Full wwPDB NMR Structure Validation Report (i)

Feb 14, 2022 – 12:16 AM EST

PDB ID	:	1IG4
Title	:	Solution Structure of the Methyl-CpG-Binding Domain of Human MBD1 in Complex with Methylated DNA
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Deposited on	:	2001-04-17

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/NMRValidationReportHelp
with specific help available everywhere you see the (i) symbol.

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

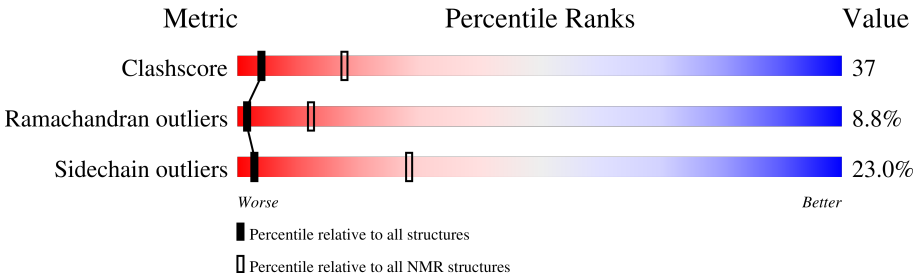
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.26
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.26

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and a grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Mol	Chain	Length	Quality of chain
1	B	12	8% 17% 75%
1	C	12	8% 17% 75%
2	A	75	29% 45% 9% • 13%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 6 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *lowest energy*.

The following residues are included in the computation of the global validation metrics.

Well-defined (core) protein residues			
Well-defined core	**Residue range (total)**	**Backbone RMSD (Å)**	**Medoid model**
1	A:5-A:69 (65)	0.27	6

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. No single-model clusters were found.

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

3 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 1949 atoms, of which 864 are hydrogens and 0 are deuteriums.

- Molecule 1 is a DNA chain called 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'.

Mol	Chain	Residues	Atoms						Trace
1	B	12	Total	C	H	N	O	P	0
			383	118	139	45	70	11	
1	C	12	Total	C	H	N	O	P	0
			383	118	139	45	70	11	

- Molecule 2 is a protein called Methyl-CpG Binding Protein.

Mol	Chain	Residues	Atoms						Trace
2	A	75	Total	C	H	N	O	S	0
			1183	378	586	105	109	5	

4 Residue-property plots

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: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

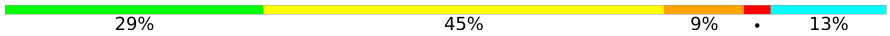
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



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: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

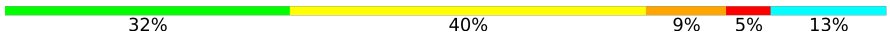
Chain B:

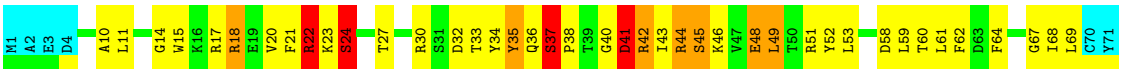
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.2 Score per residue for model 2

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

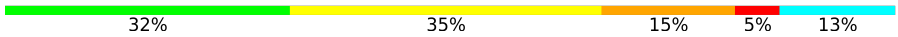
Chain B:

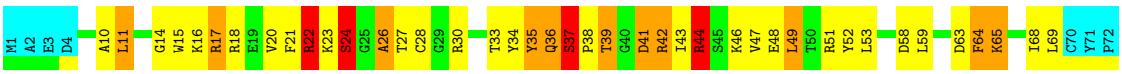
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.3 Score per residue for model 3

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

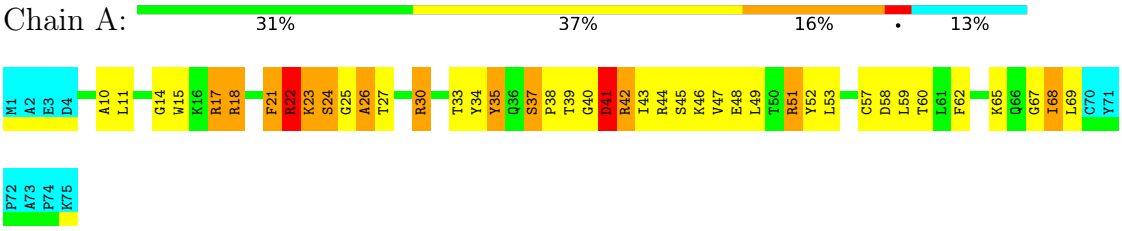
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.4 Score per residue for model 4

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

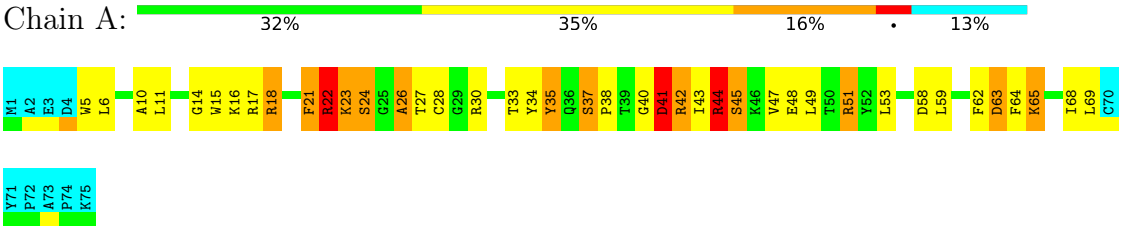
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.5 Score per residue for model 5

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

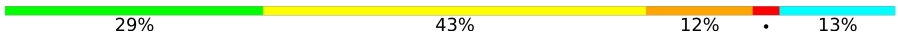
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.6 Score per residue for model 6 (medoid)

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

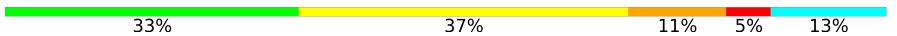
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.7 Score per residue for model 7

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

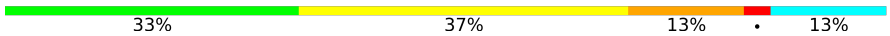
Chain B:

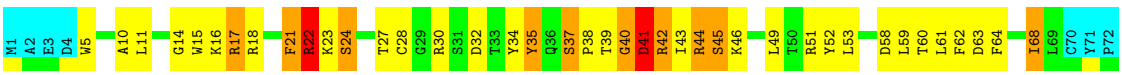
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.8 Score per residue for model 8

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

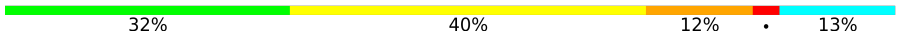
Chain B:

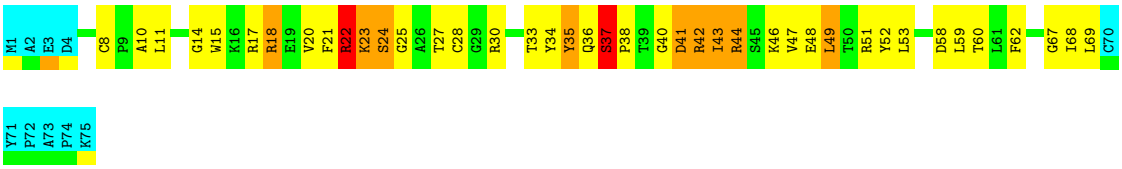
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.9 Score per residue for model 9

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

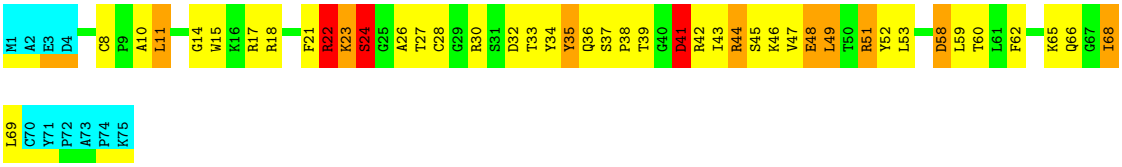
Chain B: 8% 8% 83%

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C: 8% 17% 75%

• Molecule 2: Methyl-CpG Binding Protein

Chain A: 29% 41% 12% 13%



4.2.10 Score per residue for model 10

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

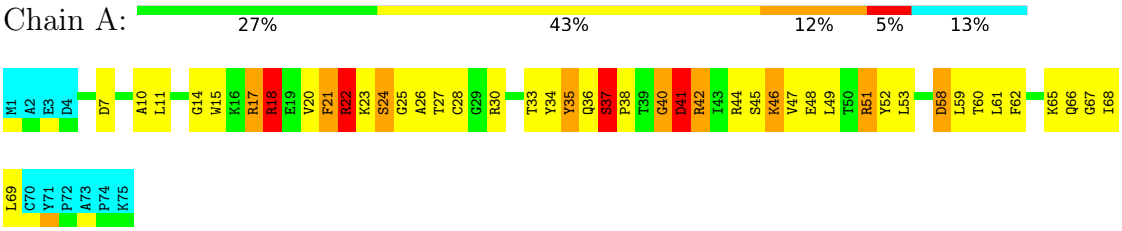
Chain B: 8% 17% 75%

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C: 8% 8% 83%

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.11 Score per residue for model 11

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

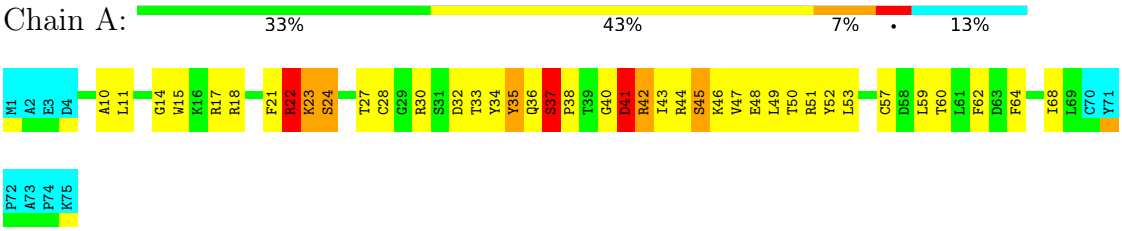
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.12 Score per residue for model 12

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

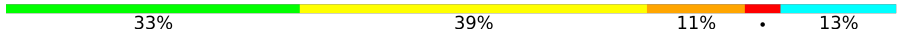
Chain B:

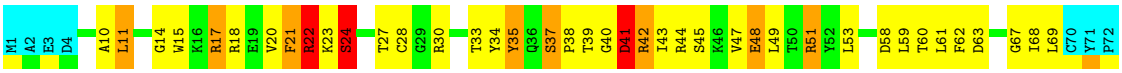
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.13 Score per residue for model 13

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

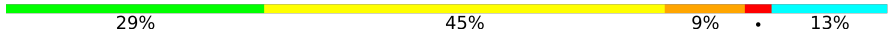
Chain B:

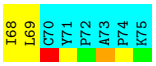
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.14 Score per residue for model 14

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

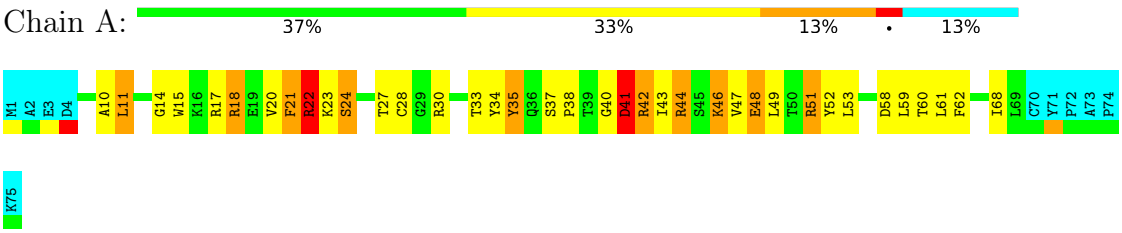
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.15 Score per residue for model 15

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

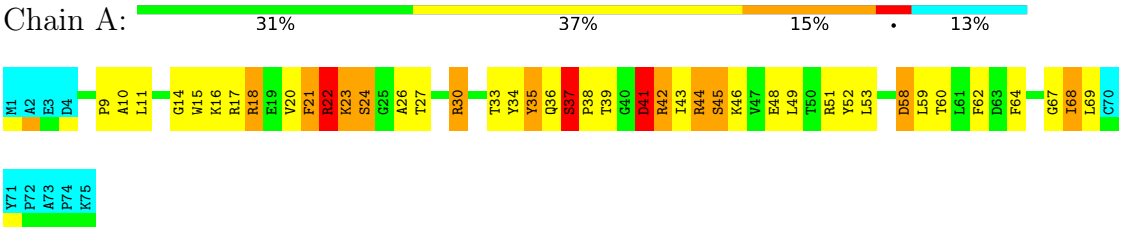
Chain B:

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:



4.2.16 Score per residue for model 16

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

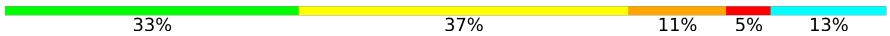
Chain B:

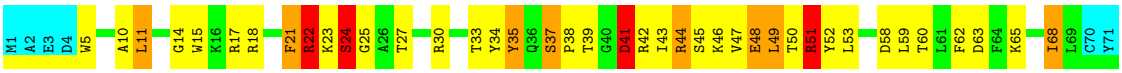
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.17 Score per residue for model 17

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

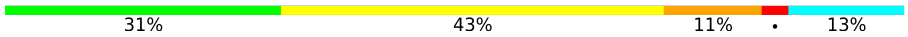
Chain B:

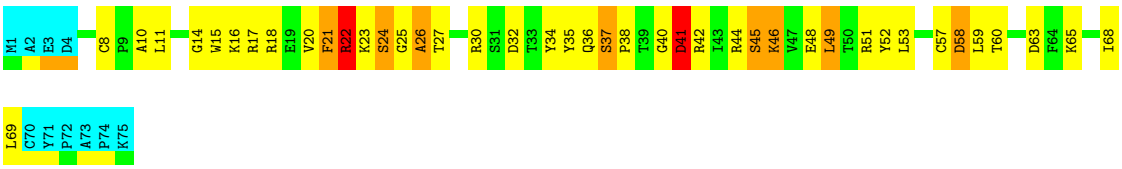
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





4.2.18 Score per residue for model 18

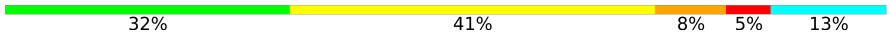
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain B: 

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C: 

• Molecule 2: Methyl-CpG Binding Protein

Chain A: 

4.2.19 Score per residue for model 19

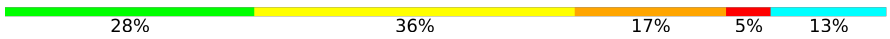
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

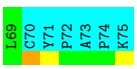
Chain B: 

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C: 

• Molecule 2: Methyl-CpG Binding Protein

Chain A: 



4.2.20 Score per residue for model 20

• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

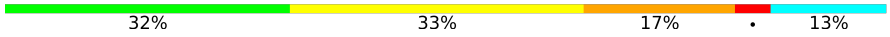
Chain B:

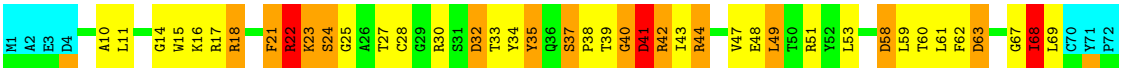
• Molecule 1: 5'-D(*GP*TP*AP*TP*CP*(5CM)P*GP*GP*AP*TP*AP*C)-3'

Chain C:

• Molecule 2: Methyl-CpG Binding Protein

Chain A:





5 Refinement protocol and experimental data overview

The models were refined using the following method: *Structure calculations were performed following simulated annealing protocols using X-PLOR..*

Of the 200 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
X-PLOR	refinement	3.8

No chemical shift data was provided.

6 Model quality (i)

6.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 5CM

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the (average) root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#Z>5	RMSZ	#Z>5
1	B	1.29±0.01	0±0/250 (0.0± 0.1%)	2.36±0.00	19±1/382 (4.9± 0.2%)
1	C	1.29±0.01	0±0/250 (0.0± 0.1%)	2.36±0.00	19±1/382 (5.0± 0.2%)
2	A	1.03±0.00	0±0/534 (0.0± 0.0%)	1.27±0.00	0±0/722 (0.0± 0.0%)
All	All	1.16	3/20680 (0.0%)	1.91	751/29720 (2.5%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	Chirality	Planarity
2	A	0.0±0.0	6.9±0.3
All	All	0	138

All unique bond outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)	Models	
								Worst	Total
1	B	102	DT	C5-C7	5.08	1.53	1.50	4	1
1	C	116	DT	C5-C7	5.01	1.53	1.50	13	1
1	B	104	DT	C5-C7	5.01	1.53	1.50	14	1

All unique angle outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	C	119	DG	N7-C8-N9	9.61	117.91	113.10	17	20
1	B	108	DG	N7-C8-N9	9.54	117.87	113.10	15	20
1	C	120	DG	N7-C8-N9	9.50	117.85	113.10	3	20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	B	107	DG	N7-C8-N9	9.45	117.82	113.10	12	20
1	B	101	DG	N7-C8-N9	9.40	117.80	113.10	15	20
1	C	113	DG	N7-C8-N9	9.35	117.78	113.10	4	20
1	C	121	DA	N7-C8-N9	8.12	117.86	113.80	3	20
1	B	109	DA	N7-C8-N9	8.12	117.86	113.80	12	20
1	B	103	DA	N7-C8-N9	8.09	117.84	113.80	12	20
1	C	123	DA	N7-C8-N9	8.00	117.80	113.80	1	20
1	B	111	DA	N7-C8-N9	7.87	117.73	113.80	7	20
1	C	115	DA	N7-C8-N9	7.78	117.69	113.80	20	20
1	C	113	DG	C8-N9-C4	-6.90	103.64	106.40	17	20
1	B	101	DG	C8-N9-C4	-6.83	103.67	106.40	10	20
1	B	108	DG	C8-N9-C4	-6.55	103.78	106.40	15	20
1	C	120	DG	C8-N9-C4	-6.47	103.81	106.40	13	20
1	B	107	DG	C8-N9-C4	-6.35	103.86	106.40	19	20
1	C	119	DG	C8-N9-C4	-6.14	103.94	106.40	8	20
1	C	122	DT	C6-C5-C7	-5.87	119.38	122.90	4	20
1	B	110	DT	C6-C5-C7	-5.84	119.39	122.90	13	20
1	B	104	DT	C6-C5-C7	-5.81	119.41	122.90	14	20
1	B	102	DT	C6-C5-C7	-5.80	119.42	122.90	11	20
1	C	114	DT	C6-C5-C7	-5.78	119.43	122.90	19	20
1	C	116	DT	C6-C5-C7	-5.75	119.45	122.90	1	20
1	C	119	DG	C5-N7-C8	-5.56	101.52	104.30	9	20
1	C	120	DG	C5-N7-C8	-5.47	101.56	104.30	7	20
1	B	107	DG	C5-N7-C8	-5.46	101.57	104.30	12	20
1	B	108	DG	C5-N7-C8	-5.41	101.59	104.30	3	20
1	B	101	DG	C5-N7-C8	-5.35	101.62	104.30	11	20
1	C	115	DA	C8-N9-C4	-5.34	103.66	105.80	12	18
1	C	113	DG	C5-N7-C8	-5.34	101.63	104.30	4	20
1	C	117	DC	O4'-C1'-N1	5.27	111.69	108.00	14	1
1	C	114	DT	C4-C5-C6	5.22	121.13	118.00	19	16
1	C	122	DT	C4-C5-C6	5.20	121.12	118.00	14	17
1	B	102	DT	C4-C5-C6	5.19	121.11	118.00	2	20
1	B	109	DA	C5-N7-C8	-5.18	101.31	103.90	12	9
1	B	110	DT	C4-C5-C6	5.18	121.11	118.00	6	14
1	B	104	DT	C4-C5-C6	5.17	121.10	118.00	1	15
1	C	116	DT	C4-C5-C6	5.17	121.10	118.00	4	7
1	C	123	DA	C8-N9-C4	-5.12	103.75	105.80	2	6
1	C	121	DA	C5-N7-C8	-5.12	101.34	103.90	13	10
1	B	103	DA	C8-N9-C4	-5.11	103.76	105.80	13	4
1	B	111	DA	C8-N9-C4	-5.10	103.76	105.80	13	4
1	B	103	DA	C5-N7-C8	-5.08	101.36	103.90	4	2

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	C	121	DA	C8-N9-C4	-5.07	103.77	105.80	18	4
1	B	111	DA	C5-N7-C8	-5.05	101.38	103.90	18	3
1	C	123	DA	C5-N7-C8	-5.02	101.39	103.90	13	1

There are no chirality outliers.

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

Mol	Chain	Res	Type	Group	Models (Total)
2	A	17	ARG	Sidechain	20
2	A	30	ARG	Sidechain	20
2	A	42	ARG	Sidechain	20
2	A	44	ARG	Sidechain	20
2	A	51	ARG	Sidechain	20
2	A	18	ARG	Sidechain	19
2	A	22	ARG	Sidechain	19

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	B	244	139	139	19±2
1	C	244	139	139	11±2
2	A	520	516	516	46±4
All	All	20160	15880	15880	1345

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 37.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:49:LEU:HD21	2:A:59:LEU:HD12	1.00	1.30	16	1
1:C:117:DC:H3'	2:A:45:SER:OG	0.98	1.58	1	6
2:A:11:LEU:HD11	2:A:49:LEU:HD21	0.97	1.30	9	11
2:A:43:ILE:HG21	2:A:49:LEU:HD12	0.88	1.44	20	8

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:11:LEU:HD22	2:A:15:TRP:CZ2	0.85	2.05	9	12
2:A:53:LEU:CD1	2:A:59:LEU:HD11	0.85	2.01	14	17
2:A:10:ALA:O	2:A:69:LEU:HD12	0.85	1.72	2	8
2:A:49:LEU:HD23	2:A:59:LEU:HD13	0.84	1.48	14	15
1:B:108:DG:H2"	1:B:109:DA:O5'	0.82	1.74	13	20
1:C:120:DG:H2"	1:C:121:DA:O5'	0.81	1.75	5	20
1:B:110:DT:H2"	1:B:111:DA:O5'	0.80	1.76	19	20
1:C:122:DT:H2"	1:C:123:DA:O5'	0.80	1.77	2	20
2:A:11:LEU:HD21	2:A:49:LEU:HD21	0.80	1.54	1	5
1:C:118:5CM:H2"	1:C:119:DG:O5'	0.79	1.77	6	20
1:B:106:5CM:H5A1	1:B:106:5CM:OP2	0.78	1.78	7	20
1:B:102:DT:H2"	1:B:103:DA:O5'	0.78	1.79	2	20
2:A:11:LEU:HD22	2:A:15:TRP:CE2	0.78	2.13	19	10
1:C:114:DT:H2"	1:C:115:DA:O5'	0.78	1.79	6	19
2:A:10:ALA:HB2	2:A:68:ILE:HA	0.78	1.55	17	16
2:A:11:LEU:HD13	2:A:15:TRP:CE3	0.77	2.14	19	5
2:A:11:LEU:HD13	2:A:15:TRP:CD2	0.77	2.15	2	10
1:B:104:DT:H2"	1:B:105:DC:O5'	0.77	1.79	20	16
2:A:11:LEU:HD23	2:A:53:LEU:HD11	0.75	1.56	3	4
2:A:10:ALA:HB2	2:A:68:ILE:CA	0.75	2.11	10	15
2:A:11:LEU:HD21	2:A:49:LEU:CD2	0.75	2.12	1	7
2:A:53:LEU:HD13	2:A:59:LEU:HD11	0.74	1.57	3	6
2:A:50:THR:HG23	2:A:57:CYS:O	0.74	1.81	11	2
2:A:49:LEU:O	2:A:53:LEU:HD12	0.74	1.80	3	10
1:B:107:DG:H1'	1:B:108:DG:O4'	0.73	1.83	1	14
1:C:117:DC:H2"	1:C:118:5CM:O5'	0.73	1.84	19	17
2:A:14:GLY:C	2:A:38:PRO:HA	0.73	2.04	8	20
2:A:43:ILE:HG23	2:A:48:GLU:HB3	0.72	1.61	20	13
1:B:106:5CM:H2"	1:B:107:DG:O5'	0.71	1.84	17	20
2:A:15:TRP:CZ3	2:A:49:LEU:HD11	0.71	2.19	9	8
2:A:68:ILE:HD12	2:A:68:ILE:O	0.71	1.86	4	4
2:A:58:ASP:O	2:A:59:LEU:HD23	0.71	1.84	10	10
2:A:10:ALA:HB2	2:A:67:GLY:C	0.71	2.05	20	7
2:A:49:LEU:CD2	2:A:59:LEU:HD12	0.71	2.14	16	1
2:A:46:LYS:O	2:A:49:LEU:HD23	0.70	1.86	16	1
1:C:117:DC:H3'	2:A:45:SER:HG	0.69	1.47	18	1
2:A:11:LEU:CD2	2:A:53:LEU:HD11	0.69	2.17	3	15
2:A:49:LEU:HD23	2:A:59:LEU:CD1	0.68	2.18	17	14
2:A:11:LEU:CD2	2:A:49:LEU:HD11	0.68	2.19	10	4
2:A:15:TRP:CH2	2:A:49:LEU:HD13	0.67	2.24	11	2
2:A:11:LEU:HD21	2:A:49:LEU:HG	0.67	1.67	12	5

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:15:TRP:CH2	2:A:49:LEU:HD12	0.66	2.26	15	3
2:A:43:ILE:HG21	2:A:49:LEU:CD1	0.66	2.20	1	4
2:A:66:GLN:OE1	2:A:68:ILE:HD11	0.65	1.91	9	3
2:A:42:ARG:O	2:A:43:ILE:HD12	0.65	1.90	15	2
2:A:10:ALA:HB1	2:A:62:PHE:CD1	0.65	2.27	19	6
2:A:10:ALA:HB1	2:A:62:PHE:CD2	0.64	2.27	14	10
1:C:116:DT:H2"	1:C:117:DC:O5'	0.64	1.92	20	18
1:B:107:DG:OP2	2:A:27:THR:N	0.63	2.29	4	8
2:A:53:LEU:HD12	2:A:59:LEU:HD11	0.61	1.70	7	10
2:A:10:ALA:HB1	2:A:62:PHE:HD1	0.61	1.56	19	6
1:B:106:5CM:OP2	2:A:22:ARG:NE	0.60	2.33	11	20
2:A:10:ALA:HB2	2:A:68:ILE:N	0.60	2.11	19	9
1:B:105:DC:H2"	1:B:106:5CM:O5'	0.59	1.96	12	19
2:A:10:ALA:HB2	2:A:67:GLY:O	0.59	1.97	5	4
2:A:37:SER:OG	2:A:41:ASP:N	0.59	2.36	16	1
1:C:117:DC:H3'	2:A:45:SER:CB	0.59	2.27	1	7
2:A:33:THR:HG22	2:A:35:TYR:CE2	0.59	2.32	19	14
2:A:11:LEU:HD21	2:A:49:LEU:CG	0.57	2.30	13	6
2:A:49:LEU:HD22	2:A:62:PHE:CE2	0.57	2.35	3	1
2:A:40:GLY:O	2:A:41:ASP:CB	0.57	2.51	17	11
2:A:10:ALA:HB1	2:A:62:PHE:HD2	0.56	1.61	13	4
1:B:103:DA:H2'	1:B:104:DT:H72	0.55	1.78	11	10
1:C:116:DT:C4	1:C:117:DC:N4	0.55	2.75	14	5
2:A:43:ILE:HG23	2:A:48:GLU:CB	0.54	2.31	9	4
2:A:35:TYR:CD1	2:A:35:TYR:N	0.54	2.76	16	17
2:A:37:SER:OG	2:A:41:ASP:HB3	0.54	2.02	9	3
2:A:11:LEU:HD21	2:A:49:LEU:HD11	0.54	1.78	6	3
2:A:23:LYS:O	2:A:24:SER:CB	0.54	2.55	17	18
2:A:67:GLY:O	2:A:68:ILE:HG23	0.54	2.03	10	8
1:B:108:DG:C6	1:B:109:DA:N6	0.54	2.76	6	15
2:A:20:VAL:HG21	2:A:34:TYR:CD1	0.53	2.38	10	10
2:A:11:LEU:CD1	2:A:49:LEU:HD21	0.53	2.30	19	3
2:A:42:ARG:C	2:A:43:ILE:HD12	0.53	2.24	7	3
2:A:63:ASP:O	2:A:65:LYS:N	0.53	2.42	2	3
1:C:117:DC:O3'	2:A:47:VAL:HB	0.53	2.03	20	15
1:C:120:DG:C6	1:C:121:DA:N6	0.53	2.77	19	3
1:C:122:DT:C4	1:C:123:DA:N6	0.53	2.77	17	11
2:A:15:TRP:CH2	2:A:49:LEU:CD1	0.53	2.92	6	9
2:A:45:SER:OG	2:A:46:LYS:N	0.53	2.41	17	6
2:A:21:PHE:O	2:A:22:ARG:O	0.53	2.27	19	20
1:B:104:DT:C4	1:B:105:DC:N4	0.52	2.78	16	4

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:C:117:DC:C3'	2:A:45:SER:OG	0.52	2.48	11	1
2:A:37:SER:HB3	2:A:41:ASP:CB	0.52	2.35	10	8
2:A:15:TRP:CZ3	2:A:49:LEU:HD12	0.52	2.40	12	5
2:A:11:LEU:HD11	2:A:49:LEU:CD1	0.52	2.34	16	1
1:B:106:5CM:OP1	2:A:23:LYS:N	0.52	2.40	16	9
2:A:41:ASP:CB	2:A:52:TYR:CE1	0.52	2.92	17	1
1:B:109:DA:H2'	1:B:110:DT:H72	0.52	1.81	15	8
2:A:15:TRP:CZ3	2:A:49:LEU:CD1	0.51	2.93	14	12
2:A:5:TRP:O	2:A:6:LEU:HD23	0.51	2.05	4	1
2:A:43:ILE:HD13	2:A:48:GLU:OE2	0.51	2.05	13	1
1:B:101:DG:H2"	1:B:102:DT:O5'	0.51	2.05	12	4
1:B:110:DT:C4	1:B:111:DA:N6	0.51	2.78	5	5
2:A:48:GLU:O	2:A:51:ARG:HG3	0.51	2.06	16	1
1:B:107:DG:H2"	1:B:108:DG:O5'	0.51	2.04	6	6
2:A:11:LEU:HD13	2:A:15:TRP:CE2	0.51	2.41	20	3
2:A:38:PRO:HD2	2:A:52:TYR:CE2	0.51	2.41	10	3
2:A:9:PRO:HG2	2:A:68:ILE:HG22	0.51	1.83	19	2
2:A:24:SER:OG	2:A:25:GLY:N	0.50	2.44	8	7
2:A:17:ARG:NH2	2:A:35:TYR:CE2	0.50	2.79	12	1
1:B:107:DG:OP2	2:A:26:ALA:N	0.50	2.43	4	6
2:A:11:LEU:HD22	2:A:15:TRP:CH2	0.50	2.42	3	1
1:C:118:5CM:C5A	2:A:44:ARG:HG3	0.50	2.36	19	1
2:A:11:LEU:HD22	2:A:49:LEU:HD11	0.50	1.82	10	1
1:C:118:5CM:H5A3	2:A:44:ARG:CB	0.50	2.36	8	3
1:B:104:DT:C2'	1:B:105:DC:C6	0.50	2.94	11	4
2:A:37:SER:OG	2:A:52:TYR:CD2	0.49	2.65	18	4
1:C:117:DC:OP1	2:A:46:LYS:HB3	0.49	2.07	10	4
2:A:43:ILE:CD1	2:A:43:ILE:N	0.49	2.75	1	3
2:A:34:TYR:N	2:A:34:TYR:CD1	0.49	2.81	2	5
1:B:105:DC:O3'	2:A:23:LYS:HB2	0.49	2.07	12	6
1:C:113:DG:H2"	1:C:114:DT:O5'	0.49	2.07	10	3
2:A:15:TRP:CE2	2:A:38:PRO:HD3	0.49	2.42	18	15
1:B:107:DG:C8	2:A:27:THR:HG21	0.49	2.43	17	9
2:A:49:LEU:HD11	2:A:53:LEU:HD11	0.49	1.84	11	2
1:C:117:DC:OP1	2:A:46:LYS:CB	0.48	2.61	2	7
1:C:118:5CM:H5A3	2:A:44:ARG:HB3	0.48	1.85	4	3
1:B:107:DG:N7	2:A:22:ARG:NH1	0.48	2.61	2	9
1:B:103:DA:C2	1:C:123:DA:C2	0.48	3.02	5	1
2:A:15:TRP:CH2	2:A:43:ILE:HD13	0.48	2.43	8	1
1:B:109:DA:H2"	1:B:110:DT:O5'	0.48	2.09	10	7
2:A:23:LYS:O	2:A:24:SER:HB2	0.48	2.08	4	5

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:15:TRP:CZ2	2:A:49:LEU:CD1	0.48	2.97	18	2
1:B:106:5CM:O5'	1:B:106:5CM:H6	0.48	2.07	12	4
2:A:47:VAL:O	2:A:51:ARG:HG2	0.47	2.09	14	2
2:A:11:LEU:HD21	2:A:53:LEU:HD11	0.47	1.85	2	4
1:B:105:DC:H2"	1:B:106:5CM:OP2	0.47	2.10	20	2
1:B:108:DG:C2'	1:B:109:DA:C8	0.47	2.97	3	1
2:A:33:THR:HG22	2:A:35:TYR:CZ	0.47	2.44	19	1
2:A:11:LEU:HB2	2:A:15:TRP:CD1	0.47	2.44	13	12
2:A:37:SER:CB	2:A:38:PRO:CD	0.47	2.93	19	13
2:A:15:TRP:CZ2	2:A:49:LEU:HD13	0.47	2.43	11	1
1:B:107:DG:H8	2:A:27:THR:HG21	0.47	1.70	17	9
2:A:34:TYR:CD2	2:A:44:ARG:HB3	0.47	2.45	19	1
2:A:23:LYS:O	2:A:24:SER:HB3	0.46	2.10	11	1
1:B:105:DC:O3'	2:A:23:LYS:CB	0.46	2.63	16	6
1:B:107:DG:N7	2:A:22:ARG:NH2	0.46	2.63	1	9
2:A:34:TYR:CD1	2:A:34:TYR:N	0.46	2.82	17	7
2:A:49:LEU:CD1	2:A:53:LEU:HD11	0.46	2.40	18	2
1:B:102:DT:C4	1:B:103:DA:N6	0.46	2.84	15	2
2:A:33:THR:CG2	2:A:35:TYR:CE2	0.46	2.98	19	1
2:A:22:ARG:HG3	2:A:30:ARG:HB2	0.46	1.88	3	2
1:B:106:5CM:H3'	2:A:24:SER:O	0.46	2.11	18	10
1:B:106:5CM:OP2	1:B:106:5CM:H6	0.46	2.10	7	7
1:C:116:DT:H2"	1:C:117:DC:C6	0.46	2.46	10	5
2:A:22:ARG:NH1	2:A:27:THR:HB	0.46	2.25	12	2
2:A:22:ARG:HB3	2:A:28:CYS:HA	0.46	1.87	12	14
2:A:64:PHE:CD2	2:A:65:LYS:N	0.46	2.84	2	1
2:A:49:LEU:HD23	2:A:50:THR:N	0.46	2.26	16	1
1:B:111:DA:C2	1:C:115:DA:C2	0.46	3.03	18	1
2:A:22:ARG:NH2	2:A:27:THR:CB	0.45	2.79	9	9
2:A:11:LEU:CB	2:A:15:TRP:CD1	0.45	2.99	16	2
2:A:22:ARG:NH1	2:A:27:THR:CB	0.45	2.80	2	7
2:A:15:TRP:CE3	2:A:36:GLN:O	0.45	2.70	8	8
1:B:107:DG:OP1	2:A:26:ALA:HB3	0.45	2.11	15	1
1:B:106:5CM:C2'	1:B:107:DG:O5'	0.45	2.63	11	5
2:A:41:ASP:HB2	2:A:52:TYR:CE1	0.45	2.47	17	3
1:B:106:5CM:N4	2:A:34:TYR:OH	0.45	2.50	4	6
1:B:107:DG:H2"	1:B:108:DG:OP2	0.45	2.11	5	1
2:A:15:TRP:CZ3	2:A:43:ILE:HD12	0.45	2.47	3	2
2:A:37:SER:CB	2:A:41:ASP:CB	0.45	2.94	15	3
2:A:37:SER:HB2	2:A:52:TYR:CD2	0.44	2.47	3	1
2:A:37:SER:CB	2:A:41:ASP:HB3	0.44	2.41	8	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:63:ASP:O	2:A:67:GLY:N	0.44	2.51	20	1
1:C:118:5CM:H5A3	2:A:44:ARG:HB2	0.44	1.90	8	1
2:A:37:SER:HB2	2:A:38:PRO:HD2	0.44	1.90	16	1
1:B:105:DC:H2'	1:B:106:5CM:H5A2	0.44	1.89	7	3
2:A:41:ASP:CB	2:A:52:TYR:CD1	0.44	3.00	17	1
2:A:32:ASP:HB3	2:A:34:TYR:CE2	0.44	2.48	7	2
1:B:104:DT:H2"	1:B:105:DC:C6	0.44	2.48	9	1
2:A:33:THR:O	2:A:35:TYR:CZ	0.44	2.71	2	5
1:C:121:DA:H2"	1:C:122:DT:O5'	0.43	2.13	19	2
2:A:17:ARG:CZ	2:A:67:GLY:CA	0.43	2.96	12	1
1:C:118:5CM:O5'	1:C:118:5CM:H6	0.43	2.13	14	2
2:A:62:PHE:N	2:A:69:LEU:HD23	0.43	2.28	4	1
2:A:37:SER:HB3	2:A:38:PRO:CD	0.43	2.43	5	1
2:A:41:ASP:OD2	2:A:52:TYR:CG	0.43	2.71	8	2
1:C:113:DG:H2"	1:C:114:DT:C6	0.43	2.48	3	4
2:A:37:SER:HB3	2:A:52:TYR:CD2	0.43	2.47	5	1
1:C:121:DA:H2"	1:C:122:DT:C6	0.43	2.48	3	4
1:B:103:DA:C2'	1:B:104:DT:H71	0.43	2.44	19	1
2:A:36:GLN:CG	2:A:41:ASP:O	0.43	2.67	2	1
1:C:117:DC:OP2	2:A:64:PHE:CD1	0.43	2.72	11	1
1:C:123:DA:C2'	1:C:124:DC:C6	0.43	3.01	14	1
2:A:37:SER:CB	2:A:52:TYR:CE2	0.43	3.02	2	1
2:A:22:ARG:HD2	2:A:27:THR:OG1	0.43	2.13	3	2
1:C:118:5CM:H6	1:C:118:5CM:O5'	0.43	2.13	6	2
2:A:64:PHE:CG	2:A:65:LYS:N	0.43	2.86	19	1
1:C:119:DG:N7	2:A:44:ARG:NH1	0.43	2.67	20	1
2:A:41:ASP:OD2	2:A:52:TYR:CD1	0.43	2.72	18	5
2:A:37:SER:HB3	2:A:41:ASP:HB3	0.43	1.91	19	1
1:B:109:DA:H2'	1:B:110:DT:H71	0.42	1.91	10	2
2:A:41:ASP:OD1	2:A:52:TYR:CE1	0.42	2.72	18	3
2:A:39:THR:HG22	2:A:52:TYR:OH	0.42	2.13	5	1
1:C:118:5CM:C5A	2:A:44:ARG:CG	0.42	2.98	19	1
2:A:10:ALA:O	2:A:69:LEU:CD1	0.42	2.67	20	5
1:B:111:DA:H2"	1:B:112:DC:C6	0.42	2.50	14	3
1:C:121:DA:H2'	1:C:122:DT:H71	0.42	1.90	4	2
1:C:117:DC:H3'	2:A:45:SER:HB3	0.42	1.92	4	2
2:A:22:ARG:NH2	2:A:27:THR:HB	0.42	2.29	7	2
2:A:35:TYR:OH	2:A:64:PHE:CD1	0.42	2.72	7	1
2:A:37:SER:HB3	2:A:52:TYR:CE2	0.42	2.49	14	1
2:A:37:SER:OG	2:A:41:ASP:CB	0.42	2.68	18	3
2:A:61:LEU:O	2:A:69:LEU:HD23	0.42	2.14	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:11:LEU:HB3	2:A:15:TRP:CD1	0.42	2.49	19	1
2:A:50:THR:HA	2:A:53:LEU:HD12	0.42	1.91	11	1
1:B:101:DG:H2"	1:B:102:DT:C6	0.42	2.50	19	5
2:A:33:THR:O	2:A:35:TYR:CE1	0.42	2.73	11	3
2:A:11:LEU:HD21	2:A:49:LEU:CD1	0.42	2.44	16	1
2:A:41:ASP:CG	2:A:52:TYR:CE1	0.42	2.94	16	1
2:A:35:TYR:OH	2:A:64:PHE:CD2	0.42	2.73	1	1
2:A:41:ASP:OD2	2:A:52:TYR:CD2	0.42	2.73	19	1
1:C:119:DG:H2"	1:C:120:DG:C8	0.41	2.50	5	2
1:C:117:DC:OP2	2:A:64:PHE:CD2	0.41	2.72	15	1
2:A:20:VAL:CG2	2:A:34:TYR:CD1	0.41	3.02	17	1
2:A:47:VAL:O	2:A:51:ARG:HG3	0.41	2.15	5	2
1:B:105:DC:O3'	2:A:23:LYS:CG	0.41	2.68	9	2
2:A:41:ASP:CG	2:A:52:TYR:CD1	0.41	2.94	11	1
1:B:103:DA:H2"	1:B:104:DT:C6	0.41	2.50	14	2
1:B:111:DA:H2'	1:B:112:DC:C5	0.41	2.51	14	1
1:B:108:DG:C6	1:B:109:DA:C6	0.41	3.09	3	2
1:B:107:DG:OP2	2:A:27:THR:OG1	0.41	2.34	4	1
1:B:105:DC:O3'	2:A:23:LYS:HB3	0.41	2.15	11	2
2:A:37:SER:HB3	2:A:38:PRO:HD2	0.41	1.92	8	3
2:A:47:VAL:O	2:A:51:ARG:CG	0.41	2.68	3	2
2:A:53:LEU:HD13	2:A:59:LEU:CD1	0.41	2.40	3	1
1:C:123:DA:H2"	1:C:124:DC:C6	0.41	2.50	4	2
2:A:22:ARG:O	2:A:23:LYS:CE	0.41	2.68	6	2
2:A:41:ASP:HB2	2:A:52:TYR:CE2	0.41	2.51	6	2
2:A:43:ILE:N	2:A:43:ILE:CD1	0.41	2.84	12	1
2:A:37:SER:HB2	2:A:41:ASP:CB	0.41	2.46	11	2
2:A:15:TRP:CH2	2:A:43:ILE:CD1	0.41	3.03	5	2
2:A:11:LEU:CD2	2:A:49:LEU:HD21	0.41	2.37	13	1
2:A:37:SER:CB	2:A:41:ASP:HB2	0.41	2.46	12	1
2:A:36:GLN:O	2:A:37:SER:O	0.41	2.38	2	1
2:A:38:PRO:O	2:A:39:THR:HB	0.41	2.16	2	1
2:A:25:GLY:O	2:A:26:ALA:HB2	0.41	2.15	3	1
2:A:32:ASP:HB3	2:A:34:TYR:CE1	0.41	2.51	5	4
2:A:24:SER:HA	2:A:28:CYS:HB3	0.41	1.93	7	1
2:A:17:ARG:CZ	2:A:67:GLY:HA3	0.41	2.46	12	1
2:A:62:PHE:CD1	2:A:62:PHE:C	0.41	2.94	16	1
2:A:41:ASP:HB3	2:A:52:TYR:CE2	0.41	2.51	19	1
2:A:49:LEU:CD2	2:A:59:LEU:HD13	0.41	2.43	3	1
1:C:123:DA:H2'	1:C:124:DC:C5	0.40	2.51	5	2
2:A:14:GLY:CA	2:A:38:PRO:HA	0.40	2.45	6	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:21:PHE:O	2:A:21:PHE:CG	0.40	2.73	6	1
2:A:49:LEU:HD22	2:A:62:PHE:CZ	0.40	2.50	10	1
2:A:15:TRP:CD1	2:A:38:PRO:HB3	0.40	2.52	11	1
2:A:18:ARG:O	2:A:33:THR:HG23	0.40	2.16	1	2
2:A:15:TRP:NE1	2:A:38:PRO:HD3	0.40	2.32	2	1
2:A:39:THR:HG23	2:A:39:THR:O	0.40	2.16	2	1
1:B:107:DG:C2'	1:B:108:DG:OP2	0.40	2.69	5	1
2:A:40:GLY:O	2:A:41:ASP:HB2	0.40	2.17	5	1
1:B:107:DG:OP2	2:A:27:THR:HG23	0.40	2.17	15	1
1:B:106:5CM:H5A1	2:A:22:ARG:HE	0.40	1.77	20	1
2:A:52:TYR:CD1	2:A:52:TYR:C	0.40	2.95	14	1
1:B:108:DG:H2"	1:B:109:DA:C8	0.40	2.51	3	1
2:A:15:TRP:CZ3	2:A:43:ILE:CD1	0.40	3.04	5	1
2:A:33:THR:CG2	2:A:35:TYR:CZ	0.40	3.05	19	1

6.3 Torsion angles (i)

6.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the backbone conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	A	65/75 (87%)	49±2 (75±2%)	10±2 (16±3%)	6±1 (9±2%)	1	12
All	All	1300/1500 (87%)	975 (75%)	210 (16%)	115 (9%)	1	12

All 12 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
2	A	22	ARG	20
2	A	24	SER	19
2	A	41	ASP	19
2	A	37	SER	18
2	A	39	THR	11
2	A	40	GLY	9
2	A	26	ALA	9
2	A	64	PHE	3

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Mol	Chain	Res	Type	Models (Total)
2	A	58	ASP	2
2	A	7	ASP	2
2	A	68	ILE	2
2	A	66	GLN	1

6.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	A	55/63 (87%)	42±2 (77±3%)	13±2 (23±3%)	3 28
All	All	1100/1260 (87%)	847 (77%)	253 (23%)	3 28

All 30 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
2	A	22	ARG	20
2	A	41	ASP	18
2	A	60	THR	18
2	A	35	TYR	17
2	A	58	ASP	14
2	A	42	ARG	13
2	A	45	SER	12
2	A	48	GLU	12
2	A	21	PHE	11
2	A	44	ARG	10
2	A	65	LYS	10
2	A	24	SER	9
2	A	23	LYS	9
2	A	37	SER	8
2	A	49	LEU	8
2	A	16	LYS	8
2	A	63	ASP	8
2	A	11	LEU	7
2	A	68	ILE	7
2	A	46	LYS	6
2	A	17	ARG	5

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Mol	Chain	Res	Type	Models (Total)
2	A	32	ASP	4
2	A	18	ARG	4
2	A	8	CYS	4
2	A	36	GLN	3
2	A	51	ARG	3
2	A	57	CYS	2
2	A	43	ILE	1
2	A	7	ASP	1
2	A	66	GLN	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)

2 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds for which Mogul statistics could be retrieved, the number of bonds that are observed in the model and the number of bonds that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length is the number of standard deviations the observed value is removed from the expected value. A bond length with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond lengths.

Mol	Type	Chain	Res	Link	Bond lengths		
					Counts	RMSZ	#Z>2
1	5CM	B	106	1	15,21,22	0.78±0.01	0±0 (0±0%)
1	5CM	C	118	1	15,21,22	0.78±0.01	0±0 (0±0%)

In the following table, the Counts columns list the number of angles for which Mogul statistics could be retrieved, the number of angles that are observed in the model and the number of angles that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond angle is the number of standard deviations the observed value is removed from the expected value. A bond angle with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond angles.

Mol	Type	Chain	Res	Link	Bond angles		
					Counts	RMSZ	#Z>2
1	5CM	B	106	1	19,30,33	1.29±0.01	1±0 (5±0%)

Mol	Type	Chain	Res	Link	Bond angles		
					Counts	RMSZ	#Z>2
1	5CM	C	118	1	19,30,33	1.35±0.01	1±0 (5±0%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	5CM	B	106	1	-	0±0,4,21,22	0±0,2,2,2
1	5CM	C	118	1	-	0±0,4,21,22	0±0,2,2,2

There are no bond-length outliers.

All unique angle outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	B	106	5CM	C4-N3-C2	4.15	121.03	116.02	11	20
1	C	118	5CM	C4-N3-C2	4.13	121.00	116.02	9	20

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

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

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided