Full wwPDB NMR Structure Validation Report (i)

May 28, 2020 – 10:40 pm BST

PDB ID	:	2KPL
Title	:	MAGI-1 PDZ1 / E6CT
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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 (1)) were used in the production of this report:

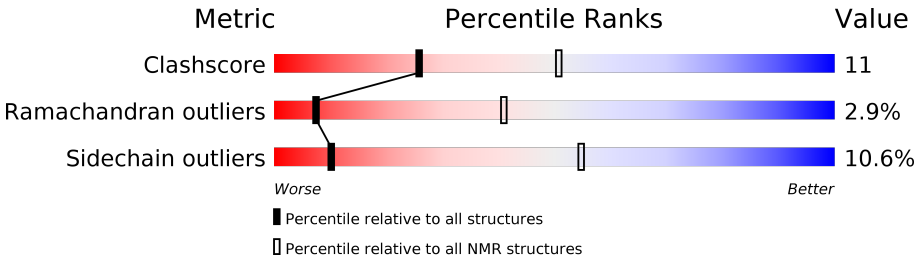
Cyrange	:	Kirchner and Güntert (2011)
NmrClust	:	Kelley et al. (1996)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (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	129	51% 22% • 25%
2	B	11	36% 64%

2 Ensemble composition and analysis

This entry contains 20 models. Model 12 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:5-A:101, B:158-B:161 (101)	0.30	12

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 3 single-model clusters were found.

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

3 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 2152 atoms, of which 1081 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1.

Mol	Chain	Residues	Atoms						Trace
1	A	129	Total	C	H	N	O	S	0
			1955	621	980	162	188	4	

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	EXPRESSION TAG	UNP Q96QZ7
A	-2	ALA	-	EXPRESSION TAG	UNP Q96QZ7
A	-1	MET	-	EXPRESSION TAG	UNP Q96QZ7

- Molecule 2 is a protein called Protein E6.

Mol	Chain	Residues	Atoms					Trace
2	B	11	Total	C	H	N	O	0
			197	53	101	24	19	

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	161	VAL	-	EXPRESSION TAG	UNP P03126

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: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:

• Molecule 2: Protein E6

Chain B:

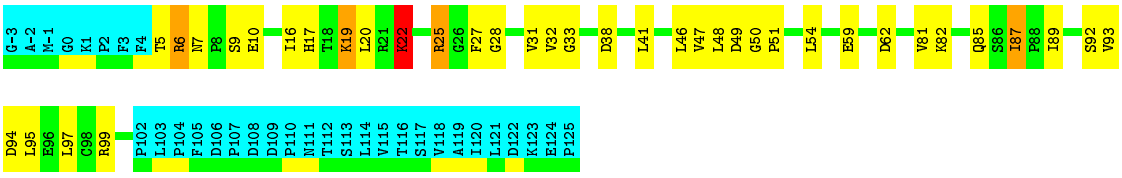
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



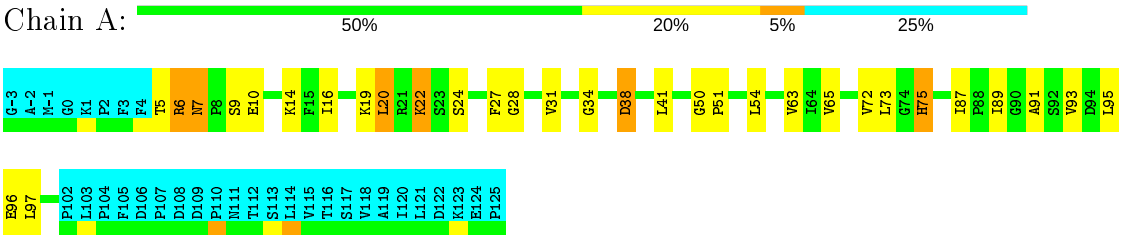
• Molecule 2: Protein E6

Chain B:

4.2.2 Score per residue for model 2

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



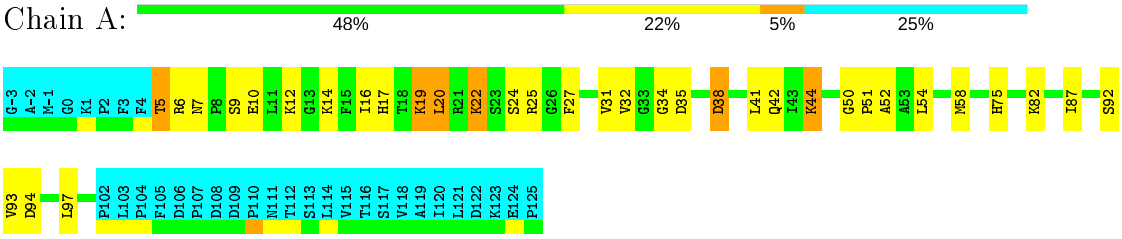
• Molecule 2: Protein E6

Chain B:

4.2.3 Score per residue for model 3

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



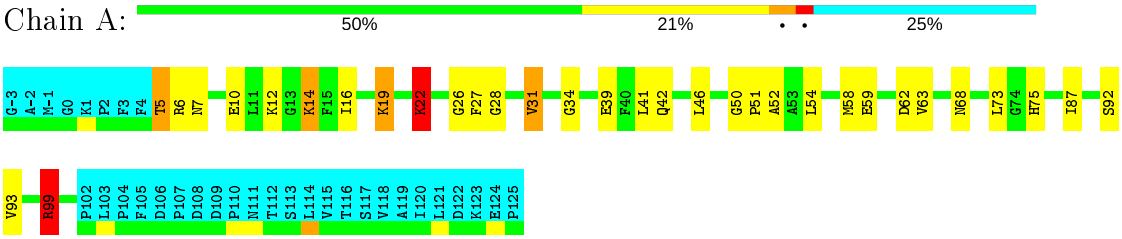
• Molecule 2: Protein E6

Chain B:

4.2.4 Score per residue for model 4

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



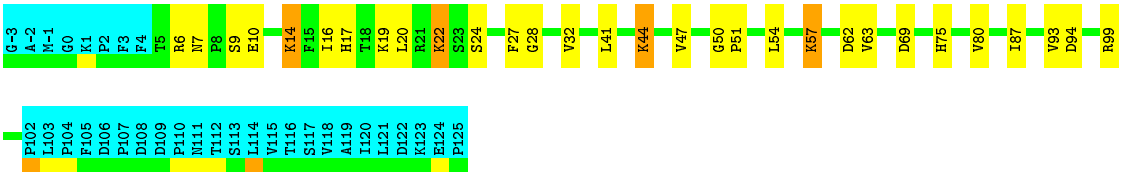
• Molecule 2: Protein E6

Chain B:

4.2.5 Score per residue for model 5

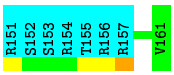
• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



• Molecule 2: Protein E6

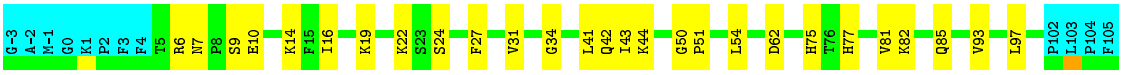
Chain B:



4.2.6 Score per residue for model 6

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



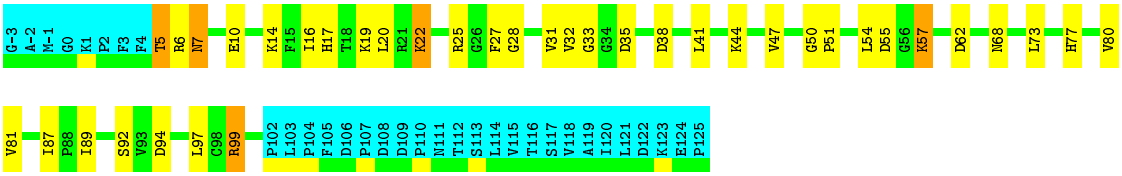
• Molecule 2: Protein E6

Chain B:

4.2.7 Score per residue for model 7

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



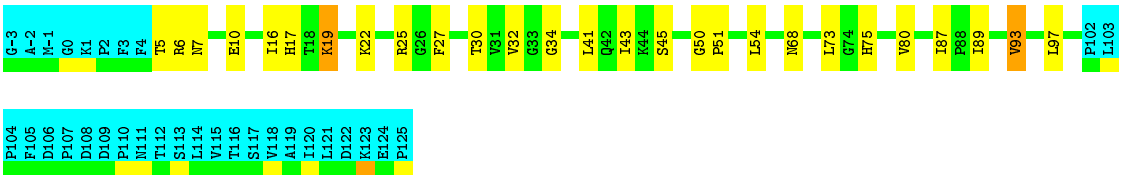
• Molecule 2: Protein E6

Chain B:

4.2.8 Score per residue for model 8

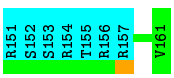
• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



• Molecule 2: Protein E6

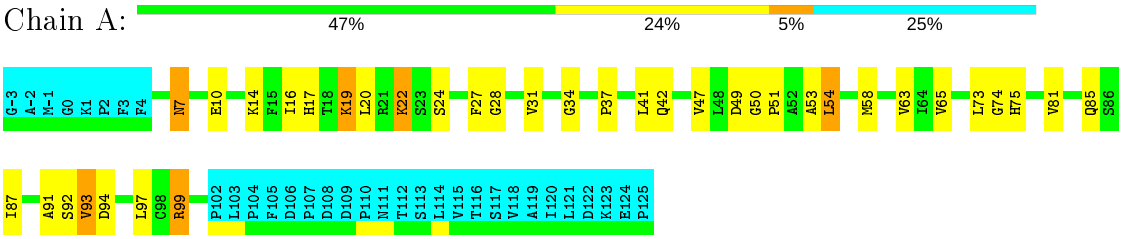
Chain B:



4.2.9 Score per residue for model 9

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



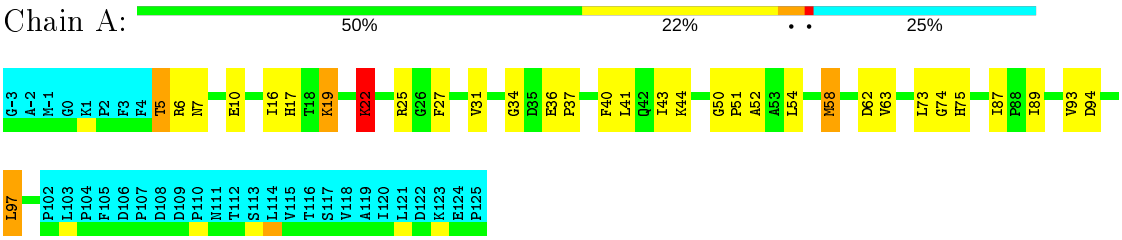
• Molecule 2: Protein E6

Chain B:

4.2.10 Score per residue for model 10

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



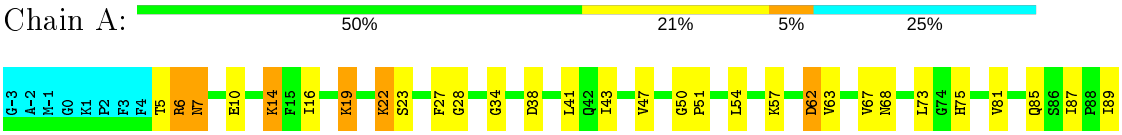
• Molecule 2: Protein E6

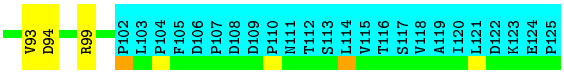
Chain B:

4.2.11 Score per residue for model 11

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:





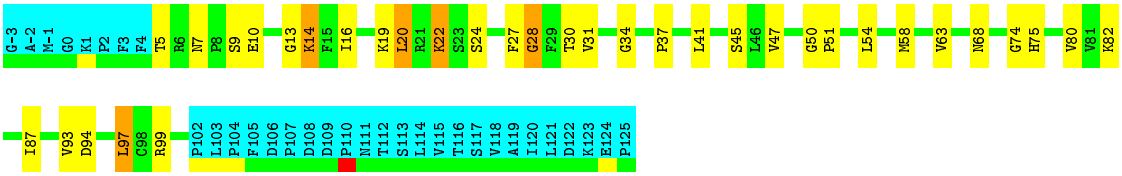
• Molecule 2: Protein E6

Chain B:

4.2.12 Score per residue for model 12 (medoid)

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



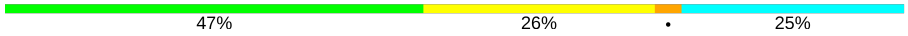
• Molecule 2: Protein E6

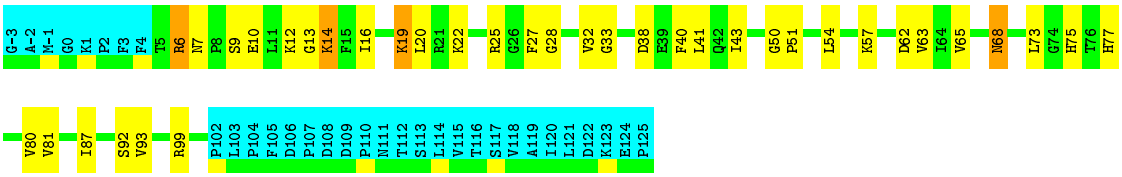
Chain B:

4.2.13 Score per residue for model 13

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

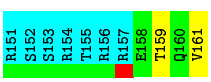
Chain A:





• Molecule 2: Protein E6

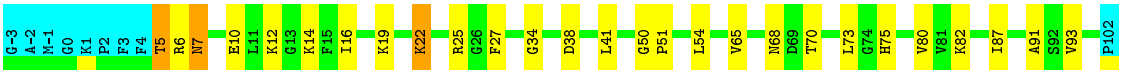
Chain B:

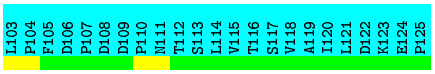


4.2.14 Score per residue for model 14

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

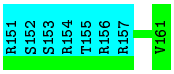
Chain A:





• Molecule 2: Protein E6

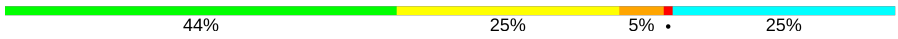
Chain B:

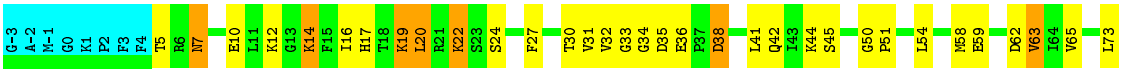


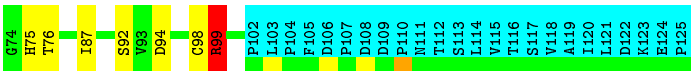
4.2.15 Score per residue for model 15

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:

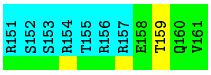






• Molecule 2: Protein E6

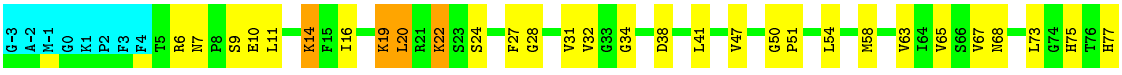
Chain B:

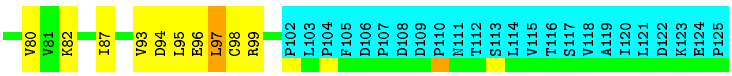


4.2.16 Score per residue for model 16

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:





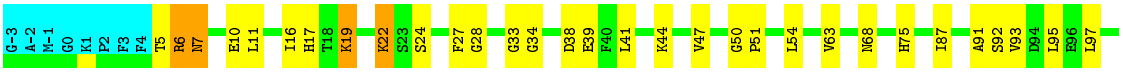
• Molecule 2: Protein E6

Chain B:

4.2.17 Score per residue for model 17

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



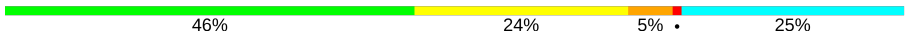
• Molecule 2: Protein E6

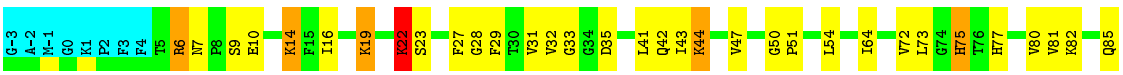
Chain B:

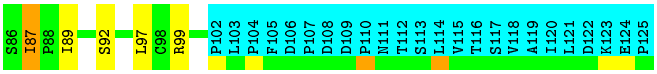
4.2.18 Score per residue for model 18

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:

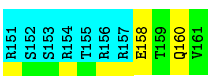






• Molecule 2: Protein E6

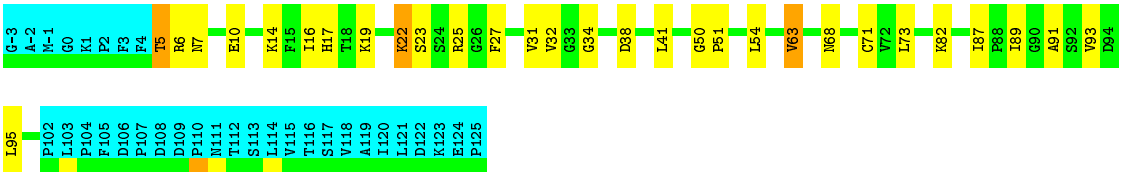
Chain B:



4.2.19 Score per residue for model 19

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:



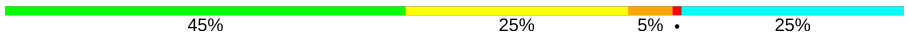
• Molecule 2: Protein E6

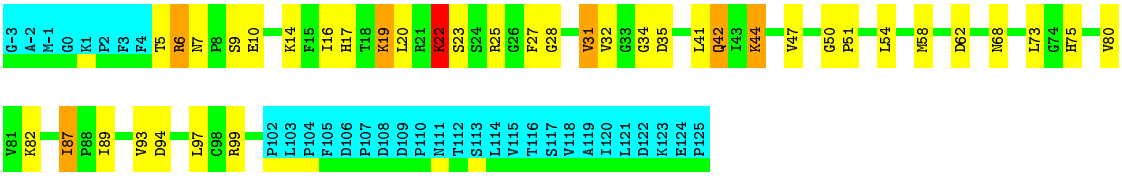
Chain B:

4.2.20 Score per residue for model 20

• Molecule 1: Membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1

Chain A:





• Molecule 2: Protein E6

Chain B:

5 Refinement protocol and experimental data overview

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

Of the 64 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
ATNOS-CANDID	structure solution	
X-PLOR NIH	refinement	

No chemical shift data was provided. No validations of the models with respect to experimental NMR restraints is performed at this time.

COVALENT-GEOMETRY INFOmissingINFO

5.1 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	734	744	744	17±4
2	B	33	30	30	1±1
All	All	15340	15480	15480	348

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 11.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:68:ASN:ND2	1:A:93:VAL:HB	0.79	1.93	12	1
1:A:41:LEU:HD21	1:A:80:VAL:HG21	0.71	1.62	18	8
1:A:7:ASN:O	1:A:10:GLU:HG2	0.70	1.87	6	20
1:A:22:LYS:HG3	1:A:87:ILE:CG2	0.64	2.21	2	9
1:A:31:VAL:O	2:B:158:GLU:HA	0.63	1.93	20	6
1:A:25:ARG:N	1:A:89:ILE:HG12	0.63	2.09	1	5
1:A:17:HIS:NE2	1:A:94:ASP:HB3	0.62	2.10	5	8
1:A:22:LYS:HE3	1:A:93:VAL:HG13	0.62	1.71	13	1
1:A:27:PHE:O	1:A:51:PRO:HD3	0.62	1.94	20	19

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:63:VAL:HG13	1:A:98:CYS:SG	0.62	2.35	15	1
1:A:22:LYS:HG2	1:A:87:ILE:CG2	0.61	2.25	3	4
1:A:22:LYS:HE3	1:A:93:VAL:HG22	0.60	1.71	2	2
1:A:50:GLY:O	1:A:54:LEU:HG	0.60	1.97	10	19
1:A:22:LYS:HA	1:A:22:LYS:HZ2	0.59	1.56	10	3
1:A:22:LYS:HE2	1:A:93:VAL:HG22	0.59	1.74	5	5
1:A:6:ARG:O	1:A:73:LEU:HD21	0.59	1.97	7	6
1:A:68:ASN:HD21	1:A:94:ASP:N	0.57	1.95	12	1
1:A:5:THR:O	1:A:6:ARG:HG2	0.56	2.00	19	6
1:A:19:LYS:HA	1:A:93:VAL:O	0.56	2.01	13	10
1:A:58:MET:HA	1:A:99:ARG:NH1	0.55	2.15	20	2
1:A:59:GLU:HG2	1:A:99:ARG:NE	0.55	2.16	15	1
1:A:22:LYS:HG3	1:A:87:ILE:HG23	0.55	1.78	14	2
1:A:27:PHE:CE2	1:A:87:ILE:HD12	0.55	2.36	19	8
1:A:22:LYS:HE2	1:A:22:LYS:N	0.55	2.17	14	1
1:A:22:LYS:HE2	1:A:93:VAL:HG13	0.54	1.78	8	3
1:A:31:VAL:CG2	1:A:41:LEU:HB3	0.54	2.33	10	5
1:A:22:LYS:HG2	1:A:91:ALA:HB3	0.54	1.80	2	3
1:A:19:LYS:HE3	1:A:92:SER:OG	0.54	2.03	15	7
1:A:14:LYS:HG2	1:A:99:ARG:HB3	0.53	1.80	5	8
1:A:34:GLY:HA3	1:A:41:LEU:HG	0.52	1.81	10	15
1:A:52:ALA:HB1	1:A:58:MET:SD	0.52	2.44	4	2
1:A:62:ASP:HB3	1:A:99:ARG:HD3	0.52	1.81	15	1
1:A:62:ASP:CG	1:A:97:LEU:HD12	0.52	2.26	7	2
1:A:81:VAL:O	1:A:85:GLN:HB2	0.52	2.05	11	3
1:A:22:LYS:HD2	1:A:27:PHE:CZ	0.51	2.41	7	2
1:A:24:SER:C	1:A:89:ILE:HG12	0.51	2.26	2	1
1:A:37:PRO:HA	1:A:74:GLY:O	0.51	2.05	9	2
1:A:28:GLY:O	1:A:47:VAL:HB	0.51	2.05	9	3
1:A:58:MET:HA	1:A:99:ARG:NH2	0.50	2.21	9	1
1:A:53:ALA:HB3	1:A:54:LEU:HD23	0.50	1.82	9	1
1:A:22:LYS:N	1:A:22:LYS:HE2	0.50	2.21	2	1
1:A:28:GLY:C	1:A:47:VAL:HB	0.50	2.27	7	9
1:A:22:LYS:HA	1:A:26:GLY:O	0.49	2.07	4	1
1:A:22:LYS:HA	1:A:22:LYS:NZ	0.49	2.21	10	1
1:A:11:LEU:HB3	1:A:98:CYS:SG	0.49	2.48	16	1
1:A:22:LYS:HG3	1:A:87:ILE:HD12	0.49	1.85	20	3
1:A:25:ARG:HD3	1:A:87:ILE:O	0.49	2.08	8	1
1:A:81:VAL:O	1:A:85:GLN:HG2	0.49	2.07	9	2
1:A:31:VAL:HG22	2:B:159:THR:HB	0.48	1.85	4	1
1:A:22:LYS:HG2	1:A:87:ILE:HG23	0.48	1.85	7	5

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:65:VAL:HG13	1:A:73:LEU:HD13	0.47	1.85	15	5
1:A:43:ILE:HG12	1:A:62:ASP:O	0.47	2.09	6	4
1:A:17:HIS:HA	1:A:95:LEU:O	0.47	2.09	19	3
1:A:31:VAL:HB	1:A:42:GLN:O	0.47	2.10	20	6
1:A:50:GLY:O	1:A:54:LEU:HD23	0.47	2.10	9	1
1:A:23:SER:O	1:A:89:ILE:HG23	0.47	2.09	19	3
1:A:22:LYS:HG2	1:A:87:ILE:HG21	0.47	1.87	3	1
1:A:13:GLY:HA3	1:A:99:ARG:O	0.47	2.10	12	2
1:A:22:LYS:CG	1:A:87:ILE:HG21	0.46	2.39	3	3
1:A:40:PHE:CD1	1:A:73:LEU:HD12	0.46	2.44	10	1
1:A:46:LEU:HD23	1:A:59:GLU:HA	0.46	1.85	1	1
1:A:62:ASP:OD1	1:A:99:ARG:HD3	0.46	2.10	4	1
1:A:20:LEU:HB2	1:A:95:LEU:CD2	0.46	2.40	16	3
1:A:32:VAL:HG13	1:A:44:LYS:HG2	0.46	1.88	20	4
1:A:23:SER:O	1:A:89:ILE:HA	0.45	2.12	18	1
1:A:22:LYS:CG	1:A:87:ILE:HG23	0.45	2.42	5	7
1:A:58:MET:HG2	1:A:97:LEU:HD11	0.45	1.89	16	3
1:A:20:LEU:HG	1:A:51:PRO:HB2	0.45	1.88	7	7
1:A:22:LYS:HD3	1:A:92:SER:N	0.45	2.27	13	1
1:A:6:ARG:HD3	1:A:6:ARG:O	0.45	2.12	17	2
1:A:62:ASP:OD1	1:A:99:ARG:HB2	0.45	2.12	1	1
1:A:71:CYS:SG	1:A:73:LEU:HB3	0.44	2.53	19	1
1:A:68:ASN:ND2	1:A:68:ASN:N	0.44	2.65	12	1
1:A:65:VAL:HA	1:A:73:LEU:HD13	0.44	1.90	14	1
1:A:31:VAL:CG1	2:B:159:THR:HB	0.44	2.43	16	1
1:A:77:HIS:O	1:A:81:VAL:HG12	0.44	2.12	13	2
1:A:41:LEU:HB2	1:A:64:ILE:HB	0.44	1.89	18	1
1:A:31:VAL:HG12	2:B:159:THR:O	0.44	2.12	2	1
1:A:31:VAL:HG21	1:A:41:LEU:HD23	0.44	1.88	4	2
1:A:22:LYS:HE3	1:A:92:SER:N	0.44	2.27	7	1
1:A:29:PHE:CD2	1:A:43:ILE:HD12	0.44	2.48	18	1
1:A:27:PHE:C	1:A:51:PRO:HD3	0.44	2.33	17	2
1:A:67:VAL:HA	1:A:94:ASP:O	0.43	2.13	16	2
1:A:46:LEU:CD2	1:A:59:GLU:HA	0.43	2.44	4	2
1:A:37:PRO:HA	1:A:74:GLY:CA	0.43	2.43	10	1
1:A:62:ASP:CB	1:A:99:ARG:HA	0.43	2.44	15	1
1:A:65:VAL:HB	1:A:96:GLU:O	0.42	2.15	2	2
1:A:22:LYS:CA	1:A:22:LYS:HZ2	0.42	2.28	5	1
1:A:68:ASN:OD1	1:A:93:VAL:HG12	0.42	2.13	13	1
1:A:22:LYS:HB2	1:A:91:ALA:H	0.42	1.74	19	2
1:A:68:ASN:HD21	1:A:93:VAL:HB	0.42	1.70	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:30:THR:OG1	1:A:45:SER:HB2	0.42	2.15	15	3
1:A:41:LEU:CD2	1:A:80:VAL:HG21	0.42	2.43	13	1
1:A:22:LYS:NZ	1:A:22:LYS:HA	0.42	2.29	17	1
1:A:77:HIS:HA	1:A:80:VAL:HG12	0.42	1.91	16	2
1:A:22:LYS:CA	1:A:22:LYS:NZ	0.42	2.82	10	1
1:A:22:LYS:HZ2	1:A:87:ILE:HD13	0.42	1.75	2	1
1:A:22:LYS:HE3	1:A:93:VAL:CG1	0.42	2.42	13	1
1:A:52:ALA:HB1	1:A:58:MET:HB2	0.42	1.92	3	1
1:A:35:ASP:O	1:A:76:THR:HA	0.42	2.14	15	1
1:A:43:ILE:HD12	1:A:43:ILE:N	0.42	2.30	8	1
1:A:33:GLY:HA2	1:A:39:GLU:OE2	0.41	2.14	17	1
1:A:36:GLU:O	1:A:74:GLY:HA2	0.41	2.15	10	1
1:A:6:ARG:HA	1:A:40:PHE:CE1	0.41	2.50	13	1
1:A:22:LYS:HA	1:A:22:LYS:HZ3	0.41	1.74	2	1
1:A:55:ASP:OD1	1:A:57:LYS:HB2	0.41	2.16	7	1
1:A:36:GLU:HG3	1:A:38:ASP:HB3	0.41	1.92	15	1
1:A:41:LEU:O	1:A:63:VAL:HG23	0.41	2.16	19	1
1:A:48:LEU:O	1:A:49:ASP:HB3	0.41	2.16	1	1
1:A:72:VAL:HA	1:A:75:HIS:ND1	0.41	2.31	2	1
1:A:72:VAL:O	1:A:75:HIS:HB2	0.41	2.16	18	1
1:A:25:ARG:H	1:A:89:ILE:HG12	0.41	1.75	8	1
1:A:11:LEU:HD13	1:A:63:VAL:HG21	0.41	1.93	17	1
1:A:5:THR:O	1:A:6:ARG:HB3	0.40	2.16	1	1
1:A:31:VAL:HG13	2:B:159:THR:HB	0.40	1.93	16	1
1:A:31:VAL:CG2	2:B:159:THR:HB	0.40	2.47	15	1
1:A:32:VAL:HG13	1:A:44:LYS:CD	0.40	2.46	15	1

5.2 Torsion angles (i)

5.2.1 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	97/129 (75%)	84±2 (86±2%)	10±2 (11±2%)	3±1 (3±1%)	7 40
2	B	3/11 (27%)	3±0 (97±10%)	0±0 (3±10%)	0±0 (0±0%)	100 100
All	All	2000/2800 (71%)	1731 (87%)	211 (11%)	58 (3%)	7 41

All 10 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	5	THR	13
1	A	68	ASN	9
1	A	24	SER	8
1	A	38	ASP	8
1	A	22	LYS	7
1	A	6	ARG	6
1	A	28	GLY	4
1	A	69	ASP	1
1	A	49	ASP	1
1	A	57	LYS	1

5.2.2 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	82/110 (75%)	73±2 (89±2%)	9±2 (11±2%)	10	54
2	B	4/11 (36%)	4±0 (92±11%)	0±0 (8±11%)	17	65
All	All	1720/2420 (71%)	1538 (89%)	182 (11%)	10	55

All 30 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	19	LYS	20
1	A	16	ILE	20
1	A	75	HIS	17
1	A	14	LYS	16
1	A	22	LYS	16
1	A	97	LEU	11
1	A	63	VAL	11
1	A	82	LYS	9
1	A	20	LEU	8
1	A	7	ASN	7
1	A	44	LYS	5
1	A	87	ILE	5

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Mol	Chain	Res	Type	Models (Total)
1	A	12	LYS	5
1	A	25	ARG	4
1	A	57	LYS	4
1	A	99	ARG	3
2	B	158	GLU	3
1	A	62	ASP	2
1	A	31	VAL	2
1	A	93	VAL	2
1	A	6	ARG	2
1	A	42	GLN	2
1	A	17	HIS	1
2	B	161	VAL	1
1	A	54	LEU	1
2	B	160	GLN	1
1	A	58	MET	1
1	A	68	ASN	1
1	A	70	THR	1
2	B	159	THR	1

5.2.3 RNA

There are no RNA molecules in this entry.

5.3 Non-standard residues in protein, DNA, RNA chains

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

5.4 Carbohydrates

There are no carbohydrates in this entry.

5.5 Ligand geometry

There are no ligands in this entry.

5.6 Other polymers

There are no such molecules in this entry.

5.7 Polymer linkage issues

There are no chain breaks in this entry.

6 Chemical shift validation

No chemical shift data were provided