



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 19, 2024 – 02:31 AM EST

PDB ID : 4JI2
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 : 3.64 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 ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

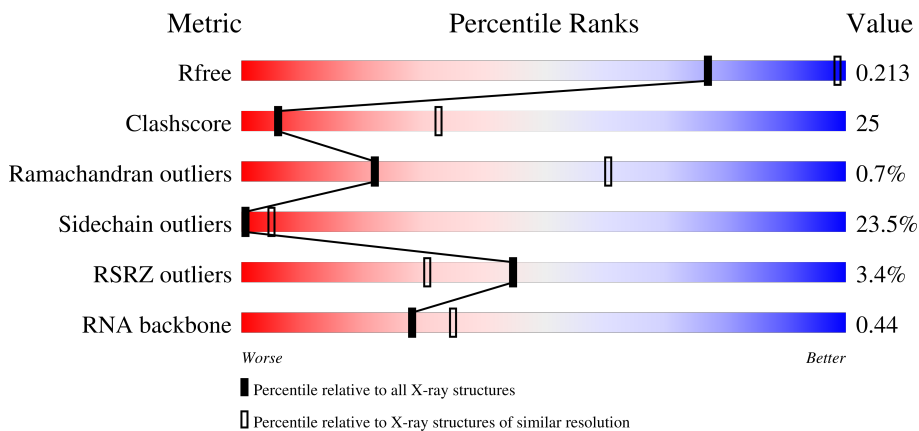
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.64 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.




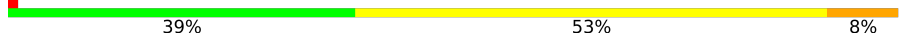

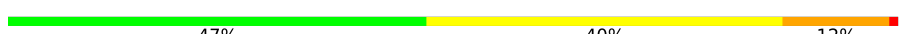
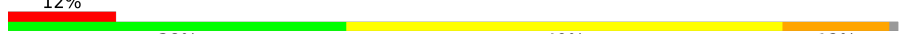

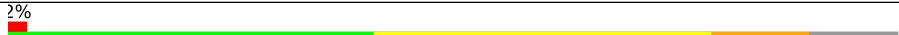
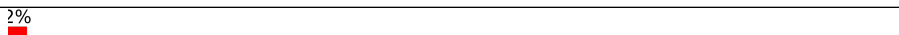
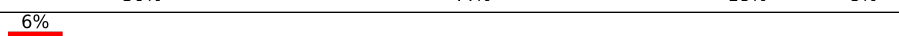
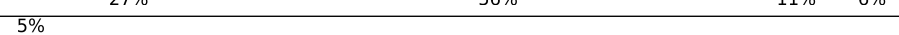
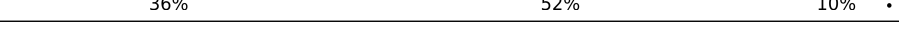



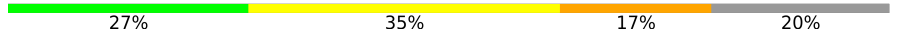


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1341 (3.78-3.50)
Clashscore	141614	1439 (3.78-3.50)
Ramachandran outliers	138981	1391 (3.78-3.50)
Sidechain outliers	138945	1391 (3.78-3.50)
RSRZ outliers	127900	1242 (3.78-3.50)
RNA backbone	3102	1019 (4.26-3.00)

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 $\leq 5\%$. 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	 2% 16% 41% 33% 10%
2	B	256	 % 37% 40% 13% 9%
3	C	239	 6% 27% 44% 14% 14%
4	D	209	 2% 35% 49% 14%

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Mol	Chain	Length	Quality of chain
5	E	162	
6	F	101	
7	G	156	
8	H	138	
9	I	128	
10	J	105	
11	K	129	
12	L	135	
13	M	126	
14	N	61	
15	O	89	
16	P	88	
17	Q	105	
18	R	88	
19	S	93	
20	T	106	
21	U	27	

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
1	PSU	A	1540	-	-	-	X
1	5MC	A	967	-	-	X	-
22	MG	A	1601	-	-	-	X
22	MG	A	1683	-	-	-	X
22	MG	A	1704	-	-	-	X
22	MG	A	1715	-	-	-	X
22	MG	A	1720	-	-	-	X
22	MG	A	1735	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1749	-	-	-	X
22	MG	A	1751	-	-	-	X
22	MG	A	1766	-	-	-	X
22	MG	A	1769	-	-	-	X
22	MG	A	1770	-	-	-	X
22	MG	A	1777	-	-	-	X
22	MG	A	1780	-	-	-	X
22	MG	A	1781	-	-	-	X
22	MG	A	1782	-	-	-	X
22	MG	A	1794	-	-	-	X
22	MG	A	1796	-	-	-	X
22	MG	A	1826	-	-	-	X
22	MG	A	1830	-	-	-	X
22	MG	A	1835	-	-	-	X
22	MG	A	1838	-	-	-	X
22	MG	A	1839	-	-	-	X
22	MG	A	1842	-	-	-	X
22	MG	A	1845	-	-	-	X
22	MG	A	1847	-	-	-	X
22	MG	A	1853	-	-	-	X
22	MG	A	1857	-	-	-	X
22	MG	A	1858	-	-	-	X
22	MG	A	1866	-	-	-	X
22	MG	C	301	-	-	-	X
22	MG	H	201	-	-	-	X
22	MG	P	102	-	-	-	X

2 Entry composition [i](#)

There are 24 unique types of molecules in this entry. The entry contains 52307 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	engineered mutation	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	977	617	196	163	1	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	94	TRP	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).

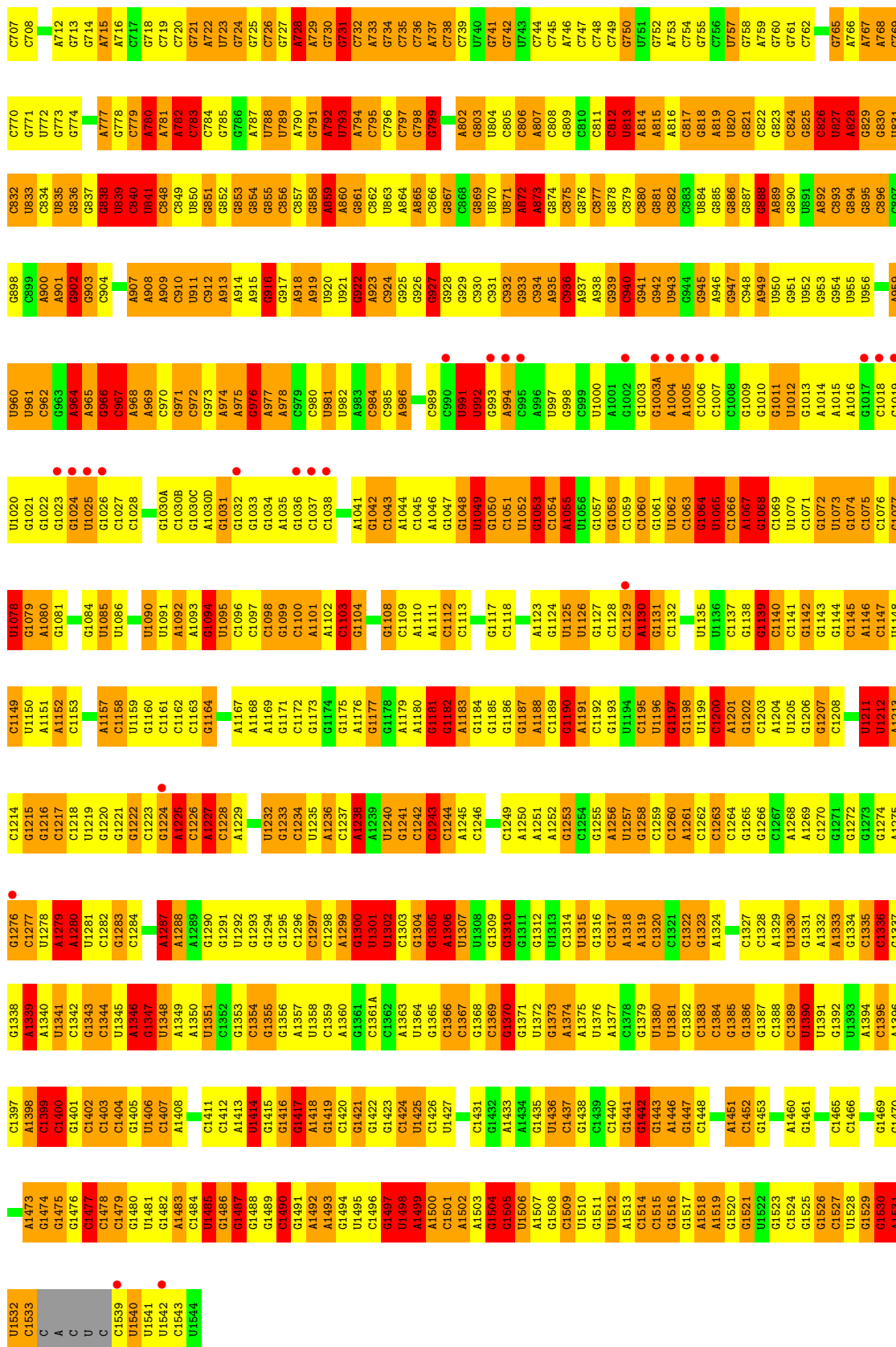
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
22	A	276	Total 276	Mg 276	0	0
22	B	3	Total 3	Mg 3	0	0
22	C	2	Total 2	Mg 2	0	0
22	D	3	Total 3	Mg 3	0	0
22	E	1	Total 1	Mg 1	0	0
22	F	1	Total 1	Mg 1	0	0
22	H	1	Total 1	Mg 1	0	0
22	I	1	Total 1	Mg 1	0	0
22	J	1	Total 1	Mg 1	0	0
22	N	1	Total 1	Mg 1	0	0
22	P	2	Total 2	Mg 2	0	0
22	Q	1	Total 1	Mg 1	0	0

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

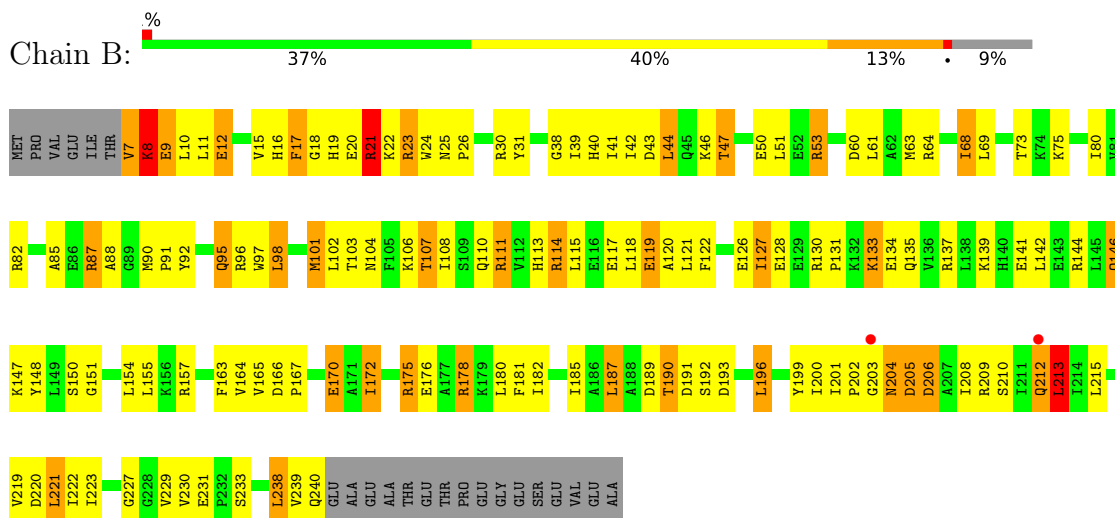
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
23	D	1	Total 1	Zn 1	0	0
23	N	1	Total 1	Zn 1	0	0

- Molecule 24 is water.

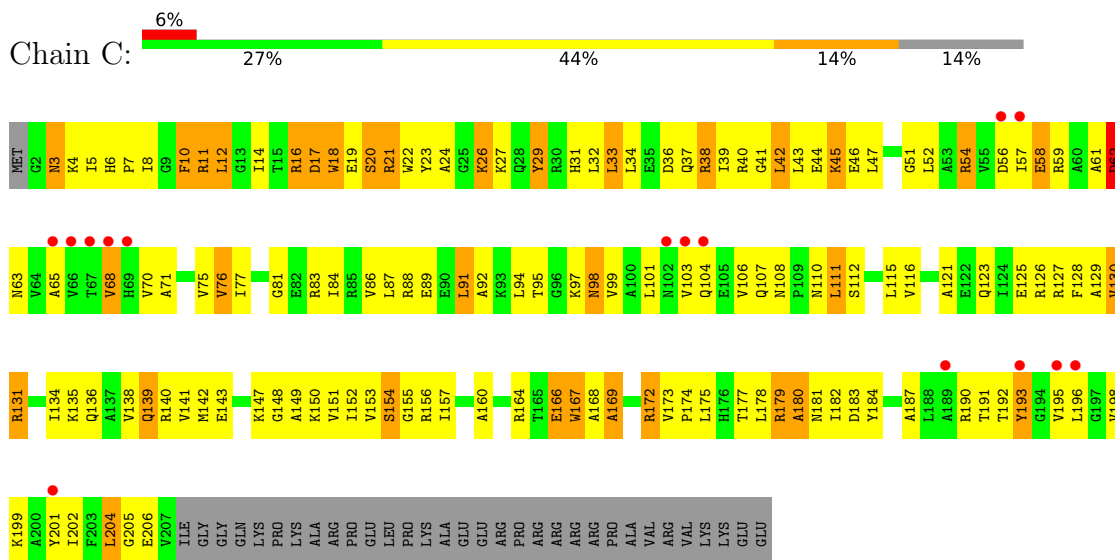
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
24	A	266	Total 266	O 266	0	0
24	E	3	Total 3	O 3	0	0
24	K	1	Total 1	O 1	0	0
24	L	1	Total 1	O 1	0	0
24	Q	2	Total 2	O 2	0	0
24	T	2	Total 2	O 2	0	0



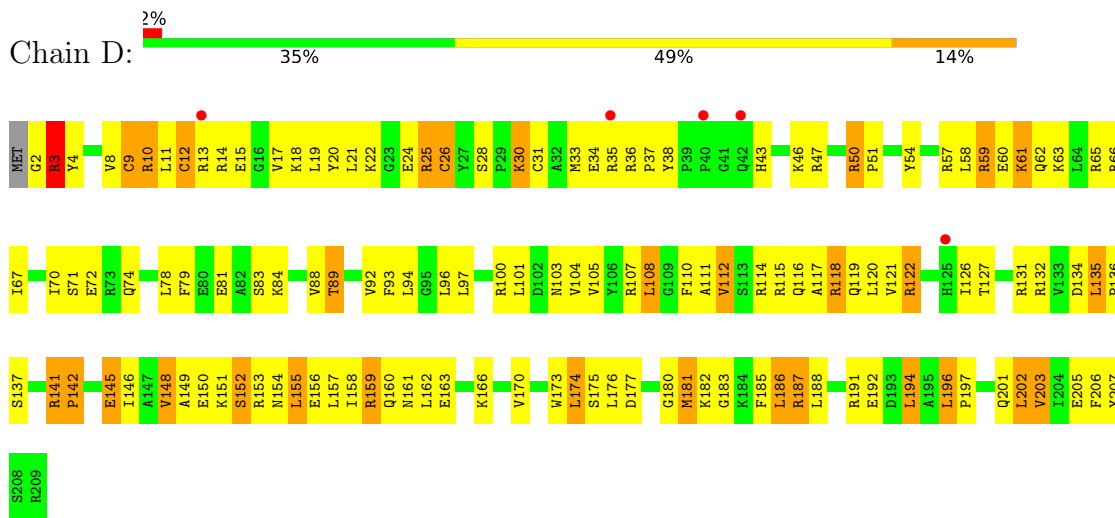
• Molecule 2: RIBOSOMAL PROTEIN S2



• Molecule 3: RIBOSOMAL PROTEIN S3

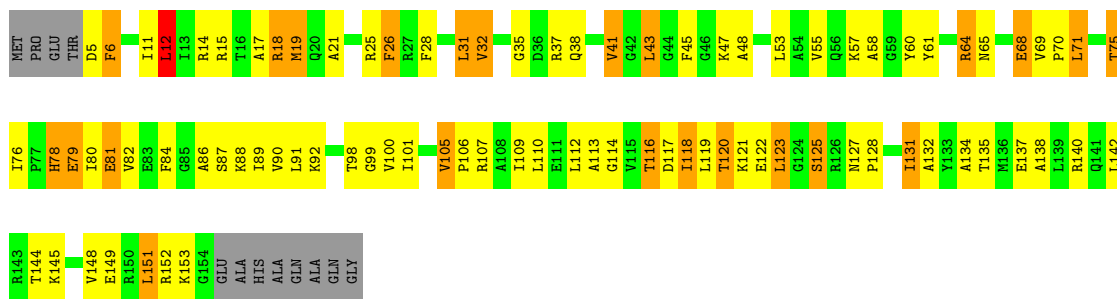


• Molecule 4: RIBOSOMAL PROTEIN S4



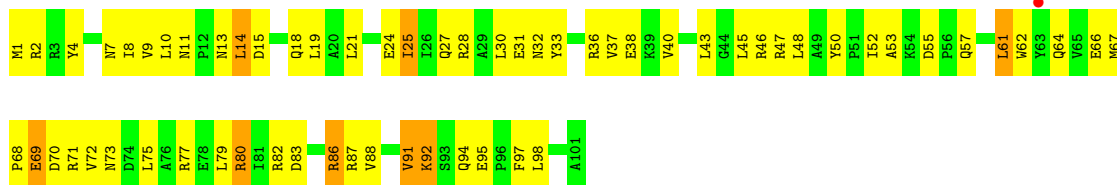
• Molecule 5: RIBOSOMAL PROTEIN S5

Chain E: 38% 40% 14% 7%



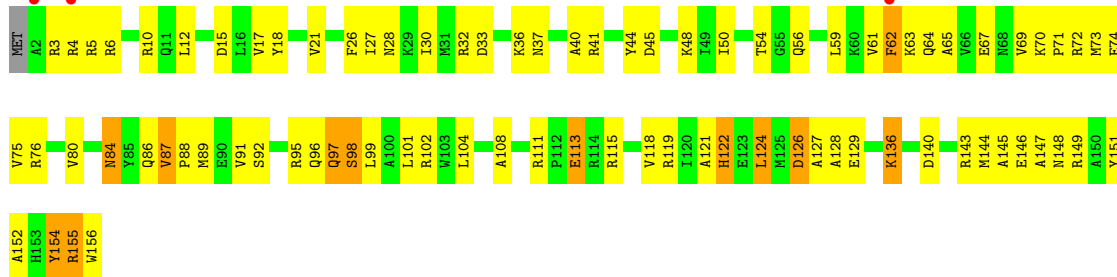
Molecule 6: RIBOSOMAL PROTEIN S6

Chain F: 39% 53% 8%



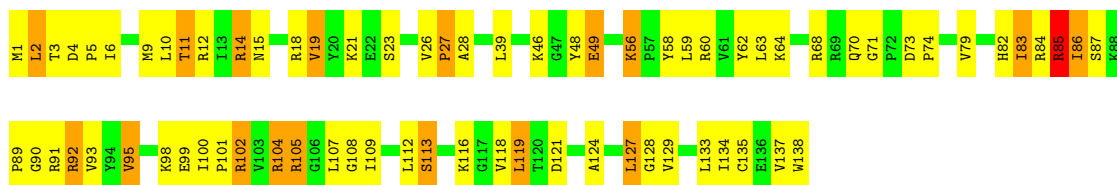
Molecule 7: RIBOSOMAL PROTEIN S7

Chain G: 46% 46% 8%



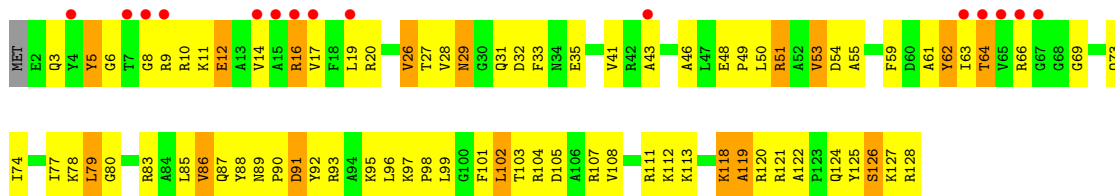
Molecule 8: RIBOSOMAL PROTEIN S8

Chain H: 47% 40% 12%

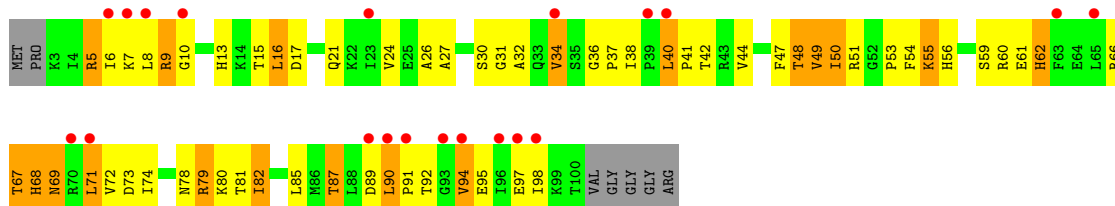


Molecule 9: RIBOSOMAL PROTEIN S9

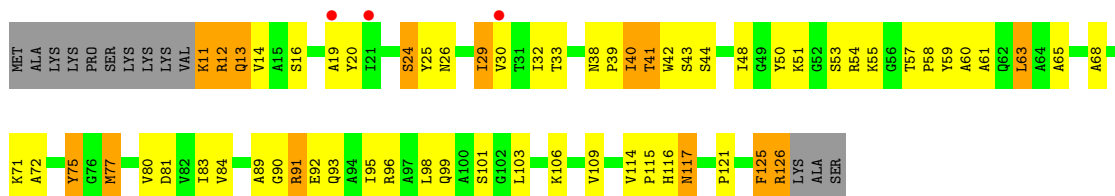
Chain I: 12% 38% 49% 12%



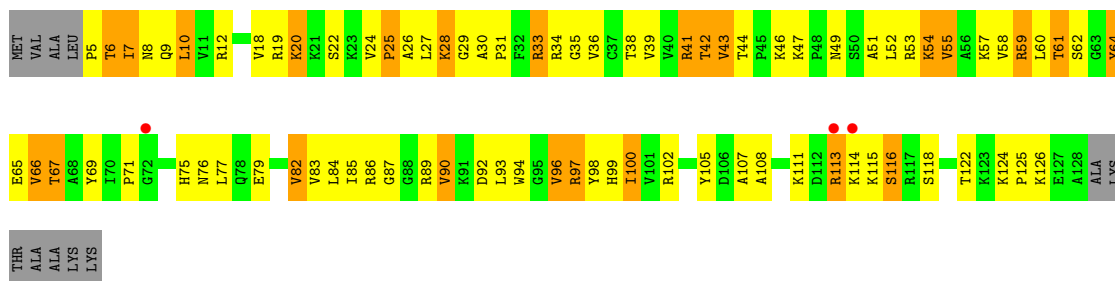
● Molecule 10: RIBOSOMAL PROTEIN S10



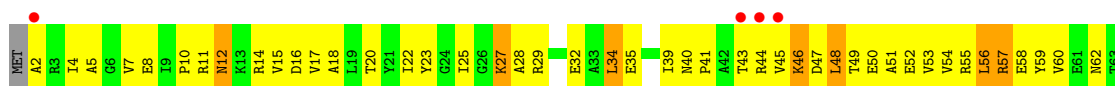
● Molecule 11: RIBOSOMAL PROTEIN S11

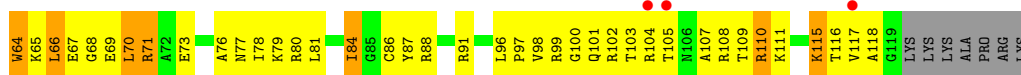


● Molecule 12: RIBOSOMAL PROTEIN S12

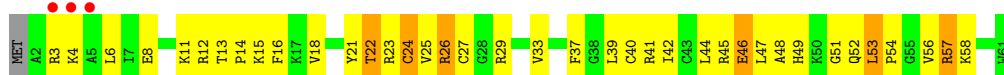


● Molecule 13: RIBOSOMAL PROTEIN S13

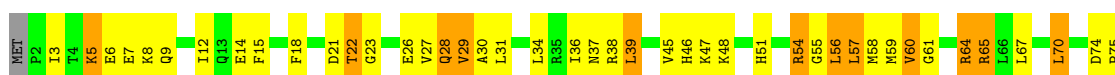




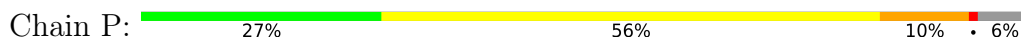
- Molecule 14: RIBOSOMAL PROTEIN S14



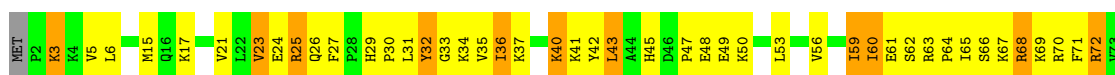
- Molecule 15: RIBOSOMAL PROTEIN S15



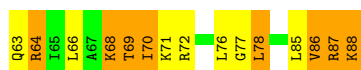
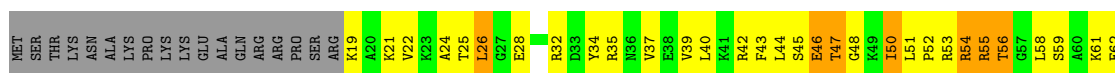
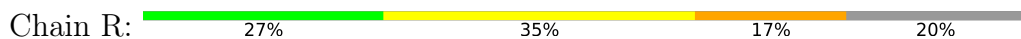
- Molecule 16: RIBOSOMAL PROTEIN S16



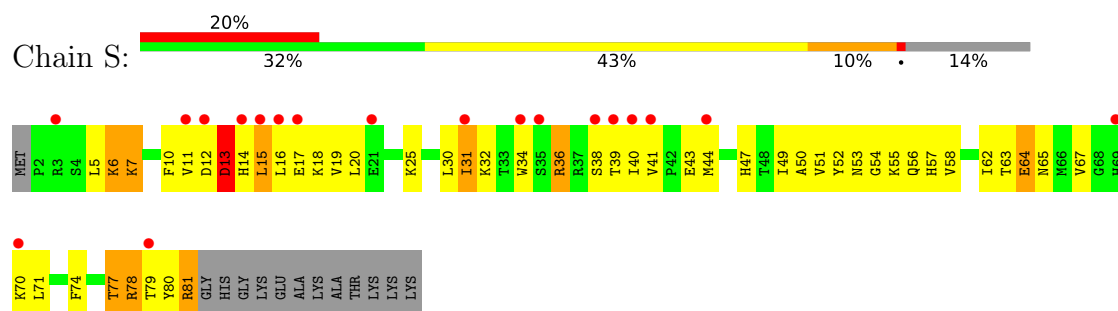
- Molecule 17: RIBOSOMAL PROTEIN S17



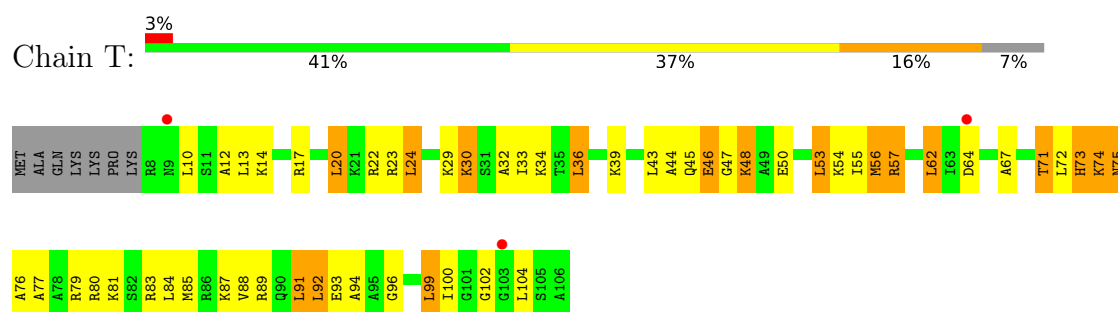
- Molecule 18: RIBOSOMAL PROTEIN S18



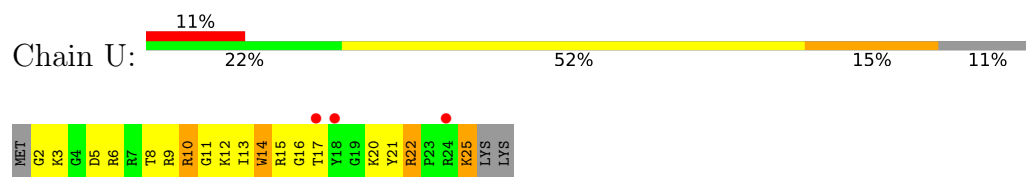
- Molecule 19: RIBOSOMAL PROTEIN S19



- Molecule 20: RIBOSOMAL PROTEIN S20



- Molecule 21: RIBOSOMAL PROTEIN THX



4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	402.45Å 402.45Å 174.41Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.34 – 3.64 49.57 – 3.64	Depositor EDS
% Data completeness (in resolution range)	98.9 (48.34-3.64) 98.9 (49.57-3.64)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.00 (at 3.67Å)	Xtrriage
Refinement program	PHENIX dev_1119	Depositor
R, R_{free}	0.155 , 0.211 0.158 , 0.213	Depositor DCC
R_{free} test set	7893 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	120.3	Xtrriage
Anisotropy	0.253	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.26 , 134.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.27$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	52307	wwPDB-VP
Average B, all atoms (Å ²)	153.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.70% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: ZN, 5MC, 2MG, PSU, MG, 4OC, 7MG, M2G, MA6, UR3

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	1.21	178/36139 (0.5%)	2.00	1849/56396 (3.3%)
2	B	0.71	0/1935	0.91	3/2609 (0.1%)
3	C	0.58	1/1636 (0.1%)	0.84	1/2205 (0.0%)
4	D	0.75	1/1733 (0.1%)	0.89	3/2318 (0.1%)
5	E	0.99	0/1162	1.13	2/1564 (0.1%)
6	F	0.61	0/856	0.81	0/1154
7	G	0.58	0/1276	0.78	0/1709
8	H	1.07	2/1136 (0.2%)	1.15	2/1527 (0.1%)
9	I	0.57	0/1029	0.79	0/1379
10	J	0.53	0/805	0.83	1/1082 (0.1%)
11	K	0.69	0/879	0.92	1/1187 (0.1%)
12	L	0.79	0/994	0.98	0/1331
13	M	0.64	0/947	0.87	0/1270
14	N	0.55	0/501	0.77	0/664
15	O	0.79	0/740	0.96	0/987
16	P	0.84	0/716	1.01	3/963 (0.3%)
17	Q	1.02	1/836 (0.1%)	1.14	2/1117 (0.2%)
18	R	0.75	0/579	0.98	1/768 (0.1%)
19	S	0.52	0/661	0.80	0/890
20	T	0.73	0/765	0.99	2/1007 (0.2%)
21	U	0.64	0/212	0.76	0/277
All	All	1.07	183/55537 (0.3%)	1.74	1870/82404 (2.3%)

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
2	B	0	2
3	C	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
4	D	0	1
7	G	0	1
8	H	0	2
10	J	0	2
12	L	0	2
13	M	0	1
18	R	0	1
19	S	0	1
20	T	0	2
All	All	0	18

The worst 5 of 183 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	279	A	N9-C4	-13.71	1.29	1.37
1	A	279	A	N3-C4	-13.61	1.26	1.34
1	A	279	A	N7-C5	-11.36	1.32	1.39
1	A	817	C	N1-C6	-10.06	1.31	1.37
1	A	793	U	C2-N3	9.46	1.44	1.37

The worst 5 of 1870 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	266	G	C6-C5-N7	-17.70	119.78	130.40
1	A	735	C	C6-N1-C2	16.27	126.81	120.30
1	A	117	G	N1-C6-O6	15.58	129.25	119.90
1	A	1516[A]	G	C8-N9-C4	-14.80	100.48	106.40
1	A	1516[B]	G	C8-N9-C4	-14.80	100.48	106.40

There are no chirality outliers.

5 of 18 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	20	GLU	Peptide
2	B	8	LYS	Peptide
3	C	166	GLU	Peptide
3	C	3	ASN	Peptide
3	C	89	GLU	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	16503	1058	0
2	B	1900	0	1950	123	0
3	C	1612	0	1676	115	0
4	D	1703	0	1763	132	0
5	E	1146	0	1207	66	0
6	F	843	0	857	38	0
7	G	1257	0	1296	78	0
8	H	1116	0	1177	70	0
9	I	1010	0	1037	78	0
10	J	792	0	835	59	0
11	K	864	0	881	51	0
12	L	977	0	1060	78	0
13	M	937	0	995	72	0
14	N	492	0	529	37	0
15	O	729	0	768	38	0
16	P	700	0	720	45	0
17	Q	823	0	891	59	0
18	R	574	0	644	50	0
19	S	647	0	673	42	0
20	T	763	0	861	44	0
21	U	208	0	221	22	0
22	A	276	0	0	0	0
22	B	3	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	N	1	0	0	0	0
22	P	2	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	7	0
24	E	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	K	1	0	0	0	0
24	L	1	0	0	0	0
24	Q	2	0	0	0	0
24	T	2	0	0	1	0
All	All	52307	0	36544	2147	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 25.

The worst 5 of 2147 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)
6:F:14:LEU:HD13	6:F:18:GLN:HB3	1.36	1.05
4:D:3:ARG:HH11	4:D:71:SER:H	1.13	0.94
1:A:1240:U:OP1	7:G:119:ARG:NH2	2.01	0.93
1:A:1399:C:H4'	1:A:1400:5MC:H5''	1.51	0.93
1:A:992:U:H3	1:A:1044:A:H62	1.09	0.92

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%)	18 (8%)	3 (1%)	12	48
3	C	204/239 (85%)	170 (83%)	32 (16%)	2 (1%)	15	54
4	D	206/209 (99%)	189 (92%)	17 (8%)	0	100	100
5	E	148/162 (91%)	135 (91%)	12 (8%)	1 (1%)	22	61
6	F	99/101 (98%)	90 (91%)	9 (9%)	0	100	100
7	G	153/156 (98%)	138 (90%)	15 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	H	136/138 (99%)	126 (93%)	10 (7%)	0	100	100
9	I	125/128 (98%)	112 (90%)	12 (10%)	1 (1%)	19	58
10	J	96/105 (91%)	79 (82%)	16 (17%)	1 (1%)	15	54
11	K	114/129 (88%)	100 (88%)	14 (12%)	0	100	100
12	L	122/135 (90%)	109 (89%)	12 (10%)	1 (1%)	19	58
13	M	116/126 (92%)	104 (90%)	9 (8%)	3 (3%)	5	34
14	N	58/61 (95%)	47 (81%)	11 (19%)	0	100	100
15	O	85/89 (96%)	71 (84%)	14 (16%)	0	100	100
16	P	81/88 (92%)	73 (90%)	7 (9%)	1 (1%)	13	50
17	Q	97/105 (92%)	89 (92%)	8 (8%)	0	100	100
18	R	68/88 (77%)	58 (85%)	10 (15%)	0	100	100
19	S	78/93 (84%)	68 (87%)	8 (10%)	2 (3%)	5	34
20	T	97/106 (92%)	88 (91%)	7 (7%)	2 (2%)	7	39
21	U	22/27 (82%)	20 (91%)	2 (9%)	0	100	100
All	All	2337/2541 (92%)	2077 (89%)	243 (10%)	17 (1%)	22	61

5 of 17 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	21	ARG
9	I	119	ALA
12	L	28	LYS
3	C	180	ALA
19	S	31	ILE

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%)	148 (73%)	54 (27%)	0	3
3	C	160/188 (85%)	113 (71%)	47 (29%)	0	2

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	D	180/181 (99%)	139 (77%)	41 (23%)	1	5
5	E	115/123 (94%)	80 (70%)	35 (30%)	0	2
6	F	90/90 (100%)	68 (76%)	22 (24%)	0	4
7	G	126/127 (99%)	104 (82%)	22 (18%)	2	12
8	H	119/119 (100%)	95 (80%)	24 (20%)	1	8
9	I	98/99 (99%)	77 (79%)	21 (21%)	1	6
10	J	87/92 (95%)	65 (75%)	22 (25%)	0	4
11	K	88/99 (89%)	72 (82%)	16 (18%)	1	10
12	L	104/111 (94%)	74 (71%)	30 (29%)	0	2
13	M	94/101 (93%)	71 (76%)	23 (24%)	0	4
14	N	49/50 (98%)	42 (86%)	7 (14%)	3	21
15	O	79/80 (99%)	62 (78%)	17 (22%)	1	6
16	P	72/74 (97%)	57 (79%)	15 (21%)	1	7
17	Q	94/97 (97%)	74 (79%)	20 (21%)	1	7
18	R	61/77 (79%)	46 (75%)	15 (25%)	0	4
19	S	71/80 (89%)	57 (80%)	14 (20%)	1	8
20	T	76/82 (93%)	59 (78%)	17 (22%)	1	6
21	U	19/22 (86%)	14 (74%)	5 (26%)	0	4
All	All	1984/2112 (94%)	1517 (76%)	467 (24%)	1	5

5 of 467 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	H	83	ILE
19	S	79	THR
10	J	94	VAL
19	S	58	VAL
17	Q	35	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
11	K	116	HIS
12	L	49	ASN
15	O	28	GLN

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Mol	Chain	Res	Type
5	E	65	ASN
7	G	148	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1504/1522 (98%)	377 (25%)	59 (3%)

5 of 377 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	G
1	A	7	G
1	A	8	A
1	A	9	G
1	A	32	A

5 of 59 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	828	A
1	A	1380	U
1	A	993	G
1	A	1347	G
1	A	1279	A

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

16 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	4OC	A	1402	1	20,23,24	1.15	2 (10%)	26,32,35	0.90	2 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	MA6	A	1518[A]	1	19,26,27	1.08	2 (10%)	18,38,41	0.73	0
1	5MC	A	1400	1	18,22,23	1.31	2 (11%)	26,32,35	1.00	0
1	2MG	A	1207	1	18,26,27	1.83	3 (16%)	16,38,41	1.42	2 (12%)
1	7MG	A	527	22,1	22,26,27	4.67	7 (31%)	29,39,42	2.37	9 (31%)
1	5MC	A	1404	1	18,22,23	0.94	1 (5%)	26,32,35	1.60	5 (19%)
1	PSU	A	1541	1	18,21,22	1.04	1 (5%)	22,30,33	1.71	4 (18%)
1	PSU	A	1540	1	18,21,22	1.16	1 (5%)	22,30,33	1.70	4 (18%)
1	MA6	A	1518[B]	1	19,26,27	1.32	3 (15%)	18,38,41	1.12	2 (11%)
1	5MC	A	1407	1	18,22,23	1.11	2 (11%)	26,32,35	1.39	4 (15%)
1	5MC	A	967	1	18,22,23	1.01	1 (5%)	26,32,35	0.82	0
1	MA6	A	1519[A]	1	19,26,27	0.86	1 (5%)	18,38,41	0.75	1 (5%)
1	MA6	A	1519[B]	1	19,26,27	1.31	4 (21%)	18,38,41	0.55	0
1	UR3	A	1498	22,1	19,22,23	1.09	2 (10%)	26,32,35	1.33	2 (7%)
1	M2G	A	966	1	20,27,28	0.85	1 (5%)	22,40,43	1.53	3 (13%)
1	PSU	A	516	1	18,21,22	1.30	2 (11%)	22,30,33	1.86	5 (22%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	4OC	A	1402	1	-	2/9/29/30	0/2/2/2
1	MA6	A	1518[A]	1	-	0/7/29/30	0/3/3/3
1	5MC	A	1400	1	-	2/7/25/26	0/2/2/2
1	2MG	A	1207	1	-	4/5/27/28	0/3/3/3
1	7MG	A	527	22,1	-	2/7/37/38	0/3/3/3
1	5MC	A	1404	1	-	1/7/25/26	0/2/2/2
1	PSU	A	1541	1	-	1/7/25/26	0/2/2/2
1	PSU	A	1540	1	-	2/7/25/26	0/2/2/2
1	MA6	A	1518[B]	1	-	2/7/29/30	0/3/3/3
1	5MC	A	1407	1	-	0/7/25/26	0/2/2/2
1	5MC	A	967	1	-	4/7/25/26	0/2/2/2
1	MA6	A	1519[A]	1	-	5/7/29/30	0/3/3/3
1	MA6	A	1519[B]	1	-	3/7/29/30	0/3/3/3
1	UR3	A	1498	22,1	-	2/7/25/26	0/2/2/2
1	M2G	A	966	1	-	2/7/29/30	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	A	516	1	-	0/7/25/26	0/2/2/2

The worst 5 of 35 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	527	7MG	C8-N9	-19.08	1.35	1.46
1	A	527	7MG	C5-N7	8.70	1.45	1.35
1	A	1207	2MG	C6-N1	4.55	1.44	1.37
1	A	516	PSU	C6-C5	4.41	1.40	1.35
1	A	1540	PSU	C6-C5	3.91	1.39	1.35

The worst 5 of 43 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	527	7MG	C5-C6-N1	6.07	121.68	110.99
1	A	516	PSU	N1-C2-N3	5.02	120.82	115.13
1	A	527	7MG	C6-C5-N7	4.87	139.56	131.91
1	A	527	7MG	C2-N3-C4	4.82	120.89	112.30
1	A	516	PSU	C4-N3-C2	-4.55	119.78	126.34

There are no chirality outliers.

5 of 32 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	527	7MG	O4'-C4'-C5'-O5'
1	A	527	7MG	C3'-C4'-C5'-O5'
1	A	967	5MC	O4'-C4'-C5'-O5'
1	A	967	5MC	C3'-C4'-C5'-O5'
1	A	1207	2MG	N1-C2-N2-CM2

There are no ring outliers.

11 monomers are involved in 29 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1402	4OC	4	0
1	A	1518[A]	MA6	5	0
1	A	1400	5MC	1	0
1	A	1207	2MG	1	0
1	A	1404	5MC	1	0
1	A	1540	PSU	1	0
1	A	1407	5MC	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	967	5MC	7	0
1	A	1519[A]	MA6	5	0
1	A	1498	UR3	5	0
1	A	966	M2G	6	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 295 ligands modelled in this entry, 295 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%)	-0.20	28 (1%) 66 52	74, 136, 280, 374	0
2	B	234/256 (91%)	-0.20	2 (0%) 84 73	104, 156, 254, 272	0
3	C	206/239 (86%)	0.01	15 (7%) 15 9	171, 215, 243, 274	0
4	D	208/209 (99%)	-0.23	5 (2%) 59 43	86, 137, 190, 243	0
5	E	150/162 (92%)	-0.36	0 100 100	70, 106, 151, 203	0
6	F	101/101 (100%)	-0.41	1 (0%) 82 71	117, 157, 185, 213	0
7	G	155/156 (99%)	-0.06	3 (1%) 66 52	136, 185, 233, 255	0
8	H	138/138 (100%)	-0.53	0 100 100	71, 98, 135, 168	0
9	I	127/128 (99%)	0.41	15 (11%) 4 3	139, 201, 245, 269	0
10	J	98/105 (93%)	0.69	20 (20%) 1 0	150, 241, 295, 344	0
11	K	116/129 (89%)	-0.14	3 (2%) 56 40	100, 131, 170, 192	0
12	L	124/135 (91%)	-0.07	3 (2%) 59 43	82, 134, 167, 216	0
13	M	118/126 (93%)	0.17	7 (5%) 22 13	125, 162, 214, 232	0
14	N	60/61 (98%)	0.10	3 (5%) 28 18	179, 215, 270, 292	0
15	O	87/89 (97%)	-0.41	0 100 100	84, 119, 159, 179	0
16	P	83/88 (94%)	-0.09	0 100 100	95, 134, 164, 208	0
17	Q	99/105 (94%)	-0.30	0 100 100	75, 110, 148, 162	0
18	R	70/88 (79%)	-0.56	0 100 100	95, 135, 187, 215	0
19	S	80/93 (86%)	0.88	19 (23%) 0 0	176, 219, 255, 273	0
20	T	99/106 (93%)	-0.18	3 (3%) 50 34	106, 136, 194, 226	0
21	U	24/27 (88%)	0.52	3 (12%) 3 3	131, 183, 201, 209	0
All	All	3875/4063 (95%)	-0.13	130 (3%) 45 31	70, 146, 250, 374	0

The worst 5 of 130 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1003(A)	G	7.6
19	S	38	SER	7.4
1	A	993	G	7.1
1	A	1006	C	7.1
3	C	66	VAL	5.3

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	0.66	0.71	296,308,331,333	0
1	PSU	A	1541	20/21	0.85	0.65	285,299,307,307	0
1	4OC	A	1402	22/23	0.92	0.23	108,116,134,137	0
1	MA6	A	1518[B]	24/25	0.93	0.22	111,120,133,136	24
1	7MG	A	527	24/25	0.93	0.22	103,120,142,145	0
1	MA6	A	1518[A]	24/25	0.93	0.22	107,118,124,124	24
1	2MG	A	1207	24/25	0.94	0.16	195,204,278,284	0
1	PSU	A	516	20/21	0.95	0.10	133,147,164,166	0
1	MA6	A	1519[A]	24/25	0.95	0.28	100,107,112,116	24
1	MA6	A	1519[B]	24/25	0.95	0.28	102,107,118,119	24
1	5MC	A	1407	21/22	0.95	0.12	136,163,172,178	0
1	5MC	A	1400	21/22	0.95	0.19	103,123,130,131	0
1	5MC	A	1404	21/22	0.96	0.16	99,108,151,155	0
1	M2G	A	966	25/26	0.96	0.15	136,150,159,160	0
1	UR3	A	1498	21/22	0.96	0.29	105,120,144,147	0
1	5MC	A	967	21/22	0.97	0.13	125,144,150,153	0

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(\AA^2)	Q<0.9
22	MG	A	1838	1/1	0.20	0.87	121,121,121,121	0
22	MG	A	1847	1/1	0.30	0.90	127,127,127,127	0
22	MG	A	1858	1/1	0.34	0.63	125,125,125,125	0
22	MG	A	1766	1/1	0.37	1.26	100,100,100,100	0
22	MG	A	1776	1/1	0.44	0.15	110,110,110,110	0
22	MG	A	1642	1/1	0.46	0.15	88,88,88,88	0
22	MG	A	1810	1/1	0.47	0.39	102,102,102,102	0
22	MG	A	1731	1/1	0.49	0.38	107,107,107,107	0
22	MG	A	1716	1/1	0.53	0.40	137,137,137,137	0
22	MG	P	102	1/1	0.53	0.45	124,124,124,124	0
22	MG	A	1849	1/1	0.55	0.28	126,126,126,126	0
22	MG	A	1704	1/1	0.56	0.44	126,126,126,126	0
22	MG	A	1753	1/1	0.56	0.37	109,109,109,109	0
22	MG	A	1826	1/1	0.59	0.76	134,134,134,134	0
22	MG	A	1751	1/1	0.59	0.93	143,143,143,143	0
22	MG	A	1829	1/1	0.60	0.37	463,463,463,463	0
22	MG	A	1682	1/1	0.61	0.32	82,82,82,82	0
22	MG	A	1781	1/1	0.61	0.64	130,130,130,130	0
22	MG	A	1842	1/1	0.62	1.15	119,119,119,119	0
22	MG	A	1822	1/1	0.63	0.22	116,116,116,116	0
22	MG	A	1777	1/1	0.65	1.28	144,144,144,144	0
22	MG	A	1794	1/1	0.66	0.91	132,132,132,132	0
22	MG	A	1811	1/1	0.68	0.25	147,147,147,147	0
22	MG	A	1830	1/1	0.68	0.66	91,91,91,91	0
22	MG	A	1601	1/1	0.69	0.43	132,132,132,132	0
22	MG	A	1833	1/1	0.70	0.26	122,122,122,122	0
22	MG	A	1845	1/1	0.70	0.92	110,110,110,110	0
22	MG	A	1763	1/1	0.70	0.29	137,137,137,137	0
22	MG	A	1770	1/1	0.71	0.97	99,99,99,99	0
22	MG	A	1672	1/1	0.71	0.14	139,139,139,139	0
22	MG	A	1735	1/1	0.71	0.51	81,81,81,81	0
22	MG	A	1866	1/1	0.71	0.49	124,124,124,124	0
22	MG	A	1846	1/1	0.71	0.21	142,142,142,142	0
22	MG	A	1749	1/1	0.72	0.41	121,121,121,121	0
22	MG	A	1809	1/1	0.72	0.37	109,109,109,109	0
22	MG	H	201	1/1	0.72	0.64	118,118,118,118	0
22	MG	A	1782	1/1	0.72	0.55	118,118,118,118	0
22	MG	A	1839	1/1	0.73	0.58	133,133,133,133	0
22	MG	A	1625	1/1	0.73	0.31	122,122,122,122	0
22	MG	A	1796	1/1	0.74	0.56	92,92,92,92	0
22	MG	A	1853	1/1	0.74	0.41	116,116,116,116	0
22	MG	A	1665	1/1	0.75	0.31	87,87,87,87	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	C	301	1/1	0.75	0.44	133,133,133,133	0
22	MG	A	1660	1/1	0.75	0.14	113,113,113,113	0
22	MG	A	1769	1/1	0.75	0.41	118,118,118,118	0
22	MG	A	1857	1/1	0.76	0.54	133,133,133,133	0
22	MG	A	1662	1/1	0.76	0.37	78,78,78,78	0
22	MG	A	1715	1/1	0.77	0.52	137,137,137,137	0
22	MG	A	1808	1/1	0.77	0.11	163,163,163,163	0
22	MG	A	1720	1/1	0.77	0.77	98,98,98,98	0
22	MG	A	1872	1/1	0.78	0.13	407,407,407,407	0
22	MG	A	1703	1/1	0.79	0.39	153,153,153,153	0
22	MG	A	1834	1/1	0.79	0.35	118,118,118,118	0
22	MG	A	1835	1/1	0.79	0.55	98,98,98,98	0
22	MG	A	1683	1/1	0.79	0.65	98,98,98,98	0
22	MG	A	1761	1/1	0.79	0.34	107,107,107,107	0
22	MG	A	1780	1/1	0.79	0.50	61,61,61,61	0
22	MG	A	1868	1/1	0.80	0.36	99,99,99,99	0
22	MG	A	1854	1/1	0.80	0.45	137,137,137,137	0
22	MG	A	1787	1/1	0.80	0.12	141,141,141,141	0
22	MG	A	1824	1/1	0.80	0.20	133,133,133,133	0
22	MG	A	1841	1/1	0.80	0.78	118,118,118,118	0
22	MG	Q	201	1/1	0.80	0.21	126,126,126,126	0
22	MG	A	1843	1/1	0.81	0.80	106,106,106,106	0
22	MG	A	1832	1/1	0.82	0.77	89,89,89,89	0
22	MG	A	1729	1/1	0.83	0.32	85,85,85,85	0
22	MG	A	1622	1/1	0.83	0.23	148,148,148,148	0
22	MG	A	1865	1/1	0.84	0.21	134,134,134,134	0
22	MG	A	1759	1/1	0.84	0.26	107,107,107,107	0
22	MG	A	1684	1/1	0.84	0.33	127,127,127,127	0
22	MG	A	1736	1/1	0.84	0.22	114,114,114,114	0
22	MG	A	1679	1/1	0.84	0.47	146,146,146,146	0
22	MG	A	1605	1/1	0.84	0.80	85,85,85,85	0
22	MG	A	1783	1/1	0.84	0.41	129,129,129,129	0
22	MG	A	1677	1/1	0.84	0.14	299,299,299,299	0
22	MG	A	1711	1/1	0.85	0.33	149,149,149,149	0
22	MG	A	1851	1/1	0.85	0.28	132,132,132,132	0
22	MG	A	1633	1/1	0.85	1.02	100,100,100,100	0
22	MG	A	1798	1/1	0.85	0.20	148,148,148,148	0
22	MG	A	1836	1/1	0.85	0.42	120,120,120,120	0
22	MG	A	1815	1/1	0.85	0.46	115,115,115,115	0
22	MG	A	1687	1/1	0.85	0.25	117,117,117,117	0
22	MG	A	1856	1/1	0.86	0.28	127,127,127,127	0
22	MG	A	1850	1/1	0.86	0.36	125,125,125,125	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1791	1/1	0.86	0.46	99,99,99,99	0
22	MG	A	1821	1/1	0.86	0.34	96,96,96,96	0
22	MG	P	101	1/1	0.86	0.22	115,115,115,115	0
22	MG	A	1745	1/1	0.86	0.18	107,107,107,107	0
22	MG	A	1867	1/1	0.86	0.55	118,118,118,118	0
22	MG	A	1629	1/1	0.87	0.52	121,121,121,121	0
22	MG	A	1767	1/1	0.87	0.23	107,107,107,107	0
22	MG	A	1797	1/1	0.87	0.54	116,116,116,116	0
22	MG	A	1712	1/1	0.87	0.34	149,149,149,149	0
22	MG	A	1855	1/1	0.87	0.87	128,128,128,128	0
22	MG	A	1799	1/1	0.87	0.26	84,84,84,84	0
22	MG	A	1754	1/1	0.88	0.10	156,156,156,156	0
22	MG	A	1772	1/1	0.88	1.46	120,120,120,120	0
22	MG	A	1755	1/1	0.88	0.38	122,122,122,122	0
22	MG	A	1701	1/1	0.88	0.32	138,138,138,138	0
22	MG	A	1661	1/1	0.88	0.45	87,87,87,87	0
22	MG	A	1874	1/1	0.88	0.20	431,431,431,431	0
22	MG	A	1718	1/1	0.88	0.16	92,92,92,92	0
22	MG	D	303	1/1	0.88	0.22	88,88,88,88	0
22	MG	D	304	1/1	0.88	0.56	110,110,110,110	0
22	MG	A	1806	1/1	0.88	0.29	414,414,414,414	0
22	MG	J	201	1/1	0.88	0.34	105,105,105,105	0
22	MG	A	1638	1/1	0.88	0.33	97,97,97,97	0
22	MG	A	1674	1/1	0.88	0.46	124,124,124,124	0
22	MG	A	1696	1/1	0.88	0.35	128,128,128,128	0
22	MG	C	302	1/1	0.89	0.12	129,129,129,129	0
22	MG	A	1852	1/1	0.89	0.50	108,108,108,108	0
22	MG	A	1778	1/1	0.89	0.15	157,157,157,157	0
22	MG	A	1619	1/1	0.89	0.63	106,106,106,106	0
22	MG	I	201	1/1	0.89	0.81	136,136,136,136	0
22	MG	A	1848	1/1	0.89	0.41	94,94,94,94	0
22	MG	A	1644	1/1	0.89	0.34	82,82,82,82	0
22	MG	A	1733	1/1	0.89	0.33	116,116,116,116	0
22	MG	A	1823	1/1	0.89	0.20	146,146,146,146	0
22	MG	A	1686	1/1	0.90	0.13	226,226,226,226	0
22	MG	A	1671	1/1	0.90	0.24	140,140,140,140	0
22	MG	A	1871	1/1	0.90	0.47	148,148,148,148	0
22	MG	A	1817	1/1	0.90	0.93	134,134,134,134	0
22	MG	A	1873	1/1	0.90	0.10	437,437,437,437	0
22	MG	A	1819	1/1	0.90	0.18	103,103,103,103	0
22	MG	A	1837	1/1	0.90	0.96	123,123,123,123	0
22	MG	A	1694	1/1	0.90	0.34	76,76,76,76	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
22	MG	A	1756	1/1	0.90	0.26	109,109,109,109	0
22	MG	A	1725	1/1	0.90	0.80	119,119,119,119	0
22	MG	A	1802	1/1	0.90	0.50	148,148,148,148	0
22	MG	A	1785	1/1	0.90	0.21	127,127,127,127	0
22	MG	A	1626	1/1	0.90	0.29	147,147,147,147	0
22	MG	A	1859	1/1	0.90	0.81	123,123,123,123	0
22	MG	A	1790	1/1	0.90	0.73	146,146,146,146	0
22	MG	A	1685	1/1	0.90	0.10	236,236,236,236	0
22	MG	A	1773	1/1	0.91	0.43	120,120,120,120	0
22	MG	A	1699	1/1	0.91	0.39	97,97,97,97	0
22	MG	B	302	1/1	0.91	0.15	111,111,111,111	0
22	MG	A	1673	1/1	0.91	0.10	120,120,120,120	0
22	MG	A	1800	1/1	0.91	0.09	132,132,132,132	0
22	MG	A	1789	1/1	0.91	0.11	96,96,96,96	0
22	MG	A	1863	1/1	0.91	0.31	101,101,101,101	0
22	MG	E	201	1/1	0.91	0.12	121,121,121,121	0
22	MG	A	1803	1/1	0.91	0.47	250,250,250,250	0
22	MG	A	1740	1/1	0.91	0.40	125,125,125,125	0
22	MG	A	1631	1/1	0.91	0.32	109,109,109,109	0
22	MG	A	1666	1/1	0.91	0.21	123,123,123,123	0
22	MG	A	1827	1/1	0.91	0.98	147,147,147,147	0
22	MG	A	1705	1/1	0.91	0.18	369,369,369,369	0
23	ZN	N	101	1/1	0.91	0.14	214,214,214,214	0
22	MG	A	1743	1/1	0.92	0.19	104,104,104,104	0
22	MG	A	1678	1/1	0.92	0.44	106,106,106,106	0
22	MG	A	1748	1/1	0.92	0.32	120,120,120,120	0
22	MG	A	1765	1/1	0.92	0.76	90,90,90,90	0
22	MG	A	1667	1/1	0.92	0.27	115,115,115,115	0
22	MG	A	1784	1/1	0.92	0.20	120,120,120,120	0
22	MG	A	1700	1/1	0.92	0.17	184,184,184,184	0
22	MG	A	1786	1/1	0.92	0.18	153,153,153,153	0
22	MG	D	302	1/1	0.92	0.19	103,103,103,103	0
22	MG	A	1768	1/1	0.92	0.13	147,147,147,147	0
22	MG	A	1814	1/1	0.92	0.56	131,131,131,131	0
22	MG	A	1752	1/1	0.92	0.50	89,89,89,89	0
22	MG	A	1689	1/1	0.92	0.76	170,170,170,170	0
22	MG	A	1738	1/1	0.92	0.54	100,100,100,100	0
22	MG	A	1739	1/1	0.92	0.49	74,74,74,74	0
22	MG	A	1864	1/1	0.92	0.43	122,122,122,122	0
22	MG	A	1774	1/1	0.92	0.51	112,112,112,112	0
22	MG	A	1639	1/1	0.92	0.31	216,216,216,216	0
22	MG	A	1758	1/1	0.92	0.28	109,109,109,109	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1664	1/1	0.93	0.44	101,101,101,101	0
22	MG	A	1653	1/1	0.93	0.17	113,113,113,113	0
22	MG	F	201	1/1	0.93	0.16	107,107,107,107	0
22	MG	A	1676	1/1	0.93	0.24	113,113,113,113	0
22	MG	A	1732	1/1	0.93	0.33	136,136,136,136	0
22	MG	A	1608	1/1	0.93	0.11	143,143,143,143	0
22	MG	A	1844	1/1	0.93	0.18	100,100,100,100	0
22	MG	A	1779	1/1	0.93	0.20	129,129,129,129	0
22	MG	A	1688	1/1	0.93	0.13	144,144,144,144	0
22	MG	A	1764	1/1	0.93	0.25	101,101,101,101	0
22	MG	A	1737	1/1	0.94	0.24	99,99,99,99	0
22	MG	A	1669	1/1	0.94	0.19	152,152,152,152	0
22	MG	A	1840	1/1	0.94	0.22	104,104,104,104	0
22	MG	A	1690	1/1	0.94	0.06	136,136,136,136	0
22	MG	A	1825	1/1	0.94	0.35	110,110,110,110	0
22	MG	A	1657	1/1	0.94	0.15	98,98,98,98	0
22	MG	A	1793	1/1	0.94	0.25	80,80,80,80	0
22	MG	A	1861	1/1	0.94	0.11	89,89,89,89	0
22	MG	A	1610	1/1	0.94	0.24	124,124,124,124	0
22	MG	A	1744	1/1	0.94	0.32	117,117,117,117	0
22	MG	A	1652	1/1	0.94	0.13	98,98,98,98	0
22	MG	A	1681	1/1	0.94	0.35	132,132,132,132	0
22	MG	A	1628	1/1	0.94	0.78	85,85,85,85	0
22	MG	A	1818	1/1	0.94	0.97	100,100,100,100	0
22	MG	A	1870	1/1	0.94	0.58	85,85,85,85	0
22	MG	A	1702	1/1	0.94	0.21	184,184,184,184	0
22	MG	A	1801	1/1	0.94	0.18	154,154,154,154	0
22	MG	B	301	1/1	0.95	0.20	99,99,99,99	0
22	MG	A	1816	1/1	0.95	0.41	105,105,105,105	0
22	MG	A	1831	1/1	0.95	0.33	52,52,52,52	0
22	MG	A	1714	1/1	0.95	0.21	219,219,219,219	0
22	MG	A	1862	1/1	0.95	0.32	127,127,127,127	0
22	MG	A	1649	1/1	0.95	0.48	116,116,116,116	0
22	MG	A	1650	1/1	0.95	0.24	90,90,90,90	0
22	MG	A	1635	1/1	0.95	0.12	99,99,99,99	0
22	MG	A	1710	1/1	0.95	0.41	114,114,114,114	0
22	MG	A	1722	1/1	0.95	0.24	155,155,155,155	0
22	MG	A	1723	1/1	0.95	0.16	102,102,102,102	0
22	MG	A	1692	1/1	0.95	0.27	150,150,150,150	0
22	MG	A	1727	1/1	0.95	0.74	140,140,140,140	0
22	MG	A	1728	1/1	0.95	0.05	214,214,214,214	0
22	MG	A	1828	1/1	0.95	0.28	447,447,447,447	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1646	1/1	0.95	0.40	91,91,91,91	0
22	MG	A	1795	1/1	0.96	0.52	117,117,117,117	0
22	MG	A	1645	1/1	0.96	0.06	91,91,91,91	0
22	MG	A	1624	1/1	0.96	0.25	117,117,117,117	0
22	MG	A	1875	1/1	0.96	0.07	228,228,228,228	0
22	MG	A	1659	1/1	0.96	0.12	121,121,121,121	0
22	MG	A	1647	1/1	0.96	0.44	182,182,182,182	0
22	MG	A	1648	1/1	0.96	0.14	164,164,164,164	0
22	MG	A	1603	1/1	0.96	0.23	84,84,84,84	0
22	MG	A	1726	1/1	0.96	0.41	134,134,134,134	0
22	MG	A	1643	1/1	0.96	0.15	90,90,90,90	0
22	MG	A	1805	1/1	0.96	0.12	203,203,203,203	0
22	MG	A	1741	1/1	0.96	0.17	76,76,76,76	0
22	MG	A	1807	1/1	0.96	0.12	278,278,278,278	0
22	MG	A	1742	1/1	0.96	0.31	116,116,116,116	0
22	MG	A	1697	1/1	0.96	0.33	127,127,127,127	0
22	MG	A	1792	1/1	0.96	0.13	97,97,97,97	0
22	MG	A	1675	1/1	0.96	0.21	116,116,116,116	0
22	MG	A	1869	1/1	0.96	0.19	106,106,106,106	0
22	MG	A	1813	1/1	0.96	0.19	122,122,122,122	0
22	MG	A	1612	1/1	0.96	0.12	164,164,164,164	0
22	MG	A	1615	1/1	0.97	0.12	99,99,99,99	0
22	MG	A	1730	1/1	0.97	0.26	110,110,110,110	0
22	MG	A	1707	1/1	0.97	0.07	167,167,167,167	0
22	MG	A	1804	1/1	0.97	0.11	194,194,194,194	0
22	MG	A	1621	1/1	0.97	0.31	123,123,123,123	0
22	MG	A	1771	1/1	0.97	0.67	83,83,83,83	0
22	MG	A	1654	1/1	0.97	0.10	49,49,49,49	0
22	MG	A	1747	1/1	0.97	0.07	105,105,105,105	0
22	MG	A	1734	1/1	0.97	0.26	129,129,129,129	0
22	MG	A	1820	1/1	0.97	0.06	91,91,91,91	0
22	MG	A	1658	1/1	0.98	0.18	130,130,130,130	0
22	MG	A	1602	1/1	0.98	0.21	130,130,130,130	0
22	MG	A	1706	1/1	0.98	0.36	97,97,97,97	0
22	MG	A	1604	1/1	0.98	0.12	100,100,100,100	0
22	MG	A	1613	1/1	0.98	0.21	121,121,121,121	0
22	MG	A	1614	1/1	0.98	0.18	135,135,135,135	0
22	MG	A	1691	1/1	0.98	0.38	155,155,155,155	0
22	MG	A	1713	1/1	0.98	0.32	431,431,431,431	0
22	MG	A	1876	1/1	0.98	0.24	399,399,399,399	0
22	MG	A	1609	1/1	0.98	0.18	94,94,94,94	0
22	MG	A	1760	1/1	0.98	0.20	98,98,98,98	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1616	1/1	0.98	0.18	66,66,66,66	0
22	MG	A	1762	1/1	0.98	0.30	83,83,83,83	0
22	MG	A	1695	1/1	0.98	0.11	81,81,81,81	0
22	MG	A	1717	1/1	0.98	0.24	94,94,94,94	0
22	MG	A	1788	1/1	0.98	0.51	77,77,77,77	0
22	MG	A	1627	1/1	0.98	0.83	79,79,79,79	0
22	MG	A	1860	1/1	0.98	0.56	123,123,123,123	0
22	MG	A	1680	1/1	0.98	0.29	136,136,136,136	0
22	MG	A	1617	1/1	0.98	0.29	56,56,56,56	0
22	MG	A	1668	1/1	0.98	0.12	136,136,136,136	0
22	MG	N	102	1/1	0.98	0.30	225,225,225,225	0
22	MG	A	1724	1/1	0.98	0.37	92,92,92,92	0
22	MG	A	1656	1/1	0.98	0.14	178,178,178,178	0
22	MG	A	1670	1/1	0.98	0.10	140,140,140,140	0
23	ZN	D	301	1/1	0.98	0.28	122,122,122,122	0
22	MG	A	1618	1/1	0.98	0.35	94,94,94,94	0
22	MG	A	1623	1/1	0.99	0.14	135,135,135,135	0
22	MG	A	1651	1/1	0.99	0.15	61,61,61,61	0
22	MG	A	1606	1/1	0.99	0.11	96,96,96,96	0
22	MG	A	1640	1/1	0.99	0.16	72,72,72,72	0
22	MG	A	1757	1/1	0.99	0.09	80,80,80,80	0
22	MG	A	1698	1/1	0.99	0.36	182,182,182,182	0
22	MG	A	1641	1/1	0.99	0.12	99,99,99,99	0
22	MG	A	1655	1/1	0.99	0.14	131,131,131,131	0
22	MG	B	303	1/1	0.99	0.18	184,184,184,184	0
22	MG	A	1719	1/1	0.99	0.19	139,139,139,139	0
22	MG	A	1630	1/1	0.99	0.24	83,83,83,83	0
22	MG	A	1620	1/1	0.99	0.10	83,83,83,83	0
22	MG	A	1632	1/1	0.99	0.14	128,128,128,128	0
22	MG	A	1611	1/1	0.99	0.12	92,92,92,92	0
22	MG	A	1812	1/1	0.99	0.16	99,99,99,99	0
22	MG	A	1634	1/1	0.99	0.20	235,235,235,235	0
22	MG	A	1607	1/1	0.99	0.20	91,91,91,91	0
22	MG	A	1746	1/1	0.99	0.17	101,101,101,101	0
22	MG	A	1636	1/1	0.99	0.12	69,69,69,69	0
22	MG	A	1708	1/1	0.99	0.18	120,120,120,120	0
22	MG	A	1709	1/1	0.99	0.11	140,140,140,140	0
22	MG	A	1750	1/1	0.99	0.23	123,123,123,123	0
22	MG	A	1637	1/1	0.99	0.37	85,85,85,85	0
22	MG	A	1693	1/1	0.99	0.15	133,133,133,133	0
22	MG	A	1775	1/1	0.99	0.12	121,121,121,121	0
22	MG	A	1663	1/1	1.00	0.09	127,127,127,127	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1721	1/1	1.00	0.20	46,46,46,46	0

6.5 Other polymers [i](#)

There are no such residues in this entry.