W O R L D W I D E

wwPDB

PROTEIN DATA BANK

Full wwPDB NMR Structure Validation Report (i)

May 28, 2020 – 10:42 pm BST

PDB ID	:	2KT5
Title	:	RRM domain of mRNA export adaptor REF2-I bound to HSV-1 ICP27 peptide
Authors	:	Tunnicliffe, N.B.; Golovanov, A.P.; Wilson, S.A.; Hautbergue, G.M.
Deposited on	:	2010-01-18

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:

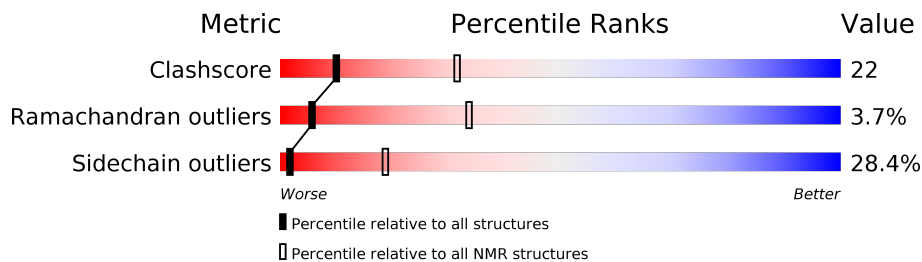|		
Cyrange	:	Kirchner and Güntert (2011)
NmrClust	:	Kelley et al. (1996)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.11
Ideal geometry (proteins)	:	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	Percentile Ranks	Value
Clashscore		22
Ramachandran outliers		3.7%
Sidechain outliers		28.4%

Worse   *Better*

▮ Percentile relative to all structures
◻ Percentile relative to all NMR structures

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	124	32% 29% • 35%
2	B	40	• • 10% 85%

2 Ensemble composition and analysis (i)

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:73-A:152, B:105-B:110 (86)	0.16	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 4 clusters and 5 single-model clusters were found.

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

3 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 2464 atoms, of which 1213 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called RNA and export factor-binding protein 2.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	124	1855	587	903	174	185	6	0

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	40	MET	-	expression tag	UNP Q9JJW6
A	41	ALA	-	expression tag	UNP Q9JJW6
A	42	SER	-	expression tag	UNP Q9JJW6
A	43	MET	-	expression tag	UNP Q9JJW6
A	44	THR	-	expression tag	UNP Q9JJW6
A	45	GLY	-	expression tag	UNP Q9JJW6
A	46	GLY	-	expression tag	UNP Q9JJW6
A	47	GLN	-	expression tag	UNP Q9JJW6
A	48	GLN	-	expression tag	UNP Q9JJW6
A	49	MET	-	expression tag	UNP Q9JJW6
A	50	GLY	-	expression tag	UNP Q9JJW6
A	51	ARG	-	expression tag	UNP Q9JJW6
A	52	ASP	-	expression tag	UNP Q9JJW6
A	156	LEU	-	expression tag	UNP Q9JJW6
A	157	GLU	-	expression tag	UNP Q9JJW6
A	158	HIS	-	expression tag	UNP Q9JJW6
A	159	HIS	-	expression tag	UNP Q9JJW6
A	160	HIS	-	expression tag	UNP Q9JJW6
A	161	HIS	-	expression tag	UNP Q9JJW6
A	162	HIS	-	expression tag	UNP Q9JJW6
A	163	HIS	-	expression tag	UNP Q9JJW6

- Molecule 2 is a protein called ICP27.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
2	B	40	609	184	310	65	49	1	0

There are 4 discrepancies between the modelled and reference sequences:

| Chain	Residue	Modelled	Actual	Comment	Reference
B	99	GLY	-	expression tag	UNP Q9J0X9
B	100	PRO	-	expression tag	UNP Q9J0X9
B	101	LEU	-	expression tag	UNP Q9J0X9
B	102	GLY	-	expression tag	UNP Q9J0X9

4 Residue-property plots ⓘ

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: RNA and export factor-binding protein 2
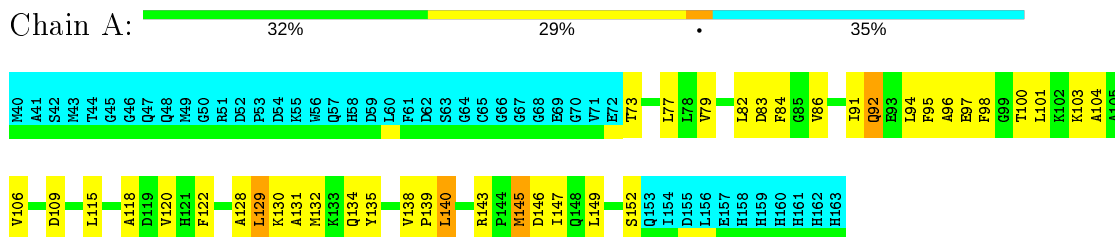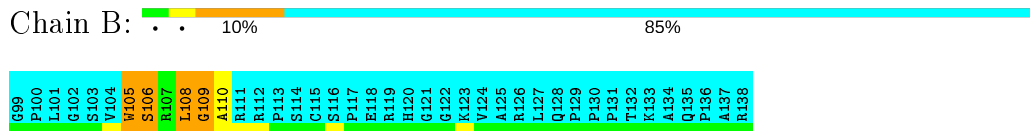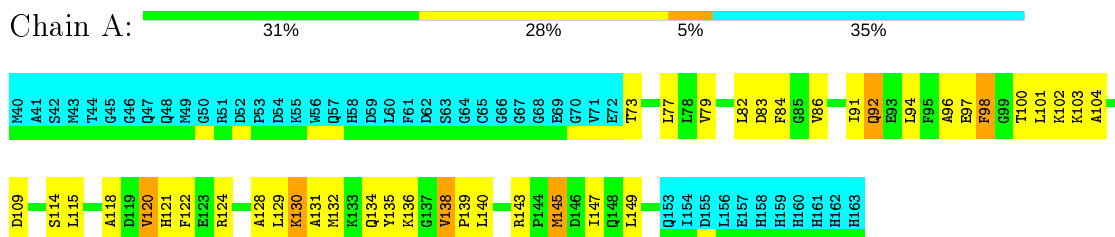

- Molecule 2: ICP27
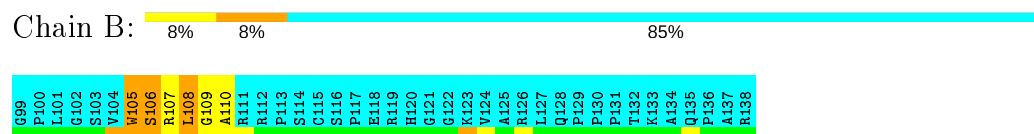

4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

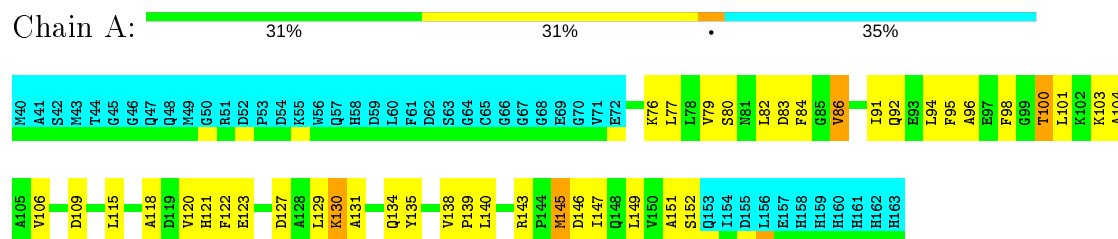- Molecule 1: RNA and export factor-binding protein 2
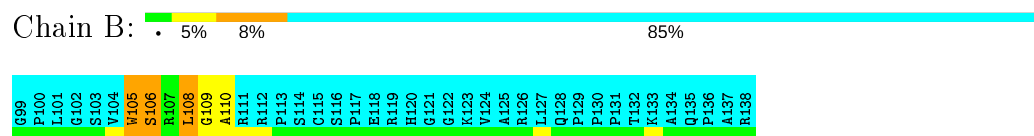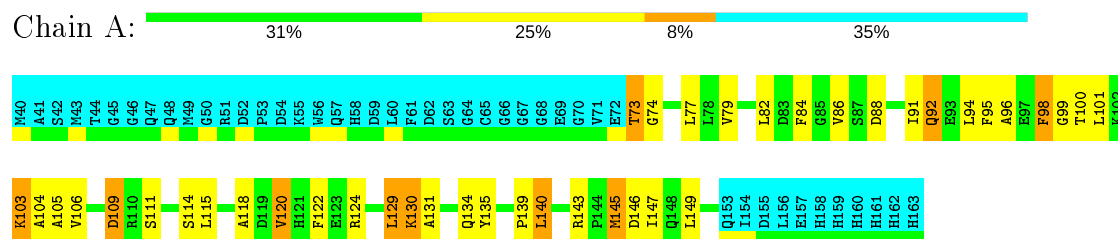

- Molecule 2: ICP27

Chain B: 8% 8% 85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.2 Score per residue for model 2

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 31% 31% • 35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 K76 L77 L78 V79 S80 N81 L82 D83 F84 G85 V86 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103 A104

A105 V106 D109 L115 A118 D119 V120 H121 F122 E123 D127 A128 L129 K130 A131 Q134 Y135 V138 P139 L140 R143 P144 M145 D146 I147 Q148 L149 V150 A151 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP27

Chain B: • 5% 8% 85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.3 Score per residue for model 3

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 31% 25% 8% 35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 T73 G74 L77 L78 V79 L82 D83 F84 G85 V86 S87 D88 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102

K103 A104 A105 V106 D109 R110 S111 S114 L115 A118 D119 V120 H121 F122 E123 R124 L129 K130 A131 Q134 Y135 P139 L140 R143 P144 M145 D146 I147 Q148 L149 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP27

Chain B: 10% 5% 85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138
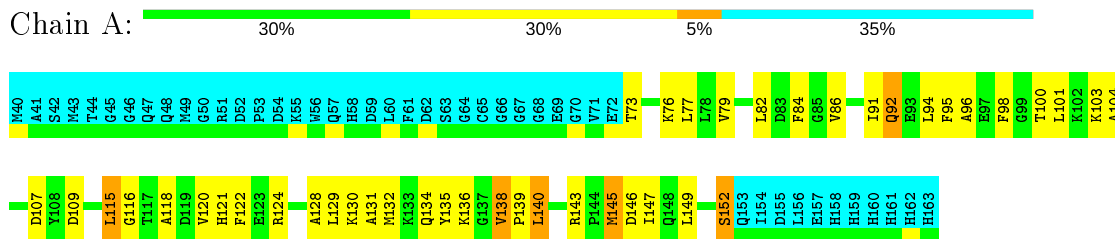
4.2.4 Score per residue for model 4

• Molecule 1: RNA and export factor-binding protein 2
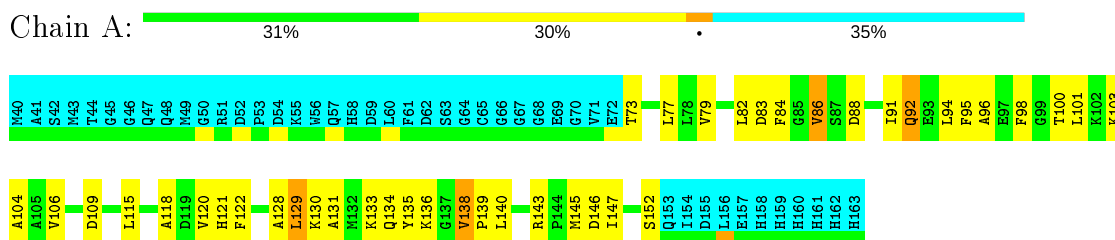
Chain A:

• Molecule 2: ICP 27
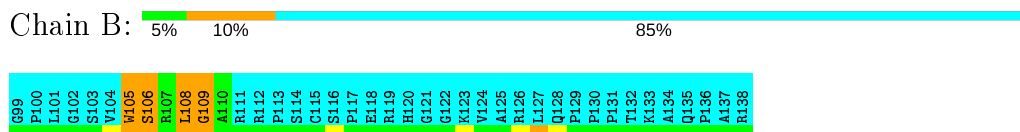
Chain B:

4.2.5 Score per residue for model 5

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

• Molecule 2: ICP 27
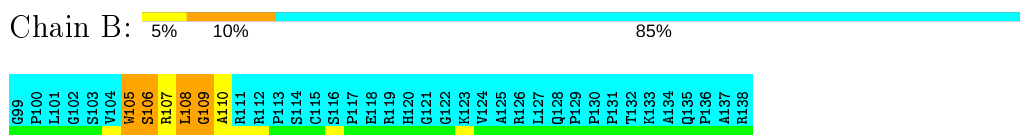
Chain B:

4.2.6 Score per residue for model 6

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

• Molecule 2: ICP 27

Chain B: . . 10%   85%

4.2.7 Score per residue for model 7

• Molecule 1: RNA and export factor-binding protein 2
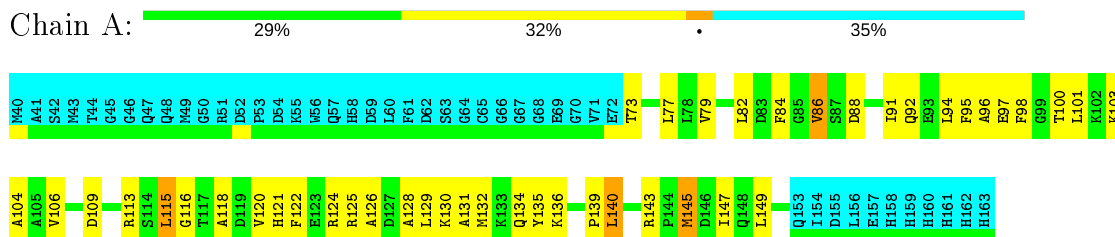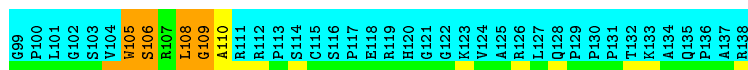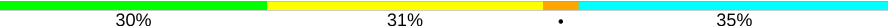
Chain A: 30%   31%   •   35%

• Molecule 2: ICP 27

Chain B: . 5%   8%   85%
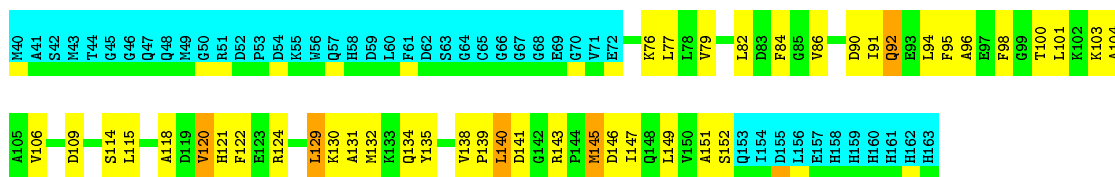

4.2.8 Score per residue for model 8

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 33%   28%   •   35%

• Molecule 2: ICP 27

Chain B: . 5%   8%   85%
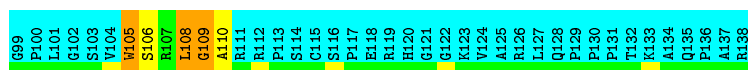
4.2.9 Score per residue for model 9

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

30% 30% 5% 35%
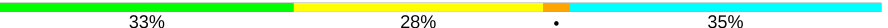

• Molecule 2: ICP 27

Chain B: 5% 8% 85%
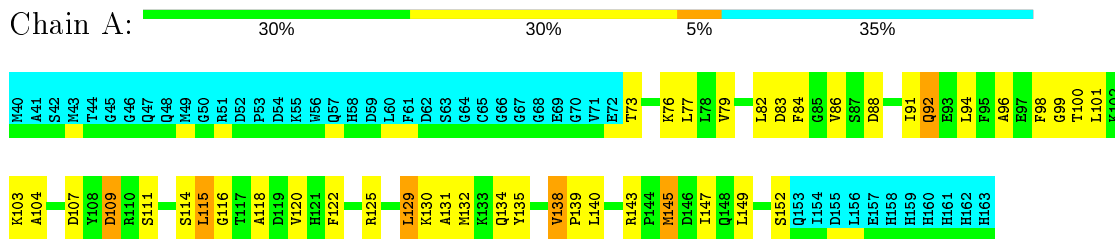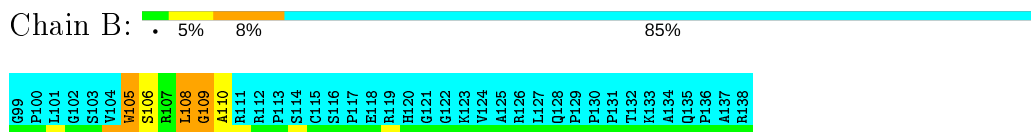
4.2.10 Score per residue for model 10

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

29% 31% • 35%
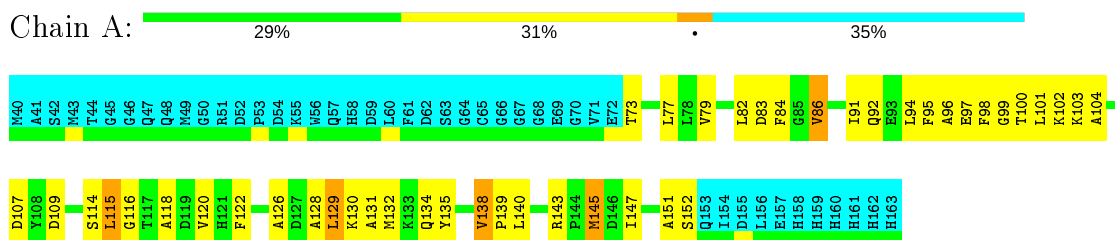
• Molecule 2: ICP 27
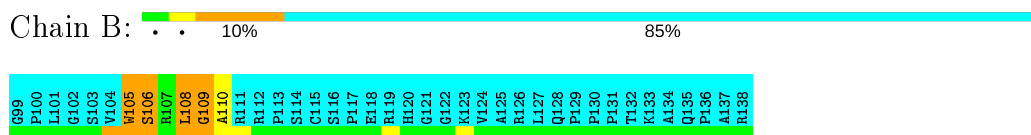
Chain B: • • 10% 85%

4.2.11 Score per residue for model 11

• Molecule 1: RNA and export factor-binding protein 2
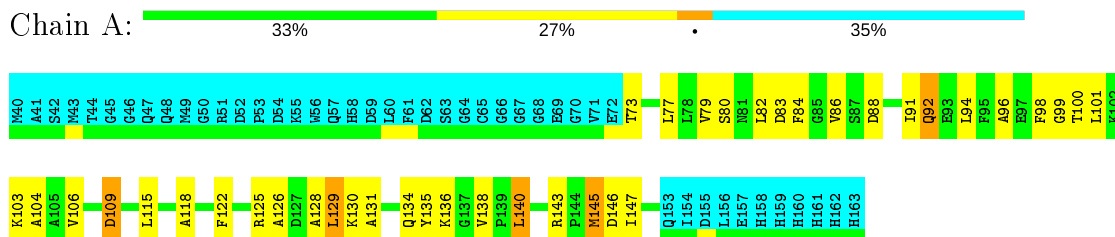
Chain A:

33% 27% • 35%

• Molecule 2: ICP 27

Chain B: . . 10% 85%

4.2.12 Score per residue for model 12 (medoid)

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 33% 27% . . 35%

• Molecule 2: ICP27

Chain B: . . 10% 85%

4.2.13 Score per residue for model 13

• Molecule 1: RNA and export factor-binding protein 2
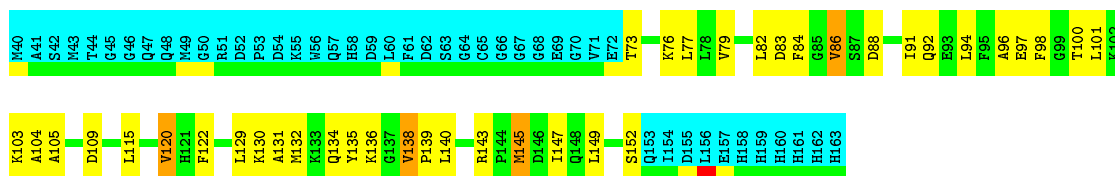
Chain A: 29% 31% . 35%

• Molecule 2: ICP27

Chain B: . . 10% 85%

4.2.14 Score per residue for model 14

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 32% 27% 6% 35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 K76 L77 L78 V79 L82 D83 F84 G85 V86 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103 A104

D107 Y108 D109 L115 G116 V120 H121 F122 E123 R124 L129 K130 A131 M132 K133 Q134 Y135 V138 P139 L140 R143 P144 M145 D146 I147 Q148 L149 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B: · 5% 8% 85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138
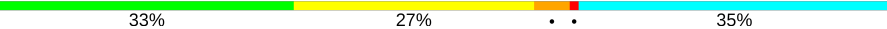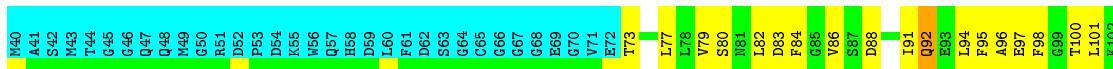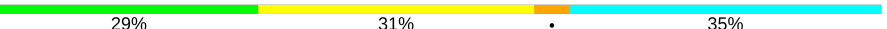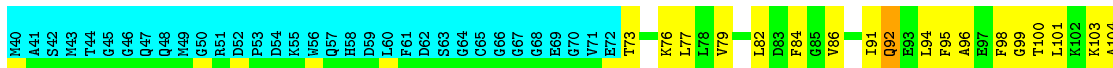
4.2.15 Score per residue for model 15

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 28% 32% · 35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 L77 L78 V79 S80 N81 L82 D83 F84 V86 S87 D88 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103

A104 A105 V106 S111 L115 A118 D119 V120 H121 F122 E123 R124 R125 A126 L129 K130 A131 M132 K133 Q134 Y135 K136 P139 L140 R143 P144 M145 D146 I147 Q148 L149 V150 A151 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B: · · 8% · 85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.16 Score per residue for model 16

• Molecule 1: RNA and export factor-binding protein 2

Chain A: 31% 30% · 35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 T73 L77 L78 V79 L82 D83 F84 G85 V86 S87 D88 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103

A104 A105 V106 D109 S114 L115 A118 D119 V120 H121 F122 D127 A128 L129 K130 A131 M132 K133 Q134 Y135 P139 L140 R143 P144 M145 D146 I147 Q148 L149 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B:　5%　8%　85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.17　Score per residue for model 17

• Molecule 1: RNA and export factor-binding protein 2

Chain A:　31%　30%　•　35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 T73 K76 L77 L78 V79 S80 N81 L82 D83 F84 G85 V86 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103

A104 A105 V106 D109 S114 L115 A118 R124 R125 A126 D127 A128 L129 K130 A131 M132 K133 Q134 Y135 K136 L140 R143 P144 M145 D146 I147 Q148 L149 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B:　•　•　10%　85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.18　Score per residue for model 18

• Molecule 1: RNA and export factor-binding protein 2

Chain A:　33%　27%　5%　35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 T73 L77 L78 V79 L82 D83 F84 G85 V86 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103 A104 D109

S114 L115 A118 D119 V120 H121 F122 A126 D127 A128 L129 K130 A131 M132 K133 Q134 Y135 V138 P139 L140 R143 P144 M145 D146 I147 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B:　•　•　8%　•　85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.19　Score per residue for model 19

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

34%   26%   5%   35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 T73 K76 L77 L78 V79 L82 D83 F84 G85 V86 I91 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103 A104

D109 R110 S114 L115 V120 H121 F122 A128 L129 K130 A131 Q134 Y135 V138 P139 L140 R143 P144 M145 D146 I147 A151 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B:

10%   5%   85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

4.2.20 Score per residue for model 20

• Molecule 1: RNA and export factor-binding protein 2

Chain A:

34%   28%   •   35%

M40 A41 S42 M43 T44 G45 G46 Q47 Q48 M49 G50 R51 D52 P53 D54 K55 W56 Q57 H58 D59 L60 F61 D62 S63 G64 C65 G66 G67 G68 E69 G70 V71 E72 L77 L78 V79 L82 D83 F84 G85 V86 S87 D88 Q92 E93 L94 F95 A96 E97 F98 G99 T100 L101 K102 K103 A104 A105

V106 D109 R110 S111 L115 A118 D119 V120 H121 F122 E123 R124 A126 D127 A128 L129 K130 A131 Y135 K136 G137 V138 P139 L140 R143 P144 M145 D146 I147 A151 S152 Q153 I154 D155 L156 E157 H158 H159 H160 H161 H162 H163

• Molecule 2: ICP 27

Chain B:

•   •   10%   85%

G99 P100 L101 G102 S103 V104 W105 S106 R107 L108 G109 A110 R111 R112 P113 S114 C115 S116 P117 E118 R119 H120 G121 G122 K123 V124 A125 R126 L127 Q128 P129 P130 P131 T132 K133 A134 Q135 P136 A137 R138

5 Refinement protocol and experimental data overview ⓘ

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 lowest energy*.

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

Software name	Classification	Version
CYANA	structure solution	2.1
CYANA	refinement	2.1

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	610	612	612	25±3
2	B	48	47	47	6±1
All	All	13160	13180	13180	571

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 22.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models Worst	Models Total
1:A:94:LEU:HD13	1:A:140:LEU:HD21	0.96	1.38	10	20
1:A:77:LEU:HD13	1:A:128:ALA:HB1	0.86	1.45	6	12
1:A:82:LEU:HD12	1:A:86:VAL:HG21	0.76	1.56	1	14
1:A:101:LEU:HD11	1:A:120:VAL:CG2	0.72	2.15	19	8
1:A:140:LEU:HD22	2:B:108:LEU:HD13	0.68	1.65	15	8
1:A:79:VAL:HG12	1:A:82:LEU:HD21	0.68	1.66	17	20
1:A:94:LEU:CD1	1:A:140:LEU:HD21	0.66	2.19	18	20
2:B:105:TRP:O	2:B:106:SER:C	0.65	2.35	16	20
1:A:101:LEU:HD11	1:A:120:VAL:HG23	0.64	1.70	7	8
1:A:78:LEU:HD23	1:A:150:VAL:CG2	0.64	2.23	15	1
1:A:101:LEU:HD11	1:A:120:VAL:CG1	0.62	2.24	6	7
1:A:132:MET:HE3	1:A:149:LEU:HD12	0.62	1.71	8	2
1:A:140:LEU:HD22	2:B:108:LEU:HD22	0.60	1.72	4	7

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:95:PHE:C	1:A:101:LEU:HD22	0.60	2.16	18	15
1:A:86:VAL:HB	1:A:91:ILE:HD11	0.60	1.72	17	15
1:A:132:MET:CE	1:A:149:LEU:HD13	0.59	2.28	9	6
1:A:101:LEU:HD11	1:A:104:ALA:HB2	0.59	1.75	11	3
1:A:79:VAL:CG1	1:A:82:LEU:HD21	0.59	2.28	8	20
1:A:101:LEU:HD12	1:A:121:HIS:O	0.58	1.98	14	9
1:A:140:LEU:HD23	1:A:145:MET:CE	0.58	2.27	4	11
1:A:92:GLN:HG2	1:A:104:ALA:HB3	0.58	1.73	20	8
1:A:115:LEU:HD12	1:A:116:GLY:N	0.58	2.13	14	6
1:A:140:LEU:CD2	2:B:108:LEU:HD22	0.58	2.29	14	14
2:B:108:LEU:O	2:B:109:GLY:C	0.58	2.43	17	14
1:A:101:LEU:HD21	1:A:104:ALA:HB2	0.57	1.76	14	13
1:A:98:PHE:CE2	1:A:131:ALA:HB2	0.57	2.34	6	18
1:A:126:ALA:HA	1:A:129:LEU:HD23	0.57	1.76	10	4
1:A:92:GLN:HA	1:A:104:ALA:HB3	0.57	1.75	18	17
1:A:98:PHE:CE1	1:A:131:ALA:HB2	0.57	2.34	17	2
1:A:77:LEU:CD1	1:A:149:LEU:HD12	0.55	2.31	2	5
1:A:77:LEU:HD12	1:A:149:LEU:HA	0.55	1.78	16	2
1:A:106:VAL:HG23	1:A:118:ALA:HB2	0.54	1.79	7	12
2:B:108:LEU:HD11	2:B:110:ALA:O	0.54	2.03	7	19
1:A:94:LEU:CD1	1:A:140:LEU:HD11	0.53	2.33	12	4
1:A:86:VAL:HG13	1:A:140:LEU:HD12	0.53	1.81	15	1
1:A:132:MET:HE1	1:A:149:LEU:HD13	0.53	1.80	17	2
1:A:79:VAL:HB	1:A:118:ALA:HB3	0.53	1.80	10	5
1:A:107:ASP:HB3	1:A:115:LEU:HD11	0.52	1.82	4	4
1:A:79:VAL:HG22	1:A:147:ILE:HG13	0.51	1.81	17	5
1:A:98:PHE:CD2	1:A:131:ALA:HB2	0.51	2.40	2	15
1:A:139:PRO:HG2	2:B:110:ALA:HB1	0.51	1.82	3	9
1:A:140:LEU:HD23	1:A:145:MET:HE2	0.51	1.82	14	6
1:A:77:LEU:CD1	1:A:128:ALA:HB1	0.50	2.28	6	3
1:A:77:LEU:HD22	1:A:122:PHE:CE1	0.50	2.41	6	18
1:A:138:VAL:HG22	1:A:139:PRO:HD2	0.50	1.83	19	8
1:A:92:GLN:O	1:A:96:ALA:CB	0.50	2.59	19	17
1:A:86:VAL:CG1	1:A:91:ILE:HD11	0.50	2.36	15	3
1:A:107:ASP:HB2	1:A:115:LEU:HD11	0.49	1.84	9	1
1:A:103:LYS:NZ	1:A:105:ALA:HB3	0.49	2.22	8	2
1:A:101:LEU:HD11	1:A:120:VAL:HG12	0.48	1.85	6	4
1:A:135:TYR:CB	1:A:147:ILE:HD13	0.48	2.39	2	17
1:A:92:GLN:O	1:A:96:ALA:N	0.47	2.47	8	9
1:A:132:MET:CE	1:A:149:LEU:HD12	0.47	2.40	13	1
1:A:100:THR:HG22	1:A:123:GLU:HG3	0.47	1.86	15	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:115:LEU:HD12	1:A:116:GLY:H	0.46	1.70	14	6
1:A:139:PRO:CG	2:B:110:ALA:HB1	0.46	2.41	1	8
2:B:105:TRP:C	2:B:105:TRP:CD2	0.45	2.89	20	9
1:A:86:VAL:HG11	1:A:91:ILE:HD11	0.45	1.89	15	2
1:A:132:MET:HE2	1:A:149:LEU:HD13	0.45	1.88	6	1
1:A:129:LEU:HG	1:A:130:LYS:N	0.44	2.28	11	9
1:A:97:GLU:HB2	2:B:105:TRP:CZ2	0.44	2.48	18	8
1:A:135:TYR:HB3	1:A:145:MET:HE3	0.44	1.90	6	6
2:B:105:TRP:CD2	2:B:105:TRP:C	0.44	2.91	17	7
1:A:101:LEU:HD13	1:A:122:PHE:CZ	0.42	2.49	16	1
1:A:86:VAL:HG12	1:A:140:LEU:HD12	0.42	1.92	8	1
1:A:101:LEU:HD11	1:A:120:VAL:HG13	0.42	1.92	2	1
1:A:135:TYR:HB2	1:A:147:ILE:HD13	0.42	1.91	20	3
1:A:92:GLN:O	1:A:96:ALA:HB2	0.42	2.14	16	1
1:A:98:PHE:CZ	1:A:131:ALA:HB2	0.42	2.50	17	1
1:A:124:ARG:HE	1:A:126:ALA:HB3	0.41	1.74	15	1
1:A:124:ARG:HG3	1:A:126:ALA:HB3	0.41	1.91	6	3
1:A:77:LEU:HG	1:A:147:ILE:HG23	0.41	1.93	17	1
1:A:128:ALA:O	1:A:132:MET:CB	0.41	2.68	10	2
1:A:96:ALA:HA	1:A:101:LEU:HB2	0.41	1.92	19	1
1:A:97:GLU:HB3	2:B:105:TRP:CE2	0.40	2.51	20	2
2:B:105:TRP:CE3	2:B:106:SER:N	0.40	2.90	16	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	80/124 (65%)	69±2 (86±2%)	9±2 (12±2%)	1±1 (2±1%)	12	54
2	B	6/40 (15%)	3±1 (52±9%)	1±1 (19±10%)	2±0 (29±7%)	0	1
All	All	1720/3280 (52%)	1446 (84%)	211 (12%)	63 (4%)	6	34

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)
2	B	109	GLY	20
1	A	109	ASP	16
2	B	106	SER	15
1	A	99	GLY	8
1	A	130	LYS	2
1	A	152	SER	2

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	63/98 (64%)	46±2 (73±2%)	17±2 (27±2%)	2	22
2	B	4/31 (13%)	2±0 (42±11%)	2±0 (57±11%)	0	0
All	All	1340/2580 (52%)	959 (72%)	381 (28%)	2	19

All 41 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	100	THR	20
1	A	143	ARG	20
2	B	108	LEU	20
2	B	105	TRP	20
1	A	129	LEU	20
1	A	145	MET	20
1	A	84	PHE	20
1	A	115	LEU	20
1	A	103	LYS	19
1	A	138	VAL	14
1	A	73	THR	14
1	A	146	ASP	13
1	A	83	ASP	12
1	A	92	GLN	12
1	A	140	LEU	11
1	A	114	SER	10
1	A	120	VAL	10
1	A	88	ASP	10
1	A	86	VAL	9

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Mol	Chain	Res	Type	Models (Total)
1	A	76	LYS	9
1	A	136	LYS	9
1	A	152	SER	9
1	A	109	ASP	8
1	A	102	LYS	6
1	A	133	LYS	5
1	A	80	SER	5
1	A	124	ARG	5
1	A	130	LYS	5
1	A	111	SER	4
2	B	107	ARG	4
1	A	125	ARG	3
1	A	98	PHE	3
2	B	106	SER	2
1	A	127	ASP	2
1	A	113	ARG	2
1	A	141	ASP	1
1	A	149	LEU	1
1	A	78	LEU	1
1	A	97	GLU	1
1	A	110	ARG	1
1	A	90	ASP	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 (i)

No chemical shift data were provided