



Full wwPDB NMR Structure Validation Report ⓘ

Feb 10, 2022 – 10:48 AM EST

PDB ID : 1EZY
Title : HIGH-RESOLUTION SOLUTION STRUCTURE OF FREE RGS4 BY NMR
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Deposited on : 2000-05-12

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

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

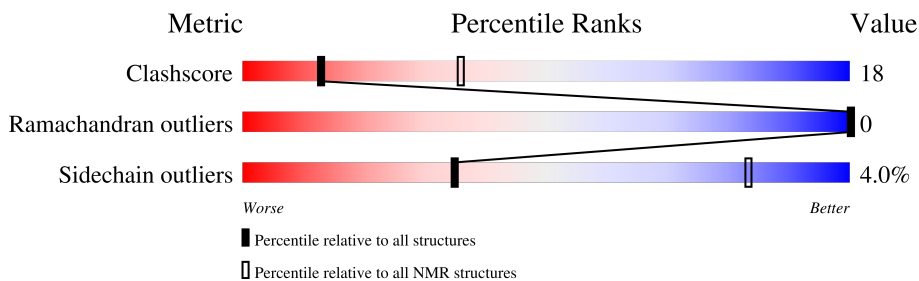
1 Overall quality at a glance

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	166	 53% 22% .. 22%

2 Ensemble composition and analysis i

This entry contains 30 models. Model 14 is the overall representative, medoid model (most similar to other models).

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:6-A:132 (127)	0.33	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 6 clusters and 4 single-model clusters were found.

Cluster number	Models
1	1, 3, 4, 7, 14, 16, 21, 23
2	6, 18, 26, 28, 30
3	10, 11, 12, 15, 22
4	17, 19, 25, 29
5	8, 27
6	5, 24
Single-model clusters	2; 9; 13; 20

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 2129 atoms, of which 1060 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called REGULATOR OF G-PROTEIN SIGNALING 4.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	129	2129	680	1060	175	208	6	0

There are 11 discrepancies between the modelled and reference sequences:

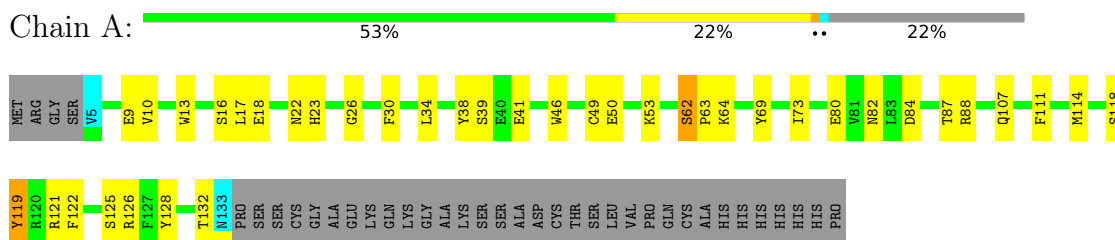
Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	cloning artifact	UNP P49799
A	2	ARG	-	cloning artifact	UNP P49799
A	3	GLY	-	cloning artifact	UNP P49799
A	4	SER	-	cloning artifact	UNP P49799
A	160	HIS	-	expression tag	UNP P49799
A	161	HIS	-	expression tag	UNP P49799
A	162	HIS	-	expression tag	UNP P49799
A	163	HIS	-	expression tag	UNP P49799
A	164	HIS	-	expression tag	UNP P49799
A	165	HIS	-	expression tag	UNP P49799
A	166	PRO	-	cloning artifact	UNP P49799

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: REGULATOR OF G-PROTEIN SIGNALING 4

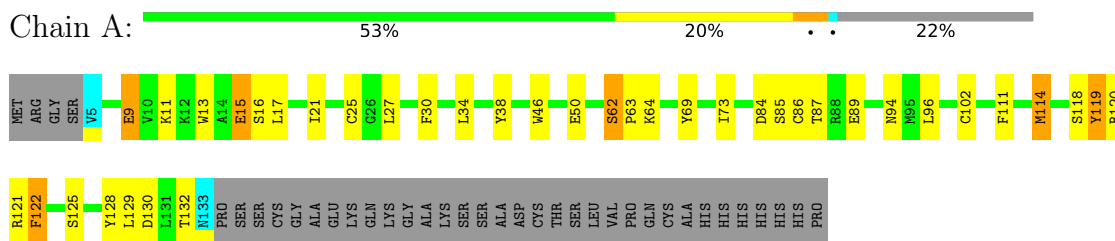


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

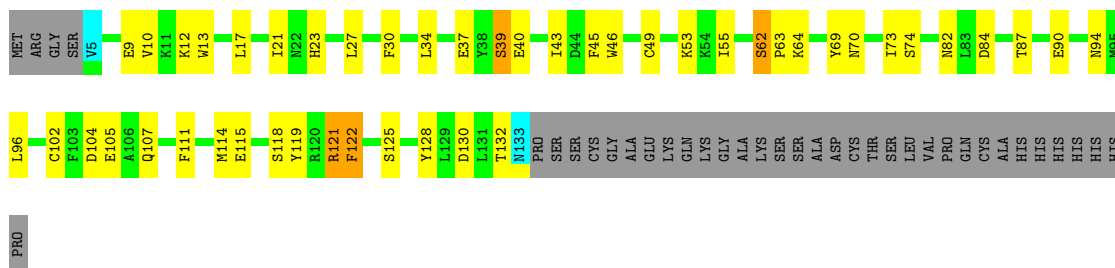
- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



4.2.2 Score per residue for model 2

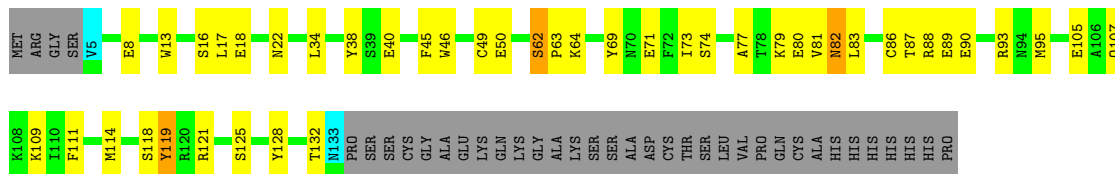
- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4





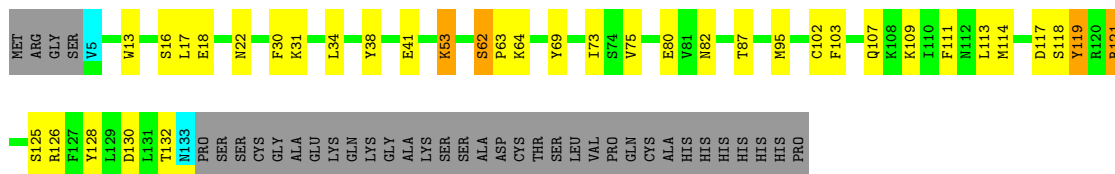
4.2.3 Score per residue for model 3

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



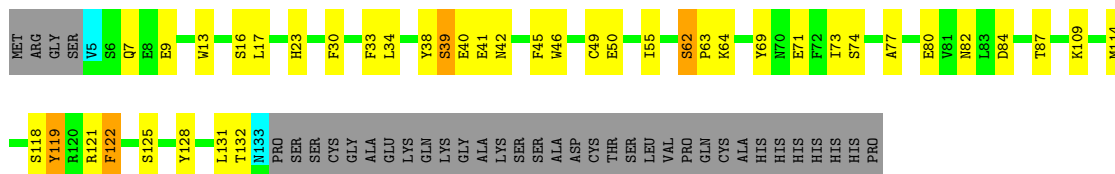
4.2.4 Score per residue for model 4

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



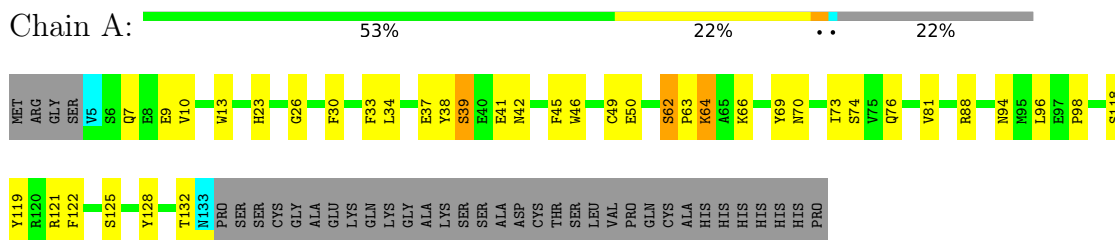
4.2.5 Score per residue for model 5

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



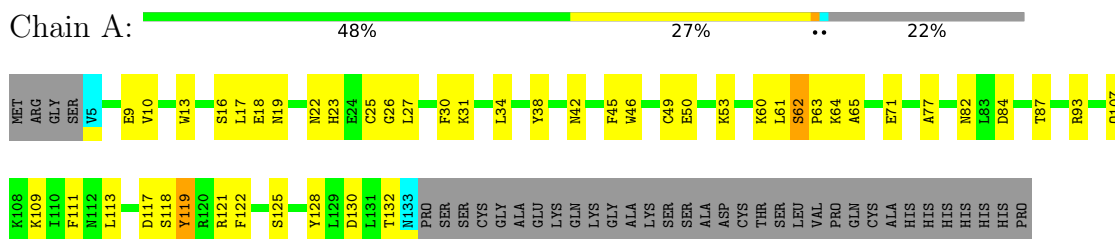
4.2.6 Score per residue for model 6

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



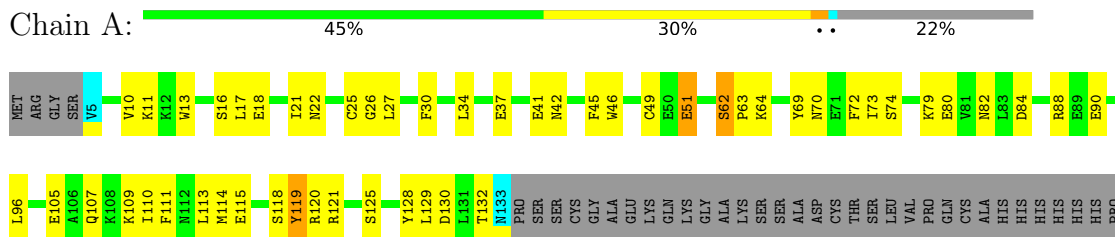
4.2.7 Score per residue for model 7

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



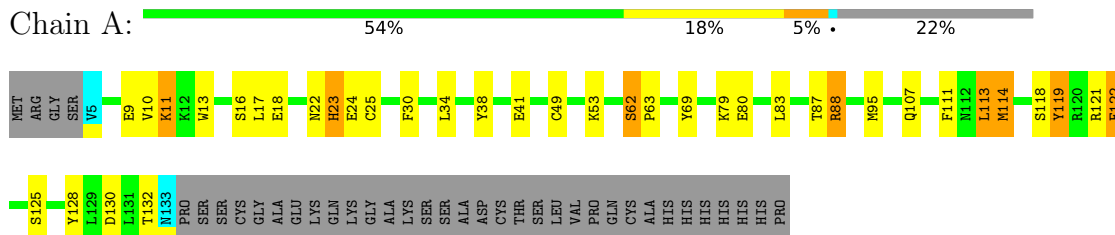
4.2.8 Score per residue for model 8

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



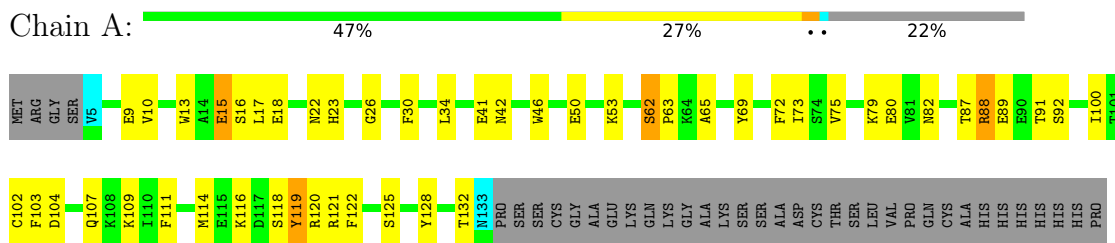
4.2.9 Score per residue for model 9

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



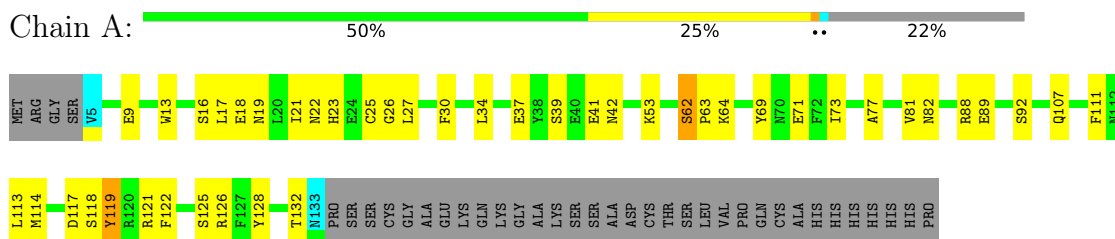
4.2.10 Score per residue for model 10

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



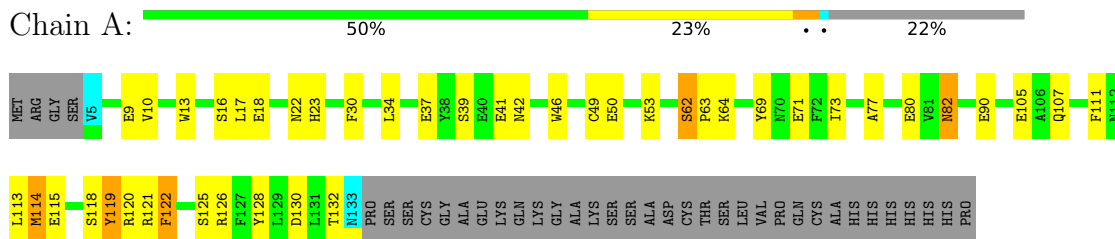
4.2.11 Score per residue for model 11

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



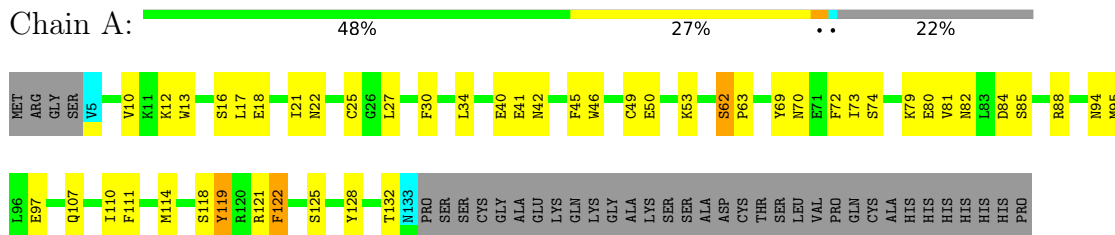
4.2.12 Score per residue for model 12

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



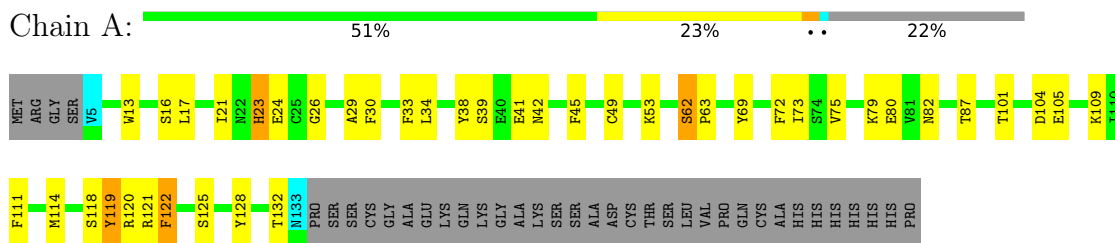
4.2.13 Score per residue for model 13

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



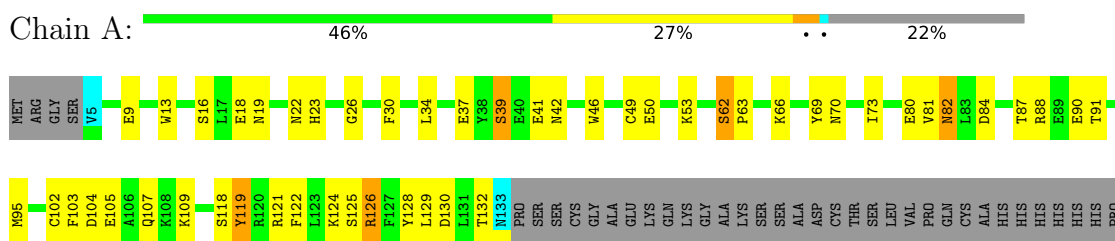
4.2.14 Score per residue for model 14 (medoid)

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



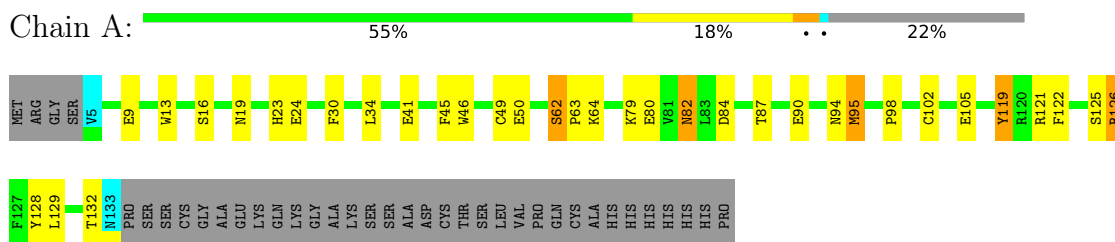
4.2.15 Score per residue for model 15

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



4.2.16 Score per residue for model 16

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



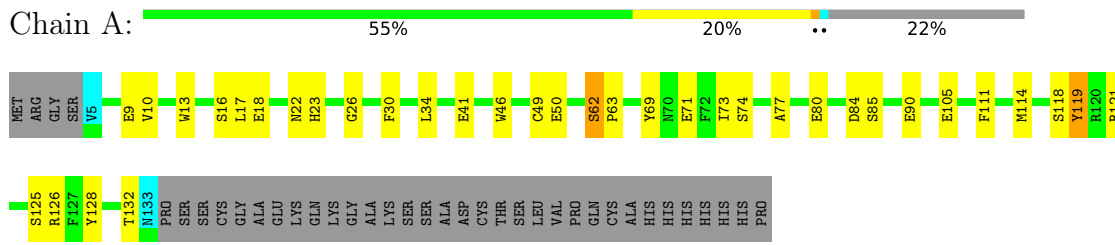
4.2.17 Score per residue for model 17

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



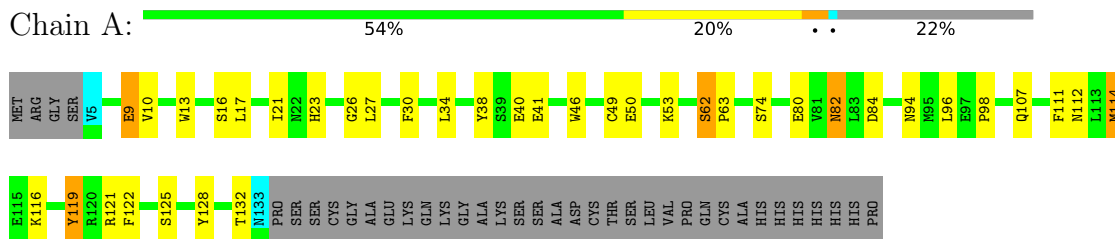
4.2.18 Score per residue for model 18

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



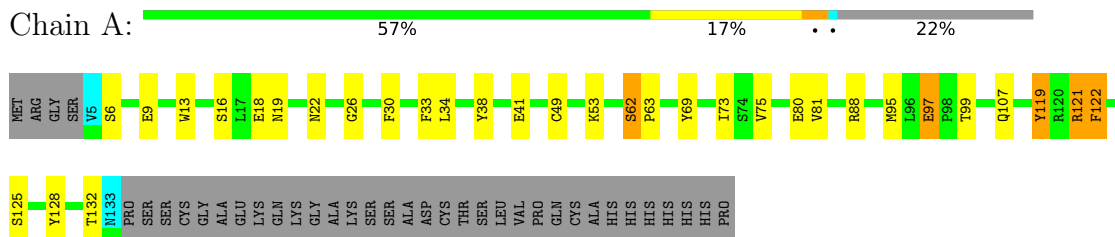
4.2.19 Score per residue for model 19

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



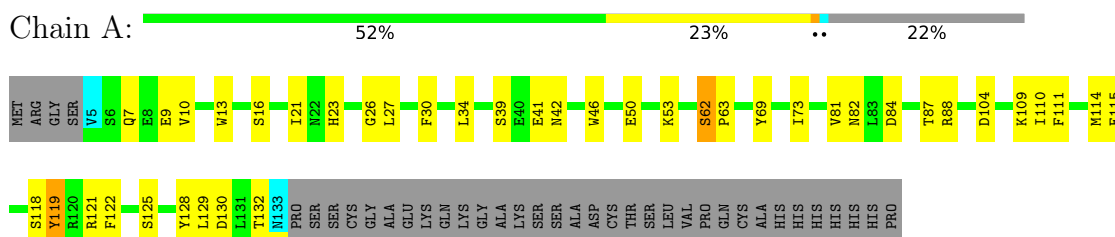
4.2.20 Score per residue for model 20

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



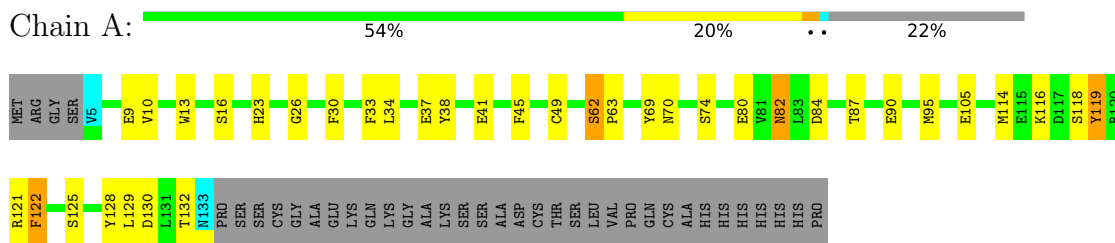
4.2.21 Score per residue for model 21

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



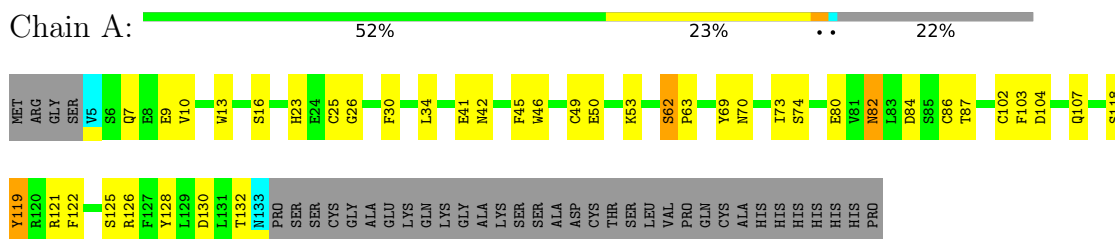
4.2.22 Score per residue for model 22

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



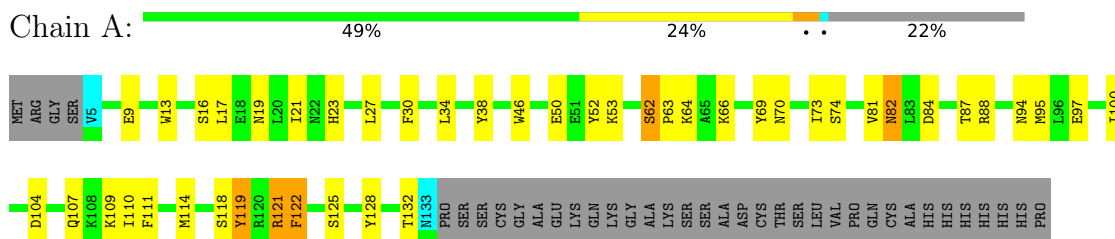
4.2.23 Score per residue for model 23

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



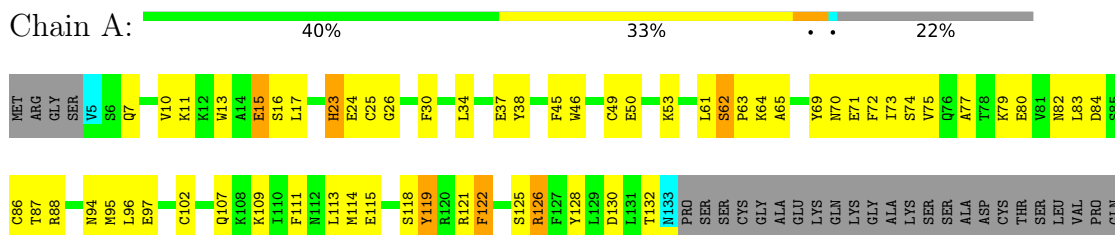
4.2.24 Score per residue for model 24

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



4.2.25 Score per residue for model 25

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4



CYS
ALA
HIS
HIS
HIS
HIS
HIS
PRO

4.2.26 Score per residue for model 26

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4

Chain A: 49% 27% .. 22%

MET ARG GLY SER V5 E9 W13 S16 L17 E18 N22 H23 G26 F30 L34 Y38 S39 E40 E41 F45 W46 C49 E50 S62 P63 K64 Y69 M70 I73 S74 W75 Q76 E80 D84 S85 C86 T87 R88 E89 E90 R93 L96

Q107 K108 K109 I110 F111 M114 S118 Y119 R120 R121 F122 S125 R126 F127 Y128 T132 M133 PRO SER SER CYS GLY ALA GLU LYS LYS GLY ALA LYS SER SER ALA ASP CYS THR SER LEU VAL PRO GLN CYS ALA HIS HIS HIS HIS HIS PRO

4.2.27 Score per residue for model 27

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4

Chain A: 50% 25% .. 22%

MET ARG GLY SER V5 E9 V10 W13 S16 L17 E18 N19 H23 E24 C25 F30 L34 Y38 S39 W46 E50 E51 K53 R54 I55 S62 P63 K64 N62 L83 D84 T87 E90 N94 M95 L96 T100 T101 C102 E105 A106 Q107 K109

I110 F111 M112 L113 M114 E115 K116 D117 S118 R120 W13 R121 F122 S125 R126 F127 Y128 L129 T132 M133 PRO SER SER CYS GLY ALA GLU LYS LYS GLY ALA LYS SER SER ALA ASP CYS THR SER LEU VAL PRO GLN CYS ALA HIS HIS HIS HIS HIS PRO

4.2.28 Score per residue for model 28

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4

Chain A: 49% 27% .. 22%

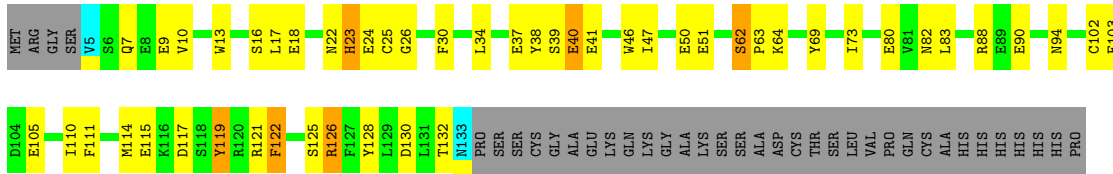
MET ARG GLY SER V5 E9 V10 K11 R12 W13 A14 S16 L17 E18 N22 H23 F30 F33 L34 E37 Y38 S39 E40 E41 N42 K53 S62 P63 E71 V75 Q76 A77 E80 V81 M82 C86 T87 R88 E89 D104 E105 T110 F111 M114

S118 Y119 R120 R121 F122 I123 K124 S125 R126 F127 Y128 L129 D130 L131 T132 M133 PRO SER SER CYS GLY ALA ALA GLU LYS GLN LYS GLY ALA LYS SER SER ALA ASP THR SER SER LEU VAL PRO GLN CYS ALA HIS HIS HIS HIS HIS PRO

4.2.29 Score per residue for model 29

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4

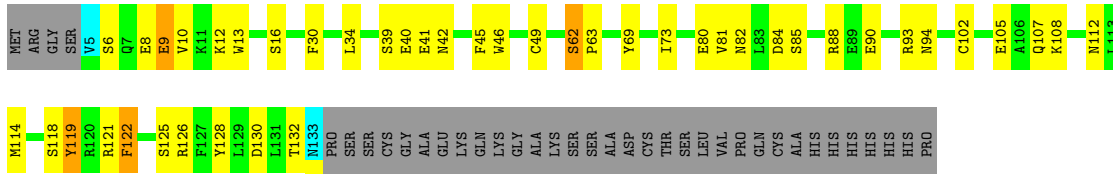
Chain A: 46% 27% .. 22%



4.2.30 Score per residue for model 30

- Molecule 1: REGULATOR OF G-PROTEIN SIGNALING 4

Chain A: 50% 24% 2% 22%



5 Refinement protocol and experimental data overview

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

Of the 100 calculated structures, 30 were deposited, based on the following criterion: *structures with acceptable covalent geometry, structures with favorable non-bond energy, 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
X-PLOR	structure solution	3.84
X-PLOR	refinement	3.84

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	1054	1045	1045	39±5
All	All	31620	31350	31350	1163

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 18.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:30:PHE:CE2	1:A:34:LEU:HD11	0.83	2.09	22	22
1:A:17:LEU:HD23	1:A:111:PHE:CD2	0.82	2.09	2	20
1:A:17:LEU:HD11	1:A:114:MET:SD	0.81	2.15	1	2
1:A:128:TYR:CZ	1:A:132:THR:HG21	0.81	2.11	10	16
1:A:17:LEU:HD21	1:A:114:MET:SD	0.79	2.17	19	5
1:A:9:GLU:CD	1:A:23:HIS:HE2	0.73	1.86	2	9
1:A:30:PHE:CZ	1:A:34:LEU:HD11	0.72	2.19	13	8
1:A:126:ARG:HE	1:A:126:ARG:H	0.70	1.29	16	1
1:A:10:VAL:HG21	1:A:132:THR:HG22	0.67	1.64	6	18
1:A:17:LEU:HD12	1:A:119:TYR:CE1	0.67	2.25	18	3
1:A:128:TYR:CE1	1:A:132:THR:HG21	0.65	2.26	29	15
1:A:69:TYR:CE2	1:A:73:ILE:HG21	0.64	2.27	25	20
1:A:126:ARG:NE	1:A:126:ARG:H	0.63	1.90	15	1
1:A:53:LYS:NZ	1:A:107:GLN:NE2	0.63	2.47	27	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:69:TYR:CD2	1:A:95:MET:SD	0.62	2.92	3	7
1:A:45:PHE:CE2	1:A:49:CYS:SG	0.62	2.93	7	12
1:A:120:ARG:NH2	1:A:124:LYS:NZ	0.62	2.47	28	1
1:A:128:TYR:O	1:A:132:THR:N	0.62	2.33	19	17
1:A:73:ILE:CD1	1:A:88:ARG:NH1	0.62	2.63	3	3
1:A:42:ASN:ND2	1:A:82:ASN:ND2	0.61	2.48	15	1
1:A:21:ILE:O	1:A:27:LEU:HD21	0.61	1.94	8	9
1:A:96:LEU:N	1:A:96:LEU:HD12	0.61	2.10	19	7
1:A:82:ASN:ND2	1:A:82:ASN:N	0.61	2.47	16	7
1:A:53:LYS:HZ3	1:A:104:ASP:CG	0.61	1.99	17	6
1:A:121:ARG:O	1:A:125:SER:N	0.61	2.34	27	30
1:A:33:PHE:CG	1:A:122:PHE:CE2	0.61	2.89	14	2
1:A:71:GLU:O	1:A:77:ALA:HB1	0.60	1.95	12	7
1:A:72:PHE:CD1	1:A:79:LYS:NZ	0.60	2.69	25	1
1:A:30:PHE:CD2	1:A:34:LEU:HD11	0.60	2.31	18	2
1:A:95:MET:SD	1:A:95:MET:N	0.60	2.74	16	1
1:A:55:ILE:HD12	1:A:64:LYS:NZ	0.60	2.11	2	2
1:A:114:MET:O	1:A:118:SER:N	0.59	2.35	28	21
1:A:45:PHE:CE1	1:A:49:CYS:SG	0.59	2.94	5	2
1:A:45:PHE:CZ	1:A:49:CYS:SG	0.59	2.95	3	3
1:A:113:LEU:C	1:A:113:LEU:HD23	0.59	2.18	12	1
1:A:69:TYR:CG	1:A:95:MET:SD	0.59	2.96	4	6
1:A:30:PHE:CZ	1:A:34:LEU:HD21	0.59	2.32	21	8
1:A:82:ASN:N	1:A:82:ASN:HD22	0.59	1.94	3	4
1:A:102:CYS:SG	1:A:103:PHE:CD1	0.58	2.94	15	5
1:A:30:PHE:CZ	1:A:114:MET:SD	0.58	2.97	9	2
1:A:46:TRP:HE1	1:A:107:GLN:NE2	0.58	1.96	13	2
1:A:72:PHE:CE2	1:A:79:LYS:NZ	0.57	2.72	10	3
1:A:49:CYS:SG	1:A:53:LYS:NZ	0.57	2.77	20	3
1:A:30:PHE:CE1	1:A:114:MET:SD	0.57	2.98	9	1
1:A:81:VAL:O	1:A:88:ARG:NH2	0.57	2.37	20	9
1:A:13:TRP:O	1:A:119:TYR:CZ	0.57	2.58	1	26
1:A:13:TRP:O	1:A:119:TYR:CE2	0.57	2.58	5	24
1:A:13:TRP:O	1:A:119:TYR:OH	0.57	2.23	16	28
1:A:126:ARG:H	1:A:126:ARG:NE	0.57	1.97	16	1
1:A:42:ASN:HD21	1:A:82:ASN:ND2	0.57	1.97	11	4
1:A:17:LEU:HD23	1:A:111:PHE:CG	0.56	2.34	26	5
1:A:42:ASN:HD21	1:A:82:ASN:HD21	0.56	1.42	11	7
1:A:126:ARG:HE	1:A:126:ARG:N	0.56	1.98	16	1
1:A:39:SER:OG	1:A:42:ASN:ND2	0.56	2.38	6	4
1:A:34:LEU:O	1:A:38:TYR:N	0.56	2.39	7	17

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:117:ASP:OD1	1:A:118:SER:N	0.55	2.39	4	3
1:A:128:TYR:CE2	1:A:132:THR:OG1	0.55	2.59	24	7
1:A:82:ASN:ND2	1:A:82:ASN:H	0.55	1.98	16	5
1:A:84:ASP:OD1	1:A:85:SER:N	0.55	2.40	30	4
1:A:10:VAL:CG2	1:A:132:THR:HG22	0.55	2.31	25	9
1:A:9:GLU:OE1	1:A:9:GLU:N	0.55	2.40	1	3
1:A:87:THR:OG1	1:A:109:LYS:NZ	0.55	2.40	14	10
1:A:49:CYS:SG	1:A:50:GLU:N	0.55	2.79	19	3
1:A:128:TYR:O	1:A:132:THR:HG23	0.54	2.02	3	4
1:A:94:ASN:CB	1:A:102:CYS:SG	0.54	2.96	30	7
1:A:118:SER:O	1:A:122:PHE:N	0.54	2.38	23	16
1:A:122:PHE:O	1:A:128:TYR:CB	0.54	2.56	19	13
1:A:46:TRP:CZ3	1:A:50:GLU:OE1	0.54	2.61	15	11
1:A:9:GLU:OE1	1:A:23:HIS:NE2	0.54	2.40	15	6
1:A:18:GLU:O	1:A:22:ASN:N	0.54	2.40	26	13
1:A:51:GLU:N	1:A:51:GLU:OE1	0.54	2.41	8	1
1:A:53:LYS:NZ	1:A:107:GLN:OE1	0.54	2.41	12	4
1:A:53:LYS:HZ1	1:A:103:PHE:C	0.54	2.06	23	1
1:A:40:GLU:CD	1:A:40:GLU:H	0.53	2.05	2	7
1:A:46:TRP:CZ2	1:A:50:GLU:OE2	0.53	2.62	21	7
1:A:82:ASN:O	1:A:82:ASN:ND2	0.53	2.40	24	3
1:A:46:TRP:CE3	1:A:50:GLU:OE1	0.53	2.62	18	8
1:A:46:TRP:NE1	1:A:107:GLN:NE2	0.53	2.57	13	2
1:A:26:GLY:O	1:A:30:PHE:N	0.53	2.36	14	16
1:A:9:GLU:O	1:A:13:TRP:CD1	0.53	2.62	20	3
1:A:53:LYS:NZ	1:A:104:ASP:OD1	0.53	2.41	14	4
1:A:41:GLU:OE2	1:A:82:ASN:N	0.53	2.42	4	1
1:A:9:GLU:OE2	1:A:23:HIS:CE1	0.53	2.62	29	1
1:A:37:GLU:CG	1:A:121:ARG:NH2	0.53	2.72	17	1
1:A:9:GLU:CD	1:A:23:HIS:NE2	0.52	2.63	22	8
1:A:16:SER:OG	1:A:19:ASN:ND2	0.52	2.43	27	6
1:A:84:ASP:N	1:A:84:ASP:OD1	0.52	2.41	19	1
1:A:46:TRP:HE1	1:A:107:GLN:HE21	0.52	1.46	26	1
1:A:128:TYR:CD2	1:A:132:THR:OG1	0.52	2.62	24	7
1:A:23:HIS:ND1	1:A:24:GLU:N	0.52	2.57	29	6
1:A:15:GLU:OE1	1:A:15:GLU:N	0.52	2.42	1	3
1:A:84:ASP:CG	1:A:87:THR:HG1	0.52	2.08	1	1
1:A:41:GLU:H	1:A:41:GLU:CD	0.52	2.07	21	7
1:A:82:ASN:ND2	1:A:82:ASN:O	0.51	2.43	3	4
1:A:16:SER:O	1:A:119:TYR:OH	0.51	2.28	1	26
1:A:84:ASP:OD2	1:A:109:LYS:NZ	0.51	2.42	25	5

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:102:CYS:SG	1:A:103:PHE:CE1	0.51	2.96	15	3
1:A:90:GLU:OE1	1:A:93:ARG:NH2	0.51	2.43	26	1
1:A:126:ARG:NH1	1:A:130:ASP:OD2	0.51	2.42	28	1
1:A:86:CYS:SG	1:A:87:THR:N	0.51	2.83	3	3
1:A:117:ASP:OD1	1:A:121:ARG:NE	0.51	2.44	27	1
1:A:128:TYR:CE2	1:A:132:THR:HG21	0.51	2.41	25	8
1:A:55:ILE:HD12	1:A:64:LYS:HZ3	0.51	1.66	5	2
1:A:128:TYR:CD1	1:A:132:THR:OG1	0.51	2.59	26	1
1:A:45:PHE:O	1:A:49:CYS:SG	0.51	2.69	6	3
1:A:42:ASN:OD1	1:A:82:ASN:ND2	0.51	2.43	7	2
1:A:46:TRP:CH2	1:A:50:GLU:OE2	0.51	2.64	12	4
1:A:132:THR:OG1	1:A:132:THR:O	0.51	2.28	24	5
1:A:84:ASP:OD2	1:A:86:CYS:SG	0.50	2.69	23	2
1:A:87:THR:CG2	1:A:88:ARG:NH1	0.50	2.74	9	1
1:A:112:ASN:ND2	1:A:116:LYS:NZ	0.50	2.59	19	1
1:A:126:ARG:CZ	1:A:130:ASP:OD2	0.50	2.59	28	1
1:A:42:ASN:ND2	1:A:110:ILE:HD12	0.50	2.22	28	2
1:A:126:ARG:CD	1:A:126:ARG:N	0.50	2.75	29	2
1:A:40:GLU:CD	1:A:40:GLU:N	0.50	2.65	29	4
1:A:112:ASN:ND2	1:A:116:LYS:HZ1	0.50	2.04	19	1
1:A:96:LEU:N	1:A:96:LEU:CD1	0.50	2.74	27	6
1:A:46:TRP:CD1	1:A:107:GLN:NE2	0.50	2.80	2	3
1:A:94:ASN:OD1	1:A:102:CYS:SG	0.50	2.70	16	2
1:A:69:TYR:CG	1:A:95:MET:CE	0.50	2.95	25	1
1:A:46:TRP:O	1:A:49:CYS:SG	0.50	2.70	19	1
1:A:121:ARG:NH1	1:A:121:ARG:CG	0.49	2.73	2	2
1:A:53:LYS:NZ	1:A:104:ASP:CG	0.49	2.65	17	1
1:A:53:LYS:HZ1	1:A:107:GLN:NE2	0.49	2.05	27	1
1:A:89:GLU:OE1	1:A:89:GLU:N	0.49	2.39	1	1
1:A:17:LEU:HD23	1:A:111:PHE:CE2	0.49	2.43	28	2
1:A:64:LYS:CB	1:A:64:LYS:NZ	0.49	2.76	6	1
1:A:53:LYS:NZ	1:A:107:GLN:CD	0.49	2.66	10	2
1:A:84:ASP:OD1	1:A:84:ASP:N	0.49	2.45	17	2
1:A:37:GLU:OE1	1:A:121:ARG:NH1	0.49	2.45	8	2
1:A:53:LYS:HZ1	1:A:107:GLN:CD	0.49	2.11	27	2
1:A:9:GLU:HG2	1:A:23:HIS:HE2	0.49	1.68	19	1
1:A:12:LYS:HZ3	1:A:12:LYS:CB	0.49	2.21	30	1
1:A:34:LEU:O	1:A:37:GLU:N	0.48	2.44	29	4
1:A:83:LEU:H	1:A:88:ARG:HH22	0.48	1.51	29	1
1:A:7:GLN:N	1:A:7:GLN:CD	0.48	2.66	29	3
1:A:39:SER:O	1:A:39:SER:OG	0.48	2.30	2	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:46:TRP:NE1	1:A:107:GLN:OE1	0.48	2.46	8	2
1:A:105:GLU:OE1	1:A:105:GLU:N	0.48	2.41	14	1
1:A:121:ARG:CG	1:A:121:ARG:HH11	0.48	2.22	2	2
1:A:33:PHE:O	1:A:37:GLU:OE1	0.48	2.31	28	1
1:A:21:ILE:O	1:A:27:LEU:CD2	0.48	2.61	21	4
1:A:73:ILE:CD1	1:A:88:ARG:CZ	0.48	2.92	25	2
1:A:46:TRP:CZ2	1:A:50:GLU:CD	0.48	2.87	12	4
1:A:18:GLU:O	1:A:22:ASN:ND2	0.48	2.46	9	1
1:A:121:ARG:CD	1:A:121:ARG:N	0.48	2.76	11	1
1:A:118:SER:OG	1:A:119:TYR:N	0.48	2.47	18	2
1:A:84:ASP:OD1	1:A:87:THR:OG1	0.48	2.31	1	5
1:A:85:SER:O	1:A:89:GLU:OE1	0.48	2.31	1	1
1:A:39:SER:OG	1:A:39:SER:O	0.48	2.30	14	3
1:A:132:THR:O	1:A:132:THR:OG1	0.48	2.30	23	6
1:A:46:TRP:CH2	1:A:50:GLU:OE1	0.48	2.66	10	1
1:A:37:GLU:OE2	1:A:121:ARG:NH1	0.48	2.47	25	1
1:A:8:GLU:OE1	1:A:8:GLU:N	0.48	2.42	3	1
1:A:117:ASP:OD1	1:A:121:ARG:CZ	0.48	2.62	29	1
1:A:33:PHE:CZ	1:A:125:SER:OG	0.47	2.64	5	1
1:A:121:ARG:O	1:A:125:SER:OG	0.47	2.32	5	4
1:A:93:ARG:CB	1:A:93:ARG:NH1	0.47	2.77	30	1
1:A:128:TYR:O	1:A:132:THR:OG1	0.47	2.32	19	16
1:A:13:TRP:CD1	1:A:13:TRP:N	0.47	2.79	27	11
1:A:86:CYS:O	1:A:90:GLU:N	0.47	2.43	28	1
1:A:53:LYS:CE	1:A:107:GLN:OE1	0.47	2.63	25	4
1:A:33:PHE:CE2	1:A:37:GLU:OE1	0.47	2.67	28	2
1:A:26:GLY:O	1:A:30:PHE:CB	0.47	2.63	8	4
1:A:69:TYR:CE2	1:A:95:MET:SD	0.47	3.08	9	1
1:A:120:ARG:CB	1:A:120:ARG:NH1	0.47	2.78	12	1
1:A:10:VAL:HG21	1:A:132:THR:CG2	0.47	2.39	13	1
1:A:73:ILE:O	1:A:88:ARG:NH2	0.47	2.43	26	1
1:A:126:ARG:CB	1:A:126:ARG:NH1	0.47	2.78	26	1
1:A:84:ASP:OD1	1:A:87:THR:N	0.47	2.41	2	4
1:A:46:TRP:CD1	1:A:107:GLN:OE1	0.47	2.68	3	2
1:A:120:ARG:NH1	1:A:120:ARG:CG	0.47	2.77	8	4
1:A:114:MET:O	1:A:118:SER:OG	0.47	2.30	17	5
1:A:126:ARG:NH1	1:A:126:ARG:CG	0.47	2.78	25	3
1:A:37:GLU:OE2	1:A:121:ARG:NH2	0.47	2.48	17	1
1:A:62:SER:CB	1:A:63:PRO:CD	0.46	2.93	23	30
1:A:94:ASN:O	1:A:98:PRO:N	0.46	2.48	19	3
1:A:83:LEU:HD13	1:A:88:ARG:NH1	0.46	2.25	9	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:84:ASP:OD1	1:A:87:THR:CB	0.46	2.63	1	5
1:A:17:LEU:HD12	1:A:119:TYR:CD1	0.46	2.46	18	1
1:A:82:ASN:ND2	1:A:113:LEU:CD2	0.46	2.79	27	2
1:A:87:THR:HG1	1:A:109:LYS:NZ	0.46	2.08	4	1
1:A:70:ASN:O	1:A:74:SER:OG	0.46	2.33	8	9
1:A:40:GLU:H	1:A:40:GLU:CD	0.46	2.14	30	1
1:A:41:GLU:OE1	1:A:41:GLU:N	0.46	2.44	14	3
1:A:82:ASN:OD1	1:A:82:ASN:N	0.46	2.48	2	2
1:A:87:THR:HG1	1:A:109:LYS:HZ2	0.46	1.54	4	1
1:A:42:ASN:ND2	1:A:82:ASN:HD21	0.46	2.08	11	1
1:A:52:TYR:CD2	1:A:64:LYS:NZ	0.46	2.84	24	1
1:A:113:LEU:O	1:A:117:ASP:OD1	0.46	2.34	7	3
1:A:84:ASP:OD2	1:A:87:THR:N	0.46	2.44	7	1
1:A:113:LEU:C	1:A:113:LEU:HD13	0.46	2.31	9	1
1:A:55:ILE:O	1:A:100:ILE:HD13	0.46	2.10	27	1
1:A:74:SER:O	1:A:80:GLU:OE2	0.46	2.34	8	6
1:A:75:VAL:O	1:A:80:GLU:OE2	0.46	2.34	20	6
1:A:41:GLU:OE1	1:A:80:GLU:O	0.46	2.34	22	13
1:A:46:TRP:CE2	1:A:50:GLU:CG	0.45	2.99	13	1
1:A:101:THR:O	1:A:105:GLU:OE1	0.45	2.34	14	1
1:A:120:ARG:NH2	1:A:124:LYS:HZ3	0.45	2.09	28	1
1:A:120:ARG:NH2	1:A:124:LYS:HZ1	0.45	2.07	28	1
1:A:12:LYS:CB	1:A:12:LYS:NZ	0.45	2.79	2	1
1:A:9:GLU:OE1	1:A:23:HIS:CD2	0.45	2.69	28	3
1:A:33:PHE:CD2	1:A:37:GLU:OE1	0.45	2.70	6	1
1:A:100:ILE:O	1:A:104:ASP:OD1	0.45	2.34	24	1
1:A:10:VAL:HG23	1:A:11:LYS:N	0.45	2.27	9	1
1:A:82:ASN:OD1	1:A:110:ILE:CD1	0.45	2.65	29	2
1:A:33:PHE:CD1	1:A:122:PHE:CE2	0.45	3.05	14	1
1:A:9:GLU:OE1	1:A:23:HIS:CE1	0.45	2.69	23	2
1:A:114:MET:O	1:A:118:SER:CB	0.44	2.66	17	2
1:A:9:GLU:CD	1:A:23:HIS:CE1	0.44	2.91	26	3
1:A:97:GLU:OE1	1:A:99:THR:CG2	0.44	2.65	20	1
1:A:47:ILE:O	1:A:51:GLU:OE1	0.44	2.35	29	1
1:A:66:LYS:O	1:A:70:ASN:OD1	0.44	2.35	24	3
1:A:53:LYS:CD	1:A:107:GLN:OE1	0.44	2.65	11	1
1:A:46:TRP:CH2	1:A:50:GLU:CD	0.44	2.91	23	2
1:A:33:PHE:CZ	1:A:37:GLU:OE2	0.44	2.70	22	2
1:A:7:GLN:NE2	1:A:131:LEU:O	0.44	2.45	5	1
1:A:91:THR:O	1:A:95:MET:N	0.44	2.50	15	1
1:A:94:ASN:CG	1:A:102:CYS:SG	0.44	2.96	30	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:90:GLU:OE1	1:A:105:GLU:OE1	0.44	2.36	30	5
1:A:83:LEU:HD12	1:A:88:ARG:NH1	0.44	2.28	25	2
1:A:41:GLU:OE2	1:A:80:GLU:O	0.44	2.36	15	2
1:A:9:GLU:OE1	1:A:9:GLU:CA	0.44	2.66	19	1
1:A:30:PHE:CZ	1:A:114:MET:CE	0.44	3.01	1	2
1:A:74:SER:C	1:A:76:GLN:N	0.44	2.71	6	2
1:A:82:ASN:CG	1:A:113:LEU:CD2	0.44	2.86	8	1
1:A:16:SER:C	1:A:119:TYR:OH	0.44	2.56	28	2
1:A:6:SER:OG	1:A:9:GLU:OE1	0.44	2.36	20	1
1:A:90:GLU:OE2	1:A:105:GLU:OE2	0.44	2.36	22	2
1:A:72:PHE:CG	1:A:79:LYS:NZ	0.44	2.86	25	1
1:A:90:GLU:OE2	1:A:105:GLU:OE1	0.43	2.36	2	6
1:A:71:GLU:O	1:A:77:ALA:CB	0.43	2.66	3	1
1:A:110:ILE:HG22	1:A:114:MET:SD	0.43	2.53	24	2
1:A:6:SER:OG	1:A:9:GLU:OE2	0.43	2.35	30	1
1:A:111:PHE:O	1:A:115:GLU:CB	0.43	2.66	2	7
1:A:100:ILE:O	1:A:104:ASP:OD2	0.43	2.35	10	1
1:A:40:GLU:O	1:A:43:ILE:HG22	0.43	2.13	17	2
1:A:69:TYR:CE2	1:A:73:ILE:CG2	0.43	3.02	20	5
1:A:83:LEU:HD12	1:A:88:ARG:CZ	0.43	2.43	3	1
1:A:73:ILE:O	1:A:73:ILE:HG22	0.43	2.13	20	6
1:A:82:ASN:OD1	1:A:82:ASN:O	0.43	2.37	25	4
1:A:84:ASP:CG	1:A:109:LYS:NZ	0.43	2.72	27	1
1:A:41:GLU:OE1	1:A:79:LYS:O	0.43	2.36	16	2
1:A:37:GLU:CD	1:A:37:GLU:N	0.43	2.72	28	1
1:A:13:TRP:N	1:A:13:TRP:CD1	0.43	2.86	13	5
1:A:46:TRP:CD2	1:A:50:GLU:OE1	0.43	2.72	7	1
1:A:10:VAL:HG21	1:A:132:THR:HG23	0.43	1.90	13	1
1:A:37:GLU:OE2	1:A:121:ARG:CZ	0.43	2.67	25	1
1:A:61:LEU:O	1:A:65:ALA:CB	0.43	2.67	25	1
1:A:53:LYS:HZ2	1:A:107:GLN:NE2	0.43	2.11	10	1
1:A:89:GLU:O	1:A:92:SER:OG	0.43	2.35	10	2
1:A:16:SER:OG	1:A:19:ASN:OD1	0.43	2.36	16	2
1:A:49:CYS:SG	1:A:107:GLN:OE1	0.43	2.76	15	2
1:A:33:PHE:CE2	1:A:37:GLU:OE2	0.43	2.71	17	1
1:A:39:SER:CB	1:A:42:ASN:HD22	0.43	2.27	21	1
1:A:72:PHE:CE1	1:A:79:LYS:NZ	0.43	2.87	25	1
1:A:113:LEU:C	1:A:113:LEU:CD2	0.43	2.87	12	1
1:A:89:GLU:CB	1:A:93:ARG:HH22	0.42	2.27	3	1
1:A:18:GLU:H	1:A:18:GLU:CD	0.42	2.15	8	1
1:A:113:LEU:C	1:A:113:LEU:CD1	0.42	2.88	9	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:126:ARG:NE	1:A:126:ARG:N	0.42	2.65	15	1
1:A:69:TYR:CE1	1:A:73:ILE:HG21	0.42	2.49	29	3
1:A:46:TRP:O	1:A:50:GLU:N	0.42	2.49	6	1
1:A:61:LEU:O	1:A:65:ALA:N	0.42	2.44	7	2
1:A:114:MET:CG	1:A:115:GLU:N	0.42	2.82	8	1
1:A:41:GLU:CG	1:A:42:ASN:N	0.42	2.81	12	1
1:A:21:ILE:CD1	1:A:111:PHE:CZ	0.42	3.02	14	1
1:A:8:GLU:N	1:A:8:GLU:CD	0.42	2.73	30	1
1:A:34:LEU:HD23	1:A:39:SER:OG	0.42	2.15	30	1
1:A:10:VAL:CG2	1:A:11:LYS:N	0.42	2.82	9	1
1:A:30:PHE:CE2	1:A:34:LEU:HD21	0.42	2.48	21	2
1:A:84:ASP:O	1:A:88:ARG:NH1	0.42	2.52	8	1
1:A:120:ARG:HG2	1:A:120:ARG:HH11	0.42	1.74	8	1
1:A:93:ARG:NH1	1:A:93:ARG:CG	0.42	2.79	7	1
1:A:65:ALA:O	1:A:69:TYR:N	0.42	2.40	10	1
1:A:9:GLU:CG	1:A:23:HIS:HE2	0.42	2.27	24	1
1:A:72:PHE:CE2	1:A:79:LYS:CE	0.42	3.02	14	1
1:A:30:PHE:CE1	1:A:34:LEU:HD11	0.42	2.49	2	1
1:A:90:GLU:OE1	1:A:105:GLU:OE2	0.42	2.38	22	1
1:A:88:ARG:NE	1:A:88:ARG:HA	0.42	2.30	9	1
1:A:126:ARG:CD	1:A:126:ARG:H	0.42	2.28	29	1
1:A:45:PHE:CD2	1:A:49:CYS:SG	0.42	3.13	14	1
1:A:73:ILE:HD12	1:A:88:ARG:CZ	0.42	2.44	25	1
1:A:96:LEU:O	1:A:97:GLU:OE2	0.42	2.37	25	1
1:A:11:LYS:O	1:A:15:GLU:OE2	0.41	2.39	1	1
1:A:31:LYS:CB	1:A:31:LYS:NZ	0.41	2.82	4	1
1:A:60:LYS:O	1:A:64:LYS:NZ	0.41	2.49	7	1
1:A:90:GLU:N	1:A:93:ARG:NH2	0.41	2.68	3	1
1:A:108:LYS:O	1:A:112:ASN:ND2	0.41	2.51	30	1
1:A:53:LYS:HZ1	1:A:107:GLN:CB	0.41	2.29	9	1
1:A:84:ASP:CG	1:A:86:CYS:SG	0.41	2.98	23	1
1:A:84:ASP:OD1	1:A:84:ASP:C	0.41	2.59	1	1
1:A:88:ARG:N	1:A:88:ARG:HD2	0.41	2.31	9	1
1:A:94:ASN:O	1:A:97:GLU:C	0.41	2.59	13	2
1:A:29:ALA:O	1:A:33:PHE:N	0.41	2.48	14	1
1:A:23:HIS:CE1	1:A:25:CYS:H	0.41	2.34	25	1
1:A:81:VAL:CG2	1:A:88:ARG:NH1	0.41	2.84	3	1
1:A:27:LEU:C	1:A:31:LYS:HZ3	0.41	2.19	7	1
1:A:116:LYS:O	1:A:120:ARG:NE	0.41	2.48	10	1
1:A:90:GLU:CD	1:A:105:GLU:OE1	0.41	2.59	17	2
1:A:18:GLU:O	1:A:22:ASN:CG	0.41	2.59	12	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:93:ARG:HG2	1:A:93:ARG:HH11	0.41	1.76	7	1
1:A:11:LYS:O	1:A:14:ALA:HB3	0.41	2.15	28	1
1:A:122:PHE:O	1:A:125:SER:OG	0.41	2.33	15	1
1:A:122:PHE:O	1:A:128:TYR:CG	0.41	2.74	19	1
1:A:116:LYS:N	1:A:116:LYS:CD	0.41	2.84	22	1
1:A:126:ARG:O	1:A:130:ASP:CG	0.40	2.60	4	1
1:A:88:ARG:NH1	1:A:88:ARG:CG	0.40	2.81	29	1
1:A:71:GLU:OE2	1:A:79:LYS:NZ	0.40	2.51	17	2
1:A:30:PHE:CZ	1:A:34:LEU:CD1	0.40	3.04	8	1
1:A:11:LYS:O	1:A:15:GLU:CD	0.40	2.60	25	1
1:A:30:PHE:CZ	1:A:114:MET:HE1	0.40	2.51	14	1
1:A:109:LYS:O	1:A:113:LEU:N	0.40	2.43	7	1
1:A:42:ASN:ND2	1:A:82:ASN:OD1	0.40	2.51	7	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	127/166 (77%)	122±1 (96±1%)	5±1 (4±1%)	0±0 (0±0%)	100	100
All	All	3810/4980 (77%)	3650 (96%)	160 (4%)	0 (0%)	100	100

There are no Ramachandran outliers.

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	119/151 (79%)	114±2 (96±2%)	5±2 (4±2%)	35	83
All	All	3570/4530 (79%)	3426 (96%)	144 (4%)	35	83

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	62	SER	30
1	A	119	TYR	28
1	A	122	PHE	17
1	A	64	LYS	12
1	A	39	SER	8
1	A	82	ASN	8
1	A	126	ARG	8
1	A	114	MET	5
1	A	121	ARG	4
1	A	23	HIS	4
1	A	9	GLU	3
1	A	15	GLU	3
1	A	11	LYS	2
1	A	88	ARG	2
1	A	113	LEU	2
1	A	53	LYS	1
1	A	51	GLU	1
1	A	91	THR	1
1	A	12	LYS	1
1	A	124	LYS	1
1	A	95	MET	1
1	A	97	GLU	1
1	A	40	GLU	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

No chemical shift data were provided