wwPDB X-ray Structure Validation Summary Report (i)

Jun 19, 2024 – 01:53 PM EDT

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 (i) symbol.

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

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

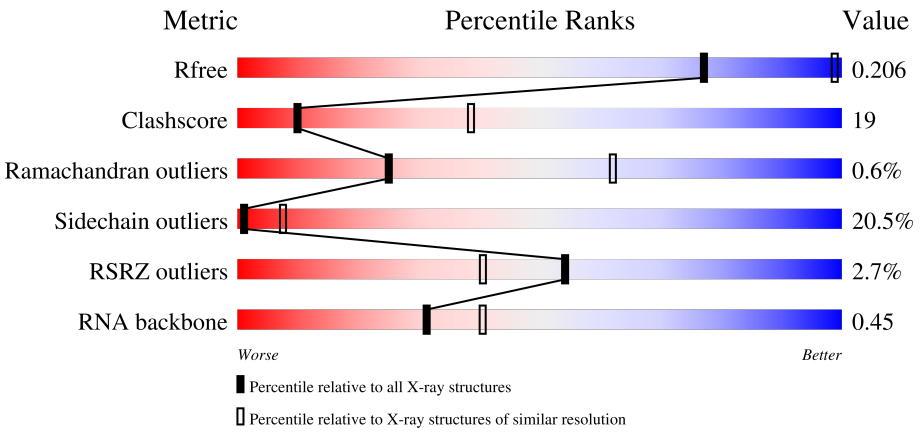
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.65 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 of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1522	2%, 21%, 42%, 27%, 9%, •
2	B	256	41%, 37%, 12%, •, 9%
3	C	239	6%, 43%, 34%, 9%, 14%
4	D	209	2%, 47%, 39%, 13%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	E	162	44% 41% 8% 7%
6	F	101	45% 46% 10%
7	G	156	6% 49% 40% 10%
8	H	138	47% 39% 14%
9	I	128	2% 45% 45% 9%
10	J	105	13% 35% 48% 9% 7%
11	K	129	% 51% 33% 5% 10%
12	L	135	42% 36% 13% 8%
13	M	126	2% 42% 42% 10% 6%
14	N	61	8% 43% 49% 7%
15	O	89	% 36% 51% 11%
16	P	88	41% 43% 10% 6%
17	Q	105	45% 41% 8% 6%
18	R	88	% 27% 43% 9% 20%
19	S	93	10% 45% 29% 10% 14%
20	T	106	51% 30% 11% 7%
21	U	27	26% 41% 41% 7% 11%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	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

Continued on next page...

Continued from previous page...

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
			Total	Mg		
22	A	268	268	268	0	0
22	B	2	2	2	0	0
22	C	2	2	2	0	0
22	D	3	3	3	0	0
22	E	1	1	1	0	0
22	F	1	1	1	0	0
22	J	2	2	2	0	0
22	M	1	1	1	0	0
22	N	1	1	1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
22	P	3	Total Mg 3 3	0	0
22	Q	2	Total Mg 2 2	0	0
22	S	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.

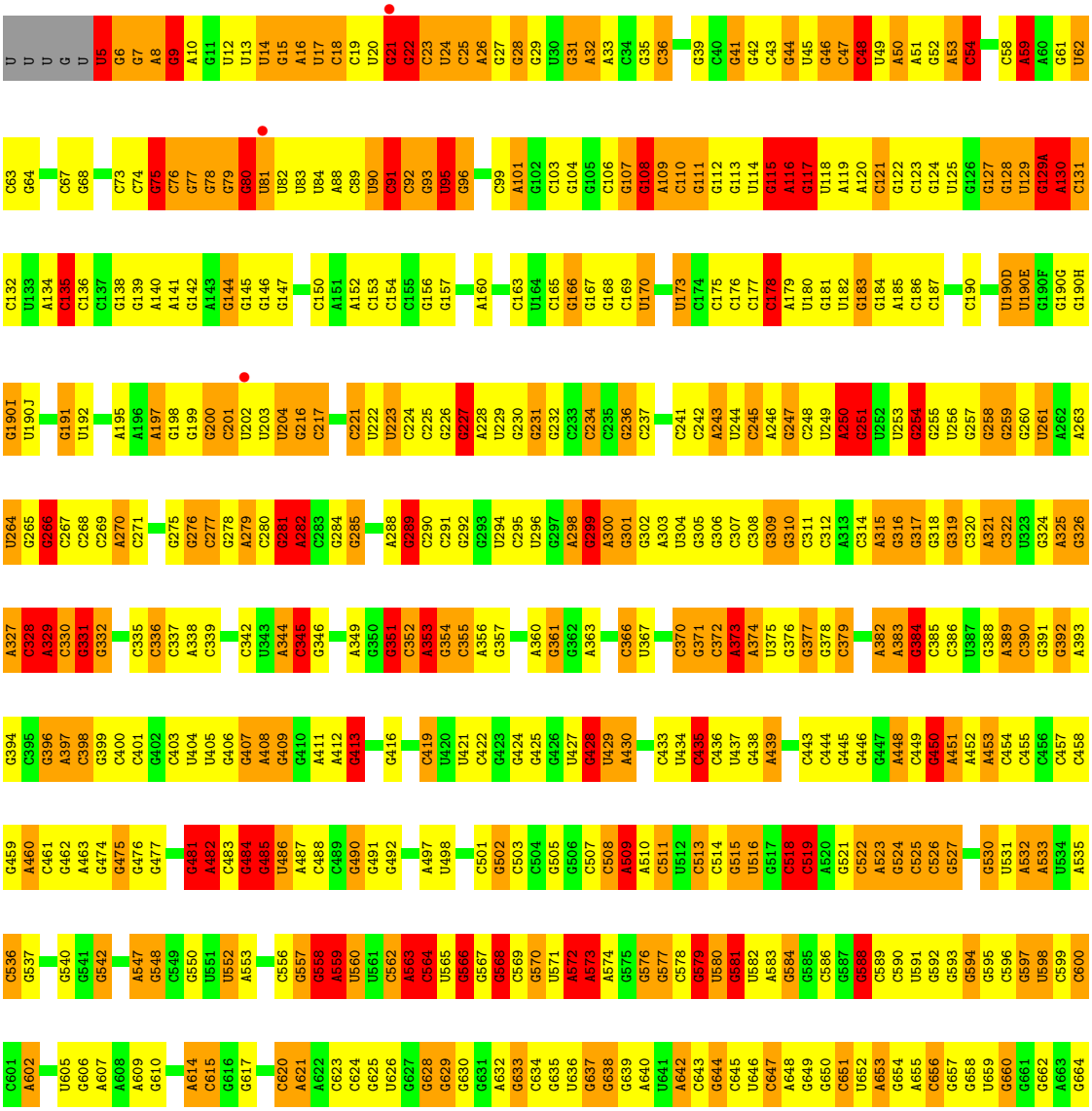
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
24	A	383	Total O 383 383	0	0
24	E	3	Total O 3 3	0	0
24	G	2	Total O 2 2	0	0
24	I	1	Total O 1 1	0	0
24	J	3	Total O 3 3	0	0
24	L	1	Total O 1 1	0	0
24	M	7	Total O 7 7	0	0
24	N	2	Total O 2 2	0	0
24	P	8	Total O 8 8	0	0
24	Q	1	Total O 1 1	0	0
24	T	1	Total O 1 1	0	0

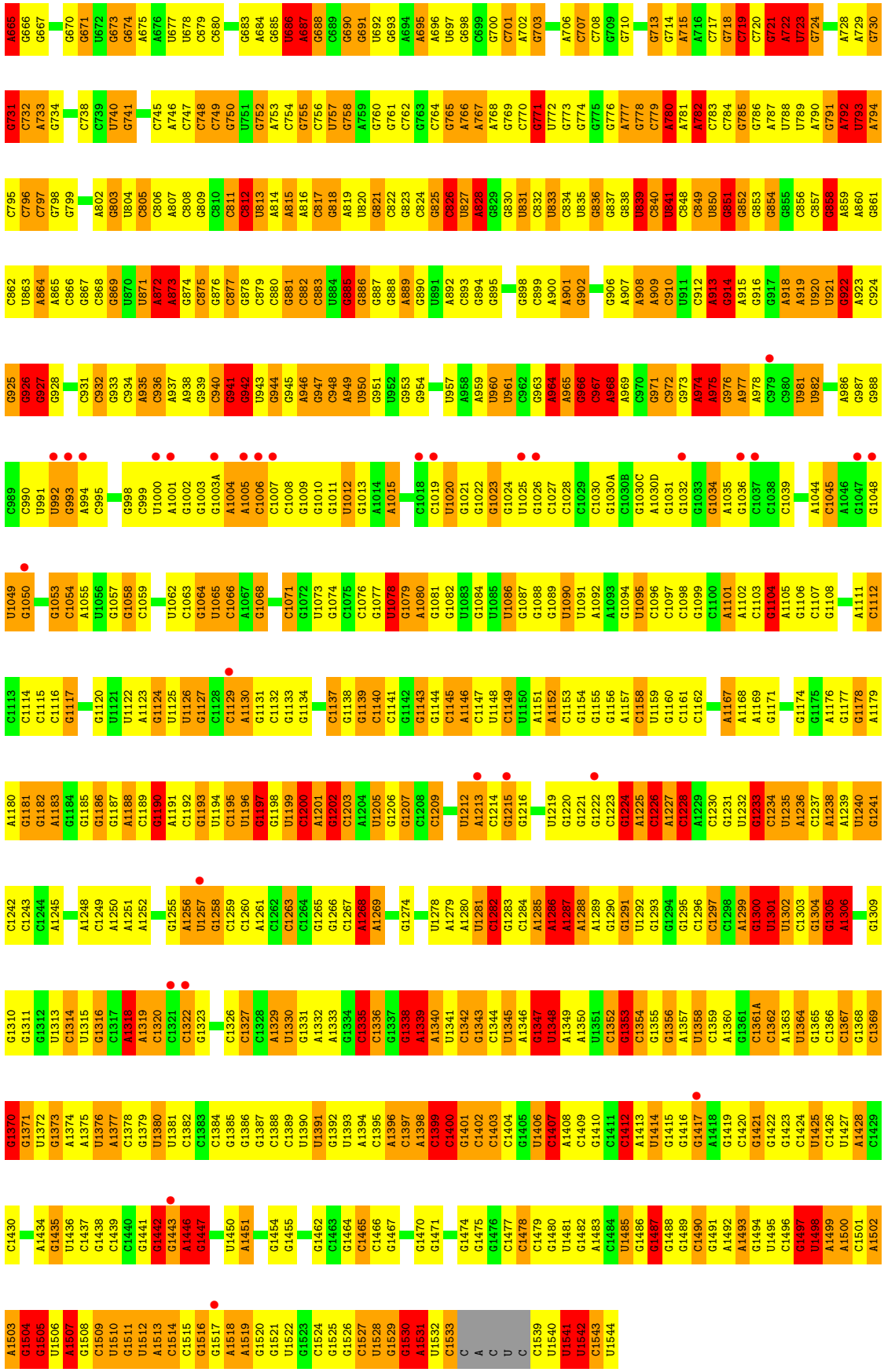
3 Residue-property plots (i)

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

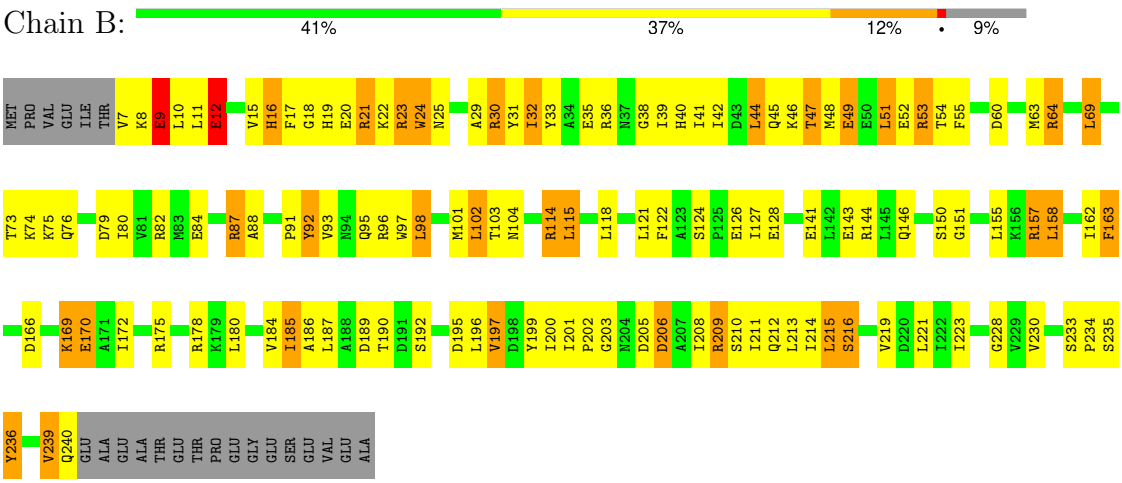
Chain A: 2% 21% 42% 27% 9%




A665 G666 G667 G670 G671 U672 G673 G674 A675 A676 U677 U678 C679 C680 G683 A684 G685 U686 A687 G688 C689 G690 G691 U692 G693 A694 A695 A696 U697 G698 C699 G700 C701 A702 G703 A706 C707 C708 G709 G710 G713 G714 A715 A716 C717 G718 C719 C720 G721 A722 U723 G724 A728 A729 G730
G731 C732 A733 G734 C738 C739 U740 G741 C745 A746 C747 C748 G749 G750 U751 G752 A753 C754 G755 C756 C757 G758 A759 U760 G761 C762 G763 C764 G765 A766 A767 A768 G769 C770 G771 U772 G773 G774 G775 G776 A777 G778 C779 A780 A781 A782 C783 C784 G785 G786 A787 U788 U789 A790 G791 A792 U793 A794
C795 C796 C797 G798 G799 A802 G803 U804 C805 C806 A807 C808 G809 C810 C811 C812 U813 A814 A815 A816 C817 G818 A819 U820 G821 C822 G823 C824 G825 C826 U827 A828 G829 G830 U831 C832 U833 C834 U835 G836 G837 G838 U839 C840 U841 C848 C849 U850 G851 G852 G853 G854 G855 C856 C857 G858 A859 A860 G861
C862 U863 A864 A865 C866 G867 C868 G869 U870 U871 A872 A873 G874 C875 G876 C877 G878 C879 C880 G881 C882 C883 U884 G885 G886 G887 G888 A889 G890 U891 A892 C893 G894 G895 G898 C899 A900 A901 G902 G906 A907 A908 G909 C910 U911 C912 A913 G914 A915 G916 G917 A918 A919 U920 U921 G922 A923 C924
G925 G926 G927 G928 C931 C932 G933 C934 A935 C936 A937 A938 G939 C940 G941 G942 U943 G944 G945 A946 G947 C948 A949 U950 G951 U952 G953 G954 U957 A958 A959 U960 U961 C962 G963 A964 A965 G966 C967 A968 A969 C970 G971 C972 G973 A974 A975 G976 A977 A978 C979 C980 U981 U982 A986 G987 G988
C989 C990 U991 U992 G993 A994 C995 G998 C999 U1000 A1001 G1002 G1003 G1003A A1004 A1005 C1006 C1007 C1008 G1009 G1010 G1011 U1012 G1013 A1014 A1015 C1018 C1019 U1020 G1021 G1022 G1023 G1024 U1025 G1026 C1027 C1028 C1029 C1030 G1030A C1030B G1030C A1030D G1031 G1032 G1033 G1034 A1035 G1036 C1037 C1038 C1039 A1044 C1045 A1046 G1047 G1048
U1049 G1050 G1053 C1054 A1055 U1056 G1057 G1058 C1059 U1062 C1063 G1064 U1065 C1066 A1067 G1068 C1071 G1072 U1073 G1074 C1075 C1076 G1077 U1078 G1079 A1080 G1081 G1082 U1083 G1084 U1085 U1086 G1087 G1088 G1089 U1090 U1091 A1092 A1093 G1094 U1095 C1096 C1097 C1098 G1099 C1100 A1101 A1102 C1103 G1104 A1105 G1106 C1107 G1108 A1111 C1112
C1113 C1114 C1115 C1116 G1117 G1120 U1121 U1122 A1123 G1124 U1125 U1126 G1127 C1128 C1129 A1130 G1131 C1132 G1133 G1134 C1137 G1138 G1139 C1140 C1141 G1142 G1143 G1144 C1145 A1146 C1147 U1148 C1149 U1150 A1151 A1152 C1153 G1154 G1155 G1156 A1157 C1158 U1159 G1160 C1161 C1162 A1167 A1168 A1169 G1171 G1174 G1175 A1176 G1177 G1178 A1179
A1180 G1181 G1182 A1183 G1184 G1185 G1186 G1187 A1188 C1189 G1190 A1191 C1192 G1193 U1194 C1195 U1196 G1197 G1198 U1199 C1200 A1201 G1202 C1203 A1204 U1205 G1206 G1207 C1208 C1209 U1212 A1213 C1214 G1215 G1216 U1219 G1220 G1221 G1222 C1223 G1224 A1225 C1226 A1227 C1228 A1229 C1230 G1231 U1232 G1233 C1234 U1235 A1236 C1237 A1238 A1239 U1240 G1241
C1242 C1243 C1244 A1245 A1248 C1249 A1250 A1251 A1252 G1255 A1256 U1257 G1258 C1259 C1260 A1261 C1262 C1263 C1264 G1265 C1266 C1267 A1268 A1269 G1274 U1278 A1279 A1280 U1281 C1282 G1283 C1284 A1285 A1286 A1287 A1288 A1289 G1290 G1291 U1292 G1293 G1294 G1295 C1296 C1297 C1298 A1299 G1300 U1301 U1302 C1303 G1304 G1305 A1306 G1309
G1310 G1311 G1312 U1313 C1314 U1315 G1316 C1317 A1318 A1319 C1320 C1321 C1322 G1323 C1326 C1327 C1328 A1329 U1330 G1331 A1332 A1333 G1334 C1335 C1336 G1337 G1338 A1339 A1340 U1341 C1342 G1343 C1344 U1345 A1346 G1347 U1348 A1349 A1350 U1351 C1352 G1353 C1354 G1355 G1356 A1357 U1358 C1359 A1360 G1361 C1361A C1362 A1363 U1364 G1365 C1366 C1367 G1368 C1369
G1370 G1371 U1372 G1373 A1374 A1375 U1376 A1377 C1378 G1379 U1380 U1381 C1382 C1383 C1384 G1385 G1386 C1387 C1388 C1389 U1390 U1391 G1392 U1393 A1394 C1395 A1396 C1397 A1398 C1399 C1400 U1401 C1402 C1403 C1404 C1405 U1406 C1407 A1408 C1409 G1410 C1411 C1412 A1413 U1414 G1415 G1416 G1417 A1418 G1419 C1420 G1421 G1422 G1423 C1424 U1425 C1426 U1427 A1428 C1429
C1430 A1434 G1435 U1436 C1437 G1438 C1439 C1440 G1441 G1442 G1443 A1446 G1447 U1450 A1451 G1454 G1455 G1462 C1463 G1464 C1465 C1466 G1467 G1470 G1471 G1474 G1475 G1476 C1477 C1478 C1479 G1480 U1481 G1482 A1483 C1484 U1485 G1486 G1487 G1488 G1489 C1490 G1491 A1492 A1493 G1494 U1495 C1496 G1497 U1498 A1499 A1500 C1501 A1502
A1503 G1504 G1505 U1506 A1507 G1508 C1509 U1510 G1511 U1512 A1513 C1514 C1515 G1516 G1517 A1518 A1519 G1520 G1521 U1522 G1523 C1524 G1525 G1526 C1527 U1528 G1529 G1530 A1531 U1532 C1533 C A C U C C1539 U1540 U1541 U1542 C1543 U1544

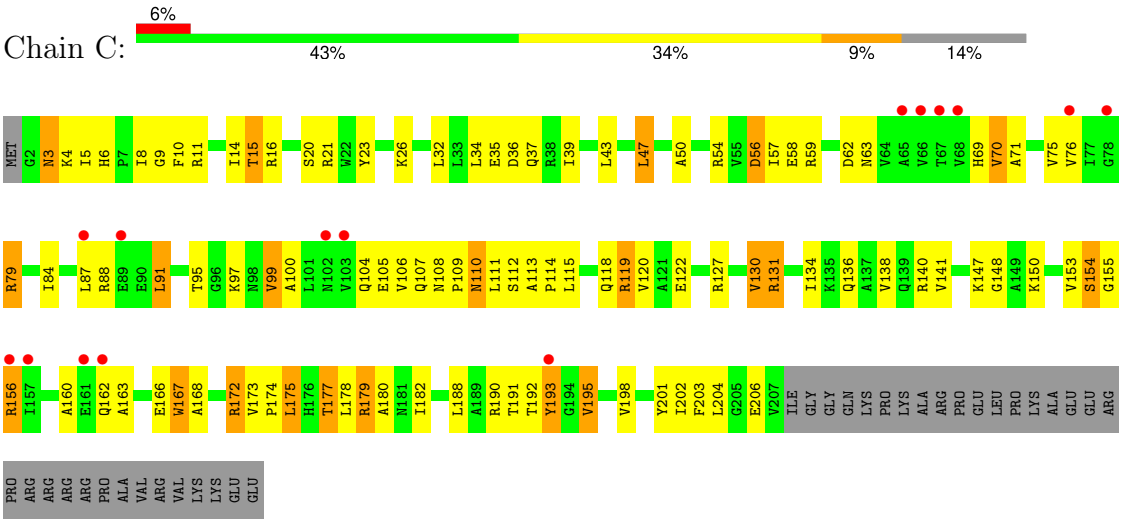
- Molecule 2: ribosomal protein S2

Chain B:



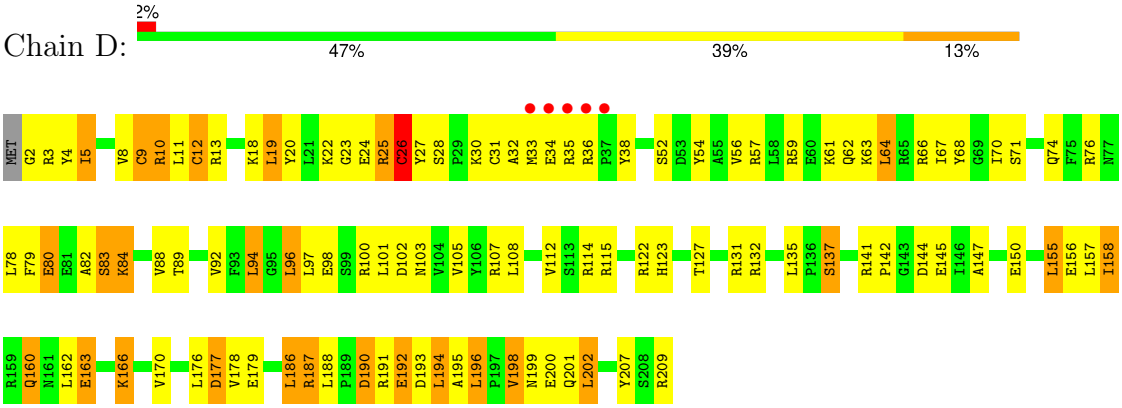
- Molecule 3: ribosomal protein S3

Chain C:



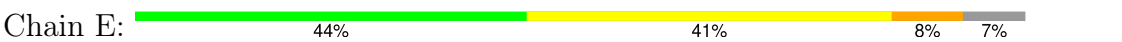
- Molecule 4: ribosomal protein S4

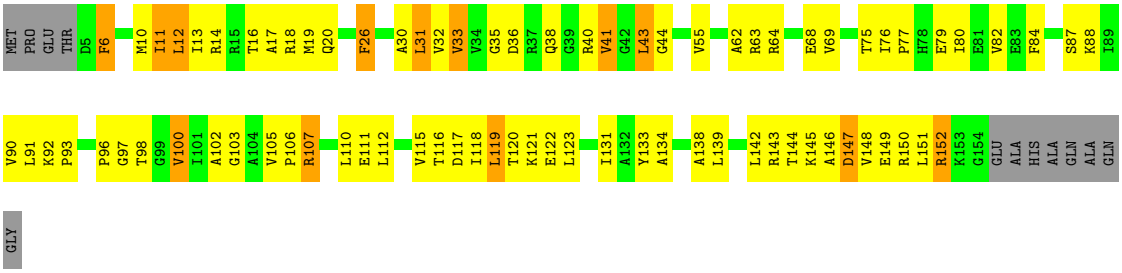
Chain D:



- Molecule 5: ribosomal protein S5

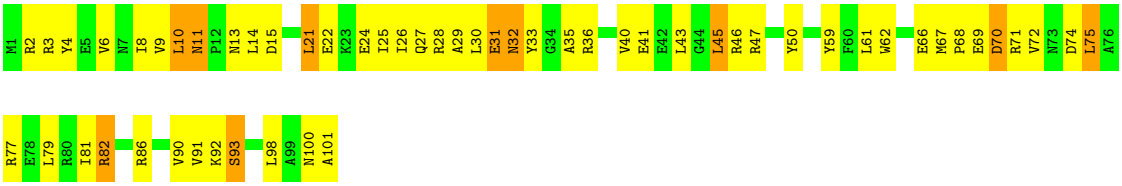
Chain E:





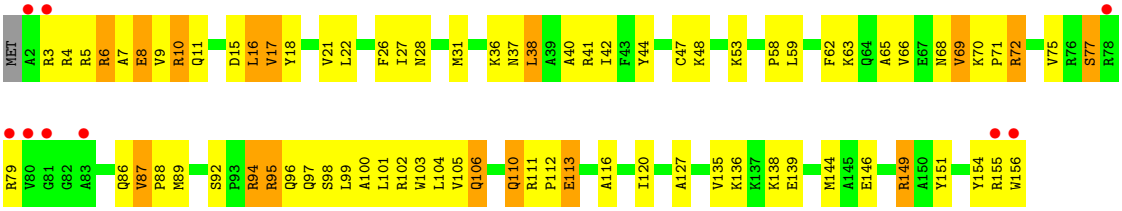
- Molecule 6: ribosomal protein S6

Chain F:



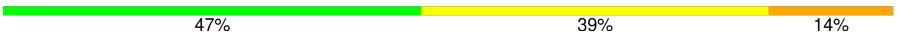
- Molecule 7: ribosomal protein S7

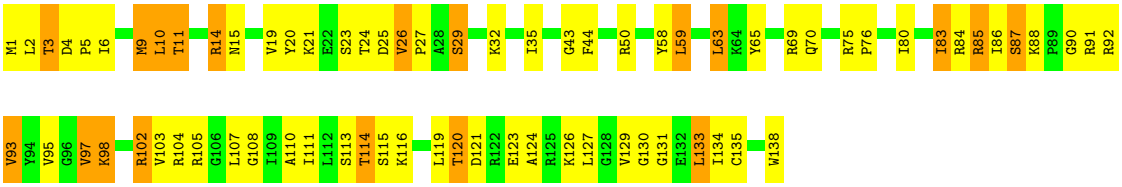
Chain G:



- Molecule 8: ribosomal protein S8

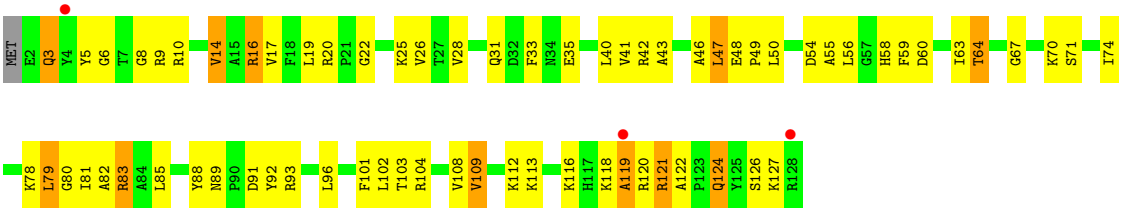
Chain H:





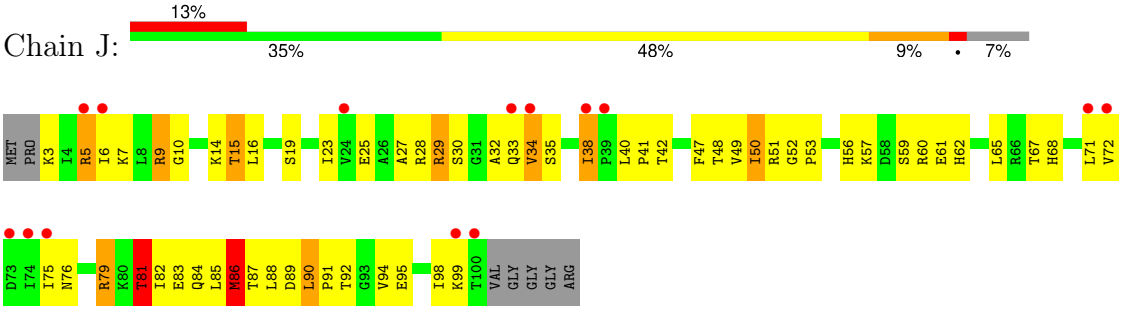
- Molecule 9: ribosomal protein S9

Chain I:



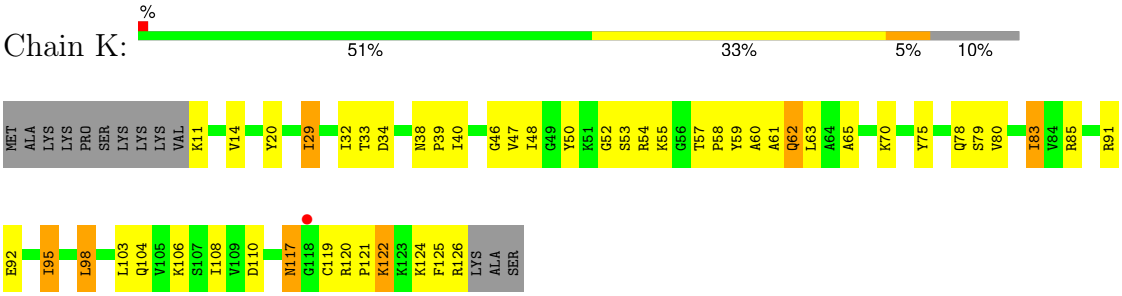
- Molecule 10: ribosomal protein S10

Chain J:



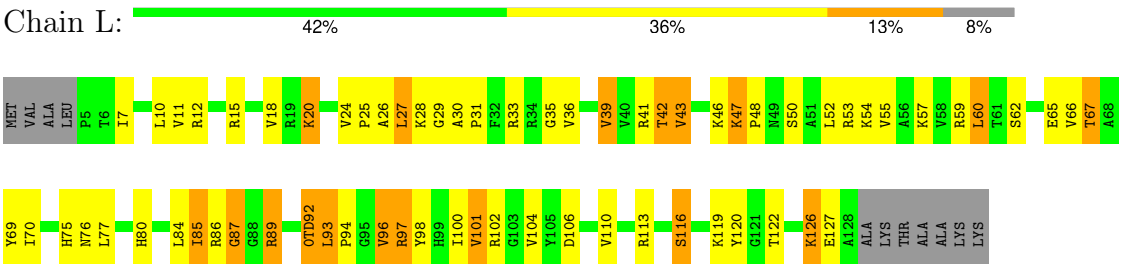
- Molecule 11: ribosomal protein S11

Chain K:



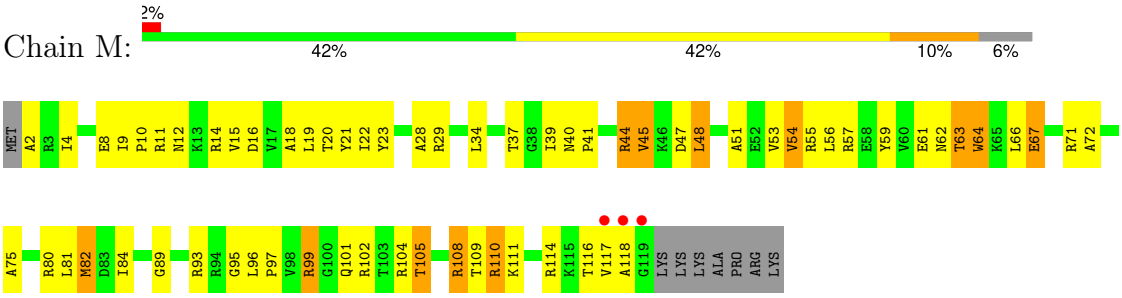
- Molecule 12: ribosomal protein S12

Chain L:



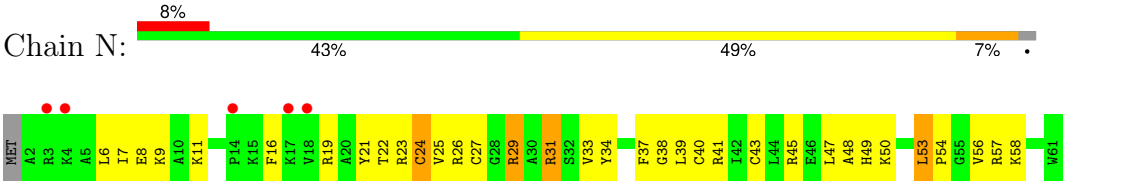
- Molecule 13: ribosomal protein S13

Chain M:



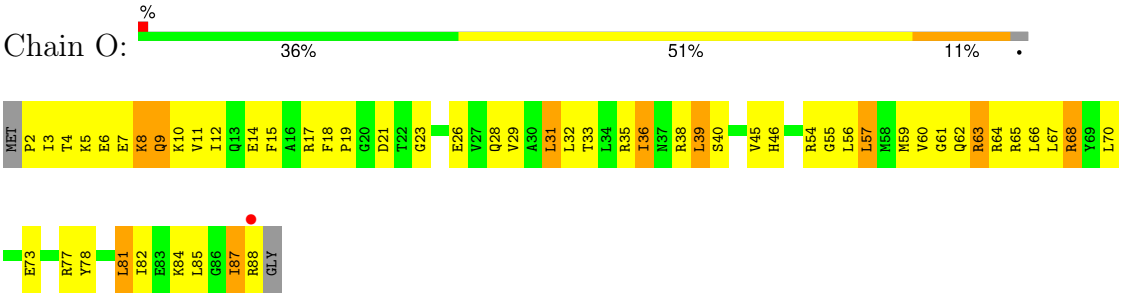
- Molecule 14: ribosomal protein S14

Chain N:



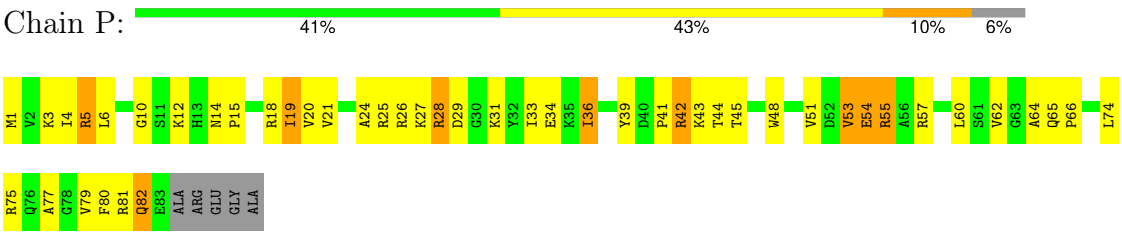
• Molecule 15: ribosomal protein S15

Chain O:



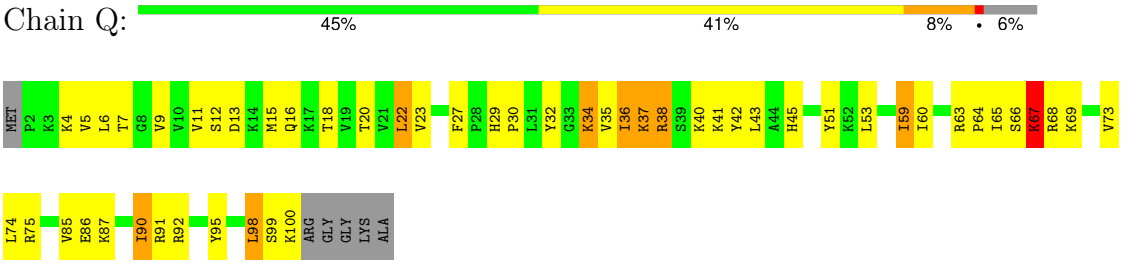
• Molecule 16: ribosomal protein S16

Chain P:



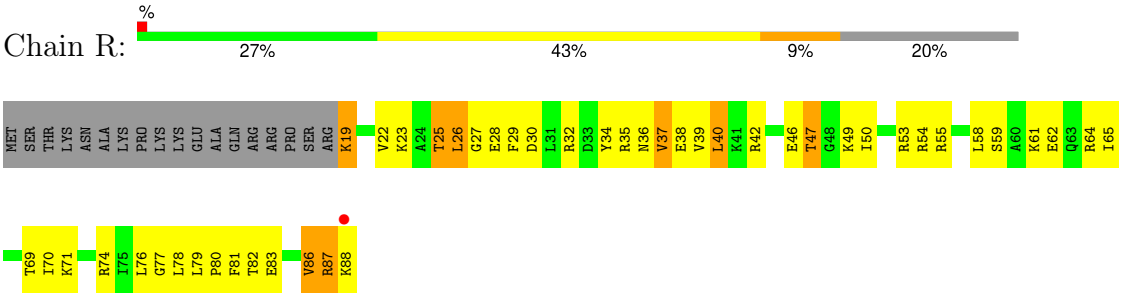
• Molecule 17: ribosomal protein S17

Chain Q:



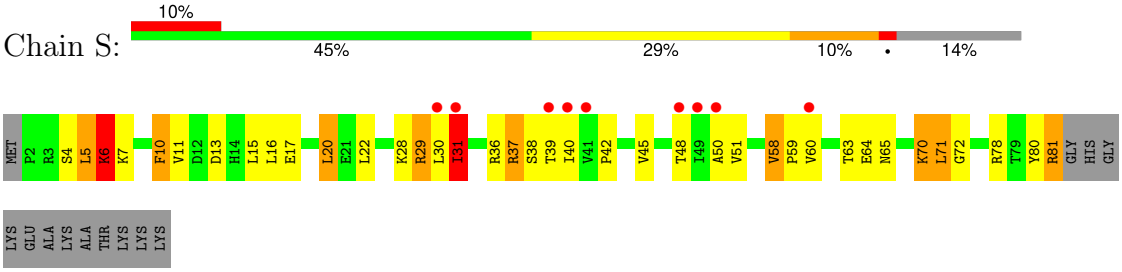
• Molecule 18: ribosomal protein S18

Chain R:



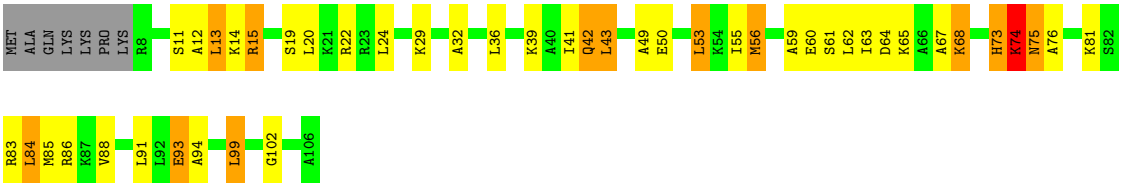
• Molecule 19: ribosomal protein S19

Chain S:



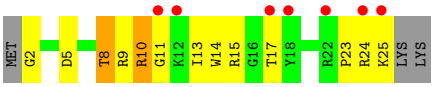
• Molecule 20: ribosomal protein S20

Chain T:



• Molecule 21: ribosomal protein THX

Chain U:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	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
$< I/\sigma(I) >$ [1]	1.80 (at 3.66Å)	Xtriage
Refinement program	PHENIX dev_978	Depositor
R, R_{free}	0.153 , 0.208 0.151 , 0.206	Depositor DCC
R_{free} test set	7745 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	138.2	Xtriage
Anisotropy	0.202	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.23 , 129.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
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

Xtriage'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.*

[1]Intensities estimated from amplitudes.

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

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN, 7MG, 0TD, MA6, PSU, 4OC, M2G, 2MG, UR3, 5MC

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
1	A	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

Continued on next page...

Continued from previous page...

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(^{o})	Ideal(^{o})
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

Continued on next page...

Continued from previous page...

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

Continued on next page...

Continued from previous page...

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
9	I	121	ARG
13	M	47	ASP
20	T	84	LEU
10	J	33	GLN
12	L	36	VAL

Sometimes 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
16	P	82	GLN
18	R	36	ASN
17	Q	45	HIS
4	D	161	ASN

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	1004	A
1	A	1201	A
1	A	1049	U
1	A	1145	C
1	A	1257	U

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

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	2MG	A	1207	1	18,26,27	1.77	3 (16%)	16,38,41	1.60	3 (18%)
1	7MG	A	527	22,1	23,26,27	4.56	8 (34%)	27,39,42	2.76	9 (33%)
1	5MC	A	1404	1	19,22,23	1.48	3 (15%)	26,32,35	1.56	4 (15%)
1	UR3	A	1498	1	19,22,23	1.14	2 (10%)	26,32,35	1.52	3 (11%)
1	MA6	A	1518[B]	1	19,26,27	1.13	1 (5%)	18,38,41	0.80	0
1	5MC	A	1407	1	19,22,23	1.44	3 (15%)	26,32,35	1.37	3 (11%)
1	5MC	A	967	1	19,22,23	1.52	5 (26%)	26,32,35	0.82	0
1	PSU	A	1540	1	18,21,22	1.18	1 (5%)	21,30,33	1.45	3 (14%)
1	MA6	A	1519[A]	1	19,26,27	1.24	2 (10%)	18,38,41	0.88	0
1	4OC	A	1402	1	20,23,24	1.29	1 (5%)	25,32,35	0.74	0
12	0TD	L	92	12	8,9,10	2.13	1 (12%)	6,11,13	3.25	5 (83%)
1	5MC	A	1400	1	19,22,23	1.61	4 (21%)	26,32,35	1.03	2 (7%)
1	MA6	A	1519[B]	1	19,26,27	1.64	4 (21%)	18,38,41	0.64	0
1	PSU	A	516	22,1	18,21,22	1.31	1 (5%)	21,30,33	1.46	4 (19%)
1	MA6	A	1518[A]	1	19,26,27	1.24	2 (10%)	18,38,41	0.95	1 (5%)
1	M2G	A	966	1	20,27,28	1.38	3 (15%)	19,40,43	1.30	2 (10%)
1	PSU	A	1541	1	18,21,22	1.04	1 (5%)	21,30,33	1.70	4 (19%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	2MG	A	1207	1	-	2/5/27/28	0/3/3/3
1	7MG	A	527	22,1	-	2/7/37/38	0/3/3/3
1	5MC	A	1404	1	-	0/7/25/26	0/2/2/2
1	UR3	A	1498	1	-	2/7/25/26	0/2/2/2
1	MA6	A	1518[B]	1	-	1/7/29/30	0/3/3/3
1	5MC	A	1407	1	-	2/7/25/26	0/2/2/2
1	5MC	A	967	1	-	4/7/25/26	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	4OC	A	1402	1	-	3/9/29/30	0/2/2/2
12	0TD	L	92	12	-	4/7/12/14	-
1	5MC	A	1400	1	-	2/7/25/26	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	MA6	A	1519[B]	1	-	2/7/29/30	0/3/3/3
1	PSU	A	516	22,1	-	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	-	3/7/29/30	0/3/3/3
1	PSU	A	1541	1	-	2/7/25/26	0/2/2/2

The worst 5 of 45 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	527	7MG	C8-N9	-20.19	1.32	1.45
1	A	1404	5MC	C5-C4	5.39	1.48	1.44
12	L	92	0TD	CB-CA	5.36	1.56	1.54
1	A	1207	2MG	C6-N1	4.95	1.45	1.37
1	A	516	PSU	C6-C5	4.51	1.40	1.35

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

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	527	7MG	C5-C6-N1	6.87	123.04	110.94
1	A	527	7MG	N9-C4-N3	6.49	134.96	125.46
12	L	92	0TD	CSB-SB-CB	-5.97	91.63	102.36
1	A	527	7MG	C5-C4-N3	-5.29	118.21	128.13
1	A	527	7MG	C2-N3-C4	4.88	120.70	112.30

There are no chirality outliers.

5 of 31 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	527	7MG	O4'-C4'-C5'-O5'
1	A	967	5MC	O4'-C4'-C5'-O5'
1	A	967	5MC	C3'-C4'-C5'-O5'
1	A	1207	2MG	O4'-C4'-C5'-O5'
1	A	1400	5MC	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	1498	UR3	5	0
1	A	1518[B]	MA6	3	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1407	5MC	2	0
1	A	967	5MC	3	0
1	A	1519[A]	MA6	4	0
1	A	1402	4OC	3	0
12	L	92	0TD	2	0
1	A	1400	5MC	1	0
1	A	1519[B]	MA6	3	0
1	A	516	PSU	1	0
1	A	1518[A]	MA6	3	0
1	A	966	M2G	3	0
1	A	1541	PSU	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	1404	21/22	0.94	0.17	127,137,174,177	0
1	5MC	A	1407	21/22	0.94	0.21	155,176,182,195	0
1	7MG	A	527	24/25	0.94	0.17	125,139,158,159	0
1	2MG	A	1207	24/25	0.94	0.14	201,225,261,267	0
1	MA6	A	1518[A]	24/25	0.95	0.39	121,138,144,149	24
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	5MC	A	1400	21/22	0.95	0.18	117,141,147,151	0
1	MA6	A	1519[A]	24/25	0.96	0.32	114,123,128,180	24
1	MA6	A	1519[B]	24/25	0.96	0.32	115,125,129,130	24
1	5MC	A	967	21/22	0.96	0.16	158,165,199,200	0
1	UR3	A	1498	21/22	0.96	0.26	132,143,155,163	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(Å^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	1767	1/1	0.72	0.46	167,167,167,167	0
22	MG	A	1858	1/1	0.72	0.38	115,115,115,115	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	1853	1/1	0.74	0.40	161,161,161,161	0
22	MG	A	1699	1/1	0.74	0.49	171,171,171,171	0
22	MG	A	1761	1/1	0.74	0.16	157,157,157,157	0
22	MG	A	1816	1/1	0.74	0.31	422,422,422,422	0
22	MG	A	1686	1/1	0.75	0.16	166,166,166,166	0
22	MG	Q	202	1/1	0.75	0.34	146,146,146,146	0
22	MG	A	1866	1/1	0.76	0.18	123,123,123,123	0
22	MG	A	1817	1/1	0.76	0.34	144,144,144,144	0
22	MG	P	103	1/1	0.76	0.38	132,132,132,132	0
22	MG	A	1813	1/1	0.76	0.40	105,105,105,105	0
22	MG	A	1754	1/1	0.76	0.32	134,134,134,134	0
22	MG	A	1841	1/1	0.78	0.16	149,149,149,149	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	1799	1/1	0.78	0.24	466,466,466,466	0
22	MG	A	1780	1/1	0.79	0.36	154,154,154,154	0
22	MG	A	1717	1/1	0.80	0.34	120,120,120,120	0
22	MG	A	1773	1/1	0.80	0.27	142,142,142,142	0
22	MG	A	1848	1/1	0.80	0.44	144,144,144,144	0
22	MG	J	201	1/1	0.80	0.74	127,127,127,127	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	1776	1/1	0.82	0.45	135,135,135,135	0
22	MG	A	1712	1/1	0.82	0.43	151,151,151,151	0
22	MG	D	304	1/1	0.82	0.16	111,111,111,111	0
22	MG	A	1737	1/1	0.82	0.51	133,133,133,133	0
22	MG	A	1722	1/1	0.82	0.30	115,115,115,115	0
22	MG	A	1809	1/1	0.82	0.29	466,466,466,466	0
22	MG	A	1772	1/1	0.82	0.20	115,115,115,115	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1621	1/1	0.82	0.80	111,111,111,111	0
22	MG	A	1746	1/1	0.83	0.42	181,181,181,181	0
22	MG	A	1863	1/1	0.83	0.87	121,121,121,121	0
22	MG	A	1854	1/1	0.83	0.42	112,112,112,112	0
22	MG	A	1674	1/1	0.84	0.29	171,171,171,171	0
22	MG	A	1834	1/1	0.84	0.26	157,157,157,157	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	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	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	1855	1/1	0.84	0.19	114,114,114,114	0
22	MG	A	1778	1/1	0.85	0.72	132,132,132,132	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	1758	1/1	0.85	0.22	150,150,150,150	0
22	MG	A	1601	1/1	0.85	0.36	122,122,122,122	0
22	MG	A	1637	1/1	0.85	0.25	127,127,127,127	0
22	MG	A	1836	1/1	0.86	0.46	98,98,98,98	0
22	MG	A	1837	1/1	0.86	0.36	150,150,150,150	0
22	MG	A	1607	1/1	0.86	0.10	183,183,183,183	0
22	MG	A	1682	1/1	0.86	0.30	126,126,126,126	0
22	MG	A	1830	1/1	0.86	0.42	512,512,512,512	0
22	MG	A	1710	1/1	0.86	0.59	111,111,111,111	0
22	MG	A	1745	1/1	0.87	0.79	155,155,155,155	0
22	MG	A	1625	1/1	0.87	0.27	124,124,124,124	0
22	MG	A	1640	1/1	0.87	0.33	145,145,145,145	0
22	MG	A	1666	1/1	0.87	0.16	118,118,118,118	0
22	MG	A	1755	1/1	0.87	0.33	118,118,118,118	0
22	MG	A	1820	1/1	0.87	0.22	459,459,459,459	0
22	MG	A	1619	1/1	0.87	0.63	178,178,178,178	0
22	MG	S	101	1/1	0.87	0.84	156,156,156,156	0
22	MG	A	1653	1/1	0.88	0.27	127,127,127,127	0
22	MG	A	1751	1/1	0.88	0.40	139,139,139,139	0
22	MG	A	1859	1/1	0.89	0.48	143,143,143,143	0
22	MG	A	1713	1/1	0.89	0.35	92,92,92,92	0
22	MG	A	1687	1/1	0.89	0.20	162,162,162,162	0
22	MG	A	1789	1/1	0.89	0.14	215,215,215,215	0
22	MG	A	1729	1/1	0.89	0.33	105,105,105,105	0
22	MG	N	102	1/1	0.89	0.17	184,184,184,184	0
22	MG	A	1734	1/1	0.89	0.23	94,94,94,94	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1802	1/1	0.89	0.08	250,250,250,250	0
22	MG	A	1806	1/1	0.89	0.26	242,242,242,242	0
22	MG	A	1769	1/1	0.89	0.13	134,134,134,134	0
22	MG	A	1770	1/1	0.89	0.20	99,99,99,99	0
22	MG	A	1833	1/1	0.90	0.26	230,230,230,230	0
22	MG	A	1850	1/1	0.90	1.04	150,150,150,150	0
22	MG	A	1851	1/1	0.90	0.42	136,136,136,136	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	1622	1/1	0.90	0.83	67,67,67,67	0
22	MG	A	1655	1/1	0.90	0.23	113,113,113,113	0
22	MG	A	1702	1/1	0.90	0.51	124,124,124,124	0
22	MG	A	1756	1/1	0.90	0.25	127,127,127,127	0
22	MG	A	1864	1/1	0.91	0.26	129,129,129,129	0
22	MG	A	1706	1/1	0.91	0.17	207,207,207,207	0
22	MG	A	1792	1/1	0.91	0.32	145,145,145,145	0
22	MG	A	1798	1/1	0.91	0.22	212,212,212,212	0
22	MG	A	1735	1/1	0.91	0.31	122,122,122,122	0
22	MG	P	101	1/1	0.91	0.43	90,90,90,90	0
22	MG	A	1708	1/1	0.91	0.42	127,127,127,127	0
22	MG	A	1685	1/1	0.91	0.81	109,109,109,109	0
22	MG	A	1807	1/1	0.91	0.48	254,254,254,254	0
22	MG	A	1860	1/1	0.91	0.09	167,167,167,167	0
22	MG	A	1757	1/1	0.91	0.22	105,105,105,105	0
22	MG	A	1763	1/1	0.92	0.22	362,362,362,362	0
22	MG	A	1868	1/1	0.92	0.20	144,144,144,144	0
22	MG	A	1723	1/1	0.92	0.08	151,151,151,151	0
22	MG	E	201	1/1	0.92	0.44	163,163,163,163	0
22	MG	A	1724	1/1	0.92	0.38	133,133,133,133	0
22	MG	A	1670	1/1	0.92	0.34	109,109,109,109	0
22	MG	A	1814	1/1	0.92	0.36	113,113,113,113	0
22	MG	A	1793	1/1	0.92	0.27	134,134,134,134	0
22	MG	A	1794	1/1	0.92	0.23	211,211,211,211	0
22	MG	A	1782	1/1	0.92	0.28	244,244,244,244	0
22	MG	A	1638	1/1	0.92	0.37	95,95,95,95	0
22	MG	A	1705	1/1	0.92	0.08	156,156,156,156	0
22	MG	A	1857	1/1	0.93	0.17	141,141,141,141	0
22	MG	A	1796	1/1	0.93	0.47	168,168,168,168	0
22	MG	A	1603	1/1	0.93	0.18	117,117,117,117	0
22	MG	A	1630	1/1	0.93	0.11	139,139,139,139	0
22	MG	A	1801	1/1	0.93	0.26	135,135,135,135	0
22	MG	A	1779	1/1	0.93	0.30	374,374,374,374	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1646	1/1	0.93	0.29	134,134,134,134	0
22	MG	A	1743	1/1	0.93	0.58	112,112,112,112	0
22	MG	A	1744	1/1	0.93	0.14	150,150,150,150	0
22	MG	A	1844	1/1	0.93	0.18	123,123,123,123	0
22	MG	F	201	1/1	0.93	0.35	144,144,144,144	0
22	MG	A	1765	1/1	0.93	0.24	127,127,127,127	0
22	MG	A	1649	1/1	0.93	0.19	130,130,130,130	0
22	MG	A	1663	1/1	0.93	0.09	102,102,102,102	0
22	MG	A	1633	1/1	0.93	0.24	113,113,113,113	0
22	MG	A	1669	1/1	0.93	0.27	144,144,144,144	0
22	MG	A	1696	1/1	0.93	0.37	399,399,399,399	0
22	MG	A	1609	1/1	0.93	0.26	115,115,115,115	0
22	MG	A	1856	1/1	0.93	0.18	136,136,136,136	0
22	MG	A	1797	1/1	0.94	0.12	176,176,176,176	0
22	MG	A	1766	1/1	0.94	0.18	131,131,131,131	0
22	MG	A	1826	1/1	0.94	0.25	225,225,225,225	0
22	MG	A	1781	1/1	0.94	0.07	174,174,174,174	0
22	MG	A	1752	1/1	0.94	0.20	108,108,108,108	0
22	MG	A	1861	1/1	0.94	0.14	163,163,163,163	0
22	MG	A	1605	1/1	0.94	0.31	105,105,105,105	0
22	MG	A	1785	1/1	0.94	0.09	364,364,364,364	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	1810	1/1	0.94	0.70	386,386,386,386	0
22	MG	A	1843	1/1	0.94	0.16	186,186,186,186	0
22	MG	A	1812	1/1	0.94	0.09	429,429,429,429	0
22	MG	A	1733	1/1	0.94	0.21	102,102,102,102	0
22	MG	A	1626	1/1	0.94	0.21	112,112,112,112	0
22	MG	A	1815	1/1	0.94	0.37	286,286,286,286	0
22	MG	A	1700	1/1	0.94	0.40	110,110,110,110	0
22	MG	A	1852	1/1	0.94	0.18	102,102,102,102	0
22	MG	A	1608	1/1	0.94	0.29	99,99,99,99	0
22	MG	A	1748	1/1	0.94	0.36	136,136,136,136	0
22	MG	A	1726	1/1	0.94	0.20	130,130,130,130	0
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	1831	1/1	0.95	0.16	244,244,244,244	0
22	MG	B	301	1/1	0.95	0.35	138,138,138,138	0
22	MG	A	1731	1/1	0.95	0.25	109,109,109,109	0
22	MG	A	1803	1/1	0.95	0.36	386,386,386,386	0
22	MG	A	1805	1/1	0.95	0.14	162,162,162,162	0
22	MG	A	1643	1/1	0.95	0.13	146,146,146,146	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1740	1/1	0.95	0.15	129,129,129,129	0
22	MG	A	1819	1/1	0.95	0.19	294,294,294,294	0
22	MG	A	1842	1/1	0.95	0.20	161,161,161,161	0
22	MG	A	1808	1/1	0.95	0.49	265,265,265,265	0
22	MG	A	1749	1/1	0.95	0.14	114,114,114,114	0
22	MG	A	1677	1/1	0.95	0.11	130,130,130,130	0
22	MG	A	1657	1/1	0.95	0.16	136,136,136,136	0
22	MG	A	1618	1/1	0.96	0.35	147,147,147,147	0
22	MG	A	1688	1/1	0.96	0.19	121,121,121,121	0
22	MG	A	1671	1/1	0.96	0.39	120,120,120,120	0
22	MG	A	1838	1/1	0.96	0.14	187,187,187,187	0
22	MG	A	1862	1/1	0.96	0.27	155,155,155,155	0
22	MG	A	1750	1/1	0.96	0.08	102,102,102,102	0
22	MG	A	1602	1/1	0.96	0.50	145,145,145,145	0
22	MG	A	1736	1/1	0.96	0.20	156,156,156,156	0
22	MG	A	1624	1/1	0.96	0.49	113,113,113,113	0
22	MG	A	1676	1/1	0.96	0.44	151,151,151,151	0
22	MG	A	1642	1/1	0.96	0.28	158,158,158,158	0
22	MG	A	1679	1/1	0.96	0.30	150,150,150,150	0
22	MG	A	1664	1/1	0.96	0.08	129,129,129,129	0
22	MG	A	1683	1/1	0.96	0.13	175,175,175,175	0
22	MG	A	1762	1/1	0.96	0.17	184,184,184,184	0
22	MG	A	1611	1/1	0.96	0.19	171,171,171,171	0
22	MG	A	1804	1/1	0.96	0.67	366,366,366,366	0
22	MG	A	1828	1/1	0.96	0.11	351,351,351,351	0
22	MG	A	1764	1/1	0.96	0.24	220,220,220,220	0
22	MG	A	1644	1/1	0.96	0.19	126,126,126,126	0
22	MG	A	1786	1/1	0.96	0.20	179,179,179,179	0
22	MG	A	1716	1/1	0.97	0.44	139,139,139,139	0
22	MG	A	1615	1/1	0.97	0.21	87,87,87,87	0
22	MG	A	1790	1/1	0.97	0.18	356,356,356,356	0
22	MG	A	1753	1/1	0.97	0.19	128,128,128,128	0
22	MG	A	1719	1/1	0.97	0.16	108,108,108,108	0
22	MG	A	1839	1/1	0.97	0.29	170,170,170,170	0
22	MG	A	1635	1/1	0.97	0.13	101,101,101,101	0
22	MG	A	1775	1/1	0.97	0.18	110,110,110,110	0
22	MG	A	1665	1/1	0.97	0.09	271,271,271,271	0
22	MG	A	1707	1/1	0.97	0.13	83,83,83,83	0
22	MG	A	1651	1/1	0.97	0.23	184,184,184,184	0
22	MG	B	302	1/1	0.97	0.27	147,147,147,147	0
22	MG	D	302	1/1	0.97	0.65	122,122,122,122	0
22	MG	A	1616	1/1	0.97	0.25	195,195,195,195	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1846	1/1	0.97	0.10	150,150,150,150	0
22	MG	A	1690	1/1	0.97	0.14	387,387,387,387	0
22	MG	A	1693	1/1	0.97	0.31	150,150,150,150	0
22	MG	J	202	1/1	0.97	0.39	344,344,344,344	0
22	MG	M	201	1/1	0.97	0.20	375,375,375,375	0
22	MG	A	1680	1/1	0.97	0.10	128,128,128,128	0
22	MG	A	1825	1/1	0.97	0.17	470,470,470,470	0
22	MG	A	1732	1/1	0.97	0.18	81,81,81,81	0
22	MG	A	1661	1/1	0.97	0.12	141,141,141,141	0
22	MG	A	1613	1/1	0.97	0.13	160,160,160,160	0
22	MG	A	1768	1/1	0.97	0.29	112,112,112,112	0
22	MG	A	1832	1/1	0.97	0.15	390,390,390,390	0
23	ZN	N	101	1/1	0.97	0.17	233,233,233,233	0
22	MG	A	1811	1/1	0.98	0.18	255,255,255,255	0
22	MG	A	1715	1/1	0.98	0.35	88,88,88,88	0
22	MG	A	1691	1/1	0.98	0.11	128,128,128,128	0
22	MG	A	1692	1/1	0.98	0.08	175,175,175,175	0
22	MG	A	1718	1/1	0.98	0.11	103,103,103,103	0
22	MG	A	1672	1/1	0.98	0.07	166,166,166,166	0
22	MG	A	1721	1/1	0.98	0.18	127,127,127,127	0
22	MG	A	1695	1/1	0.98	0.19	134,134,134,134	0
22	MG	A	1645	1/1	0.98	0.22	76,76,76,76	0
22	MG	A	1697	1/1	0.98	0.39	335,335,335,335	0
22	MG	A	1698	1/1	0.98	0.10	218,218,218,218	0
22	MG	A	1612	1/1	0.98	0.04	174,174,174,174	0
22	MG	A	1824	1/1	0.98	0.89	407,407,407,407	0
22	MG	A	1727	1/1	0.98	0.12	91,91,91,91	0
22	MG	A	1660	1/1	0.98	0.07	116,116,116,116	0
22	MG	A	1760	1/1	0.98	0.12	147,147,147,147	0
22	MG	A	1829	1/1	0.98	0.26	202,202,202,202	0
22	MG	A	1867	1/1	0.98	0.19	139,139,139,139	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	1795	1/1	0.98	0.27	247,247,247,247	0
22	MG	C	302	1/1	0.98	0.16	181,181,181,181	0
22	MG	A	1703	1/1	0.98	0.13	142,142,142,142	0
22	MG	D	303	1/1	0.98	0.10	119,119,119,119	0
22	MG	A	1704	1/1	0.98	0.18	95,95,95,95	0
22	MG	A	1639	1/1	0.98	0.13	163,163,163,163	0
22	MG	A	1650	1/1	0.98	0.11	112,112,112,112	0
22	MG	A	1614	1/1	0.98	0.08	144,144,144,144	0
22	MG	A	1641	1/1	0.98	0.31	188,188,188,188	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1627	1/1	0.98	0.10	110,110,110,110	0
22	MG	A	1667	1/1	0.98	0.09	123,123,123,123	0
22	MG	A	1668	1/1	0.98	0.29	271,271,271,271	0
22	MG	A	1741	1/1	0.98	0.38	118,118,118,118	0
22	MG	A	1742	1/1	0.98	0.12	129,129,129,129	0
22	MG	A	1654	1/1	0.98	0.10	121,121,121,121	0
22	MG	A	1636	1/1	0.98	0.27	127,127,127,127	0
22	MG	A	1847	1/1	0.98	0.11	155,155,155,155	0
22	MG	A	1617	1/1	0.98	0.22	113,113,113,113	0
22	MG	A	1865	1/1	0.99	0.18	180,180,180,180	0
22	MG	A	1720	1/1	0.99	0.08	114,114,114,114	0
22	MG	A	1784	1/1	0.99	0.08	153,153,153,153	0
22	MG	A	1823	1/1	0.99	0.07	276,276,276,276	0
22	MG	A	1694	1/1	0.99	0.34	194,194,194,194	0
22	MG	A	1604	1/1	0.99	0.26	151,151,151,151	0
22	MG	C	301	1/1	0.99	0.33	165,165,165,165	0
22	MG	A	1629	1/1	0.99	0.50	147,147,147,147	0
22	MG	A	1827	1/1	0.99	0.24	304,304,304,304	0
22	MG	A	1684	1/1	0.99	0.15	158,158,158,158	0
22	MG	A	1673	1/1	0.99	0.06	211,211,211,211	0
22	MG	A	1610	1/1	0.99	0.21	119,119,119,119	0
22	MG	A	1658	1/1	0.99	0.19	111,111,111,111	0
22	MG	A	1774	1/1	0.99	0.05	142,142,142,142	0
22	MG	A	1632	1/1	0.99	0.40	90,90,90,90	0
22	MG	A	1759	1/1	0.99	0.11	155,155,155,155	0
22	MG	A	1835	1/1	0.99	0.15	349,349,349,349	0
22	MG	A	1606	1/1	0.99	0.09	113,113,113,113	0
22	MG	A	1730	1/1	0.99	0.12	129,129,129,129	0
22	MG	A	1678	1/1	0.99	0.13	182,182,182,182	0
22	MG	A	1634	1/1	0.99	0.28	290,290,290,290	0
22	MG	A	1647	1/1	0.99	0.25	138,138,138,138	0
22	MG	A	1800	1/1	0.99	0.13	62,62,62,62	0
23	ZN	D	301	1/1	0.99	0.34	117,117,117,117	0
22	MG	A	1681	1/1	0.99	0.13	152,152,152,152	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.