



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 21, 2020 – 09:48 PM BST

PDB ID : 4DV4
Title : Crystal structure of the *Thermus thermophilus* 30S ribosomal subunit with a 16S rRNA mutation, A914G
Authors : Demirci, H.; Murphy IV, F.; Murphy, E.; Gregory, S.T.; Dahlberg, A.E.; Jogl, G.
Deposited on : 2012-02-22
Resolution : 3.65 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 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 : 2.13.1
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) : 2.13.1

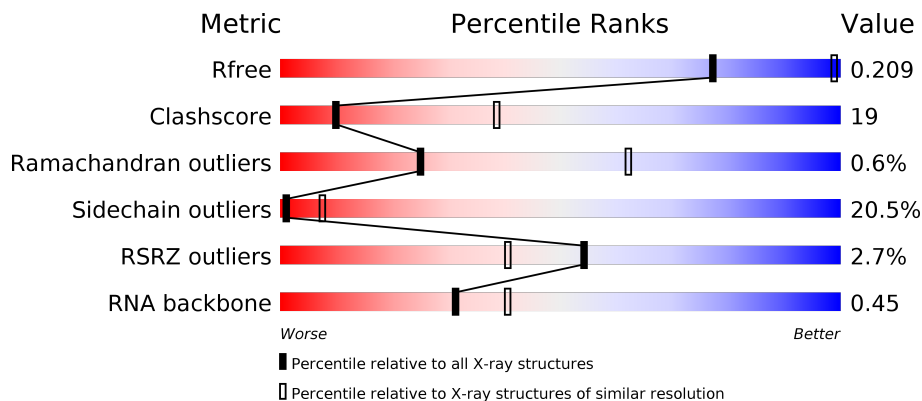
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.65 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	1557 (3.82-3.50)
Clashscore	141614	1037 (3.80-3.52)
Ramachandran outliers	138981	1004 (3.80-3.52)
Sidechain outliers	138945	1002 (3.80-3.52)
RSRZ outliers	127900	1441 (3.82-3.50)
RNA backbone	3102	1024 (4.30-3.00)

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 on 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	B	256	
3	C	239	
4	D	209	

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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
22	MG	A	1656	-	-	-	X
22	MG	A	1699	-	-	-	X
22	MG	A	1714	-	-	-	X
22	MG	A	1725	-	-	-	X
22	MG	A	1739	-	-	-	X
22	MG	A	1767	-	-	-	X
22	MG	A	1777	-	-	-	X
22	MG	A	1813	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1818	-	-	-	X
22	MG	A	1821	-	-	-	X
22	MG	A	1822	-	-	-	X
22	MG	A	1848	-	-	-	X
22	MG	J	201	-	-	-	X

2 Entry composition [i](#)

There are 24 unique types of molecules in this entry. The entry contains 52434 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	32645	14540	6039	10548	1518	0	6	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	914	G	A	ENGINEERED MUTATION	GB M26923.1
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	972	612	195	163	2	0	0	0

- 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	152	141	2	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Q	96	GLN	GLU	CONFLICT	UNP Q5SHP7

- 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	P	3	Total 3	Mg 3	0	0
22	J	2	Total 2	Mg 2	0	0
22	Q	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	B	2	Total 2	Mg 2	0	0
22	C	2	Total 2	Mg 2	0	0
22	A	268	Total 268	Mg 268	0	0
22	N	1	Total 1	Mg 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
22	S	1	Total Mg 1 1	0	0
22	F	1	Total Mg 1 1	0	0
22	M	1	Total Mg 1 1	0	0

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

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

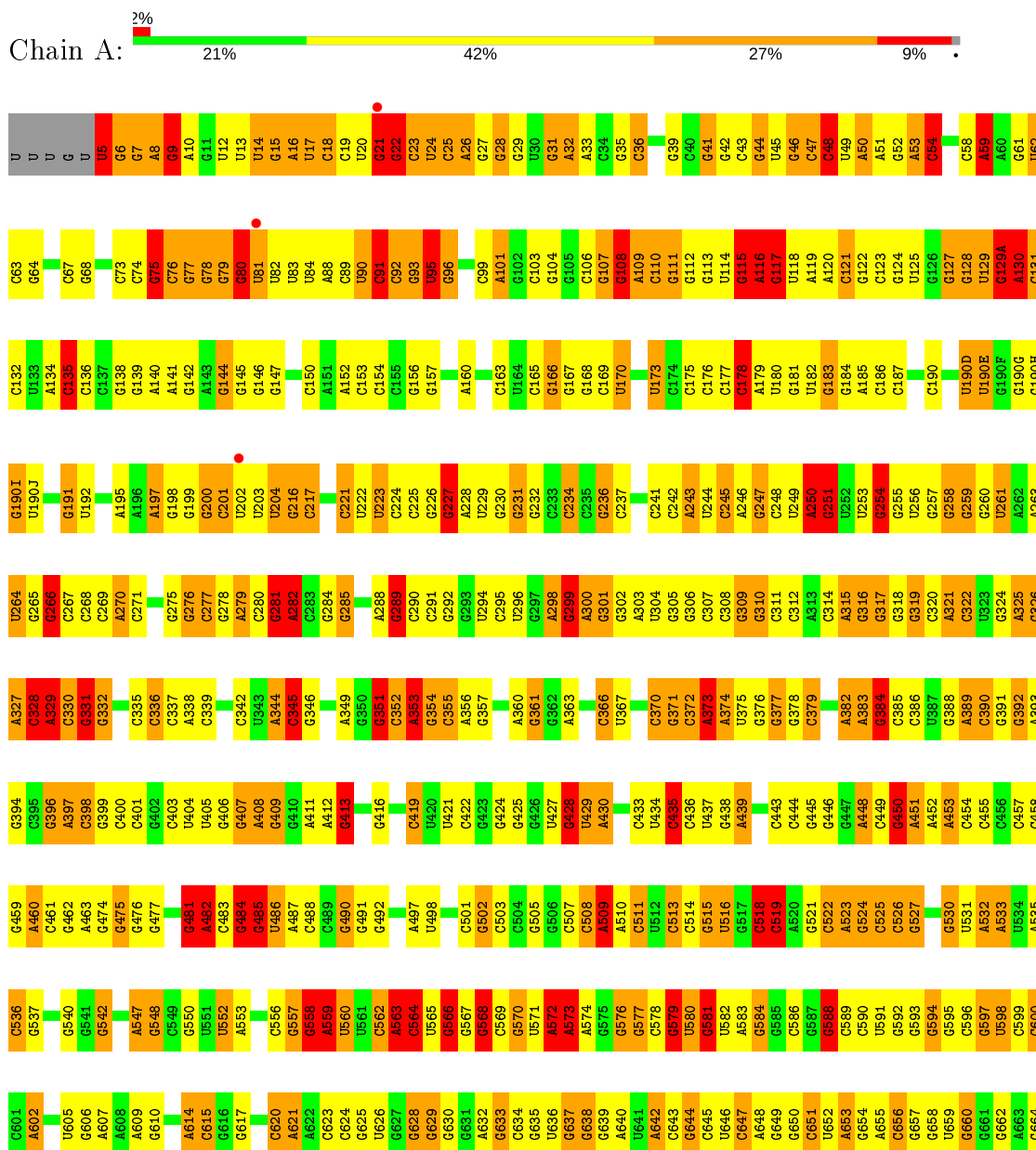
- Molecule 24 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
24	A	383	Total O 383 383	0	0
24	E	3	Total O 3 3	0	0
24	G	2	Total O 2 2	0	0
24	I	1	Total O 1 1	0	0
24	J	3	Total O 3 3	0	0
24	L	1	Total O 1 1	0	0
24	M	7	Total O 7 7	0	0
24	N	2	Total O 2 2	0	0
24	P	8	Total O 8 8	0	0
24	Q	1	Total O 1 1	0	0
24	T	1	Total O 1 1	0	0

3 Residue-property plots i

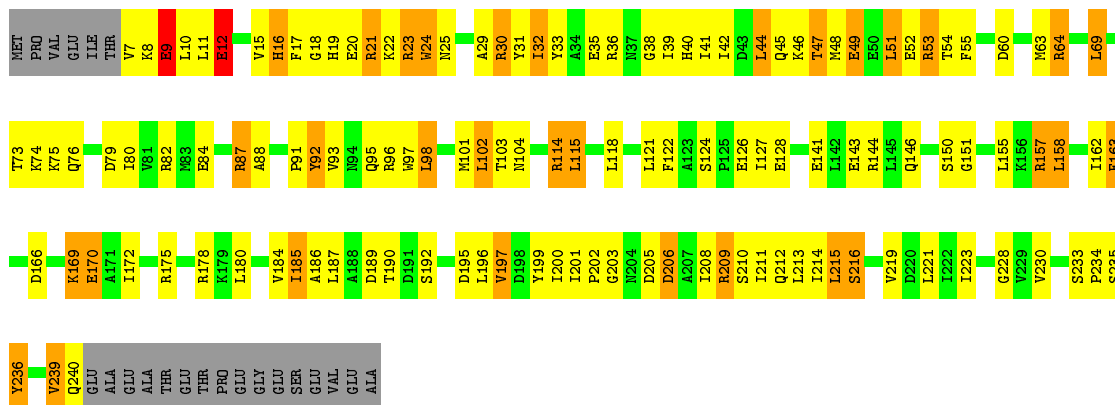
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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

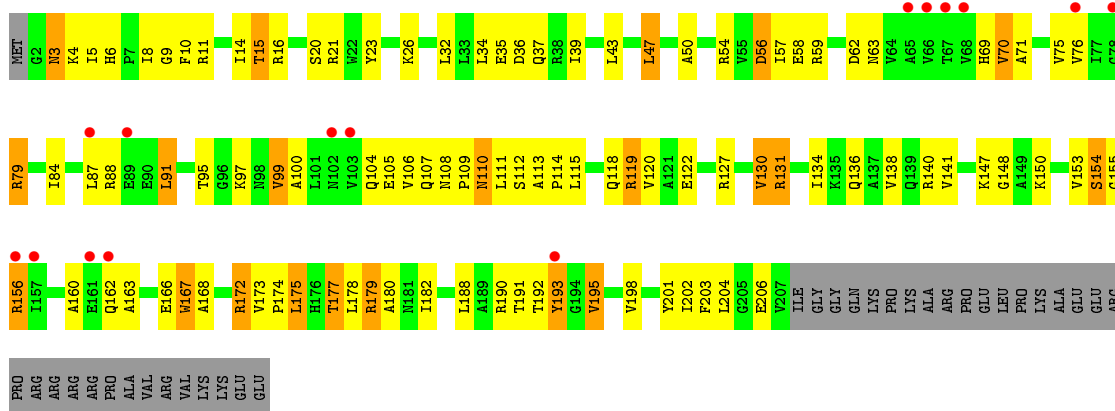


A1503	C1430	G1370	G1310	C1242	A1180	C1113	U1049	G989	G925	C862	C795	G731	A665
G1504	A1434	G1371	G1311	C1243	G1181	C1114	G1050	C990	G926	U863	C796	C732	G666
G1505	C1244	G1372	G1312	C1244	G1182	C1115	G1051	U991	G927	A864	C797	C733	G667
G1506	A1245	G1373	U1313	A1245	A1183	C1116	G1052	U992	G928	A865	G798	A734	
A1507	U1437	A1374	C1314	G1184	G1184	G1117	C1054	G993	C931	C866	G799	G738	G670
G1508	C1437	A1375	U1315	G1185	G1185	G1120	A1055	A994	G932	G867	A802	C739	G671
C1509	G1438	U1376	G1316	C1249	G1186	U1121	U1056	C995	G933	C868	A803	U740	U672
U1510	C1439	A1377	C1317	A1250	G1187	U1122	G1057	G998	G934	C869	G803	U741	G673
U1511	C1440	A1378	A1318	A1251	A1188	A1123	G1058	C999	C935	U870	U804	G742	G674
U1512	G1441	G1379	A1319	G1252	G1189	A1124	C1059	U1000	A936	U871	C805	G743	A675
U1513	G1442	U1380	C1320	G1253	G1190	A1125	U1062	A1001	A937	A872	C806	C745	A676
U1514	G1443	C1321	G1321	A1254	A1191	U1126	A1063	A1002	A938	A873	A807	A746	U677
U1515	A1446	C1382	C1322	U1255	C1192	U1127	G1064	G1003	G939	G874	C808	C747	U678
G1516	G1447	C1383	G1323	U1256	G1193	G1127	G1065	G1003A	C940	C875	G809	C748	C679
U1517	U1450	C1384	C1324	G1258	U1194	C1128	U1066	U1003A	G941	G876	C810	C749	C680
U1518	A1451	G1385	G1325	C1259	C1195	A1129	A1066	A1004	G942	C877	C811	C750	
U1519	G1452	G1386	C1326	A1260	U1196	A1130	A1067	G878	G943	G878	C812	U751	G683
U1520	G1453	G1387	C1327	G1261	G1197	G1131	C1068	C879	U943	C879	U813	G752	A684
U1521	G1454	C1388	A1329	G1262	G1198	C1132	U1071	C1007	G944	C880	A814	A753	G685
U1522	G1455	C1389	U1330	U1263	U1199	G1133	C1072	C1008	G945	G881	A815	C754	U686
G1523	G1456	G1390	G1331	C1264	C1200	G1134	G1073	G1009	A946	C882	A816	G755	A687
G1462	C1463	U1391	U1332	G1265	A1201	C1137	U1074	G1010	A947	C883	C817	G756	
G1524	G1464	C1392	A1333	G1266	G1202	G1138	G1075	G1011	C948	U884	G818	U757	C688
G1525	C1465	U1393	G1334	C1267	C1203	G1139	C1076	U1012	A949	G885	A819	G758	G690
G1526	G1466	A1394	C1335	A1268	A1204	G1140	G1077	A1013	U950	G886	U820	A759	G691
C1527	C1467	C1395	C1336	A1269	U1205	C1141	G1078	A1014	G951	C887	G821	G760	U692
U1528	G1467	A1396	G1337	G1274	G1206	G1142	U1079	A1015	U952	G888	C822	G761	G693
G1529	G1468	C1397	G1338	U1275	C1207	G1143	G1080	G1018	G953	A889	G823	C762	A694
G1530	G1469	U1398	A1339	U1276	C1208	G1144	A1081	C1019	G954	G890	G824	G763	A695
A1531	G1470	C1399	A1340	U1277	C1209	G1145	G1082	U1020	U955	U891	G825	G764	A696
U1532	G1471	C1400	U1341	A1278	G1209	C1146	U1083	G1021	A956	C892	C826	G765	U697
C	G1472	G1401	C1342	A1280	U1212	A1146	U1084	G1022	A957	C893	U827	A766	G698
A	G1473	C1402	G1343	U1281	A1213	C1147	G1085	G1023	A959	G894	A828	A767	C699
C	G1474	C1403	C1344	C1282	C1214	U1148	U1086	G1024	U960	G895	G830	C770	G700
U	G1475	G1404	U1345	G1283	G1215	C1149	G1087	G1025	U961	G896	G831	C771	A702
C	C1476	G1405	C1346	C1284	G1216	U1150	G1088	G1026	G962	G897	C832	G772	G703
U1539	G1477	U1406	G1347	A1285	U1219	A1151	G1089	G1027	A964	A900	U833	U772	
U1540	G1478	C1407	U1348	A1286	G1220	A1152	U1090	C1028	A965	A901	C834	U773	A706
U1541	G1479	A1408	A1349	A1287	G1221	C1153	U1091	G1029	A966	A902	C835	G774	C707
U1542	G1480	C1409	A1350	A1288	G1222	G1154	U1092	C1030	G967	G902	U836	G775	C708
C1543	G1481	G1410	U1351	A1289	G1223	G1155	A1093	G1030A	A968	G906	G837	G776	G709
U1544	C1482	C1411	C1352	C1290	C1223	G1156	G1094	G1030B	A969	A907	G838	A777	G710
U1485	U1485	G1412	G1353	G1291	G1224	A1157	U1095	G1030C	C970	A908	U839	G778	
G1486	G1486	A1413	C1354	U1292	A1225	C1158	U1096	G1030D	G971	A909	C840	C779	G713
G1487	G1487	U1414	G1355	G1293	C1226	U1159	C1096	A1030D	A972	A909	U841	C780	G714
G1488	G1488	G1415	G1356	C1294	A1227	G1160	C1097	G1031	G973	C910	C842	A781	A715
G1489	G1489	G1416	A1357	G1295	C1228	C1161	U1098	G1032	A974	C912	C843	A782	A716
C1490	C1490	G1417	U1358	C1296	A1229	C1162	G1099	G1033	A975	A913	U850	C783	C717
G1491	G1491	C1359	C1359	G1297	G1230	G1167	G1100	A1035	G976	G914	G851	C784	G718
A1492	A1492	A1360	A1360	G1298	G1231	A1167	A1101	G1036	A977	A915	G852	C785	C719
A1493	A1493	G1361	G1361	A1299	U1232	A1168	A1102	G1037	A978	A916	G853	G786	C720
G1494	G1494	C1361A	C1361A	G1300	G1233	A1169	C1103	C1037	A979	G916	G854	A787	G721
U1495	U1495	C1362	C1362	U1301	G1234	G1171	A1104	G1038	C980	G917	G855	A788	A722
C1496	C1496	A1363	A1363	U1302	U1235	C1174	A1105	C1039	U981	A918	G856	U789	U723
G1497	G1497	U1364	U1364	C1303	A1236	G1174	G1106	C1040	U982	U920	C857	A790	G724
U1498	U1498	G1365	G1365	C1237	C1237	G1175	C1107	A1044	U983	U921	G858	G791	
A1499	A1499	G1366	C1366	A1238	A1238	A1176	G1108	C1045	A986	G922	A859	A792	A728
A1500	A1500	A1367	C1367	A1239	U1239	G1177	A1046	G1046	A987	A923	A860	A793	A729
A1501	A1501	G1368	G1368	U1240	U1240	G1178	G1047	G1047	G988	A924	A861	A794	G730
A1502	A1502	C1369	C1369	G1309	G1241	A1179	G1048	G1048					

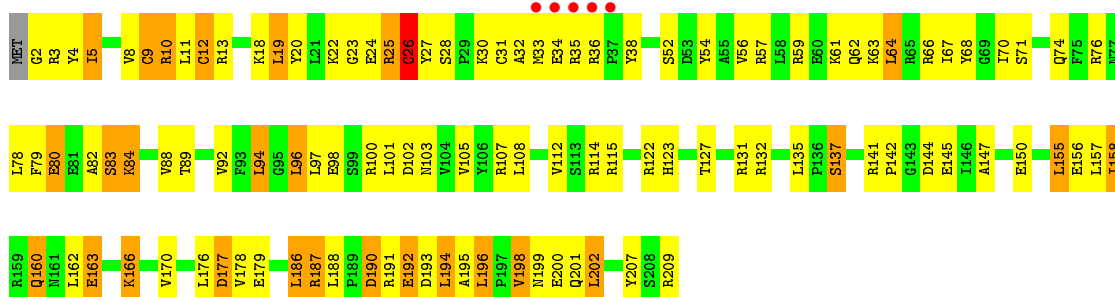
• Molecule 2: ribosomal protein S2



• Molecule 3: ribosomal protein S3

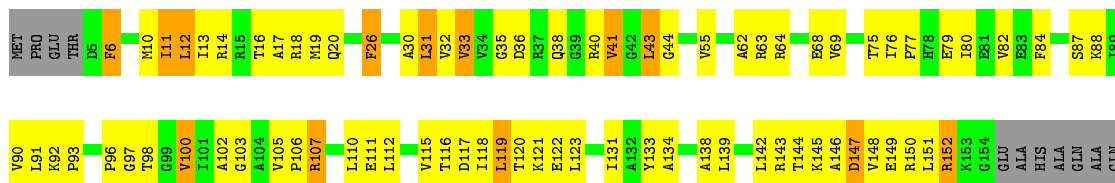


• Molecule 4: ribosomal protein S4



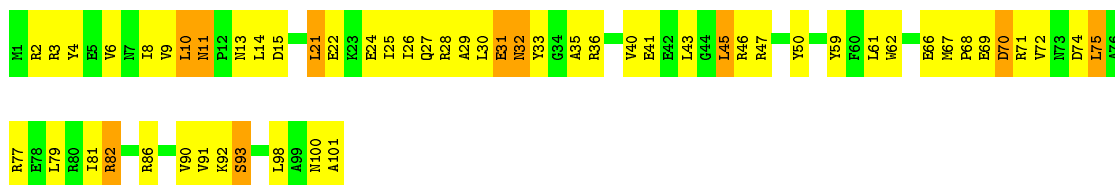
• Molecule 5: ribosomal protein S5



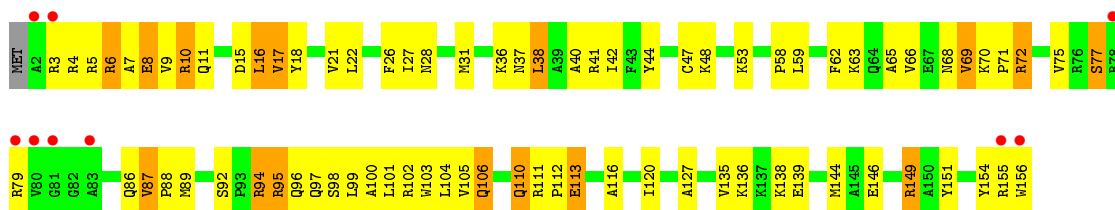


GLY

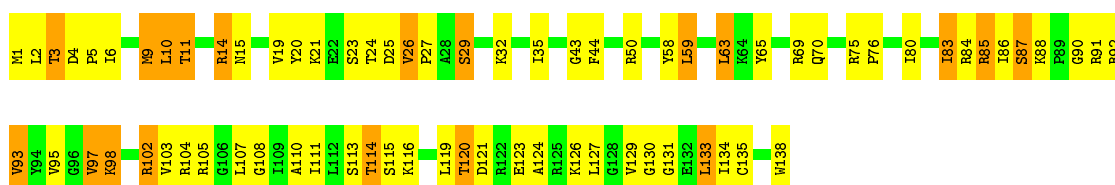
• Molecule 6: ribosomal protein S6



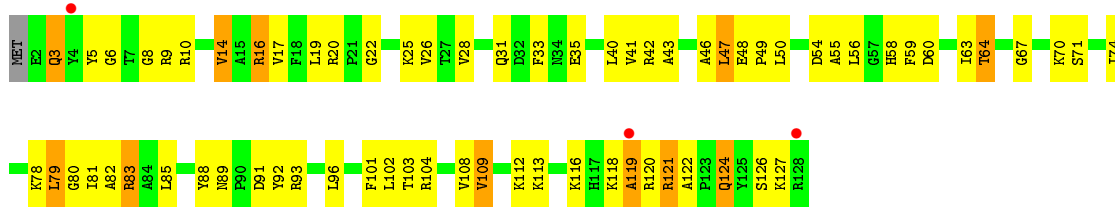
• Molecule 7: ribosomal protein S7



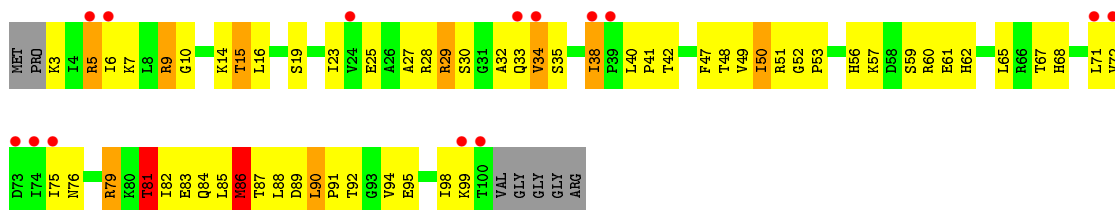
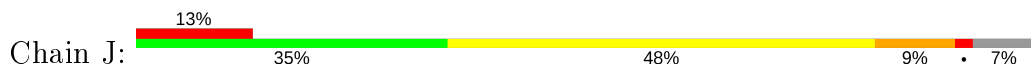
• Molecule 8: ribosomal protein S8



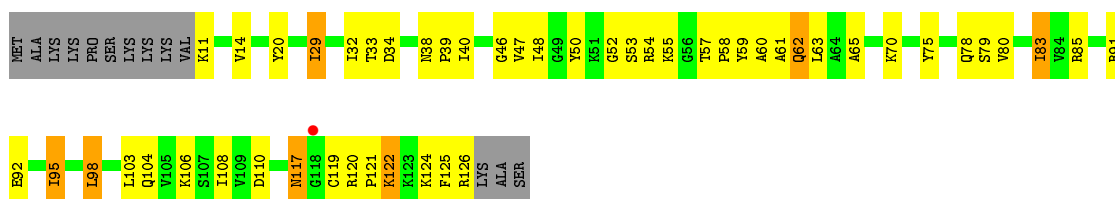
• Molecule 9: ribosomal protein S9



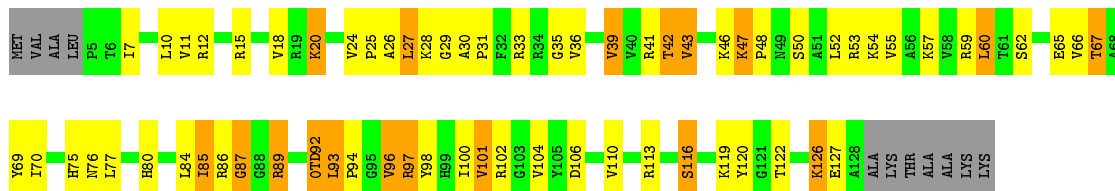
- Molecule 10: ribosomal protein S10



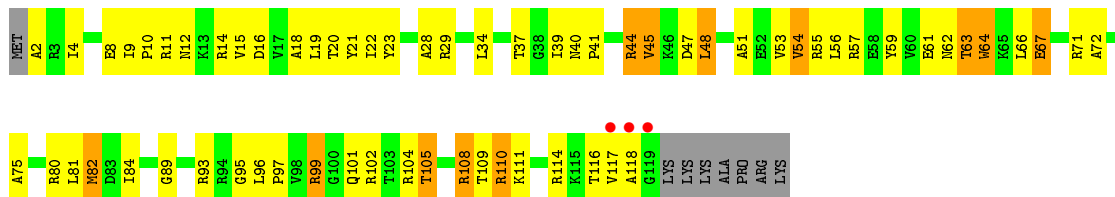
- Molecule 11: ribosomal protein S11



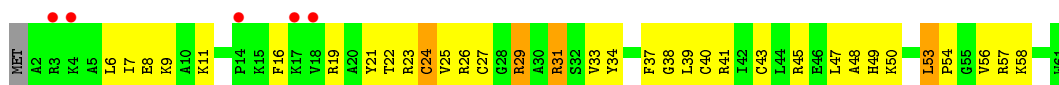
- Molecule 12: ribosomal protein S12



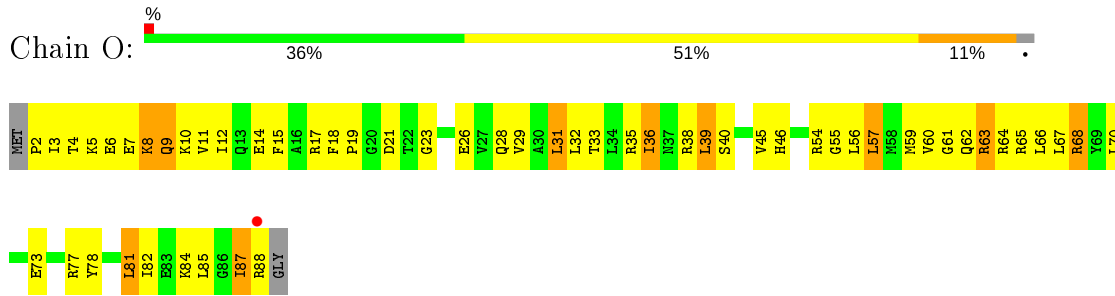
- Molecule 13: ribosomal protein S13



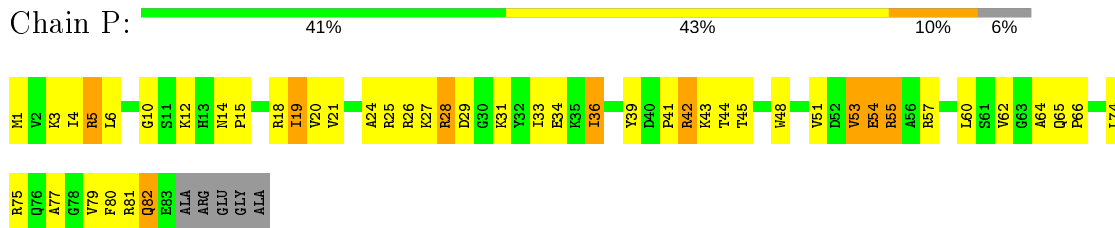
- Molecule 14: ribosomal protein S14



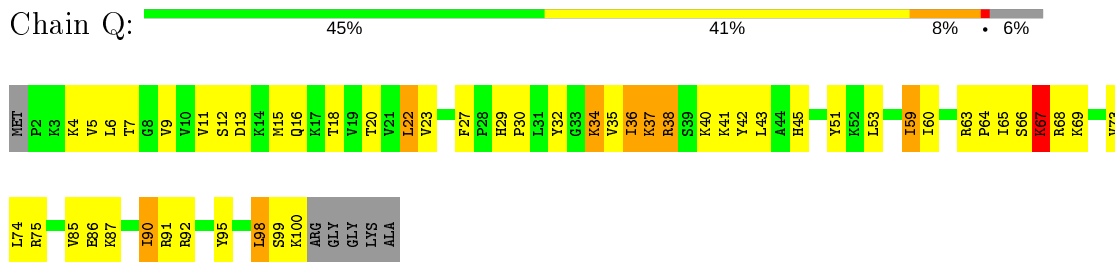
- Molecule 15: ribosomal protein S15



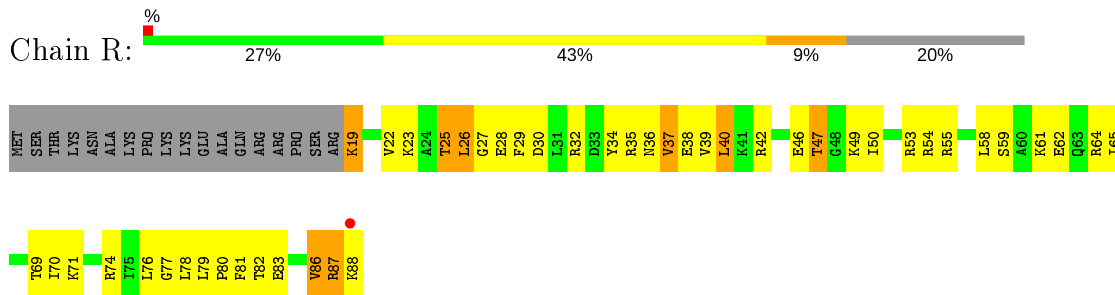
- Molecule 16: ribosomal protein S16



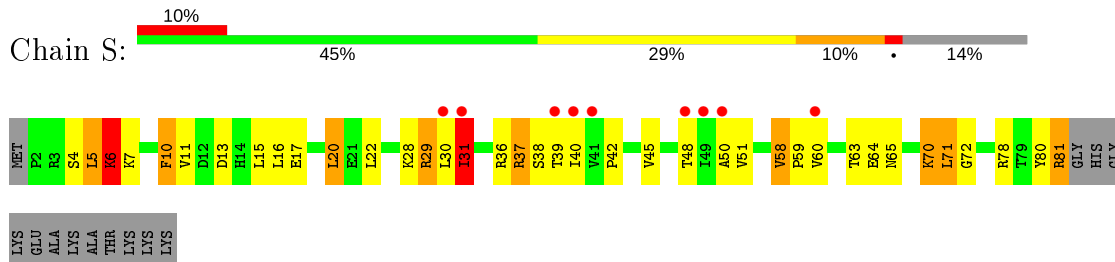
- Molecule 17: ribosomal protein S17



- Molecule 18: ribosomal protein S18

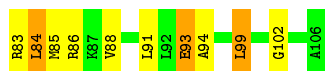
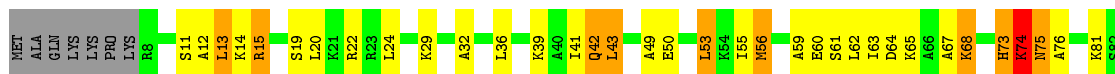


- Molecule 19: ribosomal protein S19



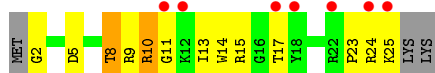
- Molecule 20: ribosomal protein S20

Chain T: 



- Molecule 21: ribosomal protein THX

Chain U: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	402.64Å 402.64Å 174.75Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.66 – 3.65 34.66 – 3.65	Depositor EDS
% Data completeness (in resolution range)	98.2 (34.66-3.65) 98.0 (34.66-3.65)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.80 (at 3.66Å)	Xtrriage
Refinement program	PHENIX dev_978	Depositor
R, R_{free}	0.153 , 0.208 0.153 , 0.209	Depositor DCC
R_{free} test set	7745 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	138.2	Xtrriage
Anisotropy	0.202	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.23 , 129.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	52434	wwPDB-VP
Average B, all atoms (Å ²)	168.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.89% 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, MA6, 0TD, MG, 2MG, 5MC, UR3, 4OC, M2G, 7MG, PSU

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	1.22	174/36140 (0.5%)	1.94	1937/56398 (3.4%)
2	B	0.81	2/1935 (0.1%)	0.96	4/2609 (0.2%)
3	C	0.62	0/1636	0.81	0/2205
4	D	0.77	1/1733 (0.1%)	1.00	5/2318 (0.2%)
5	E	0.97	1/1162 (0.1%)	1.12	5/1564 (0.3%)
6	F	0.69	0/856	0.83	2/1154 (0.2%)
7	G	0.68	0/1276	0.90	1/1709 (0.1%)
8	H	1.03	0/1136	1.12	2/1527 (0.1%)
9	I	0.56	0/1029	0.81	0/1379
10	J	0.63	0/805	0.87	1/1082 (0.1%)
11	K	0.83	1/879 (0.1%)	0.98	2/1187 (0.2%)
12	L	0.82	0/977	1.10	2/1306 (0.2%)
13	M	0.63	0/947	0.83	0/1270
14	N	0.65	0/501	0.87	0/664
15	O	0.81	0/740	1.02	2/987 (0.2%)
16	P	0.88	0/716	1.10	3/963 (0.3%)
17	Q	1.03	0/836	1.15	4/1117 (0.4%)
18	R	0.81	0/579	0.96	0/768
19	S	0.61	0/661	0.81	1/890 (0.1%)
20	T	0.80	0/765	1.07	2/1007 (0.2%)
21	U	0.58	0/212	0.91	0/277
All	All	1.09	179/55521 (0.3%)	1.69	1973/82381 (2.4%)

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	1
4	D	0	1

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

The worst 5 of 179 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	279	A	N9-C4	-13.57	1.29	1.37
1	A	300	A	N3-C4	-9.42	1.29	1.34
1	A	1442	G	N9-C4	9.30	1.45	1.38
1	A	301	G	C6-N1	-9.24	1.33	1.39
1	A	822	C	N1-C6	-8.85	1.31	1.37

The worst 5 of 1973 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	758	G	N1-C6-O6	21.49	132.79	119.90
1	A	758	G	C5-C6-O6	-16.07	118.96	128.60
1	A	1442	G	N3-C4-N9	15.41	135.25	126.00
1	A	722	A	C2-N3-C4	-14.89	103.16	110.60
1	A	232	G	N1-C6-O6	14.78	128.76	119.90

There are no chirality outliers.

5 of 13 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	170	GLU	Peptide
4	D	195	ALA	Peptide
7	G	154	TYR	Peptide
8	H	90	GLY	Peptide
10	J	86	MET	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	32645	0	16507	767	0
2	B	1900	0	1951	95	0
3	C	1612	0	1677	92	0
4	D	1703	0	1763	97	0
5	E	1146	0	1207	71	0
6	F	843	0	857	43	0
7	G	1257	0	1296	63	0
8	H	1116	0	1177	73	0
9	I	1010	0	1037	67	0
10	J	792	0	835	62	0
11	K	864	0	881	40	0
12	L	972	0	1058	57	0
13	M	937	0	995	50	0
14	N	492	0	529	29	0
15	O	729	0	768	46	0
16	P	700	0	720	37	0
17	Q	823	0	893	47	0
18	R	574	0	644	37	0
19	S	647	0	673	28	0
20	T	763	0	861	29	0
21	U	208	0	221	12	0
22	A	268	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	J	2	0	0	0	0
22	M	1	0	0	0	0
22	N	1	0	0	0	0
22	P	3	0	0	0	0
22	Q	2	0	0	0	0
22	S	1	0	0	0	0
23	D	1	0	0	0	0
23	N	1	0	0	0	0
24	A	383	0	0	11	0
24	E	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	G	2	0	0	2	0
24	I	1	0	0	1	0
24	J	3	0	0	3	0
24	L	1	0	0	0	0
24	M	7	0	0	1	0
24	N	2	0	0	0	0
24	P	8	0	0	1	0
24	Q	1	0	0	0	0
24	T	1	0	0	0	0
All	All	52434	0	36550	1661	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 19.

The worst 5 of 1661 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)
18:R:39:VAL:HG13	18:R:40:LEU:HD23	1.46	0.98
8:H:9:MET:HG3	8:H:26:VAL:HG21	1.41	0.98
1:A:1399:C:H4'	1:A:1400:5MC:H5''	1.53	0.90
14:N:39:LEU:HD22	14:N:43:CYS:HB3	1.54	0.88
1:A:1309:G:OP2	13:M:99:ARG:NH1	2.07	0.87

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%)	201 (87%)	28 (12%)	3 (1%)	12 47
3	C	204/239 (85%)	173 (85%)	31 (15%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	D	206/209 (99%)	194 (94%)	12 (6%)	0	100	100
5	E	148/162 (91%)	139 (94%)	9 (6%)	0	100	100
6	F	99/101 (98%)	93 (94%)	6 (6%)	0	100	100
7	G	153/156 (98%)	141 (92%)	12 (8%)	0	100	100
8	H	136/138 (99%)	129 (95%)	7 (5%)	0	100	100
9	I	125/128 (98%)	112 (90%)	12 (10%)	1 (1%)	19	56
10	J	96/105 (91%)	76 (79%)	17 (18%)	3 (3%)	4	32
11	K	114/129 (88%)	99 (87%)	14 (12%)	1 (1%)	17	54
12	L	121/135 (90%)	108 (89%)	12 (10%)	1 (1%)	19	56
13	M	116/126 (92%)	99 (85%)	16 (14%)	1 (1%)	17	54
14	N	58/61 (95%)	49 (84%)	9 (16%)	0	100	100
15	O	85/89 (96%)	78 (92%)	7 (8%)	0	100	100
16	P	81/88 (92%)	73 (90%)	8 (10%)	0	100	100
17	Q	97/105 (92%)	87 (90%)	10 (10%)	0	100	100
18	R	68/88 (77%)	58 (85%)	9 (13%)	1 (2%)	10	44
19	S	78/93 (84%)	73 (94%)	4 (5%)	1 (1%)	12	47
20	T	97/106 (92%)	83 (86%)	12 (12%)	2 (2%)	7	38
21	U	22/27 (82%)	21 (96%)	0	1 (4%)	2	23
All	All	2336/2541 (92%)	2086 (89%)	235 (10%)	15 (1%)	25	62

5 of 15 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	21	ARG
19	S	31	ILE
20	T	99	LEU
9	I	119	ALA
10	J	86	MET

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%)	152 (75%)	50 (25%)	0	5
3	C	160/188 (85%)	127 (79%)	33 (21%)	1	7
4	D	180/181 (99%)	142 (79%)	38 (21%)	1	7
5	E	115/123 (94%)	90 (78%)	25 (22%)	1	7
6	F	90/90 (100%)	71 (79%)	19 (21%)	1	7
7	G	126/127 (99%)	101 (80%)	25 (20%)	1	8
8	H	119/119 (100%)	95 (80%)	24 (20%)	1	8
9	I	98/99 (99%)	79 (81%)	19 (19%)	1	9
10	J	87/92 (95%)	75 (86%)	12 (14%)	3	20
11	K	88/99 (89%)	76 (86%)	12 (14%)	3	21
12	L	103/110 (94%)	77 (75%)	26 (25%)	0	4
13	M	94/101 (93%)	75 (80%)	19 (20%)	1	8
14	N	49/50 (98%)	39 (80%)	10 (20%)	1	7
15	O	79/80 (99%)	64 (81%)	15 (19%)	1	9
16	P	72/74 (97%)	59 (82%)	13 (18%)	1	10
17	Q	94/97 (97%)	78 (83%)	16 (17%)	2	13
18	R	61/77 (79%)	49 (80%)	12 (20%)	1	8
19	S	71/80 (89%)	54 (76%)	17 (24%)	0	5
20	T	76/82 (93%)	58 (76%)	18 (24%)	1	5
21	U	19/22 (86%)	15 (79%)	4 (21%)	1	7
All	All	1983/2111 (94%)	1576 (80%)	407 (20%)	1	7

5 of 407 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
7	G	95	ARG
9	I	83	ARG
19	S	37	ARG
7	G	149	ARG
8	H	93	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
15	O	28	GLN
18	R	36	ASN
16	P	82	GLN
4	D	42	GLN
17	Q	45	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1504/1522 (98%)	358 (23%)	45 (2%)

5 of 358 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	G
1	A	9	G
1	A	21	G
1	A	22	G
1	A	31	G

5 of 45 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	748	C
1	A	965	A
1	A	1305	G
1	A	812	C
1	A	975	A

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	PSU	A	1541	1	17,21,22	0.96	2 (11%)	20,30,33	3.40	6 (30%)
1	MA6	A	1518[A]	1	19,26,27	0.89	0	18,38,41	0.92	0
1	M2G	A	966	1	20,27,28	1.62	4 (20%)	22,40,43	2.69	5 (22%)
1	5MC	A	1404	1	15,22,23	1.42	2 (13%)	19,32,35	1.43	2 (10%)
1	UR3	A	1498	1	14,22,23	1.03	1 (7%)	15,32,35	1.42	2 (13%)
1	MA6	A	1518[B]	1	19,26,27	1.06	1 (5%)	18,38,41	0.94	1 (5%)
1	7MG	A	527	1,22	22,26,27	2.29	8 (36%)	28,39,42	1.89	5 (17%)
1	5MC	A	1407	1	15,22,23	1.47	2 (13%)	19,32,35	1.08	1 (5%)
1	2MG	A	1207	1	19,26,27	2.54	5 (26%)	21,38,41	1.99	2 (9%)
1	PSU	A	516	1,22	17,21,22	1.08	2 (11%)	20,30,33	3.53	6 (30%)
12	0TD	L	92	12	4,9,10	0.88	0	3,11,13	3.57	3 (100%)
1	5MC	A	967	1	15,22,23	1.20	2 (13%)	19,32,35	1.32	4 (21%)
1	MA6	A	1519[B]	1	19,26,27	1.53	4 (21%)	18,38,41	0.60	0
1	4OC	A	1402	1	16,23,24	1.03	1 (6%)	17,32,35	0.91	1 (5%)
1	PSU	A	1540	1	17,21,22	1.08	1 (5%)	20,30,33	3.76	5 (25%)
1	MA6	A	1519[A]	1	19,26,27	0.94	1 (5%)	18,38,41	0.88	1 (5%)
1	5MC	A	1400	1	15,22,23	0.85	0	19,32,35	1.41	3 (15%)

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	PSU	A	1541	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1518[A]	1	-	0/7/29/30	0/3/3/3
1	M2G	A	966	1	-	5/7/29/30	0/3/3/3
1	5MC	A	1404	1	-	0/5/25/26	0/2/2/2
1	UR3	A	1498	1	-	2/5/25/26	0/2/2/2
1	MA6	A	1518[B]	1	-	0/7/29/30	0/3/3/3
1	7MG	A	527	1,22	-	2/7/37/38	0/3/3/3
1	5MC	A	1407	1	-	2/5/25/26	0/2/2/2
1	2MG	A	1207	1	-	2/5/27/28	0/3/3/3
1	PSU	A	516	1,22	-	0/7/25/26	0/2/2/2
12	0TD	L	92	12	-	2/3/12/14	-
1	5MC	A	967	1	-	3/5/25/26	0/2/2/2
1	MA6	A	1519[B]	1	-	3/7/29/30	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	4OC	A	1402	1	-	2/9/29/30	0/2/2/2
1	PSU	A	1540	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1519[A]	1	-	2/7/29/30	0/3/3/3
1	5MC	A	1400	1	-	2/5/25/26	0/2/2/2

The worst 5 of 36 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1207	2MG	C6-N1	7.08	1.45	1.33
1	A	1207	2MG	C2-N2	6.77	1.39	1.34
1	A	527	7MG	C4-N3	5.53	1.41	1.34
1	A	527	7MG	C8-N9	-5.50	1.32	1.45
1	A	527	7MG	C2-N2	4.47	1.42	1.33

The worst 5 of 47 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1540	PSU	N1-C2-N3	-12.89	118.18	128.43
1	A	516	PSU	N1-C2-N3	-12.24	118.70	128.43
1	A	1541	PSU	N1-C2-N3	-11.81	119.05	128.43
1	A	966	M2G	C5-C6-N1	-7.99	112.51	123.43
1	A	1540	PSU	C4-N3-C2	7.82	121.74	115.14

There are no chirality outliers.

5 of 27 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	1407	5MC	O4'-C4'-C5'-O5'
1	A	1407	5MC	C3'-C4'-C5'-O5'
1	A	1207	2MG	O4'-C4'-C5'-O5'

There are no ring outliers.

13 monomers are involved in 26 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1541	PSU	1	0
1	A	1518[A]	MA6	3	0
1	A	966	M2G	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1498	UR3	5	0
1	A	1518[B]	MA6	3	0
1	A	1407	5MC	2	0
1	A	516	PSU	1	0
12	L	92	0TD	2	0
1	A	967	5MC	3	0
1	A	1519[B]	MA6	3	0
1	A	1402	4OC	3	0
1	A	1519[A]	MA6	4	0
1	A	1400	5MC	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 289 ligands modelled in this entry, 289 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%)	-0.30	33 (2%) 62 48	88, 150, 286, 387	0
2	B	234/256 (91%)	-0.54	0 100 100	110, 168, 268, 286	0
3	C	206/239 (86%)	0.12	15 (7%) 15 10	162, 213, 261, 290	0
4	D	208/209 (99%)	-0.39	5 (2%) 59 45	108, 155, 199, 234	0
5	E	150/162 (92%)	-0.59	0 100 100	86, 126, 170, 198	0
6	F	101/101 (100%)	-0.59	0 100 100	121, 179, 212, 250	0
7	G	155/156 (99%)	-0.27	9 (5%) 23 15	143, 190, 248, 259	0
8	H	138/138 (100%)	-0.59	0 100 100	82, 115, 151, 197	0
9	I	127/128 (99%)	-0.11	3 (2%) 59 45	157, 217, 260, 283	0
10	J	98/105 (93%)	0.61	14 (14%) 2 2	188, 246, 325, 368	0
11	K	116/129 (89%)	-0.30	1 (0%) 84 74	116, 151, 201, 215	0
12	L	123/135 (91%)	-0.36	0 100 100	95, 157, 200, 225	0
13	M	118/126 (93%)	-0.09	3 (2%) 57 43	151, 183, 216, 272	0
14	N	60/61 (98%)	0.22	5 (8%) 11 8	166, 205, 258, 282	0
15	O	87/89 (97%)	-0.35	1 (1%) 80 70	94, 140, 184, 196	0
16	P	83/88 (94%)	-0.44	0 100 100	103, 146, 190, 220	0
17	Q	99/105 (94%)	-0.57	0 100 100	84, 126, 176, 199	0
18	R	70/88 (79%)	-0.48	1 (1%) 75 63	106, 150, 201, 227	0
19	S	80/93 (86%)	0.34	9 (11%) 5 3	185, 234, 275, 291	0
20	T	99/106 (93%)	-0.55	0 100 100	115, 152, 198, 234	0
21	U	24/27 (88%)	1.25	7 (29%) 0 0	165, 177, 208, 219	0
All	All	3874/4063 (95%)	-0.28	106 (2%) 54 40	82, 163, 261, 387	0

The worst 5 of 106 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1129	C	7.0
1	A	993	G	6.8
1	A	1037	C	5.4
21	U	18	TYR	5.2
10	J	39	PRO	4.7

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	0.87	0.41	212,224,250,256	0
1	PSU	A	1541	20/21	0.89	0.24	220,227,234,235	0
1	PSU	A	516	20/21	0.92	0.14	130,162,189,195	0
1	5MC	A	1407	21/22	0.94	0.21	155,176,182,195	0
1	2MG	A	1207	24/25	0.94	0.14	201,225,261,267	0
1	5MC	A	1404	21/22	0.94	0.17	127,137,174,177	0
1	7MG	A	527	24/25	0.94	0.17	125,139,158,159	0
1	MA6	A	1518[B]	24/25	0.95	0.39	123,140,152,155	24
1	M2G	A	966	25/26	0.95	0.20	167,195,202,204	0
1	MA6	A	1518[A]	24/25	0.95	0.39	121,138,144,149	24
1	5MC	A	1400	21/22	0.95	0.18	117,141,147,151	0
1	MA6	A	1519[B]	24/25	0.96	0.32	115,125,129,130	24
1	UR3	A	1498	21/22	0.96	0.26	132,143,155,163	0
1	MA6	A	1519[A]	24/25	0.96	0.32	114,123,128,180	24
1	5MC	A	967	21/22	0.96	0.16	158,165,199,200	0
1	4OC	A	1402	22/23	0.97	0.19	130,141,155,213	0
12	0TD	L	92	10/11	0.97	0.58	144,153,175,322	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	1822	1/1	0.38	1.20	147,147,147,147	0
22	MG	A	1821	1/1	0.39	0.73	119,119,119,119	0
22	MG	A	1818	1/1	0.48	0.90	126,126,126,126	0
22	MG	P	102	1/1	0.54	0.37	141,141,141,141	0
22	MG	A	1689	1/1	0.60	0.39	124,124,124,124	0
22	MG	A	1656	1/1	0.65	0.55	110,110,110,110	0
22	MG	A	1777	1/1	0.68	0.74	144,144,144,144	0
22	MG	A	1725	1/1	0.70	0.88	126,126,126,126	0
22	MG	Q	201	1/1	0.71	0.18	136,136,136,136	0
22	MG	A	1858	1/1	0.72	0.38	115,115,115,115	0
22	MG	A	1767	1/1	0.72	0.46	167,167,167,167	0
22	MG	A	1714	1/1	0.73	0.49	124,124,124,124	0
22	MG	A	1739	1/1	0.73	0.69	132,132,132,132	0
22	MG	A	1761	1/1	0.74	0.16	157,157,157,157	0
22	MG	A	1853	1/1	0.74	0.40	161,161,161,161	0
22	MG	A	1816	1/1	0.74	0.31	422,422,422,422	0
22	MG	A	1699	1/1	0.74	0.49	171,171,171,171	0
22	MG	Q	202	1/1	0.75	0.34	146,146,146,146	0
22	MG	A	1686	1/1	0.75	0.16	166,166,166,166	0
22	MG	P	103	1/1	0.76	0.38	132,132,132,132	0
22	MG	A	1817	1/1	0.76	0.34	144,144,144,144	0
22	MG	A	1754	1/1	0.76	0.32	134,134,134,134	0
22	MG	A	1866	1/1	0.76	0.18	123,123,123,123	0
22	MG	A	1813	1/1	0.76	0.40	105,105,105,105	0
22	MG	A	1841	1/1	0.78	0.16	149,149,149,149	0
22	MG	A	1799	1/1	0.78	0.24	466,466,466,466	0
22	MG	A	1628	1/1	0.78	0.36	110,110,110,110	0
22	MG	A	1747	1/1	0.78	0.24	118,118,118,118	0
22	MG	A	1780	1/1	0.79	0.36	154,154,154,154	0
22	MG	A	1848	1/1	0.80	0.44	144,144,144,144	0
22	MG	A	1773	1/1	0.80	0.27	142,142,142,142	0
22	MG	J	201	1/1	0.80	0.74	127,127,127,127	0
22	MG	A	1717	1/1	0.80	0.34	120,120,120,120	0
22	MG	A	1652	1/1	0.81	0.26	150,150,150,150	0
22	MG	A	1728	1/1	0.81	0.29	128,128,128,128	0
22	MG	A	1709	1/1	0.81	0.43	118,118,118,118	0
22	MG	A	1621	1/1	0.82	0.80	111,111,111,111	0
22	MG	A	1772	1/1	0.82	0.20	115,115,115,115	0
22	MG	A	1809	1/1	0.82	0.29	466,466,466,466	0
22	MG	A	1776	1/1	0.82	0.45	135,135,135,135	0
22	MG	D	304	1/1	0.82	0.16	111,111,111,111	0
22	MG	A	1712	1/1	0.82	0.43	151,151,151,151	0
22	MG	A	1722	1/1	0.82	0.30	115,115,115,115	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1737	1/1	0.82	0.51	133,133,133,133	0
22	MG	A	1854	1/1	0.83	0.42	112,112,112,112	0
22	MG	A	1863	1/1	0.83	0.87	121,121,121,121	0
22	MG	A	1746	1/1	0.83	0.42	181,181,181,181	0
22	MG	A	1674	1/1	0.84	0.29	171,171,171,171	0
22	MG	A	1855	1/1	0.84	0.19	114,114,114,114	0
22	MG	A	1845	1/1	0.84	0.81	157,157,157,157	0
22	MG	A	1791	1/1	0.84	0.27	244,244,244,244	0
22	MG	A	1834	1/1	0.84	0.26	157,157,157,157	0
22	MG	A	1738	1/1	0.84	0.22	115,115,115,115	0
22	MG	A	1675	1/1	0.84	0.43	123,123,123,123	0
22	MG	A	1840	1/1	0.84	0.67	136,136,136,136	0
22	MG	A	1788	1/1	0.84	0.17	420,420,420,420	0
22	MG	A	1637	1/1	0.85	0.25	127,127,127,127	0
22	MG	A	1778	1/1	0.85	0.72	132,132,132,132	0
22	MG	A	1758	1/1	0.85	0.22	150,150,150,150	0
22	MG	A	1659	1/1	0.85	0.27	148,148,148,148	0
22	MG	A	1787	1/1	0.85	0.30	175,175,175,175	0
22	MG	A	1601	1/1	0.85	0.36	122,122,122,122	0
22	MG	A	1830	1/1	0.86	0.42	512,512,512,512	0
22	MG	A	1837	1/1	0.86	0.36	150,150,150,150	0
22	MG	A	1682	1/1	0.86	0.30	126,126,126,126	0
22	MG	A	1607	1/1	0.86	0.10	183,183,183,183	0
22	MG	A	1710	1/1	0.86	0.59	111,111,111,111	0
22	MG	A	1836	1/1	0.86	0.46	98,98,98,98	0
22	MG	A	1625	1/1	0.87	0.27	124,124,124,124	0
22	MG	A	1820	1/1	0.87	0.22	459,459,459,459	0
22	MG	A	1640	1/1	0.87	0.33	145,145,145,145	0
22	MG	A	1745	1/1	0.87	0.79	155,155,155,155	0
22	MG	A	1666	1/1	0.87	0.16	118,118,118,118	0
22	MG	S	101	1/1	0.87	0.84	156,156,156,156	0
22	MG	A	1619	1/1	0.87	0.63	178,178,178,178	0
22	MG	A	1755	1/1	0.87	0.33	118,118,118,118	0
22	MG	A	1751	1/1	0.88	0.40	139,139,139,139	0
22	MG	A	1653	1/1	0.88	0.27	127,127,127,127	0
22	MG	N	102	1/1	0.89	0.17	184,184,184,184	0
22	MG	A	1802	1/1	0.89	0.08	250,250,250,250	0
22	MG	A	1769	1/1	0.89	0.13	134,134,134,134	0
22	MG	A	1687	1/1	0.89	0.20	162,162,162,162	0
22	MG	A	1734	1/1	0.89	0.23	94,94,94,94	0
22	MG	A	1713	1/1	0.89	0.35	92,92,92,92	0
22	MG	A	1770	1/1	0.89	0.20	99,99,99,99	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1729	1/1	0.89	0.33	105,105,105,105	0
22	MG	A	1806	1/1	0.89	0.26	242,242,242,242	0
22	MG	A	1859	1/1	0.89	0.48	143,143,143,143	0
22	MG	A	1789	1/1	0.89	0.14	215,215,215,215	0
22	MG	A	1622	1/1	0.90	0.83	67,67,67,67	0
22	MG	A	1702	1/1	0.90	0.51	124,124,124,124	0
22	MG	A	1655	1/1	0.90	0.23	113,113,113,113	0
22	MG	A	1850	1/1	0.90	1.04	150,150,150,150	0
22	MG	A	1662	1/1	0.90	0.18	128,128,128,128	0
22	MG	A	1783	1/1	0.90	1.09	179,179,179,179	0
22	MG	A	1756	1/1	0.90	0.25	127,127,127,127	0
22	MG	A	1833	1/1	0.90	0.26	230,230,230,230	0
22	MG	A	1851	1/1	0.90	0.42	136,136,136,136	0
22	MG	A	1685	1/1	0.91	0.81	109,109,109,109	0
22	MG	A	1735	1/1	0.91	0.31	122,122,122,122	0
22	MG	A	1757	1/1	0.91	0.22	105,105,105,105	0
22	MG	A	1792	1/1	0.91	0.32	145,145,145,145	0
22	MG	A	1708	1/1	0.91	0.42	127,127,127,127	0
22	MG	A	1706	1/1	0.91	0.17	207,207,207,207	0
22	MG	P	101	1/1	0.91	0.43	90,90,90,90	0
22	MG	A	1807	1/1	0.91	0.48	254,254,254,254	0
22	MG	A	1798	1/1	0.91	0.22	212,212,212,212	0
22	MG	A	1864	1/1	0.91	0.26	129,129,129,129	0
22	MG	A	1860	1/1	0.91	0.09	167,167,167,167	0
22	MG	A	1782	1/1	0.92	0.28	244,244,244,244	0
22	MG	A	1763	1/1	0.92	0.22	362,362,362,362	0
22	MG	A	1670	1/1	0.92	0.34	109,109,109,109	0
22	MG	A	1705	1/1	0.92	0.08	156,156,156,156	0
22	MG	A	1638	1/1	0.92	0.37	95,95,95,95	0
22	MG	A	1814	1/1	0.92	0.36	113,113,113,113	0
22	MG	A	1794	1/1	0.92	0.23	211,211,211,211	0
22	MG	A	1724	1/1	0.92	0.38	133,133,133,133	0
22	MG	E	201	1/1	0.92	0.44	163,163,163,163	0
22	MG	A	1723	1/1	0.92	0.08	151,151,151,151	0
22	MG	A	1793	1/1	0.92	0.27	134,134,134,134	0
22	MG	A	1868	1/1	0.92	0.20	144,144,144,144	0
22	MG	A	1743	1/1	0.93	0.58	112,112,112,112	0
22	MG	A	1633	1/1	0.93	0.24	113,113,113,113	0
22	MG	A	1603	1/1	0.93	0.18	117,117,117,117	0
22	MG	A	1857	1/1	0.93	0.17	141,141,141,141	0
22	MG	A	1844	1/1	0.93	0.18	123,123,123,123	0
22	MG	A	1765	1/1	0.93	0.24	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	1663	1/1	0.93	0.09	102,102,102,102	0
22	MG	A	1779	1/1	0.93	0.30	374,374,374,374	0
22	MG	A	1646	1/1	0.93	0.29	134,134,134,134	0
22	MG	A	1856	1/1	0.93	0.18	136,136,136,136	0
22	MG	A	1796	1/1	0.93	0.47	168,168,168,168	0
22	MG	A	1609	1/1	0.93	0.26	115,115,115,115	0
22	MG	A	1669	1/1	0.93	0.27	144,144,144,144	0
22	MG	A	1801	1/1	0.93	0.26	135,135,135,135	0
22	MG	A	1744	1/1	0.93	0.14	150,150,150,150	0
22	MG	F	201	1/1	0.93	0.35	144,144,144,144	0
22	MG	A	1630	1/1	0.93	0.11	139,139,139,139	0
22	MG	A	1696	1/1	0.93	0.37	399,399,399,399	0
22	MG	A	1649	1/1	0.93	0.19	130,130,130,130	0
22	MG	A	1852	1/1	0.94	0.18	102,102,102,102	0
22	MG	A	1733	1/1	0.94	0.21	102,102,102,102	0
22	MG	A	1843	1/1	0.94	0.16	186,186,186,186	0
22	MG	A	1810	1/1	0.94	0.70	386,386,386,386	0
22	MG	A	1766	1/1	0.94	0.18	131,131,131,131	0
22	MG	A	1626	1/1	0.94	0.21	112,112,112,112	0
22	MG	A	1812	1/1	0.94	0.09	429,429,429,429	0
22	MG	A	1748	1/1	0.94	0.36	136,136,136,136	0
22	MG	A	1815	1/1	0.94	0.37	286,286,286,286	0
22	MG	A	1797	1/1	0.94	0.12	176,176,176,176	0
22	MG	A	1785	1/1	0.94	0.09	364,364,364,364	0
22	MG	A	1726	1/1	0.94	0.20	130,130,130,130	0
22	MG	A	1826	1/1	0.94	0.25	225,225,225,225	0
22	MG	A	1752	1/1	0.94	0.20	108,108,108,108	0
22	MG	A	1700	1/1	0.94	0.40	110,110,110,110	0
22	MG	A	1608	1/1	0.94	0.29	99,99,99,99	0
22	MG	A	1781	1/1	0.94	0.07	174,174,174,174	0
22	MG	A	1711	1/1	0.94	0.50	139,139,139,139	0
22	MG	A	1771	1/1	0.94	0.10	114,114,114,114	0
22	MG	A	1605	1/1	0.94	0.31	105,105,105,105	0
22	MG	A	1861	1/1	0.94	0.14	163,163,163,163	0
22	MG	A	1808	1/1	0.95	0.49	265,265,265,265	0
22	MG	A	1831	1/1	0.95	0.16	244,244,244,244	0
22	MG	A	1677	1/1	0.95	0.11	130,130,130,130	0
22	MG	B	301	1/1	0.95	0.35	138,138,138,138	0
22	MG	A	1819	1/1	0.95	0.19	294,294,294,294	0
22	MG	A	1643	1/1	0.95	0.13	146,146,146,146	0
22	MG	A	1803	1/1	0.95	0.36	386,386,386,386	0
22	MG	A	1657	1/1	0.95	0.16	136,136,136,136	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1849	1/1	0.95	0.14	133,133,133,133	0
22	MG	A	1623	1/1	0.95	0.08	148,148,148,148	0
22	MG	A	1749	1/1	0.95	0.14	114,114,114,114	0
22	MG	A	1842	1/1	0.95	0.20	161,161,161,161	0
22	MG	A	1731	1/1	0.95	0.25	109,109,109,109	0
22	MG	A	1740	1/1	0.95	0.15	129,129,129,129	0
22	MG	A	1805	1/1	0.95	0.14	162,162,162,162	0
22	MG	A	1764	1/1	0.96	0.24	220,220,220,220	0
22	MG	A	1762	1/1	0.96	0.17	184,184,184,184	0
22	MG	A	1736	1/1	0.96	0.20	156,156,156,156	0
22	MG	A	1828	1/1	0.96	0.11	351,351,351,351	0
22	MG	A	1679	1/1	0.96	0.30	150,150,150,150	0
22	MG	A	1676	1/1	0.96	0.44	151,151,151,151	0
22	MG	A	1611	1/1	0.96	0.19	171,171,171,171	0
22	MG	A	1624	1/1	0.96	0.49	113,113,113,113	0
22	MG	A	1862	1/1	0.96	0.27	155,155,155,155	0
22	MG	A	1618	1/1	0.96	0.35	147,147,147,147	0
22	MG	A	1804	1/1	0.96	0.67	366,366,366,366	0
22	MG	A	1602	1/1	0.96	0.50	145,145,145,145	0
22	MG	A	1642	1/1	0.96	0.28	158,158,158,158	0
22	MG	A	1644	1/1	0.96	0.19	126,126,126,126	0
22	MG	A	1683	1/1	0.96	0.13	175,175,175,175	0
22	MG	A	1838	1/1	0.96	0.14	187,187,187,187	0
22	MG	A	1688	1/1	0.96	0.19	121,121,121,121	0
22	MG	A	1750	1/1	0.96	0.08	102,102,102,102	0
22	MG	A	1664	1/1	0.96	0.08	129,129,129,129	0
22	MG	A	1671	1/1	0.96	0.39	120,120,120,120	0
22	MG	A	1786	1/1	0.96	0.20	179,179,179,179	0
22	MG	A	1613	1/1	0.97	0.13	160,160,160,160	0
22	MG	A	1732	1/1	0.97	0.18	81,81,81,81	0
22	MG	A	1753	1/1	0.97	0.19	128,128,128,128	0
22	MG	B	302	1/1	0.97	0.27	147,147,147,147	0
22	MG	A	1825	1/1	0.97	0.17	470,470,470,470	0
22	MG	A	1768	1/1	0.97	0.29	112,112,112,112	0
22	MG	A	1615	1/1	0.97	0.21	87,87,87,87	0
22	MG	J	202	1/1	0.97	0.39	344,344,344,344	0
22	MG	A	1832	1/1	0.97	0.15	390,390,390,390	0
22	MG	A	1846	1/1	0.97	0.10	150,150,150,150	0
22	MG	A	1661	1/1	0.97	0.12	141,141,141,141	0
22	MG	A	1693	1/1	0.97	0.31	150,150,150,150	0
22	MG	A	1616	1/1	0.97	0.25	195,195,195,195	0
22	MG	A	1690	1/1	0.97	0.14	387,387,387,387	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
22	MG	A	1775	1/1	0.97	0.18	110,110,110,110	0
22	MG	A	1790	1/1	0.97	0.18	356,356,356,356	0
23	ZN	N	101	1/1	0.97	0.17	233,233,233,233	0
22	MG	A	1651	1/1	0.97	0.23	184,184,184,184	0
22	MG	A	1719	1/1	0.97	0.16	108,108,108,108	0
22	MG	A	1665	1/1	0.97	0.09	271,271,271,271	0
22	MG	A	1680	1/1	0.97	0.10	128,128,128,128	0
22	MG	A	1716	1/1	0.97	0.44	139,139,139,139	0
22	MG	M	201	1/1	0.97	0.20	375,375,375,375	0
22	MG	A	1635	1/1	0.97	0.13	101,101,101,101	0
22	MG	D	302	1/1	0.97	0.65	122,122,122,122	0
22	MG	A	1839	1/1	0.97	0.29	170,170,170,170	0
22	MG	A	1707	1/1	0.97	0.13	83,83,83,83	0
22	MG	A	1741	1/1	0.98	0.38	118,118,118,118	0
22	MG	A	1697	1/1	0.98	0.39	335,335,335,335	0
22	MG	A	1742	1/1	0.98	0.12	129,129,129,129	0
22	MG	A	1703	1/1	0.98	0.13	142,142,142,142	0
22	MG	A	1654	1/1	0.98	0.10	121,121,121,121	0
22	MG	A	1727	1/1	0.98	0.12	91,91,91,91	0
22	MG	A	1614	1/1	0.98	0.08	144,144,144,144	0
22	MG	A	1617	1/1	0.98	0.22	113,113,113,113	0
22	MG	A	1639	1/1	0.98	0.13	163,163,163,163	0
22	MG	A	1612	1/1	0.98	0.04	174,174,174,174	0
22	MG	A	1645	1/1	0.98	0.22	76,76,76,76	0
22	MG	A	1795	1/1	0.98	0.27	247,247,247,247	0
22	MG	A	1847	1/1	0.98	0.11	155,155,155,155	0
22	MG	A	1760	1/1	0.98	0.12	147,147,147,147	0
22	MG	A	1641	1/1	0.98	0.31	188,188,188,188	0
22	MG	A	1691	1/1	0.98	0.11	128,128,128,128	0
22	MG	A	1811	1/1	0.98	0.18	255,255,255,255	0
22	MG	A	1721	1/1	0.98	0.18	127,127,127,127	0
22	MG	A	1650	1/1	0.98	0.11	112,112,112,112	0
22	MG	A	1627	1/1	0.98	0.10	110,110,110,110	0
22	MG	A	1867	1/1	0.98	0.19	139,139,139,139	0
22	MG	A	1704	1/1	0.98	0.18	95,95,95,95	0
22	MG	A	1718	1/1	0.98	0.11	103,103,103,103	0
22	MG	C	302	1/1	0.98	0.16	181,181,181,181	0
22	MG	A	1692	1/1	0.98	0.08	175,175,175,175	0
22	MG	A	1660	1/1	0.98	0.07	116,116,116,116	0
22	MG	A	1701	1/1	0.98	0.13	146,146,146,146	0
22	MG	A	1648	1/1	0.98	0.25	176,176,176,176	0
22	MG	A	1668	1/1	0.98	0.29	271,271,271,271	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
22	MG	D	303	1/1	0.98	0.10	119,119,119,119	0
22	MG	A	1829	1/1	0.98	0.26	202,202,202,202	0
22	MG	A	1672	1/1	0.98	0.07	166,166,166,166	0
22	MG	A	1715	1/1	0.98	0.35	88,88,88,88	0
22	MG	A	1695	1/1	0.98	0.19	134,134,134,134	0
22	MG	A	1667	1/1	0.98	0.09	123,123,123,123	0
22	MG	A	1636	1/1	0.98	0.27	127,127,127,127	0
22	MG	A	1824	1/1	0.98	0.89	407,407,407,407	0
22	MG	A	1698	1/1	0.98	0.10	218,218,218,218	0
22	MG	A	1684	1/1	0.99	0.15	158,158,158,158	0
22	MG	A	1827	1/1	0.99	0.24	304,304,304,304	0
22	MG	A	1673	1/1	0.99	0.06	211,211,211,211	0
22	MG	A	1774	1/1	0.99	0.05	142,142,142,142	0
22	MG	A	1800	1/1	0.99	0.13	62,62,62,62	0
22	MG	C	301	1/1	0.99	0.33	165,165,165,165	0
22	MG	A	1647	1/1	0.99	0.25	138,138,138,138	0
22	MG	A	1694	1/1	0.99	0.34	194,194,194,194	0
22	MG	A	1678	1/1	0.99	0.13	182,182,182,182	0
22	MG	A	1658	1/1	0.99	0.19	111,111,111,111	0
22	MG	A	1835	1/1	0.99	0.15	349,349,349,349	0
22	MG	A	1720	1/1	0.99	0.08	114,114,114,114	0
22	MG	A	1865	1/1	0.99	0.18	180,180,180,180	0
23	ZN	D	301	1/1	0.99	0.34	117,117,117,117	0
22	MG	A	1823	1/1	0.99	0.07	276,276,276,276	0
22	MG	A	1606	1/1	0.99	0.09	113,113,113,113	0
22	MG	A	1632	1/1	0.99	0.40	90,90,90,90	0
22	MG	A	1730	1/1	0.99	0.12	129,129,129,129	0
22	MG	A	1681	1/1	0.99	0.13	152,152,152,152	0
22	MG	A	1629	1/1	0.99	0.50	147,147,147,147	0
22	MG	A	1634	1/1	0.99	0.28	290,290,290,290	0
22	MG	A	1759	1/1	0.99	0.11	155,155,155,155	0
22	MG	A	1784	1/1	0.99	0.08	153,153,153,153	0
22	MG	A	1604	1/1	0.99	0.26	151,151,151,151	0
22	MG	A	1610	1/1	0.99	0.21	119,119,119,119	0
22	MG	A	1620	1/1	1.00	0.13	116,116,116,116	0
22	MG	A	1631	1/1	1.00	0.14	93,93,93,93	0

6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.