



# wwPDB X-ray Structure Validation Summary Report ⓘ

May 15, 2020 – 09:22 am BST

PDB ID : 4JI6  
Title : Crystal Structure of 30S ribosomal subunit from *Thermus thermophilus*  
Authors : Demirci, H.; Wang, L.; Murphy IV, F.; Murphy, E.; Carr, J.; Blanchard, S.;  
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Deposited on : 2013-03-05  
Resolution : 3.55 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](mailto: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.

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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 : 2.11  
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) : 2.11

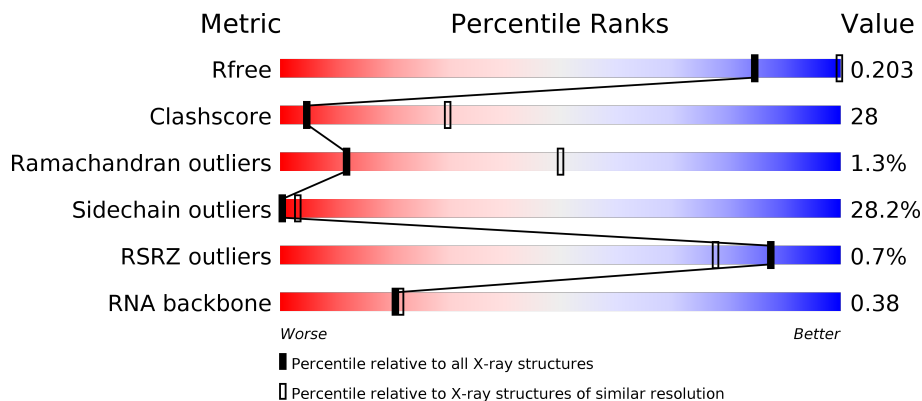
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.55 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	1020 (3.62-3.50)
Clashscore	141614	1100 (3.62-3.50)
Ramachandran outliers	138981	1065 (3.62-3.50)
Sidechain outliers	138945	1066 (3.62-3.50)
RSRZ outliers	127900	1009 (3.64-3.48)
RNA backbone	3102	1008 (4.10-3.00)

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  $\geq 3$ , 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
1	PSU	A	1540	-	-	-	X
22	MG	A	1621	-	-	-	X
22	MG	A	1651	-	-	-	X
22	MG	A	1659	-	-	-	X
22	MG	A	1675	-	-	-	X
22	MG	A	1683	-	-	-	X
22	MG	A	1688	-	-	-	X
22	MG	A	1708	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1719	-	-	-	X
22	MG	A	1723	-	-	-	X
22	MG	A	1727	-	-	-	X
22	MG	A	1742	-	-	-	X
22	MG	A	1746	-	-	-	X
22	MG	A	1754	-	-	-	X
22	MG	A	1757	-	-	-	X
22	MG	A	1784	-	-	-	X
22	MG	A	1792	-	-	-	X
22	MG	A	1820	-	-	-	X
22	MG	A	1824	-	-	-	X
22	MG	A	1857	-	-	-	X
22	MG	A	1858	-	-	-	X
22	MG	A	1861	-	-	-	X
22	MG	A	1876	-	-	-	X
22	MG	A	1892	-	-	-	X
22	MG	A	1896	-	-	-	X
22	MG	A	1911	-	-	-	X
22	MG	A	1917	-	-	-	X
22	MG	A	1929	-	-	-	X
22	MG	A	1936	-	-	-	X
22	MG	A	1939	-	-	-	X
22	MG	A	1942	-	-	-	X
22	MG	A	1943	-	-	-	X
22	MG	A	1946	-	-	-	X
22	MG	A	1948	-	-	-	X
22	MG	A	1949	-	-	-	X
22	MG	A	1950	-	-	-	X
22	MG	A	1951	-	-	-	X
22	MG	A	1954	-	-	-	X
22	MG	A	1967	-	-	-	X
22	MG	C	302	-	-	-	X
22	MG	D	305	-	-	-	X
22	MG	Q	201	-	-	-	X

## 2 Entry composition [i](#)

There are 24 unique types of molecules in this entry. The entry contains 53444 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	1514	32687	14559	6046	10562	1520	0	6	0

There are 2 discrepancies between the modelled and reference sequences:

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

- Molecule 2 is a protein called RIBOSOMAL PROTEIN S2.

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

- Molecule 3 is a protein called RIBOSOMAL PROTEIN S3.

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

- Molecule 4 is a protein called RIBOSOMAL PROTEIN S4.

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

- Molecule 5 is a protein called RIBOSOMAL PROTEIN S5.

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

- Molecule 6 is a protein called RIBOSOMAL PROTEIN S6.

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

- Molecule 7 is a protein called RIBOSOMAL PROTEIN S7.

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

- Molecule 8 is a protein called RIBOSOMAL PROTEIN S8.

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

- Molecule 9 is a protein called RIBOSOMAL PROTEIN S9.

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

- Molecule 10 is a protein called RIBOSOMAL PROTEIN S10.

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

- Molecule 11 is a protein called RIBOSOMAL PROTEIN S11.

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

- Molecule 12 is a protein called RIBOSOMAL PROTEIN S12.

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 13 is a protein called RIBOSOMAL PROTEIN S13.

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

- Molecule 14 is a protein called RIBOSOMAL PROTEIN S14.

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

- Molecule 15 is a protein called RIBOSOMAL PROTEIN S15.

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

- Molecule 16 is a protein called RIBOSOMAL PROTEIN S16.

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

- Molecule 17 is a protein called RIBOSOMAL PROTEIN S17.

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

- Molecule 18 is a protein called RIBOSOMAL PROTEIN S18.

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

- Molecule 19 is a protein called RIBOSOMAL PROTEIN S19.

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

- Molecule 20 is a protein called RIBOSOMAL PROTEIN S20.

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

- Molecule 21 is a protein called RIBOSOMAL PROTEIN THX.

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

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
22	P	1	Total	Mg	0	0
			1	1		
22	G	1	Total	Mg	0	0
			1	1		
22	Q	2	Total	Mg	0	0
			2	2		
22	D	4	Total	Mg	0	0
			4	4		
22	K	1	Total	Mg	0	0
			1	1		
22	E	1	Total	Mg	0	0
			1	1		
22	H	1	Total	Mg	0	0
			1	1		
22	B	2	Total	Mg	0	0
			2	2		
22	I	2	Total	Mg	0	0
			2	2		
22	C	3	Total	Mg	0	0
			3	3		
22	A	377	Total	Mg	0	0
			377	377		
22	N	2	Total	Mg	0	0
			2	2		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
22	O	1	Total Mg 1 1	0	0
22	L	1	Total Mg 1 1	0	0
22	S	1	Total Mg 1 1	0	0
22	F	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	1199	Total O 1199 1199	0	0
24	C	6	Total O 6 6	0	0
24	D	11	Total O 11 11	0	0
24	E	7	Total O 7 7	0	0
24	F	6	Total O 6 6	0	0
24	G	6	Total O 6 6	0	0
24	H	7	Total O 7 7	0	0
24	I	1	Total O 1 1	0	0
24	L	9	Total O 9 9	0	0
24	M	2	Total O 2 2	0	0
24	N	1	Total O 1 1	0	0

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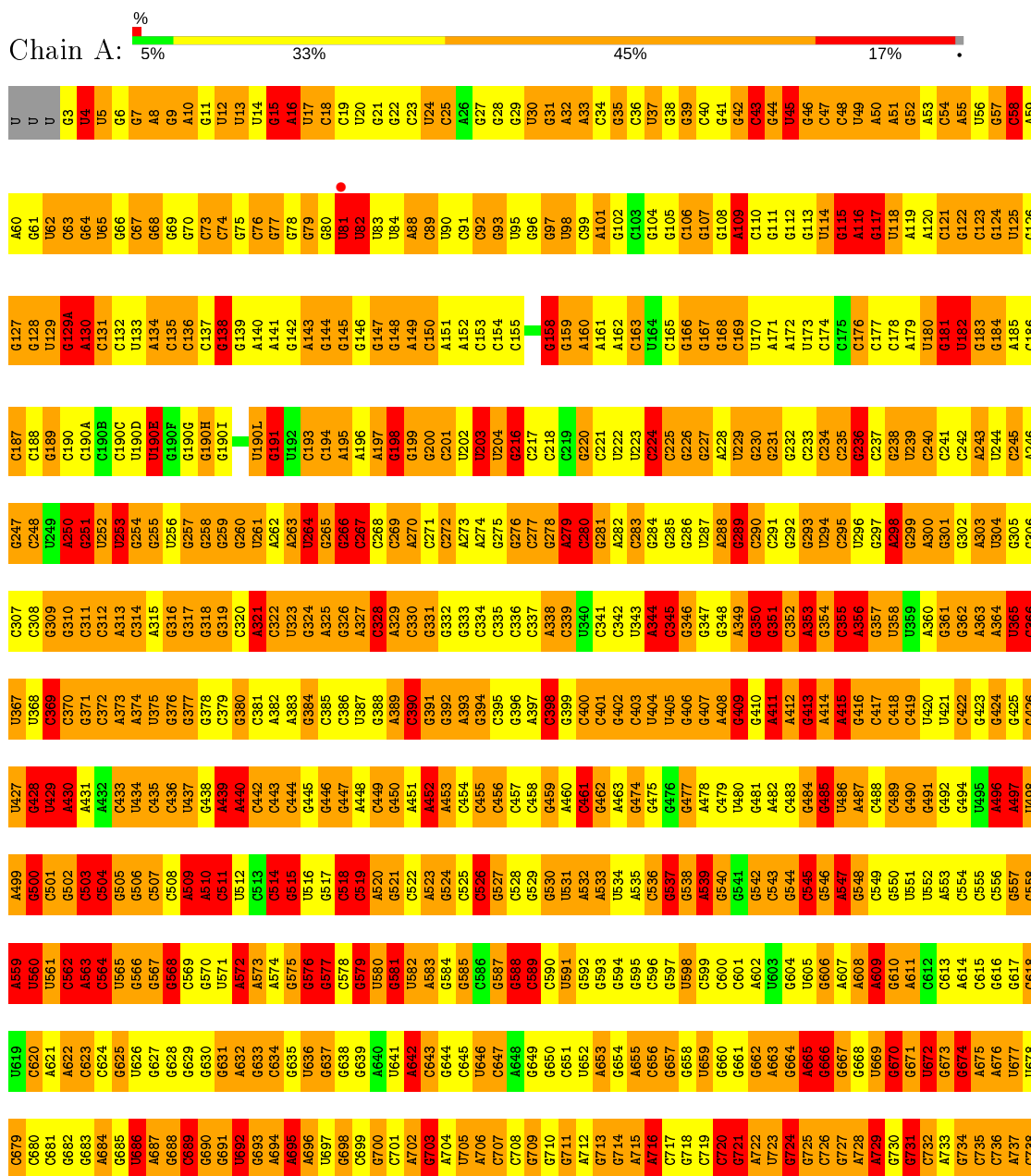
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>	<b>ZeroOcc</b>	<b>AltConf</b>
24	O	1	Total O 1 1	0	0
24	P	3	Total O 3 3	0	0
24	Q	6	Total O 6 6	0	0

### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA 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

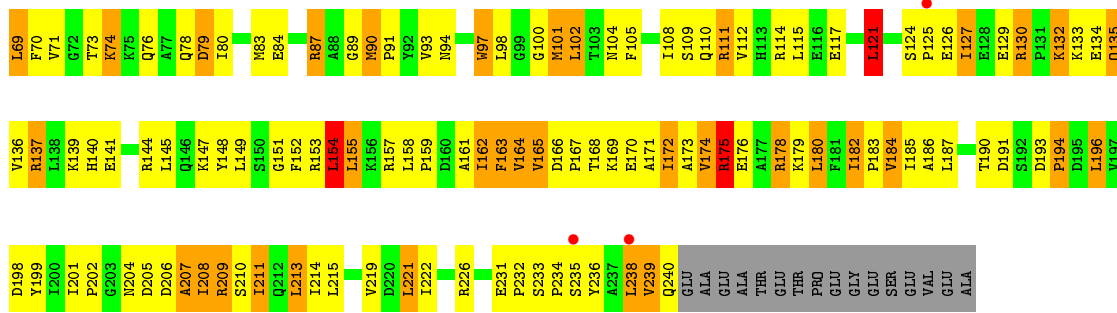


U1532	U1533	G1471	U406	G1347	A1287	A1285	G1164	C1103	U1040	C985	G925	A865	G799	C739
C	C	G1475	C1407	U1948	A1288	C1226	G1165	G1104	A1041	A986	G926	A866	G800	U740
C	A	G1476	A1408	A1349	A1289	A1227	G1166	A1105	G1043	G987	G927	A867	U801	G741
C	C	G1477	G1410	G1350	G1290	C1228	A1167	G1106	C1042	G988	G928	A868	A802	G742
C	U	C1477	G1411	U1351	G1291	A1229	A1168	C1107	A1044	C989	G929	A869	G803	U743
C	C	C1412	C1412	C1352	U1292	G1230	A1169	G1108	C1045	C990	C930	U870	U804	C744
C	C	A1413	A1413	G1353	G1293	G1231	G1171	C1109	A1046	C991	C931	U871	C805	C745
C	C	C1479	C1479	C1354	G1294	U1232	G1172	C1110	U049	U992	C932	A872	C806	A746
C	C	U1480	U1414	G1355	G1295	G1233	G1173	A1111	G1049	U993	C933	A873	A807	C747
C	C	G1480	G1415	G1356	C1296	C1234	G1174	G1112	G1050	C994	C934	A874	C808	C748
C	C	U1481	G1416	A1357	G1297	U1235	G1175	C1113	C1051	C995	C935	A875	G809	C749
C	C	G1482	G1417	G1358	G1298	A1236	A1176	U1114	U1052	C996	C936	A876	G810	G750
C	C	A1483	A1418	A1359	A1299	C1237	G1177	C1115	G1053	C997	C937	A877	C811	U751
C	C	U1484	G1419	A1360	G1300	A1238	G1178	C1116	C1054	C998	A938	A878	C812	G752
C	C	U1485	G1420	U1301	U1301	A1239	A1179	C1117	A1055	C999	C939	A879	U813	G753
C	C	G1486	C1421	U1302	U1302	U1240	A1180	C1118	A1056	C940	C940	A880	U814	A754
C	C	G1487	C1362	G1303	G1303	G1241	G1181	C1119	U1056	C941	C941	A881	A815	C755
C	C	G1488	A1363	G1304	C1242	C1242	G1182	G1120	G1058	A1002	G942	A882	A816	C756
C	C	U1489	C1424	G1305	C1243	C1243	A1183	U1121	C1059	G1003	U943	A883	C817	U757
C	C	C1490	U1425	A1306	C1244	C1244	G1184	U1122	C1060	G1003A	G944	U884	G816	G758
C	C	G1491	U1426	G1307	A1245	A1245	G1185	A1123	C1061	A945	G945	A885	G816	A759
C	C	A1492	A1427	U1308	C1246	C1246	G1186	G1124	U1062	A946	A946	A886	U820	G760
C	C	A1493	A1428	G1309	U1247	U1247	G1187	U1125	U1063	A947	G947	A887	G821	G761
C	C	G1494	A1429	G1310	A1248	A1248	A1188	U1126	G1064	C1007	C948	A888	C822	C762
C	C	U1495	C1430	G1311	G1249	G1249	A1189	U1127	U1065	A949	A949	A889	G823	G763
C	C	C1496	G1370	G1312	A1250	A1250	G1190	C1128	C1066	U950	U950	A890	C824	C764
C	C	G1497	G1371	U1313	A1251	A1251	A1191	C1129	A1067	G951	G951	A891	G825	G765
C	C	U1498	U1372	G1314	A1252	A1252	A1192	G1130	U1068	U952	U952	A892	C826	A766
C	C	A1499	A1373	U1315	A1253	A1253	G1193	G1131	C1069	G953	G953	A893	U827	A767
C	C	A1500	A1494	U1316	C1254	C1254	U1194	U1070	U1070	G954	G954	A894	A828	A768
C	C	C1501	G1495	A1375	G1255	G1255	C1195	G1071	C1071	U955	U955	A895	G829	G769
C	C	A1502	U1496	C1376	A1256	A1256	U1196	U1072	U1072	U956	U956	A896	G830	C770
C	C	A1503	C1437	A1318	U1257	U1257	G1197	A1073	A1016	C957	C957	A897	U831	G771
C	C	A1504	G1438	A1319	U1257	U1257	G1198	G1074	G1074	A958	A958	A898	C832	U772
C	C	G1504	A1439	G1320	C1258	C1258	U1199	C1075	C1075	U960	U960	A900	U833	G773
C	C	U1505	C1440	C1321	C1259	C1259	G1199	G1138	C1076	C1018	C1018	A901	C834	G774
C	C	A1507	G1441	G1322	C1260	C1260	A1200	G1139	U1077	U1020	U1020	A902	U835	G775
C	C	U1508	U1442	C1323	A1261	A1261	A1201	C1140	G1077	G1021	G1021	G902	G836	G776
C	C	C1509	G1443	A1324	C1262	C1262	G1202	C1141	U1078	G1022	G1022	G903	G837	A777
C	C	U1510	A1444	C1325	C1263	C1263	A1203	G1142	G1079	G1023	G1023	G904	G838	A778
C	C	G1511	G1445	G1326	G1265	G1265	A1204	G1143	U1085	A965	A965	U905	U839	C779
C	C	U1512	G1447	C1327	G1266	G1266	U1205	C1144	G1086	G1024	G1024	G906	C840	A780
C	C	A1513	C1448	G1328	G1267	G1267	G1206	G1145	U1086	U1025	U1025	G907	C841	A781
C	C	U1514	C1449	A1329	A1269	A1269	G1207	A1146	U1088	G1026	G1026	A907	U841	A782
C	C	C1514	U1450	U1330	C1270	C1270	C1208	C1147	G1088	A968	A968	A908	C848	A782
C	C	U1515	A1451	G1331	G1271	G1271	A1209	U1148	U1088	C1028	C1028	A909	C849	C783
C	C	G1516	C1452	A1332	G1272	G1272	G1210	C1149	G1088	C1029	C1029	C910	U850	C784
C	C	U1517	U1391	G1333	G1273	G1273	U1211	U1150	G1089	G971	G971	C911	U851	G785
C	C	A1518	G1392	A1333	G1274	G1274	U1212	A1151	U1090	G972	G972	C912	G852	G786
C	C	U1519	U1393	G1334	A1275	A1275	A1213	G1152	U1091	G973	G973	C913	G853	A787
C	C	A1520	C1455	C1335	A1276	A1276	C1153	C1153	A1092	A974	A974	A914	G854	U788
C	C	G1521	A1460	G1336	G1276	G1276	G1214	G1154	A1093	A975	A975	A915	G855	U789
C	C	U1522	G1461	G1337	C1277	C1277	G1215	G1154	A1093	A976	A976	A916	G856	A790
C	C	G1523	A1462	A1338	U1278	U1278	G1216	G1155	U1095	G977	G977	C917	U857	G791
C	C	U1524	C1463	A1339	A1279	A1279	C1217	G1156	C1096	A978	A978	C918	G858	A792
C	C	G1525	G1464	A1340	A1280	A1280	G1218	A1157	U1096	G979	G979	C919	A859	U793
C	C	U1526	A1465	C1341	U1281	U1281	U1219	C1158	C1097	C980	C980	U920	A860	A794
C	C	C1526	C1466	G1342	C1282	C1282	G1220	U1159	C1098	U981	U981	U921	G861	C795
C	C	U1527	G1467	G1343	G1283	G1283	G1221	G1160	G1099	U982	U982	G922	C862	C796
C	C	U1528	C1467	C1344	A1284	A1284	G1222	C1161	A1100	A983	A983	G923	U863	C797
C	C	G1529	A1468	U1345	A1285	A1285	G1223	C1162	A1101	C1037	C1037	A923	U863	A798
C	C	U1530	G1469	C1346	G1286	G1286	G1224	C1163	A1102	C1039	C1039	C924	A864	G798

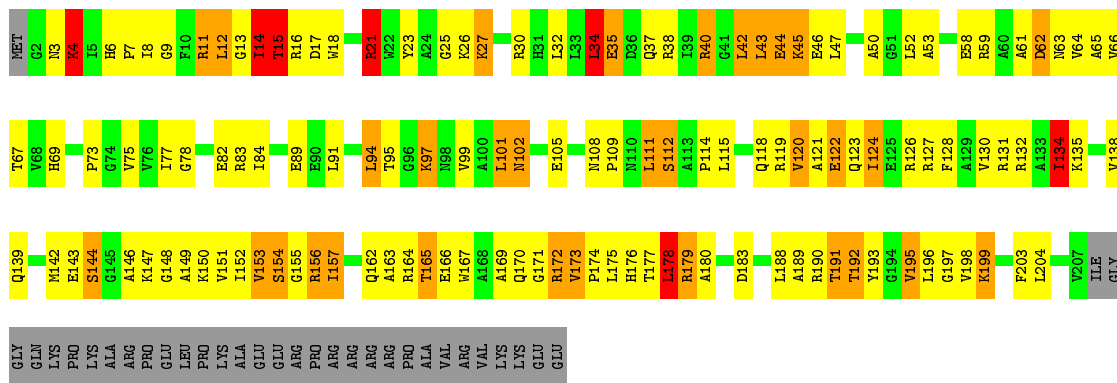
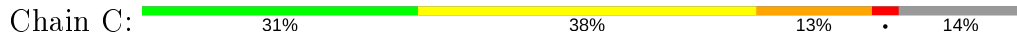
• Molecule 2: RIBOSOMAL PROTEIN S2



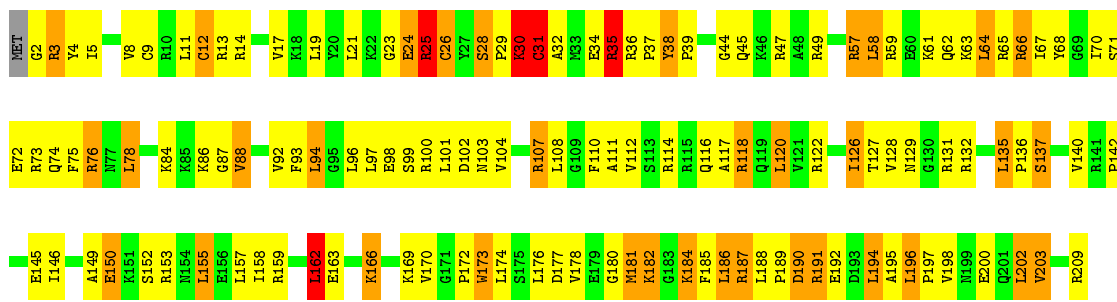
RET	R30	R31	R32	R33	R34	R35	R36	R37	R38	R39	R40	R41	R42	R43	R44	R45	R46	R47	R48	R49	R50	R51	R52	R53	R54	R55	R56	R57	R58	R59	R60	R61	R64	R68
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



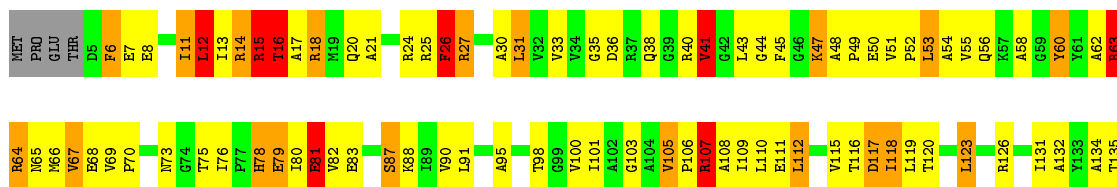
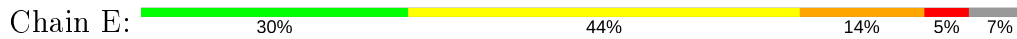
• Molecule 3: RIBOSOMAL PROTEIN S3

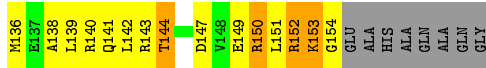


• Molecule 4: RIBOSOMAL PROTEIN S4

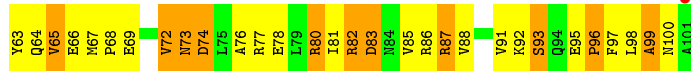
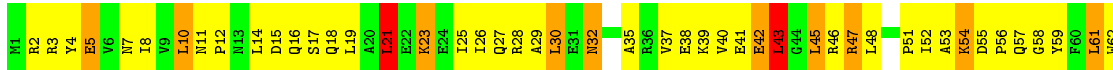


• Molecule 5: RIBOSOMAL PROTEIN S5

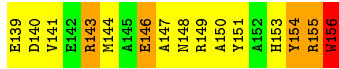
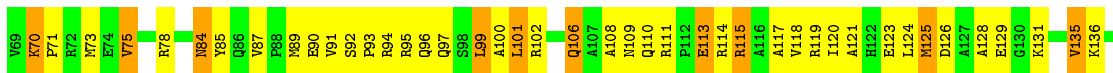




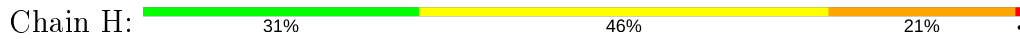
- Molecule 6: RIBOSOMAL PROTEIN S6



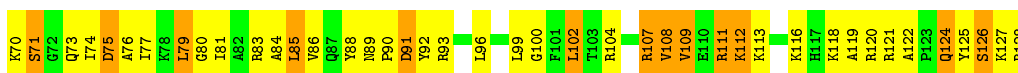
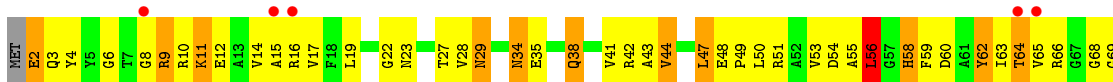
- Molecule 7: RIBOSOMAL PROTEIN S7



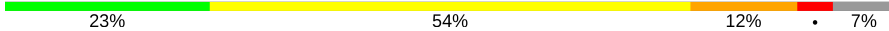
- Molecule 8: RIBOSOMAL PROTEIN S8

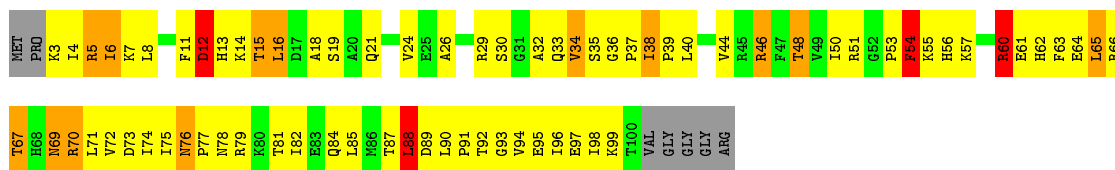


- Molecule 9: RIBOSOMAL PROTEIN S9



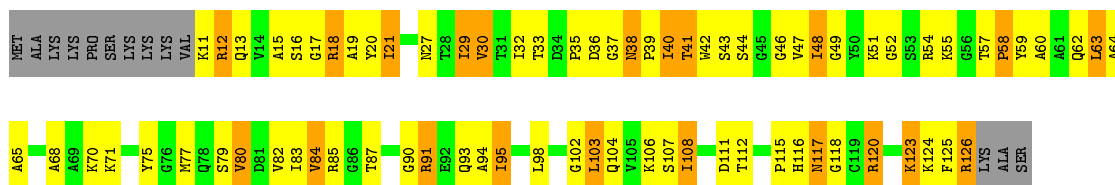
- Molecule 10: RIBOSOMAL PROTEIN S10

Chain J:  23% 54% 12% 7%




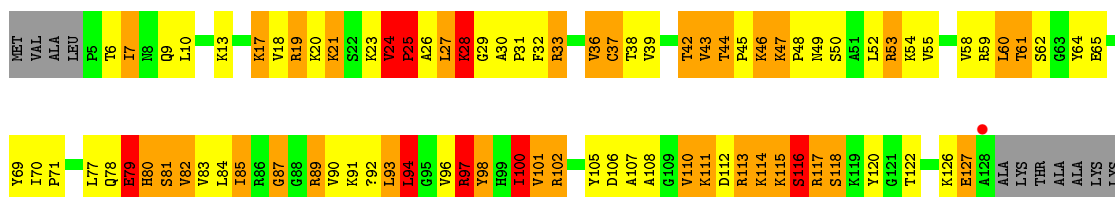
- Molecule 11: RIBOSOMAL PROTEIN S11

Chain K:  31% 43% 16% 10%



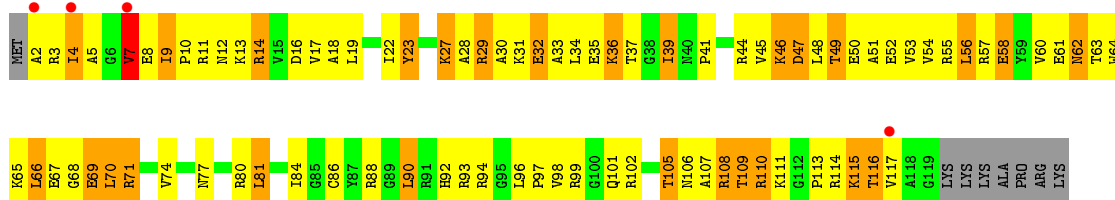
- Molecule 12: RIBOSOMAL PROTEIN S12

Chain L:  27% 33% 25% 6% 8%



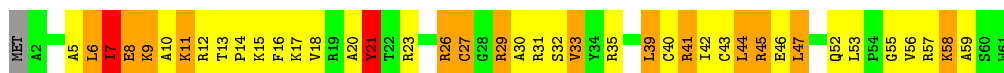
- Molecule 13: RIBOSOMAL PROTEIN S13

Chain M:  3% 25% 47% 21% 6%



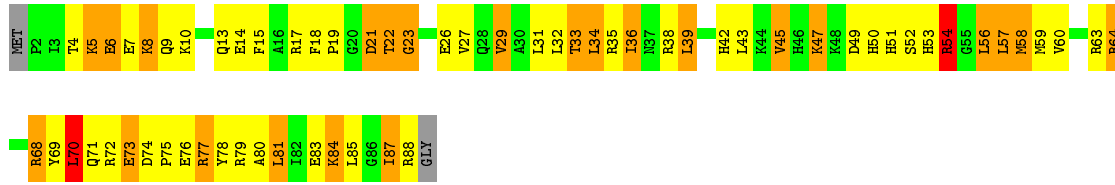
- Molecule 14: RIBOSOMAL PROTEIN S14

Chain N:  31% 41% 23% 6%

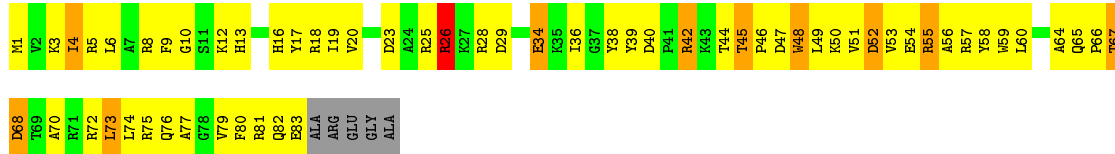
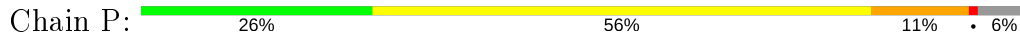


- Molecule 15: RIBOSOMAL PROTEIN S15

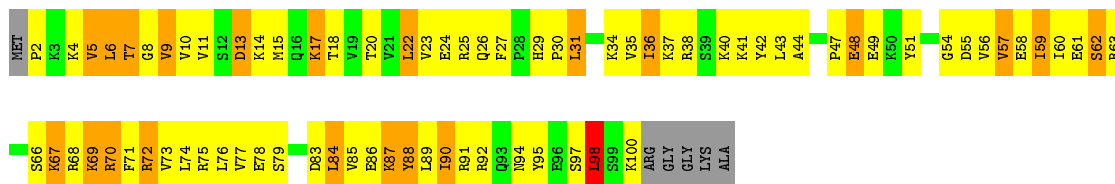
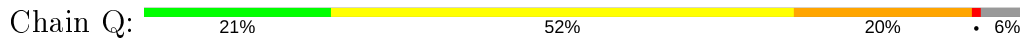
Chain O:  27% 43% 26% 6%



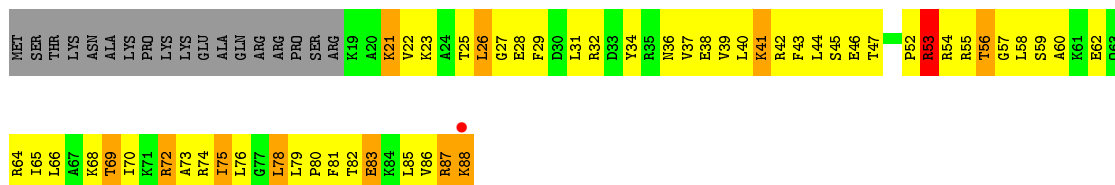
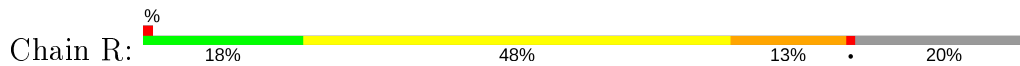
• Molecule 16: RIBOSOMAL PROTEIN S16



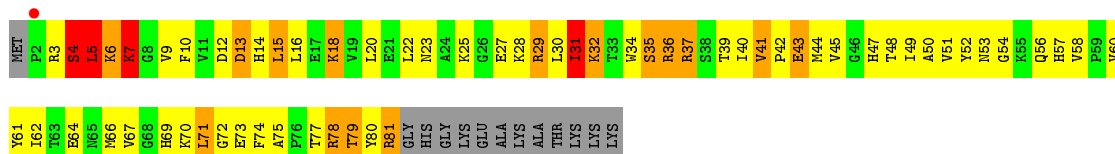
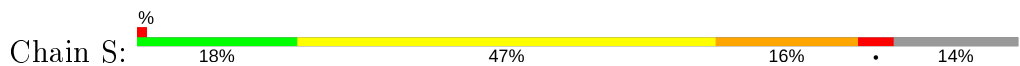
• Molecule 17: RIBOSOMAL PROTEIN S17



• 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, $\alpha$ , $\beta$ , $\gamma$	401.94Å 401.94Å 217.35Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 3.55 50.08 – 3.55	Depositor EDS
% Data completeness (in resolution range)	98.3 (50.00-3.55) 98.3 (50.08-3.55)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.04 (at 3.57Å)	Xtrriage
Refinement program	PHENIX dev_1119	Depositor
R, $R_{free}$	0.151 , 0.201 0.155 , 0.203	Depositor DCC
$R_{free}$ test set	10478 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	127.6	Xtrriage
Anisotropy	0.355	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.27 , 153.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.45$ , $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	53444	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	142.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.44% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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	1.77	785/36187 (2.2%)	2.98	5484/56471 (9.7%)
2	B	1.18	8/1935 (0.4%)	1.33	19/2609 (0.7%)
3	C	1.17	2/1636 (0.1%)	1.29	11/2205 (0.5%)
4	D	1.32	6/1733 (0.3%)	1.44	19/2318 (0.8%)
5	E	1.38	3/1162 (0.3%)	1.59	15/1564 (1.0%)
6	F	1.19	2/856 (0.2%)	1.40	12/1154 (1.0%)
7	G	0.98	1/1276 (0.1%)	1.13	4/1709 (0.2%)
8	H	1.23	2/1136 (0.2%)	1.38	8/1527 (0.5%)
9	I	0.94	0/1029	1.12	3/1379 (0.2%)
10	J	1.07	0/805	1.35	5/1082 (0.5%)
11	K	1.02	0/879	1.24	6/1187 (0.5%)
12	L	1.48	7/977 (0.7%)	1.59	17/1305 (1.3%)
13	M	0.88	1/947 (0.1%)	1.10	0/1270
14	N	1.02	1/501 (0.2%)	1.41	8/664 (1.2%)
15	O	1.07	0/740	1.30	7/987 (0.7%)
16	P	1.17	1/716 (0.1%)	1.30	3/963 (0.3%)
17	Q	1.35	2/836 (0.2%)	1.45	7/1117 (0.6%)
18	R	1.09	0/579	1.29	2/768 (0.3%)
19	S	0.89	0/661	1.28	7/890 (0.8%)
20	T	1.13	0/765	1.40	9/1007 (0.9%)
21	U	0.98	2/212 (0.9%)	0.97	0/277
All	All	1.58	823/55568 (1.5%)	2.58	5646/82453 (6.8%)

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	5

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Mol	Chain	#Chirality outliers	#Planarity outliers
4	D	0	5
6	F	0	1
7	G	0	2
8	H	0	2
9	I	0	1
10	J	0	2
11	K	0	1
12	L	0	5
13	M	0	1
14	N	0	2
16	P	0	1
17	Q	0	1
18	R	0	1
19	S	0	2
20	T	0	2
All	All	0	36

The worst 5 of 823 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	975	A	N9-C4	-14.45	1.29	1.37
1	A	1493	A	N9-C4	13.90	1.46	1.37
4	D	12	CYS	CB-SG	13.89	2.05	1.82
1	A	768	A	N3-C4	-12.61	1.27	1.34
1	A	108	G	N1-C2	11.64	1.47	1.37

The worst 5 of 5646 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1528	U	O5'-P-OP2	-27.91	77.21	110.70
1	A	279	A	N1-C6-N6	24.78	133.47	118.60
1	A	975	A	C2-N3-C4	-23.57	98.82	110.60
1	A	117	G	C5-C6-N1	-23.41	99.80	111.50
1	A	279	A	C5-N7-C8	-21.45	93.17	103.90

There are no chirality outliers.

5 of 36 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	8	LYS	Peptide
2	B	89	GLY	Peptide

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Mol	Chain	Res	Type	Group
3	C	154	SER	Peptide
3	C	166	GLU	Peptide
3	C	3	ASN	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	32687	0	16508	1072	0
2	B	1900	0	1951	144	0
3	C	1612	0	1677	118	0
4	D	1703	0	1763	124	0
5	E	1146	0	1207	94	0
6	F	843	0	857	77	0
7	G	1257	0	1296	101	0
8	H	1116	0	1177	90	0
9	I	1010	0	1037	84	0
10	J	792	0	835	75	0
11	K	864	0	881	66	0
12	L	973	0	1062	83	0
13	M	937	0	995	88	0
14	N	492	0	529	48	0
15	O	729	0	768	66	0
16	P	700	0	720	54	0
17	Q	823	0	891	68	0
18	R	574	0	644	58	1
19	S	647	0	673	83	0
20	T	763	0	861	54	0
21	U	208	0	221	12	0
22	A	377	0	0	0	0
22	B	2	0	0	0	0
22	C	3	0	0	0	0
22	D	4	0	0	0	0
22	E	1	0	0	0	0
22	F	1	0	0	0	0
22	G	1	0	0	0	0
22	H	1	0	0	0	0
22	I	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	K	1	0	0	0	0
22	L	1	0	0	0	0
22	N	2	0	0	0	0
22	O	1	0	0	0	0
22	P	1	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	1199	0	0	56	0
24	C	6	0	0	0	0
24	D	11	0	0	0	0
24	E	7	0	0	0	0
24	F	6	0	0	1	0
24	G	6	0	0	0	0
24	H	7	0	0	1	0
24	I	1	0	0	0	0
24	L	9	0	0	1	0
24	M	2	0	0	1	0
24	N	1	0	0	0	0
24	O	1	0	0	0	0
24	P	3	0	0	0	0
24	Q	6	0	0	2	0
All	All	53444	0	36553	2457	1

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 28.

The worst 5 of 2457 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)
4:D:12:CYS:SG	4:D:12:CYS:CB	2.05	1.44
11:K:120:ARG:HB3	11:K:120:ARG:HH11	1.22	1.02
1:A:966:M2G:HM13	1:A:967:5MC:H1'	1.37	1.01
15:O:70:LEU:HB3	15:O:78:TYR:HB2	1.44	0.99
4:D:187:ARG:HH22	4:D:188:LEU:HD12	1.31	0.96

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:R:25:THR:OG1	18:R:25:THR:OG1[8_555]	2.07	0.13

## 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%)	194 (84%)	32 (14%)	6 (3%)	5	35
3	C	204/239 (85%)	170 (83%)	32 (16%)	2 (1%)	15	55
4	D	206/209 (99%)	186 (90%)	19 (9%)	1 (0%)	29	67
5	E	148/162 (91%)	137 (93%)	8 (5%)	3 (2%)	7	42
6	F	99/101 (98%)	87 (88%)	11 (11%)	1 (1%)	15	55
7	G	153/156 (98%)	135 (88%)	18 (12%)	0	100	100
8	H	136/138 (99%)	123 (90%)	13 (10%)	0	100	100
9	I	125/128 (98%)	105 (84%)	19 (15%)	1 (1%)	19	59
10	J	96/105 (91%)	77 (80%)	14 (15%)	5 (5%)	2	20
11	K	114/129 (88%)	97 (85%)	16 (14%)	1 (1%)	17	57
12	L	121/135 (90%)	101 (84%)	16 (13%)	4 (3%)	4	31
13	M	116/126 (92%)	94 (81%)	20 (17%)	2 (2%)	9	45
14	N	58/61 (95%)	49 (84%)	9 (16%)	0	100	100
15	O	85/89 (96%)	74 (87%)	11 (13%)	0	100	100
16	P	81/88 (92%)	75 (93%)	6 (7%)	0	100	100
17	Q	97/105 (92%)	90 (93%)	7 (7%)	0	100	100
18	R	68/88 (77%)	62 (91%)	5 (7%)	1 (2%)	10	47
19	S	78/93 (84%)	72 (92%)	5 (6%)	1 (1%)	12	50
20	T	97/106 (92%)	75 (77%)	20 (21%)	2 (2%)	7	40
21	U	22/27 (82%)	20 (91%)	2 (9%)	0	100	100
All	All	2336/2541 (92%)	2023 (87%)	283 (12%)	30 (1%)	12	50

5 of 30 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	21	ARG
10	J	35	SER
12	L	28	LYS
2	B	9	GLU
2	B	11	LEU

### 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%)	144 (71%)	58 (29%)	0 3
3	C	160/188 (85%)	108 (68%)	52 (32%)	0 2
4	D	180/181 (99%)	135 (75%)	45 (25%)	0 4
5	E	115/123 (94%)	81 (70%)	34 (30%)	0 3
6	F	90/90 (100%)	75 (83%)	15 (17%)	2 13
7	G	126/127 (99%)	94 (75%)	32 (25%)	0 4
8	H	119/119 (100%)	83 (70%)	36 (30%)	0 3
9	I	98/99 (99%)	71 (72%)	27 (28%)	0 3
10	J	87/92 (95%)	64 (74%)	23 (26%)	0 4
11	K	88/99 (89%)	66 (75%)	22 (25%)	0 4
12	L	103/110 (94%)	68 (66%)	35 (34%)	0 2
13	M	94/101 (93%)	64 (68%)	30 (32%)	0 2
14	N	49/50 (98%)	35 (71%)	14 (29%)	0 3
15	O	79/80 (99%)	50 (63%)	29 (37%)	0 1
16	P	72/74 (97%)	58 (81%)	14 (19%)	1 8
17	Q	94/97 (97%)	67 (71%)	27 (29%)	0 3
18	R	61/77 (79%)	43 (70%)	18 (30%)	0 3
19	S	71/80 (89%)	51 (72%)	20 (28%)	0 3
20	T	76/82 (93%)	53 (70%)	23 (30%)	0 3

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
21	U	19/22 (86%)	14 (74%)	5 (26%)	0 4
All	All	1983/2111 (94%)	1424 (72%)	559 (28%)	0 3

5 of 559 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	H	62	TYR
10	J	69	ASN
19	S	13	ASP
8	H	87	SER
9	I	62	TYR

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

Mol	Chain	Res	Type
8	H	15	ASN
19	S	47	HIS
17	Q	94	ASN
5	E	65	ASN
9	I	29	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1505/1522 (98%)	418 (27%)	46 (3%)

5 of 418 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	4	U
1	A	9	G
1	A	12	U
1	A	15	G
1	A	16	A

5 of 46 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	758	G

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Mol	Chain	Res	Type
1	A	890	G
1	A	1493	A
1	A	780	A
1	A	817	C

## 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	5MC	A	1404	1	15,22,23	1.48	4 (26%)	19,32,35	1.46	2 (10%)
1	5MC	A	1407	1	15,22,23	1.30	1 (6%)	19,32,35	1.34	3 (15%)
1	5MC	A	967	1	15,22,23	1.25	1 (6%)	19,32,35	1.27	3 (15%)
1	4OC	A	1402	1	16,23,24	1.87	1 (6%)	17,32,35	0.86	0
1	5MC	A	1400	1	15,22,23	4.27	5 (33%)	19,32,35	2.48	5 (26%)
1	UR3	A	1498	1	14,22,23	2.23	5 (35%)	15,32,35	1.49	2 (13%)
1	7MG	A	527	1	22,26,27	1.79	7 (31%)	28,39,42	2.05	7 (25%)
1	MA6	A	1518[A]	1	19,26,27	1.16	3 (15%)	18,38,41	0.74	0
1	PSU	A	516	1,22	17,21,22	1.27	3 (17%)	20,30,33	4.47	7 (35%)
1	M2G	A	966	1	20,27,28	1.35	4 (20%)	22,40,43	2.80	6 (27%)
1	MA6	A	1518[B]	1	19,26,27	1.31	1 (5%)	18,38,41	0.73	0
1	MA6	A	1519[B]	1	19,26,27	1.64	5 (26%)	18,38,41	0.61	0
12	0TD	L	92	12	4,9,10	1.23	0	3,11,13	5.40	3 (100%)
1	PSU	A	1540	1	17,21,22	1.02	1 (5%)	20,30,33	3.37	5 (25%)
1	PSU	A	1541	1	17,21,22	1.17	2 (11%)	20,30,33	3.86	6 (30%)
1	2MG	A	1207	1,22	19,26,27	1.11	1 (5%)	21,38,41	2.37	7 (33%)
1	MA6	A	1519[A]	1	19,26,27	1.49	3 (15%)	18,38,41	1.02	1 (5%)

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	5MC	A	1404	1	-	0/5/25/26	0/2/2/2
1	5MC	A	1407	1	-	2/5/25/26	0/2/2/2
1	5MC	A	967	1	-	1/5/25/26	0/2/2/2
1	4OC	A	1402	1	-	5/9/29/30	0/2/2/2
1	5MC	A	1400	1	-	2/5/25/26	0/2/2/2
1	UR3	A	1498	1	-	0/5/25/26	0/2/2/2
1	7MG	A	527	1	-	1/7/37/38	0/3/3/3
1	MA6	A	1518[A]	1	-	2/7/29/30	0/3/3/3
1	PSU	A	516	1,22	-	0/7/25/26	0/2/2/2
1	M2G	A	966	1	-	4/7/29/30	0/3/3/3
1	MA6	A	1518[B]	1	-	2/7/29/30	0/3/3/3
1	MA6	A	1519[B]	1	-	3/7/29/30	0/3/3/3
12	0TD	L	92	12	-	2/3/12/14	-
1	PSU	A	1540	1	-	1/7/25/26	0/2/2/2
1	PSU	A	1541	1	-	0/7/25/26	0/2/2/2
1	2MG	A	1207	1,22	-	2/5/27/28	0/3/3/3
1	MA6	A	1519[A]	1	-	5/7/29/30	0/3/3/3

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1400	5MC	C5-C4	11.15	1.58	1.41
1	A	1400	5MC	CM5-C5	8.46	1.68	1.51
1	A	1400	5MC	C4-N3	-8.20	1.23	1.35
1	A	1402	4OC	C6-N1	-6.10	1.28	1.35
1	A	1498	UR3	C4-N3	-5.39	1.30	1.38

The worst 5 of 57 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	516	PSU	N1-C2-N3	-15.51	116.10	128.43
1	A	1541	PSU	N1-C2-N3	-12.60	118.42	128.43
1	A	1540	PSU	N1-C2-N3	-10.87	119.79	128.43
1	A	516	PSU	C4-N3-C2	9.99	123.58	115.14
12	L	92	0TD	CSB-SB-CB	-8.80	84.54	101.85

There are no chirality outliers.

5 of 32 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1407	5MC	O4'-C4'-C5'-O5'
1	A	1407	5MC	C3'-C4'-C5'-O5'
1	A	1402	4OC	O4'-C4'-C5'-O5'
1	A	1402	4OC	N3-C4-N4-CM4
1	A	1402	4OC	C5-C4-N4-CM4

There are no ring outliers.

15 monomers are involved in 32 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1407	5MC	1	0
1	A	967	5MC	3	0
1	A	1402	4OC	1	0
1	A	1498	UR3	3	0
1	A	527	7MG	1	0
1	A	1518[A]	MA6	5	0
1	A	516	PSU	1	0
1	A	966	M2G	2	0
1	A	1518[B]	MA6	8	0
1	A	1519[B]	MA6	5	0
12	L	92	0TD	4	0
1	A	1540	PSU	1	0
1	A	1541	PSU	1	0
1	A	1207	2MG	2	0
1	A	1519[A]	MA6	3	0

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 403 ligands modelled in this entry, 403 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

There are no such residues in this entry.

## 5.8 Polymer linkage issues

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q < 0.9
1	A	1500/1522 (98%)	-0.38	9 (0%) 89 80	90, 130, 210, 340	0
2	B	234/256 (91%)	-0.37	3 (1%) 77 63	106, 148, 236, 282	0
3	C	206/239 (86%)	-0.51	0 100 100	100, 136, 182, 210	0
4	D	208/209 (99%)	-0.40	0 100 100	89, 127, 172, 212	0
5	E	150/162 (92%)	-0.43	0 100 100	80, 112, 151, 188	0
6	F	101/101 (100%)	-0.38	1 (0%) 82 70	118, 147, 181, 236	0
7	G	155/156 (99%)	-0.29	0 100 100	130, 166, 208, 238	0
8	H	138/138 (100%)	-0.49	0 100 100	95, 120, 158, 192	0
9	I	127/128 (99%)	-0.20	5 (3%) 39 25	126, 167, 207, 227	0
10	J	98/105 (93%)	-0.18	0 100 100	113, 164, 199, 261	0
11	K	116/129 (89%)	-0.26	0 100 100	106, 145, 192, 209	0
12	L	123/135 (91%)	-0.33	1 (0%) 86 74	87, 117, 145, 197	0
13	M	118/126 (93%)	-0.05	4 (3%) 45 31	129, 173, 210, 242	0
14	N	60/61 (98%)	-0.35	0 100 100	110, 139, 199, 221	0
15	O	87/89 (97%)	-0.33	0 100 100	115, 143, 171, 203	0
16	P	83/88 (94%)	-0.13	0 100 100	97, 128, 160, 186	0
17	Q	99/105 (94%)	-0.31	0 100 100	98, 124, 161, 168	0
18	R	70/88 (79%)	-0.10	1 (1%) 75 60	124, 162, 232, 270	0
19	S	80/93 (86%)	-0.25	1 (1%) 77 63	140, 175, 218, 249	0
20	T	99/106 (93%)	-0.37	0 100 100	107, 133, 184, 208	0
21	U	24/27 (88%)	0.29	1 (4%) 36 23	149, 172, 193, 207	0
All	All	3876/4063 (95%)	-0.34	26 (0%) 87 78	80, 138, 201, 340	0

The worst 5 of 26 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1030(D)	A	6.5
1	A	1030(C)	G	3.6
9	I	15	ALA	3.4
1	A	1031	G	3.3
2	B	235	SER	3.1

## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	PSU	A	1540	20/21	0.80	0.41	244,249,261,261	0
1	PSU	A	1541	20/21	0.85	0.21	211,223,230,234	0
1	MA6	A	1518[B]	24/25	0.89	0.27	101,105,117,119	24
1	MA6	A	1518[A]	24/25	0.89	0.27	96,104,114,119	24
1	5MC	A	1404	21/22	0.90	0.28	103,111,130,135	0
1	MA6	A	1519[B]	24/25	0.93	0.30	90,96,98,106	24
1	4OC	A	1402	22/23	0.93	0.27	114,119,123,133	0
1	MA6	A	1519[A]	24/25	0.93	0.30	91,97,106,109	24
1	UR3	A	1498	21/22	0.94	0.23	94,108,123,134	0
1	7MG	A	527	24/25	0.96	0.18	105,113,130,135	0
1	5MC	A	1407	21/22	0.96	0.12	109,123,133,135	0
1	PSU	A	516	20/21	0.96	0.12	114,123,141,142	0
1	M2G	A	966	25/26	0.96	0.17	121,130,137,138	0
1	5MC	A	1400	21/22	0.96	0.17	92,111,126,132	0
1	2MG	A	1207	24/25	0.97	0.09	115,127,139,142	0
1	5MC	A	967	21/22	0.97	0.15	121,129,135,138	0
12	0TD	L	92	10/11	0.98	0.48	81,121,135,281	0

## 6.3 Carbohydrates [i](#)

There are no carbohydrates 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, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1967	1/1	0.12	0.84	144,144,144,144	0
22	MG	G	201	1/1	0.20	0.25	550,550,550,550	0
22	MG	A	1857	1/1	0.37	0.41	487,487,487,487	0
22	MG	A	1675	1/1	0.49	1.28	125,125,125,125	0
22	MG	A	1658	1/1	0.50	0.11	207,207,207,207	0
22	MG	A	1621	1/1	0.51	0.65	178,178,178,178	0
22	MG	A	1951	1/1	0.52	0.52	131,131,131,131	0
22	MG	A	1659	1/1	0.52	0.47	131,131,131,131	0
22	MG	C	302	1/1	0.53	0.57	122,122,122,122	0
22	MG	A	1668	1/1	0.53	0.25	111,111,111,111	0
22	MG	A	1746	1/1	0.55	0.45	132,132,132,132	0
22	MG	A	1949	1/1	0.56	0.52	116,116,116,116	0
22	MG	A	1727	1/1	0.57	0.48	122,122,122,122	0
22	MG	A	1960	1/1	0.57	0.27	136,136,136,136	0
22	MG	D	305	1/1	0.58	0.57	103,103,103,103	0
22	MG	A	1737	1/1	0.58	0.13	133,133,133,133	0
22	MG	A	1943	1/1	0.59	0.63	139,139,139,139	0
22	MG	A	1954	1/1	0.60	0.43	139,139,139,139	0
22	MG	P	101	1/1	0.61	0.40	111,111,111,111	0
22	MG	A	1708	1/1	0.61	0.69	129,129,129,129	0
22	MG	A	1768	1/1	0.63	0.23	501,501,501,501	0
22	MG	A	1751	1/1	0.63	0.31	130,130,130,130	0
22	MG	A	1948	1/1	0.64	1.02	127,127,127,127	0
22	MG	A	1722	1/1	0.66	0.37	120,120,120,120	0
22	MG	A	1917	1/1	0.66	0.66	456,456,456,456	0
22	MG	A	1683	1/1	0.66	1.01	135,135,135,135	0
22	MG	A	1942	1/1	0.66	0.43	122,122,122,122	0
22	MG	A	1764	1/1	0.67	0.30	502,502,502,502	0
22	MG	A	1792	1/1	0.68	0.43	530,530,530,530	0
22	MG	A	1651	1/1	0.68	0.87	131,131,131,131	0
22	MG	A	1876	1/1	0.68	0.47	422,422,422,422	0
22	MG	A	1781	1/1	0.68	0.26	504,504,504,504	0
22	MG	A	1953	1/1	0.68	0.18	130,130,130,130	0
22	MG	A	1970	1/1	0.68	0.18	140,140,140,140	0
22	MG	A	1747	1/1	0.69	0.26	131,131,131,131	0
22	MG	A	1950	1/1	0.69	0.46	126,126,126,126	0
22	MG	A	1911	1/1	0.69	0.46	502,502,502,502	0
22	MG	A	1892	1/1	0.69	0.83	400,400,400,400	0
22	MG	A	1788	1/1	0.70	0.23	550,550,550,550	0
22	MG	A	1973	1/1	0.70	0.24	137,137,137,137	0
22	MG	A	1742	1/1	0.70	0.51	133,133,133,133	0
22	MG	A	1939	1/1	0.70	0.50	103,103,103,103	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	O	1000	1/1	0.71	0.38	242,242,242,242	0
22	MG	A	1856	1/1	0.71	0.24	484,484,484,484	0
22	MG	A	1732	1/1	0.71	0.32	123,123,123,123	0
22	MG	A	1784	1/1	0.71	0.55	486,486,486,486	0
22	MG	Q	201	1/1	0.71	0.44	99,99,99,99	0
22	MG	A	1862	1/1	0.71	0.17	487,487,487,487	0
22	MG	A	1719	1/1	0.72	0.97	121,121,121,121	0
22	MG	A	1723	1/1	0.72	0.41	126,126,126,126	0
22	MG	I	201	1/1	0.73	0.31	137,137,137,137	0
22	MG	A	1775	1/1	0.73	0.20	538,538,538,538	0
22	MG	A	1837	1/1	0.73	0.16	523,523,523,523	0
22	MG	I	202	1/1	0.73	0.20	146,146,146,146	0
22	MG	A	1820	1/1	0.73	0.40	448,448,448,448	0
22	MG	A	1818	1/1	0.73	0.26	478,478,478,478	0
22	MG	D	302	1/1	0.74	0.18	92,92,92,92	0
22	MG	A	1946	1/1	0.74	0.44	155,155,155,155	0
22	MG	A	1859	1/1	0.74	0.36	495,495,495,495	0
22	MG	A	1710	1/1	0.74	0.14	105,105,105,105	0
22	MG	A	1766	1/1	0.74	0.28	549,549,549,549	0
22	MG	A	1976	1/1	0.75	0.15	133,133,133,133	0
22	MG	A	1922	1/1	0.75	0.39	446,446,446,446	0
22	MG	A	1625	1/1	0.75	0.34	188,188,188,188	0
22	MG	A	1824	1/1	0.75	1.23	484,484,484,484	0
22	MG	A	1936	1/1	0.75	0.47	110,110,110,110	0
22	MG	A	1855	1/1	0.75	0.20	466,466,466,466	0
22	MG	A	1840	1/1	0.75	0.19	493,493,493,493	0
22	MG	A	1878	1/1	0.76	0.30	498,498,498,498	0
22	MG	A	1754	1/1	0.76	0.41	170,170,170,170	0
22	MG	A	1935	1/1	0.76	0.40	102,102,102,102	0
22	MG	A	1966	1/1	0.76	0.17	138,138,138,138	0
22	MG	A	1858	1/1	0.76	0.92	429,429,429,429	0
22	MG	A	1618	1/1	0.77	0.28	107,107,107,107	0
22	MG	A	1971	1/1	0.77	0.24	116,116,116,116	0
22	MG	A	1896	1/1	0.78	0.60	436,436,436,436	0
22	MG	A	1869	1/1	0.78	0.21	550,550,550,550	0
22	MG	A	1875	1/1	0.78	0.33	447,447,447,447	0
22	MG	A	1688	1/1	0.78	0.45	122,122,122,122	0
22	MG	A	1707	1/1	0.78	0.38	100,100,100,100	0
22	MG	A	1767	1/1	0.79	0.37	548,548,548,548	0
22	MG	A	1955	1/1	0.79	0.11	132,132,132,132	0
22	MG	A	1709	1/1	0.79	0.31	112,112,112,112	0
22	MG	A	1757	1/1	0.79	0.49	550,550,550,550	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1782	1/1	0.79	0.23	501,501,501,501	0
22	MG	A	1945	1/1	0.79	0.17	168,168,168,168	0
22	MG	A	1861	1/1	0.79	0.66	497,497,497,497	0
22	MG	K	201	1/1	0.79	0.08	123,123,123,123	0
22	MG	A	1777	1/1	0.80	0.33	481,481,481,481	0
22	MG	A	1712	1/1	0.80	0.45	123,123,123,123	0
22	MG	A	1783	1/1	0.80	0.21	535,535,535,535	0
22	MG	A	1929	1/1	0.80	0.77	111,111,111,111	0
22	MG	A	1958	1/1	0.80	0.37	124,124,124,124	0
22	MG	A	1923	1/1	0.80	0.30	424,424,424,424	0
22	MG	A	1919	1/1	0.80	0.43	401,401,401,401	0
22	MG	A	1778	1/1	0.81	0.10	232,232,232,232	0
22	MG	A	1736	1/1	0.81	0.62	118,118,118,118	0
22	MG	A	1682	1/1	0.81	0.11	218,218,218,218	0
22	MG	A	1684	1/1	0.81	0.51	121,121,121,121	0
22	MG	A	1959	1/1	0.81	0.41	133,133,133,133	0
22	MG	A	1968	1/1	0.81	0.86	127,127,127,127	0
22	MG	A	1689	1/1	0.82	0.60	125,125,125,125	0
22	MG	A	1975	1/1	0.82	0.20	108,108,108,108	0
22	MG	A	1624	1/1	0.82	0.30	106,106,106,106	0
22	MG	A	1940	1/1	0.82	0.68	119,119,119,119	0
22	MG	C	303	1/1	0.82	0.07	144,144,144,144	0
22	MG	A	1789	1/1	0.83	0.09	529,529,529,529	0
22	MG	A	1645	1/1	0.83	0.29	144,144,144,144	0
22	MG	A	1866	1/1	0.83	0.13	497,497,497,497	0
22	MG	A	1614	1/1	0.83	0.29	120,120,120,120	0
22	MG	A	1974	1/1	0.83	0.33	137,137,137,137	0
22	MG	A	1647	1/1	0.83	0.17	201,201,201,201	0
22	MG	A	1730	1/1	0.83	0.32	118,118,118,118	0
22	MG	A	1644	1/1	0.83	0.59	141,141,141,141	0
22	MG	A	1956	1/1	0.83	0.26	156,156,156,156	0
22	MG	A	1654	1/1	0.84	0.50	113,113,113,113	0
22	MG	A	1765	1/1	0.84	0.33	482,482,482,482	0
22	MG	A	1691	1/1	0.84	0.36	91,91,91,91	0
22	MG	S	101	1/1	0.84	0.17	127,127,127,127	0
22	MG	E	201	1/1	0.84	0.13	135,135,135,135	0
22	MG	B	302	1/1	0.84	0.06	116,116,116,116	0
22	MG	A	1807	1/1	0.84	1.67	550,550,550,550	0
22	MG	A	1828	1/1	0.84	0.57	467,467,467,467	0
22	MG	A	1660	1/1	0.84	0.14	132,132,132,132	0
22	MG	A	1914	1/1	0.85	0.41	439,439,439,439	0
22	MG	A	1972	1/1	0.85	0.16	135,135,135,135	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1831	1/1	0.85	0.36	486,486,486,486	0
22	MG	A	1848	1/1	0.85	1.27	550,550,550,550	0
22	MG	A	1898	1/1	0.85	0.55	463,463,463,463	0
22	MG	N	102	1/1	0.85	0.75	116,116,116,116	0
22	MG	A	1821	1/1	0.85	0.42	543,543,543,543	0
22	MG	A	1744	1/1	0.85	0.06	237,237,237,237	0
22	MG	A	1790	1/1	0.85	0.43	504,504,504,504	0
22	MG	A	1728	1/1	0.86	0.17	140,140,140,140	0
22	MG	A	1814	1/1	0.86	0.24	506,506,506,506	0
22	MG	A	1649	1/1	0.86	0.45	137,137,137,137	0
22	MG	A	1773	1/1	0.86	0.41	550,550,550,550	0
22	MG	A	1902	1/1	0.86	0.45	435,435,435,435	0
22	MG	A	1882	1/1	0.86	0.31	501,501,501,501	0
22	MG	A	1961	1/1	0.87	0.19	126,126,126,126	0
22	MG	A	1628	1/1	0.87	0.21	203,203,203,203	0
22	MG	A	1885	1/1	0.87	0.14	534,534,534,534	0
22	MG	A	1809	1/1	0.87	0.42	485,485,485,485	0
22	MG	A	1933	1/1	0.88	0.35	483,483,483,483	0
22	MG	A	1849	1/1	0.88	0.36	512,512,512,512	0
22	MG	A	1672	1/1	0.88	0.14	144,144,144,144	0
22	MG	A	1733	1/1	0.88	0.09	116,116,116,116	0
22	MG	A	1944	1/1	0.88	0.12	153,153,153,153	0
22	MG	A	1918	1/1	0.88	0.26	422,422,422,422	0
22	MG	A	1724	1/1	0.88	0.43	93,93,93,93	0
22	MG	A	1891	1/1	0.88	1.08	496,496,496,496	0
22	MG	D	303	1/1	0.88	0.24	127,127,127,127	0
22	MG	A	1769	1/1	0.88	0.07	397,397,397,397	0
22	MG	A	1674	1/1	0.88	0.19	189,189,189,189	0
22	MG	A	1798	1/1	0.88	0.28	550,550,550,550	0
22	MG	A	1799	1/1	0.88	0.48	550,550,550,550	0
22	MG	A	1796	1/1	0.88	0.42	480,480,480,480	0
22	MG	A	1604	1/1	0.88	0.35	93,93,93,93	0
22	MG	A	1729	1/1	0.89	0.26	125,125,125,125	0
22	MG	A	1759	1/1	0.89	0.42	496,496,496,496	0
22	MG	A	1793	1/1	0.89	0.38	550,550,550,550	0
22	MG	A	1606	1/1	0.89	0.16	183,183,183,183	0
22	MG	A	1874	1/1	0.89	0.24	437,437,437,437	0
22	MG	A	1696	1/1	0.89	0.30	127,127,127,127	0
22	MG	A	1739	1/1	0.89	0.32	83,83,83,83	0
22	MG	A	1804	1/1	0.90	0.16	318,318,318,318	0
22	MG	A	1655	1/1	0.90	0.22	150,150,150,150	0
22	MG	A	1802	1/1	0.90	0.57	458,458,458,458	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1851	1/1	0.90	0.22	481,481,481,481	0
22	MG	A	1963	1/1	0.90	0.30	153,153,153,153	0
22	MG	A	1785	1/1	0.90	0.06	353,353,353,353	0
22	MG	A	1829	1/1	0.90	0.43	507,507,507,507	0
22	MG	A	1860	1/1	0.90	0.40	434,434,434,434	0
22	MG	A	1832	1/1	0.90	0.24	312,312,312,312	0
22	MG	A	1816	1/1	0.90	0.45	449,449,449,449	0
22	MG	A	1827	1/1	0.90	0.42	500,500,500,500	0
22	MG	A	1835	1/1	0.90	0.12	363,363,363,363	0
22	MG	A	1695	1/1	0.90	0.19	118,118,118,118	0
22	MG	A	1795	1/1	0.90	0.25	416,416,416,416	0
22	MG	A	1928	1/1	0.90	0.50	126,126,126,126	0
22	MG	A	1881	1/1	0.90	0.31	525,525,525,525	0
22	MG	A	1763	1/1	0.90	0.15	451,451,451,451	0
22	MG	A	1779	1/1	0.91	0.20	411,411,411,411	0
22	MG	A	1755	1/1	0.91	0.20	144,144,144,144	0
22	MG	A	1801	1/1	0.91	0.59	480,480,480,480	0
22	MG	A	1636	1/1	0.91	0.14	79,79,79,79	0
22	MG	A	1924	1/1	0.91	0.10	322,322,322,322	0
22	MG	A	1694	1/1	0.91	0.20	127,127,127,127	0
22	MG	A	1758	1/1	0.91	0.52	481,481,481,481	0
22	MG	A	1957	1/1	0.91	0.37	105,105,105,105	0
22	MG	A	1838	1/1	0.91	0.43	388,388,388,388	0
22	MG	A	1938	1/1	0.91	0.36	149,149,149,149	0
22	MG	A	1880	1/1	0.91	0.21	431,431,431,431	0
22	MG	A	1845	1/1	0.91	0.29	395,395,395,395	0
22	MG	A	1797	1/1	0.91	0.23	431,431,431,431	0
22	MG	A	1619	1/1	0.91	0.27	132,132,132,132	0
22	MG	A	1841	1/1	0.91	0.73	462,462,462,462	0
22	MG	A	1815	1/1	0.91	0.70	515,515,515,515	0
22	MG	A	1700	1/1	0.91	0.77	142,142,142,142	0
22	MG	A	1872	1/1	0.91	0.23	389,389,389,389	0
22	MG	A	1865	1/1	0.91	0.36	474,474,474,474	0
22	MG	A	1947	1/1	0.92	0.25	116,116,116,116	0
22	MG	A	1699	1/1	0.92	0.23	112,112,112,112	0
22	MG	A	1770	1/1	0.92	0.15	532,532,532,532	0
22	MG	A	1715	1/1	0.92	0.28	125,125,125,125	0
22	MG	A	1617	1/1	0.92	1.04	107,107,107,107	0
22	MG	A	1703	1/1	0.92	0.29	125,125,125,125	0
22	MG	A	1805	1/1	0.92	0.96	550,550,550,550	0
22	MG	A	1916	1/1	0.92	1.27	290,290,290,290	0
22	MG	A	1867	1/1	0.92	0.34	459,459,459,459	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1666	1/1	0.92	0.26	81,81,81,81	0
22	MG	A	1791	1/1	0.92	0.75	373,373,373,373	0
22	MG	A	1693	1/1	0.92	0.51	131,131,131,131	0
22	MG	A	1753	1/1	0.92	0.52	117,117,117,117	0
22	MG	A	1969	1/1	0.92	0.15	78,78,78,78	0
22	MG	A	1635	1/1	0.92	0.21	74,74,74,74	0
22	MG	A	1834	1/1	0.92	0.16	349,349,349,349	0
22	MG	A	1657	1/1	0.92	1.12	148,148,148,148	0
22	MG	L	201	1/1	0.92	0.44	468,468,468,468	0
22	MG	A	1633	1/1	0.92	0.40	101,101,101,101	0
22	MG	A	1899	1/1	0.92	0.24	550,550,550,550	0
22	MG	A	1977	1/1	0.92	0.22	129,129,129,129	0
22	MG	B	301	1/1	0.92	0.33	141,141,141,141	0
22	MG	A	1906	1/1	0.93	0.23	394,394,394,394	0
22	MG	A	1964	1/1	0.93	0.43	124,124,124,124	0
22	MG	N	103	1/1	0.93	0.07	333,333,333,333	0
22	MG	F	201	1/1	0.93	0.10	435,435,435,435	0
22	MG	A	1680	1/1	0.93	0.22	116,116,116,116	0
22	MG	A	1889	1/1	0.93	0.22	456,456,456,456	0
22	MG	A	1847	1/1	0.93	0.50	453,453,453,453	0
22	MG	A	1905	1/1	0.93	0.17	426,426,426,426	0
22	MG	A	1888	1/1	0.93	0.19	470,470,470,470	0
22	MG	A	1720	1/1	0.93	0.27	130,130,130,130	0
22	MG	A	1780	1/1	0.93	0.12	432,432,432,432	0
22	MG	A	1776	1/1	0.93	0.19	523,523,523,523	0
22	MG	A	1630	1/1	0.93	0.34	146,146,146,146	0
22	MG	A	1664	1/1	0.93	0.09	126,126,126,126	0
22	MG	A	1823	1/1	0.93	0.10	496,496,496,496	0
22	MG	A	1844	1/1	0.93	0.13	369,369,369,369	0
22	MG	A	1721	1/1	0.93	0.36	97,97,97,97	0
22	MG	A	1622	1/1	0.93	0.22	119,119,119,119	0
22	MG	A	1965	1/1	0.94	0.23	101,101,101,101	0
22	MG	A	1771	1/1	0.94	0.37	519,519,519,519	0
22	MG	A	1671	1/1	0.94	0.30	121,121,121,121	0
22	MG	D	304	1/1	0.94	0.12	470,470,470,470	0
22	MG	A	1915	1/1	0.94	0.43	419,419,419,419	0
22	MG	Q	202	1/1	0.94	0.27	455,455,455,455	0
22	MG	A	1836	1/1	0.94	0.11	409,409,409,409	0
22	MG	A	1864	1/1	0.94	0.30	316,316,316,316	0
22	MG	A	1800	1/1	0.94	0.30	441,441,441,441	0
22	MG	A	1893	1/1	0.94	0.17	406,406,406,406	0
22	MG	A	1812	1/1	0.94	0.19	474,474,474,474	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
22	MG	A	1726	1/1	0.94	0.08	104,104,104,104	0
22	MG	C	301	1/1	0.94	0.18	111,111,111,111	0
22	MG	A	1661	1/1	0.94	0.64	163,163,163,163	0
22	MG	A	1738	1/1	0.94	0.21	114,114,114,114	0
22	MG	A	1608	1/1	0.94	0.11	122,122,122,122	0
22	MG	A	1718	1/1	0.94	0.24	87,87,87,87	0
22	MG	A	1642	1/1	0.94	0.15	96,96,96,96	0
22	MG	A	1656	1/1	0.94	0.26	166,166,166,166	0
22	MG	A	1611	1/1	0.94	0.22	148,148,148,148	0
22	MG	A	1772	1/1	0.94	0.20	274,274,274,274	0
22	MG	A	1685	1/1	0.94	0.14	141,141,141,141	0
22	MG	A	1890	1/1	0.94	0.47	425,425,425,425	0
22	MG	A	1706	1/1	0.94	0.36	110,110,110,110	0
22	MG	H	201	1/1	0.94	0.40	421,421,421,421	0
22	MG	A	1690	1/1	0.94	0.05	190,190,190,190	0
22	MG	A	1748	1/1	0.95	0.30	153,153,153,153	0
22	MG	A	1603	1/1	0.95	0.04	157,157,157,157	0
22	MG	A	1868	1/1	0.95	0.06	442,442,442,442	0
22	MG	A	1676	1/1	0.95	0.33	93,93,93,93	0
22	MG	A	1897	1/1	0.95	0.49	428,428,428,428	0
22	MG	A	1704	1/1	0.95	0.43	97,97,97,97	0
22	MG	A	1934	1/1	0.95	0.21	111,111,111,111	0
22	MG	A	1850	1/1	0.95	0.26	233,233,233,233	0
22	MG	A	1731	1/1	0.95	0.45	114,114,114,114	0
22	MG	A	1842	1/1	0.95	0.09	151,151,151,151	0
22	MG	A	1752	1/1	0.95	0.48	141,141,141,141	0
22	MG	A	1901	1/1	0.95	0.10	212,212,212,212	0
22	MG	A	1833	1/1	0.95	0.18	319,319,319,319	0
22	MG	A	1631	1/1	0.95	0.29	99,99,99,99	0
22	MG	A	1610	1/1	0.95	0.17	123,123,123,123	0
22	MG	A	1653	1/1	0.95	0.09	228,228,228,228	0
22	MG	A	1908	1/1	0.96	0.23	345,345,345,345	0
22	MG	A	1774	1/1	0.96	0.08	402,402,402,402	0
22	MG	A	1717	1/1	0.96	0.27	102,102,102,102	0
22	MG	A	1692	1/1	0.96	0.26	95,95,95,95	0
22	MG	A	1826	1/1	0.96	0.07	537,537,537,537	0
22	MG	A	1698	1/1	0.96	0.34	113,113,113,113	0
22	MG	A	1825	1/1	0.96	0.63	490,490,490,490	0
22	MG	A	1817	1/1	0.96	0.28	385,385,385,385	0
22	MG	A	1609	1/1	0.96	0.21	114,114,114,114	0
22	MG	A	1607	1/1	0.96	0.14	121,121,121,121	0
22	MG	A	1786	1/1	0.96	0.09	300,300,300,300	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
22	MG	A	1716	1/1	0.96	0.47	132,132,132,132	0
22	MG	A	1735	1/1	0.96	0.11	87,87,87,87	0
22	MG	A	1806	1/1	0.96	1.20	412,412,412,412	0
22	MG	A	1910	1/1	0.96	0.64	526,526,526,526	0
22	MG	A	1643	1/1	0.96	0.16	126,126,126,126	0
22	MG	A	1863	1/1	0.96	0.10	472,472,472,472	0
22	MG	A	1749	1/1	0.96	0.05	122,122,122,122	0
22	MG	A	1620	1/1	0.96	0.88	82,82,82,82	0
22	MG	A	1734	1/1	0.96	0.66	91,91,91,91	0
22	MG	A	1883	1/1	0.96	0.15	500,500,500,500	0
22	MG	A	1725	1/1	0.96	0.13	120,120,120,120	0
22	MG	A	1900	1/1	0.96	0.39	442,442,442,442	0
22	MG	A	1930	1/1	0.96	0.09	156,156,156,156	0
22	MG	A	1714	1/1	0.96	0.18	76,76,76,76	0
22	MG	A	1819	1/1	0.96	0.56	360,360,360,360	0
22	MG	A	1920	1/1	0.96	0.18	245,245,245,245	0
22	MG	A	1629	1/1	0.96	0.19	145,145,145,145	0
22	MG	A	1913	1/1	0.96	0.19	317,317,317,317	0
22	MG	A	1927	1/1	0.97	0.15	160,160,160,160	0
22	MG	A	1830	1/1	0.97	0.09	395,395,395,395	0
22	MG	A	1623	1/1	0.97	0.10	90,90,90,90	0
22	MG	A	1634	1/1	0.97	0.31	154,154,154,154	0
22	MG	A	1822	1/1	0.97	0.29	443,443,443,443	0
22	MG	A	1895	1/1	0.97	0.67	525,525,525,525	0
22	MG	A	1941	1/1	0.97	0.24	132,132,132,132	0
22	MG	A	1640	1/1	0.97	0.32	143,143,143,143	0
22	MG	A	1760	1/1	0.97	0.33	407,407,407,407	0
22	MG	A	1879	1/1	0.97	0.17	509,509,509,509	0
22	MG	A	1853	1/1	0.97	0.43	264,264,264,264	0
22	MG	A	1810	1/1	0.97	0.07	264,264,264,264	0
22	MG	A	1886	1/1	0.97	0.31	490,490,490,490	0
22	MG	A	1813	1/1	0.97	0.14	491,491,491,491	0
22	MG	A	1646	1/1	0.97	0.25	95,95,95,95	0
22	MG	A	1808	1/1	0.97	0.11	480,480,480,480	0
22	MG	A	1750	1/1	0.97	0.09	96,96,96,96	0
22	MG	A	1702	1/1	0.97	0.23	122,122,122,122	0
22	MG	A	1762	1/1	0.97	0.09	137,137,137,137	0
22	MG	A	1648	1/1	0.97	0.12	121,121,121,121	0
22	MG	A	1962	1/1	0.97	0.25	127,127,127,127	0
22	MG	A	1843	1/1	0.97	0.22	456,456,456,456	0
22	MG	A	1852	1/1	0.97	0.26	480,480,480,480	0
22	MG	A	1871	1/1	0.97	0.14	426,426,426,426	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
22	MG	A	1626	1/1	0.97	0.10	169,169,169,169	0
22	MG	A	1741	1/1	0.97	0.10	137,137,137,137	0
22	MG	A	1740	1/1	0.97	0.10	85,85,85,85	0
22	MG	A	1952	1/1	0.97	0.26	93,93,93,93	0
22	MG	A	1615	1/1	0.97	0.15	98,98,98,98	0
22	MG	A	1650	1/1	0.97	0.16	129,129,129,129	0
22	MG	A	1613	1/1	0.97	0.17	97,97,97,97	0
22	MG	A	1638	1/1	0.97	0.29	96,96,96,96	0
22	MG	A	1787	1/1	0.97	0.25	430,430,430,430	0
22	MG	A	1811	1/1	0.98	0.30	436,436,436,436	0
22	MG	A	1745	1/1	0.98	0.46	236,236,236,236	0
22	MG	A	1678	1/1	0.98	0.16	132,132,132,132	0
22	MG	A	1667	1/1	0.98	0.07	112,112,112,112	0
22	MG	A	1616	1/1	0.98	0.14	88,88,88,88	0
22	MG	A	1713	1/1	0.98	0.27	107,107,107,107	0
22	MG	A	1662	1/1	0.98	0.06	110,110,110,110	0
22	MG	A	1677	1/1	0.98	0.08	191,191,191,191	0
22	MG	A	1705	1/1	0.98	0.20	135,135,135,135	0
22	MG	A	1839	1/1	0.98	0.12	271,271,271,271	0
22	MG	A	1877	1/1	0.98	0.23	460,460,460,460	0
22	MG	A	1652	1/1	0.98	0.18	95,95,95,95	0
22	MG	A	1756	1/1	0.98	0.65	127,127,127,127	0
22	MG	A	1673	1/1	0.98	0.21	109,109,109,109	0
22	MG	A	1761	1/1	0.98	0.12	458,458,458,458	0
22	MG	A	1931	1/1	0.98	0.24	232,232,232,232	0
22	MG	A	1887	1/1	0.98	0.50	191,191,191,191	0
22	MG	A	1601	1/1	0.98	0.04	145,145,145,145	0
22	MG	A	1870	1/1	0.98	0.25	444,444,444,444	0
22	MG	A	1697	1/1	0.98	0.05	87,87,87,87	0
22	MG	A	1904	1/1	0.98	0.29	217,217,217,217	0
22	MG	A	1903	1/1	0.98	0.16	223,223,223,223	0
22	MG	A	1686	1/1	0.98	0.29	225,225,225,225	0
22	MG	A	1639	1/1	0.98	0.12	126,126,126,126	0
22	MG	A	1743	1/1	0.99	0.23	104,104,104,104	0
22	MG	A	1602	1/1	0.99	0.16	124,124,124,124	0
22	MG	A	1907	1/1	0.99	0.08	329,329,329,329	0
22	MG	A	1679	1/1	0.99	0.17	107,107,107,107	0
22	MG	A	1925	1/1	0.99	0.12	262,262,262,262	0
22	MG	A	1605	1/1	0.99	0.13	89,89,89,89	0
22	MG	A	1711	1/1	0.99	0.60	106,106,106,106	0
22	MG	A	1909	1/1	0.99	0.18	149,149,149,149	0
22	MG	A	1665	1/1	0.99	0.20	158,158,158,158	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1803	1/1	0.99	0.19	129,129,129,129	0
22	MG	A	1873	1/1	0.99	0.36	390,390,390,390	0
22	MG	A	1663	1/1	0.99	0.39	166,166,166,166	0
22	MG	A	1884	1/1	0.99	0.37	428,428,428,428	0
22	MG	A	1641	1/1	0.99	0.17	158,158,158,158	0
22	MG	A	1794	1/1	0.99	0.08	393,393,393,393	0
22	MG	A	1627	1/1	0.99	0.23	98,98,98,98	0
22	MG	A	1670	1/1	0.99	0.19	87,87,87,87	0
22	MG	A	1926	1/1	0.99	0.30	462,462,462,462	0
22	MG	A	1894	1/1	0.99	0.37	379,379,379,379	0
23	ZN	N	101	1/1	0.99	0.18	114,114,114,114	0
22	MG	A	1632	1/1	0.99	0.07	82,82,82,82	0
22	MG	A	1921	1/1	0.99	0.43	349,349,349,349	0
22	MG	A	1932	1/1	0.99	0.22	92,92,92,92	0
22	MG	A	1612	1/1	0.99	0.34	116,116,116,116	0
22	MG	A	1681	1/1	0.99	0.14	247,247,247,247	0
22	MG	A	1854	1/1	0.99	0.12	126,126,126,126	0
22	MG	A	1669	1/1	0.99	0.18	137,137,137,137	0
22	MG	A	1687	1/1	0.99	0.20	99,99,99,99	0
22	MG	A	1846	1/1	0.99	0.16	484,484,484,484	0
22	MG	A	1937	1/1	0.99	0.07	107,107,107,107	0
22	MG	A	1701	1/1	0.99	0.14	60,60,60,60	0
22	MG	A	1637	1/1	1.00	0.12	124,124,124,124	0
22	MG	A	1912	1/1	1.00	0.17	46,46,46,46	0
23	ZN	D	301	1/1	1.00	0.31	119,119,119,119	0

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

There are no such residues in this entry.