wwPDB X-ray Structure Validation Summary Report (i)

Nov 5, 2023 – 11:38 PM EST

PDB ID	:	1M90
Title	:	Co-crystal structure of CCA-Phe-caproic acid-biotin and sparsomycin bound to the 50S ribosomal subunit
Authors	:	Hansen, J.L.; Schmeing, T.M.; Moore, P.B.; Steitz, T.A.
Deposited on	:	2002-07-26
Resolution	:	2.80 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:

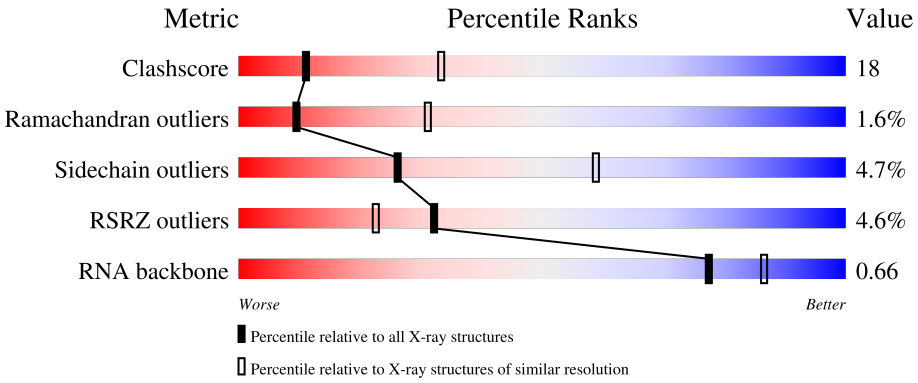
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.80 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))
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)
RNA backbone	3102	1227 (3.10-2.50)

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	2922	2% 59% 30% 5% 6%
2	B	122	4% 49% 38% 11% •
3	5	3	67% 33%
4	C	239	5% 60% 32% 7% •
5	D	337	% 50% 44% 6%

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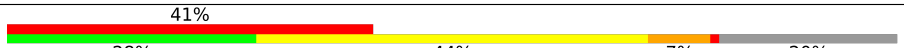
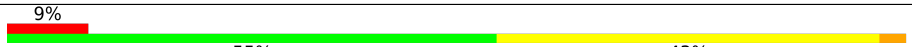
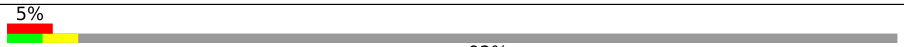
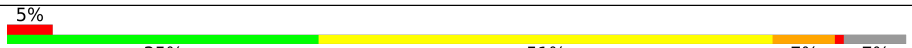
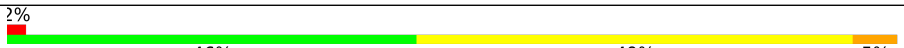
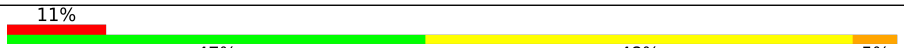
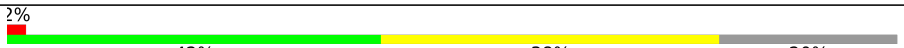
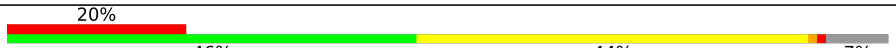
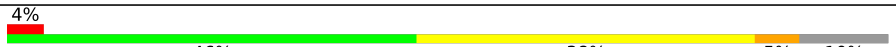
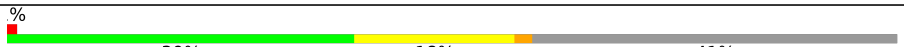
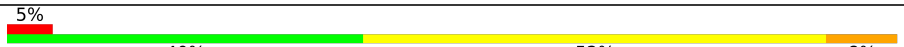
Mol	Chain	Length	Quality of chain
6	E	246	
7	F	176	
8	G	177	
9	H	119	
10	I	348	
11	J	167	
12	K	145	
13	L	132	
14	M	164	
15	N	194	
16	O	186	
17	P	115	
18	Q	148	
19	R	95	
20	S	154	
21	T	84	
22	U	119	
23	V	66	
24	W	70	
25	X	154	
26	Y	91	
27	Z	240	
28	1	73	
29	2	56	
30	3	48	

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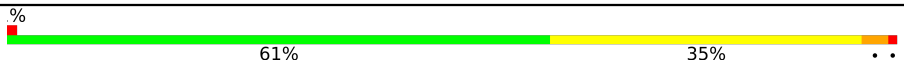
Mol	Chain	Length	Quality of chain
31	4	92	

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
32	MG	A	8024	-	-	-	X
33	NA	A	8352	-	-	-	X
33	NA	A	8384	-	-	-	X
33	NA	A	8385	-	-	-	X
33	NA	B	8351	-	-	-	X
33	NA	S	8386	-	-	-	X
33	NA	T	8312	-	-	-	X

2 Entry composition (i)

There are 40 unique types of molecules in this entry. The entry contains 98611 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 23S RRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	A	2754	59017	26346	10878	19048	2745	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	560	C	U	conflict	GB 3377779

- Molecule 2 is a RNA chain called 5S RRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
2	B	122	2600	1160	472	847	121	0	0	0

- Molecule 3 is a RNA chain called CCA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
3	5	3	59	28	11	18	2	0	0	0

- Molecule 4 is a protein called RIBOSOMAL PROTEIN L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	C	237	1754	1072	352	325	5	0	0	0

- Molecule 5 is a protein called RIBOSOMAL PROTEIN L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	D	337	2624	1616	493	510	5	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PRO	deletion	UNP P20279
D	310	ARG	PHE	conflict	UNP P20279

- Molecule 6 is a protein called RIBOSOMAL PROTEIN L4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	E	246	Total	C	N	O	S	0	0	0
			1858	1131	344	382	1			

- Molecule 7 is a protein called RIBOSOMAL PROTEIN L5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	F	140	Total	C	N	O	S	0	0	0
			1094	685	195	210	4			

- Molecule 8 is a protein called RIBOSOMAL PROTEIN L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	G	172	Total	C	N	O	S	0	0	0
			1357	840	224	289	4			

- Molecule 9 is a protein called RIBOSOMAL PROTEIN L7AE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	H	119	Total	C	N	O	S	0	0	0
			885	552	141	191	1			

- Molecule 10 is a protein called RIBOSOMAL PROTEIN L10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	I	29	Total	C	N	O	S	0	0	0
			240	149	39	51	1			

- Molecule 11 is a protein called RIBOSOMAL PROTEIN L10E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	J	156	Total	C	N	O	S	0	0	0
			1215	766	233	212	4			

- Molecule 12 is a protein called RIBOSOMAL PROTEIN L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	K	142	Total	C	N	O	S	0	0	0
			1119	696	199	221	3			

- Molecule 13 is a protein called RIBOSOMAL PROTEIN L14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	L	132	Total	C	N	O	S	0	0	0
			993	609	189	191	4			

- Molecule 14 is a protein called RIBOSOMAL PROTEIN L15.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
14	M	145	Total	C	N	O	0	0	0
			1114	668	222	224			

- Molecule 15 is a protein called RIBOSOMAL PROTEIN L15E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
15	N	194	Total	C	N	O	S	0	0	0
			1605	988	346	266	5			

- Molecule 16 is a protein called RIBOSOMAL PROTEIN L18.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
16	O	186	Total	C	N	O	S	0	0	0
			1444	895	262	285	2			

- Molecule 17 is a protein called RIBOSOMAL PROTEIN L18E.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
17	P	115	Total	C	N	O	0	0	0
			864	529	161	174			

- Molecule 18 is a protein called RIBOSOMAL PROTEIN L19E.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
18	Q	143	Total	C	N	O	0	0	0
			1133	680	230	223			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Q	71	LYS	TYR	conflict	UNP P14119

- Molecule 19 is a protein called RIBOSOMAL PROTEIN L21E.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
19	R	95	Total	C	N	O	0	0	0
			734	450	141	143			

- Molecule 20 is a protein called RIBOSOMAL PROTEIN L22.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
20	S	150	Total	C	N	O	S	0	0	0
			1149	713	209	223	4			

- Molecule 21 is a protein called RIBOSOMAL PROTEIN L23.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
21	T	81	Total	C	N	O	S	0	0	0
			641	389	111	138	3			

- Molecule 22 is a protein called RIBOSOMAL PROTEIN L24.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
22	U	119	Total	C	N	O	0	0	0
			949	568	180	201			

- Molecule 23 is a protein called RIBOSOMAL PROTEIN L24E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	V	53	Total	C	N	O	S	0	0	0
			410	244	75	86	5			

- Molecule 24 is a protein called RIBOSOMAL PROTEIN L29.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	W	65	Total	C	N	O	S	0	0	0
			499	304	94	100	1			

- Molecule 25 is a protein called RIBOSOMAL PROTEIN L30.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
25	X	154	Total	C	N	O	S	0	0	0
			1195	737	209	243	6			

- Molecule 26 is a protein called RIBOSOMAL PROTEIN L31E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	Y	82	Total	C	N	O	S	0	0	0
			654	402	129	122	1			

- Molecule 27 is a protein called RIBOSOMAL PROTEIN L32E.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
27	Z	142	Total	C	N	O	0	0	0
			1130	686	228	216			

- Molecule 28 is a protein called RIBOSOMAL PROTEIN L37Ae.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
28	1	73	Total	C	N	O	S	0	0	0
			563	359	111	86	7			

- Molecule 29 is a protein called RIBOSOMAL PROTEIN L37E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
29	2	56	Total	C	N	O	S	0	0	0
			430	258	86	82	4			

- Molecule 30 is a protein called RIBOSOMAL PROTEIN L39E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
30	3	46	Total	C	N	O	S	0	0	0
			393	238	86	68	1			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	?	-	ARG	deletion	UNP P22452

- Molecule 31 is a protein called RIBOSOMAL PROTEIN L44E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
31	4	92	Total	C	N	O	S	0	0	0
			755	458	153	137	7			

- Molecule 32 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
32	A	111	Total	Mg	0	0
			111	111		
32	B	1	Total	Mg	0	0
			1	1		
32	5	1	Total	Mg	0	0
			1	1		
32	C	1	Total	Mg	0	0
			1	1		
32	L	1	Total	Mg	0	0
			1	1		
32	U	1	Total	Mg	0	0
			1	1		
32	Z	1	Total	Mg	0	0
			1	1		
32	1	1	Total	Mg	0	0
			1	1		
32	4	1	Total	Mg	0	0
			1	1		

- Molecule 33 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
33	A	73	Total	Na	0	0
			73	73		
33	B	2	Total	Na	0	0
			2	2		
33	C	1	Total	Na	0	0
			1	1		
33	E	1	Total	Na	0	0
			1	1		
33	J	1	Total	Na	0	0
			1	1		
33	K	1	Total	Na	0	0
			1	1		
33	M	1	Total	Na	0	0
			1	1		
33	N	1	Total	Na	0	0
			1	1		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
33	R	1	Total Na 1 1	0	0
33	S	2	Total Na 2 2	0	0
33	T	1	Total Na 1 1	0	0
33	U	1	Total Na 1 1	0	0

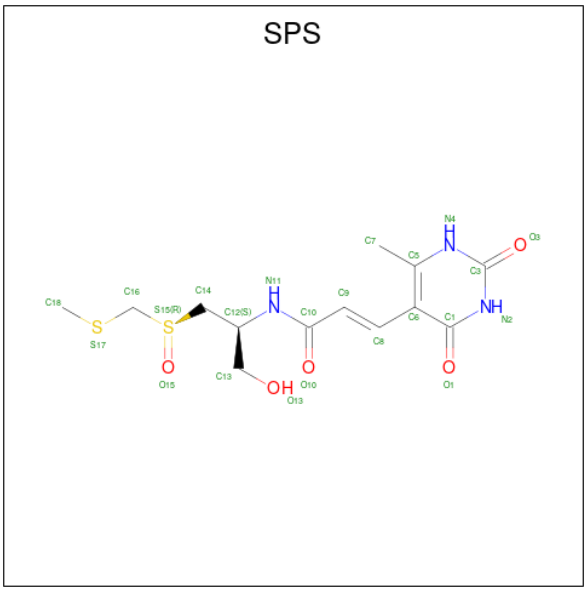
- Molecule 34 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
34	A	2	Total K 2 2	0	0

- Molecule 35 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

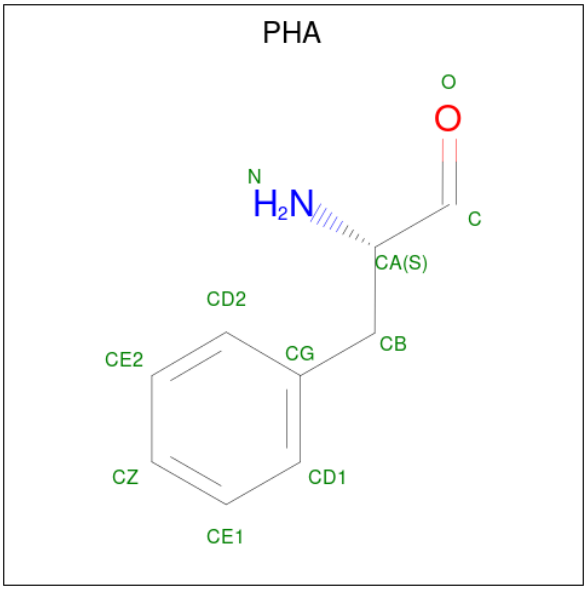
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
35	A	10	Total Cl 10 10	0	0
35	C	1	Total Cl 1 1	0	0
35	D	1	Total Cl 1 1	0	0
35	K	3	Total Cl 3 3	0	0
35	M	1	Total Cl 1 1	0	0
35	N	1	Total Cl 1 1	0	0
35	O	1	Total Cl 1 1	0	0
35	P	1	Total Cl 1 1	0	0
35	S	1	Total Cl 1 1	0	0
35	Z	1	Total Cl 1 1	0	0
35	4	1	Total Cl 1 1	0	0

- Molecule 36 is SPARSOMYCIN (three-letter code: SPS) (formula: $C_{13}H_{19}N_3O_5S_2$).



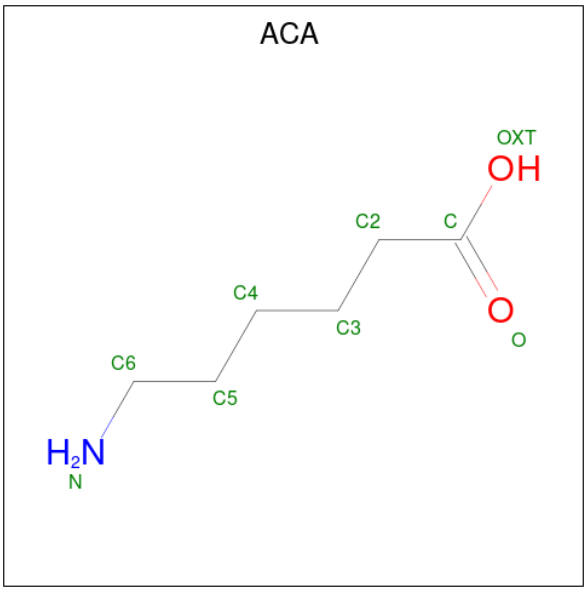
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
36	5	1	Total	C	N	O	S	0	0
			23	13	3	5	2		

- Molecule 37 is PHENYLALANINAL (three-letter code: PHA) (formula: $C_9H_{11}NO$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
37	5	1	Total	C	N	O	0	0
			11	9	1	1		

- Molecule 38 is 6-AMINOHEXANOIC ACID (three-letter code: ACA) (formula: $C_6H_{13}NO_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
38	5	1	Total C N O 8 6 1 1	0	0

- Molecule 39 is CADMIUM ION (three-letter code: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
39	P	1	Total Cd 1 1	0	0
39	V	1	Total Cd 1 1	0	0
39	1	1	Total Cd 1 1	0	0
39	2	1	Total Cd 1 1	0	0
39	4	1	Total Cd 1 1	0	0

- Molecule 40 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
40	A	5920	Total O 5920 5920	0	0
40	B	136	Total O 136 136	0	0
40	5	1	Total O 1 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
40	C	119	Total O 119 119	0	0
40	D	142	Total O 142 142	0	0
40	E	172	Total O 172 172	0	0
40	F	51	Total O 51 51	0	0
40	G	44	Total O 44 44	0	0
40	H	28	Total O 28 28	0	0
40	I	21	Total O 21 21	0	0
40	J	75	Total O 75 75	0	0
40	K	56	Total O 56 56	0	0
40	L	61	Total O 61 61	0	0
40	M	86	Total O 86 86	0	0
40	N	125	Total O 125 125	0	0
40	O	69	Total O 69 69	0	0
40	P	43	Total O 43 43	0	0
40	Q	67	Total O 67 67	0	0
40	R	49	Total O 49 49	0	0
40	S	83	Total O 83 83	0	0
40	T	35	Total O 35 35	0	0
40	U	37	Total O 37 37	0	0
40	V	24	Total O 24 24	0	0
40	W	16	Total O 16 16	0	0

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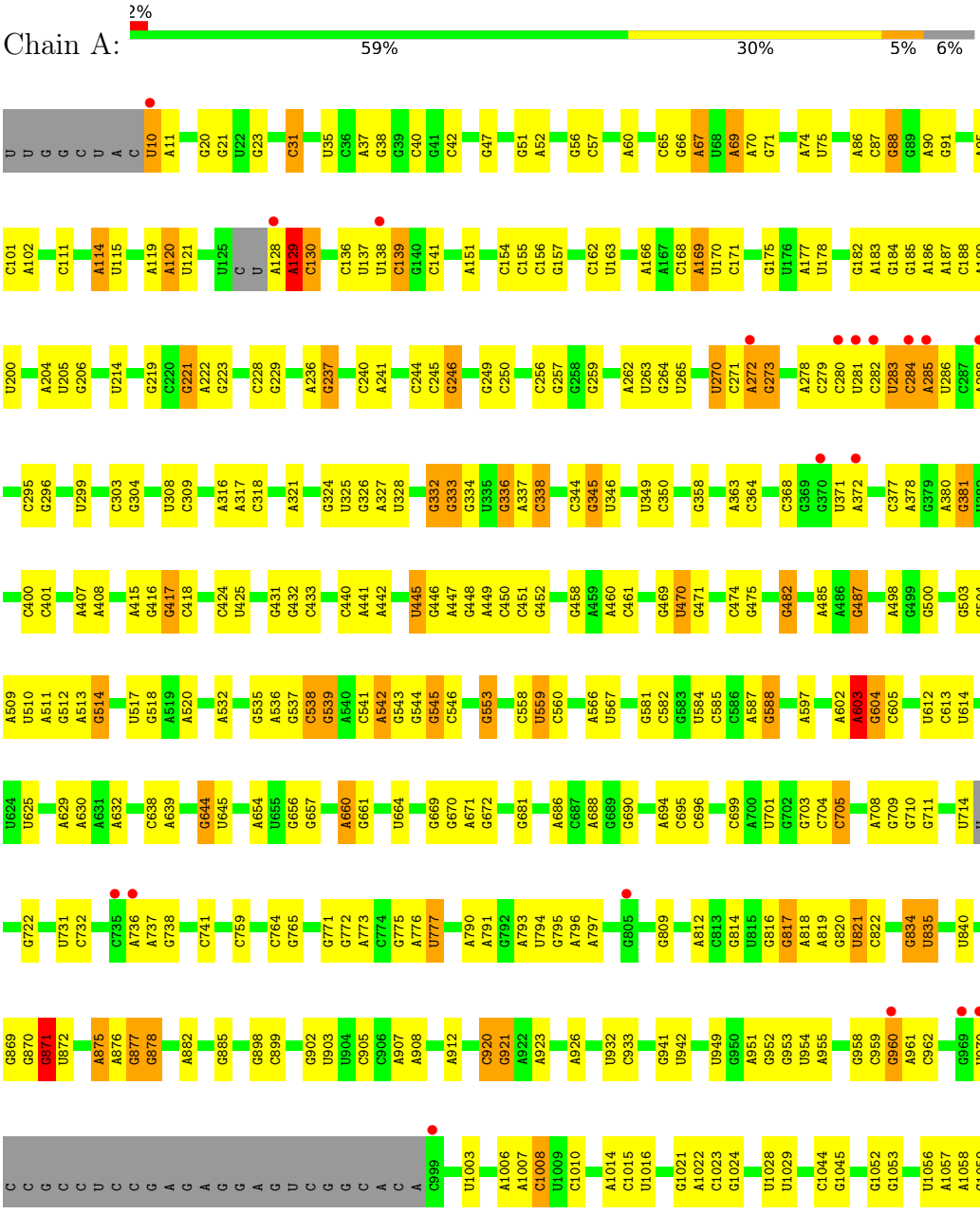
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
40	X	71	Total O 71 71	0	0
40	Y	31	Total O 31 31	0	0
40	Z	92	Total O 92 92	0	0
40	1	36	Total O 36 36	0	0
40	2	55	Total O 55 55	0	0
40	3	40	Total O 40 40	0	0
40	4	73	Total O 73 73	0	0

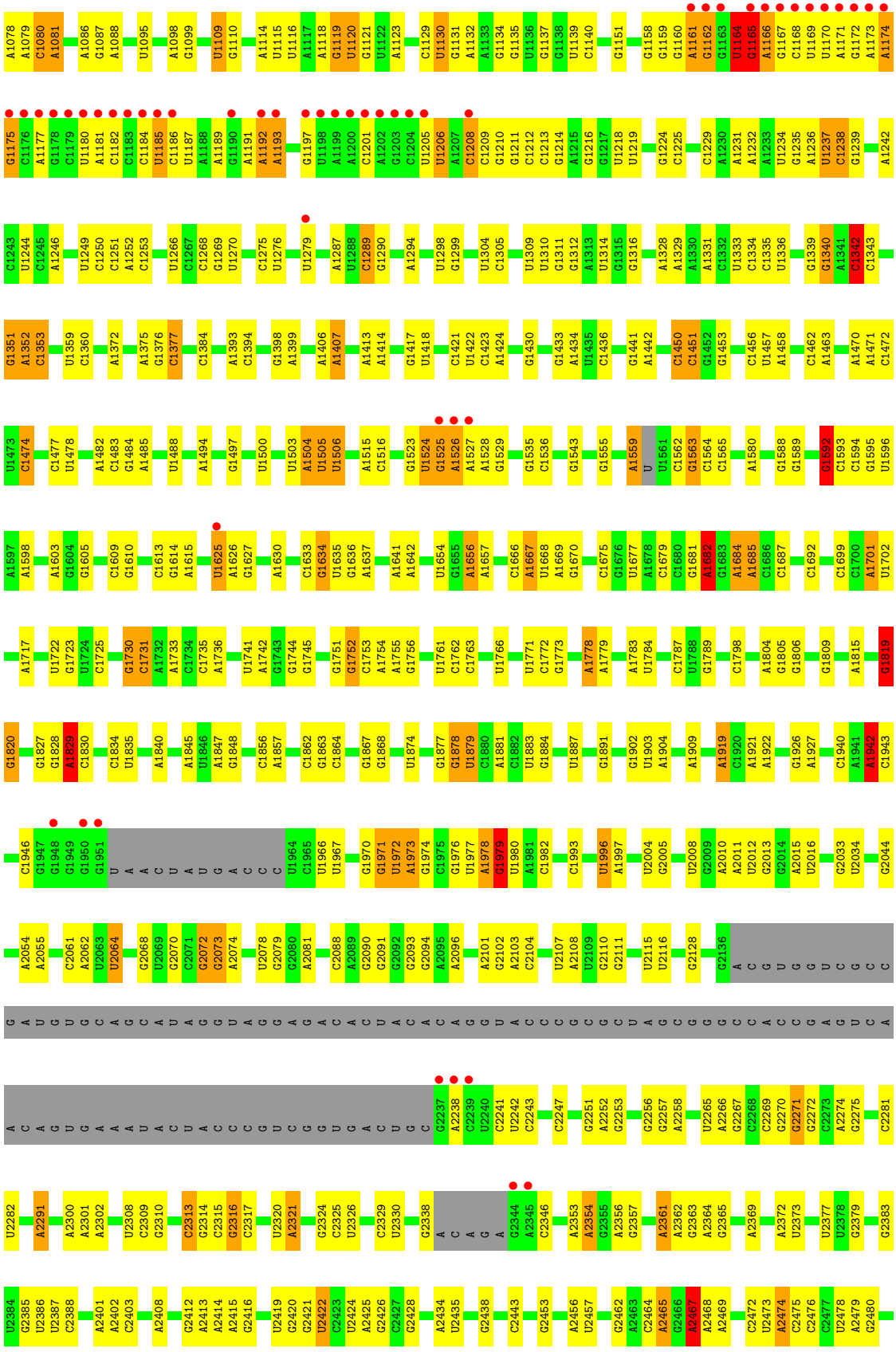
3 Residue-property plots (i)

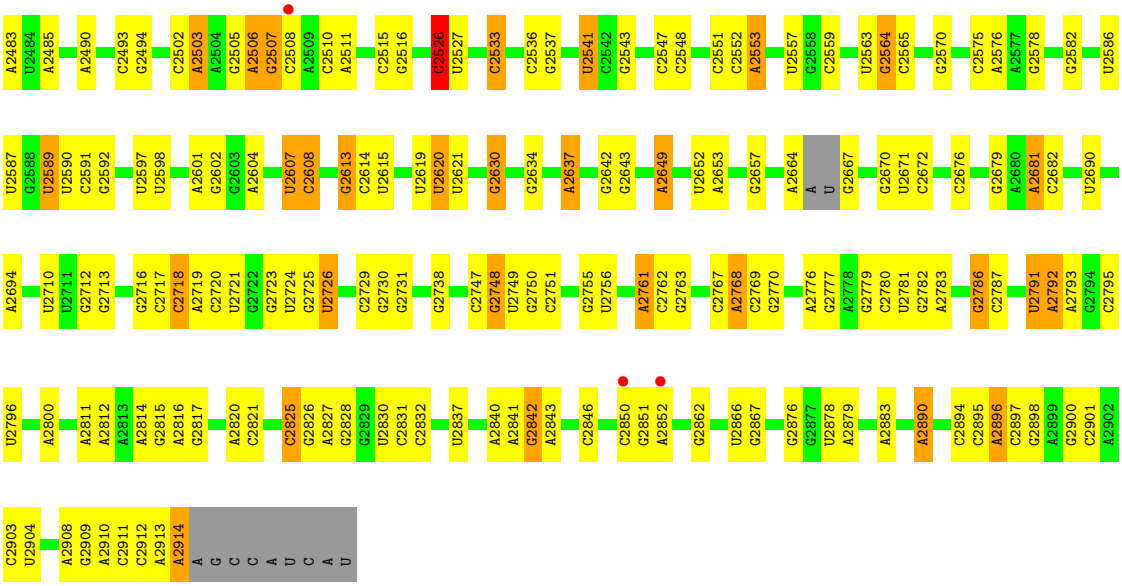
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: 23S RRNA

Chain A:

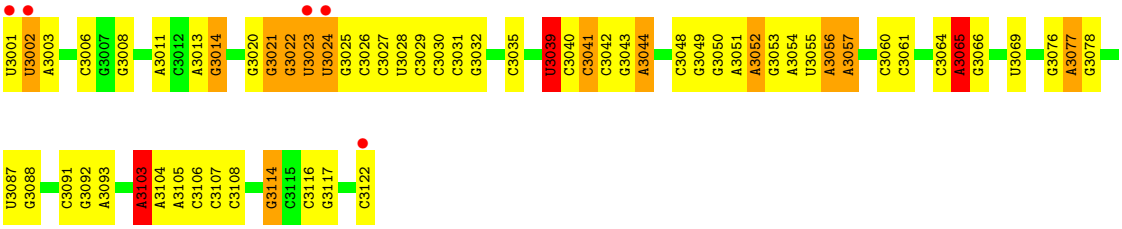



A1078 A1079 C1080 A1081 A1086 G1087 A1088 U1095 A1098 G1099 U1109 G1110 A1114 U1115 U1116 A1117 A1118 G1119 U1120 G1121 U1122 A1123 C1129 U1130 G1131 A1132 A1133 G1134 G1135 U1136 G1137 G1138 U1139 C1140 G1151 G1158 G1159 G1160 A1161 G1162 G1163 U1164 C1165 A1166 G1167 C1168 U1169 U1170 A1171 G1172 A1173 A1174
G1175 C1176 A1177 G1178 C1179 U1180 A1181 C1182 C1183 C1184 U1185 C1186 U1187 A1188 A1189 G1190 A1191 A1192 A1193 G1197 U1198 A1199 A1200 C1201 A1202 G1203 C1204 U1205 U1206 A1207 C1208 C1209 G1210 G1211 C1212 C1213 G1214 A1215 G1216 G1217 U1218 U1219 G1224 C1225 C1229 A1230 A1231 A1232 A1233 U1234 G1235 A1236 U1237 C1238 G1239 A1242
C1243 U1244 C1245 A1246 U1249 C1250 C1251 A1252 C1253 U1266 C1267 C1268 G1269 U1270 C1275 U1276 U1279 A1287 U1288 C1289 G1290 A1294 U1298 G1299 U1304 C1305 U1309 U1310 G1311 G1312 A1313 U1314 G1315 G1316 A1328 A1329 A1330 A1331 C1332 U1333 C1334 C1335 U1336 G1339 G1340 A1341 C1342 C1343
G1351 A1352 C1353 U1359 C1360 A1372 A1375 G1376 C1377 C1384 A1393 C1394 G1398 A1399 A1406 A1407 A1413 A1414 G1417 U1418 C1421 U1422 C1423 A1424 G1430 G1433 A1434 U1435 C1436 G1441 A1442 C1450 C1451 G1452 G1453 C1456 U1457 A1458 C1462 A1463 A1470 A1471 C1472
U1473 C1474 C1477 U1478 A1482 C1483 G1484 A1485 U1488 A1494 G1497 U1500 U1503 A1504 U1505 U1506 A1515 C1516 G1523 U1524 C1525 A1526 A1527 A1528 G1529 C1535 C1536 G1543 G1555 A1559 U U1561 C1562 G1563 C1564 C1565 A1580 G1588 G1589 G1592 C1593 C1594 G1595 U1596
A1597 A1598 A1603 G1604 G1605 C1609 G1610 C1613 G1614 A1615 U1625 A1626 G1627 A1630 C1633 G1634 U1635 G1636 A1637 A1641 A1642 U1654 G1655 A1656 A1657 C1666 A1667 U1668 A1669 G1670 C1675 G1676 U1677 A1678 C1679 C1680 G1681 A1682 G1683 A1684 A1685 C1686 C1687 C1692 C1699 C1700 A1701 U1702
A1717 U1722 G1723 U1724 C1725 G1730 C1731 A1732 A1733 C1734 C1735 A1736 U1741 A1742 G1743 G1744 G1745 G1751 G1752 C1753 A1754 A1755 G1756 U1761 C1762 C1763 U1766 U1771 C1772 G1773 A1778 A1779 A1783 U1784 C1787 U1788 G1789 C1798 A1804 G1805 G1806 G1809 A1815 G1819
G1820 G1827 G1828 A1829 C1830 C1834 U1835 A1840 A1845 U1846 A1847 G1848 C1856 A1857 C1862 G1863 C1864 G1867 G1868 U1874 G1877 G1878 U1879 C1880 A1881 C1882 U1883 G1884 U1887 G1891 G1902 U1903 A1904 A1909 A1919 C1920 A1921 A1922 G1926 A1927 C1940 A1941 A1942 C1943
C1946 G1947 G1948 G1949 G1950 G1951 U A A C C U A U G A C C C C U1964 C1965 U1966 U1967 G1970 G1971 U1972 A1973 G1974 C1975 G1976 U1977 A1978 G1979 U1980 A1981 C1982 C1993 U1996 A1997 U2004 G2005 U2008 G2009 A2010 A2011 U2012 G2013 G2014 A2015 U2016 G2033 U2034 G2044
A2054 A2055 C2061 A2062 U2063 U2064 G2068 U2069 G2070 C2071 G2072 G2073 A2074 U2078 G2079 G2080 A2081 C2088 A2089 G2090 G2091 G2092 G2093 G2094 A2095 A2096 A2101 G2102 A2103 C2104 U2107 A2108 U2109 G2110 G2111 U2115 U2116 G2128 G2136 A C C G G U G G U G C C C C
G A C A U G U G C A A C A G C A U A C G A C A U A C G A C A U A C G A



- Molecule 2: 5S RRNA

Chain B:

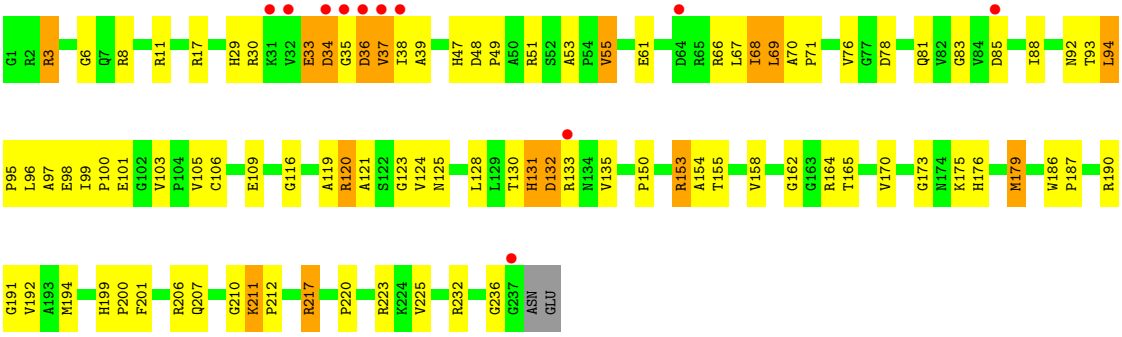


- Molecule 3: CCA

Chain 5:

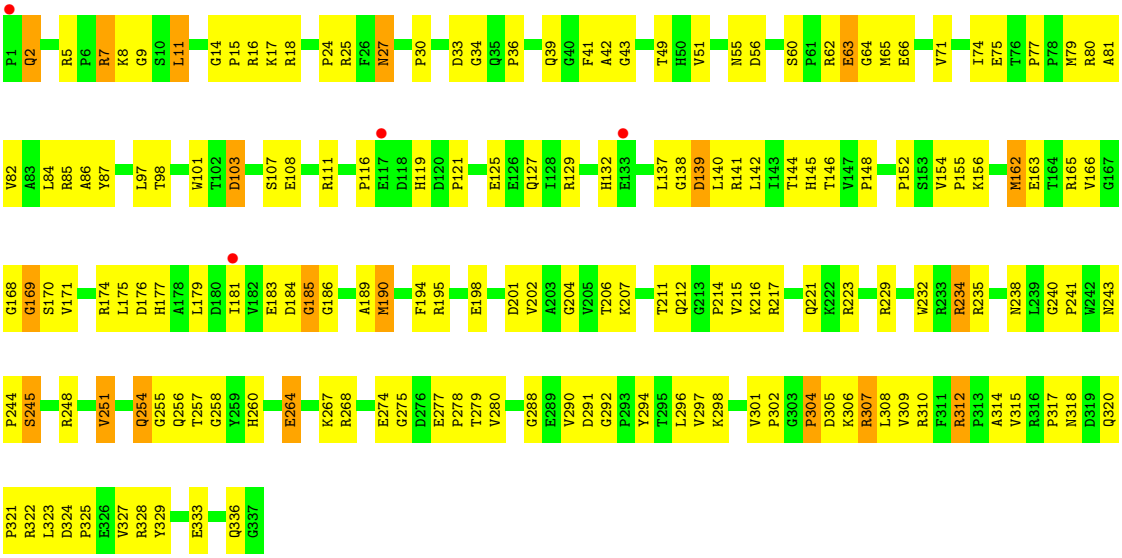
- Molecule 4: RIBOSOMAL PROTEIN L2

Chain C:



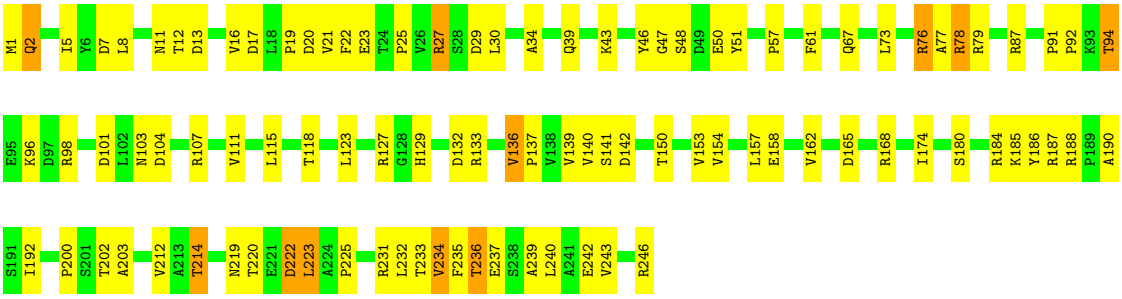
• Molecule 5: RIBOSOMAL PROTEIN L3

Chain D:



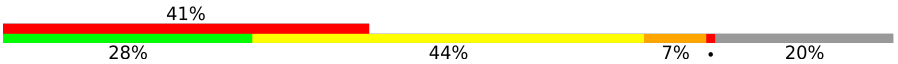
• Molecule 6: RIBOSOMAL PROTEIN L4

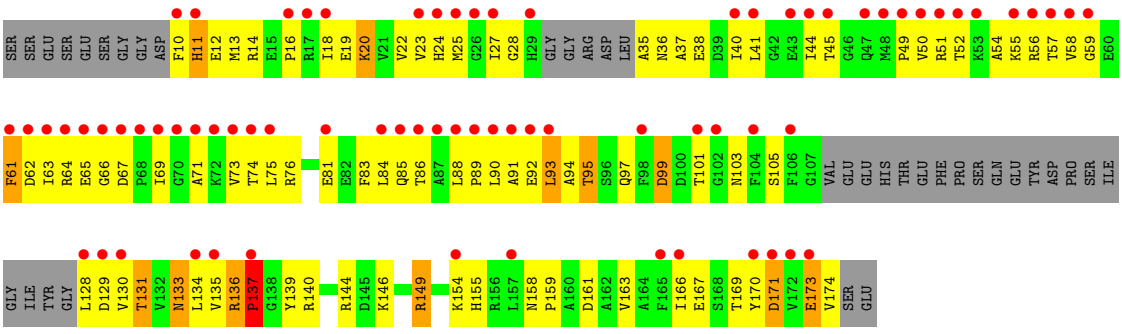
Chain E:



• Molecule 7: RIBOSOMAL PROTEIN L5

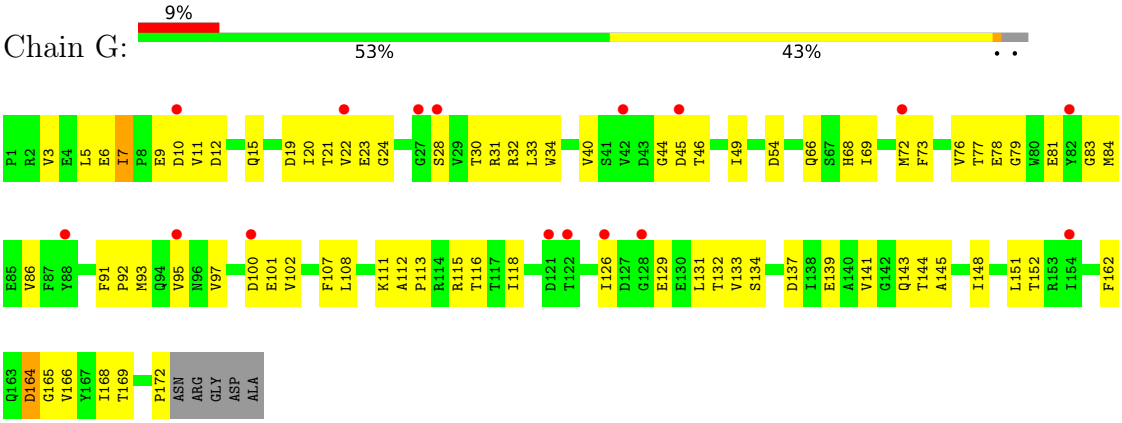
Chain F:





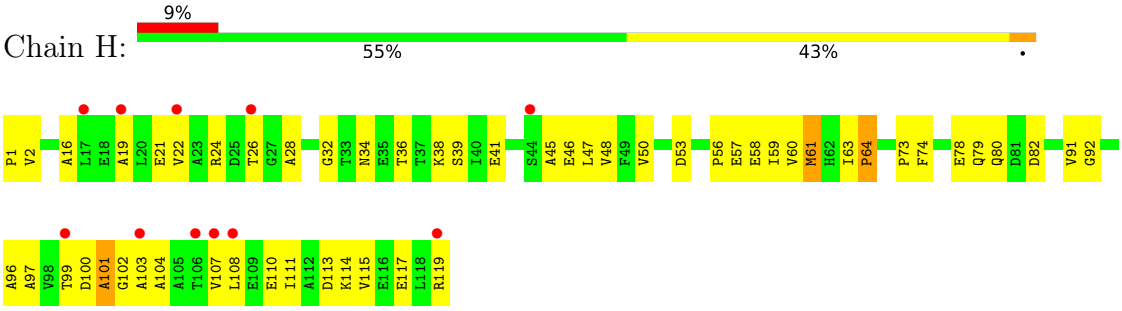
• Molecule 8: RIBOSOMAL PROTEIN L6

Chain G:



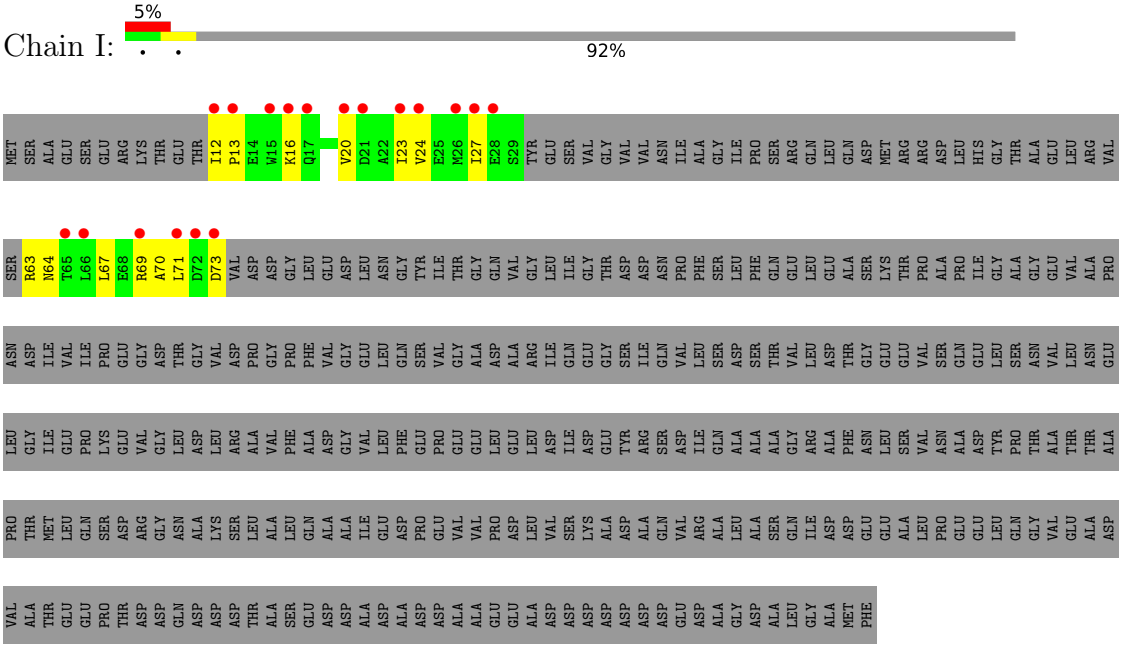
• Molecule 9: RIBOSOMAL PROTEIN L7AE

Chain H:



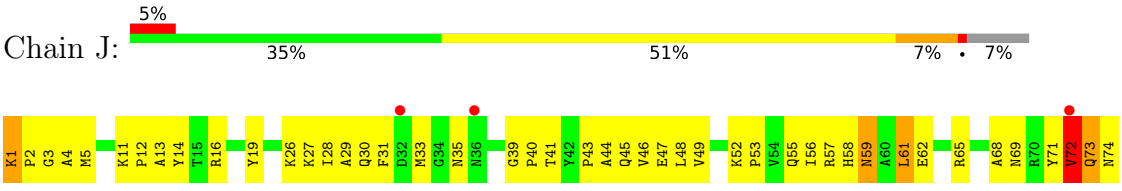
• Molecule 10: RIBOSOMAL PROTEIN L10

Chain I:



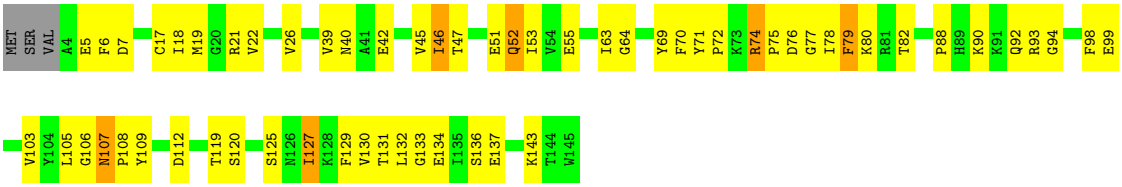
• Molecule 11: RIBOSOMAL PROTEIN L10E

Chain J:



• Molecule 12: RIBOSOMAL PROTEIN L13

Chain K:

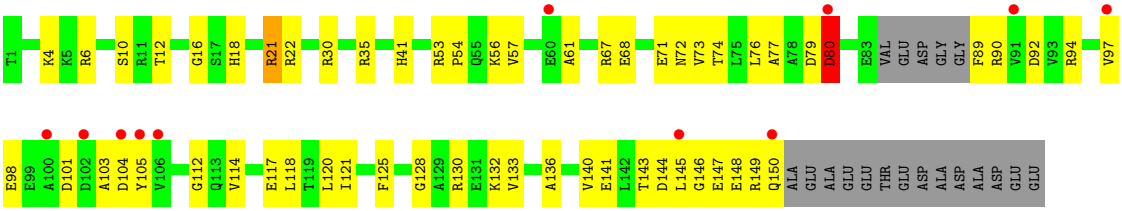


• Molecule 13: RIBOSOMAL PROTEIN L14

Chain L:

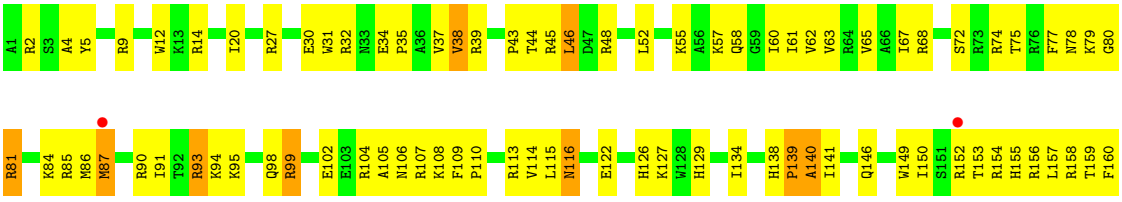
• Molecule 14: RIBOSOMAL PROTEIN L15

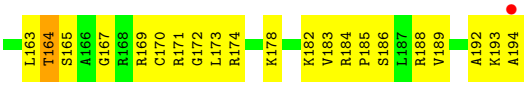
Chain M:



• Molecule 15: RIBOSOMAL PROTEIN L15E

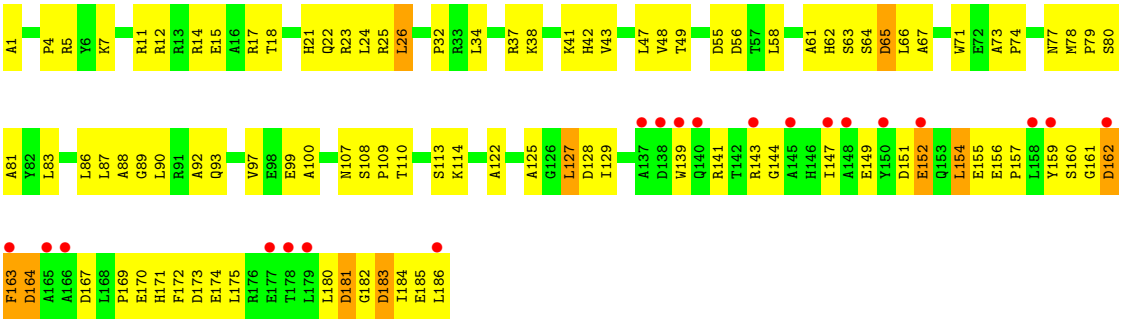
Chain N:





• Molecule 16: RIBOSOMAL PROTEIN L18

Chain O:

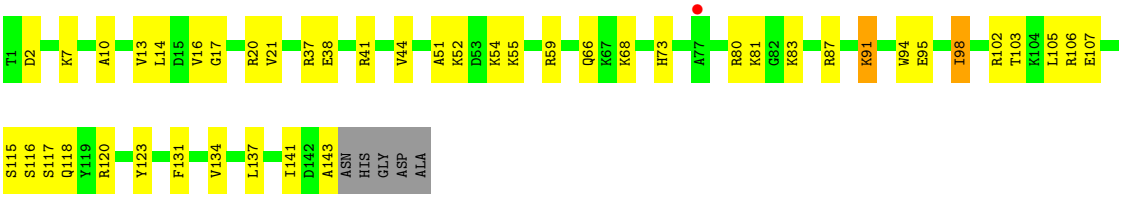


• Molecule 17: RIBOSOMAL PROTEIN L18E

Chain P:

• Molecule 18: RIBOSOMAL PROTEIN L19E

Chain Q:

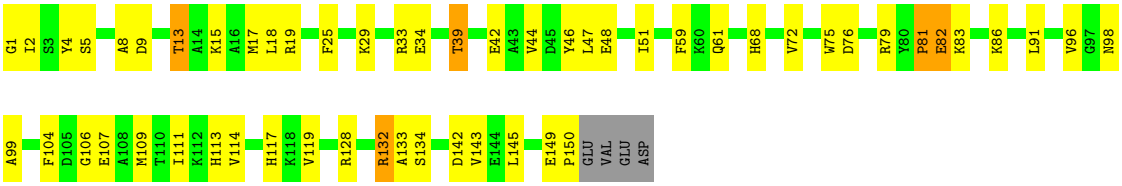


• Molecule 19: RIBOSOMAL PROTEIN L21E

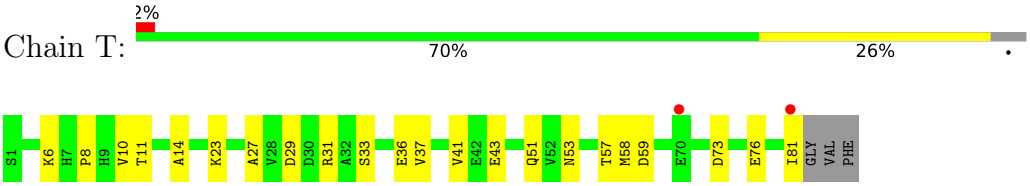
Chain R:

• Molecule 20: RIBOSOMAL PROTEIN L22

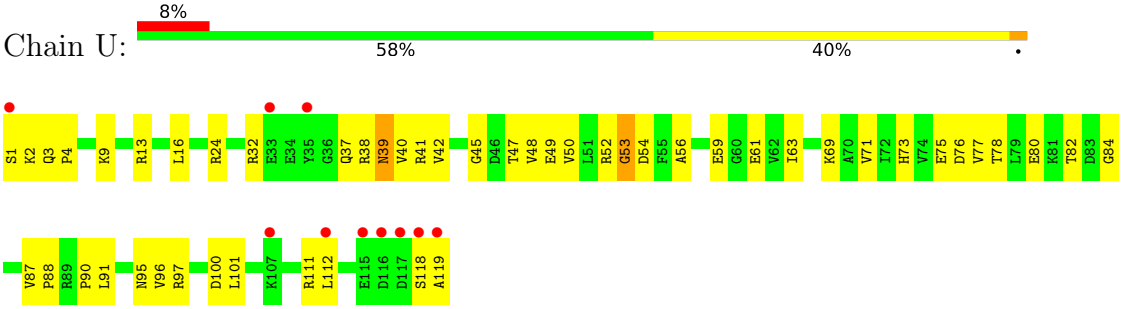
Chain S:



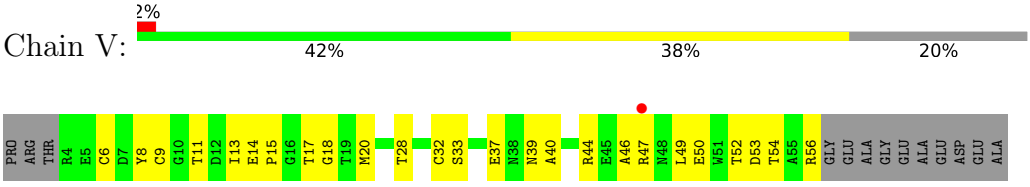
• Molecule 21: RIBOSOMAL PROTEIN L23



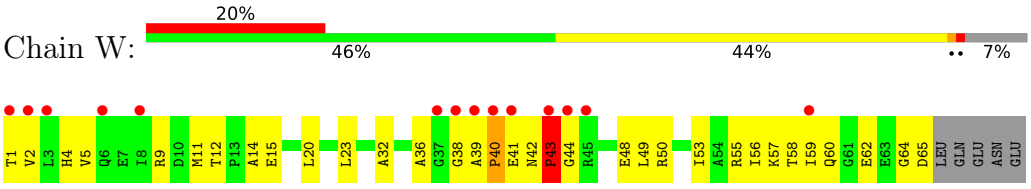
• Molecule 22: RIBOSOMAL PROTEIN L24



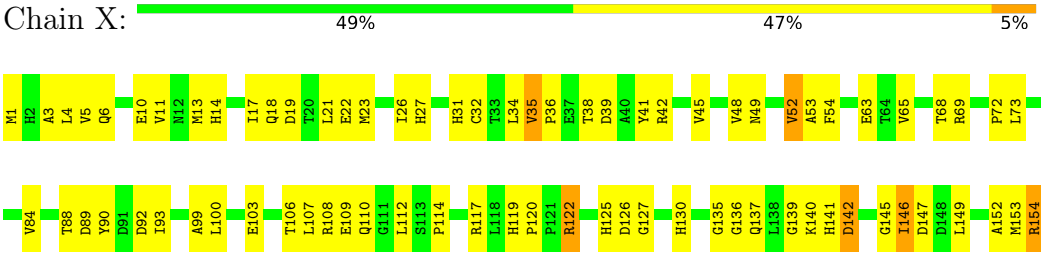
• Molecule 23: RIBOSOMAL PROTEIN L24E



• Molecule 24: RIBOSOMAL PROTEIN L29

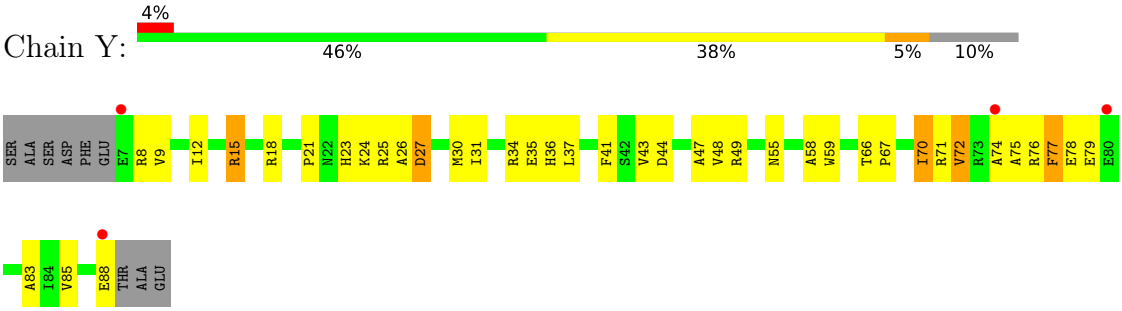


• Molecule 25: RIBOSOMAL PROTEIN L30



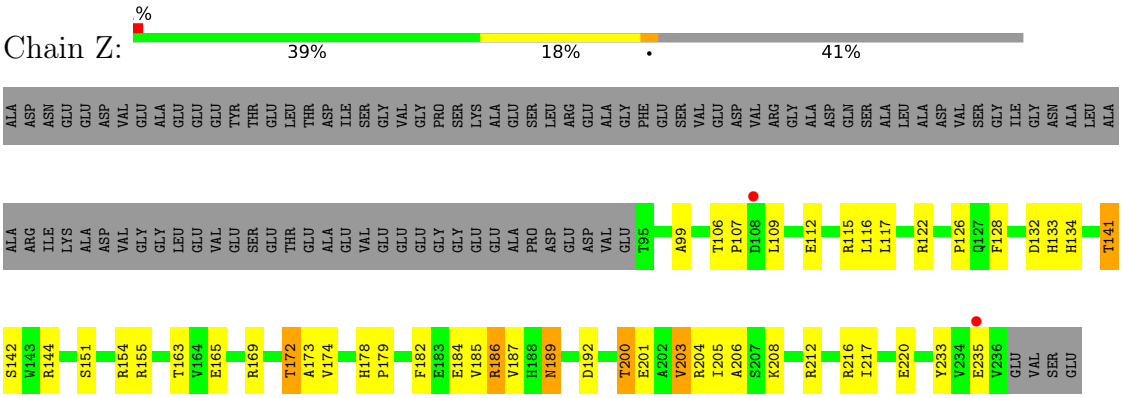
• Molecule 26: RIBOSOMAL PROTEIN L31E

Chain Y:



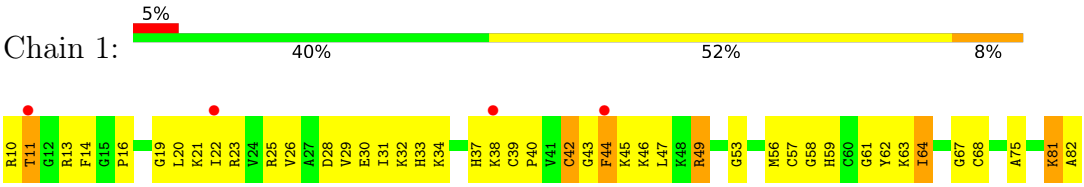
• Molecule 27: RIBOSOMAL PROTEIN L32E

Chain Z:



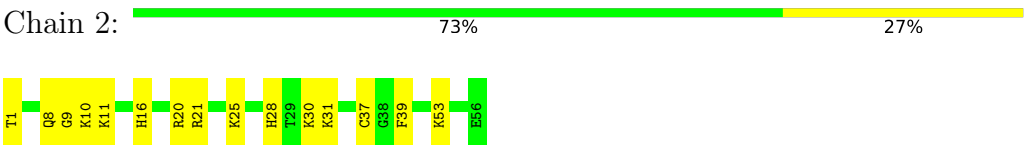
• Molecule 28: RIBOSOMAL PROTEIN L37Ae

Chain 1:



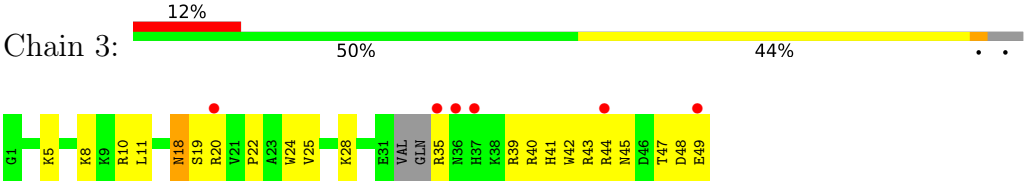
• Molecule 29: RIBOSOMAL PROTEIN L37E

Chain 2:



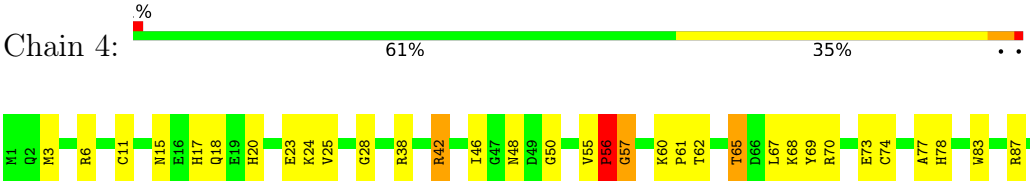
• Molecule 30: RIBOSOMAL PROTEIN L39E

Chain 3:



• Molecule 31: RIBOSOMAL PROTEIN L44E

Chain 4:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	211.66Å 299.77Å 573.68Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.80 49.96 – 2.80	Depositor EDS
% Data completeness (in resolution range)	94.3 (20.00-2.80) 94.4 (49.96-2.80)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	0.14	Depositor
$< I/\sigma(I) >$ [1]	2.21 (at 2.81Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.181 , 0.222 0.180 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	44.1	Xtriage
Anisotropy	0.207	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 57.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	98611	wwPDB-VP
Average B, all atoms (Å^2)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.50% 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: CD, SPS, K, ACA, PHA, NA, CL, MG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.42	1/66076 (0.0%)	0.70	27/103052 (0.0%)
2	B	0.50	0/2905	0.79	4/4528 (0.1%)
3	5	0.74	0/65	1.17	1/99 (1.0%)
4	C	0.34	0/1787	0.66	0/2409
5	D	0.34	0/2689	0.65	0/3652
6	E	0.40	0/1883	0.66	0/2551
7	F	0.33	0/1111	0.60	0/1498
8	G	0.34	0/1382	0.59	0/1880
9	H	0.33	0/896	0.58	0/1219
10	I	0.27	0/241	0.47	0/324
11	J	0.39	0/1246	0.75	2/1686 (0.1%)
12	K	0.37	0/1135	0.61	0/1530
13	L	0.35	0/1003	0.67	0/1351
14	M	0.34	0/1126	0.67	0/1504
15	N	0.41	0/1633	0.70	1/2180 (0.0%)
16	O	0.31	0/1473	0.64	0/1999
17	P	0.38	0/873	0.63	0/1181
18	Q	0.37	0/1143	0.56	0/1521
19	R	0.38	0/748	0.67	0/1005
20	S	0.38	0/1172	0.67	0/1578
21	T	0.34	0/648	0.60	0/875
22	U	0.32	0/957	0.63	0/1289
23	V	0.35	0/417	0.57	0/562
24	W	0.32	0/502	0.56	0/675
25	X	0.36	0/1218	0.64	0/1655
26	Y	0.36	0/664	0.61	0/895
27	Z	0.39	0/1146	0.67	0/1536
28	1	0.39	0/575	0.71	0/763
29	2	0.44	0/437	0.67	0/578
30	3	0.34	0/398	0.56	0/527
31	4	0.40	0/771	0.62	0/1024
All	All	0.41	1/98320 (0.0%)	0.69	35/147126 (0.0%)

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
1	A	1	58
2	B	0	3
All	All	1	61

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	2474	A	C5-C6	-5.43	1.36	1.41

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

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1164	U	OP1-P-O3'	-17.46	66.80	105.20
1	A	1164	U	OP2-P-O3'	-16.54	68.82	105.20
1	A	1563	G	C2'-C3'-O3'	9.62	130.67	109.50
1	A	1979	G	C2'-C3'-O3'	7.74	126.52	109.50
1	A	1942	A	C5'-C4'-C3'	7.39	127.82	116.00

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	A	1563	G	C3'

5 of 61 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	221	G	Sidechain
1	A	246	G	Sidechain
1	A	270	U	Sidechain
1	A	332	G	Sidechain
1	A	333	G	Sidechain

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	59017	0	29805	894	0
2	B	2600	0	1326	73	0
3	5	59	0	34	2	0
4	C	1754	0	1763	129	0
5	D	2624	0	2533	176	0
6	E	1858	0	1816	114	0
7	F	1094	0	1085	127	0
8	G	1357	0	1266	77	0
9	H	885	0	854	62	0
10	I	240	0	231	21	0
11	J	1215	0	1215	152	0
12	K	1119	0	1098	67	0
13	L	993	0	1027	55	0
14	M	1114	0	1072	61	0
15	N	1605	0	1676	159	0
16	O	1444	0	1401	128	0
17	P	864	0	873	41	0
18	Q	1133	0	1127	49	0
19	R	734	0	728	21	0
20	S	1149	0	1122	65	0
21	T	641	0	605	19	0
22	U	949	0	923	48	0
23	V	410	0	364	32	0
24	W	499	0	511	34	0
25	X	1195	0	1137	101	0
26	Y	654	0	653	47	0
27	Z	1130	0	1133	61	0
28	1	563	0	597	59	0
29	2	430	0	426	24	0
30	3	393	0	406	28	0
31	4	755	0	728	36	0
32	1	1	0	0	0	0
32	4	1	0	0	0	0
32	5	1	0	0	0	0
32	A	111	0	0	0	0
32	B	1	0	0	0	0
32	C	1	0	0	0	0
32	L	1	0	0	0	0
32	U	1	0	0	0	0
32	Z	1	0	0	0	0
33	A	73	0	0	0	0
33	B	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
33	C	1	0	0	0	0
33	E	1	0	0	0	0
33	J	1	0	0	0	0
33	K	1	0	0	0	0
33	M	1	0	0	0	0
33	N	1	0	0	0	0
33	R	1	0	0	0	0
33	S	2	0	0	0	0
33	T	1	0	0	0	0
33	U	1	0	0	0	0
34	A	2	0	0	0	0
35	4	1	0	0	0	0
35	A	10	0	0	0	0
35	C	1	0	0	0	0
35	D	1	0	0	0	0
35	K	3	0	0	1	0
35	M	1	0	0	0	0
35	N	1	0	0	1	0
35	O	1	0	0	0	0
35	P	1	0	0	0	0
35	S	1	0	0	0	0
35	Z	1	0	0	0	0
36	5	23	0	19	4	0
37	5	11	0	8	0	0
38	5	8	0	6	0	0
39	1	1	0	0	0	0
39	2	1	0	0	0	0
39	4	1	0	0	0	0
39	P	1	0	0	0	0
39	V	1	0	0	0	0
40	1	36	0	0	8	0
40	2	55	0	0	3	0
40	3	40	0	0	4	0
40	4	73	0	0	10	0
40	5	1	0	0	0	0
40	A	5920	0	0	193	0
40	B	136	0	0	11	0
40	C	119	0	0	23	0
40	D	142	0	0	30	0
40	E	172	0	0	27	0
40	F	51	0	0	23	0
40	G	44	0	0	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
40	H	28	0	0	8	0
40	I	21	0	0	6	0
40	J	75	0	0	23	0
40	K	56	0	0	5	0
40	L	61	0	0	16	0
40	M	86	0	0	19	0
40	N	125	0	0	21	0
40	O	69	0	0	17	0
40	P	43	0	0	7	0
40	Q	67	0	0	1	0
40	R	49	0	0	3	0
40	S	83	0	0	11	0
40	T	35	0	0	5	0
40	U	37	0	0	4	0
40	V	24	0	0	5	0
40	W	16	0	0	2	0
40	X	71	0	0	12	0
40	Y	31	0	0	5	0
40	Z	92	0	0	14	0
All	All	98611	0	59568	2699	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 18.

The worst 5 of 2699 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:E:236:THR:HG22	6:E:239:ALA:H	1.04	1.16
1:A:1160:G:H5'	1:A:1161:A:H5'	1.22	1.15
11:J:86:ARG:NH1	11:J:133:ILE:HG13	1.63	1.13
11:J:45:GLN:HB3	11:J:163:PRO:HD2	1.30	1.12
24:W:12:THR:HG22	24:W:15:GLU:HG3	1.31	1.12

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
4	C	235/239 (98%)	209 (89%)	21 (9%)	5 (2%)	7 23
5	D	335/337 (99%)	303 (90%)	25 (8%)	7 (2%)	7 23
6	E	244/246 (99%)	218 (89%)	25 (10%)	1 (0%)	34 66
7	F	134/176 (76%)	98 (73%)	28 (21%)	8 (6%)	1 4
8	G	170/177 (96%)	159 (94%)	10 (6%)	1 (1%)	25 56
9	H	117/119 (98%)	102 (87%)	12 (10%)	3 (3%)	5 18
10	I	25/348 (7%)	24 (96%)	1 (4%)	0	100 100
11	J	152/167 (91%)	133 (88%)	13 (9%)	6 (4%)	3 10
12	K	140/145 (97%)	126 (90%)	11 (8%)	3 (2%)	7 23
13	L	130/132 (98%)	118 (91%)	10 (8%)	2 (2%)	10 33
14	M	141/164 (86%)	120 (85%)	19 (14%)	2 (1%)	11 34
15	N	192/194 (99%)	174 (91%)	16 (8%)	2 (1%)	15 44
16	O	184/186 (99%)	167 (91%)	11 (6%)	6 (3%)	4 13
17	P	113/115 (98%)	110 (97%)	3 (3%)	0	100 100
18	Q	141/148 (95%)	137 (97%)	3 (2%)	1 (1%)	22 53
19	R	93/95 (98%)	85 (91%)	8 (9%)	0	100 100
20	S	148/154 (96%)	140 (95%)	7 (5%)	1 (1%)	22 53
21	T	79/84 (94%)	75 (95%)	4 (5%)	0	100 100
22	U	117/119 (98%)	111 (95%)	5 (4%)	1 (1%)	17 46
23	V	51/66 (77%)	47 (92%)	4 (8%)	0	100 100
24	W	63/70 (90%)	58 (92%)	3 (5%)	2 (3%)	4 13
25	X	152/154 (99%)	147 (97%)	3 (2%)	2 (1%)	12 36
26	Y	80/91 (88%)	70 (88%)	8 (10%)	2 (2%)	5 19
27	Z	140/240 (58%)	139 (99%)	1 (1%)	0	100 100
28	1	71/73 (97%)	63 (89%)	7 (10%)	1 (1%)	11 34

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
29	2	54/56 (96%)	53 (98%)	1 (2%)	0	100 100
30	3	42/48 (88%)	42 (100%)	0	0	100 100
31	4	90/92 (98%)	85 (94%)	3 (3%)	2 (2%)	6 22
All	All	3633/4235 (86%)	3313 (91%)	262 (7%)	58 (2%)	9 31

5 of 58 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	D	139	ASP
7	F	20	LYS
7	F	93	LEU
7	F	95	THR
7	F	173	GLU

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
4	C	179/181 (99%)	166 (93%)	13 (7%)	14 38
5	D	282/282 (100%)	264 (94%)	18 (6%)	17 45
6	E	193/193 (100%)	177 (92%)	16 (8%)	11 32
7	F	117/147 (80%)	109 (93%)	8 (7%)	16 42
8	G	152/155 (98%)	148 (97%)	4 (3%)	46 79
9	H	92/92 (100%)	91 (99%)	1 (1%)	73 92
10	I	27/283 (10%)	27 (100%)	0	100 100
11	J	122/122 (100%)	110 (90%)	12 (10%)	8 24
12	K	118/121 (98%)	109 (92%)	9 (8%)	13 36
13	L	106/106 (100%)	103 (97%)	3 (3%)	43 77
14	M	112/126 (89%)	109 (97%)	3 (3%)	44 78
15	N	166/166 (100%)	157 (95%)	9 (5%)	22 53
16	O	149/149 (100%)	144 (97%)	5 (3%)	37 71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
17	P	93/93 (100%)	91 (98%)	2 (2%)	52 83
18	Q	113/116 (97%)	110 (97%)	3 (3%)	44 78
19	R	79/79 (100%)	75 (95%)	4 (5%)	24 55
20	S	117/121 (97%)	113 (97%)	4 (3%)	37 71
21	T	71/73 (97%)	71 (100%)	0	100 100
22	U	105/105 (100%)	104 (99%)	1 (1%)	76 93
23	V	44/52 (85%)	44 (100%)	0	100 100
24	W	51/56 (91%)	50 (98%)	1 (2%)	55 84
25	X	130/130 (100%)	123 (95%)	7 (5%)	22 53
26	Y	66/73 (90%)	62 (94%)	4 (6%)	18 48
27	Z	120/195 (62%)	113 (94%)	7 (6%)	20 50
28	1	56/56 (100%)	51 (91%)	5 (9%)	9 28
29	2	46/46 (100%)	46 (100%)	0	100 100
30	3	42/44 (96%)	41 (98%)	1 (2%)	49 81
31	4	79/79 (100%)	76 (96%)	3 (4%)	33 67
All	All	3027/3441 (88%)	2884 (95%)	143 (5%)	26 59

5 of 143 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
24	W	43	PRO
25	X	122	ARG
27	Z	186	ARG
7	F	61	PHE
7	F	24	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 90 such sidechains are listed below:

Mol	Chain	Res	Type
20	S	98	ASN
25	X	119	HIS
20	S	117	HIS
23	V	39	ASN
27	Z	133	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	2747/2922 (94%)	237 (8%)	38 (1%)
2	B	121/122 (99%)	15 (12%)	3 (2%)
3	5	2/3 (66%)	1 (50%)	0
All	All	2870/3047 (94%)	253 (8%)	41 (1%)

5 of 253 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	11	A
1	A	31	C
1	A	60	A
1	A	67	A
1	A	69	A

5 of 41 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	2011	A
1	A	2726	U
1	A	2313	C
1	A	2536	C
1	A	2791	U

5.4 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 237 ligands modelled in this entry, 234 are monoatomic - leaving 3 for Mogul analysis.

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	$\#\|Z\| > 2$
38	ACA	5	9078	37	7,7,8	1.26	1 (14%)	6,6,8	0.86	0
36	SPS	5	9080	32	20,23,23	1.94	6 (30%)	18,30,30	2.98	5 (27%)
37	PHA	5	9077	38,3	10,11,11	0.77	0	10,13,13	0.90	1 (10%)

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
38	ACA	5	9078	37	-	1/4/5/6	-
36	SPS	5	9080	32	-	5/15/18/18	0/1/1/1
37	PHA	5	9077	38,3	-	2/5/6/6	0/1/1/1

The worst 5 of 7 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	5	9080	SPS	C6-C1	4.34	1.54	1.43
36	5	9080	SPS	C16-S17	-3.47	1.76	1.79
36	5	9080	SPS	C9-C10	-3.19	1.41	1.48
36	5	9080	SPS	C1-N2	2.93	1.38	1.33
36	5	9080	SPS	C5-N4	2.92	1.38	1.34

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	5	9080	SPS	C6-C1-N2	-9.15	118.02	124.40
36	5	9080	SPS	C3-N2-C1	6.86	120.94	115.14
37	5	9077	PHA	CB-CA-C	-2.64	106.52	111.47
36	5	9080	SPS	O15-S15-C16	2.55	109.50	106.47
36	5	9080	SPS	C9-C10-N11	2.23	118.85	114.56

There are no chirality outliers.

5 of 8 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
36	5	9080	SPS	C5-C6-C8-C9

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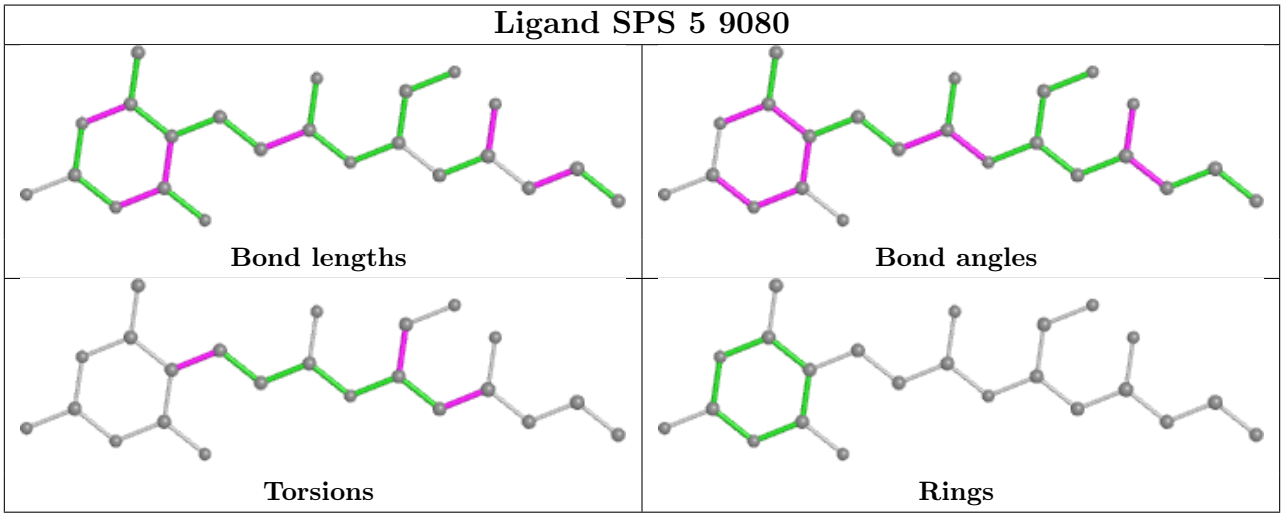
Mol	Chain	Res	Type	Atoms
36	5	9080	SPS	N11-C12-C13-O13
36	5	9080	SPS	C14-C12-C13-O13
36	5	9080	SPS	C12-C14-S15-O15
36	5	9080	SPS	C12-C14-S15-C16

There are no ring outliers.

1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
36	5	9080	SPS	4	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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

6.1 Protein, DNA and RNA chains

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^{th} 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	2754/2922 (94%)	-0.03	73 (2%) 54 44	18, 43, 87, 135	0
2	B	122/122 (100%)	0.33	5 (4%) 37 27	35, 60, 87, 145	0
3	5	3/3 (100%)	-0.12	0 100 100	33, 33, 35, 36	0
4	C	237/239 (99%)	0.12	11 (4%) 32 22	24, 47, 79, 101	0
5	D	337/337 (100%)	-0.02	4 (1%) 79 73	25, 53, 79, 88	0
6	E	246/246 (100%)	-0.29	0 100 100	21, 42, 64, 75	0
7	F	140/176 (79%)	2.02	73 (52%) 0 0	51, 94, 112, 118	0
8	G	172/177 (97%)	0.92	16 (9%) 8 4	44, 67, 85, 92	0
9	H	119/119 (100%)	0.57	11 (9%) 9 5	45, 66, 91, 97	0
10	I	29/348 (8%)	2.37	18 (62%) 0 0	66, 85, 93, 96	0
11	J	156/167 (93%)	0.32	9 (5%) 23 15	34, 52, 77, 80	0
12	K	142/145 (97%)	-0.01	0 100 100	33, 49, 68, 86	0
13	L	132/132 (100%)	-0.11	2 (1%) 73 68	31, 50, 70, 80	0
14	M	145/164 (88%)	0.39	11 (7%) 13 7	20, 60, 98, 111	0
15	N	194/194 (100%)	-0.15	3 (1%) 73 68	28, 39, 58, 68	0
16	O	186/186 (100%)	0.53	20 (10%) 5 3	36, 59, 99, 111	0
17	P	115/115 (100%)	-0.06	1 (0%) 84 80	35, 49, 67, 77	0
18	Q	143/148 (96%)	0.11	1 (0%) 87 84	36, 52, 64, 74	0
19	R	95/95 (100%)	-0.12	1 (1%) 80 75	29, 40, 54, 70	0
20	S	150/154 (97%)	-0.24	0 100 100	29, 41, 61, 70	0
21	T	81/84 (96%)	0.08	2 (2%) 57 47	40, 54, 73, 80	0
22	U	119/119 (100%)	0.32	10 (8%) 11 5	36, 52, 76, 90	0
23	V	53/66 (80%)	0.19	1 (1%) 66 59	39, 53, 69, 77	0
24	W	65/70 (92%)	1.27	14 (21%) 0 0	49, 68, 105, 110	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
25	X	154/154 (100%)	-0.26	0 100 100	32, 45, 63, 72	0
26	Y	82/91 (90%)	0.14	4 (4%) 29 20	40, 57, 79, 99	0
27	Z	142/240 (59%)	-0.10	2 (1%) 75 70	24, 41, 65, 82	0
28	1	73/73 (100%)	0.22	4 (5%) 25 16	46, 60, 71, 79	0
29	2	56/56 (100%)	-0.61	0 100 100	24, 29, 35, 43	0
30	3	46/48 (95%)	0.40	6 (13%) 3 2	31, 57, 84, 98	0
31	4	92/92 (100%)	0.08	1 (1%) 80 75	31, 51, 64, 78	0
All	All	6580/7282 (90%)	0.11	303 (4%) 32 22	18, 48, 88, 145	0

The worst 5 of 303 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
24	W	1	THR	10.6
2	B	3001	U	9.3
1	A	1172	G	6.7
1	A	1173	A	6.2
7	F	88	LEU	6.2

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

There are no non-standard protein/DNA/RNA residues in this entry.

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
33	NA	S	8386	1/1	0.37	0.92	91,91,91,91	0
33	NA	A	8384	1/1	0.38	0.81	75,75,75,75	0
32	MG	A	8024	1/1	0.48	1.23	89,89,89,89	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
39	CD	P	8405	1/1	0.56	0.14	174,174,174,174	0
33	NA	B	8351	1/1	0.59	0.53	78,78,78,78	0
33	NA	T	8312	1/1	0.67	0.65	79,79,79,79	0
33	NA	A	8385	1/1	0.68	0.41	50,50,50,50	0
33	NA	J	8322	1/1	0.70	0.31	61,61,61,61	0
33	NA	A	8307	1/1	0.70	0.27	46,46,46,46	0
33	NA	A	8324	1/1	0.71	0.17	55,55,55,55	0
32	MG	B	8095	1/1	0.71	0.18	70,70,70,70	0
33	NA	A	8368	1/1	0.73	0.20	56,56,56,56	0
32	MG	A	8113	1/1	0.74	0.20	43,43,43,43	0
33	NA	A	8329	1/1	0.75	0.23	54,54,54,54	0
33	NA	A	8311	1/1	0.76	0.29	55,55,55,55	0
33	NA	A	8352	1/1	0.76	0.41	71,71,71,71	0
38	ACA	5	9078	8/9	0.79	0.38	45,53,55,55	0
33	NA	A	8333	1/1	0.79	0.15	33,33,33,33	0
33	NA	B	8383	1/1	0.80	0.61	69,69,69,69	0
32	MG	A	8076	1/1	0.80	0.09	50,50,50,50	0
35	CL	O	8507	1/1	0.84	0.27	59,59,59,59	0
33	NA	A	8359	1/1	0.84	0.38	40,40,40,40	0
33	NA	A	8364	1/1	0.84	0.27	39,39,39,39	0
33	NA	A	8363	1/1	0.85	0.25	49,49,49,49	0
33	NA	A	8371	1/1	0.85	0.31	61,61,61,61	0
33	NA	A	8372	1/1	0.86	0.44	58,58,58,58	0
35	CL	K	8502	1/1	0.87	0.14	66,66,66,66	0
33	NA	A	8313	1/1	0.88	0.10	62,62,62,62	0
33	NA	A	8326	1/1	0.88	0.33	37,37,37,37	0
33	NA	M	8380	1/1	0.89	0.41	64,64,64,64	0
33	NA	A	8382	1/1	0.89	0.17	72,72,72,72	0
32	MG	A	8089	1/1	0.89	0.08	58,58,58,58	0
33	NA	A	8314	1/1	0.89	0.19	38,38,38,38	0
33	NA	A	8310	1/1	0.89	0.26	39,39,39,39	0
33	NA	A	8357	1/1	0.89	0.08	53,53,53,53	0
32	MG	1	8105	1/1	0.89	0.28	32,32,32,32	0
33	NA	E	8304	1/1	0.90	0.17	33,33,33,33	0
33	NA	A	8308	1/1	0.90	0.10	43,43,43,43	0
32	MG	A	8082	1/1	0.90	0.12	53,53,53,53	0
32	MG	A	8045	1/1	0.91	0.09	56,56,56,56	0
33	NA	A	8369	1/1	0.91	0.14	49,49,49,49	0
34	K	A	8390	1/1	0.91	0.36	70,70,70,70	0
32	MG	A	8090	1/1	0.91	0.28	70,70,70,70	0
32	MG	A	8101	1/1	0.91	0.13	52,52,52,52	0
32	MG	A	8087	1/1	0.91	0.19	63,63,63,63	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
33	NA	A	8341	1/1	0.91	0.13	41,41,41,41	0
32	MG	A	8114	1/1	0.92	0.22	54,54,54,54	0
33	NA	A	8362	1/1	0.92	0.31	64,64,64,64	0
33	NA	A	8375	1/1	0.92	0.59	47,47,47,47	0
32	MG	A	8085	1/1	0.92	0.11	45,45,45,45	0
32	MG	A	8106	1/1	0.92	0.08	52,52,52,52	0
33	NA	A	8365	1/1	0.92	0.23	43,43,43,43	0
33	NA	A	8366	1/1	0.92	0.49	68,68,68,68	0
33	NA	A	8355	1/1	0.92	0.55	56,56,56,56	0
32	MG	A	8049	1/1	0.92	0.62	77,77,77,77	0
32	MG	A	8057	1/1	0.93	0.13	40,40,40,40	0
33	NA	A	8335	1/1	0.93	0.22	43,43,43,43	0
33	NA	A	8373	1/1	0.93	0.48	50,50,50,50	0
33	NA	N	8347	1/1	0.93	0.12	23,23,23,23	0
33	NA	A	8301	1/1	0.93	0.17	46,46,46,46	0
33	NA	A	8377	1/1	0.93	0.22	66,66,66,66	0
33	NA	U	8343	1/1	0.93	0.15	33,33,33,33	0
33	NA	A	8342	1/1	0.93	0.22	40,40,40,40	0
35	CL	A	8517	1/1	0.93	0.14	59,59,59,59	0
33	NA	A	8303	1/1	0.93	0.18	43,43,43,43	0
35	CL	K	8521	1/1	0.93	0.10	50,50,50,50	0
33	NA	A	8353	1/1	0.93	0.15	23,23,23,23	0
35	CL	Z	8520	1/1	0.93	0.12	42,42,42,42	0
32	MG	A	8050	1/1	0.93	0.15	64,64,64,64	0
33	NA	A	8332	1/1	0.93	0.14	29,29,29,29	0
32	MG	A	8111	1/1	0.94	0.10	51,51,51,51	0
32	MG	A	8047	1/1	0.94	0.15	66,66,66,66	0
32	MG	A	8066	1/1	0.94	0.23	84,84,84,84	0
33	NA	A	8319	1/1	0.94	0.10	36,36,36,36	0
32	MG	A	8070	1/1	0.94	0.15	47,47,47,47	0
32	MG	A	8027	1/1	0.94	0.08	49,49,49,49	0
35	CL	A	8511	1/1	0.94	0.11	48,48,48,48	0
32	MG	A	8094	1/1	0.94	0.04	63,63,63,63	0
35	CL	C	8509	1/1	0.94	0.19	56,56,56,56	0
32	MG	A	8046	1/1	0.94	0.08	47,47,47,47	0
33	NA	A	8305	1/1	0.94	0.13	35,35,35,35	0
32	MG	A	8103	1/1	0.94	0.18	61,61,61,61	0
33	NA	C	8345	1/1	0.94	0.13	44,44,44,44	0
35	CL	4	8504	1/1	0.94	0.14	67,67,67,67	0
32	MG	A	8083	1/1	0.94	0.09	41,41,41,41	0
32	MG	A	8108	1/1	0.94	0.13	60,60,60,60	0
32	MG	A	8063	1/1	0.95	0.05	73,73,73,73	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
32	MG	A	8032	1/1	0.95	0.08	28,28,28,28	0
33	NA	A	8306	1/1	0.95	0.52	32,32,32,32	0
32	MG	A	8053	1/1	0.95	0.14	50,50,50,50	0
33	NA	S	8337	1/1	0.95	0.19	28,28,28,28	0
33	NA	A	8367	1/1	0.95	0.10	44,44,44,44	0
32	MG	A	8099	1/1	0.95	0.12	48,48,48,48	0
33	NA	A	8340	1/1	0.95	0.47	44,44,44,44	0
33	NA	A	8309	1/1	0.95	0.09	32,32,32,32	0
35	CL	A	8503	1/1	0.95	0.13	46,46,46,46	0
32	MG	A	8100	1/1	0.95	0.16	65,65,65,65	0
32	MG	A	8119	1/1	0.95	0.14	41,41,41,41	0
32	MG	A	8041	1/1	0.95	0.16	53,53,53,53	0
32	MG	U	8073	1/1	0.95	0.09	46,46,46,46	0
33	NA	A	8356	1/1	0.95	0.28	47,47,47,47	0
33	NA	A	8317	1/1	0.95	0.17	45,45,45,45	0
33	NA	A	8358	1/1	0.95	0.80	82,82,82,82	0
32	MG	A	8088	1/1	0.95	0.09	30,30,30,30	0
33	NA	A	8360	1/1	0.95	0.56	39,39,39,39	0
32	MG	A	8104	1/1	0.95	0.26	52,52,52,52	0
33	NA	A	8334	1/1	0.96	0.06	32,32,32,32	0
32	MG	L	8069	1/1	0.96	0.07	50,50,50,50	0
33	NA	A	8378	1/1	0.96	0.54	47,47,47,47	0
33	NA	A	8336	1/1	0.96	0.06	53,53,53,53	0
33	NA	A	8338	1/1	0.96	0.09	41,41,41,41	0
32	MG	A	8062	1/1	0.96	0.10	48,48,48,48	0
32	MG	A	8091	1/1	0.96	0.05	69,69,69,69	0
32	MG	A	8092	1/1	0.96	0.13	79,79,79,79	0
33	NA	A	8350	1/1	0.96	0.24	32,32,32,32	0
32	MG	A	8004	1/1	0.96	0.07	26,26,26,26	0
32	MG	A	8096	1/1	0.96	0.07	46,46,46,46	0
33	NA	K	8346	1/1	0.96	0.08	40,40,40,40	0
33	NA	A	8354	1/1	0.96	0.27	34,34,34,34	0
32	MG	A	8098	1/1	0.96	0.13	36,36,36,36	0
32	MG	A	8042	1/1	0.96	0.13	31,31,31,31	0
32	MG	A	8068	1/1	0.96	0.16	50,50,50,50	0
32	MG	A	8044	1/1	0.96	0.06	36,36,36,36	0
32	MG	A	8075	1/1	0.96	0.07	37,37,37,37	0
32	MG	A	8051	1/1	0.96	0.08	57,57,57,57	0
32	MG	A	8079	1/1	0.96	0.11	27,27,27,27	0
32	MG	A	8107	1/1	0.96	0.05	43,43,43,43	0
35	CL	A	8515	1/1	0.96	0.34	65,65,65,65	0
32	MG	A	8005	1/1	0.96	0.12	33,33,33,33	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
32	MG	A	8054	1/1	0.96	0.10	24,24,24,24	0
35	CL	K	8501	1/1	0.96	0.12	55,55,55,55	0
32	MG	A	8055	1/1	0.96	0.08	43,43,43,43	0
32	MG	A	8007	1/1	0.96	0.06	16,16,16,16	0
33	NA	A	8328	1/1	0.96	0.32	34,34,34,34	0
35	CL	P	8508	1/1	0.96	0.10	62,62,62,62	0
32	MG	A	8116	1/1	0.96	0.11	51,51,51,51	0
33	NA	A	8331	1/1	0.96	0.17	31,31,31,31	0
36	SPS	5	9080	23/23	0.96	0.21	30,33,47,49	0
37	PHA	5	9077	11/11	0.96	0.24	41,45,52,53	0
32	MG	A	8059	1/1	0.96	0.13	35,35,35,35	0
32	MG	A	8061	1/1	0.96	0.07	34,34,34,34	0
33	NA	A	8318	1/1	0.97	0.41	55,55,55,55	0
32	MG	A	8071	1/1	0.97	0.04	63,63,63,63	0
33	NA	A	8321	1/1	0.97	0.19	54,54,54,54	0
32	MG	5	8118	1/1	0.97	0.12	29,29,29,29	0
32	MG	A	8016	1/1	0.97	0.11	39,39,39,39	0
33	NA	A	8361	1/1	0.97	0.28	47,47,47,47	0
33	NA	R	8348	1/1	0.97	0.17	42,42,42,42	0
32	MG	A	8056	1/1	0.97	0.06	39,39,39,39	0
32	MG	Z	8109	1/1	0.97	0.07	33,33,33,33	0
32	MG	A	8033	1/1	0.97	0.10	28,28,28,28	0
32	MG	A	8081	1/1	0.97	0.12	43,43,43,43	0
33	NA	A	8302	1/1	0.97	0.14	46,46,46,46	0
32	MG	A	8058	1/1	0.97	0.11	37,37,37,37	0
35	CL	A	8505	1/1	0.97	0.16	49,49,49,49	0
32	MG	A	8037	1/1	0.97	0.05	34,34,34,34	0
35	CL	A	8512	1/1	0.97	0.09	47,47,47,47	0
35	CL	A	8514	1/1	0.97	0.12	46,46,46,46	0
32	MG	A	8040	1/1	0.97	0.12	53,53,53,53	0
35	CL	A	8516	1/1	0.97	0.13	56,56,56,56	0
33	NA	A	8370	1/1	0.97	0.41	57,57,57,57	0
32	MG	A	8022	1/1	0.97	0.12	40,40,40,40	0
33	NA	A	8339	1/1	0.97	0.14	22,22,22,22	0
32	MG	A	8008	1/1	0.97	0.05	35,35,35,35	0
32	MG	A	8064	1/1	0.97	0.14	31,31,31,31	0
32	MG	A	8052	1/1	0.97	0.06	40,40,40,40	0
33	NA	A	8349	1/1	0.97	0.14	41,41,41,41	0
33	NA	A	8379	1/1	0.97	0.12	45,45,45,45	0
32	MG	A	8067	1/1	0.97	0.12	43,43,43,43	0
32	MG	A	8043	1/1	0.97	0.08	39,39,39,39	0
32	MG	A	8117	1/1	0.97	0.08	25,25,25,25	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
33	NA	A	8316	1/1	0.97	0.20	40,40,40,40	0
32	MG	A	8013	1/1	0.97	0.17	32,32,32,32	0
32	MG	A	8035	1/1	0.98	0.03	52,52,52,52	0
32	MG	A	8036	1/1	0.98	0.05	32,32,32,32	0
32	MG	A	8021	1/1	0.98	0.11	33,33,33,33	0
32	MG	A	8038	1/1	0.98	0.09	27,27,27,27	0
32	MG	A	8110	1/1	0.98	0.11	35,35,35,35	0
32	MG	A	8011	1/1	0.98	0.09	26,26,26,26	0
32	MG	A	8112	1/1	0.98	0.17	28,28,28,28	0
32	MG	A	8023	1/1	0.98	0.06	39,39,39,39	0
32	MG	A	8001	1/1	0.98	0.07	27,27,27,27	0
32	MG	A	8115	1/1	0.98	0.06	42,42,42,42	0
33	NA	A	8374	1/1	0.98	0.67	53,53,53,53	0
35	CL	A	8513	1/1	0.98	0.11	50,50,50,50	0
32	MG	A	8093	1/1	0.98	0.08	49,49,49,49	0
33	NA	A	8376	1/1	0.98	0.14	47,47,47,47	0
32	MG	A	8072	1/1	0.98	0.10	56,56,56,56	0
32	MG	A	8025	1/1	0.98	0.07	40,40,40,40	0
35	CL	A	8522	1/1	0.98	0.16	55,55,55,55	0
32	MG	A	8097	1/1	0.98	0.17	28,28,28,28	0
35	CL	D	8519	1/1	0.98	0.11	40,40,40,40	0
33	NA	A	8381	1/1	0.98	0.23	44,44,44,44	0
32	MG	A	8015	1/1	0.98	0.09	29,29,29,29	0
33	NA	A	8320	1/1	0.98	0.11	38,38,38,38	0
35	CL	M	8510	1/1	0.98	0.16	47,47,47,47	0
35	CL	N	8518	1/1	0.98	0.12	39,39,39,39	0
32	MG	A	8029	1/1	0.98	0.08	41,41,41,41	0
32	MG	A	8006	1/1	0.98	0.04	30,30,30,30	0
35	CL	S	8506	1/1	0.98	0.11	46,46,46,46	0
32	MG	A	8019	1/1	0.98	0.04	29,29,29,29	0
33	NA	A	8327	1/1	0.98	0.12	41,41,41,41	0
32	MG	A	8102	1/1	0.98	0.12	45,45,45,45	0
32	MG	4	8078	1/1	0.98	0.04	41,41,41,41	0
33	NA	A	8330	1/1	0.98	0.22	34,34,34,34	0
32	MG	A	8048	1/1	0.98	0.16	58,58,58,58	0
32	MG	A	8018	1/1	0.99	0.09	31,31,31,31	0
32	MG	C	8065	1/1	0.99	0.11	31,31,31,31	0
32	MG	A	8077	1/1	0.99	0.06	27,27,27,27	0
32	MG	A	8030	1/1	0.99	0.10	32,32,32,32	0
32	MG	A	8080	1/1	0.99	0.05	36,36,36,36	0
33	NA	A	8325	1/1	0.99	0.36	50,50,50,50	0
32	MG	A	8031	1/1	0.99	0.05	27,27,27,27	0

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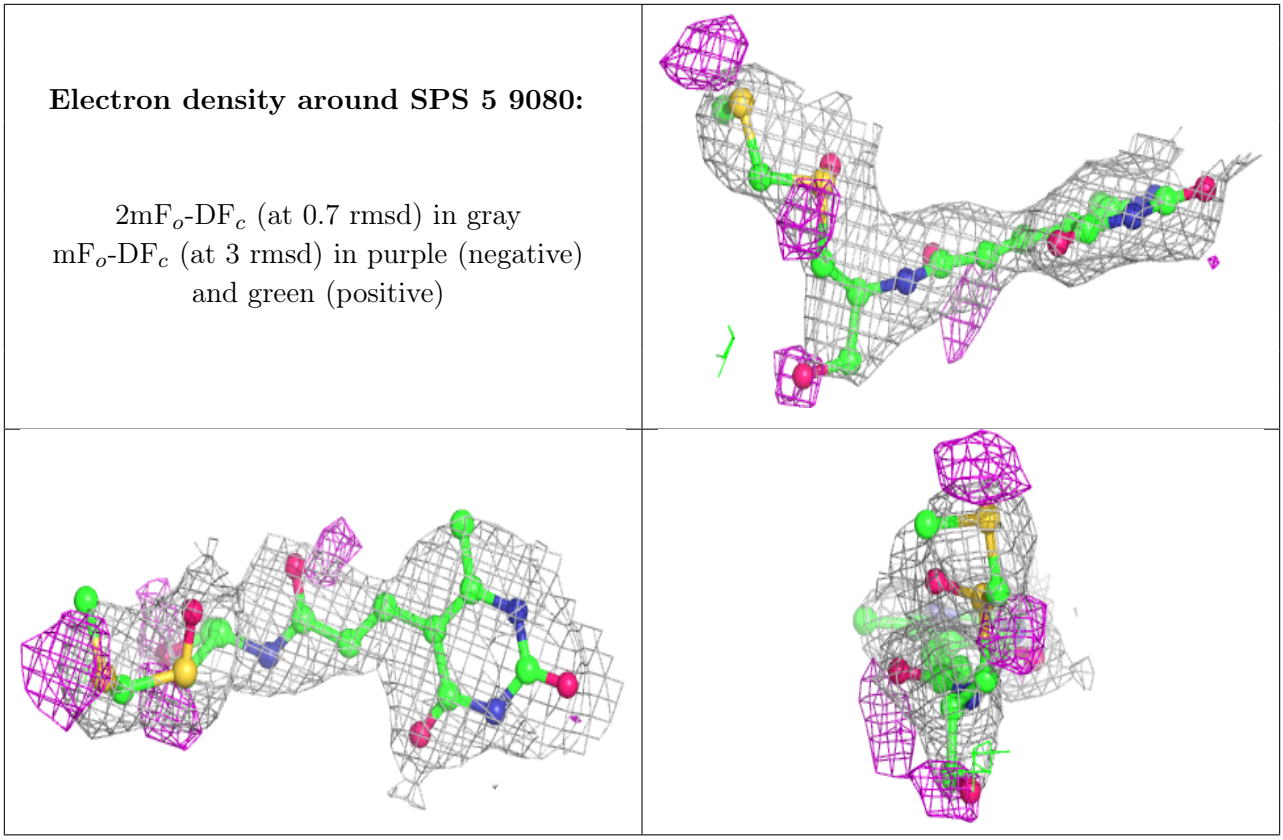
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
32	MG	A	8060	1/1	0.99	0.18	42,42,42,42	0
32	MG	A	8003	1/1	0.99	0.12	26,26,26,26	0
32	MG	A	8084	1/1	0.99	0.05	40,40,40,40	0
32	MG	A	8012	1/1	0.99	0.09	28,28,28,28	0
32	MG	A	8086	1/1	0.99	0.17	45,45,45,45	0
32	MG	A	8034	1/1	0.99	0.07	33,33,33,33	0
32	MG	A	8002	1/1	0.99	0.06	28,28,28,28	0
32	MG	A	8014	1/1	0.99	0.06	25,25,25,25	0
32	MG	A	8009	1/1	0.99	0.04	26,26,26,26	0
32	MG	A	8010	1/1	0.99	0.09	35,35,35,35	0
32	MG	A	8039	1/1	0.99	0.08	42,42,42,42	0
32	MG	A	8026	1/1	0.99	0.07	26,26,26,26	0
32	MG	A	8017	1/1	0.99	0.03	19,19,19,19	0
33	NA	A	8315	1/1	0.99	0.10	32,32,32,32	0
32	MG	A	8074	1/1	0.99	0.03	29,29,29,29	0
33	NA	A	8344	1/1	0.99	0.05	25,25,25,25	0
34	K	A	8391	1/1	0.99	0.25	48,48,48,48	0
32	MG	A	8028	1/1	0.99	0.09	34,34,34,34	0
39	CD	1	8403	1/1	0.99	0.08	62,62,62,62	0
39	CD	2	8402	1/1	0.99	0.07	56,56,56,56	0
39	CD	4	8404	1/1	0.99	0.06	57,57,57,57	0
32	MG	A	8020	1/1	1.00	0.07	28,28,28,28	0
33	NA	A	8323	1/1	1.00	0.10	42,42,42,42	0
39	CD	V	8401	1/1	1.00	0.07	62,62,62,62	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around SPS 5 9080:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers (i)

There are no such residues in this entry.