



Full wwPDB NMR Structure Validation Report ⓘ

May 28, 2020 – 09:46 pm BST

PDB ID : 2EZR
Title : SOLUTION NMR STRUCTURE OF ECTODOMAIN OF SIV GP41, MODELS 21-30 OF AN ENSEMBLE OF 40 SIMULATED ANNEALING STRUCTURES
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Deposited on : 1998-05-20

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:

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

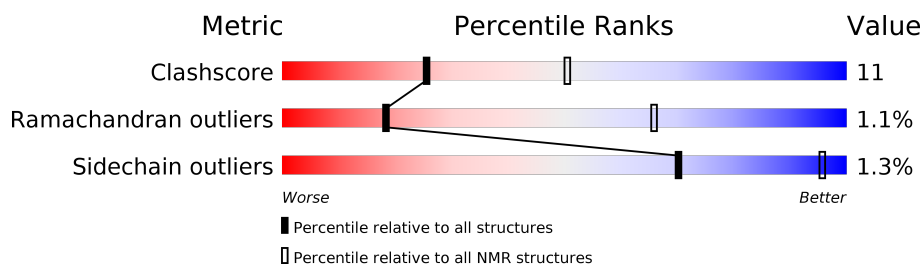
1 Overall quality at a glance

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	123	64% 12% 24%
1	B	123	64% 12% 24%
1	C	123	65% 11% 24%

2 Ensemble composition and analysis i

This entry contains 10 models. Model 24 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:3-A:54, A:74-A:115, B:3-B:54, B:74-B:115, C:3-C:54, C:74-C:115 (282)	0.23	24

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 1 single-model cluster was found.

Cluster number	Models
1	23, 24, 26, 30
2	21, 25, 28
3	22, 27
Single-model clusters	29

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 6117 atoms, of which 3060 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called GP41.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	123	2039	644	1020	182	192	1	0
1	B	123	2039	644	1020	182	192	1	0
1	C	123	2039	644	1020	182	192	1	0

There are 12 discrepancies between the modelled and reference sequences:

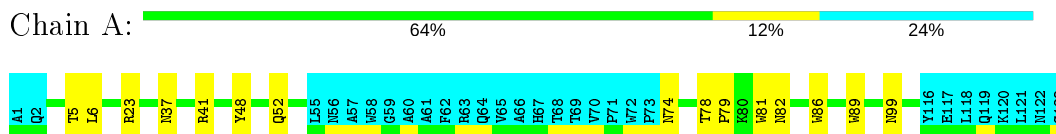
Chain	Residue	Modelled	Actual	Comment	Reference
A	60	ALA	CYS	CONFLICT	UNP Q88033
A	66	ALA	CYS	CONFLICT	UNP Q88033
A	80	LYS	ASP	CONFLICT	UNP Q88033
A	84	GLU	ASP	CONFLICT	UNP Q88033
B	60	ALA	CYS	CONFLICT	UNP Q88033
B	66	ALA	CYS	CONFLICT	UNP Q88033
B	80	LYS	ASP	CONFLICT	UNP Q88033
B	84	GLU	ASP	CONFLICT	UNP Q88033
C	60	ALA	CYS	CONFLICT	UNP Q88033
C	66	ALA	CYS	CONFLICT	UNP Q88033
C	80	LYS	ASP	CONFLICT	UNP Q88033
C	84	GLU	ASP	CONFLICT	UNP Q88033

4 Residue-property plots [i](#)

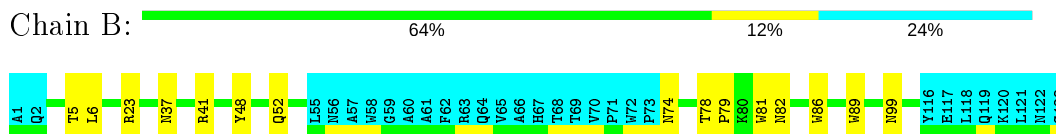
4.1 Average score per residue in the NMR ensemble

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.

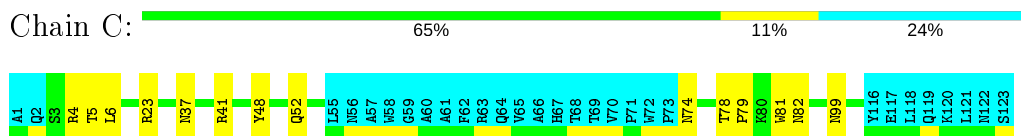
- Molecule 1: GP41



- Molecule 1: GP41



- Molecule 1: GP41

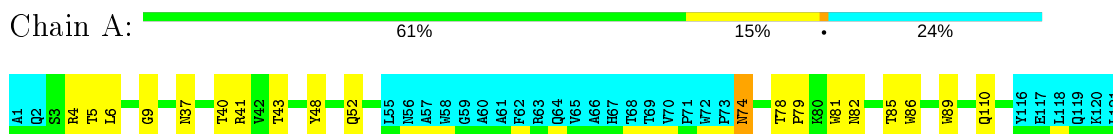


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 21

- Molecule 1: GP41



H122
S123

- Molecule 1: GP41

Chain B:  60% 15% 24%

A1 Q2 S3 R4 T5 L6 G9 N37 T40 R41 Y42 T43 Y48 Q52 L55 N56 A57 N58 G59 A60 A61 F62 R63 Q64 V65 A66 H67 T68 T69 N72 V70 P71 P72 P73 N74 T78 P79 R80 W81 N82 T85 N86 N89 D94 Q110 Y116 E117 L118 L119

K120
L121
M122
S123

- Molecule 1: GP41

Chain C:  63% 12% 24%

A1 Q2 S3 R4 T5 L6 G9 N37 R41 Y48 Q52 L55 N56 A57 N58 G59 A60 A61 F62 R63 Q64 V65 A66 H67 T68 T69 N72 V70 P71 P72 P73 N74 T78 P79 R80 W81 N82 T85 D94 Q110 Y116 E117 L118 Q119 K120 L121 M122 S123

4.2.2 Score per residue for model 22

- Molecule 1: GP41

Chain A:  62% 15% 24%

A1 Q2 T5 L6 Q13 Q16 V32 K36 R41 Y48 Q52 L55 N56 A57 N58 G59 A60 A61 F62 R63 Q64 V65 A66 H67 T68 T69 N72 V70 P71 P72 P73 N74 T78 P79 R80 W81 N82 T85 W86 N89 Y116 E117 L118 Q119 K120 L121

H122
S123

- Molecule 1: GP41

Chain B:  61% 15% 24%

A1 Q2 T5 L6 Q13 Q16 V32 K36 R41 Y48 Q52 L55 N56 A57 N58 G59 A60 A61 F62 R63 Q64 V65 A66 H67 T68 T69 N72 V70 P71 P72 P73 N74 T78 P79 R80 W81 N82 N83 E84 T85 N86 N89 Y116 E117 L118 Q119 K120

L121
M122
S123

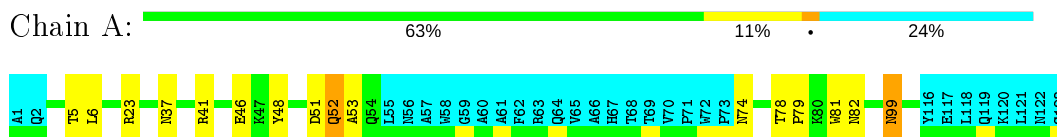
- Molecule 1: GP41

Chain C:  62% 15% 24%

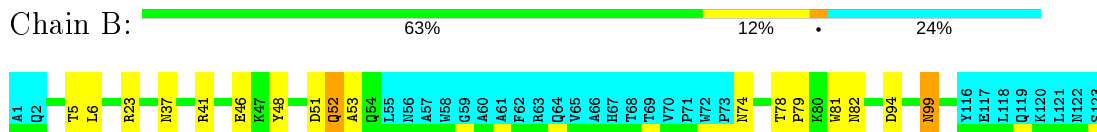
A1 Q2 R4 T5 L6 Q13 Q16 V32 K36 R41 Y48 Q52 A53 Q54 L55 N56 A57 N58 G59 A60 A61 F62 R63 Q64 V65 A66 H67 T68 T69 N70 P71 P72 P73 N74 T78 P79 R80 W81 N82 N83 E84 T85 Y116 E117 L118 Q119 K120 L121 M122 S123

4.2.3 Score per residue for model 23

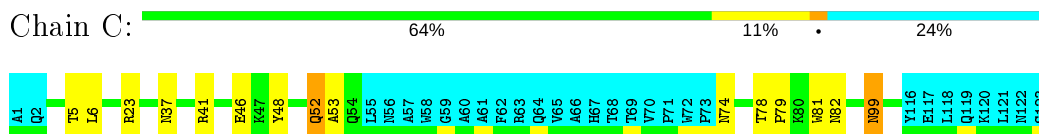
- Molecule 1: GP41



- Molecule 1: GP41

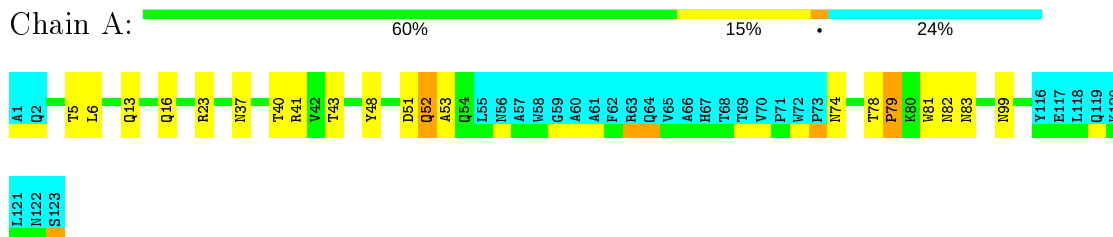


- Molecule 1: GP41

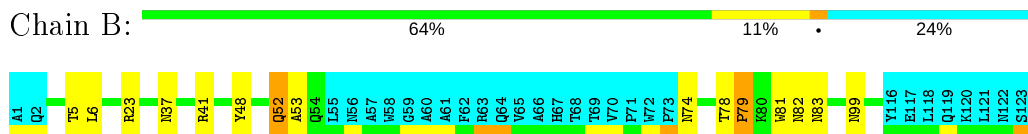


4.2.4 Score per residue for model 24 (medoid)

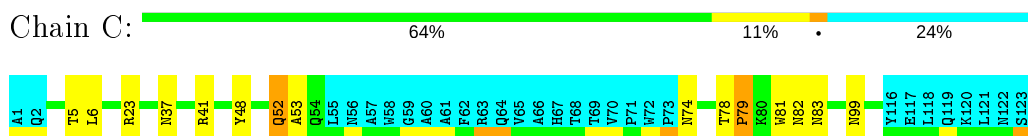
- Molecule 1: GP41



- Molecule 1: GP41

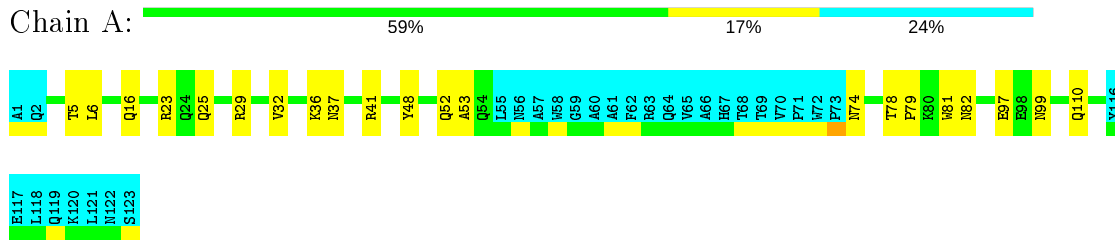


- Molecule 1: GP41

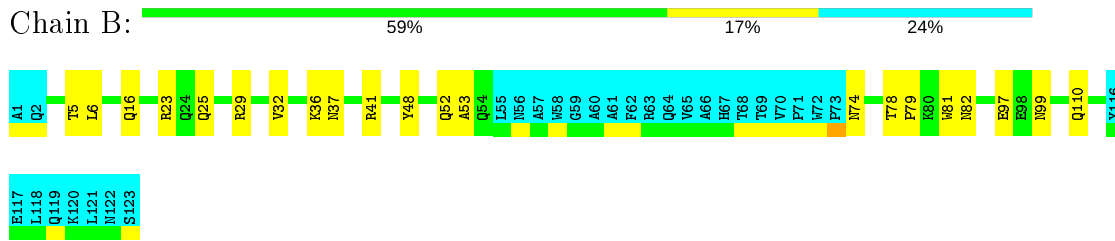


4.2.5 Score per residue for model 25

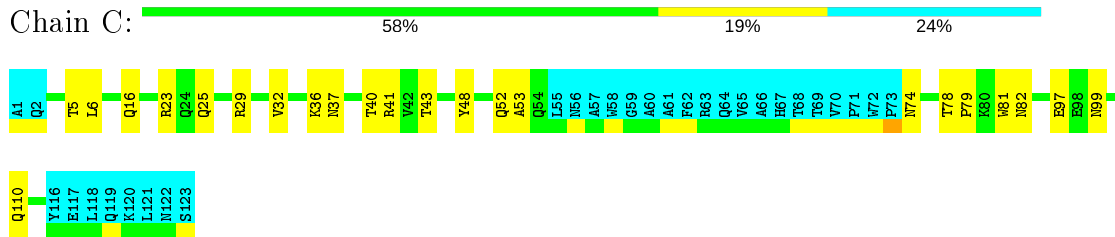
- Molecule 1: GP41



- Molecule 1: GP41

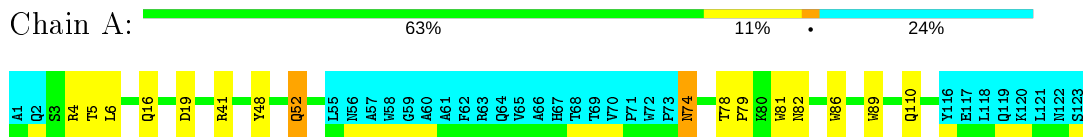


- Molecule 1: GP41

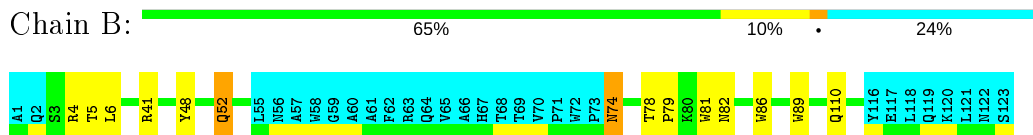


4.2.6 Score per residue for model 26

- Molecule 1: GP41

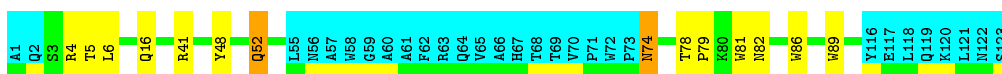


- Molecule 1: GP41



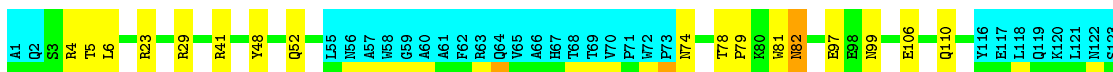
- Molecule 1: GP41



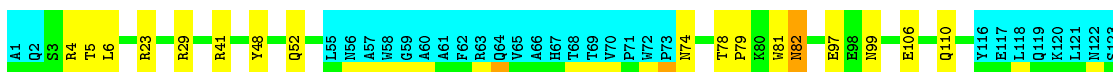


4.2.7 Score per residue for model 27

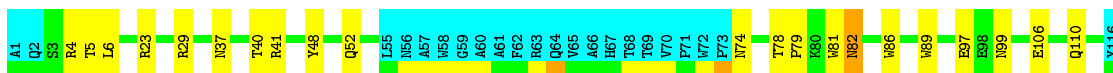
- Molecule 1: GP41



- Molecule 1: GP41

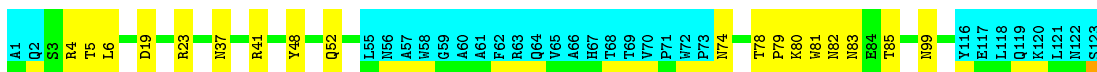


- Molecule 1: GP41

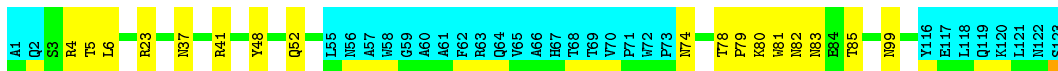


4.2.8 Score per residue for model 28

- Molecule 1: GP41

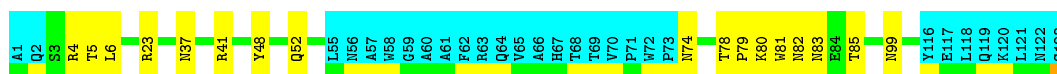


- Molecule 1: GP41



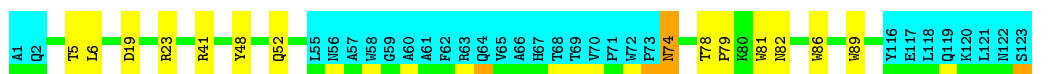
- Molecule 1: GP41



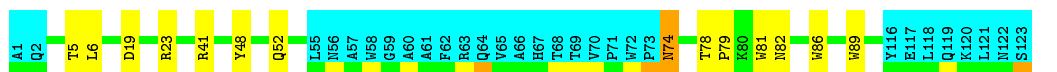


4.2.9 Score per residue for model 29

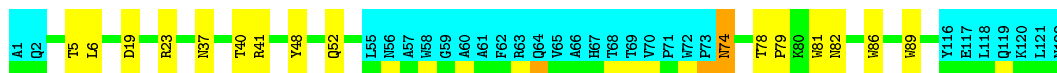
- Molecule 1: GP41



- Molecule 1: GP41



- Molecule 1: GP41



4.2.10 Score per residue for model 30

- Molecule 1: GP41

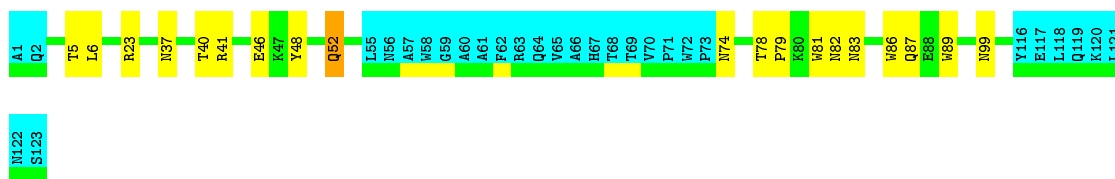


- Molecule 1: GP41



- Molecule 1: GP41





5 Refinement protocol and experimental data overview

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

Of the 40 calculated structures, 10 were deposited, based on the following criterion: ?.

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

Software name	Classification	Version
CNS	structure solution	
CNS	refinement	

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

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	784	793	793	26±5
1	B	784	793	793	25±5
1	C	784	793	793	25±6
All	All	23520	23790	23790	540

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:C:81:TRP:CD1	1:C:82:ASN:N	0.68	2.61	29	10
1:B:81:TRP:CD1	1:B:82:ASN:N	0.68	2.61	29	10
1:A:81:TRP:CD1	1:A:82:ASN:N	0.67	2.62	21	10
1:B:52:GLN:NE2	1:C:74:ASN:ND2	0.66	2.44	21	2
1:A:23:ARG:NE	1:B:99:ASN:ND2	0.65	2.45	25	1
1:B:81:TRP:HE1	1:B:82:ASN:ND2	0.64	1.90	21	1
1:C:81:TRP:HE1	1:C:82:ASN:ND2	0.64	1.91	21	1
1:A:81:TRP:HE1	1:A:82:ASN:ND2	0.64	1.90	21	1
1:A:52:GLN:NE2	1:B:74:ASN:ND2	0.64	2.46	21	2
1:A:74:ASN:ND2	1:C:52:GLN:NE2	0.64	2.45	21	2
1:B:52:GLN:NE2	1:B:53:ALA:N	0.64	2.46	24	2
1:A:82:ASN:ND2	1:C:41:ARG:NH2	0.63	2.47	27	5

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:99:ASN:ND2	1:C:23:ARG:NE	0.63	2.46	25	1
1:C:52:GLN:NE2	1:C:53:ALA:N	0.63	2.46	24	2
1:A:52:GLN:HE22	1:B:74:ASN:HD21	0.63	1.37	30	1
1:C:78:THR:O	1:C:78:THR:HG23	0.62	1.95	22	6
1:A:52:GLN:NE2	1:A:53:ALA:N	0.62	2.47	24	2
1:A:41:ARG:NH2	1:B:82:ASN:ND2	0.62	2.47	29	5
1:B:52:GLN:N	1:B:52:GLN:HE21	0.61	1.92	30	1
1:C:52:GLN:HE21	1:C:52:GLN:N	0.61	1.93	30	1
1:A:52:GLN:HE21	1:A:52:GLN:N	0.61	1.93	30	1
1:A:78:THR:O	1:A:78:THR:HG23	0.61	1.95	22	7
1:C:78:THR:HG23	1:C:78:THR:O	0.61	1.95	29	4
1:B:78:THR:O	1:B:78:THR:HG23	0.61	1.95	22	5
1:C:52:GLN:NE2	1:C:52:GLN:N	0.61	2.49	30	1
1:A:37:ASN:HD21	1:A:41:ARG:NH2	0.61	1.94	28	3
1:B:23:ARG:NE	1:C:99:ASN:ND2	0.61	2.49	25	1
1:A:37:ASN:ND2	1:A:41:ARG:NH2	0.60	2.49	28	3
1:B:52:GLN:N	1:B:52:GLN:NE2	0.60	2.48	30	1
1:B:78:THR:HG23	1:B:78:THR:O	0.60	1.95	26	5
1:B:41:ARG:NH2	1:C:82:ASN:ND2	0.60	2.49	29	5
1:A:52:GLN:NE2	1:A:52:GLN:N	0.60	2.49	30	1
1:A:99:ASN:ND2	1:C:23:ARG:NH2	0.60	2.50	28	2
1:B:52:GLN:HE22	1:C:74:ASN:HD21	0.60	1.40	30	1
1:A:52:GLN:NE2	1:B:74:ASN:HD21	0.59	1.95	30	4
1:A:78:THR:HG23	1:A:78:THR:O	0.59	1.96	29	3
1:C:37:ASN:ND2	1:C:41:ARG:NH2	0.59	2.50	28	3
1:A:48:TYR:CG	1:B:74:ASN:O	0.59	2.55	25	9
1:C:37:ASN:HD21	1:C:41:ARG:NH2	0.59	1.95	28	3
1:B:81:TRP:NE1	1:B:82:ASN:ND2	0.59	2.51	21	1
1:B:37:ASN:ND2	1:B:41:ARG:NH2	0.59	2.50	28	3
1:B:23:ARG:CZ	1:C:99:ASN:ND2	0.59	2.66	24	4
1:A:23:ARG:NH2	1:B:99:ASN:ND2	0.59	2.51	28	2
1:A:74:ASN:O	1:C:48:TYR:CG	0.58	2.55	25	8
1:A:52:GLN:NE2	1:B:74:ASN:OD1	0.58	2.36	28	1
1:A:48:TYR:CD1	1:B:74:ASN:O	0.58	2.57	24	6
1:B:52:GLN:NE2	1:C:74:ASN:HD21	0.58	1.96	30	4
1:A:41:ARG:CZ	1:B:82:ASN:ND2	0.58	2.66	24	3
1:A:99:ASN:ND2	1:C:23:ARG:CZ	0.58	2.67	24	4
1:B:52:GLN:NE2	1:C:74:ASN:OD1	0.58	2.36	28	1
1:C:48:TYR:O	1:C:52:GLN:NE2	0.58	2.36	28	3
1:B:48:TYR:CG	1:C:74:ASN:O	0.58	2.57	27	9
1:B:23:ARG:NH2	1:C:99:ASN:ND2	0.58	2.52	28	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:74:ASN:OD1	1:C:52:GLN:NE2	0.58	2.36	28	1
1:B:37:ASN:HD21	1:B:41:ARG:NH2	0.58	1.97	23	3
1:A:23:ARG:CZ	1:B:99:ASN:ND2	0.57	2.66	24	4
1:A:81:TRP:NE1	1:A:82:ASN:ND2	0.57	2.51	21	1
1:A:74:ASN:O	1:C:48:TYR:CD1	0.57	2.58	24	6
1:A:82:ASN:ND2	1:C:41:ARG:CZ	0.57	2.67	24	3
1:A:48:TYR:O	1:A:52:GLN:NE2	0.57	2.37	28	3
1:B:48:TYR:O	1:B:52:GLN:NE2	0.57	2.37	28	3
1:A:74:ASN:HD21	1:C:52:GLN:HE22	0.57	1.41	30	1
1:C:81:TRP:NE1	1:C:82:ASN:ND2	0.57	2.52	21	1
1:B:41:ARG:CZ	1:C:82:ASN:ND2	0.57	2.67	24	3
1:A:32:VAL:CG1	1:A:36:LYS:NZ	0.57	2.68	25	2
1:B:48:TYR:CD1	1:C:74:ASN:O	0.56	2.59	24	5
1:C:32:VAL:CG1	1:C:36:LYS:NZ	0.56	2.68	25	2
1:A:74:ASN:HD21	1:C:52:GLN:NE2	0.55	1.99	30	4
1:B:32:VAL:CG1	1:B:36:LYS:NZ	0.55	2.68	25	2
1:A:52:GLN:HE22	1:B:74:ASN:ND2	0.55	2.00	30	1
1:A:37:ASN:HD21	1:A:41:ARG:HH21	0.54	1.45	25	2
1:B:37:ASN:HD21	1:B:41:ARG:HH21	0.54	1.46	25	2
1:C:81:TRP:O	1:C:85:THR:HG23	0.54	2.03	22	3
1:A:81:TRP:O	1:A:85:THR:HG23	0.54	2.03	22	3
1:B:81:TRP:O	1:B:85:THR:HG23	0.54	2.03	22	3
1:C:37:ASN:HD21	1:C:41:ARG:HH21	0.54	1.46	25	3
1:A:52:GLN:HE21	1:A:52:GLN:H	0.53	1.46	30	1
1:A:82:ASN:OD1	1:C:41:ARG:NH2	0.53	2.42	23	5
1:A:41:ARG:HH22	1:B:82:ASN:ND2	0.53	2.00	29	1
1:A:41:ARG:NH2	1:B:82:ASN:OD1	0.53	2.42	28	5
1:A:99:ASN:HD21	1:C:23:ARG:NH2	0.53	2.01	27	1
1:A:74:ASN:ND2	1:C:52:GLN:HE22	0.53	2.02	30	1
1:B:41:ARG:NH2	1:C:82:ASN:OD1	0.52	2.42	28	5
1:C:86:TRP:CZ2	1:C:89:TRP:CZ3	0.52	2.98	26	4
1:A:86:TRP:CZ2	1:A:89:TRP:CZ3	0.52	2.97	26	5
1:B:52:GLN:H	1:B:52:GLN:HE21	0.52	1.45	30	1
1:B:9:GLY:O	1:C:110:GLN:NE2	0.52	2.43	21	1
1:A:81:TRP:CG	1:A:82:ASN:N	0.52	2.77	29	9
1:B:86:TRP:CZ2	1:B:89:TRP:CZ3	0.52	2.97	26	5
1:A:82:ASN:ND2	1:C:41:ARG:HH22	0.52	2.02	29	2
1:A:9:GLY:O	1:B:110:GLN:NE2	0.51	2.42	21	1
1:C:81:TRP:CG	1:C:82:ASN:N	0.51	2.77	29	9
1:C:5:THR:HG23	1:C:6:LEU:N	0.51	2.20	21	10
1:B:81:TRP:CG	1:B:82:ASN:N	0.51	2.77	29	9

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:B:52:GLN:HE22	1:C:74:ASN:ND2	0.51	2.02	30	1
1:C:52:GLN:HE21	1:C:52:GLN:H	0.51	1.46	30	1
1:A:82:ASN:CG	1:C:41:ARG:NH2	0.51	2.64	23	7
1:B:13:GLN:OE1	1:B:16:GLN:NE2	0.51	2.44	22	1
1:C:29:ARG:NH1	1:C:97:GLU:OE1	0.51	2.44	27	1
1:B:41:ARG:NH2	1:C:82:ASN:CG	0.51	2.65	23	7
1:A:41:ARG:NH2	1:B:82:ASN:CG	0.50	2.65	28	7
1:B:29:ARG:NH1	1:B:97:GLU:OE1	0.50	2.44	27	1
1:B:5:THR:HG23	1:B:6:LEU:N	0.50	2.21	21	10
1:A:82:ASN:CG	1:C:41:ARG:HH22	0.50	2.10	22	4
1:C:13:GLN:OE1	1:C:16:GLN:NE2	0.50	2.44	22	1
1:B:41:ARG:HH22	1:C:82:ASN:ND2	0.50	2.03	29	1
1:A:5:THR:HG23	1:A:6:LEU:N	0.50	2.21	21	10
1:A:48:TYR:CE1	1:B:74:ASN:O	0.50	2.64	23	2
1:B:41:ARG:HH22	1:C:82:ASN:CG	0.50	2.10	26	4
1:B:23:ARG:NH2	1:C:99:ASN:HD21	0.50	2.04	27	1
1:A:74:ASN:O	1:C:48:TYR:CE1	0.49	2.65	23	2
1:A:41:ARG:HH22	1:B:82:ASN:CG	0.49	2.10	26	4
1:B:19:ASP:OD1	1:B:23:ARG:NH1	0.49	2.45	29	1
1:B:48:TYR:CE1	1:C:74:ASN:O	0.49	2.65	23	2
1:A:23:ARG:NH2	1:B:99:ASN:HD21	0.49	2.04	27	1
1:C:78:THR:CG2	1:C:78:THR:O	0.49	2.60	29	2
1:A:13:GLN:OE1	1:A:16:GLN:NE2	0.49	2.45	22	2
1:A:78:THR:CG2	1:A:78:THR:O	0.49	2.61	29	2
1:A:41:ARG:NH2	1:B:82:ASN:HD21	0.49	2.06	24	1
1:A:19:ASP:OD1	1:A:23:ARG:NH1	0.49	2.46	29	1
1:A:110:GLN:NE2	1:C:9:GLY:O	0.49	2.45	21	1
1:B:78:THR:CG2	1:B:78:THR:O	0.48	2.60	29	3
1:B:78:THR:O	1:B:78:THR:CG2	0.48	2.61	27	2
1:C:78:THR:O	1:C:78:THR:CG2	0.48	2.61	27	3
1:A:52:GLN:NE2	1:A:74:ASN:OD1	0.48	2.46	26	1
1:B:41:ARG:NH2	1:C:82:ASN:HD21	0.48	2.05	24	1
1:A:78:THR:O	1:A:78:THR:CG2	0.48	2.61	22	3
1:C:19:ASP:OD1	1:C:23:ARG:NH1	0.48	2.46	29	1
1:C:29:ARG:NH2	1:C:97:GLU:OE2	0.48	2.47	25	1
1:C:52:GLN:NE2	1:C:74:ASN:OD1	0.48	2.46	26	1
1:C:74:ASN:OD1	1:C:74:ASN:O	0.47	2.32	28	1
1:A:29:ARG:NH2	1:A:97:GLU:OE2	0.47	2.47	25	2
1:A:79:PRO:O	1:A:83:ASN:ND2	0.47	2.47	24	1
1:B:74:ASN:O	1:B:74:ASN:OD1	0.47	2.32	28	1
1:A:81:TRP:NE1	1:A:82:ASN:CG	0.47	2.68	21	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:83:ASN:ND2	1:A:87:GLN:NE2	0.47	2.62	30	1
1:B:81:TRP:NE1	1:B:82:ASN:CG	0.47	2.68	21	1
1:C:81:TRP:NE1	1:C:82:ASN:CG	0.47	2.68	21	1
1:C:83:ASN:ND2	1:C:87:GLN:NE2	0.47	2.62	30	1
1:A:99:ASN:OD1	1:C:23:ARG:CZ	0.47	2.62	23	1
1:B:83:ASN:ND2	1:B:87:GLN:NE2	0.47	2.62	30	1
1:B:52:GLN:NE2	1:B:74:ASN:OD1	0.46	2.47	26	1
1:B:29:ARG:NH2	1:B:97:GLU:OE2	0.46	2.49	25	1
1:C:79:PRO:O	1:C:83:ASN:ND2	0.46	2.45	24	1
1:A:29:ARG:NH1	1:A:97:GLU:OE2	0.46	2.44	27	1
1:C:29:ARG:NH2	1:C:97:GLU:OE1	0.46	2.49	27	1
1:A:74:ASN:O	1:A:74:ASN:OD1	0.46	2.33	28	1
1:C:5:THR:CG2	1:C:6:LEU:N	0.46	2.79	27	8
1:A:37:ASN:OD1	1:A:41:ARG:NH2	0.46	2.49	24	1
1:A:52:GLN:CD	1:B:74:ASN:ND2	0.45	2.70	28	1
1:B:5:THR:CG2	1:B:6:LEU:N	0.45	2.79	27	8
1:B:23:ARG:CZ	1:C:99:ASN:OD1	0.45	2.65	23	1
1:B:29:ARG:NH2	1:B:97:GLU:OE1	0.45	2.47	27	1
1:B:52:GLN:CD	1:C:74:ASN:ND2	0.45	2.70	28	1
1:A:82:ASN:HD21	1:C:41:ARG:NH2	0.45	2.09	24	1
1:B:37:ASN:OD1	1:B:41:ARG:NH2	0.45	2.50	24	1
1:B:25:GLN:NE2	1:B:97:GLU:OE1	0.45	2.50	25	1
1:A:110:GLN:OE1	1:C:16:GLN:OE1	0.45	2.34	25	2
1:C:37:ASN:OD1	1:C:41:ARG:NH2	0.44	2.51	24	1
1:A:99:ASN:OD1	1:C:23:ARG:NE	0.44	2.50	28	1
1:A:106:GLU:O	1:A:110:GLN:OE1	0.44	2.35	27	1
1:A:5:THR:CG2	1:A:6:LEU:N	0.44	2.80	27	7
1:B:79:PRO:O	1:B:83:ASN:ND2	0.44	2.45	24	1
1:B:106:GLU:O	1:B:110:GLN:OE1	0.44	2.35	27	1
1:A:80:LYS:O	1:A:83:ASN:OD1	0.44	2.35	28	1
1:A:99:ASN:CG	1:C:23:ARG:CZ	0.44	2.86	28	1
1:A:52:GLN:OE1	1:B:52:GLN:OE1	0.44	2.36	25	1
1:B:80:LYS:O	1:B:83:ASN:OD1	0.44	2.35	28	1
1:C:52:GLN:CA	1:C:52:GLN:NE2	0.44	2.81	30	1
1:B:52:GLN:OE1	1:C:52:GLN:CD	0.43	2.56	27	2
1:A:52:GLN:OE1	1:C:52:GLN:OE1	0.43	2.36	25	1
1:C:106:GLU:O	1:C:110:GLN:OE1	0.43	2.35	27	1
1:C:80:LYS:O	1:C:83:ASN:OD1	0.43	2.36	28	1
1:A:37:ASN:ND2	1:A:41:ARG:HH21	0.43	2.11	23	1
1:A:74:ASN:ND2	1:C:52:GLN:CD	0.43	2.72	28	1
1:A:23:ARG:CZ	1:B:99:ASN:CG	0.43	2.87	28	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:25:GLN:NE2	1:A:97:GLU:OE1	0.42	2.52	25	1
1:B:52:GLN:OE1	1:C:52:GLN:OE1	0.42	2.37	25	1
1:C:25:GLN:NE2	1:C:97:GLU:OE1	0.42	2.51	25	1
1:B:37:ASN:ND2	1:B:41:ARG:HH21	0.42	2.12	23	1
1:A:23:ARG:NE	1:B:99:ASN:OD1	0.42	2.52	28	1
1:B:81:TRP:CD1	1:B:81:TRP:C	0.42	2.93	23	4
1:C:37:ASN:ND2	1:C:41:ARG:HH21	0.42	2.12	23	1
1:A:16:GLN:OE1	1:B:110:GLN:OE1	0.42	2.37	26	2
1:A:52:GLN:CA	1:A:52:GLN:NE2	0.42	2.82	30	1
1:A:76:SER:HG	1:C:48:TYR:HH	0.42	1.58	22	1
1:C:81:TRP:C	1:C:81:TRP:CD1	0.42	2.93	23	2
1:B:16:GLN:OE1	1:C:110:GLN:OE1	0.42	2.38	25	1
1:C:81:TRP:CD1	1:C:81:TRP:C	0.42	2.93	28	2
1:B:52:GLN:CA	1:B:52:GLN:NE2	0.42	2.81	30	1
1:A:40:THR:O	1:A:43:THR:OG1	0.42	2.36	24	3
1:A:52:GLN:OE1	1:B:52:GLN:CD	0.42	2.58	27	3
1:A:81:TRP:C	1:A:81:TRP:CD1	0.42	2.93	30	3
1:C:40:THR:O	1:C:43:THR:OG1	0.42	2.35	25	1
1:C:83:ASN:OD1	1:C:83:ASN:N	0.42	2.53	28	1
1:B:23:ARG:NE	1:C:99:ASN:OD1	0.42	2.52	28	1
1:C:37:ASN:O	1:C:40:THR:OG1	0.42	2.36	29	3
1:A:23:ARG:CZ	1:B:99:ASN:OD1	0.41	2.68	23	1
1:A:81:TRP:CD1	1:A:81:TRP:C	0.41	2.93	25	1
1:A:74:ASN:HD21	1:C:52:GLN:CD	0.41	2.18	27	1
1:B:23:ARG:CZ	1:C:99:ASN:CG	0.41	2.88	28	1
1:A:78:THR:OG1	1:A:82:ASN:CB	0.41	2.69	22	2
1:B:83:ASN:N	1:B:83:ASN:OD1	0.41	2.54	28	1
1:A:83:ASN:N	1:A:83:ASN:OD1	0.41	2.54	28	1
1:B:94:ASP:OD1	1:B:94:ASP:C	0.41	2.59	23	2
1:A:52:GLN:CD	1:C:52:GLN:OE1	0.41	2.59	22	3
1:A:51:ASP:OD1	1:A:51:ASP:O	0.41	2.39	24	1
1:B:78:THR:OG1	1:B:82:ASN:CB	0.41	2.69	26	1
1:B:78:THR:O	1:B:83:ASN:OD1	0.41	2.39	22	1
1:C:78:THR:O	1:C:83:ASN:OD1	0.40	2.40	22	1
1:A:19:ASP:OD1	1:A:19:ASP:C	0.40	2.60	28	2
1:A:51:ASP:O	1:A:51:ASP:OD1	0.40	2.39	23	1
1:C:52:GLN:NE2	1:C:74:ASN:ND2	0.40	2.69	23	1
1:C:32:VAL:CG1	1:C:36:LYS:HZ2	0.40	2.29	22	1
1:A:82:ASN:ND2	1:C:41:ARG:NH1	0.40	2.69	22	1
1:B:40:THR:O	1:B:43:THR:OG1	0.40	2.36	21	1
1:C:94:ASP:OD1	1:C:94:ASP:C	0.40	2.60	21	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:48:TYR:OH	1:B:76:SER:OG	0.40	2.35	22	1
1:B:51:ASP:OD1	1:B:51:ASP:O	0.40	2.39	23	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	94/123 (76%)	92±0 (98±0%)	1±0 (1±0%)	1±0 (1±0%)	18	66
1	B	94/123 (76%)	92±0 (98±0%)	1±0 (1±0%)	1±0 (1±0%)	18	66
1	C	94/123 (76%)	92±0 (98±0%)	1±0 (1±0%)	1±0 (1±0%)	18	66
All	All	2820/3690 (76%)	2763 (98%)	27 (1%)	30 (1%)	18	66

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

Mol	Chain	Res	Type	Models (Total)
1	C	79	PRO	10
1	B	79	PRO	10
1	A	79	PRO	10

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	86/109 (79%)	85±1 (99±1%)	1±1 (1±1%)	70	96
1	B	86/109 (79%)	85±1 (99±1%)	1±1 (1±1%)	70	96
1	C	86/109 (79%)	85±1 (99±1%)	1±1 (1±1%)	70	96

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	2580/3270 (79%)	2547 (99%)	33 (1%)	70 96

All 15 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	52	GLN	4
1	C	52	GLN	4
1	B	52	GLN	4
1	C	74	ASN	3
1	B	74	ASN	3
1	A	74	ASN	3
1	B	46	GLU	2
1	C	46	GLU	2
1	A	46	GLU	2
1	A	99	ASN	1
1	A	82	ASN	1
1	B	99	ASN	1
1	C	99	ASN	1
1	C	82	ASN	1
1	B	82	ASN	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 carbohydrates 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