wwPDB X-ray Structure Validation Summary Report (i)

Feb 3, 2025 – 11:00 PM EST

PDB ID	:	4JI0
Title	:	Crystal Structure of 30S ribosomal subunit from Thermus thermophilus
Authors	:	Demirci, H.; Wang, L.; Murphy IV, F.; Murphy, E.; Carr, J.; Blanchard, S.; Jogl, G.; Dahlberg, A.E.; Gregory, S.T.
Deposited on	:	2013-03-05
Resolution	:	3.49 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

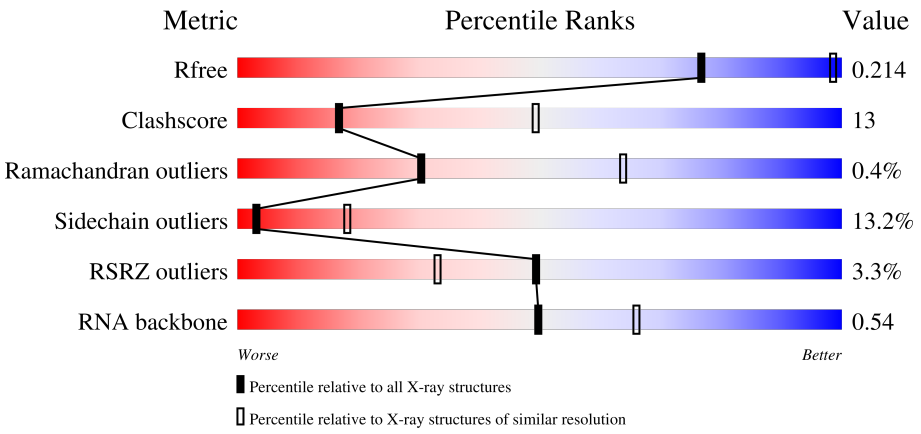
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.49 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1094 (3.56-3.44)
Clashscore	180529	1045 (3.54-3.46)
Ramachandran outliers	177936	1032 (3.54-3.46)
Sidechain outliers	177891	1033 (3.54-3.46)
RSRZ outliers	164620	1093 (3.56-3.44)
RNA backbone	3690	1089 (4.00-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1522	% 50% 37% 10% ••
2	B	256	% 57% 30% 5% 9%
3	C	239	8% 43% 36% 7% 14%
4	D	209	5% 61% 32% 7%

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Mol	Chain	Length	Quality of chain
5	E	162	%; 49%; 38%; 6%; 7%
6	F	101	2%; 59%; 36%; 5%
7	G	156	4%; 58%; 38%; • •
8	H	138	61%; 33%; 6%
9	I	128	7%; 52%; 43%; 5%; •
10	J	105	6%; 57%; 32%; • • ; 7%
11	K	129	5%; 60%; 26%; 5%; 10%
12	L	135	4%; 50%; 35%; 7%; 8%
13	M	126	5%; 44%; 46%; •; 6%
14	N	61	20%; 56%; 39%; • •
15	O	89	%; 62%; 33%; • •
16	P	88	2%; 50%; 41%; •; 6%
17	Q	105	2%; 53%; 38%; • • ; 6%
18	R	88	47%; 28%; 5%; 20%
19	S	93	6%; 57%; 26%; • • ; 14%
20	T	106	4%; 53%; 33%; 6%; •; 7%
21	U	27	15%; 44%; 30%; 15%; 11%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1605	-	-	-	X
22	MG	A	1625	-	-	-	X
22	MG	A	1629	-	-	-	X
22	MG	A	1633	-	-	-	X
22	MG	A	1687	-	-	-	X
22	MG	A	1702	-	-	-	X
22	MG	A	1718	-	-	-	X
22	MG	A	1763	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1849	-	-	-	X
22	MG	A	1863	-	-	-	X
22	MG	A	1867	-	-	-	X
22	MG	A	1885	-	-	-	X

2 Entry composition (i)

There are 24 unique types of molecules in this entry. The entry contains 52316 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 16S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	A	1512	32644	14540	6039	10547	1518	0	6	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1534	C	A	conflict	GB M26923.1
A	1535	A	C	conflict	GB M26923.1

- Molecule 2 is a protein called ribosomal protein S2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	234	1900	1213	341	341	5	0	0	0

- Molecule 3 is a protein called ribosomal protein S3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	206	1612	1016	314	281	1	0	0	0

- Molecule 4 is a protein called ribosomal protein S4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	208	1703	1066	339	291	7	0	0	0

- Molecule 5 is a protein called ribosomal protein S5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	150	1146	724	217	201	4	0	0	0

- Molecule 6 is a protein called ribosomal protein S6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	101	843	531	155	154	3	0	0	0

- Molecule 7 is a protein called ribosomal protein S7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	155	1257	781	252	218	6	0	0	0

- Molecule 8 is a protein called ribosomal protein S8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	138	1116	705	215	193	3	0	0	0

- Molecule 9 is a protein called ribosomal protein S9.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
9	I	127	1010	639	197	174	0	0	0

- Molecule 10 is a protein called ribosomal protein S10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	J	98	792	498	156	137	1	0	0	0

- Molecule 11 is a protein called ribosomal protein S11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	116	864	537	164	160	3	0	0	0

- Molecule 12 is a protein called ribosomal protein S12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	L	124	973	613	195	163	2	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	94	LEU	PRO	conflict	UNP F6DEQ7

- Molecule 13 is a protein called ribosomal protein S13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	M	118	937	579	193	163	2	0	0	0

- Molecule 14 is a protein called ribosomal protein S14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
14	N	60	492	312	104	72	4	0	0	0

- Molecule 15 is a protein called ribosomal protein S15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	O	87	729	457	146	124	2	0	0	0

- Molecule 16 is a protein called ribosomal protein S16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
16	P	83	700	443	139	117	1	0	0	0

- Molecule 17 is a protein called ribosomal protein S17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
17	Q	99	823	528	151	142	2	0	0	0

- Molecule 18 is a protein called ribosomal protein S18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
18	R	70	574	367	112	95	0	0	0

- Molecule 19 is a protein called ribosomal protein S19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
19	S	80	647	414	119	112	2	0	0	0

- Molecule 20 is a protein called ribosomal protein S20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
20	T	99	763	470	162	129	2	0	0	0

- Molecule 21 is a protein called ribosomal protein THX.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
21	U	24	208	128	50	30	0	0	0

- Molecule 22 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
22	A	290	290	290	0	0
22	B	2	2	2	0	0
22	C	2	2	2	0	0
22	D	3	3	3	0	0
22	E	1	1	1	0	0
22	F	1	1	1	0	0
22	H	1	1	1	0	0
22	I	1	1	1	0	0
22	J	1	1	1	0	0
22	P	3	3	3	0	0
22	Q	1	1	1	0	0

- Molecule 23 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
23	D	1	1	1	0	0
			Total	Zn		
23	N	1	1	1	0	0

- Molecule 24 is water.

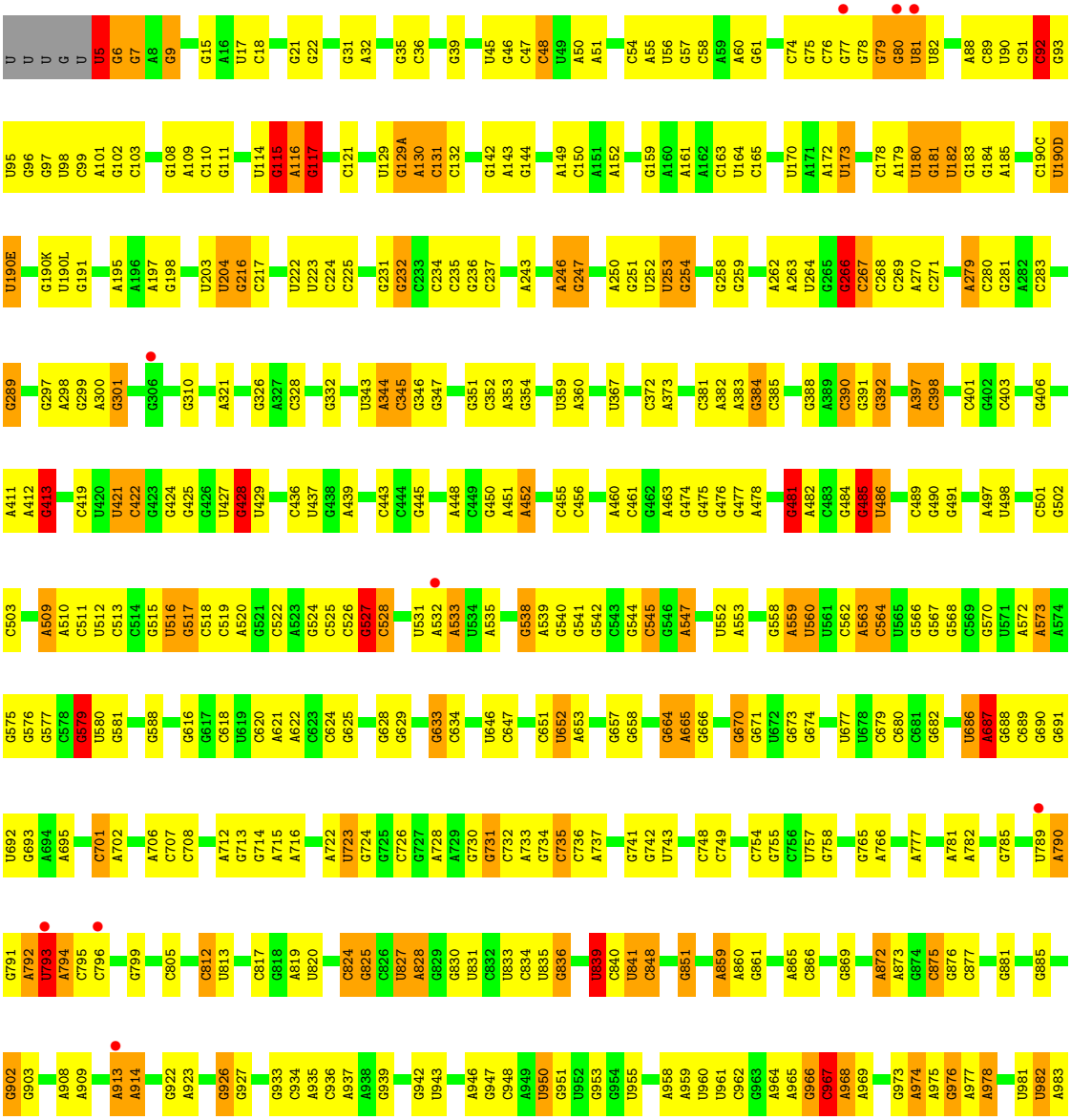
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
24	A	266	266	266	0	0
			Total	O		
24	C	1	1	1	0	0
			Total	O		
24	D	1	1	1	0	0
			Total	O		
24	E	5	5	5	0	0
			Total	O		
24	T	2	2	2	0	0

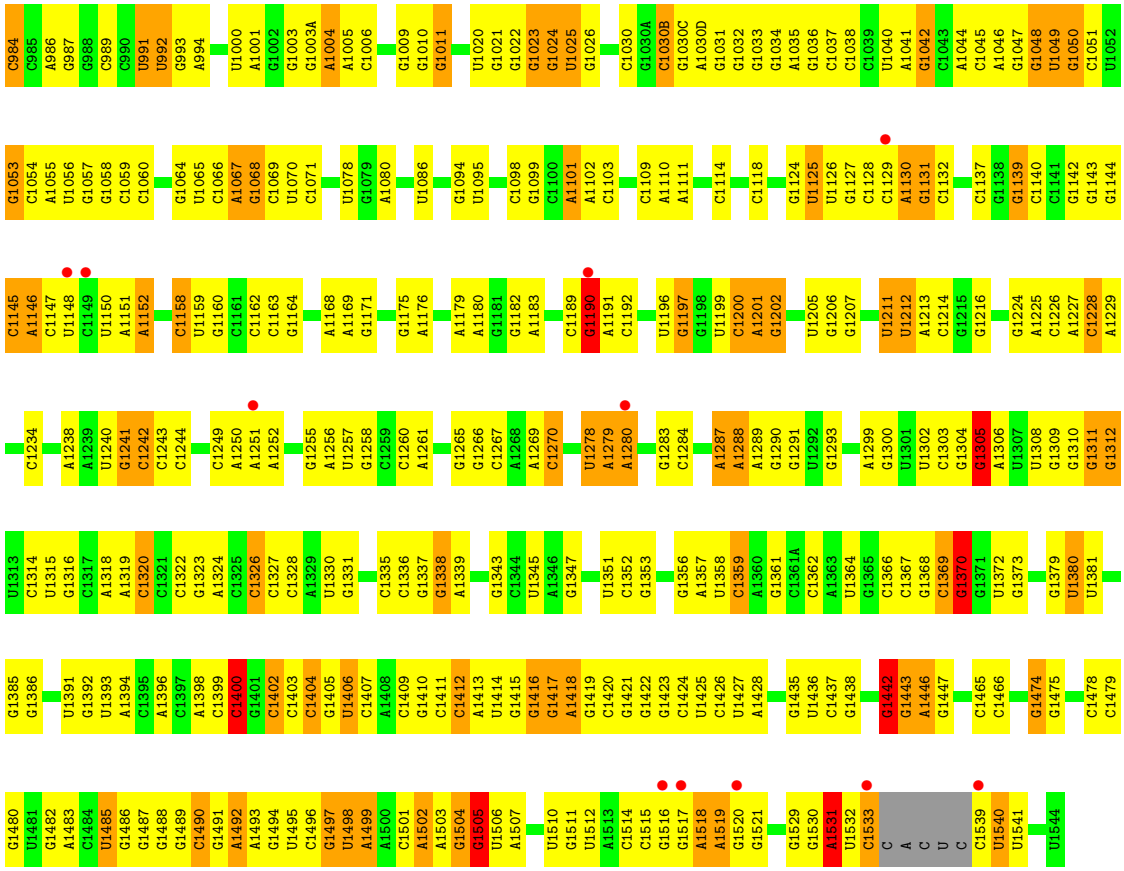
3 Residue-property plots (i)

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 and electron density. 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. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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: 16S rRNA

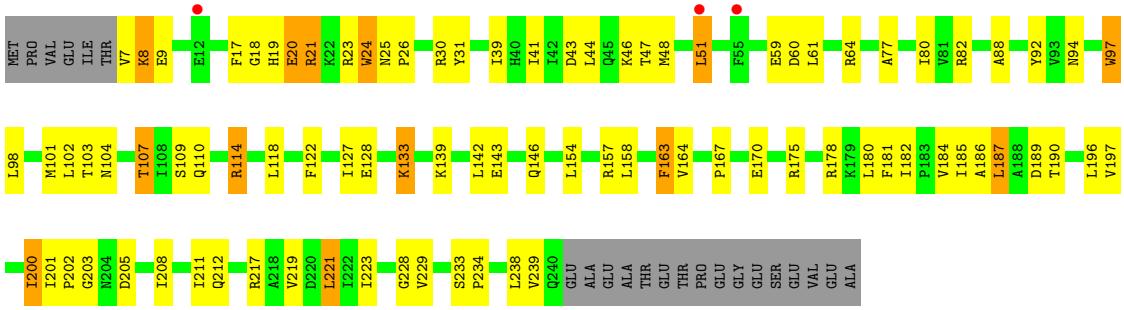
Chain A:





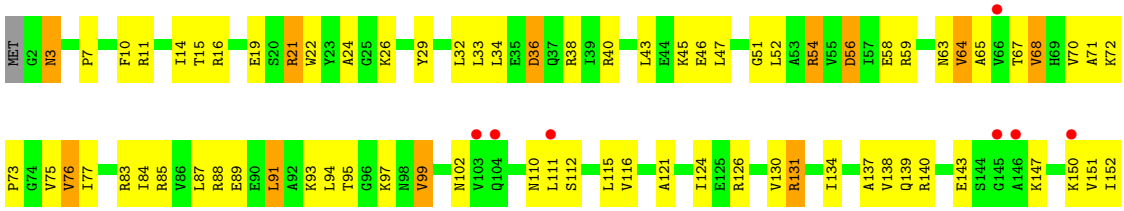
- Molecule 2: ribosomal protein S2

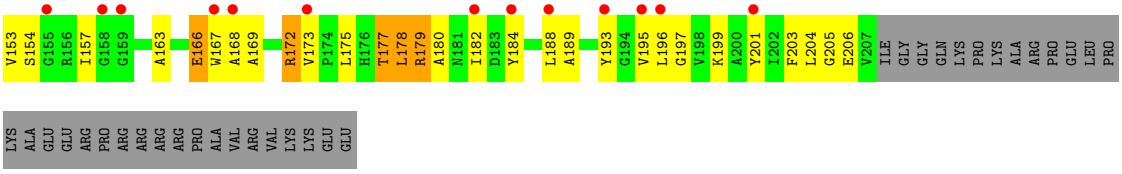
Chain B:



- Molecule 3: ribosomal protein S3

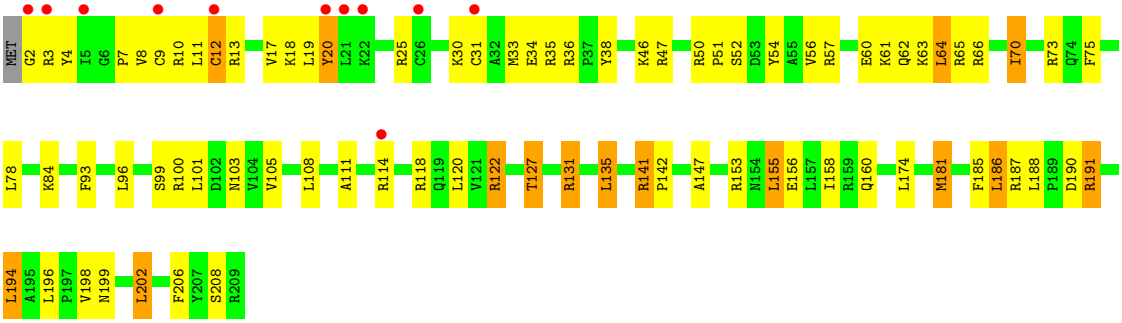
Chain C:





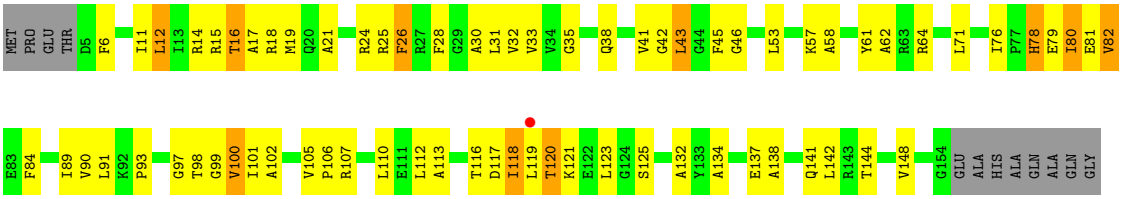
- Molecule 4: ribosomal protein S4

Chain D:



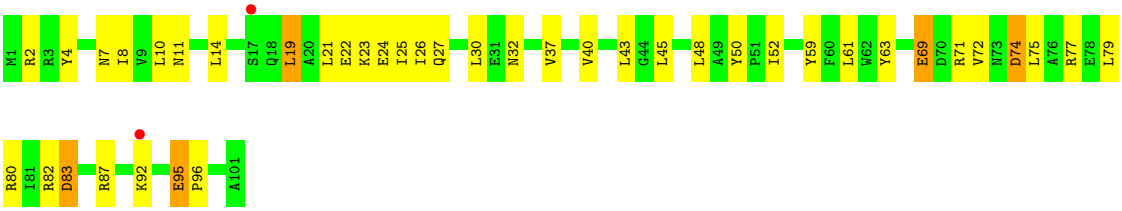
- Molecule 5: ribosomal protein S5

Chain E:



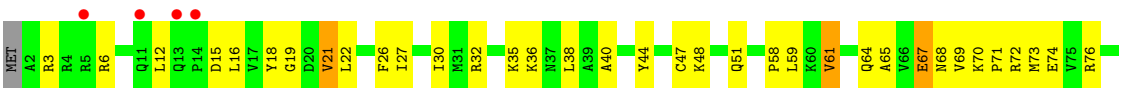
- Molecule 6: ribosomal protein S6

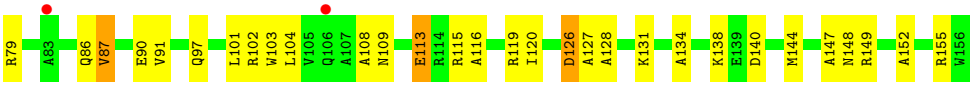
Chain F:



- Molecule 7: ribosomal protein S7

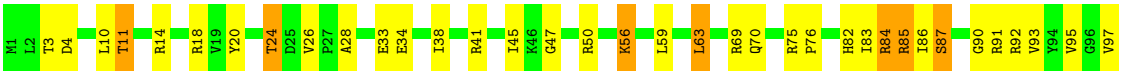
Chain G:

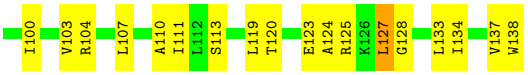




• Molecule 8: ribosomal protein S8

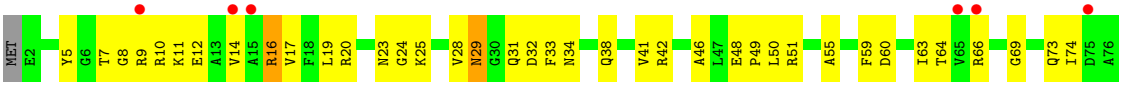
Chain H:

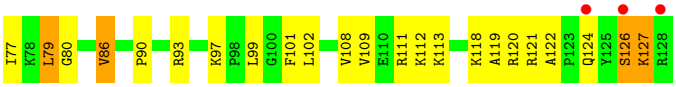




• Molecule 9: ribosomal protein S9

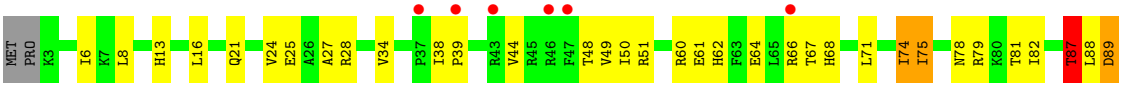
Chain I:

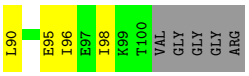




• Molecule 10: ribosomal protein S10

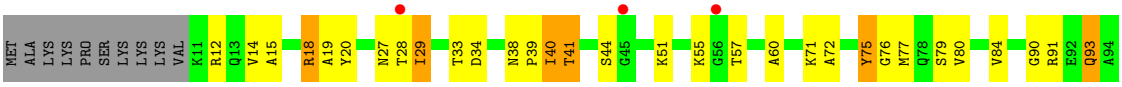
Chain J:

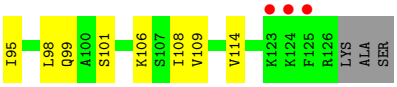




• Molecule 11: ribosomal protein S11

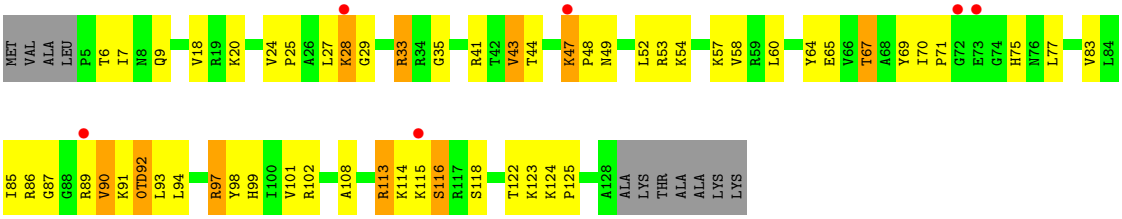
Chain K:





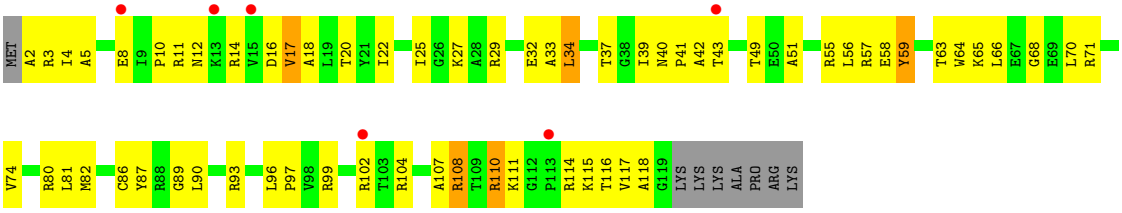
• Molecule 12: ribosomal protein S12

Chain L:



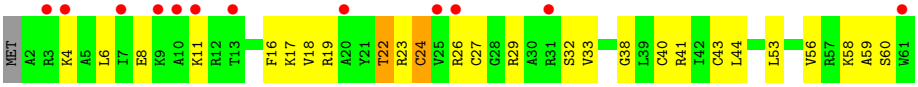
- Molecule 13: ribosomal protein S13

Chain M:



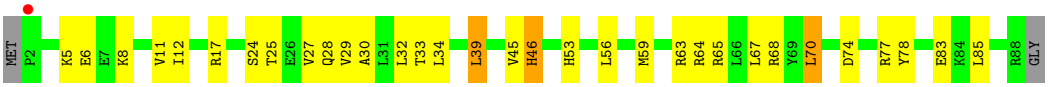
- Molecule 14: ribosomal protein S14

Chain N:



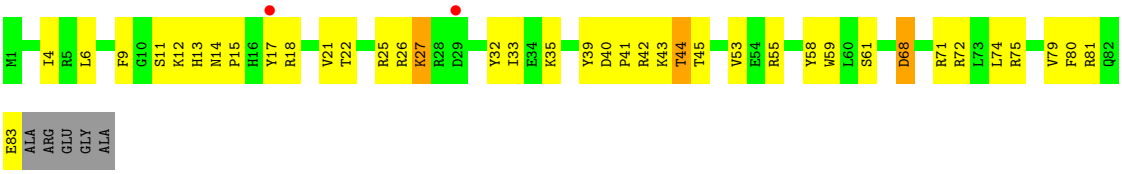
- Molecule 15: ribosomal protein S15

Chain O:



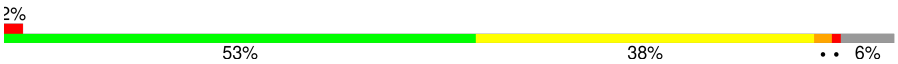
- Molecule 16: ribosomal protein S16

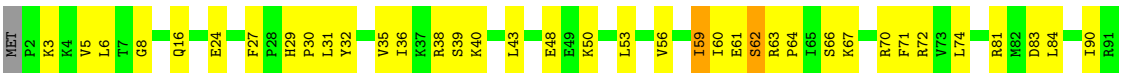
Chain P:

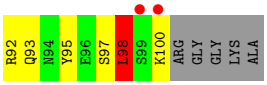


- Molecule 17: ribosomal protein S17

Chain Q:

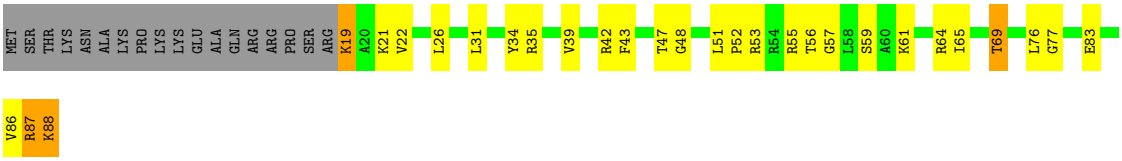






- Molecule 18: ribosomal protein S18

Chain R:



- Molecule 19: ribosomal protein S19

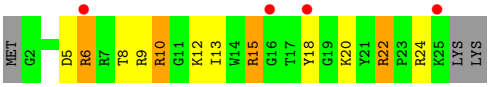
Chain S:

- Molecule 20: ribosomal protein S20

Chain T:

- Molecule 21: ribosomal protein THX

Chain U:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	403.74Å 403.74Å 174.34Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.53 – 3.49 49.53 – 3.49	Depositor EDS
% Data completeness (in resolution range)	99.1 (49.53-3.49) 99.1 (49.53-3.49)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.85 (at 3.48Å)	Xtriage
Refinement program	PHENIX dev_1119	Depositor
R, R_{free}	0.167 , 0.212 0.169 , 0.214	Depositor DCC
R_{free} test set	9025 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	124.9	Xtriage
Anisotropy	0.213	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 130.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.45$, $< L^2 > = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	52316	wwPDB-VP
Average B, all atoms (Å^2)	168.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.63% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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: PSU, MG, UR3, M2G, ZN, 7MG, 0TD, MA6, 2MG, 4OC, 5MC

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	A	0.53	2/36139 (0.0%)	1.04	90/56396 (0.2%)
2	B	0.39	0/1935	0.59	0/2609
3	C	0.31	0/1636	0.55	1/2205 (0.0%)
4	D	0.39	1/1733 (0.1%)	0.57	0/2318
5	E	0.49	0/1162	0.69	0/1564
6	F	0.31	0/856	0.52	0/1154
7	G	0.31	0/1276	0.49	0/1709
8	H	0.54	0/1136	0.70	0/1527
9	I	0.32	0/1029	0.55	0/1379
10	J	0.30	0/805	0.61	0/1082
11	K	0.38	0/879	0.61	0/1187
12	L	0.40	0/977	0.65	0/1305
13	M	0.33	0/947	0.57	0/1270
14	N	0.28	0/501	0.54	0/664
15	O	0.39	0/740	0.61	0/987
16	P	0.41	0/716	0.63	0/963
17	Q	0.48	0/836	0.71	1/1117 (0.1%)
18	R	0.38	0/579	0.62	0/768
19	S	0.28	0/661	0.59	0/890
20	T	0.38	0/765	0.61	1/1007 (0.1%)
21	U	0.31	0/212	0.46	0/277
All	All	0.49	3/55520 (0.0%)	0.92	93/82378 (0.1%)

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 outliers	#Planarity outliers
3	C	0	1
8	H	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
10	J	0	3
19	S	0	1
20	T	0	2
All	All	0	8

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	279	A	N9-C4	-7.55	1.33	1.37
1	A	279	A	N3-C4	-5.57	1.31	1.34
4	D	12	CYS	CB-SG	5.07	1.90	1.82

The worst 5 of 93 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1158	C	C2-N1-C1'	9.00	128.70	118.80
1	A	117	G	N1-C6-O6	8.45	124.97	119.90
1	A	481	G	N3-C4-N9	8.13	130.88	126.00
1	A	1200	C	C2-N1-C1'	7.75	127.32	118.80
1	A	875	C	C6-N1-C2	7.68	123.37	120.30

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	166	GLU	Peptide
8	H	90	GLY	Peptide
10	J	87	THR	Peptide
10	J	88	LEU	Peptide
10	J	90	LEU	Peptide

5.2 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 the 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 within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	32644	0	16507	527	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	1900	0	1951	50	0
3	C	1612	0	1676	64	0
4	D	1703	0	1763	59	0
5	E	1146	0	1207	43	0
6	F	843	0	857	26	0
7	G	1257	0	1296	42	0
8	H	1116	0	1177	36	0
9	I	1010	0	1037	51	0
10	J	792	0	835	25	0
11	K	864	0	881	23	0
12	L	973	0	1062	41	0
13	M	937	0	995	49	0
14	N	492	0	529	23	0
15	O	729	0	768	22	0
16	P	700	0	720	28	0
17	Q	823	0	891	31	0
18	R	574	0	644	22	0
19	S	647	0	673	14	0
20	T	763	0	861	27	0
21	U	208	0	221	14	0
22	A	290	0	0	0	0
22	B	2	0	0	0	0
22	C	2	0	0	0	0
22	D	3	0	0	0	0
22	E	1	0	0	0	0
22	F	1	0	0	0	0
22	H	1	0	0	0	0
22	I	1	0	0	0	0
22	J	1	0	0	0	0
22	P	3	0	0	0	0
22	Q	1	0	0	0	0
23	D	1	0	0	0	0
23	N	1	0	0	0	0
24	A	266	0	0	5	0
24	C	1	0	0	0	0
24	D	1	0	0	0	0
24	E	5	0	0	0	0
24	T	2	0	0	1	0
All	All	52316	0	36551	1091	0

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 13.

The worst 5 of 1091 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:29:HIS:HD2	17:Q:32:TYR:H	1.11	0.92
20:T:100:ILE:HG22	20:T:102:GLY:H	1.33	0.92
17:Q:29:HIS:CD2	17:Q:32:TYR:H	1.94	0.85
1:A:144:G:H1	1:A:178:C:H42	1.23	0.84
1:A:413:G:H8	1:A:428:G:H21	1.24	0.83

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 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 X-ray entries followed by that with respect to entries of similar resolution.

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	B	232/256 (91%)	211 (91%)	19 (8%)	2 (1%)	14	49
3	C	204/239 (85%)	174 (85%)	30 (15%)	0	100	100
4	D	206/209 (99%)	192 (93%)	14 (7%)	0	100	100
5	E	148/162 (91%)	140 (95%)	7 (5%)	1 (1%)	19	53
6	F	99/101 (98%)	97 (98%)	2 (2%)	0	100	100
7	G	153/156 (98%)	140 (92%)	13 (8%)	0	100	100
8	H	136/138 (99%)	132 (97%)	4 (3%)	0	100	100
9	I	125/128 (98%)	113 (90%)	11 (9%)	1 (1%)	16	51
10	J	96/105 (91%)	78 (81%)	17 (18%)	1 (1%)	13	46
11	K	114/129 (88%)	102 (90%)	12 (10%)	0	100	100
12	L	121/135 (90%)	111 (92%)	9 (7%)	1 (1%)	16	51
13	M	116/126 (92%)	105 (90%)	11 (10%)	0	100	100
14	N	58/61 (95%)	53 (91%)	5 (9%)	0	100	100
15	O	85/89 (96%)	78 (92%)	6 (7%)	1 (1%)	11	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	P	81/88 (92%)	76 (94%)	5 (6%)	0	100	100
17	Q	97/105 (92%)	92 (95%)	5 (5%)	0	100	100
18	R	68/88 (77%)	63 (93%)	5 (7%)	0	100	100
19	S	78/93 (84%)	72 (92%)	4 (5%)	2 (3%)	4	28
20	T	97/106 (92%)	85 (88%)	11 (11%)	1 (1%)	13	46
21	U	22/27 (82%)	20 (91%)	2 (9%)	0	100	100
All	All	2336/2541 (92%)	2134 (91%)	192 (8%)	10 (0%)	30	64

5 of 10 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
20	T	73	HIS
19	S	31	ILE
2	B	21	ARG
9	I	119	ALA
12	L	28	LYS

5.3.2 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 X-ray entries followed by that with respect to entries of similar resolution.

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	B	202/220 (92%)	171 (85%)	31 (15%)	2	14
3	C	160/188 (85%)	134 (84%)	26 (16%)	2	11
4	D	180/181 (99%)	157 (87%)	23 (13%)	3	18
5	E	115/123 (94%)	94 (82%)	21 (18%)	1	7
6	F	90/90 (100%)	78 (87%)	12 (13%)	3	18
7	G	126/127 (99%)	112 (89%)	14 (11%)	5	23
8	H	119/119 (100%)	105 (88%)	14 (12%)	4	21
9	I	98/99 (99%)	88 (90%)	10 (10%)	6	26
10	J	87/92 (95%)	79 (91%)	8 (9%)	7	29
11	K	88/99 (89%)	77 (88%)	11 (12%)	3	19

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	L	103/110 (94%)	87 (84%)	16 (16%)	2	13
13	M	94/101 (93%)	84 (89%)	10 (11%)	5	25
14	N	49/50 (98%)	46 (94%)	3 (6%)	15	43
15	O	79/80 (99%)	73 (92%)	6 (8%)	11	35
16	P	72/74 (97%)	63 (88%)	9 (12%)	3	19
17	Q	94/97 (97%)	85 (90%)	9 (10%)	7	28
18	R	61/77 (79%)	54 (88%)	7 (12%)	4	22
19	S	71/80 (89%)	60 (84%)	11 (16%)	2	13
20	T	76/82 (93%)	60 (79%)	16 (21%)	1	5
21	U	19/22 (86%)	15 (79%)	4 (21%)	1	5
All	All	1983/2111 (94%)	1722 (87%)	261 (13%)	3	18

5 of 261 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	S	7	LYS
19	S	64	GLU
21	U	22	ARG
5	E	116	THR
5	E	80	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 8 such sidechains are listed below:

Mol	Chain	Res	Type
17	Q	29	HIS
13	M	40	ASN
9	I	124	GLN
9	I	73	GLN
10	J	13	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1504/1522 (98%)	283 (18%)	32 (2%)

5 of 283 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	G
1	A	7	G
1	A	9	G
1	A	32	A
1	A	39	G

5 of 32 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	1201	A
1	A	1305	G
1	A	575	G
1	A	559	A
1	A	1380	U

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

17 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	MA6	A	1518[B]	1	19,26,27	1.30	2 (10%)	18,38,41	0.84	0
1	5MC	A	1407	1	19,22,23	1.29	3 (15%)	26,32,35	1.04	2 (7%)
1	5MC	A	1404	1	19,22,23	1.22	2 (10%)	26,32,35	1.08	3 (11%)
1	MA6	A	1519[A]	1	19,26,27	1.01	2 (10%)	18,38,41	0.78	0
1	4OC	A	1402	1	20,23,24	0.96	1 (5%)	25,32,35	0.74	0
12	0TD	L	92	12	8,9,10	1.28	1 (12%)	6,11,13	2.22	4 (66%)
1	UR3	A	1498	1	19,22,23	0.59	0	26,32,35	1.00	1 (3%)
1	MA6	A	1519[B]	1	19,26,27	1.39	3 (15%)	18,38,41	0.68	0
1	7MG	A	527	1	23,26,27	3.90	4 (17%)	27,39,42	2.13	9 (33%)
1	PSU	A	516	1	18,21,22	1.16	1 (5%)	21,30,33	1.99	5 (23%)
1	5MC	A	1400	1	19,22,23	1.12	2 (10%)	26,32,35	0.98	1 (3%)
1	2MG	A	1207	1	18,26,27	1.55	4 (22%)	16,38,41	1.44	2 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	PSU	A	1541	1	18,21,22	1.16	1 (5%)	21,30,33	1.89	6 (28%)
1	M2G	A	966	1	20,27,28	1.24	4 (20%)	19,40,43	1.24	2 (10%)
1	MA6	A	1518[A]	1	19,26,27	1.04	1 (5%)	18,38,41	0.69	0
1	5MC	A	967	1	19,22,23	0.91	1 (5%)	26,32,35	0.92	1 (3%)
1	PSU	A	1540	1	18,21,22	1.17	1 (5%)	21,30,33	1.85	4 (19%)

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	MA6	A	1518[B]	1	-	0/7/29/30	0/3/3/3
1	5MC	A	1407	1	-	0/7/25/26	0/2/2/2
1	5MC	A	1404	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1519[A]	1	-	2/7/29/30	0/3/3/3
1	4OC	A	1402	1	-	2/9/29/30	0/2/2/2
12	0TD	L	92	12	-	3/7/12/14	-
1	UR3	A	1498	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1519[B]	1	-	3/7/29/30	0/3/3/3
1	7MG	A	527	1	-	2/7/37/38	0/3/3/3
1	PSU	A	516	1	-	0/7/25/26	0/2/2/2
1	5MC	A	1400	1	-	2/7/25/26	0/2/2/2
1	2MG	A	1207	1	-	0/5/27/28	0/3/3/3
1	PSU	A	1541	1	-	1/7/25/26	0/2/2/2
1	M2G	A	966	1	-	1/7/29/30	0/3/3/3
1	MA6	A	1518[A]	1	-	2/7/29/30	0/3/3/3
1	5MC	A	967	1	-	4/7/25/26	0/2/2/2
1	PSU	A	1540	1	-	1/7/25/26	0/2/2/2

The worst 5 of 33 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	527	7MG	C8-N9	-17.40	1.34	1.45
1	A	527	7MG	C2-N2	4.04	1.43	1.34
1	A	1518[B]	MA6	C6-N1	4.00	1.38	1.32
1	A	527	7MG	C5-N7	3.97	1.40	1.35
1	A	1540	PSU	C6-C5	3.91	1.39	1.35

The worst 5 of 40 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	516	PSU	N1-C2-N3	5.07	120.51	115.17
1	A	516	PSU	C4-N3-C2	-4.92	119.59	126.37
1	A	527	7MG	C5-C6-N1	4.90	119.56	110.94
1	A	1541	PSU	C4-N3-C2	-4.81	119.74	126.37
1	A	1540	PSU	C4-N3-C2	-4.67	119.93	126.37

There are no chirality outliers.

5 of 23 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	527	7MG	O4'-C4'-C5'-O5'
1	A	967	5MC	O4'-C4'-C5'-O5'
1	A	967	5MC	C3'-C4'-C5'-O5'
1	A	1400	5MC	O4'-C4'-C5'-O5'
1	A	1402	4OC	O4'-C4'-C5'-O5'

There are no ring outliers.

14 monomers are involved in 21 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1518[B]	MA6	3	0
1	A	1404	5MC	1	0
1	A	1519[A]	MA6	3	0
1	A	1402	4OC	1	0
12	L	92	0TD	2	0
1	A	1498	UR3	4	0
1	A	1519[B]	MA6	2	0
1	A	527	7MG	1	0
1	A	516	PSU	1	0
1	A	1400	5MC	1	0
1	A	966	M2G	1	0
1	A	1518[A]	MA6	4	0
1	A	967	5MC	2	0
1	A	1540	PSU	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 308 ligands modelled in this entry, 308 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 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	1498/1522 (98%)	-0.60	20 (1%)	74	56	54, 149, 298, 383	4 (0%)
2	B	234/256 (91%)	-0.27	3 (1%)	74	56	110, 163, 264, 293	0
3	C	206/239 (86%)	0.40	20 (9%)	15	11	187, 249, 292, 314	0
4	D	208/209 (99%)	-0.03	11 (5%)	33	24	102, 153, 202, 242	0
5	E	150/162 (92%)	-0.52	1 (0%)	84	69	84, 117, 161, 208	0
6	F	101/101 (100%)	-0.33	2 (1%)	64	45	134, 170, 201, 246	0
7	G	155/156 (99%)	-0.19	6 (3%)	44	30	141, 195, 254, 265	0
8	H	138/138 (100%)	-0.59	0	100	100	85, 111, 150, 167	0
9	I	127/128 (99%)	0.24	9 (7%)	23	18	152, 219, 273, 284	0
10	J	98/105 (93%)	0.47	6 (6%)	28	21	169, 261, 324, 346	0
11	K	116/129 (89%)	-0.18	6 (5%)	34	24	113, 145, 190, 211	0
12	L	123/135 (91%)	0.04	6 (4%)	36	25	85, 149, 189, 242	0
13	M	118/126 (93%)	0.06	6 (5%)	34	25	131, 175, 223, 289	0
14	N	60/61 (98%)	0.96	12 (20%)	3	3	198, 233, 308, 329	0
15	O	87/89 (97%)	-0.29	1 (1%)	77	59	95, 134, 189, 219	0
16	P	83/88 (94%)	-0.09	2 (2%)	59	41	106, 148, 186, 213	0
17	Q	99/105 (94%)	-0.27	2 (2%)	64	45	98, 122, 160, 183	0
18	R	70/88 (79%)	-0.43	0	100	100	103, 145, 209, 265	0
19	S	80/93 (86%)	0.46	6 (7%)	22	17	184, 244, 305, 328	0
20	T	99/106 (93%)	0.04	4 (4%)	43	29	115, 153, 209, 236	0
21	U	24/27 (88%)	1.09	4 (16%)	5	5	141, 203, 217, 233	0
All	All	3874/4063 (95%)	-0.26	127 (3%)	49	33	54, 159, 279, 383	4 (0%)

The worst 5 of 127 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1516[A]	G	8.6
9	I	9	ARG	8.1
21	U	25	LYS	7.7
3	C	201	TYR	6.6
1	A	1517[A]	G	6.6

6.2 Non-standard residues in protein, DNA, RNA chains (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	PSU	A	1540	20/21	0.88	0.39	322,326,366,367	0
1	PSU	A	1541	20/21	0.90	0.26	310,320,323,324	0
1	PSU	A	516	20/21	0.92	0.09	160,168,183,185	0
1	2MG	A	1207	24/25	0.92	0.11	229,245,287,292	0
1	5MC	A	1407	21/22	0.93	0.09	144,174,179,188	0
1	4OC	A	1402	22/23	0.96	0.13	114,123,142,153	0
1	5MC	A	967	21/22	0.96	0.09	144,166,176,182	0
1	UR3	A	1498	21/22	0.96	0.13	110,126,150,154	0
1	MA6	A	1518[A]	24/25	0.96	0.18	110,124,131,134	24
1	MA6	A	1518[B]	24/25	0.96	0.18	109,127,140,143	24
1	M2G	A	966	25/26	0.96	0.11	159,174,177,182	0
1	5MC	A	1400	21/22	0.96	0.09	111,135,144,147	0
12	0TD	L	92	10/11	0.96	0.12	141,163,251,314	0
1	7MG	A	527	24/25	0.97	0.07	119,131,150,156	0
1	5MC	A	1404	21/22	0.98	0.09	102,118,163,172	0
1	MA6	A	1519[A]	24/25	0.98	0.12	105,113,127,135	24
1	MA6	A	1519[B]	24/25	0.98	0.12	107,123,133,138	24

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1860	1/1	0.10	0.30	170,170,170,170	0
22	MG	A	1746	1/1	0.28	0.39	131,131,131,131	0
22	MG	A	1702	1/1	0.40	0.41	164,164,164,164	0
22	MG	A	1857	1/1	0.50	0.08	448,448,448,448	0
22	MG	A	1756	1/1	0.51	0.22	158,158,158,158	0
22	MG	A	1864	1/1	0.51	0.28	137,137,137,137	0
22	MG	A	1810	1/1	0.53	0.30	149,149,149,149	0
22	MG	A	1625	1/1	0.54	0.41	146,146,146,146	0
22	MG	A	1877	1/1	0.54	0.19	160,160,160,160	0
22	MG	A	1687	1/1	0.58	0.45	147,147,147,147	0
22	MG	A	1820	1/1	0.59	0.28	155,155,155,155	0
22	MG	A	1778	1/1	0.61	0.17	151,151,151,151	0
22	MG	A	1863	1/1	0.61	0.64	132,132,132,132	0
22	MG	A	1672	1/1	0.63	0.18	160,160,160,160	0
22	MG	A	1882	1/1	0.65	0.27	124,124,124,124	0
22	MG	A	1677	1/1	0.66	0.13	299,299,299,299	0
22	MG	A	1870	1/1	0.66	0.23	144,144,144,144	0
22	MG	A	1724	1/1	0.67	0.20	166,166,166,166	0
22	MG	A	1862	1/1	0.68	0.29	132,132,132,132	0
22	MG	A	1812	1/1	0.68	0.28	148,148,148,148	0
22	MG	A	1886	1/1	0.68	0.23	164,164,164,164	0
22	MG	A	1762	1/1	0.69	0.32	156,156,156,156	0
22	MG	A	1885	1/1	0.69	0.63	135,135,135,135	0
22	MG	A	1791	1/1	0.69	0.35	152,152,152,152	0
22	MG	A	1867	1/1	0.70	0.41	134,134,134,134	0
22	MG	A	1849	1/1	0.70	0.41	150,150,150,150	0
22	MG	A	1744	1/1	0.70	0.19	162,162,162,162	0
22	MG	A	1605	1/1	0.71	0.48	112,112,112,112	0
22	MG	A	1773	1/1	0.72	0.12	134,134,134,134	0
22	MG	A	1633	1/1	0.72	0.48	125,125,125,125	0
22	MG	A	1845	1/1	0.72	0.24	140,140,140,140	0
22	MG	A	1804	1/1	0.73	0.33	144,144,144,144	0
22	MG	A	1833	1/1	0.73	0.10	161,161,161,161	0
22	MG	A	1880	1/1	0.73	0.17	128,128,128,128	0
22	MG	A	1830	1/1	0.74	0.31	125,125,125,125	0
22	MG	A	1866	1/1	0.74	0.31	120,120,120,120	0
22	MG	A	1854	1/1	0.74	0.23	145,145,145,145	0
22	MG	A	1718	1/1	0.75	0.44	135,135,135,135	0
22	MG	A	1834	1/1	0.76	0.25	125,125,125,125	0
22	MG	A	1838	1/1	0.76	0.24	151,151,151,151	0
22	MG	A	1767	1/1	0.76	0.30	138,138,138,138	0
22	MG	A	1684	1/1	0.77	0.27	133,133,133,133	0
22	MG	A	1873	1/1	0.77	0.32	142,142,142,142	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1783	1/1	0.77	0.35	148,148,148,148	0
22	MG	A	1725	1/1	0.77	0.10	288,288,288,288	0
22	MG	A	1827	1/1	0.77	0.22	116,116,116,116	0
22	MG	A	1793	1/1	0.77	0.09	184,184,184,184	0
22	MG	A	1730	1/1	0.77	0.28	133,133,133,133	0
22	MG	A	1887	1/1	0.77	0.37	143,143,143,143	0
22	MG	Q	201	1/1	0.77	0.23	134,134,134,134	0
22	MG	A	1875	1/1	0.78	0.23	129,129,129,129	0
22	MG	A	1797	1/1	0.78	0.28	117,117,117,117	0
22	MG	A	1642	1/1	0.78	0.24	119,119,119,119	0
22	MG	A	1819	1/1	0.78	0.31	148,148,148,148	0
22	MG	A	1666	1/1	0.79	0.19	126,126,126,126	0
22	MG	A	1629	1/1	0.79	0.70	146,146,146,146	0
22	MG	A	1674	1/1	0.79	0.31	139,139,139,139	0
22	MG	A	1799	1/1	0.79	0.15	140,140,140,140	0
22	MG	A	1763	1/1	0.79	0.44	113,113,113,113	0
22	MG	A	1829	1/1	0.79	0.20	134,134,134,134	0
22	MG	A	1868	1/1	0.80	0.34	130,130,130,130	0
22	MG	A	1869	1/1	0.80	0.27	143,143,143,143	0
22	MG	A	1696	1/1	0.80	0.42	151,151,151,151	0
22	MG	A	1754	1/1	0.80	0.13	141,141,141,141	0
22	MG	A	1711	1/1	0.81	0.13	160,160,160,160	0
22	MG	A	1826	1/1	0.81	0.50	166,166,166,166	0
22	MG	A	1698	1/1	0.81	0.21	216,216,216,216	0
22	MG	A	1771	1/1	0.81	0.19	137,137,137,137	0
22	MG	A	1728	1/1	0.81	0.24	108,108,108,108	0
22	MG	H	201	1/1	0.81	0.29	137,137,137,137	0
22	MG	A	1777	1/1	0.81	0.17	139,139,139,139	0
22	MG	A	1813	1/1	0.82	0.40	153,153,153,153	0
22	MG	A	1738	1/1	0.82	0.24	136,136,136,136	0
22	MG	A	1850	1/1	0.82	0.35	110,110,110,110	0
22	MG	A	1631	1/1	0.82	0.36	140,140,140,140	0
22	MG	A	1661	1/1	0.82	0.28	105,105,105,105	0
22	MG	A	1662	1/1	0.82	0.30	109,109,109,109	0
22	MG	A	1723	1/1	0.83	0.62	132,132,132,132	0
22	MG	A	1814	1/1	0.83	0.16	504,504,504,504	0
22	MG	A	1818	1/1	0.83	0.24	111,111,111,111	0
22	MG	A	1809	1/1	0.83	0.17	114,114,114,114	0
22	MG	A	1831	1/1	0.84	0.20	138,138,138,138	0
22	MG	A	1601	1/1	0.84	0.42	147,147,147,147	0
22	MG	A	1823	1/1	0.84	0.18	140,140,140,140	0
22	MG	A	1835	1/1	0.84	0.27	119,119,119,119	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1837	1/1	0.84	0.10	143,143,143,143	0
22	MG	A	1749	1/1	0.84	0.28	138,138,138,138	0
22	MG	A	1759	1/1	0.85	0.25	122,122,122,122	0
22	MG	A	1888	1/1	0.85	0.30	127,127,127,127	0
22	MG	A	1776	1/1	0.85	0.13	144,144,144,144	0
22	MG	P	103	1/1	0.85	0.11	135,135,135,135	0
22	MG	A	1874	1/1	0.85	0.20	154,154,154,154	0
22	MG	A	1788	1/1	0.86	0.13	95,95,95,95	0
22	MG	A	1741	1/1	0.86	0.18	134,134,134,134	0
22	MG	A	1883	1/1	0.86	0.19	135,135,135,135	0
22	MG	A	1792	1/1	0.86	0.20	202,202,202,202	0
22	MG	A	1729	1/1	0.86	0.30	132,132,132,132	0
22	MG	A	1714	1/1	0.86	0.44	149,149,149,149	0
22	MG	A	1798	1/1	0.86	0.19	125,125,125,125	0
22	MG	A	1840	1/1	0.86	0.36	148,148,148,148	0
22	MG	A	1603	1/1	0.86	0.21	153,153,153,153	0
22	MG	A	1865	1/1	0.86	0.26	139,139,139,139	0
22	MG	A	1690	1/1	0.87	0.13	158,158,158,158	0
22	MG	A	1624	1/1	0.87	0.36	153,153,153,153	0
22	MG	A	1715	1/1	0.87	0.14	107,107,107,107	0
22	MG	A	1836	1/1	0.87	0.36	129,129,129,129	0
22	MG	A	1876	1/1	0.87	0.26	124,124,124,124	0
22	MG	A	1774	1/1	0.87	0.50	133,133,133,133	0
22	MG	A	1704	1/1	0.87	0.07	171,171,171,171	0
22	MG	A	1832	1/1	0.87	0.26	115,115,115,115	0
22	MG	A	1825	1/1	0.88	0.34	146,146,146,146	0
22	MG	A	1737	1/1	0.88	0.20	122,122,122,122	0
22	MG	A	1786	1/1	0.88	0.19	152,152,152,152	0
22	MG	A	1828	1/1	0.88	0.63	129,129,129,129	0
22	MG	A	1682	1/1	0.88	0.21	113,113,113,113	0
22	MG	A	1660	1/1	0.88	0.10	128,128,128,128	0
22	MG	A	1808	1/1	0.88	0.33	127,127,127,127	0
22	MG	A	1761	1/1	0.88	0.09	146,146,146,146	0
22	MG	A	1772	1/1	0.88	0.33	88,88,88,88	0
22	MG	A	1824	1/1	0.89	0.17	139,139,139,139	0
22	MG	A	1785	1/1	0.89	0.23	114,114,114,114	0
22	MG	A	1757	1/1	0.89	0.35	113,113,113,113	0
22	MG	A	1881	1/1	0.89	0.33	141,141,141,141	0
22	MG	A	1745	1/1	0.89	0.37	100,100,100,100	0
22	MG	A	1604	1/1	0.89	0.13	122,122,122,122	0
22	MG	A	1688	1/1	0.89	0.18	133,133,133,133	0
22	MG	A	1775	1/1	0.89	0.14	144,144,144,144	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1742	1/1	0.89	0.16	142,142,142,142	0
22	MG	A	1765	1/1	0.89	0.51	134,134,134,134	0
22	MG	A	1664	1/1	0.89	0.17	119,119,119,119	0
22	MG	A	1770	1/1	0.89	0.13	156,156,156,156	0
22	MG	A	1861	1/1	0.89	0.38	113,113,113,113	0
22	MG	A	1731	1/1	0.90	0.21	92,92,92,92	0
22	MG	A	1733	1/1	0.90	0.22	124,124,124,124	0
22	MG	A	1871	1/1	0.90	0.53	159,159,159,159	0
22	MG	A	1884	1/1	0.90	0.20	132,132,132,132	0
22	MG	A	1678	1/1	0.90	0.21	114,114,114,114	0
22	MG	A	1755	1/1	0.90	0.18	96,96,96,96	0
22	MG	A	1787	1/1	0.90	0.06	181,181,181,181	0
22	MG	A	1694	1/1	0.90	0.27	103,103,103,103	0
22	MG	A	1889	1/1	0.90	0.19	129,129,129,129	0
22	MG	B	302	1/1	0.90	0.10	123,123,123,123	0
22	MG	D	304	1/1	0.90	0.26	124,124,124,124	0
22	MG	E	201	1/1	0.90	0.10	165,165,165,165	0
22	MG	A	1789	1/1	0.90	0.09	152,152,152,152	0
22	MG	A	1878	1/1	0.90	0.58	148,148,148,148	0
22	MG	A	1805	1/1	0.90	0.36	95,95,95,95	0
22	MG	A	1697	1/1	0.91	0.13	177,177,177,177	0
22	MG	A	1821	1/1	0.91	0.29	111,111,111,111	0
22	MG	A	1689	1/1	0.91	0.47	198,198,198,198	0
22	MG	A	1764	1/1	0.91	0.60	103,103,103,103	0
22	MG	A	1686	1/1	0.91	0.09	213,213,213,213	0
22	MG	A	1646	1/1	0.91	0.40	139,139,139,139	0
22	MG	A	1679	1/1	0.91	0.16	180,180,180,180	0
22	MG	A	1879	1/1	0.91	0.19	138,138,138,138	0
22	MG	A	1743	1/1	0.92	0.13	140,140,140,140	0
22	MG	A	1644	1/1	0.92	0.18	95,95,95,95	0
22	MG	A	1699	1/1	0.92	0.20	109,109,109,109	0
22	MG	A	1802	1/1	0.92	0.73	125,125,125,125	0
22	MG	A	1681	1/1	0.92	0.11	160,160,160,160	0
22	MG	A	1703	1/1	0.92	0.14	195,195,195,195	0
22	MG	A	1752	1/1	0.92	0.23	116,116,116,116	0
22	MG	A	1843	1/1	0.92	0.33	137,137,137,137	0
22	MG	A	1753	1/1	0.92	0.23	122,122,122,122	0
22	MG	A	1848	1/1	0.92	0.09	142,142,142,142	0
22	MG	A	1734	1/1	0.92	0.22	92,92,92,92	0
22	MG	A	1634	1/1	0.92	0.17	212,212,212,212	0
22	MG	C	301	1/1	0.92	0.26	144,144,144,144	0
22	MG	C	302	1/1	0.92	0.06	164,164,164,164	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1705	1/1	0.92	0.09	301,301,301,301	0
22	MG	A	1855	1/1	0.92	0.28	489,489,489,489	0
22	MG	F	201	1/1	0.92	0.15	145,145,145,145	0
22	MG	A	1726	1/1	0.92	0.15	96,96,96,96	0
22	MG	J	201	1/1	0.92	0.18	120,120,120,120	0
22	MG	P	102	1/1	0.92	0.12	127,127,127,127	0
22	MG	A	1858	1/1	0.92	0.07	271,271,271,271	0
22	MG	A	1648	1/1	0.92	0.11	139,139,139,139	0
22	MG	A	1608	1/1	0.93	0.08	179,179,179,179	0
22	MG	A	1859	1/1	0.93	0.13	374,374,374,374	0
22	MG	A	1842	1/1	0.93	0.28	140,140,140,140	0
22	MG	A	1665	1/1	0.93	0.52	118,118,118,118	0
22	MG	A	1622	1/1	0.93	0.14	155,155,155,155	0
22	MG	A	1748	1/1	0.93	0.19	149,149,149,149	0
22	MG	A	1671	1/1	0.93	0.24	141,141,141,141	0
22	MG	A	1758	1/1	0.93	0.34	114,114,114,114	0
22	MG	A	1851	1/1	0.93	0.18	107,107,107,107	0
22	MG	A	1852	1/1	0.93	0.35	114,114,114,114	0
22	MG	A	1655	1/1	0.93	0.23	143,143,143,143	0
22	MG	A	1760	1/1	0.93	0.15	131,131,131,131	0
22	MG	A	1856	1/1	0.93	0.24	520,520,520,520	0
22	MG	A	1839	1/1	0.93	0.36	134,134,134,134	0
22	MG	A	1673	1/1	0.94	0.26	154,154,154,154	0
22	MG	A	1790	1/1	0.94	0.08	162,162,162,162	0
22	MG	A	1736	1/1	0.94	0.16	121,121,121,121	0
22	MG	A	1692	1/1	0.94	0.34	179,179,179,179	0
22	MG	A	1816	1/1	0.94	0.16	111,111,111,111	0
22	MG	A	1853	1/1	0.94	0.12	93,93,93,93	0
22	MG	A	1683	1/1	0.94	0.09	122,122,122,122	0
22	MG	A	1872	1/1	0.94	0.21	118,118,118,118	0
22	MG	A	1727	1/1	0.94	0.35	128,128,128,128	0
22	MG	A	1639	1/1	0.94	0.16	221,221,221,221	0
22	MG	A	1782	1/1	0.94	0.22	129,129,129,129	0
22	MG	A	1766	1/1	0.94	0.22	139,139,139,139	0
22	MG	A	1607	1/1	0.94	0.34	119,119,119,119	0
22	MG	A	1667	1/1	0.94	0.15	140,140,140,140	0
22	MG	A	1841	1/1	0.94	0.17	116,116,116,116	0
22	MG	A	1806	1/1	0.94	0.05	103,103,103,103	0
22	MG	A	1649	1/1	0.94	0.24	129,129,129,129	0
22	MG	A	1638	1/1	0.94	0.29	102,102,102,102	0
22	MG	A	1732	1/1	0.95	0.13	125,125,125,125	0
22	MG	A	1709	1/1	0.95	0.16	147,147,147,147	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1652	1/1	0.95	0.10	149,149,149,149	0
22	MG	A	1713	1/1	0.95	0.12	233,233,233,233	0
22	MG	A	1641	1/1	0.95	0.21	150,150,150,150	0
22	MG	A	1890	1/1	0.95	0.28	111,111,111,111	0
22	MG	A	1815	1/1	0.95	0.13	460,460,460,460	0
22	MG	A	1751	1/1	0.95	0.30	126,126,126,126	0
22	MG	A	1844	1/1	0.95	0.14	107,107,107,107	0
22	MG	A	1657	1/1	0.95	0.14	123,123,123,123	0
22	MG	A	1846	1/1	0.95	0.31	112,112,112,112	0
22	MG	A	1847	1/1	0.95	0.28	127,127,127,127	0
22	MG	A	1716	1/1	0.95	0.21	103,103,103,103	0
22	MG	A	1628	1/1	0.95	0.36	106,106,106,106	0
22	MG	A	1807	1/1	0.95	0.07	128,128,128,128	0
22	MG	A	1822	1/1	0.95	0.18	143,143,143,143	0
22	MG	A	1707	1/1	0.95	0.05	185,185,185,185	0
22	MG	A	1614	1/1	0.96	0.19	113,113,113,113	0
22	MG	A	1801	1/1	0.96	0.13	152,152,152,152	0
22	MG	A	1780	1/1	0.96	0.06	99,99,99,99	0
22	MG	A	1803	1/1	0.96	0.16	109,109,109,109	0
22	MG	A	1781	1/1	0.96	0.14	109,109,109,109	0
22	MG	A	1619	1/1	0.96	0.26	125,125,125,125	0
22	MG	A	1739	1/1	0.96	0.20	125,125,125,125	0
22	MG	A	1620	1/1	0.96	0.11	107,107,107,107	0
22	MG	A	1768	1/1	0.96	0.15	155,155,155,155	0
22	MG	B	301	1/1	0.96	0.18	101,101,101,101	0
22	MG	A	1769	1/1	0.96	0.07	120,120,120,120	0
22	MG	A	1670	1/1	0.96	0.10	209,209,209,209	0
22	MG	A	1609	1/1	0.96	0.10	100,100,100,100	0
22	MG	A	1610	1/1	0.96	0.08	118,118,118,118	0
22	MG	A	1637	1/1	0.96	0.30	109,109,109,109	0
22	MG	A	1685	1/1	0.96	0.09	192,192,192,192	0
22	MG	A	1611	1/1	0.96	0.11	116,116,116,116	0
22	MG	I	201	1/1	0.96	0.22	158,158,158,158	0
22	MG	A	1795	1/1	0.96	0.16	385,385,385,385	0
22	MG	A	1796	1/1	0.96	0.25	286,286,286,286	0
22	MG	A	1675	1/1	0.96	0.12	115,115,115,115	0
22	MG	A	1676	1/1	0.96	0.07	117,117,117,117	0
23	ZN	N	101	1/1	0.96	0.06	251,251,251,251	0
22	MG	A	1747	1/1	0.97	0.04	140,140,140,140	0
22	MG	A	1706	1/1	0.97	0.18	121,121,121,121	0
22	MG	A	1635	1/1	0.97	0.07	128,128,128,128	0
22	MG	A	1647	1/1	0.97	0.18	207,207,207,207	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1691	1/1	0.97	0.10	172,172,172,172	0
22	MG	A	1621	1/1	0.97	0.16	124,124,124,124	0
22	MG	A	1693	1/1	0.97	0.12	157,157,157,157	0
22	MG	A	1618	1/1	0.97	0.16	99,99,99,99	0
22	MG	A	1651	1/1	0.97	0.10	85,85,85,85	0
22	MG	A	1668	1/1	0.97	0.05	152,152,152,152	0
22	MG	D	302	1/1	0.97	0.09	114,114,114,114	0
22	MG	A	1794	1/1	0.97	0.08	221,221,221,221	0
22	MG	A	1721	1/1	0.97	0.20	139,139,139,139	0
22	MG	A	1817	1/1	0.97	0.23	74,74,74,74	0
22	MG	A	1630	1/1	0.97	0.13	106,106,106,106	0
22	MG	A	1640	1/1	0.97	0.10	83,83,83,83	0
22	MG	A	1613	1/1	0.97	0.05	149,149,149,149	0
22	MG	P	101	1/1	0.97	0.29	87,87,87,87	0
22	MG	A	1779	1/1	0.97	0.20	99,99,99,99	0
22	MG	A	1658	1/1	0.97	0.08	132,132,132,132	0
22	MG	A	1615	1/1	0.97	0.08	106,106,106,106	0
22	MG	A	1627	1/1	0.97	0.35	104,104,104,104	0
22	MG	A	1626	1/1	0.98	0.10	162,162,162,162	0
22	MG	A	1656	1/1	0.98	0.23	207,207,207,207	0
22	MG	A	1602	1/1	0.98	0.06	124,124,124,124	0
22	MG	A	1669	1/1	0.98	0.06	163,163,163,163	0
22	MG	A	1784	1/1	0.98	0.12	119,119,119,119	0
22	MG	A	1643	1/1	0.98	0.13	96,96,96,96	0
22	MG	A	1659	1/1	0.98	0.03	89,89,89,89	0
22	MG	A	1695	1/1	0.98	0.15	162,162,162,162	0
22	MG	A	1650	1/1	0.98	0.10	108,108,108,108	0
22	MG	A	1750	1/1	0.98	0.06	84,84,84,84	0
22	MG	D	303	1/1	0.98	0.15	108,108,108,108	0
22	MG	A	1632	1/1	0.98	0.10	155,155,155,155	0
22	MG	A	1636	1/1	0.98	0.15	91,91,91,91	0
22	MG	A	1653	1/1	0.98	0.11	124,124,124,124	0
22	MG	A	1735	1/1	0.98	0.10	91,91,91,91	0
22	MG	A	1700	1/1	0.98	0.06	170,170,170,170	0
22	MG	A	1720	1/1	0.98	0.09	119,119,119,119	0
22	MG	A	1701	1/1	0.98	0.04	166,166,166,166	0
22	MG	A	1722	1/1	0.98	0.08	106,106,106,106	0
22	MG	A	1740	1/1	0.98	0.06	111,111,111,111	0
22	MG	A	1654	1/1	0.98	0.13	84,84,84,84	0
23	ZN	D	301	1/1	0.98	0.24	127,127,127,127	0
22	MG	A	1800	1/1	0.98	0.06	114,114,114,114	0
22	MG	A	1811	1/1	0.99	0.04	109,109,109,109	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1623	1/1	0.99	0.06	112,112,112,112	0
22	MG	A	1708	1/1	0.99	0.07	148,148,148,148	0
22	MG	A	1606	1/1	0.99	0.05	103,103,103,103	0
22	MG	A	1710	1/1	0.99	0.07	134,134,134,134	0
22	MG	A	1663	1/1	0.99	0.04	125,125,125,125	0
22	MG	A	1712	1/1	0.99	0.26	371,371,371,371	0
22	MG	A	1645	1/1	0.99	0.04	87,87,87,87	0
22	MG	A	1616	1/1	0.99	0.04	81,81,81,81	0
22	MG	A	1680	1/1	0.99	0.06	147,147,147,147	0
22	MG	A	1617	1/1	0.99	0.07	62,62,62,62	0
22	MG	A	1717	1/1	0.99	0.06	132,132,132,132	0
22	MG	A	1612	1/1	0.99	0.04	133,133,133,133	0
22	MG	A	1719	1/1	0.99	0.14	51,51,51,51	0

6.5 Other polymers (i)

There are no such residues in this entry.