Full wwPDB EM Validation Report ⓘ

Apr 16, 2024 – 07:13 am BST

PDB ID	:	7OIG
EMDB ID	:	EMD-12929
Title	:	CspA-27 cotranslational folding intermediate 3
Authors	:	Agirrezabala, X.; Samatova, E.; Macher, M.; Liutkute, M.; Gil-Carton, D.; Novacek, J.; Valle, M.; Rodnina, M.V.
Deposited on	:	2021-05-11
Resolution	:	3.20 Å(reported)
Based on initial model	:	6ORE

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

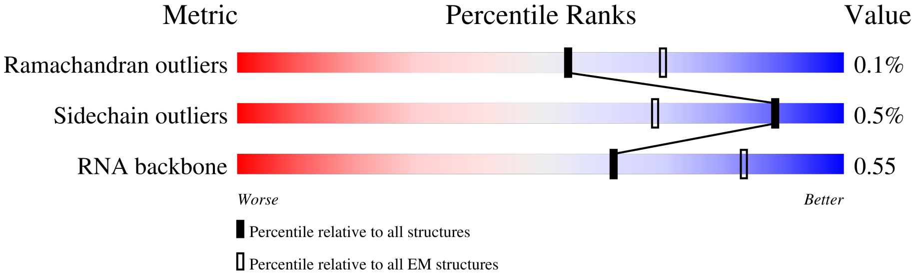
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

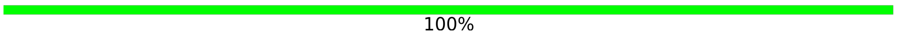
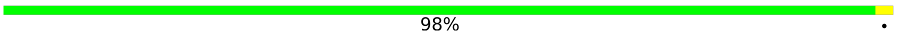
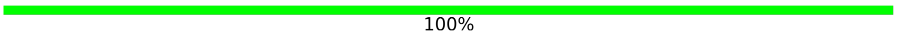
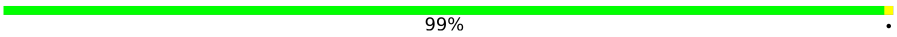
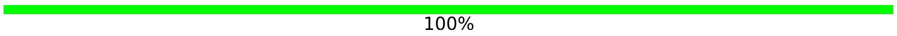
The reported resolution of this entry is 3.20 Å.

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)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. 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	1	2903	
2	2	1534	
3	3	120	
4	4	6	
5	C	271	
6	D	209	
7	E	201	
8	F	177	
9	G	175	

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Mol	Chain	Length	Quality of chain
10	H	149	97% •
11	I	142	100%
12	J	123	99% •
13	K	144	99% •
14	L	136	99% •
15	M	119	100%
16	N	116	99% •
17	O	114	100%
18	P	117	99% •
19	Q	103	98% •
20	R	110	100%
21	S	94	100%
22	T	103	100%
23	U	94	100%
24	V	80	99% •
25	W	77	100%
26	X	62	100%
27	Y	58	100%
28	Z	66	100%
29	a	56	100%
30	b	52	100%
31	c	46	100%
32	d	64	98% •
33	e	38	100%
34	f	225	100%

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Mol	Chain	Length	Quality of chain
35	g	208	99% •
36	h	205	100%
37	i	156	99% •
38	j	104	100%
39	k	151	100%
40	l	129	100%
41	m	127	99% •
42	n	99	99% •
43	o	117	99% •
44	p	123	99% •
45	q	116	100%
46	r	100	100%
47	s	88	100%
48	t	82	99% •
49	u	80	100%
50	v	66	100%
51	w	83	99% •
52	x	86	99% •
53	y	70	99% •
54	z	88	51% 42% 7%
55	B	27	93% • •

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 145136 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	2903	62336	27816	11470	20147	2903	0	0

- Molecule 2 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1534	32929	14693	6041	10661	1534	0	0

- Molecule 3 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	120	2569	1144	468	837	120	0	0

- Molecule 4 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	4	6	126	56	20	44	6	0	0

- Molecule 5 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	C	271	2082	1288	423	364	7	0	0

- Molecule 6 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	D	209	1565	979	288	294	4	0	0

- Molecule 7 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 8 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 9 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	G	175	Total	C	N	O	S	0	0
			1313	826	241	244	2		

- Molecule 10 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	H	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 11 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	I	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 12 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	J	123	Total	C	N	O	S	0	0
			946	593	181	166	6		

- Molecule 13 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	K	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 14 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	L	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 15 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	M	119	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 16 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	N	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 17 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	O	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 18 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	P	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 19 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Q	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 20 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	R	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 21 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	S	94	Total	C	N	O	S	0	0
			746	470	140	134	2		

- Molecule 22 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	T	103	Total	C	N	O	0	0
			788	498	148	142		

- Molecule 23 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	U	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 24 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	V	80	Total	C	N	O	S	0	0
			601	370	121	109	1		

- Molecule 25 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	W	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 26 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	X	62	Total	C	N	O	S	0	0
			501	308	98	94	1		

- Molecule 27 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Y	58	Total	C	N	O	S	0	0
			448	281	87	78	2		

- Molecule 28 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	Z	66	522	323	99	94	6	0	0

- Molecule 29 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	a	56	444	269	94	80	1	0	0

- Molecule 30 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
30	b	52	426	275	78	73	0	0

- Molecule 31 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	c	46	377	228	90	57	2	0	0

- Molecule 32 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	d	64	504	323	105	74	2	0	0

- Molecule 33 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	e	38	302	185	65	48	4	0	0

- Molecule 34 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	f	225	1760	1113	316	323	8	0	0

- Molecule 35 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	g	208	Total 1636	C 1036	N 307	O 290	S 3	0	0

- Molecule 36 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	h	205	Total 1643	C 1026	N 315	O 298	S 4	0	0

- Molecule 37 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	i	156	Total 1152	C 717	N 217	O 212	S 6	0	0

- Molecule 38 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	j	104	Total 848	C 536	N 153	O 152	S 7	0	0

- Molecule 39 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	151	Total 1181	C 735	N 227	O 215	S 4	0	0

- Molecule 40 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	129	Total 979	C 616	N 173	O 184	S 6	0	0

- Molecule 41 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	127	Total 1022	C 634	N 206	O 179	S 3	0	0

- Molecule 42 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	n	99	790	495	151	143	1	0	0

- Molecule 43 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	o	117	877	540	174	160	3	0	0

- Molecule 44 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	p	123	957	591	196	165	5	0	0

- Molecule 45 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	q	116	900	558	181	158	3	0	0

- Molecule 46 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	r	100	805	499	164	139	3	0	0

- Molecule 47 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	s	88	714	439	144	130	1	0	0

- Molecule 48 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	t	82	649	406	128	114	1	0	0

- Molecule 49 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	u	80	648	411	121	113	3	0	0

- Molecule 50 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	v	66	544	344	102	97	1	0	0

- Molecule 51 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	w	83	663	424	126	111	2	0	0

- Molecule 52 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	x	86	669	414	138	114	3	0	0

- Molecule 53 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	y	70	589	366	125	97	1	0	0

- Molecule 54 is a RNA chain called tRNA-Ser.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
54	z	88	1891	841	341	621	88	0	0

- Molecule 55 is a protein called CspA transcriptional activator.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	B	27	205	132	32	39	2	0	0

- Molecule 56 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
56	1	270	Total 270	Mg 270	0
56	2	113	Total 113	Mg 113	0
56	3	8	Total 8	Mg 8	0
56	4	1	Total 1	Mg 1	0
56	C	1	Total 1	Mg 1	0
56	D	2	Total 2	Mg 2	0
56	M	1	Total 1	Mg 1	0
56	a	1	Total 1	Mg 1	0
56	h	1	Total 1	Mg 1	0
56	q	1	Total 1	Mg 1	0
56	z	1	Total 1	Mg 1	0

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn).

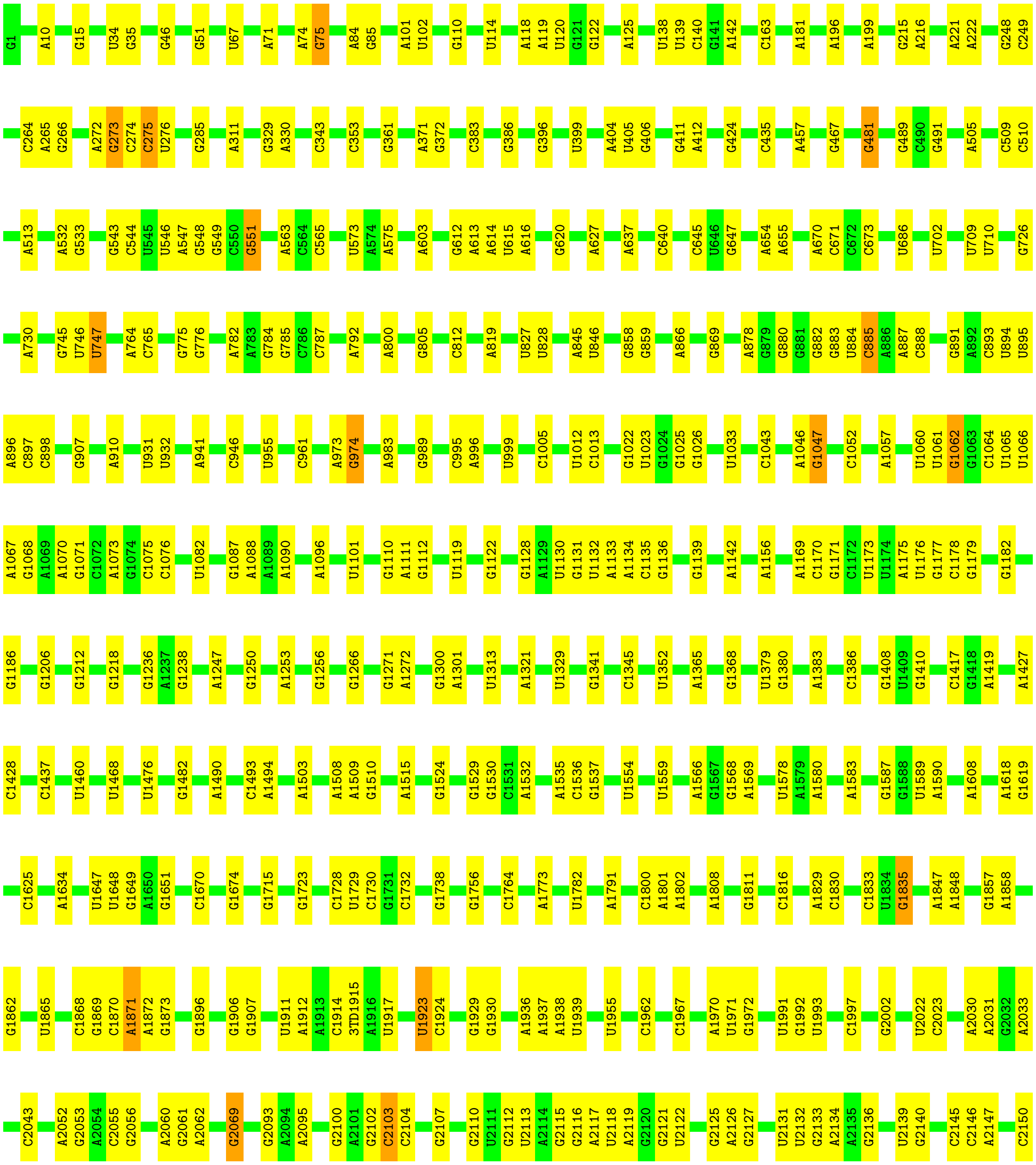
Mol	Chain	Residues	Atoms		AltConf
57	Z	1	Total 1	Zn 1	0
57	e	1	Total 1	Zn 1	0

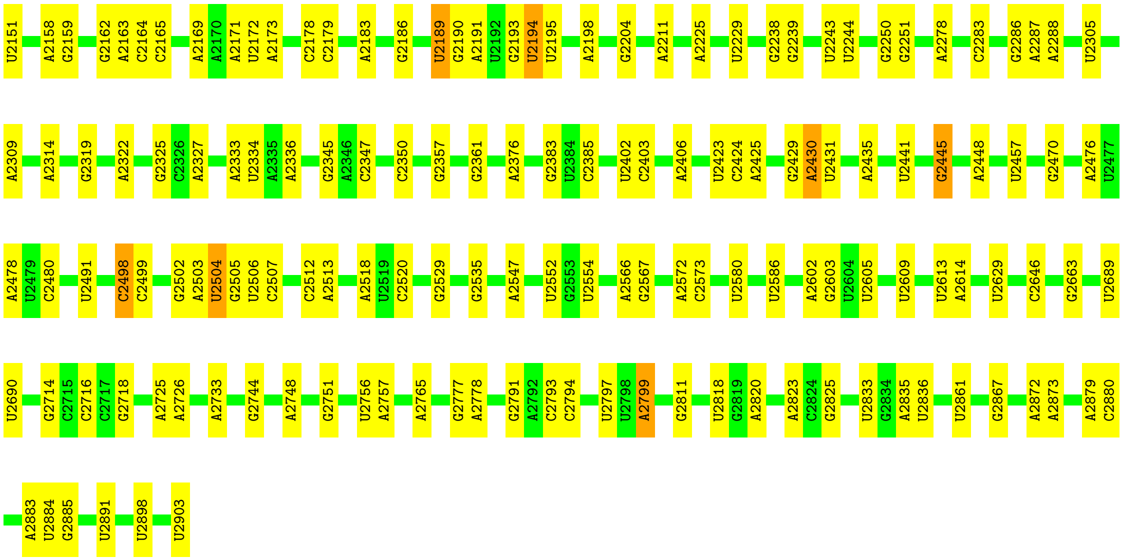
3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-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 outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 23S rRNA

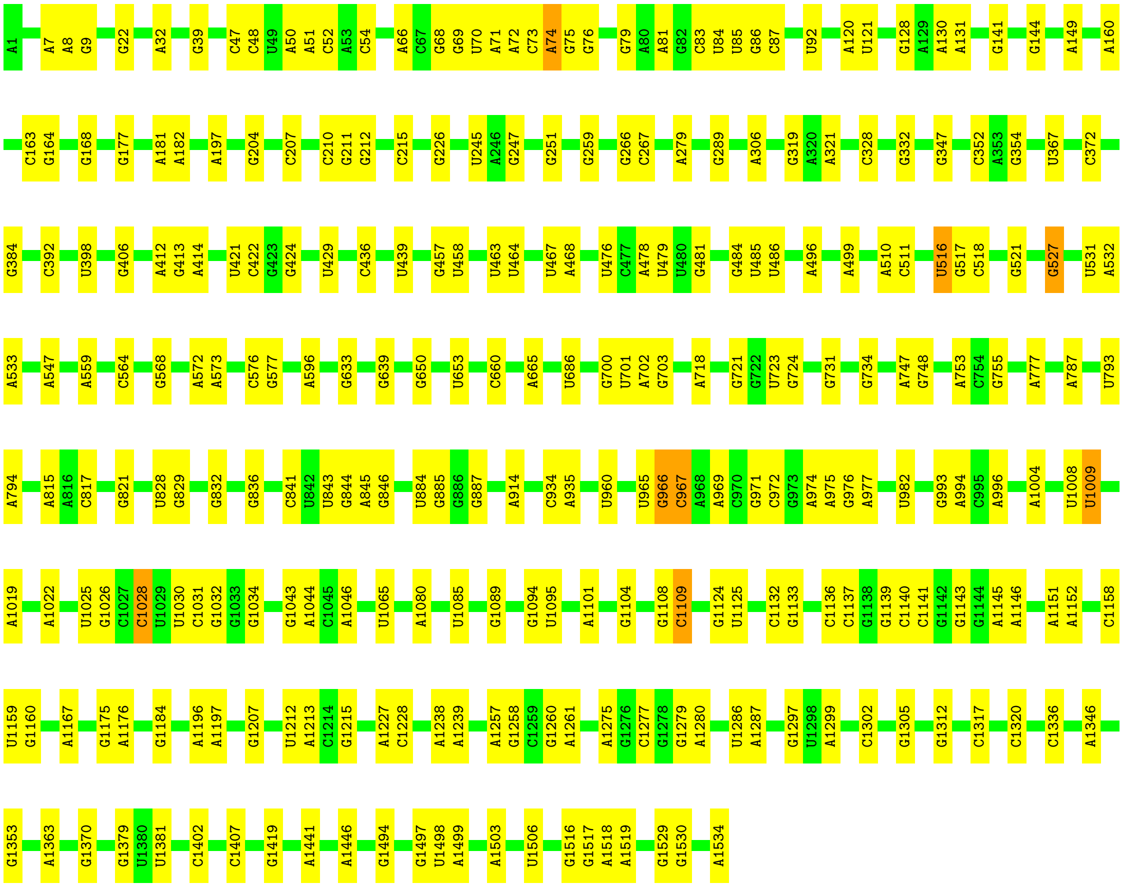
Chain 1:





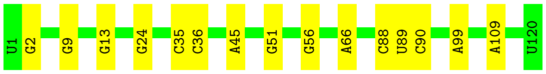
- Molecule 2: 16S rRNA

Chain 2:



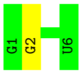
- Molecule 3: 5S rRNA

Chain 3:



- Molecule 4: mRNA

Chain 4:



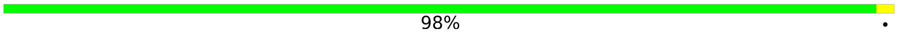
- Molecule 5: 50S ribosomal protein L2

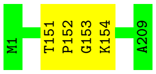
Chain C:

There are no outlier residues recorded for this chain.

- Molecule 6: 50S ribosomal protein L3

Chain D:





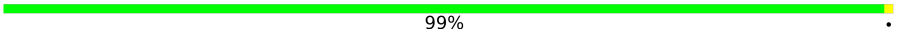
- Molecule 7: 50S ribosomal protein L4

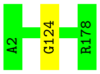
Chain E:

There are no outlier residues recorded for this chain.

- Molecule 8: 50S ribosomal protein L5

Chain F:





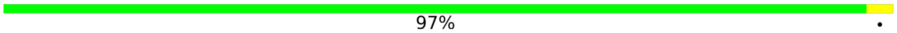
- Molecule 9: 50S ribosomal protein L6

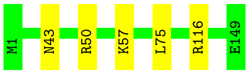
Chain G:

There are no outlier residues recorded for this chain.

- Molecule 10: 50S ribosomal protein L9

Chain H:



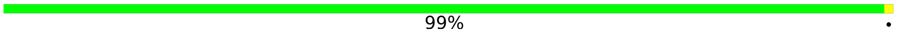


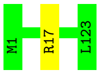
- Molecule 11: 50S ribosomal protein L13

Chain I:

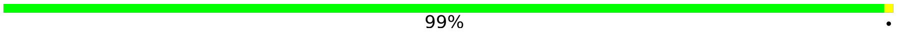

There are no outlier residues recorded for this chain.

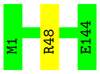
- Molecule 12: 50S ribosomal protein L14

Chain J:


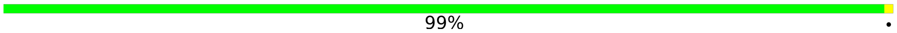


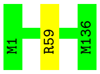
- Molecule 13: 50S ribosomal protein L15

Chain K:




- Molecule 14: 50S ribosomal protein L16

Chain L:


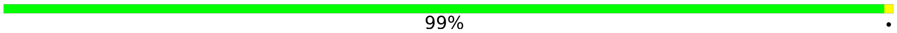


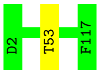
- Molecule 15: 50S ribosomal protein L17

Chain M:

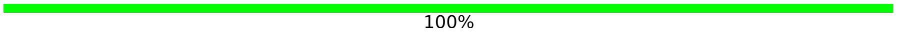

There are no outlier residues recorded for this chain.

- Molecule 16: 50S ribosomal protein L18

Chain N:


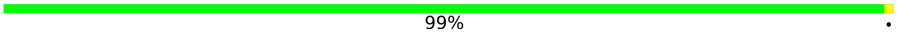


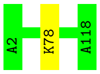
- Molecule 17: 50S ribosomal protein L19

Chain O:


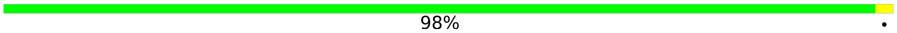
There are no outlier residues recorded for this chain.

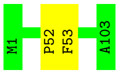
- Molecule 18: 50S ribosomal protein L20

Chain P:


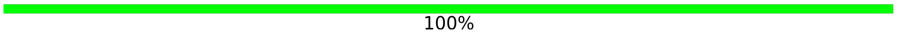


- Molecule 19: 50S ribosomal protein L21

Chain Q:




- Molecule 20: 50S ribosomal protein L22

Chain R:


There are no outlier residues recorded for this chain.

- Molecule 21: 50S ribosomal protein L23

Chain S:


There are no outlier residues recorded for this chain.

- Molecule 22: 50S ribosomal protein L24

Chain T:

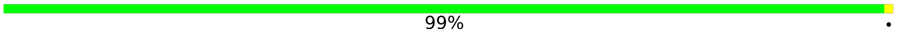

There are no outlier residues recorded for this chain.

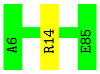
- Molecule 23: 50S ribosomal protein L25

Chain U:

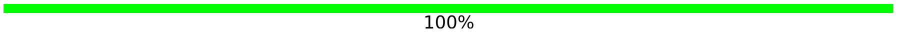

There are no outlier residues recorded for this chain.

- Molecule 24: 50S ribosomal protein L27

Chain V:


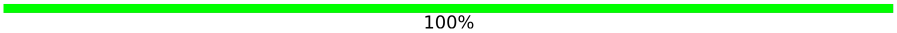


- Molecule 25: 50S ribosomal protein L28

Chain W:


There are no outlier residues recorded for this chain.

- Molecule 26: 50S ribosomal protein L29

Chain X:


There are no outlier residues recorded for this chain.

- Molecule 27: 50S ribosomal protein L30

Chain Y:

There are no outlier residues recorded for this chain.

- Molecule 28: 50S ribosomal protein L31

Chain Z:

There are no outlier residues recorded for this chain.

- Molecule 29: 50S ribosomal protein L32

Chain a:

There are no outlier residues recorded for this chain.

- Molecule 30: 50S ribosomal protein L33

Chain b:

There are no outlier residues recorded for this chain.

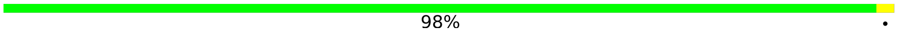
- Molecule 31: 50S ribosomal protein L34

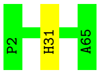
Chain c:

There are no outlier residues recorded for this chain.

- Molecule 32: 50S ribosomal protein L35

Chain d:





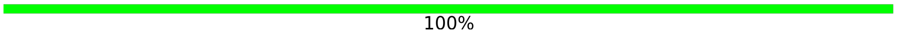
- Molecule 33: 50S ribosomal protein L36

Chain e:

There are no outlier residues recorded for this chain.

- Molecule 34: 30S ribosomal protein S2

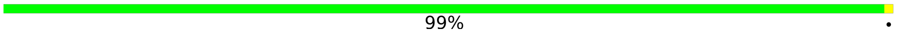
Chain f:



There are no outlier residues recorded for this chain.

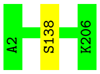
- Molecule 35: 30S ribosomal protein S3

Chain g:



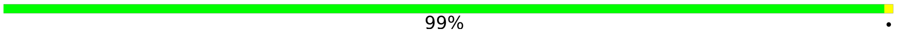
- Molecule 36: 30S ribosomal protein S4

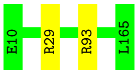
Chain h:



- Molecule 37: 30S ribosomal protein S5

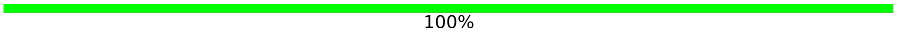
Chain i:





- Molecule 38: 30S ribosomal protein S6

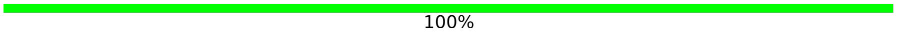
Chain j:



There are no outlier residues recorded for this chain.

- Molecule 39: 30S ribosomal protein S7

Chain k:



There are no outlier residues recorded for this chain.

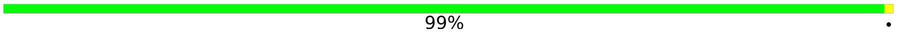
- Molecule 40: 30S ribosomal protein S8

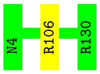
Chain l:

There are no outlier residues recorded for this chain.

- Molecule 41: 30S ribosomal protein S9

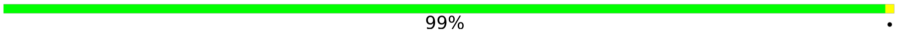
Chain m:

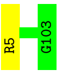




- Molecule 42: 30S ribosomal protein S10

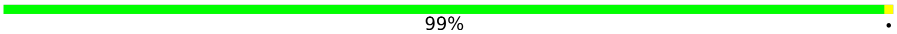
Chain n:

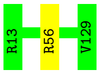




- Molecule 43: 30S ribosomal protein S11

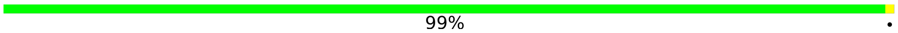
Chain o:

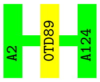




- Molecule 44: 30S ribosomal protein S12

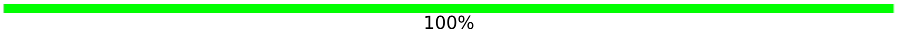
Chain p:





- Molecule 45: 30S ribosomal protein S13

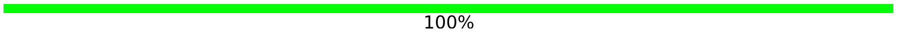
Chain q:



There are no outlier residues recorded for this chain.

- Molecule 46: 30S ribosomal protein S14

Chain r:



There are no outlier residues recorded for this chain.

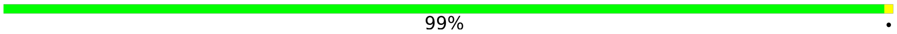
- Molecule 47: 30S ribosomal protein S15

Chain s:

There are no outlier residues recorded for this chain.

- Molecule 48: 30S ribosomal protein S16

Chain t:



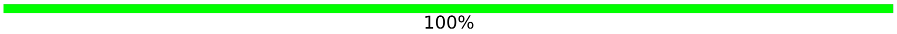
- Molecule 49: 30S ribosomal protein S17

Chain u:

There are no outlier residues recorded for this chain.

- Molecule 50: 30S ribosomal protein S18

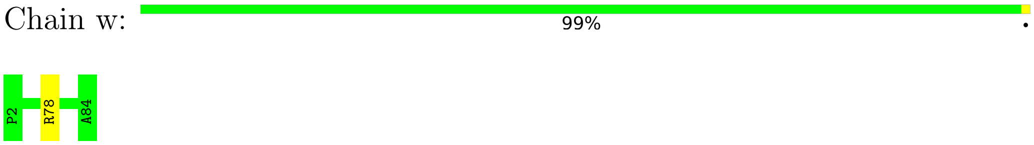
Chain v:



There are no outlier residues recorded for this chain.

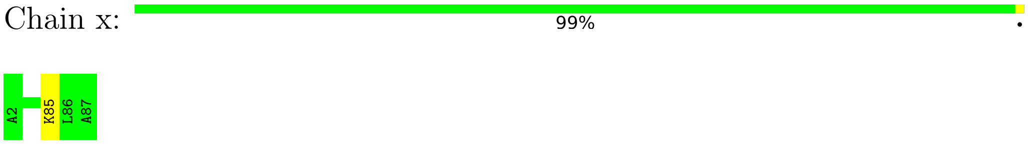
- Molecule 51: 30S ribosomal protein S19

Chain w:



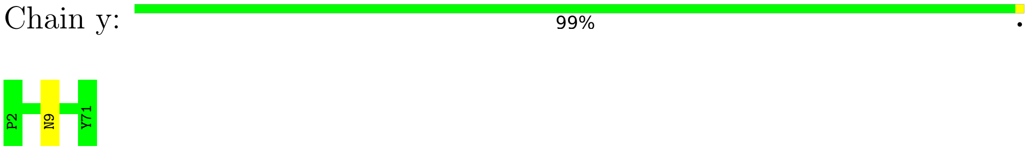
- Molecule 52: 30S ribosomal protein S20

Chain x:



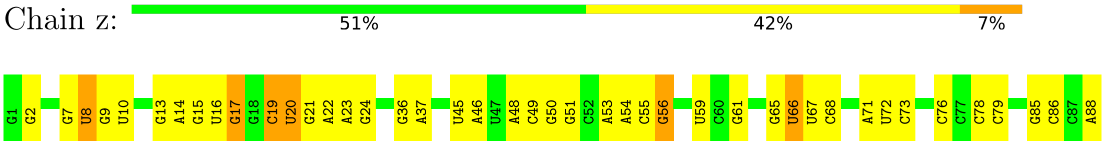
- Molecule 53: 30S ribosomal protein S21

Chain y:



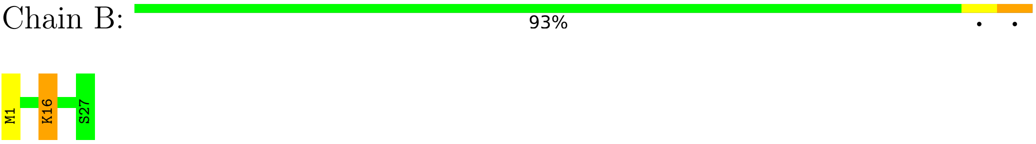
- Molecule 54: tRNA-Ser

Chain z:



- Molecule 55: CspA transcriptional activator

Chain B:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	15459	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\mathring{A}^2)$	2.2	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	75000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 0TD, OMU, 5MU, PSU, 1MG, OMG, MG, 5MC, ZN, 2MG, 4OC, UR3, 3TD, OMC, 6MZ, G7M, FME, MA6, 2MA

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 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	1	1.08	4/69286 (0.0%)	1.08	74/108087 (0.1%)
2	2	0.98	0/36590	1.04	11/57074 (0.0%)
3	3	0.96	0/2872	1.03	0/4478
4	4	0.62	0/139	1.02	0/214
5	C	0.77	0/2121	0.63	0/2852
6	D	0.77	0/1586	0.62	0/2134
7	E	0.68	0/1571	0.62	0/2113
8	F	0.56	0/1434	0.61	0/1926
9	G	0.54	0/1333	0.62	0/1805
10	H	0.43	0/1122	0.70	1/1515 (0.1%)
11	I	0.74	0/1152	0.59	0/1551
12	J	0.73	0/955	0.63	0/1279
13	K	0.69	0/1062	0.66	0/1413
14	L	0.70	0/1093	0.62	0/1460
15	M	0.69	0/964	0.64	0/1289
16	N	0.61	0/902	0.62	0/1209
17	O	0.74	0/929	0.58	0/1242
18	P	0.80	0/960	0.62	0/1278
19	Q	0.70	0/829	0.62	0/1107
20	R	0.75	0/864	0.64	0/1156
21	S	0.71	0/752	0.59	0/1005
22	T	0.62	0/796	0.61	0/1062
23	U	0.62	0/766	0.60	0/1025
24	V	0.71	0/608	0.62	0/804
25	W	0.69	0/635	0.61	0/848
26	X	0.57	0/502	0.65	0/667
27	Y	0.64	0/452	0.60	0/605
28	Z	0.47	0/531	0.59	0/709
29	a	0.68	0/450	0.63	0/599
30	b	0.62	0/433	0.59	0/576
31	c	0.73	0/380	0.64	0/498

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	d	0.73	0/513	0.65	0/676
33	e	0.74	0/303	0.61	0/397
34	f	0.51	0/1791	0.62	0/2413
35	g	0.61	0/1663	0.60	0/2241
36	h	0.59	0/1665	0.60	0/2227
37	i	0.70	0/1165	0.66	0/1568
38	j	0.58	0/867	0.57	0/1171
39	k	0.53	0/1195	0.61	0/1602
40	l	0.65	0/989	0.60	0/1326
41	m	0.58	0/1034	0.64	0/1375
42	n	0.55	0/800	0.67	0/1082
43	o	0.59	0/893	0.60	0/1205
44	p	0.69	0/960	0.62	0/1286
45	q	0.54	0/909	0.64	0/1215
46	r	0.58	0/817	0.60	0/1088
47	s	0.58	0/722	0.58	0/964
48	t	0.64	0/659	0.62	0/884
49	u	0.61	0/657	0.59	0/881
50	v	0.58	0/553	0.66	0/743
51	w	0.53	0/680	0.58	0/915
52	x	0.56	0/675	0.65	0/895
53	y	0.48	0/597	0.61	0/792
54	z	1.05	11/2062 (0.5%)	1.30	13/3208 (0.4%)
55	B	0.41	0/200	0.57	0/267
All	All	0.95	15/156438 (0.0%)	0.97	99/234001 (0.0%)

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	z	20	U	C2-N3	16.02	1.49	1.37
54	z	20	U	C5-C6	14.97	1.47	1.34
54	z	9	G	OP3-P	-10.99	1.48	1.61
54	z	20	U	N1-C2	10.89	1.48	1.38
54	z	20	U	N3-C4	8.00	1.45	1.38
54	z	20	U	OP3-P	-7.93	1.51	1.61
54	z	20	U	N1-C6	7.83	1.45	1.38
54	z	67	U	OP3-P	-7.53	1.52	1.61
54	z	8	U	OP3-P	-7.29	1.52	1.61
54	z	20	U	C4-C5	5.82	1.48	1.43
1	1	2499	C	N1-C6	-5.71	1.33	1.37
54	z	20	U	C4-O4	-5.48	1.19	1.23
1	1	671	C	N1-C6	-5.37	1.33	1.37

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	673	C	N1-C6	-5.25	1.33	1.37
1	1	787	C	N1-C6	-5.04	1.34	1.37

All (99) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	z	67	U	O5'-P-OP1	-21.44	84.97	110.70
54	z	8	U	O5'-P-OP1	-19.48	87.33	110.70
54	z	20	U	C2-N3-C4	-12.49	119.50	127.00
54	z	20	U	C5-C4-O4	-10.73	119.46	125.90
54	z	20	U	N3-C4-C5	9.52	120.31	114.60
1	1	2193	G	C4-N9-C1'	8.71	137.82	126.50
54	z	20	U	N1-C2-N3	8.64	120.08	114.90
54	z	19	C	OP1-P-O3'	-8.56	86.36	105.20
1	1	2103	C	N1-C2-O2	8.45	123.97	118.90
1	1	1062	G	N3-C4-N9	8.38	131.03	126.00
1	1	2179	C	N3-C2-O2	-8.14	116.20	121.90
1	1	2193	G	C8-N9-C1'	-7.90	116.73	127.00
1	1	1313	U	C2-N1-C1'	7.86	127.13	117.70
54	z	19	C	OP2-P-O3'	-7.85	87.92	105.20
1	1	2193	G	C6-C5-N7	-7.82	125.71	130.40
1	1	2614	A	C6-N1-C2	-7.15	114.31	118.60
54	z	20	U	OP1-P-OP2	7.10	130.24	119.60
1	1	1076	C	N3-C2-O2	-7.09	116.94	121.90
1	1	1062	G	C4-N9-C1'	7.05	135.67	126.50
54	z	67	U	O5'-P-OP2	7.01	119.11	110.70
1	1	974	G	O4'-C1'-N9	6.80	113.64	108.20
1	1	2189	U	O4'-C1'-N1	6.78	113.62	108.20
1	1	221	A	O4'-C1'-N9	6.75	113.60	108.20
54	z	8	U	O5'-P-OP2	6.75	118.80	110.70
1	1	1047	G	O4'-C1'-N9	6.72	113.58	108.20
1	1	2193	G	N3-C4-N9	6.65	129.99	126.00
1	1	1313	U	C6-N1-C1'	-6.61	111.94	121.20
1	1	481	G	O4'-C1'-N9	6.60	113.48	108.20
1	1	2244	U	N3-C4-O4	6.58	124.01	119.40
1	1	67	U	C5-C4-O4	-6.56	121.97	125.90
1	1	1062	G	C8-N9-C1'	-6.53	118.51	127.00
1	1	640	C	C6-N1-C2	-6.49	117.71	120.30
1	1	1871	A	O4'-C1'-N9	6.43	113.34	108.20
1	1	2053	G	C5-N7-C8	-6.42	101.09	104.30
1	1	2244	U	C5-C4-O4	-6.41	122.05	125.90
1	1	67	U	N3-C4-O4	6.40	123.88	119.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1109	C	C3'-C2'-C1'	6.33	106.56	101.50
1	1	2512	C	C5'-C4'-C3'	6.25	125.99	116.00
1	1	2193	G	C4-C5-N7	6.21	113.29	110.80
1	1	2103	C	N3-C2-O2	-6.20	117.56	121.90
1	1	1923	U	O4'-C1'-N1	6.12	113.10	108.20
1	1	620	G	P-O3'-C3'	-6.09	112.39	119.70
2	2	74	A	O4'-C1'-N9	6.08	113.06	108.20
1	1	1857	G	O4'-C1'-N9	6.08	113.06	108.20
1	1	2186	G	N3-C4-C5	6.06	131.63	128.60
1	1	2195	U	O4'-C1'-N1	6.05	113.04	108.20
1	1	1062	G	N3-C4-C5	-5.99	125.61	128.60
1	1	2314	A	O4'-C1'-N9	5.98	112.99	108.20
1	1	274	C	N1-C2-O2	5.97	122.48	118.90
1	1	2053	G	C4-C5-N7	5.93	113.17	110.80
1	1	75	G	N3-C4-N9	-5.92	122.45	126.00
1	1	1728	C	C2-N1-C1'	-5.90	112.31	118.80
1	1	1062	G	C6-C5-N7	-5.88	126.87	130.40
2	2	1028	C	O4'-C1'-N1	-5.86	103.51	108.20
1	1	2194	U	O4'-C1'-N1	5.84	112.87	108.20
1	1	2179	C	C6-N1-C2	-5.83	117.97	120.30
2	2	259	G	N3-C4-N9	-5.80	122.52	126.00
2	2	215	C	C2-N1-C1'	5.80	125.18	118.80
1	1	1410	G	P-O3'-C3'	5.77	126.63	119.70
1	1	2136	G	P-O3'-C3'	5.76	126.61	119.70
1	1	1830	C	C2-N1-C1'	5.74	125.12	118.80
1	1	2104	C	C6-N1-C2	-5.66	118.04	120.30
2	2	1009	U	O4'-C1'-N1	5.59	112.67	108.20
1	1	1075	C	N1-C2-O2	5.58	122.25	118.90
1	1	2179	C	N1-C2-O2	5.57	122.24	118.90
1	1	565	C	C6-N1-C2	5.53	122.51	120.30
1	1	551	G	C8-N9-C1'	-5.52	119.82	127.00
2	2	207	C	C2-N1-C1'	-5.51	112.74	118.80
1	1	1052	C	N1-C2-O2	-5.49	115.61	118.90
10	H	116	ARG	NE-CZ-NH1	5.47	123.04	120.30
2	2	686	U	O4'-C1'-N1	5.43	112.55	108.20
1	1	2799	A	C6-C5-N7	-5.40	128.52	132.30
1	1	275	C	C2-N1-C1'	-5.36	112.90	118.80
1	1	1075	C	N3-C2-O2	-5.34	118.16	121.90
1	1	114	U	C2-N1-C1'	5.30	124.06	117.70
1	1	551	G	C4-N9-C1'	5.28	133.37	126.50
1	1	1625	C	N1-C2-O2	5.27	122.06	118.90
54	z	9	G	OP1-P-OP2	5.27	127.51	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	1830	C	C6-N1-C1'	-5.27	114.48	120.80
1	1	1313	U	O4'-C1'-N1	5.27	112.42	108.20
1	1	2430	A	N1-C6-N6	5.26	121.76	118.60
1	1	2799	A	N9-C4-C5	-5.26	103.70	105.80
2	2	168	G	C8-N9-C1'	-5.25	120.17	127.00
1	1	2150	C	O4'-C1'-N1	-5.21	104.03	108.20
1	1	640	C	C5-C6-N1	5.19	123.59	121.00
1	1	1568	G	N3-C4-C5	5.18	131.19	128.60
2	2	207	C	N1-C2-O2	-5.17	115.80	118.90
1	1	2194	U	C2-N1-C1'	-5.15	111.52	117.70
1	1	640	C	C2-N1-C1'	5.15	124.47	118.80
54	z	56	G	N9-C4-C5	-5.15	103.34	105.40
1	1	1670	C	C5-C4-N4	-5.15	116.60	120.20
1	1	2193	G	N7-C8-N9	5.11	115.65	113.10
1	1	1082	U	O4'-C1'-N1	5.10	112.28	108.20
1	1	1062	G	N9-C4-C5	-5.08	103.37	105.40
1	1	885	C	N1-C2-O2	-5.08	115.85	118.90
1	1	1728	C	N1-C2-O2	-5.08	115.86	118.90
1	1	273	G	C8-N9-C1'	-5.07	120.41	127.00
2	2	168	G	C6-C5-N7	-5.06	127.37	130.40
1	1	883	G	N3-C4-N9	-5.01	122.99	126.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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 EM 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	
5	C	269/271 (99%)	256 (95%)	13 (5%)	0	100	100
6	D	207/209 (99%)	201 (97%)	3 (1%)	3 (1%)	11	46
7	E	199/201 (99%)	197 (99%)	2 (1%)	0	100	100
8	F	175/177 (99%)	165 (94%)	9 (5%)	1 (1%)	25	64
9	G	173/175 (99%)	161 (93%)	12 (7%)	0	100	100
10	H	147/149 (99%)	137 (93%)	10 (7%)	0	100	100
11	I	140/142 (99%)	137 (98%)	3 (2%)	0	100	100
12	J	121/123 (98%)	119 (98%)	2 (2%)	0	100	100
13	K	142/144 (99%)	138 (97%)	4 (3%)	0	100	100
14	L	134/136 (98%)	130 (97%)	4 (3%)	0	100	100
15	M	117/119 (98%)	114 (97%)	3 (3%)	0	100	100
16	N	114/116 (98%)	111 (97%)	3 (3%)	0	100	100
17	O	112/114 (98%)	111 (99%)	1 (1%)	0	100	100
18	P	115/117 (98%)	114 (99%)	1 (1%)	0	100	100
19	Q	101/103 (98%)	94 (93%)	5 (5%)	2 (2%)	7	38
20	R	108/110 (98%)	106 (98%)	2 (2%)	0	100	100
21	S	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
22	T	101/103 (98%)	94 (93%)	7 (7%)	0	100	100
23	U	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
24	V	78/80 (98%)	72 (92%)	6 (8%)	0	100	100
25	W	75/77 (97%)	74 (99%)	1 (1%)	0	100	100
26	X	60/62 (97%)	59 (98%)	1 (2%)	0	100	100
27	Y	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
28	Z	64/66 (97%)	59 (92%)	5 (8%)	0	100	100
29	a	54/56 (96%)	52 (96%)	2 (4%)	0	100	100
30	b	50/52 (96%)	49 (98%)	1 (2%)	0	100	100
31	c	44/46 (96%)	44 (100%)	0	0	100	100
32	d	62/64 (97%)	58 (94%)	4 (6%)	0	100	100
33	e	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
34	f	223/225 (99%)	207 (93%)	16 (7%)	0	100	100
35	g	206/208 (99%)	198 (96%)	8 (4%)	0	100	100
36	h	203/205 (99%)	201 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
37	i	154/156 (99%)	145 (94%)	9 (6%)	0	100	100
38	j	102/104 (98%)	99 (97%)	3 (3%)	0	100	100
39	k	149/151 (99%)	145 (97%)	4 (3%)	0	100	100
40	l	127/129 (98%)	125 (98%)	2 (2%)	0	100	100
41	m	125/127 (98%)	118 (94%)	7 (6%)	0	100	100
42	n	97/99 (98%)	93 (96%)	4 (4%)	0	100	100
43	o	115/117 (98%)	108 (94%)	7 (6%)	0	100	100
44	p	120/123 (98%)	114 (95%)	6 (5%)	0	100	100
45	q	114/116 (98%)	109 (96%)	5 (4%)	0	100	100
46	r	98/100 (98%)	97 (99%)	1 (1%)	0	100	100
47	s	86/88 (98%)	84 (98%)	2 (2%)	0	100	100
48	t	80/82 (98%)	78 (98%)	2 (2%)	0	100	100
49	u	78/80 (98%)	75 (96%)	3 (4%)	0	100	100
50	v	64/66 (97%)	64 (100%)	0	0	100	100
51	w	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
52	x	84/86 (98%)	84 (100%)	0	0	100	100
53	y	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
55	B	25/27 (93%)	13 (52%)	11 (44%)	1 (4%)	3	21
All	All	5637/5738 (98%)	5424 (96%)	206 (4%)	7 (0%)	54	83

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	D	152	PRO
6	D	153	GLY
6	D	154	LYS
19	Q	52	PRO
19	Q	53	PHE
55	B	16	LYS
8	F	124	GLY

5.3.2 Protein sidechains ⓘ

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 EM 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	
5	C	216/216 (100%)	216 (100%)	0	100	100
6	D	164/164 (100%)	163 (99%)	1 (1%)	86	94
7	E	165/165 (100%)	165 (100%)	0	100	100
8	F	148/148 (100%)	148 (100%)	0	100	100
9	G	136/136 (100%)	136 (100%)	0	100	100
10	H	114/114 (100%)	110 (96%)	4 (4%)	36	69
11	I	116/116 (100%)	116 (100%)	0	100	100
12	J	104/104 (100%)	103 (99%)	1 (1%)	76	90
13	K	103/103 (100%)	102 (99%)	1 (1%)	76	90
14	L	109/109 (100%)	108 (99%)	1 (1%)	78	91
15	M	99/99 (100%)	99 (100%)	0	100	100
16	N	86/86 (100%)	85 (99%)	1 (1%)	71	88
17	O	99/99 (100%)	99 (100%)	0	100	100
18	P	89/89 (100%)	88 (99%)	1 (1%)	73	88
19	Q	84/84 (100%)	84 (100%)	0	100	100
20	R	93/93 (100%)	93 (100%)	0	100	100
21	S	81/81 (100%)	81 (100%)	0	100	100
22	T	84/84 (100%)	84 (100%)	0	100	100
23	U	78/78 (100%)	78 (100%)	0	100	100
24	V	59/59 (100%)	58 (98%)	1 (2%)	60	83
25	W	67/67 (100%)	67 (100%)	0	100	100
26	X	54/54 (100%)	54 (100%)	0	100	100
27	Y	48/48 (100%)	48 (100%)	0	100	100
28	Z	59/59 (100%)	59 (100%)	0	100	100
29	a	47/47 (100%)	47 (100%)	0	100	100
30	b	47/47 (100%)	47 (100%)	0	100	100
31	c	38/38 (100%)	38 (100%)	0	100	100
32	d	51/51 (100%)	50 (98%)	1 (2%)	55	80
33	e	34/34 (100%)	34 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
34	f	187/187 (100%)	187 (100%)	0	100	100
35	g	171/171 (100%)	169 (99%)	2 (1%)	71	88
36	h	172/172 (100%)	171 (99%)	1 (1%)	86	94
37	i	119/119 (100%)	117 (98%)	2 (2%)	60	83
38	j	91/91 (100%)	91 (100%)	0	100	100
39	k	124/124 (100%)	124 (100%)	0	100	100
40	l	104/104 (100%)	104 (100%)	0	100	100
41	m	105/105 (100%)	104 (99%)	1 (1%)	76	90
42	n	86/86 (100%)	85 (99%)	1 (1%)	71	88
43	o	90/90 (100%)	89 (99%)	1 (1%)	73	88
44	p	102/102 (100%)	102 (100%)	0	100	100
45	q	94/94 (100%)	94 (100%)	0	100	100
46	r	83/83 (100%)	83 (100%)	0	100	100
47	s	76/76 (100%)	76 (100%)	0	100	100
48	t	65/65 (100%)	64 (98%)	1 (2%)	65	85
49	u	74/74 (100%)	74 (100%)	0	100	100
50	v	57/57 (100%)	57 (100%)	0	100	100
51	w	72/72 (100%)	71 (99%)	1 (1%)	67	86
52	x	65/65 (100%)	64 (98%)	1 (2%)	65	85
53	y	60/60 (100%)	59 (98%)	1 (2%)	60	83
55	B	20/20 (100%)	19 (95%)	1 (5%)	24	60
All	All	4689/4689 (100%)	4664 (100%)	25 (0%)	89	95

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	D	151	THR
10	H	43	ASN
10	H	50	ARG
10	H	57	LYS
10	H	75	LEU
12	J	17	ARG
13	K	48	ARG
14	L	59	ARG
16	N	53	THR

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Mol	Chain	Res	Type
18	P	78	LYS
24	V	14	ARG
32	d	31	HIS
35	g	164	ARG
35	g	172	ARG
36	h	138	SER
37	i	29	ARG
37	i	93	ARG
41	m	106	ARG
42	n	5	ARG
43	o	56	ARG
48	t	1	MET
51	w	78	ARG
52	x	85	LYS
53	y	9	ASN
55	B	16	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
32	d	31	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2898/2903 (99%)	494 (17%)	11 (0%)
2	2	1529/1534 (99%)	260 (17%)	4 (0%)
3	3	119/120 (99%)	15 (12%)	0
4	4	5/6 (83%)	1 (20%)	0
54	z	87/88 (98%)	41 (47%)	0
All	All	4638/4651 (99%)	811 (17%)	15 (0%)

All (811) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	10	A
1	1	15	G
1	1	34	U
1	1	35	G
1	1	46	G

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Mol	Chain	Res	Type
1	1	51	G
1	1	71	A
1	1	74	A
1	1	75	G
1	1	84	A
1	1	85	G
1	1	101	A
1	1	102	U
1	1	110	G
1	1	118	A
1	1	119	A
1	1	120	U
1	1	122	G
1	1	125	A
1	1	138	U
1	1	139	U
1	1	140	C
1	1	142	A
1	1	163	C
1	1	181	A
1	1	196	A
1	1	199	A
1	1	215	G
1	1	216	A
1	1	222	A
1	1	248	G
1	1	249	C
1	1	264	C
1	1	265	A
1	1	266	G
1	1	272	A
1	1	273	G
1	1	275	C
1	1	276	U
1	1	285	G
1	1	311	A
1	1	329	G
1	1	330	A
1	1	343	C
1	1	353	C
1	1	361	G
1	1	371	A

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Mol	Chain	Res	Type
1	1	372	G
1	1	383	C
1	1	386	G
1	1	396	G
1	1	399	U
1	1	405	U
1	1	406	G
1	1	411	G
1	1	412	A
1	1	424	G
1	1	435	C
1	1	457	A
1	1	467	G
1	1	481	G
1	1	489	G
1	1	491	G
1	1	505	A
1	1	509	C
1	1	510	C
1	1	513	A
1	1	532	A
1	1	533	G
1	1	543	G
1	1	544	C
1	1	546	U
1	1	547	A
1	1	548	G
1	1	549	G
1	1	551	G
1	1	563	A
1	1	573	U
1	1	575	A
1	1	603	A
1	1	612	G
1	1	613	A
1	1	614	A
1	1	615	U
1	1	616	A
1	1	627	A
1	1	637	A
1	1	645	C
1	1	647	G

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Mol	Chain	Res	Type
1	1	654	A
1	1	655	A
1	1	670	A
1	1	686	U
1	1	702	U
1	1	709	U
1	1	710	U
1	1	726	G
1	1	730	A
1	1	747	5MU
1	1	764	A
1	1	765	C
1	1	775	G
1	1	776	G
1	1	782	A
1	1	784	G
1	1	785	G
1	1	792	A
1	1	800	A
1	1	805	G
1	1	812	C
1	1	819	A
1	1	827	U
1	1	828	U
1	1	845	A
1	1	846	U
1	1	858	G
1	1	859	G
1	1	866	A
1	1	869	G
1	1	878	A
1	1	880	G
1	1	882	G
1	1	884	U
1	1	885	C
1	1	887	A
1	1	888	C
1	1	891	G
1	1	893	C
1	1	894	U
1	1	895	U
1	1	896	A

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Mol	Chain	Res	Type
1	1	897	C
1	1	898	C
1	1	907	G
1	1	910	A
1	1	931	U
1	1	932	U
1	1	941	A
1	1	946	C
1	1	961	C
1	1	973	A
1	1	974	G
1	1	983	A
1	1	989	G
1	1	995	C
1	1	996	A
1	1	999	U
1	1	1005	C
1	1	1012	U
1	1	1013	C
1	1	1022	G
1	1	1023	U
1	1	1025	G
1	1	1026	G
1	1	1033	U
1	1	1043	C
1	1	1046	A
1	1	1047	G
1	1	1057	A
1	1	1060	U
1	1	1061	U
1	1	1062	G
1	1	1064	C
1	1	1065	U
1	1	1066	U
1	1	1067	A
1	1	1068	G
1	1	1070	A
1	1	1071	G
1	1	1073	A
1	1	1087	G
1	1	1088	A
1	1	1090	A

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Mol	Chain	Res	Type
1	1	1096	A
1	1	1101	U
1	1	1110	G
1	1	1111	A
1	1	1112	G
1	1	1119	U
1	1	1122	G
1	1	1128	G
1	1	1130	U
1	1	1131	G
1	1	1132	U
1	1	1133	A
1	1	1134	A
1	1	1135	C
1	1	1136	G
1	1	1139	G
1	1	1142	A
1	1	1156	A
1	1	1169	A
1	1	1170	C
1	1	1171	G
1	1	1173	U
1	1	1175	A
1	1	1176	U
1	1	1177	G
1	1	1178	C
1	1	1179	G
1	1	1182	G
1	1	1186	G
1	1	1206	G
1	1	1212	G
1	1	1218	G
1	1	1236	G
1	1	1238	G
1	1	1247	A
1	1	1250	G
1	1	1253	A
1	1	1256	G
1	1	1266	G
1	1	1271	G
1	1	1272	A
1	1	1300	G

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Mol	Chain	Res	Type
1	1	1301	A
1	1	1321	A
1	1	1329	U
1	1	1341	G
1	1	1345	C
1	1	1352	U
1	1	1365	A
1	1	1368	G
1	1	1379	U
1	1	1380	G
1	1	1383	A
1	1	1386	C
1	1	1408	G
1	1	1417	C
1	1	1419	A
1	1	1427	A
1	1	1428	C
1	1	1437	C
1	1	1460	U
1	1	1468	U
1	1	1476	U
1	1	1482	G
1	1	1490	A
1	1	1493	C
1	1	1494	A
1	1	1503	A
1	1	1508	A
1	1	1509	A
1	1	1510	G
1	1	1515	A
1	1	1524	G
1	1	1529	G
1	1	1530	G
1	1	1532	A
1	1	1535	A
1	1	1536	C
1	1	1537	G
1	1	1554	U
1	1	1559	U
1	1	1566	A
1	1	1569	A
1	1	1578	U

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Mol	Chain	Res	Type
1	1	1580	A
1	1	1583	A
1	1	1587	G
1	1	1589	U
1	1	1590	A
1	1	1608	A
1	1	1619	G
1	1	1634	A
1	1	1647	U
1	1	1648	U
1	1	1649	G
1	1	1651	G
1	1	1674	G
1	1	1715	G
1	1	1723	G
1	1	1729	U
1	1	1730	C
1	1	1732	C
1	1	1738	G
1	1	1756	G
1	1	1764	C
1	1	1773	A
1	1	1782	U
1	1	1791	A
1	1	1800	C
1	1	1801	A
1	1	1802	A
1	1	1808	A
1	1	1811	G
1	1	1816	C
1	1	1829	A
1	1	1833	C
1	1	1835	2MG
1	1	1847	A
1	1	1848	A
1	1	1858	A
1	1	1862	G
1	1	1865	U
1	1	1868	C
1	1	1869	G
1	1	1870	C
1	1	1871	A

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Mol	Chain	Res	Type
1	1	1872	A
1	1	1873	G
1	1	1896	G
1	1	1906	G
1	1	1907	G
1	1	1912	A
1	1	1914	C
1	1	1923	U
1	1	1924	C
1	1	1929	G
1	1	1930	G
1	1	1936	A
1	1	1937	A
1	1	1938	A
1	1	1955	U
1	1	1967	C
1	1	1970	A
1	1	1971	U
1	1	1972	G
1	1	1991	U
1	1	1992	G
1	1	1993	U
1	1	1997	C
1	1	2002	G
1	1	2022	U
1	1	2023	C
1	1	2031	A
1	1	2033	A
1	1	2043	C
1	1	2052	A
1	1	2055	C
1	1	2056	G
1	1	2060	A
1	1	2061	G
1	1	2062	A
1	1	2069	G7M
1	1	2093	G
1	1	2095	A
1	1	2100	G
1	1	2102	G
1	1	2103	C
1	1	2107	G

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Mol	Chain	Res	Type
1	1	2110	G
1	1	2112	G
1	1	2113	U
1	1	2115	G
1	1	2116	G
1	1	2117	A
1	1	2118	U
1	1	2119	A
1	1	2121	G
1	1	2122	U
1	1	2125	G
1	1	2126	A
1	1	2127	G
1	1	2131	U
1	1	2132	U
1	1	2133	G
1	1	2134	A
1	1	2139	U
1	1	2140	G
1	1	2145	C
1	1	2146	C
1	1	2147	A
1	1	2151	U
1	1	2158	A
1	1	2159	G
1	1	2162	G
1	1	2163	A
1	1	2164	C
1	1	2165	C
1	1	2169	A
1	1	2171	A
1	1	2172	U
1	1	2173	A
1	1	2178	C
1	1	2183	A
1	1	2189	U
1	1	2190	G
1	1	2191	A
1	1	2194	U
1	1	2198	A
1	1	2204	G
1	1	2211	A

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Mol	Chain	Res	Type
1	1	2225	A
1	1	2229	U
1	1	2238	G
1	1	2239	G
1	1	2243	U
1	1	2250	G
1	1	2278	A
1	1	2283	C
1	1	2286	G
1	1	2287	A
1	1	2288	A
1	1	2305	U
1	1	2309	A
1	1	2319	G
1	1	2322	A
1	1	2325	G
1	1	2327	A
1	1	2333	A
1	1	2334	U
1	1	2336	A
1	1	2345	G
1	1	2347	C
1	1	2350	C
1	1	2357	G
1	1	2361	G
1	1	2376	A
1	1	2383	G
1	1	2385	C
1	1	2402	U
1	1	2403	C
1	1	2406	A
1	1	2423	U
1	1	2424	C
1	1	2425	A
1	1	2429	G
1	1	2430	A
1	1	2431	U
1	1	2435	A
1	1	2441	U
1	1	2445	2MG
1	1	2448	A
1	1	2470	G

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Mol	Chain	Res	Type
1	1	2476	A
1	1	2478	A
1	1	2480	C
1	1	2491	U
1	1	2498	OMC
1	1	2502	G
1	1	2504	PSU
1	1	2505	G
1	1	2506	U
1	1	2507	C
1	1	2513	A
1	1	2518	A
1	1	2520	C
1	1	2529	G
1	1	2535	G
1	1	2547	A
1	1	2554	U
1	1	2566	A
1	1	2567	G
1	1	2572	A
1	1	2573	C
1	1	2586	U
1	1	2602	A
1	1	2603	G
1	1	2609	U
1	1	2613	U
1	1	2629	U
1	1	2646	C
1	1	2663	G
1	1	2689	U
1	1	2690	U
1	1	2714	G
1	1	2716	C
1	1	2718	G
1	1	2725	A
1	1	2726	A
1	1	2733	A
1	1	2744	G
1	1	2748	A
1	1	2751	G
1	1	2757	A
1	1	2765	A

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Mol	Chain	Res	Type
1	1	2777	G
1	1	2778	A
1	1	2791	G
1	1	2793	C
1	1	2794	C
1	1	2797	U
1	1	2799	A
1	1	2811	G
1	1	2818	U
1	1	2820	A
1	1	2823	A
1	1	2825	G
1	1	2833	U
1	1	2835	A
1	1	2836	U
1	1	2861	U
1	1	2867	G
1	1	2872	A
1	1	2873	A
1	1	2879	A
1	1	2880	C
1	1	2883	A
1	1	2884	U
1	1	2885	G
1	1	2891	U
1	1	2898	U
1	1	2903	U
2	2	7	A
2	2	8	A
2	2	9	G
2	2	22	G
2	2	32	A
2	2	39	G
2	2	47	C
2	2	48	C
2	2	50	A
2	2	51	A
2	2	52	C
2	2	54	C
2	2	66	A
2	2	68	G
2	2	69	G

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Mol	Chain	Res	Type
2	2	70	U
2	2	71	A
2	2	72	A
2	2	73	C
2	2	74	A
2	2	75	G
2	2	76	G
2	2	79	G
2	2	81	A
2	2	83	C
2	2	84	U
2	2	85	U
2	2	86	G
2	2	87	C
2	2	92	U
2	2	120	A
2	2	121	U
2	2	128	G
2	2	130	A
2	2	131	A
2	2	141	G
2	2	144	G
2	2	149	A
2	2	160	A
2	2	163	C
2	2	164	G
2	2	177	G
2	2	181	A
2	2	182	A
2	2	197	A
2	2	204	G
2	2	210	C
2	2	211	G
2	2	212	G
2	2	226	G
2	2	245	U
2	2	247	G
2	2	251	G
2	2	266	G
2	2	267	C
2	2	279	A
2	2	289	G

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Mol	Chain	Res	Type
2	2	306	A
2	2	319	G
2	2	321	A
2	2	328	C
2	2	332	G
2	2	347	G
2	2	352	C
2	2	354	G
2	2	367	U
2	2	372	C
2	2	384	G
2	2	392	C
2	2	398	U
2	2	406	G
2	2	412	A
2	2	413	G
2	2	414	A
2	2	421	U
2	2	422	C
2	2	424	G
2	2	429	U
2	2	436	C
2	2	439	U
2	2	457	G
2	2	458	U
2	2	463	U
2	2	464	U
2	2	467	U
2	2	468	A
2	2	476	U
2	2	478	A
2	2	479	U
2	2	481	G
2	2	484	G
2	2	485	U
2	2	486	U
2	2	496	A
2	2	499	A
2	2	510	A
2	2	511	C
2	2	517	G
2	2	518	C

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Mol	Chain	Res	Type
2	2	521	G
2	2	527	G7M
2	2	531	U
2	2	532	A
2	2	533	A
2	2	547	A
2	2	559	A
2	2	564	C
2	2	568	G
2	2	572	A
2	2	573	A
2	2	576	C
2	2	577	G
2	2	596	A
2	2	633	G
2	2	639	G
2	2	650	G
2	2	653	U
2	2	660	C
2	2	665	A
2	2	700	G
2	2	701	U
2	2	702	A
2	2	703	G
2	2	718	A
2	2	721	G
2	2	723	U
2	2	724	G
2	2	731	G
2	2	734	G
2	2	747	A
2	2	748	G
2	2	753	A
2	2	755	G
2	2	777	A
2	2	787	A
2	2	793	U
2	2	794	A
2	2	815	A
2	2	817	C
2	2	821	G
2	2	828	U

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Mol	Chain	Res	Type
2	2	829	G
2	2	832	G
2	2	836	G
2	2	841	C
2	2	843	U
2	2	844	G
2	2	845	A
2	2	846	G
2	2	884	U
2	2	885	G
2	2	887	G
2	2	914	A
2	2	934	C
2	2	935	A
2	2	960	U
2	2	965	U
2	2	966	2MG
2	2	967	5MC
2	2	969	A
2	2	971	G
2	2	972	C
2	2	974	A
2	2	975	A
2	2	976	G
2	2	977	A
2	2	982	U
2	2	993	G
2	2	994	A
2	2	996	A
2	2	1004	A
2	2	1008	U
2	2	1009	U
2	2	1019	A
2	2	1022	A
2	2	1025	U
2	2	1026	G
2	2	1028	C
2	2	1030	U
2	2	1031	C
2	2	1032	G
2	2	1034	G
2	2	1043	G

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Mol	Chain	Res	Type
2	2	1044	A
2	2	1046	A
2	2	1065	U
2	2	1080	A
2	2	1085	U
2	2	1089	G
2	2	1094	G
2	2	1095	U
2	2	1101	A
2	2	1104	G
2	2	1108	G
2	2	1124	G
2	2	1125	U
2	2	1132	C
2	2	1133	G
2	2	1136	C
2	2	1137	C
2	2	1139	G
2	2	1140	C
2	2	1141	C
2	2	1143	G
2	2	1145	A
2	2	1146	A
2	2	1151	A
2	2	1152	A
2	2	1158	C
2	2	1159	U
2	2	1160	G
2	2	1167	A
2	2	1175	G
2	2	1176	A
2	2	1184	G
2	2	1196	A
2	2	1197	A
2	2	1212	U
2	2	1213	A
2	2	1215	G
2	2	1227	A
2	2	1228	C
2	2	1238	A
2	2	1239	A
2	2	1257	A

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Mol	Chain	Res	Type
2	2	1258	G
2	2	1260	G
2	2	1261	A
2	2	1275	A
2	2	1277	C
2	2	1279	G
2	2	1280	A
2	2	1286	U
2	2	1287	A
2	2	1297	G
2	2	1299	A
2	2	1302	C
2	2	1305	G
2	2	1312	G
2	2	1317	C
2	2	1320	C
2	2	1336	C
2	2	1346	A
2	2	1353	G
2	2	1363	A
2	2	1370	G
2	2	1379	G
2	2	1381	U
2	2	1419	G
2	2	1441	A
2	2	1446	A
2	2	1494	G
2	2	1497	G
2	2	1499	A
2	2	1503	A
2	2	1506	U
2	2	1517	G
2	2	1529	G
2	2	1530	G
2	2	1534	A
3	3	2	G
3	3	9	G
3	3	13	G
3	3	24	G
3	3	35	C
3	3	36	C
3	3	45	A

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Mol	Chain	Res	Type
3	3	51	G
3	3	56	G
3	3	66	A
3	3	88	C
3	3	89	U
3	3	90	C
3	3	99	A
3	3	109	A
4	4	2	G
54	z	2	G
54	z	7	G
54	z	8	U
54	z	10	U
54	z	13	G
54	z	14	A
54	z	15	G
54	z	16	U
54	z	17	OMG
54	z	19	C
54	z	20	U
54	z	21	G
54	z	22	A
54	z	23	A
54	z	24	G
54	z	36	G
54	z	37	A
54	z	45	U
54	z	46	A
54	z	48	A
54	z	49	C
54	z	50	G
54	z	51	G
54	z	53	A
54	z	54	A
54	z	55	C
54	z	56	G
54	z	59	U
54	z	61	G
54	z	65	G
54	z	66	5MU
54	z	68	C
54	z	71	A

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Mol	Chain	Res	Type
54	z	72	U
54	z	73	C
54	z	76	C
54	z	78	C
54	z	79	C
54	z	85	G
54	z	86	C
54	z	88	A

All (15) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	404	A
1	1	613	A
1	1	784	G
1	1	894	U
1	1	896	A
1	1	1379	U
1	1	2102	G
1	1	2146	C
1	1	2189	U
1	1	2602	A
1	1	2756	U
2	2	516	PSU
2	2	966	2MG
2	2	1109	C
2	2	1145	A

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or 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 length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	6MZ	1	1618	1	18,25,26	1.78	2 (11%)	16,36,39	3.60	3 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
1	1MG	1	745	1	18,26,27	2.85	5 (27%)	19,39,42	1.24	2 (10%)
1	OMG	1	2251	54,56,1	18,26,27	2.22	7 (38%)	19,38,41	1.45	4 (21%)
2	5MC	2	967	2	18,22,23	3.42	7 (38%)	26,32,35	1.00	2 (7%)
1	PSU	1	955	56,1	18,21,22	1.03	2 (11%)	22,30,33	1.97	5 (22%)
1	5MC	1	1962	1	18,22,23	3.35	7 (38%)	26,32,35	1.18	2 (7%)
2	2MG	2	1516	2	18,26,27	2.38	7 (38%)	16,38,41	1.37	3 (18%)
1	6MZ	1	2030	1	18,25,26	1.79	3 (16%)	16,36,39	3.30	3 (18%)
1	OMC	1	2498	56,1	19,22,23	2.72	7 (36%)	26,31,34	0.91	1 (3%)
44	0TD	p	89	44	7,9,10	1.43	0	6,11,13	1.97	3 (50%)
1	OMU	1	2552	1	19,22,23	2.83	8 (42%)	26,31,34	1.71	6 (23%)
54	5MU	z	66	54	19,22,23	4.90	7 (36%)	28,32,35	3.69	10 (35%)
1	PSU	1	746	56,1	18,21,22	1.00	1 (5%)	22,30,33	1.70	3 (13%)
1	PSU	1	2580	1	18,21,22	1.07	2 (11%)	22,30,33	2.18	6 (27%)
2	PSU	2	516	2,56	18,21,22	0.92	2 (11%)	22,30,33	1.77	4 (18%)
2	5MC	2	1407	2	18,22,23	3.28	7 (38%)	26,32,35	0.96	1 (3%)
1	2MG	1	1835	1	18,26,27	2.27	7 (38%)	16,38,41	1.24	3 (18%)
1	2MG	1	2445	1	18,26,27	2.23	8 (44%)	16,38,41	1.34	4 (25%)
1	PSU	1	1911	1	18,21,22	0.96	2 (11%)	22,30,33	1.94	4 (18%)
1	PSU	1	1917	1	18,21,22	1.09	2 (11%)	22,30,33	1.97	6 (27%)
55	FME	B	1	55	8,9,10	0.90	0	7,9,11	1.39	1 (14%)
2	2MG	2	966	2	18,26,27	2.41	7 (38%)	16,38,41	1.46	4 (25%)
1	5MU	1	747	1	19,22,23	4.61	7 (36%)	28,32,35	3.73	9 (32%)
1	PSU	1	2504	1	18,21,22	1.05	2 (11%)	22,30,33	1.89	5 (22%)
54	OMG	z	17	54	22,27,27	3.57	7 (31%)	26,41,41	11.79	11 (42%)
2	MA6	2	1519	2	18,26,27	1.22	2 (11%)	19,38,41	3.61	2 (10%)
2	G7M	2	527	2	20,26,27	2.30	7 (35%)	17,39,42	1.05	1 (5%)
2	UR3	2	1498	2	19,22,23	2.56	7 (36%)	26,32,35	1.20	2 (7%)
2	4OC	2	1402	2	20,23,24	2.85	8 (40%)	26,32,35	0.96	1 (3%)
1	PSU	1	2457	1	18,21,22	1.08	2 (11%)	22,30,33	2.08	6 (27%)
1	G7M	1	2069	1	20,26,27	2.25	9 (45%)	17,39,42	1.29	2 (11%)
1	2MA	1	2503	56,1	17,25,26	2.27	4 (23%)	17,37,40	1.23	2 (11%)
1	PSU	1	2605	1	18,21,22	0.97	1 (5%)	22,30,33	2.01	5 (22%)
1	5MU	1	1939	56,1	19,22,23	4.54	7 (36%)	28,32,35	3.74	9 (32%)
2	2MG	2	1207	2	18,26,27	2.30	7 (38%)	16,38,41	1.33	3 (18%)
1	3TD	1	1915	1	18,22,23	3.97	7 (38%)	22,32,35	1.61	2 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MA6	2	1518	2	18,26,27	1.22	2 (11%)	19,38,41	3.23	2 (10%)

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	6MZ	1	1618	1	-	3/5/27/28	0/3/3/3
1	1MG	1	745	1	-	0/3/25/26	0/3/3/3
1	OMG	1	2251	54,56,1	-	0/5/27/28	0/3/3/3
2	5MC	2	967	2	-	0/7/25/26	0/2/2/2
1	PSU	1	955	56,1	-	0/7/25/26	0/2/2/2
1	5MC	1	1962	1	-	0/7/25/26	0/2/2/2
2	2MG	2	1516	2	-	0/5/27/28	0/3/3/3
1	6MZ	1	2030	1	-	2/5/27/28	0/3/3/3
1	OMC	1	2498	56,1	-	0/9/27/28	0/2/2/2
44	0TD	p	89	44	-	2/7/12/14	-
1	OMU	1	2552	1	-	0/9/27/28	0/2/2/2
54	5MU	z	66	54	-	6/7/25/26	0/2/2/2
1	PSU	1	746	56,1	-	1/7/25/26	0/2/2/2
1	PSU	1	2580	1	-	0/7/25/26	0/2/2/2
2	PSU	2	516	2,56	-	2/7/25/26	0/2/2/2
2	5MC	2	1407	2	-	0/7/25/26	0/2/2/2
1	2MG	1	1835	1	-	2/5/27/28	0/3/3/3
1	2MG	1	2445	1	-	2/5/27/28	0/3/3/3
1	PSU	1	1911	1	-	0/7/25/26	0/2/2/2
1	PSU	1	1917	1	-	0/7/25/26	0/2/2/2
55	FME	B	1	55	-	3/7/9/11	-
2	2MG	2	966	2	-	2/5/27/28	0/3/3/3
1	5MU	1	747	1	-	0/7/25/26	0/2/2/2
1	PSU	1	2504	1	-	2/7/25/26	0/2/2/2
54	OMG	z	17	54	-	5/8/28/28	0/3/3/3
2	MA6	2	1519	2	-	5/7/29/30	0/3/3/3
2	G7M	2	527	2	-	3/3/25/26	0/3/3/3
2	UR3	2	1498	2	-	0/7/25/26	0/2/2/2
2	4OC	2	1402	2	-	2/9/29/30	0/2/2/2
1	PSU	1	2457	1	-	0/7/25/26	0/2/2/2
1	G7M	1	2069	1	-	1/3/25/26	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	2MA	1	2503	56,1	-	2/3/25/26	0/3/3/3
1	PSU	1	2605	1	-	0/7/25/26	0/2/2/2
1	5MU	1	1939	56,1	-	0/7/25/26	0/2/2/2
2	2MG	2	1207	2	-	0/5/27/28	0/3/3/3
1	3TD	1	1915	1	-	2/7/25/26	0/2/2/2
2	MA6	2	1518	2	-	1/7/29/30	0/3/3/3

All (179) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1915	3TD	C6-C5	11.52	1.48	1.35
54	z	66	5MU	C6-N1	11.09	1.57	1.38
54	z	66	5MU	C2-N1	10.89	1.55	1.38
1	1	747	5MU	C2-N1	10.87	1.55	1.38
54	z	66	5MU	C4-C5	10.26	1.61	1.44
1	1	1939	5MU	C2-N1	10.14	1.54	1.38
1	1	747	5MU	C6-N1	9.67	1.54	1.38
1	1	1939	5MU	C6-N1	9.63	1.54	1.38
54	z	17	OMG	O6-C6	-9.37	1.04	1.23
1	1	1939	5MU	C4-C5	9.30	1.60	1.44
1	1	747	5MU	C4-C5	9.17	1.60	1.44
1	1	1915	3TD	C2-N1	8.66	1.48	1.37
2	2	967	5MC	C6-C5	8.65	1.48	1.34
2	2	1407	5MC	C6-C5	8.63	1.48	1.34
1	1	745	1MG	C2-N2	8.42	1.49	1.34
1	1	1962	5MC	C6-C5	8.16	1.48	1.34
54	z	17	OMG	C2-N3	7.94	1.52	1.33
1	1	1939	5MU	C4-N3	-7.60	1.24	1.38
1	1	747	5MU	C4-N3	-7.52	1.24	1.38
54	z	17	OMG	C4-N3	7.34	1.55	1.37
54	z	66	5MU	C4-N3	-7.06	1.25	1.38
1	1	2503	2MA	C2-N3	6.58	1.45	1.31
1	1	1962	5MC	C4-N3	6.51	1.45	1.34
1	1	2552	OMU	C2-N1	6.36	1.48	1.38
2	2	967	5MC	C4-N3	6.35	1.44	1.34
54	z	66	5MU	C6-C5	6.33	1.45	1.34
2	2	1498	UR3	C6-C5	6.32	1.49	1.35
2	2	1402	4OC	C4-N3	6.26	1.43	1.32
1	1	2552	OMU	C2-N3	6.23	1.49	1.38
1	1	1962	5MC	C2-N3	5.89	1.48	1.36
2	2	967	5MC	C2-N3	5.81	1.48	1.36
2	2	1407	5MC	C4-N3	5.79	1.43	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1402	4OC	C6-C5	5.74	1.48	1.35
1	1	2498	OMC	C2-N3	5.71	1.47	1.36
1	1	1618	6MZ	C6-N6	5.64	1.44	1.35
1	1	747	5MU	C6-C5	5.64	1.43	1.34
2	2	1498	UR3	C2-N1	5.57	1.46	1.38
1	1	1939	5MU	C6-C5	5.56	1.43	1.34
1	1	2030	6MZ	C6-N6	5.54	1.44	1.35
2	2	1402	4OC	C2-N3	5.53	1.47	1.36
2	2	1407	5MC	C2-N3	5.52	1.47	1.36
1	1	1915	3TD	C6-N1	5.47	1.45	1.36
1	1	2498	OMC	C6-C5	5.42	1.47	1.35
1	1	2552	OMU	C6-C5	5.34	1.47	1.35
1	1	745	1MG	C2-N3	5.24	1.44	1.34
2	2	527	G7M	C2-N3	5.21	1.45	1.33
54	z	17	OMG	C2-N1	5.07	1.50	1.37
2	2	1516	2MG	C2-N2	5.03	1.44	1.33
2	2	966	2MG	C2-N2	5.00	1.44	1.33
1	1	2251	OMG	C2-N3	4.94	1.45	1.33
2	2	1498	UR3	C2-N3	4.91	1.48	1.39
2	2	1207	2MG	C2-N2	4.82	1.44	1.33
1	1	1835	2MG	C2-N2	4.82	1.44	1.33
2	2	966	2MG	C4-N3	4.74	1.48	1.37
1	1	1835	2MG	C4-N3	4.68	1.48	1.37
2	2	527	G7M	C4-N3	4.67	1.48	1.37
1	1	1915	3TD	C2-N3	4.67	1.48	1.38
1	1	2069	G7M	C2-N3	4.65	1.44	1.33
2	2	1207	2MG	C4-N3	4.65	1.48	1.37
1	1	2498	OMC	C4-N3	4.62	1.43	1.34
1	1	2503	2MA	C4-N3	4.61	1.48	1.37
54	z	17	OMG	C6-N1	4.58	1.44	1.37
2	2	527	G7M	C2-N2	4.56	1.45	1.34
1	1	2498	OMC	C4-N4	4.54	1.44	1.33
2	2	1516	2MG	C2-N1	4.51	1.43	1.36
2	2	1516	2MG	C4-N3	4.48	1.48	1.37
1	1	2445	2MG	C2-N2	4.43	1.43	1.33
1	1	745	1MG	C4-N3	4.41	1.48	1.37
2	2	966	2MG	C2-N1	4.40	1.43	1.36
1	1	1962	5MC	C4-N4	4.34	1.45	1.34
2	2	967	5MC	C4-N4	4.31	1.45	1.34
2	2	1402	4OC	C4-N4	4.31	1.44	1.35
1	1	2445	2MG	C4-N3	4.31	1.47	1.37
1	1	2069	G7M	C4-N3	4.23	1.47	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	2251	OMG	C4-N3	4.19	1.47	1.37
2	2	1207	2MG	C2-N1	4.15	1.43	1.36
1	1	2069	G7M	C2-N2	4.09	1.43	1.34
2	2	967	5MC	C6-N1	4.08	1.45	1.38
1	1	1835	2MG	C2-N1	3.99	1.43	1.36
1	1	1962	5MC	C2-N1	3.88	1.48	1.40
2	2	1407	5MC	C6-N1	3.86	1.44	1.38
1	1	2552	OMU	C4-N3	3.86	1.45	1.38
1	1	2445	2MG	C2-N1	3.84	1.42	1.36
2	2	1407	5MC	C4-N4	3.83	1.44	1.34
1	1	745	1MG	O6-C6	-3.81	1.15	1.22
54	z	17	OMG	C2-N2	3.71	1.43	1.34
2	2	967	5MC	C2-N1	3.68	1.48	1.40
1	1	2498	OMC	C2-N1	3.64	1.47	1.40
2	2	1407	5MC	C2-N1	3.62	1.47	1.40
1	1	1962	5MC	C6-N1	3.57	1.44	1.38
2	2	1402	4OC	C2-N1	3.56	1.47	1.40
2	2	966	2MG	C6-N1	3.40	1.42	1.37
1	1	2069	G7M	C6-N1	3.30	1.42	1.37
54	z	17	OMG	C5-C6	3.29	1.54	1.47
2	2	1519	MA6	C5-C4	-3.27	1.32	1.40
2	2	1402	4OC	C5-C4	3.21	1.47	1.40
1	1	747	5MU	O4-C4	-3.17	1.17	1.23
2	2	1518	MA6	C5-C4	-3.17	1.32	1.40
1	1	2503	2MA	C5-C4	-3.14	1.35	1.43
2	2	1516	2MG	C6-N1	3.07	1.42	1.37
2	2	1207	2MG	C6-N1	3.06	1.42	1.37
1	1	2251	OMG	C6-N1	3.05	1.42	1.37
1	1	2030	6MZ	C5-C4	-3.04	1.32	1.40
2	2	966	2MG	C5-C6	3.04	1.53	1.47
1	1	1939	5MU	O4-C4	-3.03	1.17	1.23
1	1	2498	OMC	O2-C2	-3.03	1.18	1.23
1	1	2251	OMG	C2-N2	3.03	1.41	1.34
1	1	1618	6MZ	C5-C4	-3.01	1.33	1.40
1	1	2552	OMU	O4-C4	-2.98	1.18	1.24
2	2	967	5MC	O2-C2	-2.98	1.18	1.23
1	1	1962	5MC	O2-C2	-2.96	1.18	1.23
1	1	2445	2MG	C5-C4	-2.96	1.35	1.43
2	2	1402	4OC	O2-C2	-2.94	1.18	1.23
2	2	1407	5MC	O2-C2	-2.91	1.18	1.23
1	1	2251	OMG	C5-C4	-2.90	1.35	1.43
2	2	527	G7M	C6-N1	2.87	1.42	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1516	2MG	C5-C4	-2.87	1.35	1.43
54	z	66	5MU	O4-C4	-2.86	1.18	1.23
1	1	1835	2MG	C6-N1	2.80	1.42	1.37
1	1	1917	PSU	C6-C5	2.80	1.38	1.35
2	2	1207	2MG	C5-C6	2.79	1.53	1.47
1	1	1939	5MU	O2-C2	-2.74	1.18	1.23
1	1	1835	2MG	C5-C4	-2.71	1.36	1.43
1	1	2457	PSU	C6-C5	2.66	1.38	1.35
2	2	1516	2MG	C5-C6	2.64	1.52	1.47
54	z	66	5MU	O2-C2	-2.63	1.18	1.23
1	1	1915	3TD	O2-C2	-2.63	1.18	1.23
2	2	1207	2MG	C5-C4	-2.63	1.36	1.43
1	1	2251	OMG	O6-C6	-2.62	1.18	1.23
2	2	527	G7M	C5-C6	2.62	1.52	1.45
2	2	1498	UR3	C6-N1	2.61	1.44	1.38
1	1	2504	PSU	C6-C5	2.61	1.38	1.35
1	1	2069	G7M	C5-C6	2.59	1.52	1.45
1	1	2445	2MG	C6-N1	2.56	1.41	1.37
1	1	2552	OMU	O2-C2	-2.55	1.18	1.23
1	1	747	5MU	O2-C2	-2.54	1.18	1.23
1	1	1835	2MG	C5-C6	2.54	1.52	1.47
2	2	1402	4OC	C6-N1	2.53	1.44	1.38
2	2	966	2MG	C5-C4	-2.48	1.36	1.43
1	1	2445	2MG	C5-C6	2.46	1.52	1.47
1	1	2069	G7M	C2-N1	2.46	1.43	1.37
1	1	1915	3TD	O4-C4	-2.46	1.17	1.23
2	2	527	G7M	C2-N1	2.44	1.43	1.37
2	2	527	G7M	O6-C6	-2.43	1.18	1.23
2	2	516	PSU	C6-C5	2.43	1.38	1.35
1	1	2445	2MG	O6-C6	-2.42	1.18	1.23
1	1	746	PSU	C6-C5	2.40	1.38	1.35
1	1	2069	G7M	O6-C6	-2.38	1.18	1.23
1	1	1835	2MG	O6-C6	-2.37	1.18	1.23
2	2	1518	MA6	C2-N3	2.37	1.35	1.32
1	1	2251	OMG	C5-C6	2.36	1.52	1.47
1	1	2580	PSU	C4-C5	-2.34	1.37	1.44
2	2	1207	2MG	O6-C6	-2.31	1.18	1.23
2	2	1519	MA6	C2-N3	2.31	1.35	1.32
1	1	2503	2MA	C6-N1	2.29	1.43	1.38
1	1	1915	3TD	C4-N3	2.29	1.45	1.40
1	1	745	1MG	C5-C4	-2.28	1.37	1.43
2	2	1516	2MG	O6-C6	-2.27	1.18	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1911	PSU	C6-C5	2.26	1.38	1.35
1	1	2069	G7M	C5-C4	-2.26	1.34	1.39
1	1	2069	G7M	CN7-N7	-2.25	1.42	1.47
1	1	2498	OMC	C6-N1	2.22	1.43	1.38
1	1	2457	PSU	C4-C5	-2.21	1.37	1.44
1	1	955	PSU	C4-C5	-2.19	1.37	1.44
1	1	1917	PSU	C4-C5	-2.16	1.38	1.44
1	1	2605	PSU	C4-C5	-2.16	1.38	1.44
2	2	966	2MG	O6-C6	-2.14	1.18	1.23
1	1	2552	OMU	C6-N1	2.14	1.43	1.38
2	2	516	PSU	C4-C5	-2.14	1.38	1.44
1	1	955	PSU	C6-C5	2.12	1.37	1.35
1	1	2552	OMU	C5-C4	2.12	1.48	1.43
1	1	2504	PSU	C4-C5	-2.12	1.38	1.44
2	2	1498	UR3	O2-C2	-2.10	1.18	1.22
2	2	1498	UR3	C4-N3	2.07	1.45	1.40
1	1	2445	2MG	C2'-C1'	-2.06	1.50	1.53
2	2	1498	UR3	C3U-N3	-2.04	1.43	1.47
1	1	1911	PSU	C4-C5	-2.04	1.38	1.44
1	1	2030	6MZ	C6-N1	-2.03	1.31	1.34
1	1	2580	PSU	C6-C5	2.01	1.37	1.35

All (142) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	z	17	OMG	O6-C6-N1	-49.24	62.50	120.65
54	z	17	OMG	O6-C6-C5	-31.08	63.67	124.37
2	2	1519	MA6	N1-C6-N6	-14.51	101.79	117.06
2	2	1518	MA6	N1-C6-N6	-12.76	103.63	117.06
1	1	747	5MU	C5-C4-N3	12.56	126.03	115.31
54	z	66	5MU	C5-C4-N3	12.27	125.78	115.31
1	1	1939	5MU	C5-C4-N3	12.18	125.71	115.31
1	1	1618	6MZ	C1'-N9-C4	-11.97	105.60	126.64
1	1	2030	6MZ	C1'-N9-C4	-11.50	106.44	126.64
1	1	1939	5MU	C5-C6-N1	-9.91	113.15	123.34
1	1	747	5MU	C5-C6-N1	-9.57	113.50	123.34
54	z	66	5MU	C5-C6-N1	-8.89	114.19	123.34
54	z	17	OMG	C5-C6-N1	6.92	126.17	113.95
1	1	747	5MU	O4-C4-C5	-6.01	117.93	124.90
54	z	17	OMG	OP3-P-OP1	-5.87	87.70	110.68
1	1	747	5MU	C4-N3-C2	-5.50	120.23	127.35
2	2	1519	MA6	N3-C2-N1	-5.46	120.14	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	1939	5MU	C4-N3-C2	-5.41	120.34	127.35
54	z	66	5MU	C5M-C5-C4	5.37	124.67	118.77
54	z	17	OMG	OP3-P-O5'	-5.35	92.51	106.73
1	1	1618	6MZ	C9-N6-C6	-5.32	118.29	122.87
1	1	2580	PSU	N1-C2-N3	5.29	121.12	115.13
2	2	1518	MA6	N3-C2-N1	-5.28	120.42	128.68
1	1	1618	6MZ	N3-C2-N1	-5.28	120.42	128.68
1	1	1939	5MU	O4-C4-C5	-5.21	118.86	124.90
1	1	2605	PSU	C4-N3-C2	-5.20	118.85	126.34
1	1	2457	PSU	N1-C2-N3	5.14	120.95	115.13
1	1	2457	PSU	C4-N3-C2	-5.14	118.94	126.34
1	1	1911	PSU	C4-N3-C2	-5.13	118.95	126.34
1	1	2580	PSU	C4-N3-C2	-5.12	118.96	126.34
54	z	17	OMG	OP3-P-OP2	-5.12	88.07	107.64
1	1	2552	OMU	C4-N3-C2	-5.11	119.84	126.58
54	z	17	OMG	OP2-P-OP1	5.03	130.36	110.68
54	z	66	5MU	C4-N3-C2	-5.02	120.86	127.35
1	1	1917	PSU	C4-N3-C2	-4.99	119.14	126.34
1	1	2030	6MZ	N3-C2-N1	-4.97	120.90	128.68
1	1	955	PSU	C4-N3-C2	-4.97	119.17	126.34
54	z	66	5MU	O4-C4-C5	-4.97	119.14	124.90
54	z	17	OMG	C2-N1-C6	-4.96	115.97	125.10
1	1	1915	3TD	N1-C2-N3	4.94	120.03	116.14
2	2	516	PSU	C4-N3-C2	-4.90	119.28	126.34
54	z	66	5MU	N3-C2-N1	4.90	121.39	114.89
1	1	2504	PSU	N1-C2-N3	4.84	120.62	115.13
1	1	955	PSU	N1-C2-N3	4.82	120.59	115.13
1	1	2605	PSU	N1-C2-N3	4.81	120.58	115.13
1	1	746	PSU	C4-N3-C2	-4.77	119.47	126.34
1	1	2504	PSU	C4-N3-C2	-4.74	119.52	126.34
1	1	1939	5MU	N3-C2-N1	4.71	121.14	114.89
1	1	1911	PSU	N1-C2-N3	4.70	120.46	115.13
1	1	1917	PSU	N1-C2-N3	4.70	120.45	115.13
54	z	66	5MU	C5M-C5-C6	-4.63	116.67	122.85
1	1	747	5MU	N3-C2-N1	4.54	120.92	114.89
1	1	1939	5MU	C5M-C5-C6	-4.54	116.78	122.85
1	1	1939	5MU	C5M-C5-C4	4.50	123.72	118.77
2	2	516	PSU	N1-C2-N3	4.26	119.96	115.13
1	1	746	PSU	N1-C2-N3	4.26	119.95	115.13
1	1	1915	3TD	C4-N3-C2	-4.26	119.99	124.61
2	2	1498	UR3	C4-N3-C2	-4.20	120.61	124.56
1	1	747	5MU	C5M-C5-C6	-3.81	117.77	122.85

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	747	5MU	C5M-C5-C4	3.65	122.78	118.77
1	1	2580	PSU	O2-C2-N1	-3.64	118.78	122.79
2	2	1407	5MC	C5-C6-N1	-3.62	119.61	123.34
1	1	2503	2MA	C5-C6-N1	3.61	120.25	114.02
44	p	89	0TD	OD2-CG-CB	3.53	120.77	113.15
1	1	2580	PSU	C6-C5-C4	3.44	120.60	118.20
1	1	745	1MG	C5-C6-N1	3.37	118.96	113.90
1	1	2552	OMU	N3-C2-N1	3.34	119.32	114.89
1	1	2552	OMU	C5-C4-N3	3.27	119.72	114.84
2	2	1516	2MG	C5-C6-N1	3.18	119.58	113.95
54	z	66	5MU	O2-C2-N1	-3.18	118.56	122.79
2	2	967	5MC	C5-C6-N1	-3.17	120.08	123.34
1	1	2251	OMG	C2-N1-C6	-3.17	119.26	125.10
2	2	966	2MG	C5-C6-N1	3.16	119.52	113.95
1	1	2251	OMG	C5-C6-N1	3.14	119.49	113.95
1	1	2605	PSU	C6-C5-C4	3.13	120.39	118.20
55	B	1	FME	C-CA-N	3.11	115.34	109.73
1	1	2457	PSU	O2-C2-N1	-3.10	119.38	122.79
1	1	2069	G7M	C2-N1-C6	-3.09	119.40	125.10
2	2	1207	2MG	C5-C6-N1	3.08	119.40	113.95
1	1	1835	2MG	C5-C6-N1	3.07	119.38	113.95
1	1	2030	6MZ	C9-N6-C6	-3.06	120.23	122.87
1	1	1911	PSU	O2-C2-N1	-3.06	119.43	122.79
1	1	2445	2MG	C5-C6-N1	3.05	119.34	113.95
54	z	17	OMG	O5'-P-OP1	3.03	114.97	106.47
1	1	1917	PSU	C6-C5-C4	3.01	120.30	118.20
1	1	955	PSU	C6-C5-C4	3.00	120.30	118.20
54	z	17	OMG	OP2-P-O5'	2.96	114.61	106.73
1	1	1939	5MU	O2-C2-N1	-2.96	118.85	122.79
1	1	2457	PSU	C6-C5-C4	2.89	120.22	118.20
1	1	1917	PSU	O2-C2-N1	-2.88	119.62	122.79
1	1	2580	PSU	C6-N1-C2	-2.86	119.75	122.68
1	1	2552	OMU	O4-C4-C5	-2.86	120.14	125.16
1	1	2504	PSU	O2-C2-N1	-2.81	119.70	122.79
2	2	527	G7M	C2-N1-C6	-2.75	120.03	125.10
1	1	746	PSU	O2-C2-N1	-2.74	119.78	122.79
2	2	1498	UR3	C3U-N3-C4	2.73	121.78	117.89
1	1	955	PSU	O2-C2-N1	-2.71	119.81	122.79
1	1	1911	PSU	C6-C5-C4	2.71	120.09	118.20
1	1	2605	PSU	O2-C2-N1	-2.71	119.81	122.79
54	z	66	5MU	O4-C4-N3	-2.63	115.08	120.12
2	2	1207	2MG	CM2-N2-C2	-2.62	118.08	123.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	2457	PSU	C6-N1-C2	-2.61	120.02	122.68
1	1	747	5MU	O2-C2-N1	-2.55	119.40	122.79
1	1	2503	2MA	C8-N7-C5	2.53	107.81	102.99
1	1	2445	2MG	CM2-N2-C2	-2.51	118.31	123.86
1	1	2504	PSU	C6-N1-C2	-2.51	120.12	122.68
2	2	966	2MG	CM2-N2-C2	-2.47	118.41	123.86
2	2	1207	2MG	C8-N7-C5	2.46	107.69	102.99
1	1	2251	OMG	C8-N7-C5	2.46	107.67	102.99
1	1	1962	5MC	C5-C6-N1	-2.45	120.82	123.34
1	1	1939	5MU	O4-C4-N3	-2.45	115.43	120.12
1	1	2498	OMC	CM2-O2'-C2'	-2.44	108.12	114.52
2	2	516	PSU	O2-C2-N1	-2.44	120.11	122.79
2	2	966	2MG	C8-N7-C5	2.42	107.60	102.99
2	2	1516	2MG	C8-N7-C5	2.42	107.59	102.99
1	1	2504	PSU	C6-C5-C4	2.40	119.88	118.20
1	1	2069	G7M	N2-C2-N1	2.40	121.82	116.71
1	1	2580	PSU	O4'-C1'-C2'	2.37	108.49	105.14
1	1	1962	5MC	C1'-N1-C6	-2.36	117.19	121.12
1	1	2552	OMU	CM2-O2'-C2'	-2.33	108.41	114.52
1	1	1835	2MG	C8-N7-C5	2.30	107.37	102.99
1	1	2445	2MG	C8-N7-C5	2.30	107.37	102.99
1	1	2457	PSU	O4'-C1'-C2'	2.26	108.34	105.14
1	1	745	1MG	C8-N7-C5	2.23	107.24	102.99
2	2	967	5MC	CM5-C5-C6	-2.23	119.87	122.85
2	2	1516	2MG	O6-C6-C5	-2.20	120.08	124.37
2	2	1402	4OC	C6-C5-C4	2.20	119.65	116.96
44	p	89	0TD	OD1-CG-CB	-2.17	117.90	122.44
2	2	966	2MG	O6-C6-C5	-2.17	120.14	124.37
54	z	17	OMG	C8-N7-C5	2.16	107.10	102.99
54	z	66	5MU	C6-N1-C2	-2.14	119.13	121.30
1	1	747	5MU	O4-C4-N3	-2.13	116.03	120.12
2	2	516	PSU	C6-N1-C2	-2.09	120.54	122.68
1	1	1835	2MG	O6-C6-C5	-2.09	120.29	124.37
1	1	1917	PSU	C6-N1-C2	-2.09	120.55	122.68
1	1	955	PSU	C6-N1-C2	-2.08	120.56	122.68
1	1	2251	OMG	O6-C6-C5	-2.07	120.33	124.37
44	p	89	0TD	CSB-SB-CB	2.05	106.15	102.44
1	1	2552	OMU	O2-C2-N1	-2.03	120.08	122.79
1	1	2445	2MG	O6-C6-C5	-2.03	120.41	124.37
1	1	1917	PSU	O4'-C1'-C2'	2.03	108.01	105.14
1	1	2605	PSU	C6-N1-C2	-2.00	120.64	122.68

There are no chirality outliers.

All (48) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	2	516	PSU	O4'-C1'-C5-C4
2	2	516	PSU	O4'-C1'-C5-C6
2	2	527	G7M	C3'-C4'-C5'-O5'
2	2	1519	MA6	O4'-C4'-C5'-O5'
2	2	1519	MA6	C5-C6-N6-C10
55	B	1	FME	O-C-CA-CB
1	1	1618	6MZ	O4'-C4'-C5'-O5'
1	1	1618	6MZ	C3'-C4'-C5'-O5'
1	1	1915	3TD	O4'-C1'-C5-C4
1	1	1915	3TD	O4'-C1'-C5-C6
1	1	2445	2MG	C3'-C4'-C5'-O5'
1	1	2504	PSU	O4'-C4'-C5'-O5'
54	z	17	OMG	C5'-O5'-P-OP2
54	z	17	OMG	C5'-O5'-P-OP3
54	z	17	OMG	C1'-C2'-O2'-CM2
54	z	66	5MU	C2'-C1'-N1-C2
54	z	66	5MU	C2'-C1'-N1-C6
1	1	2030	6MZ	O4'-C4'-C5'-O5'
1	1	2030	6MZ	C3'-C4'-C5'-O5'
1	1	2504	PSU	C3'-C4'-C5'-O5'
2	2	527	G7M	O4'-C4'-C5'-O5'
2	2	966	2MG	O4'-C4'-C5'-O5'
2	2	1402	4OC	O4'-C4'-C5'-O5'
2	2	1519	MA6	C3'-C4'-C5'-O5'
1	1	2503	2MA	O4'-C4'-C5'-O5'
2	2	1519	MA6	N1-C6-N6-C10
54	z	17	OMG	C3'-C2'-O2'-CM2
55	B	1	FME	N-CA-CB-CG
2	2	966	2MG	C3'-C4'-C5'-O5'
1	1	1835	2MG	C3'-C4'-C5'-O5'
1	1	1835	2MG	O4'-C4'-C5'-O5'
1	1	2445	2MG	O4'-C4'-C5'-O5'
54	z	66	5MU	O4'-C4'-C5'-O5'
2	2	1518	MA6	C5-C6-N6-C10
2	2	1519	MA6	C5-C6-N6-C9
54	z	66	5MU	O4'-C1'-N1-C2
54	z	66	5MU	O4'-C1'-N1-C6
1	1	2503	2MA	C3'-C4'-C5'-O5'
54	z	66	5MU	C3'-C4'-C5'-O5'
44	p	89	0TD	CG-CB-SB-CSB
44	p	89	0TD	SB-CB-CG-OD1
2	2	527	G7M	C4'-C5'-O5'-P

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Mol	Chain	Res	Type	Atoms
1	1	1618	6MZ	N1-C6-N6-C9
2	2	1402	4OC	C3'-C4'-C5'-O5'
55	B	1	FME	C-CA-CB-CG
1	1	746	PSU	O4'-C1'-C5-C6
1	1	2069	G7M	O4'-C4'-C5'-O5'
54	z	17	OMG	O4'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 402 ligands modelled in this entry, 402 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-12929. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

This section was not generated.

6.2 Central slices ⓘ

This section was not generated.

6.3 Largest variance slices ⓘ

This section was not generated.

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

This section was not generated.

6.5 Orthogonal surface views ⓘ

This section was not generated.

6.6 Mask visualisation ⓘ

This section was not generated. No masks/segmentation were deposited.

7 Map analysis ⓘ

This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ

This section was not generated.

7.2 Volume estimate versus contour level ⓘ

This section was not generated.

7.3 Rotationally averaged power spectrum ⓘ

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit (i)

This section was not generated.