



# wwPDB X-ray Structure Validation Summary Report ⓘ

Jan 4, 2024 – 12:07 am GMT

PDB ID : 4WFA  
Title : The crystal structure of the large ribosomal subunit of Staphylococcus aureus in complex with linezolid  
Authors : Eyal, Z.; Matzov, D.; Krupkin, M.; Wekselman, I.; Zimmerman, E.; Rozenberg, H.; Bashan, A.; Yonath, A.E.  
Deposited on : 2014-09-14  
Resolution : 3.39 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, 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

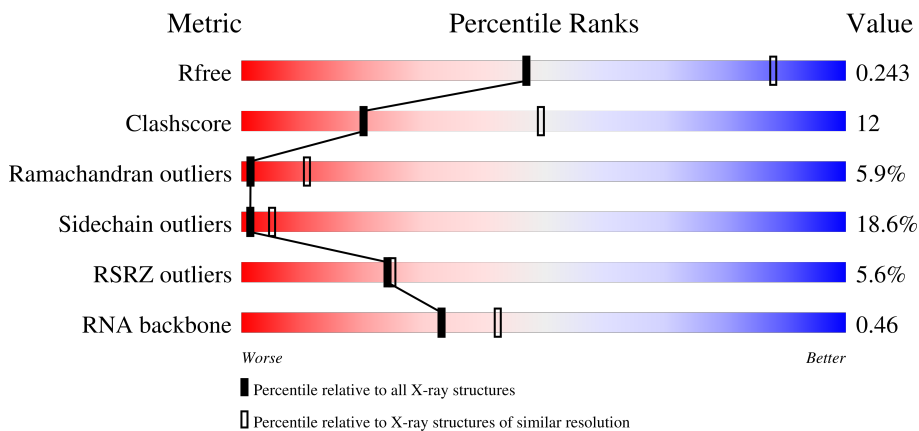
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.39 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.



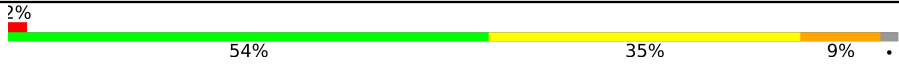

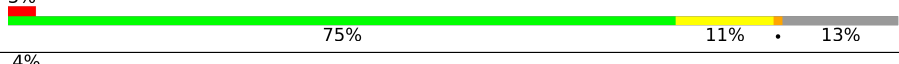


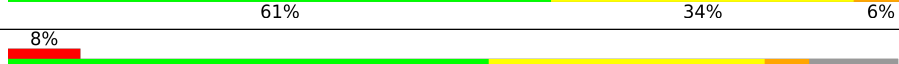

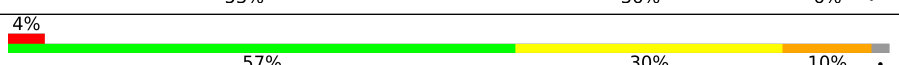
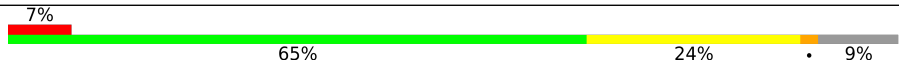


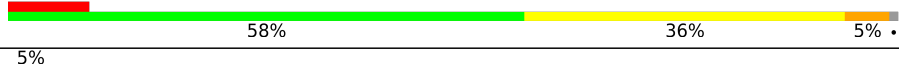






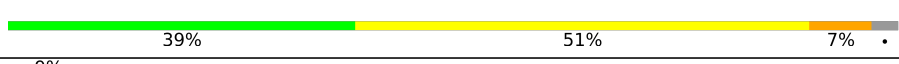
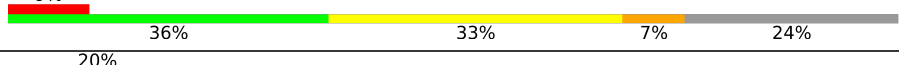


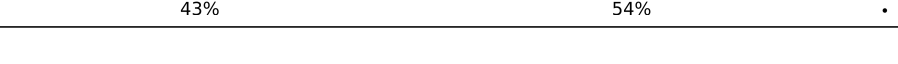


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1026 (3.48-3.32)
Clashscore	141614	1055 (3.48-3.32)
Ramachandran outliers	138981	1038 (3.48-3.32)
Sidechain outliers	138945	1038 (3.48-3.32)
RSRZ outliers	127900	2173 (3.50-3.30)
RNA backbone	3102	1006 (3.84-2.96)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	X	2923	 45% 37% 10% • 7%
2	Y	114	 52% 41% 7%
3	A	277	 21% 61% 30% 6% •

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Mol	Chain	Length	Quality of chain
4	B	220	
5	C	207	
6	D	179	
7	E	178	
8	G	145	
9	H	122	
10	I	146	
11	J	144	
12	K	122	
13	L	119	
14	M	116	
15	N	118	
16	O	102	
17	P	117	
18	Q	91	
19	R	105	
20	S	217	
21	T	94	
22	U	62	
23	V	69	
24	W	59	
25	Z	58	
26	2	45	
27	3	66	
28	4	37	

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
30	MPD	X	3006	-	-	-	X
30	MPD	X	3008	-	-	-	X
31	MG	G	201	-	-	-	X
31	MG	O	202	-	-	-	X
31	MG	X	3012	-	-	-	X
31	MG	X	3014	-	-	-	X
31	MG	X	3019	-	-	-	X
31	MG	X	3029	-	-	-	X
31	MG	X	3032	-	-	-	X
31	MG	X	3056	-	-	-	X
31	MG	X	3208	-	-	-	X
31	MG	X	3242	-	-	-	X
31	MG	X	3254	-	-	-	X
31	MG	X	3280	-	-	-	X
31	MG	X	3284	-	-	-	X
31	MG	X	3297	-	-	-	X
31	MG	X	3312	-	-	-	X
31	MG	X	3327	-	-	-	X
31	MG	X	3340	-	-	-	X
31	MG	X	3343	-	-	-	X
31	MG	X	3344	-	-	-	X
31	MG	X	3348	-	-	-	X
31	MG	X	3351	-	-	-	X
31	MG	X	3357	-	-	-	X
31	MG	X	3359	-	-	-	X
31	MG	X	3361	-	-	-	X
31	MG	X	3363	-	-	-	X
31	MG	X	3369	-	-	-	X
31	MG	X	3380	-	-	-	X
31	MG	X	3382	-	-	-	X
31	MG	X	3386	-	-	-	X
31	MG	X	3397	-	-	-	X
31	MG	X	3399	-	-	-	X
31	MG	X	3401	-	-	-	X
31	MG	X	3411	-	-	-	X
31	MG	X	3418	-	-	-	X
31	MG	X	3419	-	-	-	X
31	MG	X	3420	-	-	-	X
31	MG	Y	207	-	-	-	X
31	MG	Y	208	-	-	-	X

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<b>Mol</b>	<b>Type</b>	<b>Chain</b>	<b>Res</b>	<b>Chirality</b>	<b>Geometry</b>	<b>Clashes</b>	<b>Electron density</b>
32	MN	X	3085	-	-	-	X
32	MN	X	3114	-	-	-	X
32	MN	X	3117	-	-	-	X
32	MN	X	3217	-	-	-	X
32	MN	X	3222	-	-	-	X
32	MN	X	3265	-	-	-	X
32	MN	X	3422	-	-	-	X
34	EPE	X	3426	-	-	X	-
35	SPD	X	3429	-	-	-	X

## 2 Entry composition [i](#)

There are 36 unique types of molecules in this entry. The entry contains 81465 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	X	2711	58151	25961	10662	18817	2711	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
2	Y	114	2430	1086	436	794	114	0	0	0

- Molecule 3 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	A	268	1620	985	315	316	4	0	0	0

- Molecule 4 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	B	215	1531	957	283	286	5	0	0	0

- Molecule 5 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	C	199	1321	818	253	248	2	0	0	0

- Molecule 6 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	D	155	794	478	155	160	1	0	0	0

- Molecule 7 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	E	157	926	567	172	186	1	0	0	0

- Molecule 8 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	G	145	1087	679	202	203	3	0	0	0

- Molecule 9 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	H	122	840	517	163	157	3	0	0	0

- Molecule 10 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	I	131	817	500	164	152	1	0	0	0

- Molecule 11 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	J	138	1003	642	185	173	3	0	0	0

- Molecule 12 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	K	119	896	551	176	168	1	0	0	0

- Molecule 13 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
13	L	108	659	399	134	126	0	0	0

- Molecule 14 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
14	M	109	809	513	158	138	0	0	0

- Molecule 15 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	N	116	932	587	188	153	4	0	0	0

- Molecule 16 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
16	O	101	751	477	137	136	1	0	0	0

- Molecule 17 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
17	P	112	862	537	164	158	3	0	0	0

- Molecule 18 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
18	Q	88	586	363	108	113	2	0	0	0

- Molecule 19 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
19	R	100	680	425	121	133	1	0	0	0

- Molecule 20 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
20	S	167	1048	656	187	203	2	0	0	0

- Molecule 21 is a protein called 50S ribosomal protein L27.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
21	T	75	530	328	100	102	0	0	0

- Molecule 22 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
22	U	44	254	154	52	48	0	0	0

- Molecule 23 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
23	V	65	414	261	74	79	0	0	0

- Molecule 24 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
24	W	57	441	274	83	84	0	0	0

- Molecule 25 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
25	Z	44	336	208	70	55	3	0	0	0

- Molecule 26 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
26	2	44	368	225	89	53	1	0	0	0

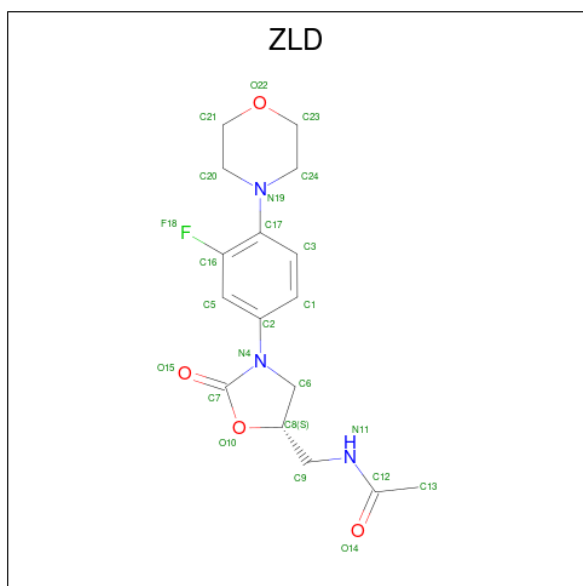
- Molecule 27 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
27	3	60	414	256	83	73	2	0	0	0

- Molecule 28 is a protein called 50S ribosomal protein L36.

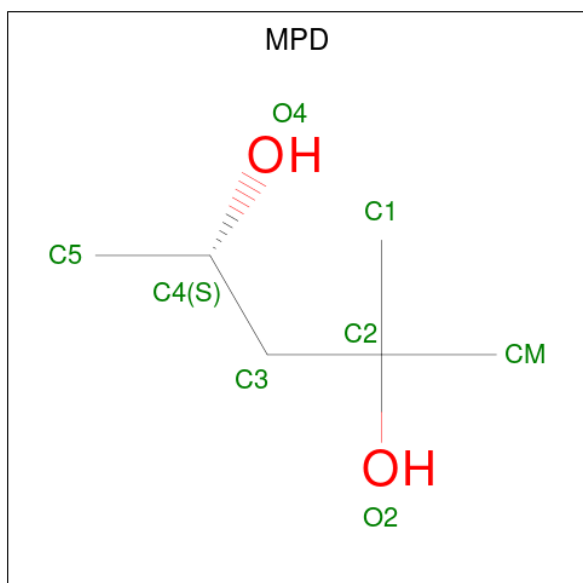
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
28	4	37	262	164	52	41	5	0	0	0

- Molecule 29 is N-[[[(5S)-3-(3-fluoro-4-morpholin-4-ylphenyl)-2-oxo-1,3-oxazolidin-5-yl]methyl]acetamide (three-letter code: ZLD) (formula: C<sub>16</sub>H<sub>20</sub>FN<sub>3</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	F	N	O		
29	X	1	24	16	1	3	4	0	0

- Molecule 30 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula: C<sub>6</sub>H<sub>14</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0
30	X	1	Total C O 8 6 2	0	0

- Molecule 31 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
31	X	226	Total Mg 226 226	0	0
31	Y	6	Total Mg 6 6	0	0
31	A	2	Total Mg 2 2	0	0
31	B	1	Total Mg 1 1	0	0
31	C	1	Total Mg 1 1	0	0
31	G	2	Total Mg 2 2	0	0
31	I	1	Total Mg 1 1	0	0
31	K	1	Total Mg 1 1	0	0
31	N	1	Total Mg 1 1	0	0
31	O	2	Total Mg 2 2	0	0
31	W	1	Total Mg 1 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
31	Z	2	Total	Mg	0	0
			2	2		

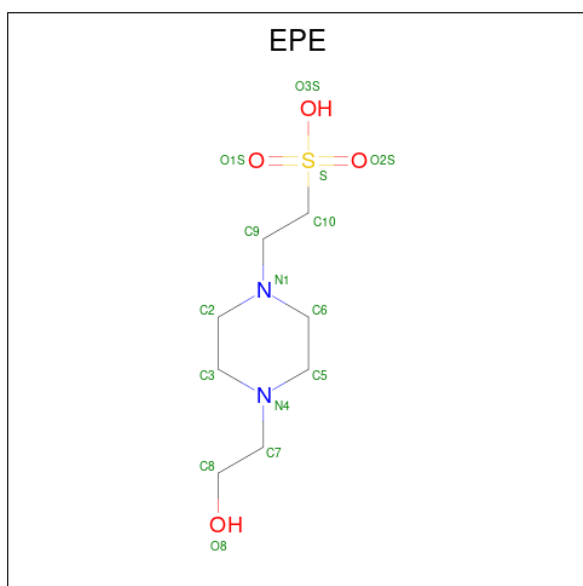
- Molecule 32 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
32	X	191	Total	Mn	0	0
			191	191		
32	Y	2	Total	Mn	0	0
			2	2		
32	M	1	Total	Mn	0	0
			1	1		
32	Z	1	Total	Mn	0	0
			1	1		

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

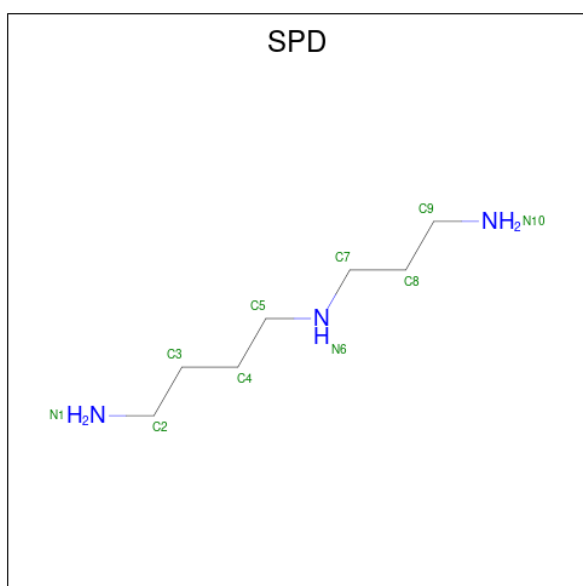
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
33	X	1	Total	Na	0	0
			1	1		

- Molecule 34 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: C<sub>8</sub>H<sub>18</sub>N<sub>2</sub>O<sub>4</sub>S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
34	X	1	Total	C	N	O	S	0	0
			15	8	2	4	1		
34	X	1	Total	C	N	O	S	0	0
			15	8	2	4	1		
34	X	1	Total	C	N	O	S	0	0
			15	8	2	4	1		
34	X	1	Total	C	N	O	S	0	0
			15	8	2	4	1		

- Molecule 35 is SPERMIDINE (three-letter code: SPD) (formula: C<sub>7</sub>H<sub>19</sub>N<sub>3</sub>).



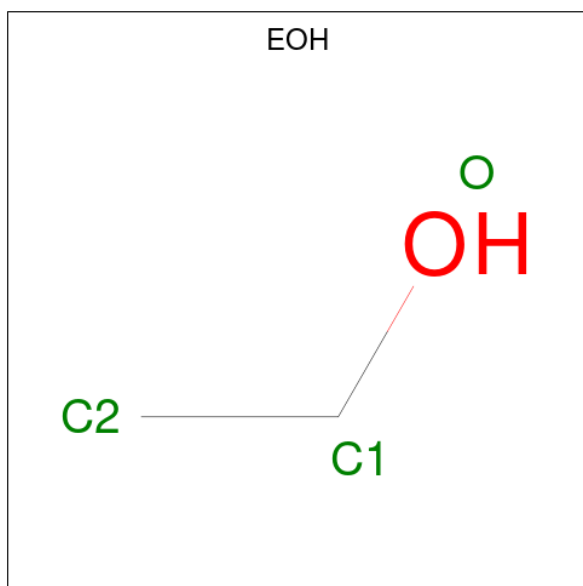
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		
35	X	1	Total	C	N	0	0
			10	7	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
35	J	1	Total	C	N	0	0
			10	7	3		

- Molecule 36 is ETHANOL (three-letter code: EOH) (formula: C<sub>2</sub>H<sub>6</sub>O).

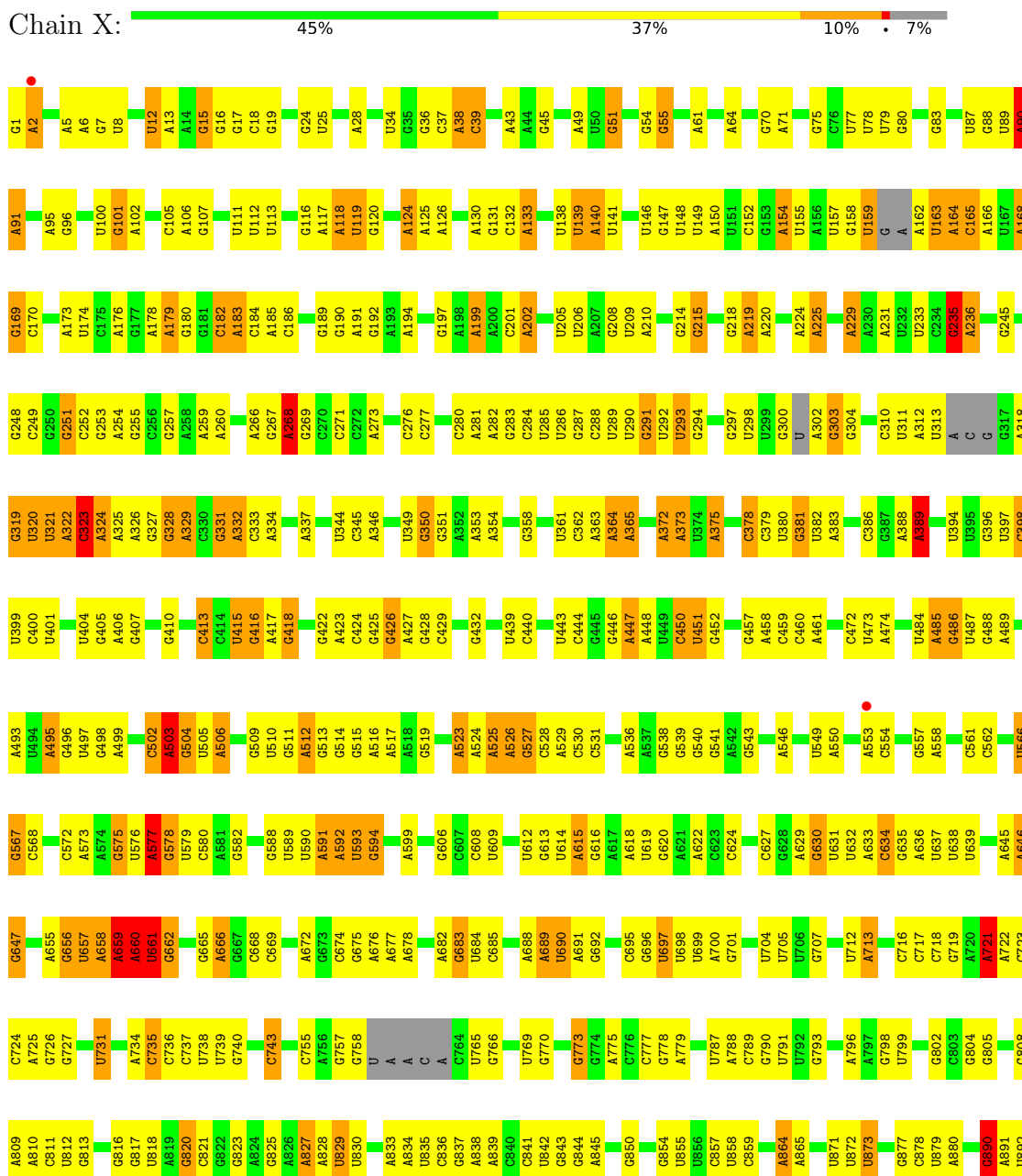


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
36	X	1	Total	C	O	0	0
			3	2	1		
36	X	1	Total	C	O	0	0
			3	2	1		
36	X	1	Total	C	O	0	0
			3	2	1		
36	Y	1	Total	C	O	0	0
			3	2	1		

### 3 Residue-property plots

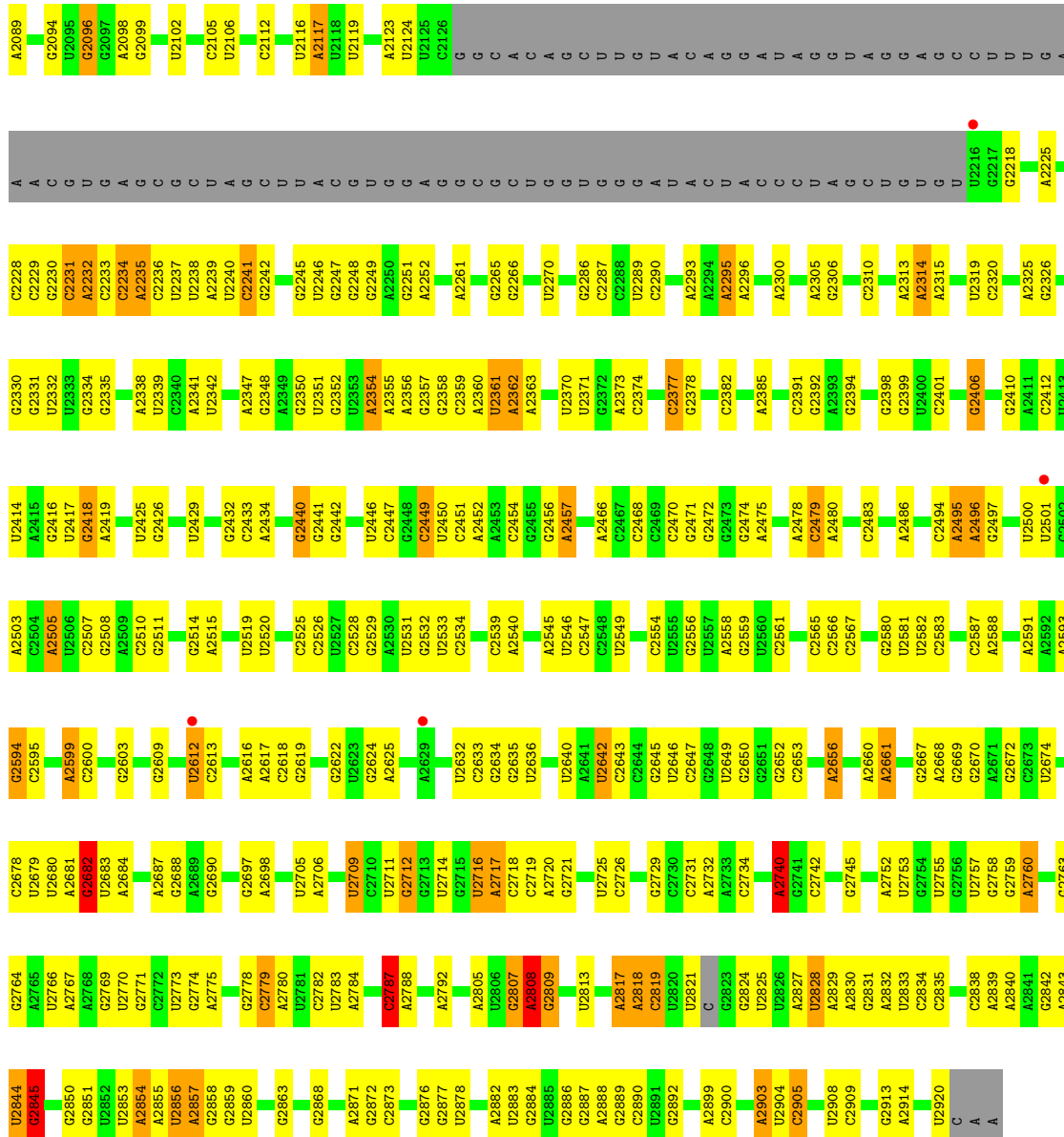
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

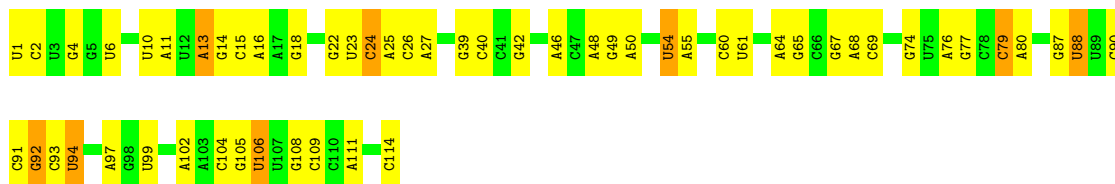


C2001	G1838	G1761	U1683	U1594	G1469	G1399	A1314	G1226	A1072	G982	U895
A2005	G1839	U1762	A1684	C1595	G1470	C1400	C1315	U1227	U1077	G983	U896
C2006	G1840	U1763	G1596	G1597	A1471	G4101	G1316	U1228	G1086	G984	A901
G2007	G1841	A1764	U1597	C1472	C1472	A1402	G1317	A1228	C1087	A985	G903
A2008	U1842	A1765	G1598	A1537	A1537	G1405	G1322	G1229	U1078	A986	G904
U2009	G1843	C1766	G1599	A1538	C1473	G1405	G1322	U1145	U1079	U987	U899
G2013	G1844	G1767	A1600	A1539	A1475	G1411	C1328	C1235	C1082	C988	G900
C2017	U1845	C1768	U1601	U1540	G1476	G1412	G1329	U1238	U1085	A989	G901
G2018	A1846	C1769	U1602	C1541	U1477	G1412	G1330	U1239	G1086	G990	A902
U2019	G1847	A1770	G1603	C1542	G1481	A1415	U1330	U1240	C1087	G1000	G903
G2020	A1848	C1771	A1604	G1543	A1481	A1415	C1331	U1241	C1088	A1001	G904
C2023	G1849	G1772	A1605	G1544	U1482	U1416	C1332	A1242	G1089	G1005	G907
A2024	U1850	G1775	U1609	A1546	A1483	G1418	C1335	G1247	A1090	A908	A908
C2025	G1851	A1776	G1610	C1547	G1487	G1421	G1336	U1247	G1091	G1008	G922
G2037	U1852	G1780	G1613	U1548	A1488	A1421	A1337	U1248	A1092	C1008	G922
U2038	A1853	U1781	A1614	C1549	A	A1422	U1338	A1337	A1092	U1013	A923
G2039	G1854	A1782	G1615	U	C1481	C1423	G1346	U1249	C1093	U1014	G924
A2040	U1855	G1783	A1616	U	G1492	A1424	G1346	G1250	A1098	G1015	G925
U2043	C1856	A1787	A1617	U	G1492	G1425	U1349	A1267	G1099	G1016	G926
C2044	G1865	U1788	A1618	A	G1494	G1429	C1350	C1268	G	G1017	G
A2047	U1867	A1789	A1619	A	G1494	A1430	U1351	A1269	C	A1018	C
G2048	G1868	U1790	G1620	G1555	G1495	A1430	C1352	U1270	C	U1018	C
U2049	U1869	G1791	G1621	G1556	G1496	U1431	G1352	U1271	C	U1019	C
A2050	C1870	A1792	G1622	U1558	U1498	U1433	G1354	G1272	U	G1022	U
C2051	A1871	C1792	U1623	G1559	U1499	U1434	A1355	G1273	U	A1023	U
G2052	G1872	A1800	G1624	A1560	U1500	C1435	U1355	G1274	C	C1026	C
U2053	U1873	A1800	U1625	G1561	G1501	C1436	G1357	A1275	C	A1027	C
G2054	G1874	U1806	A1626	C1562	A1502	A1437	A1358	C1277	U	G1028	C
A2057	C1875	U1807	G1627	U1563	U	U1438	A1359	G1278	U	C1029	G
G2058	U1876	A1807	A1628	U1564	U1504	U1439	U1359	G1279	A	C1030	G937
C2059	G1877	U1808	U1629	U1565	G1505	A1440	C1362	U1280	G	C1031	G938
A2060	U1878	C1809	A1630	C1566	C1506	C1441	U1366	U1281	C	C1032	U939
U2061	G1879	A1810	G1631	A1567	A1507	C1442	U1370	A1282	A	A1032	U940
G2062	U1880	U1811	A1632	U1568	C1508	C1444	C1370	A1285	C	A1037	C943
C2070	U1881	A	A	G1569	G1509	G1445	U1371	G1286	C	C1038	C943
A2077	U1882	A	A	G1570	U1510	U1446	C1372	U1287	C	C1039	G944
G2075	G1883	A1635	A1635	G1571	C1511	A1447	U1373	G1288	C	A1040	A945
A2078	U1884	U1636	U1636	U1572	U1512	U1448	U1374	U1289	C	A1044	A946
C2077	U1885	A1637	A1637	G1573	A1513	A1449	G1375	A1290	C	A1045	U947
G2079	G1886	G1638	G1638	U1574	A1514	A1450	U1376	A1291	C	G1046	U948
A2081	U1887	U1642	U1642	A1575	G1515	U1451	U1377	A1292	U	G1047	A955
G2083	A1888	C1643	C1643	A1577	C1452	G1453	U1378	U1293	C	A1053	C959
A2087	U1889	G1644	G1644	U1578	U1454	U	A1379	G1294	U	A1054	C960
G2088	C1889	C1651	C1651	A	U1519	U	C1382	G1300	U	A1055	G951
C2090	U1890	U1652	U1652	U	A1521	U	U1383	U1301	U	U1056	G951
A2091	G1891	A1653	A1653	G	G1522	A	U1388	G1302	A	A1057	C967
G2092	U1892	A1654	A1654	U	G1523	A	U1390	A1303	A	U1063	U970
C2093	U1893	G1657	G1657	G	G1524	A1459	A1390	U1304	G	A1064	U971
A2097	A1894	U1658	U1658	U	U1525	U1460	A1391	U1305	U	A1065	A972
G2099	U1895	C1659	C1659	C	G1526	C1462	G1392	A1306	C	G1066	A973
C2082	U1896	U1660	U1660	U	U1527	A1463	C1393	U1309	U	U1067	U974
G2083	U1897	G1661	G1661	C	U1529	U1464	U1394	G1309	C	G1068	U975
A2087	A1898	U1662	U1662	U	U1530	G1465	G1395	A1310	C	G1069	A976
G2088	U1899	G1663	G1663	G1591	A1530	G1466	U1396	A1312	U	A1070	U977
C2000	A1911	U1663	U1663	G1593	U	G1468	G1398	G1313	A	A1071	G



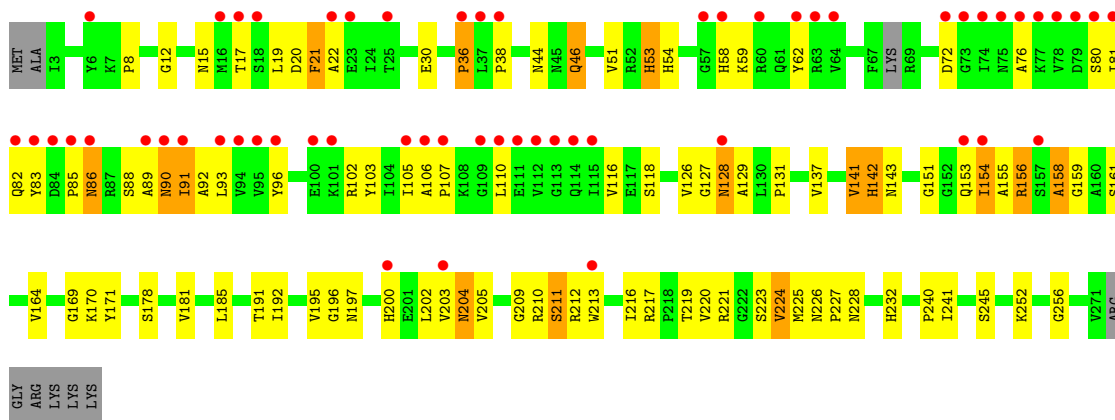


• Molecule 2: 5S rRNA

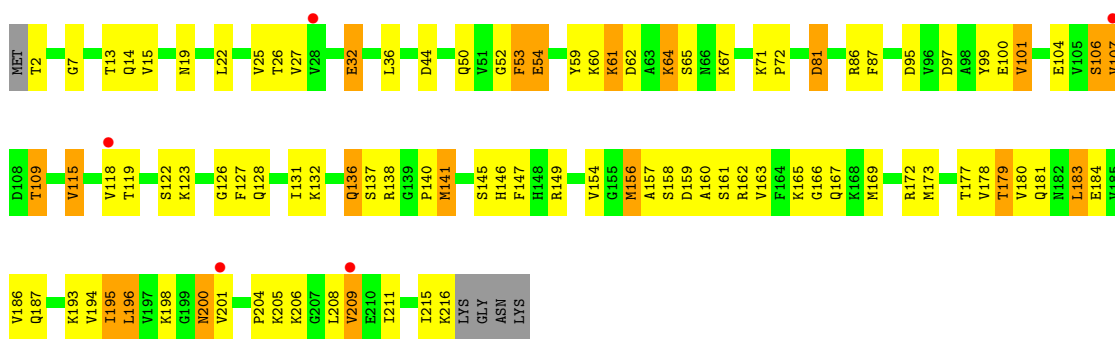


• Molecule 3: 50S ribosomal protein L2

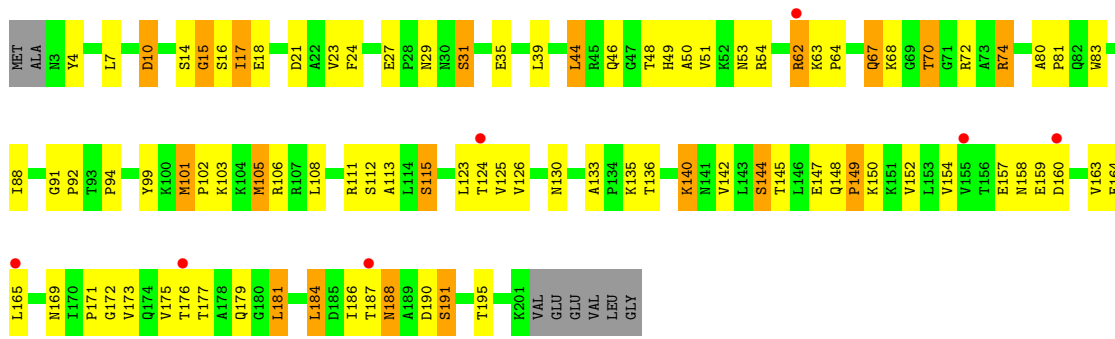




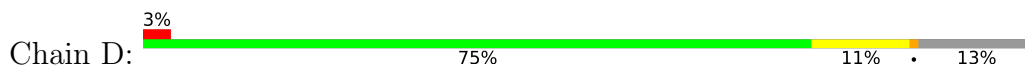
• Molecule 4: 50S ribosomal protein L3

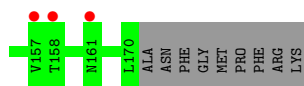


• Molecule 5: 50S ribosomal protein L4



• Molecule 6: 50S ribosomal protein L5

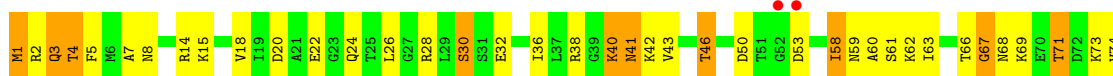




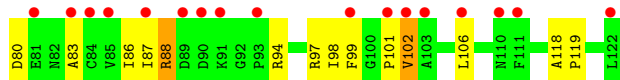
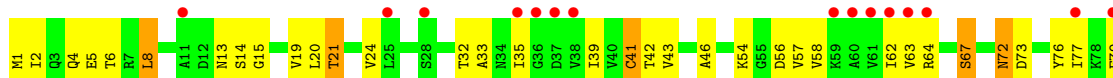
- Molecule 7: 50S ribosomal protein L6



- Molecule 8: 50S ribosomal protein L13



- Molecule 9: 50S ribosomal protein L14

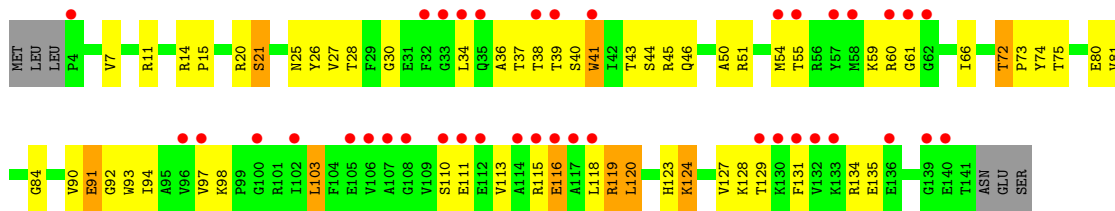


- Molecule 10: 50S ribosomal protein L15

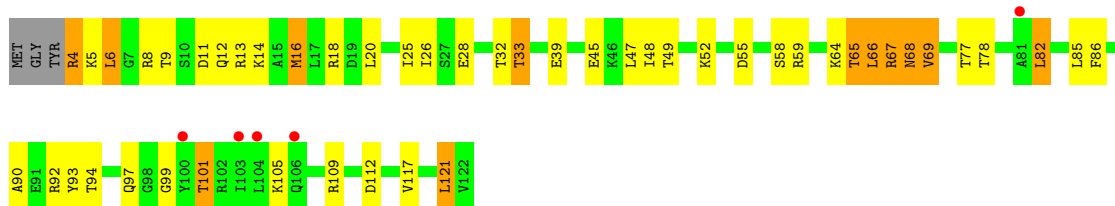


- Molecule 11: 50S ribosomal protein L16

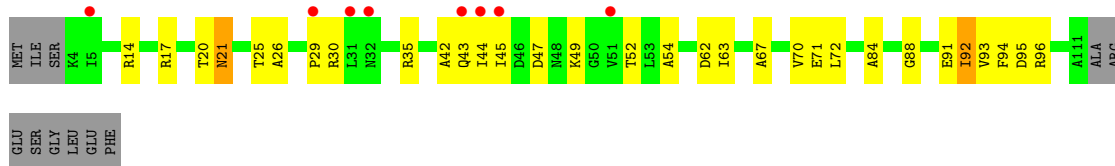




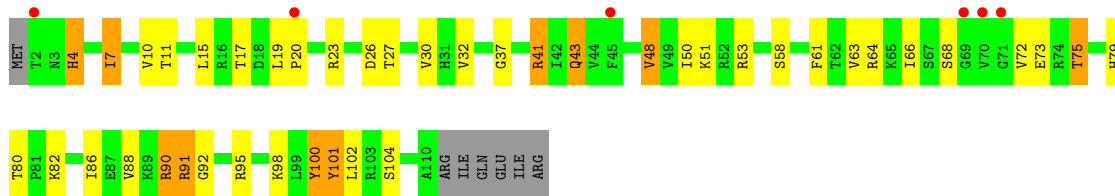
• Molecule 12: 50S ribosomal protein L17



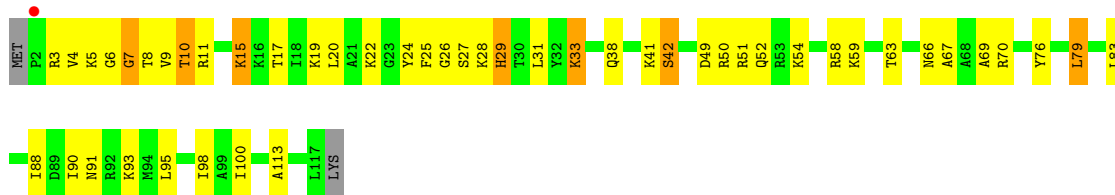
• Molecule 13: 50S ribosomal protein L18



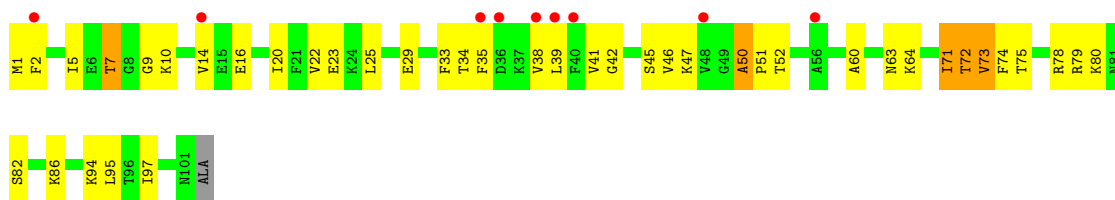
• Molecule 14: 50S ribosomal protein L19



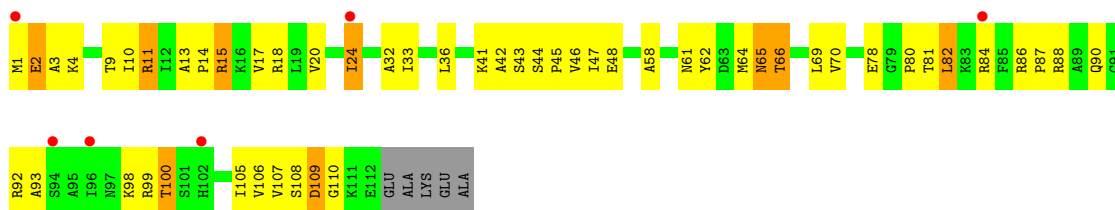
• Molecule 15: 50S ribosomal protein L20



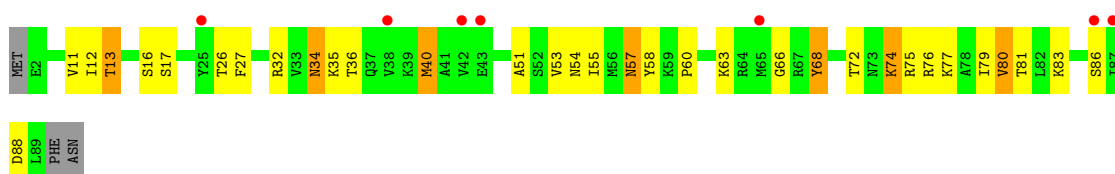
• Molecule 16: 50S ribosomal protein L21



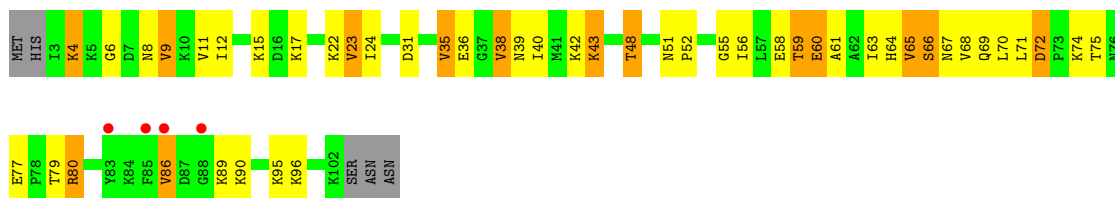
- Molecule 17: 50S ribosomal protein L22



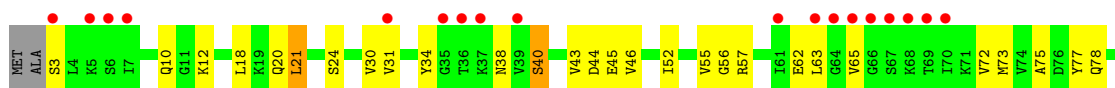
- Molecule 18: 50S ribosomal protein L23

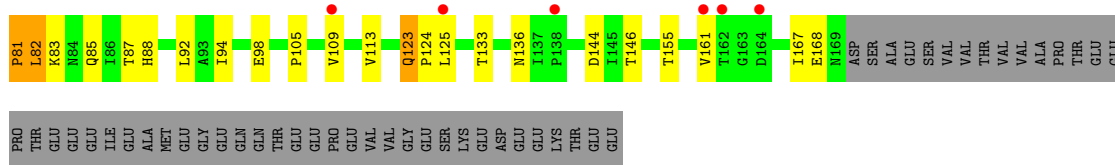


- Molecule 19: 50S ribosomal protein L24

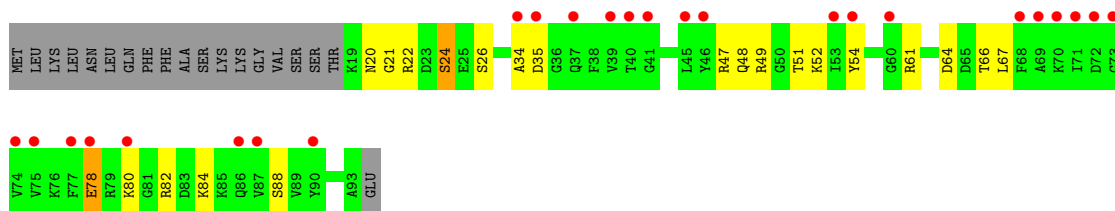


- Molecule 20: 50S ribosomal protein L25

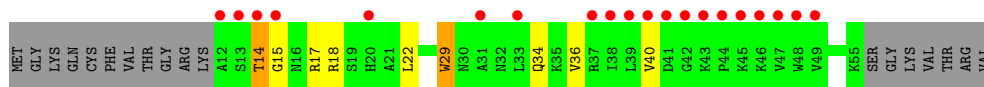




• Molecule 21: 50S ribosomal protein L27



• Molecule 22: 50S ribosomal protein L28



• Molecule 23: 50S ribosomal protein L29



• Molecule 24: 50S ribosomal protein L30

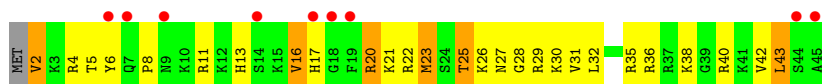


• Molecule 25: 50S ribosomal protein L32

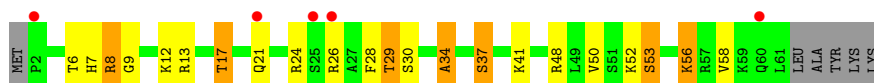


• Molecule 26: 50S ribosomal protein L34

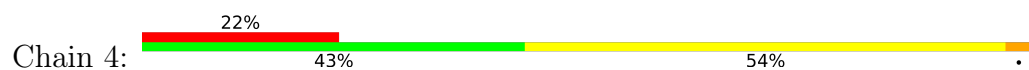




- Molecule 27: 50S ribosomal protein L35



- Molecule 28: 50S ribosomal protein L36



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 65 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	279.92Å 279.92Å 870.59Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	64.88 – 3.39 100.73 – 3.39	Depositor EDS
% Data completeness (in resolution range)	88.9 (64.88-3.39) 88.9 (100.73-3.39)	Depositor EDS
$R_{merge}$	0.16	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.82 (at 3.41Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, $R_{free}$	0.202 , 0.243 0.202 , 0.243	Depositor DCC
$R_{free}$ test set	12433 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	109.3	Xtriage
Anisotropy	0.285	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.21 , 88.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	81465	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	100.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.46% of the height of the origin peak. No significant pseudotranslation is detected.*

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

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: SPD, NA, MN, EOH, MG, ZLD, MPD, EPE

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	X	0.53	7/65113 (0.0%)	1.03	150/101510 (0.1%)
2	Y	0.50	0/2717	1.03	10/4232 (0.2%)
3	A	0.36	0/1652	0.67	0/2280
4	B	0.49	0/1554	0.76	0/2101
5	C	0.49	0/1339	0.76	0/1832
6	D	0.27	0/796	0.54	0/1104
7	E	0.36	0/937	0.64	0/1296
8	G	0.45	0/1109	0.69	0/1504
9	H	0.47	0/847	0.68	0/1150
10	I	0.56	0/825	0.90	1/1119 (0.1%)
11	J	0.47	0/1026	0.70	0/1390
12	K	0.44	0/899	0.71	0/1204
13	L	0.36	0/664	0.67	0/907
14	M	0.43	0/821	0.71	0/1110
15	N	0.53	0/944	0.73	0/1252
16	O	0.47	0/761	0.73	0/1022
17	P	0.48	0/870	0.69	0/1171
18	Q	0.35	0/591	0.60	0/809
19	R	0.36	0/686	0.63	0/934
20	S	0.45	0/1060	0.71	2/1461 (0.1%)
21	T	0.42	0/536	0.64	0/720
22	U	0.30	0/257	0.59	0/356
23	V	0.35	0/415	0.55	0/569
24	W	0.44	0/443	0.66	0/597
25	Z	0.57	0/342	0.89	0/457
26	2	0.41	0/372	0.63	0/487
27	3	0.50	0/418	0.80	0/558
28	4	0.37	0/265	0.58	0/356
All	All	0.51	7/88259 (0.0%)	0.97	163/133488 (0.1%)

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
3	A	0	1
4	B	0	1
9	H	0	1
All	All	0	3

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	X	577	A	N9-C4	-8.16	1.32	1.37
1	X	1065	A	N9-C4	-7.99	1.33	1.37
1	X	577	A	C5-C6	-6.29	1.35	1.41
1	X	350	G	N9-C4	5.82	1.42	1.38
1	X	2845	G	N9-C4	-5.62	1.33	1.38

The worst 5 of 163 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	X	577	A	N1-C6-N6	13.04	126.42	118.60
1	X	577	A	C2-N3-C4	-11.54	104.83	110.60
1	X	2845	G	N3-C4-N9	-11.21	119.27	126.00
1	X	2845	G	N3-C4-C5	11.11	134.15	128.60
1	X	2048	G	C4-C5-N7	10.77	115.11	110.80

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	A	128	ASN	Peptide
4	B	166	GLY	Peptide
9	H	83	ALA	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	X	58151	0	29248	918	0
2	Y	2430	0	1229	37	0
3	A	1620	0	1213	57	0
4	B	1531	0	1483	66	0
5	C	1321	0	1184	54	0
6	D	794	0	415	4	0
7	E	926	0	656	18	0
8	G	1087	0	1022	47	0
9	H	840	0	802	35	0
10	I	817	0	688	27	0
11	J	1003	0	970	44	0
12	K	896	0	921	35	0
13	L	659	0	505	17	0
14	M	809	0	811	23	0
15	N	932	0	997	45	0
16	O	751	0	744	24	0
17	P	862	0	920	45	0
18	Q	586	0	493	24	0
19	R	680	0	650	32	0
20	S	1048	0	847	15	0
21	T	530	0	494	19	0
22	U	254	0	165	4	0
23	V	414	0	354	9	0
24	W	441	0	478	20	0
25	Z	336	0	340	22	0
26	2	368	0	409	20	0
27	3	414	0	392	12	0
28	4	262	0	266	19	0
29	X	24	0	20	5	0
30	X	72	0	126	5	0
31	A	2	0	0	0	0
31	B	1	0	0	0	0
31	C	1	0	0	0	0
31	G	2	0	0	0	0
31	I	1	0	0	0	0
31	K	1	0	0	0	0
31	N	1	0	0	0	0
31	O	2	0	0	0	0
31	W	1	0	0	0	0
31	X	226	0	0	0	0
31	Y	6	0	0	0	0
31	Z	2	0	0	0	0
32	M	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	X	191	0	0	0	0
32	Y	2	0	0	0	0
32	Z	1	0	0	0	0
33	X	1	0	0	0	0
34	X	60	0	68	20	0
35	J	10	0	19	0	0
35	X	80	0	152	11	0
36	X	12	0	24	0	0
36	Y	3	0	6	0	0
All	All	81465	0	49111	1518	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 12.

The worst 5 of 1518 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)
3:A:116:VAL:HG11	3:A:127:GLY:HA3	1.41	0.97
34:X:3426:EPE:H52	15:N:7:GLY:HA2	1.50	0.94
1:X:1521:A:N6	1:X:1560:A:N3	2.17	0.93
1:X:1247:G:O2'	1:X:1275:A:N6	2.02	0.92
5:C:17:ILE:HD11	5:C:124:THR:HG21	1.56	0.88

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
3	A	266/277 (96%)	208 (78%)	35 (13%)	23 (9%)	<b>1</b> <b>5</b>
4	B	213/220 (97%)	183 (86%)	17 (8%)	13 (6%)	<b>1</b> <b>10</b>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	C	197/207 (95%)	162 (82%)	18 (9%)	17 (9%)	1	5
6	D	151/179 (84%)	118 (78%)	20 (13%)	13 (9%)	1	5
7	E	155/178 (87%)	109 (70%)	30 (19%)	16 (10%)	0	3
8	G	143/145 (99%)	122 (85%)	12 (8%)	9 (6%)	1	9
9	H	120/122 (98%)	109 (91%)	10 (8%)	1 (1%)	19	51
10	I	129/146 (88%)	91 (70%)	23 (18%)	15 (12%)	0	3
11	J	136/144 (94%)	119 (88%)	11 (8%)	6 (4%)	2	16
12	K	117/122 (96%)	106 (91%)	5 (4%)	6 (5%)	2	14
13	L	106/119 (89%)	82 (77%)	15 (14%)	9 (8%)	1	5
14	M	107/116 (92%)	95 (89%)	9 (8%)	3 (3%)	5	24
15	N	114/118 (97%)	110 (96%)	3 (3%)	1 (1%)	17	49
16	O	99/102 (97%)	86 (87%)	8 (8%)	5 (5%)	2	14
17	P	110/117 (94%)	106 (96%)	4 (4%)	0	100	100
18	Q	86/91 (94%)	75 (87%)	9 (10%)	2 (2%)	6	28
19	R	98/105 (93%)	77 (79%)	15 (15%)	6 (6%)	1	10
20	S	165/217 (76%)	130 (79%)	25 (15%)	10 (6%)	1	10
21	T	73/94 (78%)	67 (92%)	5 (7%)	1 (1%)	11	37
22	U	42/62 (68%)	32 (76%)	6 (14%)	4 (10%)	0	4
23	V	63/69 (91%)	52 (82%)	10 (16%)	1 (2%)	9	34
24	W	55/59 (93%)	52 (94%)	3 (6%)	0	100	100
25	Z	42/58 (72%)	36 (86%)	2 (5%)	4 (10%)	0	4
26	2	42/45 (93%)	36 (86%)	5 (12%)	1 (2%)	6	28
27	3	58/66 (88%)	47 (81%)	7 (12%)	4 (7%)	1	8
28	4	35/37 (95%)	30 (86%)	3 (9%)	2 (6%)	1	12
All	All	2922/3215 (91%)	2440 (84%)	310 (11%)	172 (6%)	1	11

5 of 172 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	A	141	VAL
3	A	154	ILE
3	A	192	ILE
4	B	60	LYS
4	B	61	LYS

### 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	
3	A	102/224 (46%)	84 (82%)	18 (18%)	2	6
4	B	148/177 (84%)	115 (78%)	33 (22%)	1	2
5	C	107/169 (63%)	84 (78%)	23 (22%)	1	3
6	D	13/158 (8%)	11 (85%)	2 (15%)	2	11
7	E	53/155 (34%)	47 (89%)	6 (11%)	6	21
8	G	105/123 (85%)	87 (83%)	18 (17%)	2	8
9	H	77/100 (77%)	66 (86%)	11 (14%)	3	13
10	I	54/112 (48%)	40 (74%)	14 (26%)	0	2
11	J	91/119 (76%)	75 (82%)	16 (18%)	2	6
12	K	88/102 (86%)	73 (83%)	15 (17%)	2	8
13	L	35/95 (37%)	33 (94%)	2 (6%)	20	50
14	M	78/102 (76%)	58 (74%)	20 (26%)	0	2
15	N	93/98 (95%)	80 (86%)	13 (14%)	3	13
16	O	72/86 (84%)	64 (89%)	8 (11%)	6	22
17	P	91/94 (97%)	78 (86%)	13 (14%)	3	13
18	Q	44/82 (54%)	35 (80%)	9 (20%)	1	3
19	R	64/90 (71%)	45 (70%)	19 (30%)	0	1
20	S	75/190 (40%)	56 (75%)	19 (25%)	0	2
21	T	47/75 (63%)	42 (89%)	5 (11%)	6	24
22	U	10/52 (19%)	8 (80%)	2 (20%)	1	3
23	V	30/62 (48%)	22 (73%)	8 (27%)	0	1
24	W	51/53 (96%)	41 (80%)	10 (20%)	1	4
25	Z	35/51 (69%)	30 (86%)	5 (14%)	3	13
26	2	38/40 (95%)	29 (76%)	9 (24%)	1	2
27	3	35/57 (61%)	25 (71%)	10 (29%)	0	1
28	4	27/35 (77%)	26 (96%)	1 (4%)	34	62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1663/2701 (62%)	1354 (81%)	309 (19%)	<b>1</b> <b>5</b>

5 of 309 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	R	60	GLU
25	Z	37	TYR
19	R	80	ARG
21	T	26	SER
27	3	17	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
24	W	40	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	X	2691/2923 (92%)	627 (23%)	33 (1%)
2	Y	113/114 (99%)	14 (12%)	0
All	All	2804/3037 (92%)	641 (22%)	33 (1%)

5 of 641 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	X	2	A
1	X	15	G
1	X	34	U
1	X	36	G
1	X	39	C

5 of 33 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	X	2457	A
1	X	2495	A
1	X	2807	G
1	X	1028	G
1	X	944	G

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 470 ligands modelled in this entry, 442 are monoatomic - leaving 28 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
36	EOH	X	3437	-	2,2,2	0.52	0	1,1,1	0.72	0
35	SPD	X	3434	-	9,9,9	0.17	0	8,8,8	0.20	0
34	EPE	X	3426	-	15,15,15	3.01	1 (6%)	18,20,20	0.70	0
30	MPD	X	3005	-	7,7,7	0.42	0	9,10,10	0.34	0
30	MPD	X	3010	-	7,7,7	0.45	0	9,10,10	0.25	0
30	MPD	X	3009	-	7,7,7	0.51	0	9,10,10	0.18	0
34	EPE	X	3425	-	15,15,15	1.06	1 (6%)	18,20,20	0.51	0
36	EOH	X	3438	-	2,2,2	0.61	0	1,1,1	0.54	0
34	EPE	X	3423	-	15,15,15	1.28	1 (6%)	18,20,20	0.55	0
30	MPD	X	3003	-	7,7,7	0.61	0	9,10,10	0.29	0
30	MPD	X	3004	-	7,7,7	0.43	0	9,10,10	0.20	0
30	MPD	X	3007	-	7,7,7	0.65	0	9,10,10	0.41	0
35	SPD	X	3433	-	9,9,9	0.17	0	8,8,8	0.21	0
34	EPE	X	3424	-	15,15,15	1.46	1 (6%)	18,20,20	0.65	1 (5%)
35	SPD	X	3432	-	9,9,9	0.21	0	8,8,8	0.22	0
36	EOH	X	3435	-	2,2,2	0.64	0	1,1,1	0.37	0
30	MPD	X	3008	-	7,7,7	0.35	0	9,10,10	0.14	0
35	SPD	X	3430	-	9,9,9	0.13	0	8,8,8	0.19	0
35	SPD	J	201	-	9,9,9	0.15	0	8,8,8	0.18	0
29	ZLD	X	3001	-	26,26,26	1.09	1 (3%)	36,36,36	1.52	7 (19%)
30	MPD	X	3002	-	7,7,7	0.35	0	9,10,10	0.24	0



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
35	SPD	X	3428	-	9,9,9	0.17	0	8,8,8	0.15	0
35	SPD	X	3431	-	9,9,9	0.16	0	8,8,8	0.18	0
30	MPD	X	3006	-	7,7,7	0.53	0	9,10,10	0.24	0
35	SPD	X	3429	-	9,9,9	0.20	0	8,8,8	0.15	0
36	EOH	X	3436	-	2,2,2	0.53	0	1,1,1	0.67	0
35	SPD	X	3427	-	9,9,9	0.20	0	8,8,8	0.34	0
36	EOH	Y	209	-	2,2,2	0.53	0	1,1,1	0.68	0

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
35	SPD	X	3434	-	-	1/7/7/7	-
34	EPE	X	3426	-	-	2/9/19/19	0/1/1/1
30	MPD	X	3005	-	-	2/5/5/5	-
30	MPD	X	3010	-	-	4/5/5/5	-
30	MPD	X	3009	-	-	4/5/5/5	-
34	EPE	X	3425	-	-	3/9/19/19	0/1/1/1
34	EPE	X	3423	-	-	5/9/19/19	0/1/1/1
30	MPD	X	3003	-	-	2/5/5/5	-
30	MPD	X	3004	-	-	1/5/5/5	-
30	MPD	X	3007	-	-	1/5/5/5	-
35	SPD	X	3433	-	-	2/7/7/7	-
34	EPE	X	3424	-	-	7/9/19/19	0/1/1/1
35	SPD	X	3432	-	-	3/7/7/7	-
30	MPD	X	3008	-	-	2/5/5/5	-
35	SPD	X	3430	-	-	0/7/7/7	-
35	SPD	J	201	-	-	1/7/7/7	-
29	ZLD	X	3001	-	-	5/13/33/33	0/3/3/3
30	MPD	X	3002	-	-	1/5/5/5	-
35	SPD	X	3428	-	-	3/7/7/7	-
35	SPD	X	3431	-	-	0/7/7/7	-
30	MPD	X	3006	-	-	2/5/5/5	-
35	SPD	X	3429	-	-	2/7/7/7	-
35	SPD	X	3427	-	-	1/7/7/7	-

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	X	3426	EPE	C10-S	-11.53	1.61	1.77
34	X	3424	EPE	C10-S	-5.54	1.69	1.77
34	X	3423	EPE	C10-S	-4.81	1.70	1.77
29	X	3001	ZLD	C7-N4	4.48	1.41	1.36
34	X	3425	EPE	C10-S	-3.99	1.71	1.77

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
29	X	3001	ZLD	C8-O10-C7	4.07	113.36	110.15
29	X	3001	ZLD	C6-C8-C9	-3.47	109.24	113.08
29	X	3001	ZLD	C8-C9-N11	3.42	119.60	112.16
29	X	3001	ZLD	O15-C7-N4	-2.81	126.68	128.91
29	X	3001	ZLD	O10-C7-N4	-2.69	107.98	109.83

There are no chirality outliers.

5 of 54 torsion outliers are listed below:

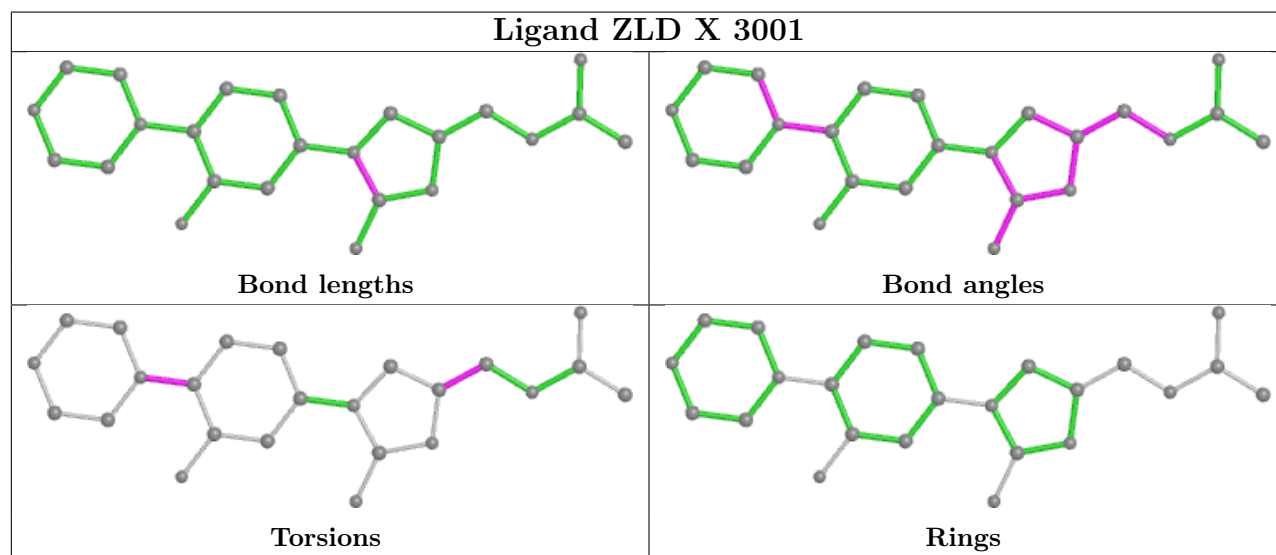
Mol	Chain	Res	Type	Atoms
29	X	3001	ZLD	O10-C8-C9-N11
29	X	3001	ZLD	C16-C17-N19-C20
30	X	3003	MPD	C1-C2-C3-C4
30	X	3003	MPD	O2-C2-C3-C4
30	X	3008	MPD	C2-C3-C4-C5

There are no ring outliers.

13 monomers are involved in 41 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
35	X	3434	SPD	1	0
34	X	3426	EPE	14	0
30	X	3005	MPD	3	0
30	X	3010	MPD	1	0
30	X	3009	MPD	1	0
34	X	3425	EPE	4	0
34	X	3423	EPE	1	0
35	X	3433	SPD	2	0
34	X	3424	EPE	1	0
35	X	3432	SPD	2	0
35	X	3430	SPD	3	0
29	X	3001	ZLD	5	0
35	X	3428	SPD	3	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 than 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	X	2711/2923 (92%)	-0.50	9 (0%) 94 93	39, 91, 192, 340	0
2	Y	114/114 (100%)	-0.79	0 100 100	61, 106, 172, 208	0
3	A	268/277 (96%)	0.74	57 (21%) 0 1	64, 121, 176, 224	0
4	B	215/220 (97%)	-0.04	5 (2%) 60 59	50, 66, 114, 194	0
5	C	199/207 (96%)	0.02	7 (3%) 44 43	56, 82, 132, 163	0
6	D	155/179 (86%)	-0.26	6 (3%) 39 38	96, 156, 222, 311	0
7	E	157/178 (88%)	-0.36	8 (5%) 28 28	88, 136, 197, 264	0
8	G	145/145 (100%)	0.01	3 (2%) 63 62	47, 63, 98, 129	0
9	H	122/122 (100%)	0.95	32 (26%) 0 0	66, 89, 129, 146	0
10	I	131/146 (89%)	0.24	11 (8%) 11 13	34, 94, 152, 175	0
11	J	138/144 (95%)	1.10	39 (28%) 0 0	54, 83, 183, 312	0
12	K	119/122 (97%)	-0.03	5 (4%) 36 35	37, 74, 127, 175	0
13	L	108/119 (90%)	-0.31	8 (7%) 14 16	68, 109, 149, 173	0
14	M	109/116 (93%)	0.10	6 (5%) 25 25	54, 86, 155, 201	0
15	N	116/118 (98%)	-0.14	1 (0%) 84 83	35, 60, 98, 125	0
16	O	101/102 (99%)	0.10	9 (8%) 9 11	38, 73, 127, 149	0
17	P	112/117 (95%)	0.45	6 (5%) 25 26	43, 63, 114, 179	0
18	Q	88/91 (96%)	0.11	7 (7%) 12 13	84, 110, 167, 193	0
19	R	100/105 (95%)	-0.31	4 (4%) 38 37	60, 110, 228, 298	0
20	S	167/217 (76%)	0.22	24 (14%) 2 3	55, 104, 213, 309	0
21	T	75/94 (79%)	1.29	25 (33%) 0 0	66, 78, 132, 178	0
22	U	44/62 (70%)	2.31	20 (45%) 0 0	89, 163, 227, 254	0
23	V	65/69 (94%)	-0.12	4 (6%) 20 21	75, 114, 166, 228	0
24	W	57/59 (96%)	-0.29	0 100 100	37, 62, 114, 159	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
25	Z	44/58 (75%)	0.45	5 (11%) 5 6	34, 74, 140, 227	0
26	2	44/45 (97%)	0.84	9 (20%) 1 1	57, 83, 118, 145	0
27	3	60/66 (90%)	0.14	5 (8%) 11 13	41, 77, 118, 148	0
28	4	37/37 (100%)	0.86	8 (21%) 0 1	96, 104, 144, 162	0
All	All	5801/6252 (92%)	-0.13	323 (5%) 24 25	34, 92, 181, 340	0

The worst 5 of 323 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
22	U	42	GLY	12.5
3	A	82	GLN	12.3
22	U	41	ASP	10.0
20	S	164	ASP	8.6
22	U	39	LEU	8.6

## 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, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
31	MG	X	3366	1/1	0.11	0.38	69,69,69,69	0
32	MN	X	3265	1/1	0.15	0.89	158,158,158,158	0
31	MG	X	3248	1/1	0.33	0.25	65,65,65,65	0
31	MG	X	3275	1/1	0.33	0.22	73,73,73,73	0
31	MG	O	202	1/1	0.34	0.73	67,67,67,67	0
31	MG	X	3386	1/1	0.40	1.37	112,112,112,112	0
31	MG	X	3029	1/1	0.41	0.41	65,65,65,65	1

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
31	MG	X	3351	1/1	0.41	0.56	41,41,41,41	0
31	MG	X	3245	1/1	0.46	0.39	93,93,93,93	0
31	MG	X	3420	1/1	0.47	0.64	79,79,79,79	0
31	MG	X	3284	1/1	0.48	0.77	94,94,94,94	0
31	MG	G	201	1/1	0.50	0.99	68,68,68,68	0
31	MG	X	3399	1/1	0.53	1.36	101,101,101,101	0
31	MG	X	3292	1/1	0.54	0.17	70,70,70,70	0
32	MN	X	3114	1/1	0.56	0.85	150,150,150,150	0
31	MG	X	3208	1/1	0.56	0.43	78,78,78,78	0
31	MG	X	3380	1/1	0.57	0.43	83,83,83,83	0
32	MN	X	3422	1/1	0.57	1.08	201,201,201,201	0
31	MG	X	3370	1/1	0.58	0.34	103,103,103,103	0
31	MG	X	3359	1/1	0.58	1.18	87,87,87,87	0
31	MG	X	3401	1/1	0.58	0.54	63,63,63,63	0
31	MG	X	3343	1/1	0.60	0.66	108,108,108,108	0
32	MN	X	3071	1/1	0.61	0.15	134,134,134,134	0
35	SPD	X	3429	10/10	0.61	0.65	106,106,106,106	0
31	MG	X	3047	1/1	0.62	0.35	71,71,71,71	0
31	MG	X	3389	1/1	0.62	0.29	66,66,66,66	0
31	MG	X	3242	1/1	0.63	0.72	90,90,90,90	0
31	MG	X	3327	1/1	0.63	0.47	103,103,103,103	0
31	MG	X	3418	1/1	0.64	0.76	81,81,81,81	0
30	MPD	X	3006	8/8	0.65	0.42	133,133,133,133	0
32	MN	M	201	1/1	0.65	0.16	122,122,122,122	0
31	MG	X	3361	1/1	0.65	1.08	76,76,76,76	0
31	MG	Y	207	1/1	0.66	0.54	101,101,101,101	0
31	MG	X	3252	1/1	0.66	0.30	50,50,50,50	0
32	MN	X	3113	1/1	0.66	0.24	123,123,123,123	0
31	MG	K	201	1/1	0.66	0.34	72,72,72,72	0
36	EOH	Y	209	3/3	0.66	0.27	93,93,93,93	0
31	MG	X	3311	1/1	0.67	0.13	86,86,86,86	0
31	MG	X	3280	1/1	0.69	1.21	87,87,87,87	0
32	MN	X	3098	1/1	0.69	0.26	131,131,131,131	0
31	MG	X	3344	1/1	0.69	0.67	92,92,92,92	0
31	MG	X	3297	1/1	0.69	0.47	85,85,85,85	0
32	MN	X	3115	1/1	0.69	0.29	135,135,135,135	0
31	MG	X	3419	1/1	0.70	1.75	100,100,100,100	0
31	MG	X	3014	1/1	0.70	1.10	85,85,85,85	0
32	MN	X	3085	1/1	0.71	0.60	128,128,128,128	0
31	MG	X	3411	1/1	0.71	0.42	83,83,83,83	0
32	MN	X	3235	1/1	0.72	0.16	134,134,134,134	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
34	EPE	X	3425	15/15	0.72	0.33	152,152,152,152	0
31	MG	X	3302	1/1	0.72	0.21	51,51,51,51	0
31	MG	X	3340	1/1	0.72	0.43	56,56,56,56	0
31	MG	X	3056	1/1	0.73	0.80	55,55,55,55	1
32	MN	X	3105	1/1	0.73	0.37	87,87,87,87	0
31	MG	X	3012	1/1	0.74	1.29	13,13,13,13	1
35	SPD	J	201	10/10	0.74	0.27	82,82,82,82	0
31	MG	X	3312	1/1	0.74	1.03	57,57,57,57	0
32	MN	X	3117	1/1	0.75	0.52	166,166,166,166	0
31	MG	X	3348	1/1	0.75	0.41	85,85,85,85	0
31	MG	X	3254	1/1	0.75	0.86	47,47,47,47	1
32	MN	X	3096	1/1	0.75	0.10	153,153,153,153	0
32	MN	Y	203	1/1	0.75	0.18	99,99,99,99	0
31	MG	X	3357	1/1	0.75	0.65	56,56,56,56	0
31	MG	X	3045	1/1	0.75	0.34	87,87,87,87	0
31	MG	X	3030	1/1	0.75	0.23	38,38,38,38	1
35	SPD	X	3431	10/10	0.75	0.39	98,98,98,98	0
31	MG	X	3363	1/1	0.75	0.46	81,81,81,81	0
31	MG	X	3318	1/1	0.75	0.36	65,65,65,65	0
32	MN	X	3217	1/1	0.76	0.54	113,113,113,113	0
32	MN	X	3226	1/1	0.76	0.23	112,112,112,112	0
31	MG	X	3034	1/1	0.76	0.38	75,75,75,75	0
32	MN	X	3068	1/1	0.77	0.15	130,130,130,130	0
31	MG	X	3243	1/1	0.77	0.37	82,82,82,82	0
34	EPE	X	3424	15/15	0.77	0.39	194,194,194,194	0
31	MG	X	3296	1/1	0.77	0.30	75,75,75,75	0
32	MN	X	3262	1/1	0.77	0.10	191,191,191,191	0
32	MN	X	3264	1/1	0.77	0.29	128,128,128,128	0
31	MG	X	3400	1/1	0.77	0.38	50,50,50,50	0
31	MG	X	3369	1/1	0.77	0.80	76,76,76,76	0
31	MG	X	3285	1/1	0.78	0.30	73,73,73,73	0
31	MG	X	3032	1/1	0.78	0.48	64,64,64,64	0
32	MN	X	3266	1/1	0.78	0.14	104,104,104,104	0
31	MG	X	3382	1/1	0.78	0.72	68,68,68,68	0
32	MN	X	3222	1/1	0.79	1.24	171,171,171,171	0
31	MG	Y	208	1/1	0.79	0.52	81,81,81,81	0
30	MPD	X	3008	8/8	0.79	0.51	144,144,144,144	0
31	MG	X	3019	1/1	0.79	0.64	69,69,69,69	0
31	MG	X	3394	1/1	0.79	0.30	80,80,80,80	0
32	MN	X	3214	1/1	0.79	0.28	163,163,163,163	0
31	MG	X	3397	1/1	0.79	0.41	95,95,95,95	0
32	MN	X	3221	1/1	0.79	0.35	130,130,130,130	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
31	MG	X	3291	1/1	0.80	0.97	62,62,62,62	0
31	MG	X	3393	1/1	0.80	0.12	67,67,67,67	0
32	MN	X	3072	1/1	0.80	0.20	91,91,91,91	0
31	MG	X	3038	1/1	0.80	0.22	75,75,75,75	0
31	MG	X	3286	1/1	0.80	0.57	82,82,82,82	0
31	MG	X	3372	1/1	0.81	0.18	49,49,49,49	0
31	MG	X	3309	1/1	0.81	0.10	53,53,53,53	0
31	MG	Y	206	1/1	0.82	0.42	65,65,65,65	0
31	MG	X	3316	1/1	0.82	0.86	88,88,88,88	0
32	MN	X	3067	1/1	0.82	0.35	166,166,166,166	0
31	MG	X	3244	1/1	0.82	0.44	78,78,78,78	0
32	MN	X	3240	1/1	0.82	0.36	123,123,123,123	0
32	MN	X	3119	1/1	0.82	0.71	155,155,155,155	0
32	MN	X	3141	1/1	0.82	0.48	100,100,100,100	0
31	MG	X	3026	1/1	0.82	0.24	64,64,64,64	0
32	MN	X	3112	1/1	0.82	0.12	155,155,155,155	0
32	MN	X	3121	1/1	0.83	0.38	126,126,126,126	0
31	MG	X	3378	1/1	0.83	0.23	83,83,83,83	0
31	MG	X	3063	1/1	0.83	0.32	49,49,49,49	0
31	MG	X	3306	1/1	0.83	0.31	77,77,77,77	0
31	MG	X	3241	1/1	0.83	0.67	66,66,66,66	0
31	MG	X	3341	1/1	0.83	0.47	43,43,43,43	0
32	MN	X	3267	1/1	0.83	0.43	140,140,140,140	0
36	EOH	X	3436	3/3	0.83	0.36	92,92,92,92	0
36	EOH	X	3438	3/3	0.83	0.31	63,63,63,63	0
31	MG	X	3391	1/1	0.83	0.35	73,73,73,73	0
31	MG	X	3211	1/1	0.84	0.23	32,32,32,32	0
32	MN	X	3083	1/1	0.84	0.31	150,150,150,150	0
31	MG	X	3011	1/1	0.84	0.37	85,85,85,85	0
30	MPD	X	3002	8/8	0.84	0.38	132,132,132,132	0
31	MG	X	3255	1/1	0.84	0.62	69,69,69,69	0
33	NA	X	3367	1/1	0.84	0.36	64,64,64,64	0
31	MG	G	202	1/1	0.84	0.28	77,77,77,77	0
31	MG	X	3273	1/1	0.84	0.25	79,79,79,79	0
31	MG	X	3033	1/1	0.84	0.56	12,12,12,12	1
31	MG	X	3028	1/1	0.84	0.24	58,58,58,58	0
35	SPD	X	3434	10/10	0.84	0.26	98,98,98,98	0
32	MN	X	3259	1/1	0.84	0.12	140,140,140,140	0
31	MG	X	3304	1/1	0.84	0.18	70,70,70,70	0
32	MN	X	3070	1/1	0.84	0.18	148,148,148,148	0
30	MPD	X	3009	8/8	0.84	0.42	107,107,107,107	0
31	MG	X	3440	1/1	0.85	0.21	37,37,37,37	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
31	MG	X	3444	1/1	0.85	0.24	44,44,44,44	0
31	MG	X	3368	1/1	0.85	0.37	70,70,70,70	0
31	MG	X	3407	1/1	0.85	0.53	89,89,89,89	0
31	MG	X	3037	1/1	0.85	0.23	69,69,69,69	0
31	MG	B	301	1/1	0.85	0.28	65,65,65,65	0
35	SPD	X	3427	10/10	0.85	0.33	56,56,56,56	0
31	MG	X	3051	1/1	0.85	0.51	14,14,14,14	1
31	MG	X	3364	1/1	0.85	0.33	80,80,80,80	0
32	MN	X	3090	1/1	0.85	0.14	123,123,123,123	0
31	MG	X	3360	1/1	0.85	0.60	123,123,123,123	0
32	MN	X	3151	1/1	0.85	0.62	106,106,106,106	0
32	MN	X	3161	1/1	0.85	0.58	98,98,98,98	0
32	MN	X	3202	1/1	0.85	0.28	117,117,117,117	0
31	MG	X	3381	1/1	0.86	0.31	82,82,82,82	0
31	MG	X	3018	1/1	0.86	0.87	76,76,76,76	0
34	EPE	X	3423	15/15	0.86	0.32	152,152,152,152	0
31	MG	X	3206	1/1	0.86	0.52	74,74,74,74	0
32	MN	X	3088	1/1	0.86	0.15	110,110,110,110	0
31	MG	I	201	1/1	0.86	0.63	47,47,47,47	0
31	MG	X	3387	1/1	0.86	0.29	60,60,60,60	0
31	MG	X	3059	1/1	0.86	0.26	35,35,35,35	0
32	MN	X	3191	1/1	0.86	0.18	107,107,107,107	0
31	MG	X	3405	1/1	0.86	0.98	79,79,79,79	0
31	MG	X	3062	1/1	0.86	0.32	56,56,56,56	0
31	MG	X	3347	1/1	0.86	0.20	77,77,77,77	0
31	MG	A	302	1/1	0.86	0.33	58,58,58,58	0
32	MN	X	3260	1/1	0.87	0.26	126,126,126,126	0
32	MN	X	3205	1/1	0.87	0.14	113,113,113,113	0
32	MN	X	3086	1/1	0.87	0.21	82,82,82,82	0
32	MN	X	3140	1/1	0.87	0.33	111,111,111,111	0
31	MG	X	3375	1/1	0.87	0.18	69,69,69,69	0
32	MN	X	3148	1/1	0.87	0.39	102,102,102,102	0
35	SPD	X	3432	10/10	0.87	0.25	77,77,77,77	0
32	MN	X	3271	1/1	0.87	0.20	117,117,117,117	0
31	MG	X	3408	1/1	0.87	0.24	48,48,48,48	0
31	MG	X	3256	1/1	0.87	1.16	82,82,82,82	0
31	MG	X	3396	1/1	0.87	0.81	85,85,85,85	0
30	MPD	X	3004	8/8	0.87	0.23	109,109,109,109	0
31	MG	X	3276	1/1	0.88	0.55	85,85,85,85	0
31	MG	X	3050	1/1	0.88	0.80	2,2,2,2	1
31	MG	X	3272	1/1	0.88	1.14	69,69,69,69	0
31	MG	X	3031	1/1	0.88	0.28	70,70,70,70	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
32	MN	X	3270	1/1	0.88	0.11	109,109,109,109	0
32	MN	X	3227	1/1	0.88	0.23	107,107,107,107	0
32	MN	X	3177	1/1	0.88	0.14	56,56,56,56	0
31	MG	X	3039	1/1	0.88	0.19	53,53,53,53	0
32	MN	X	3097	1/1	0.88	0.51	118,118,118,118	0
31	MG	X	3290	1/1	0.88	0.40	46,46,46,46	0
31	MG	X	3371	1/1	0.88	1.00	91,91,91,91	0
30	MPD	X	3007	8/8	0.89	0.19	114,114,114,114	0
31	MG	X	3281	1/1	0.89	0.40	72,72,72,72	0
30	MPD	X	3005	8/8	0.89	0.14	64,64,64,64	0
31	MG	X	3321	1/1	0.89	0.53	80,80,80,80	0
31	MG	X	3362	1/1	0.89	0.23	47,47,47,47	0
31	MG	X	3441	1/1	0.89	0.77	72,72,72,72	0
32	MN	X	3092	1/1	0.89	0.29	104,104,104,104	0
36	EOH	X	3437	3/3	0.89	0.21	92,92,92,92	0
32	MN	X	3172	1/1	0.89	0.57	82,82,82,82	0
31	MG	X	3388	1/1	0.89	0.22	65,65,65,65	0
31	MG	X	3015	1/1	0.90	0.41	36,36,36,36	1
31	MG	X	3044	1/1	0.90	0.39	20,20,20,20	1
31	MG	X	3053	1/1	0.90	0.70	42,42,42,42	1
32	MN	X	3144	1/1	0.90	0.49	143,143,143,143	0
32	MN	X	3232	1/1	0.90	0.25	105,105,105,105	0
31	MG	X	3409	1/1	0.90	1.04	67,67,67,67	0
31	MG	X	3410	1/1	0.90	0.37	78,78,78,78	0
31	MG	A	301	1/1	0.90	0.16	81,81,81,81	0
32	MN	X	3109	1/1	0.90	0.39	145,145,145,145	0
31	MG	X	3299	1/1	0.90	0.07	38,38,38,38	0
32	MN	X	3073	1/1	0.90	0.09	105,105,105,105	0
32	MN	X	3197	1/1	0.90	0.20	102,102,102,102	0
31	MG	X	3025	1/1	0.90	0.46	10,10,10,10	1
36	EOH	X	3435	3/3	0.90	0.23	36,36,36,36	0
31	MG	X	3278	1/1	0.90	0.24	67,67,67,67	0
30	MPD	X	3010	8/8	0.90	0.31	122,122,122,122	0
31	MG	X	3377	1/1	0.90	0.21	73,73,73,73	0
32	MN	X	3416	1/1	0.90	0.13	111,111,111,111	0
31	MG	X	3412	1/1	0.91	1.01	82,82,82,82	0
31	MG	X	3287	1/1	0.91	0.93	67,67,67,67	0
31	MG	X	3016	1/1	0.91	0.43	81,81,81,81	0
31	MG	X	3048	1/1	0.91	0.41	31,31,31,31	1
32	MN	X	3167	1/1	0.91	0.42	91,91,91,91	0
31	MG	X	3346	1/1	0.91	0.92	81,81,81,81	0
31	MG	X	3022	1/1	0.91	0.30	83,83,83,83	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
35	SPD	X	3428	10/10	0.91	0.22	82,82,82,82	0
31	MG	X	3209	1/1	0.91	0.29	34,34,34,34	0
35	SPD	X	3430	10/10	0.91	0.28	80,80,80,80	0
32	MN	X	3116	1/1	0.91	0.17	84,84,84,84	0
31	MG	Y	204	1/1	0.91	0.46	63,63,63,63	0
31	MG	X	3349	1/1	0.91	0.12	45,45,45,45	0
32	MN	X	3094	1/1	0.91	0.18	139,139,139,139	0
32	MN	X	3123	1/1	0.91	0.25	97,97,97,97	0
32	MN	X	3219	1/1	0.91	0.22	139,139,139,139	0
32	MN	X	3373	1/1	0.91	0.29	94,94,94,94	0
31	MG	X	3334	1/1	0.91	0.21	57,57,57,57	0
31	MG	X	3027	1/1	0.91	0.60	66,66,66,66	0
31	MG	C	301	1/1	0.92	0.25	46,46,46,46	0
31	MG	X	3392	1/1	0.92	0.16	91,91,91,91	0
31	MG	X	3413	1/1	0.92	0.39	57,57,57,57	0
32	MN	X	3185	1/1	0.92	0.84	132,132,132,132	0
32	MN	X	3374	1/1	0.92	0.21	153,153,153,153	0
31	MG	X	3414	1/1	0.92	0.35	59,59,59,59	0
32	MN	X	3192	1/1	0.92	0.20	85,85,85,85	0
31	MG	X	3017	1/1	0.92	0.31	75,75,75,75	0
31	MG	O	201	1/1	0.92	0.34	41,41,41,41	0
31	MG	X	3354	1/1	0.92	0.33	64,64,64,64	0
31	MG	Z	102	1/1	0.92	0.27	68,68,68,68	0
31	MG	X	3328	1/1	0.92	0.51	59,59,59,59	0
31	MG	X	3213	1/1	0.92	0.38	22,22,22,22	0
31	MG	X	3061	1/1	0.92	0.28	41,41,41,41	0
31	MG	X	3021	1/1	0.92	0.31	76,76,76,76	0
29	ZLD	X	3001	24/24	0.92	0.40	87,88,90,91	0
31	MG	Y	205	1/1	0.92	0.16	77,77,77,77	0
31	MG	X	3046	1/1	0.92	0.23	43,43,43,43	1
32	MN	X	3138	1/1	0.92	0.25	120,120,120,120	0
31	MG	X	3055	1/1	0.92	0.55	53,53,53,53	0
31	MG	X	3246	1/1	0.92	0.37	69,69,69,69	0
31	MG	X	3024	1/1	0.92	0.32	67,67,67,67	0
31	MG	X	3250	1/1	0.92	0.57	70,70,70,70	0
32	MN	X	3091	1/1	0.92	0.41	100,100,100,100	0
31	MG	X	3350	1/1	0.92	0.12	28,28,28,28	0
32	MN	X	3162	1/1	0.92	0.28	74,74,74,74	0
32	MN	X	3168	1/1	0.93	0.42	85,85,85,85	0
31	MG	X	3339	1/1	0.93	0.23	59,59,59,59	0
32	MN	X	3229	1/1	0.93	0.43	135,135,135,135	0
32	MN	X	3095	1/1	0.93	0.25	133,133,133,133	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
31	MG	X	3023	1/1	0.93	0.23	56,56,56,56	0
32	MN	X	3238	1/1	0.93	0.17	174,174,174,174	0
32	MN	X	3188	1/1	0.93	0.38	100,100,100,100	0
31	MG	X	3406	1/1	0.93	0.21	55,55,55,55	0
32	MN	X	3076	1/1	0.93	0.47	148,148,148,148	0
31	MG	X	3300	1/1	0.93	0.77	80,80,80,80	0
32	MN	X	3108	1/1	0.93	0.50	182,182,182,182	0
31	MG	X	3383	1/1	0.93	0.66	58,58,58,58	0
31	MG	X	3323	1/1	0.93	0.28	76,76,76,76	0
32	MN	X	3216	1/1	0.93	0.13	112,112,112,112	0
32	MN	X	3064	1/1	0.93	0.25	145,145,145,145	0
32	MN	X	3218	1/1	0.93	0.53	151,151,151,151	0
31	MG	X	3058	1/1	0.93	0.69	45,45,45,45	0
31	MG	X	3283	1/1	0.93	0.13	62,62,62,62	0
31	MG	X	3305	1/1	0.93	0.48	68,68,68,68	0
32	MN	X	3417	1/1	0.93	0.23	156,156,156,156	0
31	MG	X	3308	1/1	0.94	0.24	39,39,39,39	0
32	MN	X	3089	1/1	0.94	0.13	92,92,92,92	0
32	MN	X	3129	1/1	0.94	0.60	106,106,106,106	0
31	MG	X	3247	1/1	0.94	0.20	49,49,49,49	0
31	MG	X	3277	1/1	0.94	0.07	55,55,55,55	0
31	MG	X	3298	1/1	0.94	0.30	72,72,72,72	0
32	MN	X	3439	1/1	0.94	0.29	97,97,97,97	0
31	MG	X	3398	1/1	0.94	1.58	107,107,107,107	0
31	MG	X	3421	1/1	0.94	0.26	60,60,60,60	0
31	MG	X	3253	1/1	0.94	0.41	45,45,45,45	0
32	MN	X	3157	1/1	0.94	0.42	85,85,85,85	0
32	MN	X	3228	1/1	0.94	0.13	110,110,110,110	0
31	MG	X	3279	1/1	0.94	0.29	68,68,68,68	0
34	EPE	X	3426	15/15	0.94	0.27	101,101,101,101	3
31	MG	X	3035	1/1	0.94	0.27	39,39,39,39	0
31	MG	X	3402	1/1	0.94	0.17	84,84,84,84	0
31	MG	X	3384	1/1	0.94	0.53	81,81,81,81	0
31	MG	X	3385	1/1	0.94	0.18	63,63,63,63	0
31	MG	X	3303	1/1	0.94	0.44	63,63,63,63	0
32	MN	X	3182	1/1	0.94	0.37	88,88,88,88	0
35	SPD	X	3433	10/10	0.94	0.22	93,93,93,93	0
31	MG	X	3274	1/1	0.94	0.27	79,79,79,79	0
31	MG	X	3057	1/1	0.94	0.45	41,41,41,41	0
32	MN	X	3080	1/1	0.94	0.40	130,130,130,130	0
31	MG	X	3329	1/1	0.94	0.28	60,60,60,60	0
31	MG	X	3293	1/1	0.94	0.15	91,91,91,91	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
32	MN	X	3268	1/1	0.94	0.19	94,94,94,94	0
31	MG	X	3356	1/1	0.94	0.21	70,70,70,70	0
32	MN	X	3184	1/1	0.95	0.34	86,86,86,86	0
31	MG	X	3376	1/1	0.95	0.27	93,93,93,93	0
31	MG	X	3322	1/1	0.95	0.51	50,50,50,50	0
31	MG	X	3049	1/1	0.95	0.54	14,14,14,14	1
31	MG	X	3324	1/1	0.95	0.66	88,88,88,88	0
31	MG	X	3395	1/1	0.95	0.90	93,93,93,93	0
32	MN	X	3093	1/1	0.95	0.14	122,122,122,122	0
32	MN	X	3204	1/1	0.95	0.15	126,126,126,126	0
31	MG	X	3036	1/1	0.95	0.65	85,85,85,85	0
31	MG	X	3310	1/1	0.95	0.23	66,66,66,66	0
32	MN	X	3215	1/1	0.95	0.37	154,154,154,154	0
31	MG	X	3251	1/1	0.95	0.39	47,47,47,47	0
32	MN	X	3443	1/1	0.95	0.35	91,91,91,91	0
31	MG	X	3289	1/1	0.95	0.31	27,27,27,27	0
31	MG	X	3352	1/1	0.95	0.16	50,50,50,50	0
32	MN	X	3146	1/1	0.95	0.34	100,100,100,100	0
32	MN	X	3100	1/1	0.95	0.76	129,129,129,129	0
32	MN	X	3075	1/1	0.95	0.31	116,116,116,116	0
32	MN	X	3154	1/1	0.95	0.39	46,46,46,46	0
32	MN	X	3156	1/1	0.95	0.26	83,83,83,83	0
32	MN	X	3106	1/1	0.95	0.24	96,96,96,96	0
31	MG	X	3020	1/1	0.95	0.23	53,53,53,53	0
32	MN	X	3230	1/1	0.95	0.30	100,100,100,100	0
31	MG	X	3317	1/1	0.95	0.24	39,39,39,39	0
32	MN	X	3164	1/1	0.95	0.31	92,92,92,92	0
32	MN	X	3236	1/1	0.95	0.17	104,104,104,104	0
32	MN	X	3110	1/1	0.95	0.21	103,103,103,103	0
32	MN	X	3111	1/1	0.95	0.27	125,125,125,125	0
32	MN	X	3258	1/1	0.95	0.20	98,98,98,98	0
32	MN	X	3169	1/1	0.95	0.51	76,76,76,76	0
30	MPD	X	3003	8/8	0.95	0.20	92,92,92,92	0
32	MN	X	3261	1/1	0.95	0.35	132,132,132,132	0
31	MG	X	3307	1/1	0.95	0.50	67,67,67,67	0
31	MG	N	201	1/1	0.95	0.27	25,25,25,25	0
32	MN	X	3269	1/1	0.96	0.33	131,131,131,131	0
31	MG	X	3330	1/1	0.96	0.16	55,55,55,55	0
32	MN	X	3125	1/1	0.96	0.80	122,122,122,122	0
31	MG	Y	201	1/1	0.96	0.43	24,24,24,24	1
32	MN	X	3134	1/1	0.96	0.41	57,57,57,57	0
32	MN	X	3170	1/1	0.96	0.28	95,95,95,95	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
32	MN	X	3223	1/1	0.96	0.15	127,127,127,127	0
32	MN	X	3224	1/1	0.96	0.35	99,99,99,99	0
32	MN	X	3225	1/1	0.96	0.86	133,133,133,133	0
32	MN	X	3442	1/1	0.96	0.32	51,51,51,51	0
32	MN	X	3135	1/1	0.96	0.27	76,76,76,76	0
32	MN	Y	202	1/1	0.96	0.18	92,92,92,92	0
32	MN	X	3176	1/1	0.96	0.31	80,80,80,80	0
31	MG	X	3041	1/1	0.96	0.36	68,68,68,68	0
32	MN	X	3181	1/1	0.96	0.27	73,73,73,73	0
31	MG	X	3282	1/1	0.96	0.29	68,68,68,68	0
31	MG	X	3212	1/1	0.96	0.71	40,40,40,40	0
31	MG	X	3358	1/1	0.96	0.35	46,46,46,46	0
31	MG	X	3257	1/1	0.96	0.26	71,71,71,71	0
31	MG	X	3342	1/1	0.96	0.17	67,67,67,67	0
32	MN	X	3239	1/1	0.96	0.44	60,60,60,60	0
32	MN	X	3149	1/1	0.96	0.37	64,64,64,64	0
32	MN	X	3193	1/1	0.96	0.17	87,87,87,87	0
32	MN	X	3194	1/1	0.96	0.36	93,93,93,93	0
32	MN	X	3077	1/1	0.96	0.21	61,61,61,61	0
31	MG	X	3390	1/1	0.96	0.20	47,47,47,47	0
32	MN	X	3203	1/1	0.96	0.33	69,69,69,69	0
32	MN	X	3263	1/1	0.96	0.18	80,80,80,80	0
32	MN	X	3082	1/1	0.96	0.19	109,109,109,109	0
31	MG	X	3315	1/1	0.96	0.87	87,87,87,87	0
32	MN	X	3066	1/1	0.96	0.26	64,64,64,64	0
32	MN	X	3102	1/1	0.96	0.29	96,96,96,96	0
32	MN	X	3163	1/1	0.96	0.37	61,61,61,61	0
32	MN	X	3131	1/1	0.97	0.23	66,66,66,66	0
31	MG	W	101	1/1	0.97	0.61	84,84,84,84	0
32	MN	X	3171	1/1	0.97	0.39	88,88,88,88	0
32	MN	X	3220	1/1	0.97	0.21	111,111,111,111	0
31	MG	X	3040	1/1	0.97	0.91	58,58,58,58	0
31	MG	Z	103	1/1	0.97	0.11	39,39,39,39	0
31	MG	X	3042	1/1	0.97	0.69	59,59,59,59	0
32	MN	X	3178	1/1	0.97	0.39	92,92,92,92	0
31	MG	X	3335	1/1	0.97	0.67	260,260,260,260	0
31	MG	X	3336	1/1	0.97	0.09	69,69,69,69	0
32	MN	X	3183	1/1	0.97	0.22	63,63,63,63	0
31	MG	X	3403	1/1	0.97	0.08	52,52,52,52	0
32	MN	X	3069	1/1	0.97	0.23	121,121,121,121	0
32	MN	X	3186	1/1	0.97	0.29	69,69,69,69	0
32	MN	X	3231	1/1	0.97	0.74	135,135,135,135	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
32	MN	X	3187	1/1	0.97	0.33	89,89,89,89	0
32	MN	X	3234	1/1	0.97	0.06	91,91,91,91	0
31	MG	X	3337	1/1	0.97	0.31	44,44,44,44	0
31	MG	X	3338	1/1	0.97	0.16	43,43,43,43	0
32	MN	X	3153	1/1	0.97	0.32	75,75,75,75	0
31	MG	X	3314	1/1	0.97	0.34	45,45,45,45	0
32	MN	X	3155	1/1	0.97	0.35	75,75,75,75	0
32	MN	X	3195	1/1	0.97	0.27	90,90,90,90	0
32	MN	X	3196	1/1	0.97	0.26	77,77,77,77	0
31	MG	X	3210	1/1	0.97	0.32	57,57,57,57	0
32	MN	X	3200	1/1	0.97	0.22	126,126,126,126	0
32	MN	X	3074	1/1	0.97	0.24	98,98,98,98	0
31	MG	X	3294	1/1	0.97	0.36	51,51,51,51	0
32	MN	X	3122	1/1	0.97	0.19	123,123,123,123	0
31	MG	X	3355	1/1	0.97	0.19	71,71,71,71	0
31	MG	X	3043	1/1	0.97	0.41	64,64,64,64	0
32	MN	X	3127	1/1	0.97	0.22	108,108,108,108	0
31	MG	X	3207	1/1	0.97	0.12	56,56,56,56	0
31	MG	X	3345	1/1	0.98	0.34	78,78,78,78	0
32	MN	X	3152	1/1	0.98	0.38	60,60,60,60	0
31	MG	X	3415	1/1	0.98	0.29	45,45,45,45	0
31	MG	X	3052	1/1	0.98	0.28	27,27,27,27	0
32	MN	X	3118	1/1	0.98	0.36	123,123,123,123	0
32	MN	X	3201	1/1	0.98	0.19	49,49,49,49	0
32	MN	X	3079	1/1	0.98	0.47	71,71,71,71	0
32	MN	X	3120	1/1	0.98	0.14	75,75,75,75	0
32	MN	X	3158	1/1	0.98	0.36	58,58,58,58	0
31	MG	X	3404	1/1	0.98	0.34	78,78,78,78	0
32	MN	X	3081	1/1	0.98	0.30	95,95,95,95	0
32	MN	X	3099	1/1	0.98	0.14	128,128,128,128	0
32	MN	X	3124	1/1	0.98	0.36	80,80,80,80	0
32	MN	X	3165	1/1	0.98	0.25	79,79,79,79	0
31	MG	X	3013	1/1	0.98	0.75	61,61,61,61	0
32	MN	X	3126	1/1	0.98	0.21	96,96,96,96	0
31	MG	X	3249	1/1	0.98	0.38	16,16,16,16	0
32	MN	X	3128	1/1	0.98	0.23	77,77,77,77	0
32	MN	X	3104	1/1	0.98	0.42	88,88,88,88	0
32	MN	X	3130	1/1	0.98	0.26	70,70,70,70	0
32	MN	X	3173	1/1	0.98	0.14	87,87,87,87	0
32	MN	Z	101	1/1	0.98	0.38	88,88,88,88	0
32	MN	X	3174	1/1	0.98	0.34	81,81,81,81	0
32	MN	X	3175	1/1	0.98	0.20	86,86,86,86	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
32	MN	X	3084	1/1	0.98	0.28	81,81,81,81	0
31	MG	X	3331	1/1	0.98	0.20	60,60,60,60	0
32	MN	X	3107	1/1	0.98	0.15	71,71,71,71	0
32	MN	X	3136	1/1	0.98	0.21	84,84,84,84	0
31	MG	X	3333	1/1	0.98	0.95	71,71,71,71	0
32	MN	X	3139	1/1	0.98	0.42	143,143,143,143	0
32	MN	X	3087	1/1	0.98	0.20	104,104,104,104	0
31	MG	X	3319	1/1	0.98	0.26	26,26,26,26	0
32	MN	X	3142	1/1	0.98	0.18	108,108,108,108	0
32	MN	X	3237	1/1	0.98	0.27	71,71,71,71	0
31	MG	X	3325	1/1	0.98	0.39	93,93,93,93	0
31	MG	X	3353	1/1	0.98	0.16	81,81,81,81	0
32	MN	X	3189	1/1	0.98	0.28	53,53,53,53	0
32	MN	X	3190	1/1	0.98	0.47	91,91,91,91	0
32	MN	X	3147	1/1	0.98	0.33	82,82,82,82	0
31	MG	X	3320	1/1	0.98	0.43	43,43,43,43	0
31	MG	X	3379	1/1	0.98	0.20	40,40,40,40	0
32	MN	X	3078	1/1	0.99	0.25	56,56,56,56	0
32	MN	X	3137	1/1	0.99	0.26	108,108,108,108	0
31	MG	X	3295	1/1	0.99	0.06	56,56,56,56	0
31	MG	X	3365	1/1	0.99	0.09	63,63,63,63	0
32	MN	X	3179	1/1	0.99	0.28	77,77,77,77	0
32	MN	X	3180	1/1	0.99	0.27	70,70,70,70	0
32	MN	X	3101	1/1	0.99	0.17	86,86,86,86	0
32	MN	X	3159	1/1	0.99	0.43	61,61,61,61	0
32	MN	X	3160	1/1	0.99	0.28	39,39,39,39	0
31	MG	X	3054	1/1	0.99	0.24	20,20,20,20	0
32	MN	X	3103	1/1	0.99	0.16	81,81,81,81	0
32	MN	X	3143	1/1	0.99	0.33	76,76,76,76	0
31	MG	X	3301	1/1	0.99	0.12	43,43,43,43	0
32	MN	X	3145	1/1	0.99	0.19	47,47,47,47	0
32	MN	X	3166	1/1	0.99	0.30	90,90,90,90	0
31	MG	X	3060	1/1	0.99	0.44	16,16,16,16	0
32	MN	X	3065	1/1	0.99	0.19	78,78,78,78	0
31	MG	X	3313	1/1	0.99	0.41	59,59,59,59	0
32	MN	X	3132	1/1	0.99	0.30	66,66,66,66	0
32	MN	X	3150	1/1	0.99	0.40	39,39,39,39	0
32	MN	X	3133	1/1	0.99	0.35	58,58,58,58	0
31	MG	X	3326	1/1	0.99	0.25	32,32,32,32	0
31	MG	X	3288	1/1	0.99	0.26	79,79,79,79	0
32	MN	X	3198	1/1	0.99	0.42	73,73,73,73	0
32	MN	X	3199	1/1	0.99	0.30	93,93,93,93	0

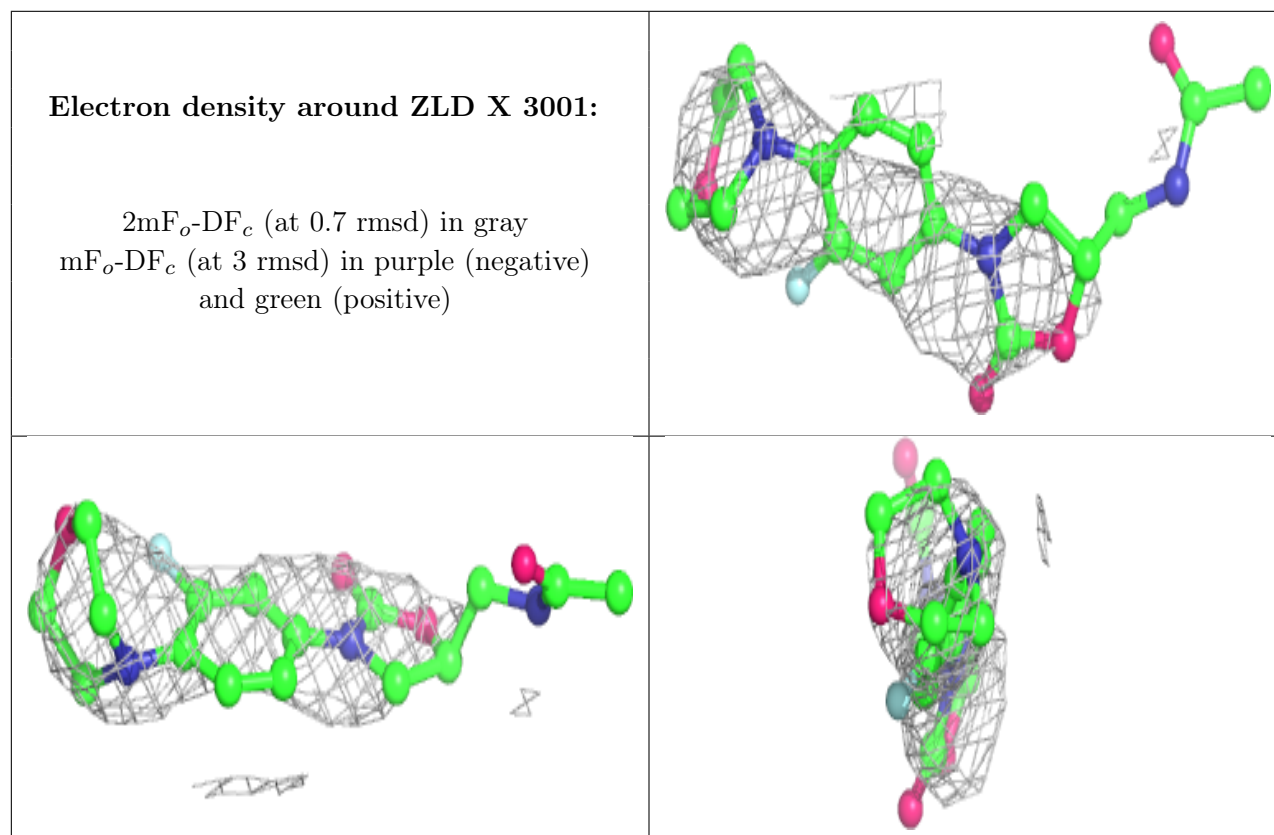
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
32	MN	X	3233	1/1	0.99	0.34	66,66,66,66	0
31	MG	X	3332	1/1	1.00	0.17	28,28,28,28	0

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.



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

There are no such residues in this entry.