB ID	:	2EDU
Title	:	Solution structure of RSGI RUH-070, a C-terminal domain of kinesin-like protein KIF22 from human cDNA
Authors	:	Abe, T.; Hirota, H.; Hayashi, F.; Yokoyama, S.; RIKEN Structural Genomics/Proteomics Initiative (RSGI)
Deposited on	:	2007-02-15

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:

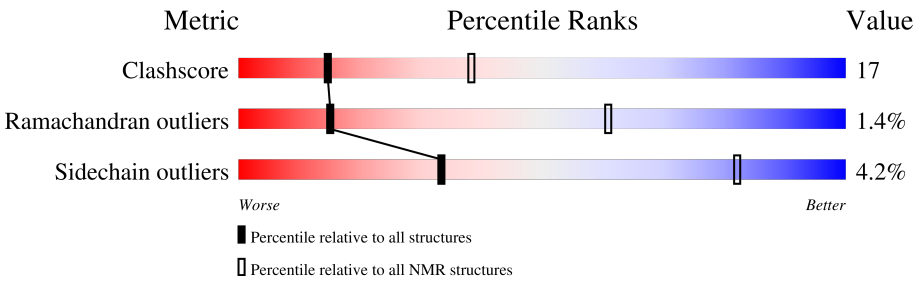
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.27
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.27

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	98	58% 24% 17%

2 Ensemble composition and analysis (i)

This entry contains 20 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 and target function.*

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:14-A:94 (81)	0.27	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 2 clusters. No single-model clusters were found.

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1510 atoms, of which 759 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Kinesin-like protein KIF22.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	98	1510	467	759	137	145	2	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	cloning artifact	UNP Q14807
A	2	SER	-	cloning artifact	UNP Q14807
A	3	SER	-	cloning artifact	UNP Q14807
A	4	GLY	-	cloning artifact	UNP Q14807
A	5	SER	-	cloning artifact	UNP Q14807
A	6	SER	-	cloning artifact	UNP Q14807
A	7	GLY	-	cloning artifact	UNP Q14807

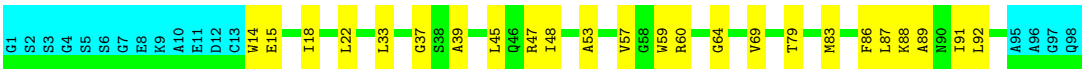
4 Residue-property plots (i)

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: Kinesin-like protein KIF22

Chain A: 58% 24% 17%



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

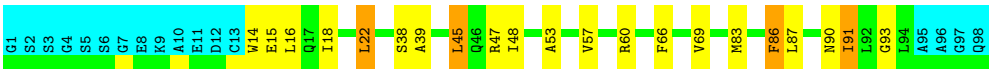
• Molecule 1: Kinesin-like protein KIF22

Chain A: 57% 24% • 17%

4.2.2 Score per residue for model 2

• Molecule 1: Kinesin-like protein KIF22

Chain A: 61% 17% • 17%



4.2.3 Score per residue for model 3 (medoid)

- Molecule 1: Kinesin-like protein KIF22

Chain A: 57% 23% • 17%

G1 S2 S3 G4 S5 S6 G7 E8 K9 A10 E11 D12 C13 W14 I18 I30 L33 L34 R43 S44 L45 Q46 R47 I48 R60 G64 V69 V75 E76 T79 G80 K81 Q82 M83 E84 S85 F86 L87 K88 A89 N90 I91 L92 A95 A96 G97 Q98

4.2.4 Score per residue for model 4

- Molecule 1: Kinesin-like protein KIF22

Chain A: 46% 33% • 17%

G1 S2 S3 G4 S5 S6 G7 E8 K9 A10 E11 D12 C13 W14 E15 L16 Q17 I18 L22 G26 R27 L31 D32 L33 G37 S38 A39 R40 D41 L42 R43 S44 L45 Q46 R47 V57 R60 G64 F65 F66 V69 E70 D71 L72 E73 R74 V75 E76 G77 T78 T79 G80

K81 Q82 F86 L87 K88 A89 N90 I91 L92 G93 L94 A95 A96 G97 Q98

4.2.5 Score per residue for model 5

- Molecule 1: Kinesin-like protein KIF22

Chain A: 57% 21% • 17%

G1 S2 S3 G4 S5 S6 G7 E8 K9 A10 E11 D12 C13 W14 E15 I18 L22 I30 L33 S38 A39 L45 Q46 R47 I48 K52 A53 I56 R60 G64 V69 E73 R74 I78 M83 F86 L87 K88 A89 N90 I91 A95 A96 G97

Q98

4.2.6 Score per residue for model 6

- Molecule 1: Kinesin-like protein KIF22

Chain A: 44% 34% 5% 17%

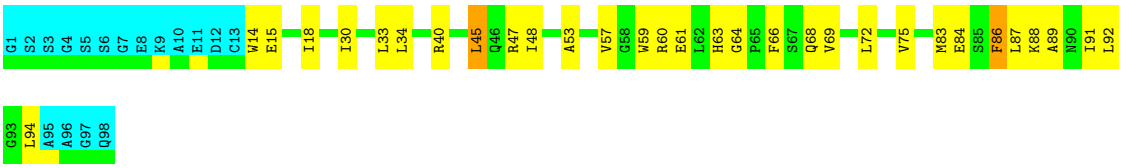
G1 S2 S3 G4 S5 S6 G7 E8 K9 A10 E11 D12 C13 W14 E15 I18 L22 G26 R27 Q28 K29 I30 L33 L34 G37 S38 A39 R40 D41 L42 L45 Q46 R47 I48 K52 A53 Q54 L55 I56 V69 L72 V75 I78 T79 G80 K81 Q82 F86

L87 K88 A89 N90 I91 L92 G93 L94 A95 A96 G97 Q98

4.2.7 Score per residue for model 7

- Molecule 1: Kinesin-like protein KIF22

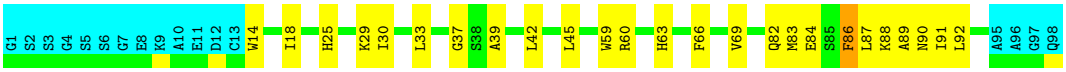
Chain A: 51% 30% • 17%



4.2.8 Score per residue for model 8

- Molecule 1: Kinesin-like protein KIF22

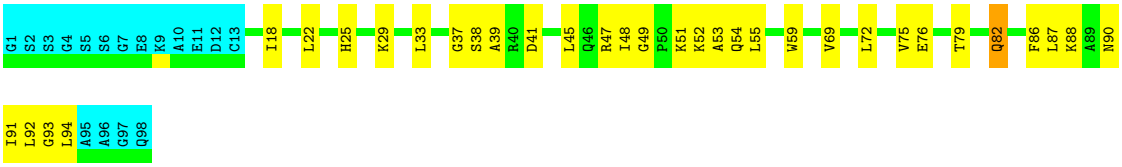
Chain A: 57% 24% • 17%



4.2.9 Score per residue for model 9

- Molecule 1: Kinesin-like protein KIF22

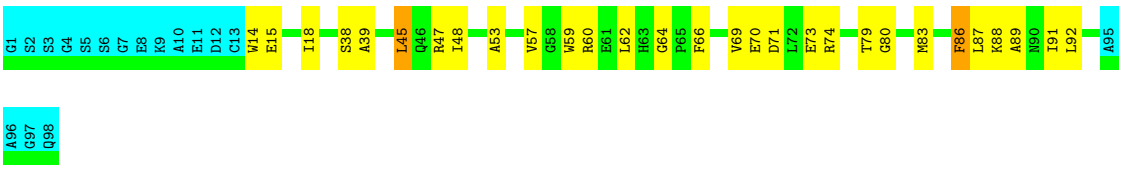
Chain A: 49% 33% • 17%



4.2.10 Score per residue for model 10

- Molecule 1: Kinesin-like protein KIF22

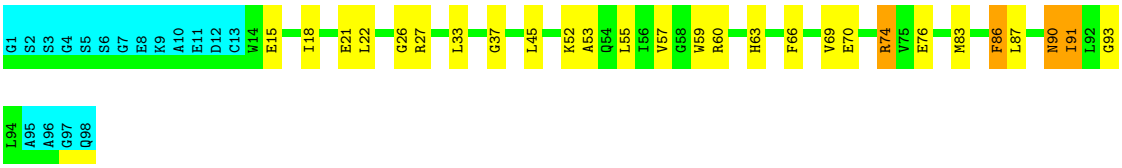
Chain A: 53% 28% • 17%



4.2.11 Score per residue for model 11

- Molecule 1: Kinesin-like protein KIF22

Chain A: 55% 23% • 17%



4.2.12 Score per residue for model 12

- Molecule 1: Kinesin-like protein KIF22

Chain A: 53% 27% • 17%

4.2.13 Score per residue for model 13

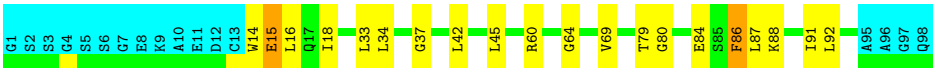
- Molecule 1: Kinesin-like protein KIF22

Chain A: 50% 32% • 17%

4.2.14 Score per residue for model 14

- Molecule 1: Kinesin-like protein KIF22

Chain A: 62% 18% • 17%



4.2.15 Score per residue for model 15

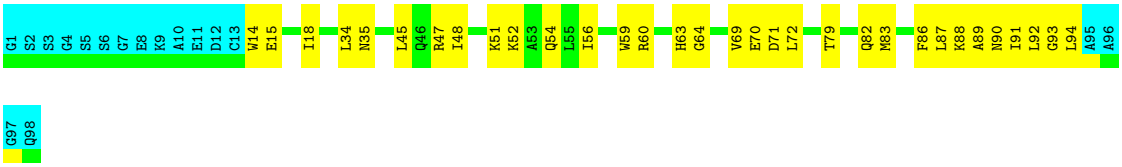
- Molecule 1: Kinesin-like protein KIF22

Chain A: 58% 21% • 17%

4.2.16 Score per residue for model 16

- Molecule 1: Kinesin-like protein KIF22

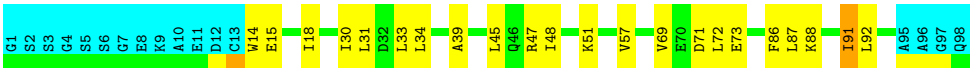
Chain A: 50% 33% 17%



4.2.17 Score per residue for model 17

- Molecule 1: Kinesin-like protein KIF22

Chain A: 60% 21% • 17%



4.2.18 Score per residue for model 18

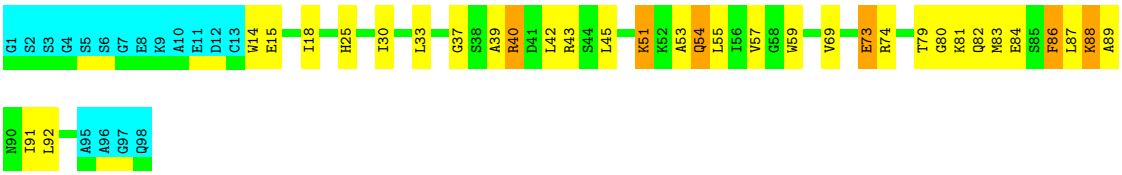
- Molecule 1: Kinesin-like protein KIF22

Chain A: 58% 23% • 17%

4.2.19 Score per residue for model 19

- Molecule 1: Kinesin-like protein KIF22

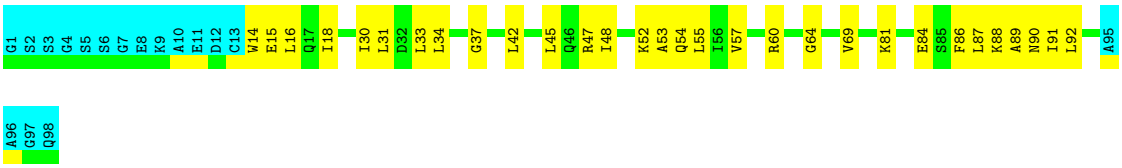
Chain A: 49% 28% 6% 17%



4.2.20 Score per residue for model 20

- Molecule 1: Kinesin-like protein KIF22

Chain A:



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	refinement	2.0.17

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	646	670	668	22±5
All	All	12920	13400	13360	448

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 17.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:69:VAL:HG11	1:A:87:LEU:HD21	1.08	1.22	5	20
1:A:47:ARG:CZ	1:A:89:ALA:HB2	0.90	1.97	12	2
1:A:33:LEU:HD23	1:A:45:LEU:HD11	0.89	1.44	11	11
1:A:45:LEU:HD22	1:A:90:ASN:ND2	0.81	1.91	6	1
1:A:47:ARG:NH2	1:A:89:ALA:HB2	0.80	1.91	12	2
1:A:59:TRP:CZ2	1:A:63:HIS:CE1	0.79	2.70	7	3
1:A:53:ALA:O	1:A:57:VAL:HG23	0.78	1.78	2	7
1:A:48:ILE:HD11	1:A:86:PHE:CD1	0.76	2.15	20	1
1:A:47:ARG:O	1:A:48:ILE:HD13	0.71	1.85	9	13
1:A:39:ALA:HA	1:A:53:ALA:HB1	0.70	1.61	18	3
1:A:30:ILE:CD1	1:A:87:LEU:HD23	0.69	2.16	13	5
1:A:31:LEU:HA	1:A:34:LEU:HD12	0.69	1.65	17	1
1:A:39:ALA:N	1:A:57:VAL:HG21	0.66	2.06	19	3
1:A:69:VAL:CG1	1:A:87:LEU:HD21	0.65	2.21	11	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:30:ILE:HD13	1:A:87:LEU:HD23	0.65	1.66	13	3
1:A:79:THR:HG22	1:A:82:GLN:CD	0.64	2.12	9	1
1:A:45:LEU:HD13	1:A:86:PHE:CZ	0.61	2.29	10	10
1:A:52:LYS:HA	1:A:55:LEU:HD12	0.61	1.73	20	4
1:A:86:PHE:CE1	1:A:90:ASN:OD1	0.60	2.55	11	2
1:A:33:LEU:CD2	1:A:45:LEU:HD11	0.60	2.26	8	4
1:A:39:ALA:CA	1:A:53:ALA:HB1	0.60	2.26	18	2
1:A:18:ILE:CD1	1:A:91:ILE:CG2	0.60	2.80	5	20
1:A:33:LEU:HD12	1:A:37:GLY:HA3	0.59	1.72	9	3
1:A:69:VAL:HG11	1:A:87:LEU:CD2	0.59	2.15	5	5
1:A:34:LEU:HD23	1:A:42:LEU:HD22	0.58	1.73	6	2
1:A:59:TRP:CE2	1:A:63:HIS:CE1	0.58	2.92	7	1
1:A:45:LEU:HD13	1:A:86:PHE:HZ	0.58	1.59	1	1
1:A:88:LYS:CG	1:A:92:LEU:HD12	0.58	2.29	16	9
1:A:15:GLU:HA	1:A:18:ILE:HG22	0.57	1.77	10	13
1:A:31:LEU:HD11	1:A:66:PHE:O	0.57	2.00	13	2
1:A:42:LEU:HB2	1:A:53:ALA:HB1	0.57	1.75	19	2
1:A:79:THR:HG22	1:A:82:GLN:NE2	0.55	2.17	9	1
1:A:33:LEU:HD11	1:A:41:ASP:OD1	0.55	2.01	9	2
1:A:30:ILE:HD11	1:A:90:ASN:HB3	0.55	1.77	8	2
1:A:59:TRP:CH2	1:A:63:HIS:CE1	0.54	2.95	7	1
1:A:30:ILE:HD12	1:A:87:LEU:HD23	0.54	1.79	17	3
1:A:91:ILE:HA	1:A:94:LEU:HD12	0.54	1.79	9	3
1:A:66:PHE:CD1	1:A:71:ASP:OD1	0.54	2.61	10	1
1:A:52:LYS:O	1:A:56:ILE:HD12	0.54	2.02	5	1
1:A:49:GLY:O	1:A:53:ALA:HB2	0.54	2.03	9	1
1:A:33:LEU:HD22	1:A:42:LEU:HD23	0.54	1.79	15	2
1:A:56:ILE:HD11	1:A:78:ILE:CD1	0.51	2.35	5	1
1:A:34:LEU:HA	1:A:42:LEU:HD21	0.51	1.81	14	1
1:A:47:ARG:NH2	1:A:89:ALA:CA	0.51	2.73	20	1
1:A:79:THR:HG23	1:A:82:GLN:H	0.51	1.66	18	5
1:A:83:MET:CE	1:A:87:LEU:HD11	0.51	2.35	1	3
1:A:33:LEU:CD2	1:A:42:LEU:HD23	0.51	2.36	15	3
1:A:30:ILE:HG22	1:A:34:LEU:HD11	0.50	1.82	1	2
1:A:18:ILE:HD12	1:A:92:LEU:HD23	0.50	1.82	6	3
1:A:51:LYS:O	1:A:54:GLN:N	0.50	2.45	16	1
1:A:33:LEU:O	1:A:37:GLY:N	0.50	2.45	18	12
1:A:79:THR:CG2	1:A:82:GLN:OE1	0.50	2.60	9	1
1:A:60:ARG:HB3	1:A:66:PHE:CE2	0.50	2.41	12	3
1:A:59:TRP:CE2	1:A:63:HIS:CD2	0.49	3.00	8	1
1:A:59:TRP:NE1	1:A:63:HIS:CG	0.49	2.80	16	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:45:LEU:HD13	1:A:86:PHE:CE1	0.49	2.42	10	6
1:A:47:ARG:O	1:A:48:ILE:CD1	0.49	2.60	16	8
1:A:30:ILE:HD11	1:A:90:ASN:HB2	0.49	1.83	6	1
1:A:59:TRP:CD1	1:A:63:HIS:CD2	0.49	3.01	12	1
1:A:14:TRP:CE3	1:A:15:GLU:N	0.49	2.80	13	2
1:A:39:ALA:HB2	1:A:57:VAL:HG21	0.49	1.85	17	1
1:A:34:LEU:O	1:A:60:ARG:CZ	0.48	2.62	7	1
1:A:14:TRP:CZ2	1:A:15:GLU:OE2	0.48	2.66	2	1
1:A:54:GLN:CG	1:A:55:LEU:N	0.48	2.76	19	1
1:A:60:ARG:O	1:A:64:GLY:N	0.48	2.47	7	10
1:A:80:GLY:O	1:A:84:GLU:CG	0.48	2.62	1	2
1:A:90:ASN:O	1:A:93:GLY:N	0.48	2.47	11	5
1:A:60:ARG:O	1:A:64:GLY:CA	0.47	2.62	12	2
1:A:83:MET:SD	1:A:84:GLU:N	0.47	2.88	3	6
1:A:14:TRP:CD1	1:A:88:LYS:HE2	0.47	2.44	18	1
1:A:51:LYS:HE3	1:A:55:LEU:HD11	0.47	1.86	19	1
1:A:59:TRP:CE2	1:A:63:HIS:ND1	0.47	2.83	7	1
1:A:14:TRP:CE2	1:A:15:GLU:OE2	0.47	2.68	2	2
1:A:14:TRP:CD1	1:A:88:LYS:HE3	0.47	2.45	19	1
1:A:47:ARG:NH2	1:A:89:ALA:CB	0.47	2.77	20	2
1:A:86:PHE:O	1:A:89:ALA:N	0.47	2.47	12	3
1:A:79:THR:CG2	1:A:82:GLN:CD	0.46	2.83	9	1
1:A:60:ARG:HB3	1:A:66:PHE:CZ	0.46	2.45	12	5
1:A:59:TRP:C	1:A:59:TRP:CD1	0.46	2.88	18	1
1:A:30:ILE:HG22	1:A:34:LEU:CD1	0.46	2.41	1	1
1:A:39:ALA:O	1:A:53:ALA:HB1	0.46	2.11	5	1
1:A:34:LEU:O	1:A:60:ARG:NE	0.46	2.49	15	1
1:A:59:TRP:CH2	1:A:74:ARG:O	0.46	2.69	19	1
1:A:88:LYS:HG2	1:A:92:LEU:HD12	0.46	1.88	17	2
1:A:48:ILE:HD11	1:A:86:PHE:CG	0.46	2.46	20	1
1:A:59:TRP:HA	1:A:62:LEU:HD12	0.45	1.87	10	1
1:A:38:SER:O	1:A:39:ALA:C	0.45	2.54	6	7
1:A:76:GLU:OE1	1:A:76:GLU:C	0.45	2.54	4	1
1:A:87:LEU:O	1:A:88:LYS:C	0.45	2.54	8	3
1:A:25:HIS:CD2	1:A:29:LYS:HE2	0.45	2.45	8	1
1:A:63:HIS:CG	1:A:64:GLY:N	0.45	2.84	12	1
1:A:59:TRP:CD1	1:A:59:TRP:C	0.45	2.89	19	5
1:A:81:LYS:O	1:A:84:GLU:N	0.45	2.49	20	2
1:A:40:ARG:O	1:A:43:ARG:CG	0.45	2.65	19	1
1:A:31:LEU:O	1:A:34:LEU:N	0.45	2.50	20	1
1:A:75:VAL:O	1:A:76:GLU:C	0.45	2.55	3	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:14:TRP:CD1	1:A:88:LYS:HD3	0.45	2.46	10	6
1:A:88:LYS:O	1:A:89:ALA:C	0.45	2.55	18	9
1:A:86:PHE:O	1:A:87:LEU:C	0.45	2.55	10	7
1:A:79:THR:OG1	1:A:80:GLY:N	0.45	2.50	12	3
1:A:70:GLU:HA	1:A:83:MET:HE1	0.45	1.89	16	2
1:A:88:LYS:CG	1:A:92:LEU:CD1	0.45	2.95	16	1
1:A:14:TRP:CG	1:A:88:LYS:HD3	0.45	2.47	10	8
1:A:14:TRP:CZ3	1:A:15:GLU:HG2	0.45	2.47	19	1
1:A:59:TRP:CZ2	1:A:63:HIS:ND1	0.45	2.85	7	1
1:A:33:LEU:O	1:A:37:GLY:CA	0.45	2.65	9	3
1:A:40:ARG:O	1:A:43:ARG:N	0.44	2.50	4	1
1:A:72:LEU:O	1:A:75:VAL:N	0.44	2.50	9	2
1:A:26:GLY:O	1:A:29:LYS:N	0.44	2.50	6	1
1:A:18:ILE:CD1	1:A:91:ILE:HG22	0.44	2.43	10	5
1:A:73:GLU:CG	1:A:74:ARG:N	0.44	2.79	4	2
1:A:18:ILE:HD12	1:A:91:ILE:CG2	0.44	2.42	20	2
1:A:25:HIS:CE1	1:A:29:LYS:HE3	0.44	2.47	15	1
1:A:86:PHE:CD1	1:A:86:PHE:C	0.44	2.91	2	4
1:A:54:GLN:O	1:A:55:LEU:C	0.44	2.56	9	1
1:A:76:GLU:OE1	1:A:77:GLY:N	0.43	2.50	4	1
1:A:83:MET:SD	1:A:83:MET:C	0.43	2.97	7	2
1:A:59:TRP:CZ2	1:A:63:HIS:NE2	0.43	2.87	8	1
1:A:79:THR:O	1:A:80:GLY:C	0.43	2.56	10	1
1:A:48:ILE:HD11	1:A:86:PHE:CE1	0.43	2.49	20	1
1:A:79:THR:O	1:A:82:GLN:N	0.43	2.51	4	1
1:A:60:ARG:CG	1:A:61:GLU:N	0.43	2.80	7	1
1:A:34:LEU:HD22	1:A:56:ILE:HD13	0.43	1.90	16	1
1:A:56:ILE:CG1	1:A:78:ILE:CD1	0.43	2.97	6	1
1:A:45:LEU:HD12	1:A:48:ILE:HG13	0.43	1.90	9	1
1:A:42:LEU:O	1:A:44:SER:N	0.43	2.51	12	1
1:A:33:LEU:CD1	1:A:41:ASP:OD1	0.43	2.67	9	1
1:A:71:ASP:O	1:A:73:GLU:N	0.43	2.51	17	1
1:A:87:LEU:HB3	1:A:91:ILE:HD12	0.43	1.90	6	1
1:A:35:ASN:O	1:A:60:ARG:CZ	0.43	2.67	16	1
1:A:54:GLN:HG3	1:A:55:LEU:N	0.43	2.29	19	1
1:A:26:GLY:O	1:A:27:ARG:C	0.43	2.57	6	3
1:A:88:LYS:HG3	1:A:92:LEU:CD1	0.43	2.44	18	4
1:A:22:LEU:N	1:A:22:LEU:CD2	0.42	2.82	6	3
1:A:74:ARG:CZ	1:A:74:ARG:CB	0.42	2.98	11	1
1:A:51:LYS:CD	1:A:55:LEU:HD11	0.42	2.44	19	1
1:A:40:ARG:O	1:A:41:ASP:C	0.42	2.57	4	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:25:HIS:CE1	1:A:29:LYS:HD2	0.42	2.49	9	1
1:A:57:VAL:HG13	1:A:60:ARG:NH2	0.42	2.28	11	1
1:A:55:LEU:HD22	1:A:76:GLU:O	0.42	2.15	9	1
1:A:59:TRP:CE3	1:A:75:VAL:HA	0.42	2.49	9	1
1:A:31:LEU:HD13	1:A:69:VAL:N	0.42	2.29	17	1
1:A:51:LYS:O	1:A:52:LYS:C	0.42	2.56	16	1
1:A:42:LEU:O	1:A:45:LEU:N	0.42	2.53	4	2
1:A:60:ARG:HG3	1:A:61:GLU:N	0.42	2.30	13	2
1:A:90:ASN:O	1:A:94:LEU:N	0.42	2.53	9	1
1:A:71:ASP:C	1:A:73:GLU:N	0.42	2.73	17	2
1:A:42:LEU:C	1:A:44:SER:N	0.42	2.73	12	1
1:A:66:PHE:C	1:A:68:GLN:N	0.41	2.74	7	1
1:A:14:TRP:CG	1:A:88:LYS:HG3	0.41	2.50	17	1
1:A:25:HIS:CE1	1:A:29:LYS:HE2	0.41	2.49	13	1
1:A:42:LEU:CD1	1:A:57:VAL:HG23	0.41	2.44	20	1
1:A:14:TRP:CE2	1:A:88:LYS:HB2	0.41	2.51	8	1
1:A:88:LYS:HG3	1:A:92:LEU:HD12	0.41	1.91	14	1
1:A:43:ARG:CZ	1:A:43:ARG:CB	0.41	2.98	3	1
1:A:66:PHE:O	1:A:68:GLN:N	0.41	2.53	7	1
1:A:90:ASN:O	1:A:91:ILE:C	0.41	2.59	9	2
1:A:74:ARG:O	1:A:75:VAL:C	0.41	2.59	15	1
1:A:49:GLY:O	1:A:53:ALA:CB	0.41	2.67	9	1
1:A:34:LEU:HD22	1:A:56:ILE:HG21	0.41	1.92	13	1
1:A:43:ARG:HB3	1:A:43:ARG:CZ	0.41	2.46	18	1
1:A:88:LYS:HG2	1:A:92:LEU:CD1	0.41	2.46	19	1
1:A:60:ARG:CB	1:A:64:GLY:O	0.41	2.68	20	1
1:A:39:ALA:H	1:A:57:VAL:HG21	0.41	1.73	4	1
1:A:14:TRP:CH2	1:A:15:GLU:HG2	0.41	2.51	10	1
1:A:73:GLU:HG2	1:A:80:GLY:CA	0.41	2.46	19	1
1:A:22:LEU:CD2	1:A:22:LEU:N	0.41	2.84	4	1
1:A:14:TRP:CZ3	1:A:15:GLU:HG3	0.40	2.52	6	1
1:A:86:PHE:O	1:A:89:ALA:HB3	0.40	2.15	7	1
1:A:79:THR:HG22	1:A:82:GLN:CG	0.40	2.47	18	1
1:A:14:TRP:CE2	1:A:15:GLU:CD	0.40	2.94	2	1
1:A:71:ASP:O	1:A:72:LEU:C	0.40	2.60	16	1
1:A:14:TRP:CG	1:A:88:LYS:HE2	0.40	2.51	18	1
1:A:39:ALA:O	1:A:42:LEU:N	0.40	2.55	8	1
1:A:18:ILE:HD12	1:A:91:ILE:HG22	0.40	1.93	20	1
1:A:73:GLU:HG3	1:A:74:ARG:N	0.40	2.32	5	1
1:A:72:LEU:O	1:A:75:VAL:HG23	0.40	2.17	7	1
1:A:18:ILE:O	1:A:18:ILE:CG2	0.40	2.69	11	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:54:GLN:O	1:A:57:VAL:N	0.40	2.55	19	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	81/98 (83%)	67±3 (82±3%)	13±3 (16±4%)	1±1 (1±1%)	15	61
All	All	1620/1960 (83%)	1335 (82%)	263 (16%)	22 (1%)	15	61

All 6 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	91	ILE	9
1	A	45	LEU	9
1	A	76	GLU	1
1	A	43	ARG	1
1	A	75	VAL	1
1	A	72	LEU	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	69/79 (87%)	66±2 (96±3%)	3±2 (4±3%)	33	82
All	All	1380/1580 (87%)	1322 (96%)	58 (4%)	33	82

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	86	PHE	14
1	A	22	LEU	8
1	A	40	ARG	4
1	A	81	LYS	3
1	A	51	LYS	3
1	A	15	GLU	3
1	A	60	ARG	2
1	A	90	ASN	2
1	A	82	GLN	2
1	A	74	ARG	2
1	A	79	THR	2
1	A	54	GLN	2
1	A	47	ARG	1
1	A	71	ASP	1
1	A	76	GLU	1
1	A	38	SER	1
1	A	21	GLU	1
1	A	70	GLU	1
1	A	41	ASP	1
1	A	68	GLN	1
1	A	25	HIS	1
1	A	73	GLU	1
1	A	88	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 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