



# wwPDB X-ray Structure Validation Summary Report ⓘ

Dec 17, 2023 – 04:35 pm GMT

PDB ID : 4U67  
Title : Crystal structure of the large ribosomal subunit (50S) of *Deinococcus radiodurans* containing a three residue insertion in L22  
Authors : Wekselman, I.; Zimmerman, E.; Rozenberg, H.; Bashan, A.; Yonath, A.  
Deposited on : 2014-07-28  
Resolution : 3.65 Å (reported)

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

We welcome your comments at [validation@mail.wwpdb.org](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  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
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

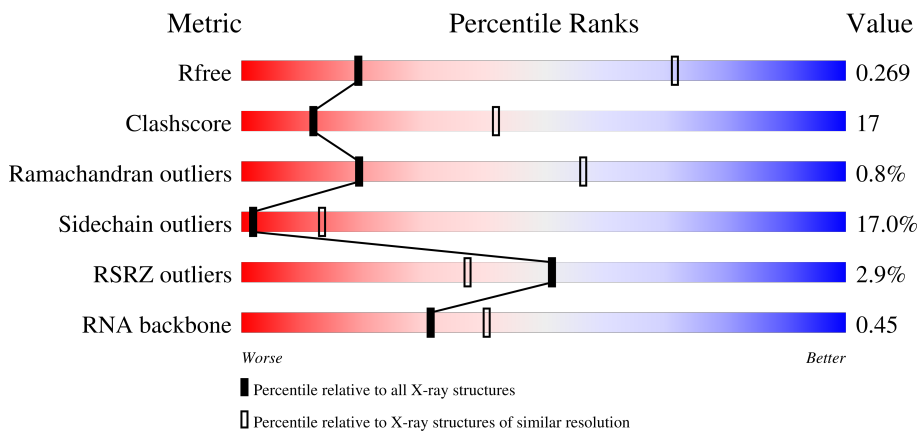
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.65 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1557 (3.82-3.50)
Clashscore	141614	1037 (3.80-3.52)
Ramachandran outliers	138981	1004 (3.80-3.52)
Sidechain outliers	138945	1002 (3.80-3.52)
RSRZ outliers	127900	1441 (3.82-3.50)
RNA backbone	3102	1024 (4.30-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	275	 5% 45% 39% 11% 5%
2	B	211	 51% 40% 7%
3	C	205	 5% 39% 46% 10% 5%
4	D	180	 12% 53% 41%

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Mol	Chain	Length	Quality of chain
5	E	185	
6	G	174	
7	H	134	
8	I	156	
9	J	141	
10	K	116	
11	L	114	
12	M	166	
13	N	118	
14	O	100	
15	P	137	
16	Q	95	
17	R	114	
18	S	237	
19	T	91	
20	U	81	
21	V	67	
22	W	55	
23	Z	60	
24	1	55	
25	2	47	
26	3	66	
27	X	2880	
28	Y	123	

## 2 Entry composition [i](#)

There are 29 unique types of molecules in this entry. The entry contains 83768 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 protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	260	1987	1235	399	350	3	0	0	0

- Molecule 2 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	205	1539	965	295	271	8	0	0	0

- Molecule 3 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	194	1481	920	284	275	2	0	0	0

- Molecule 4 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	177	1400	892	247	254	7	0	0	0

- Molecule 5 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	171	1286	812	237	236	1	0	0	0

- Molecule 6 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	G	142	1114	704	209	198	3	0	0	0

- Molecule 7 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	H	134	997	614	198	180	5	0	0	0

- Molecule 8 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
8	I	134	1011	619	206	186	0	0	0

- Molecule 9 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	J	136	1090	696	202	185	7	0	0	0

- Molecule 10 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	K	113	878	541	178	157	2	0	0	0

- Molecule 11 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
11	L	104	779	476	161	142	0	0	0

- Molecule 12 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
12	M	108	871	543	172	156	0	0	0

- Molecule 13 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	N	117	978	608	210	159	1	0	0	0

- Molecule 14 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
14	O	94	741	465	139	137	0	0	0

- Molecule 15 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	P	130	1038	655	205	176	2	0	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
P	110	VAL	-	insertion	UNP Q9RXJ7
P	111	PRO	-	insertion	UNP Q9RXJ7
P	112	ARG	-	insertion	UNP Q9RXJ7

- Molecule 16 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
16	Q	93	726	458	136	130	2	0	0	0

- Molecule 17 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
17	R	110	825	513	160	151	1	0	0	0

- Molecule 18 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
18	S	175	1345	849	236	254	6	0	0	0

- Molecule 19 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
19	T	74	556	351	107	97	1	0	0	0

- Molecule 20 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
20	U	72	Total	C	N	O	0	0	0
			552	341	116	95			

- Molecule 21 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
21	V	65	Total	C	N	O	S	0	0	0
			525	322	106	95	2			

- Molecule 22 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	W	55	Total	C	N	O	S	0	0	0
			424	264	82	76	2			

- Molecule 23 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	Z	56	Total	C	N	O	S	0	0	0
			443	272	91	75	5			

- Molecule 24 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	1	53	Total	C	N	O	S	0	0	0
			431	274	80	76	1			

- Molecule 25 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
25	2	46	Total	C	N	O	S	0	0	0
			383	230	91	60	2			

- Molecule 26 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	3	59	Total	C	N	O	S	0	0	0
			462	290	95	73	4			

- Molecule 27 is a RNA chain called 23s RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
27	X	2667	57254	25538	10574	18475	2667	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	1526	U	UNK	conflict	GB 11612676

- Molecule 28 is a RNA chain called 5s RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
28	Y	122	2601	1161	476	842	122	0	0	0

- Molecule 29 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

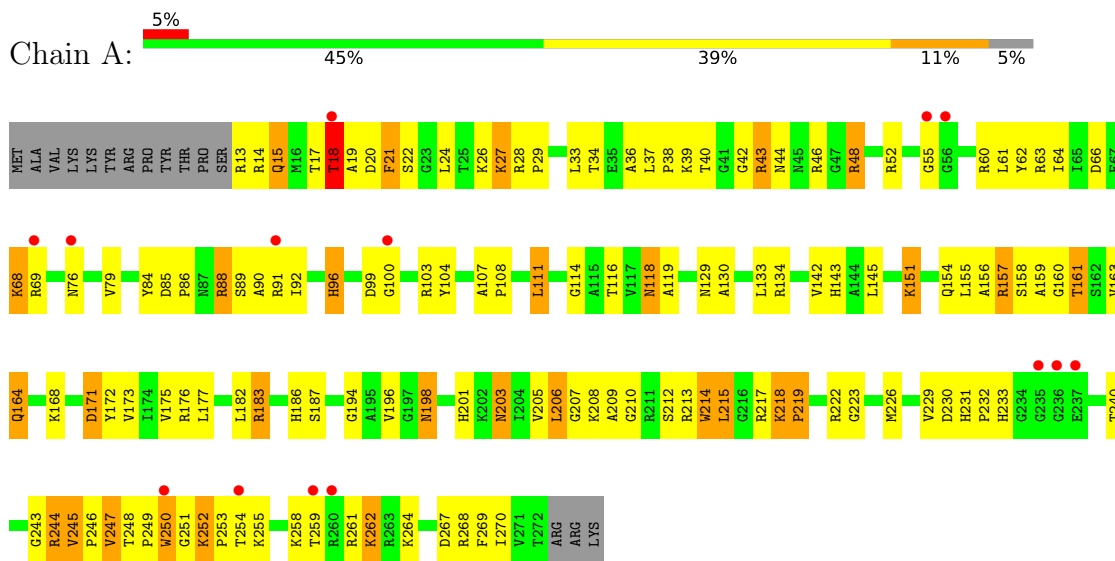
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
29	K	1	Total	Mg	0	0
			1	1		
29	X	50	Total	Mg	0	0
			50	50		



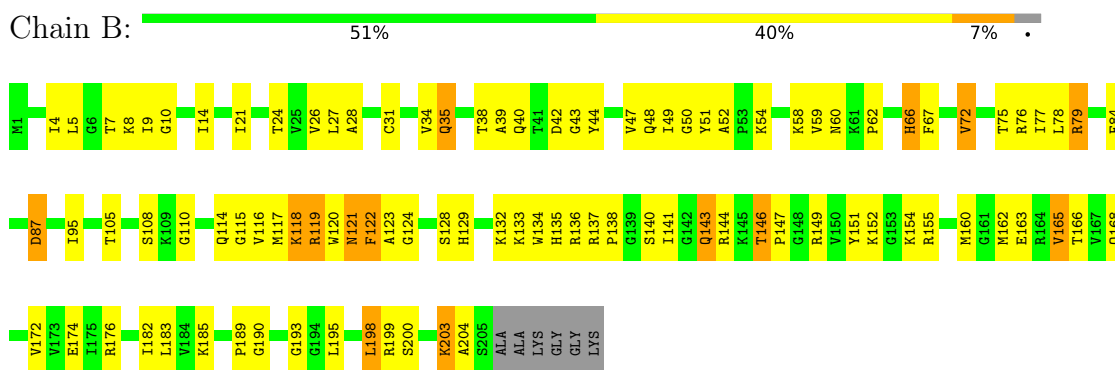
### 3 Residue-property plots [i](#)

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.

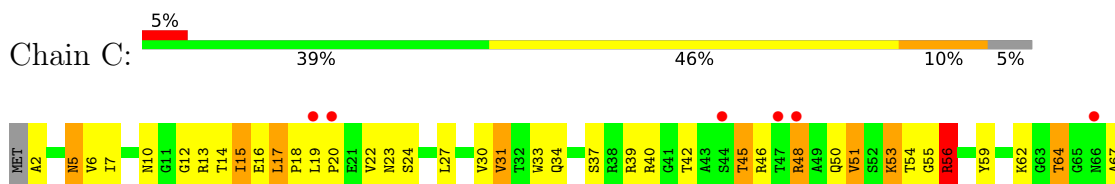
- Molecule 1: 50S ribosomal protein L2

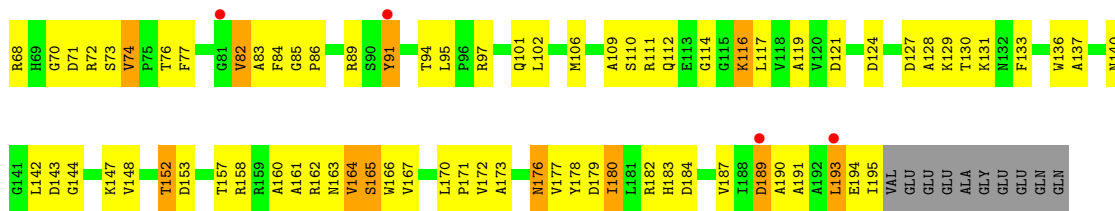


- Molecule 2: 50S ribosomal protein L3

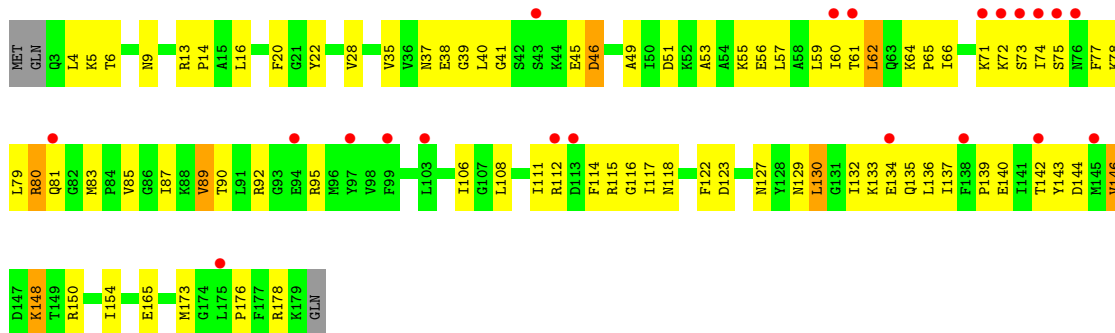


- Molecule 3: 50S ribosomal protein L4

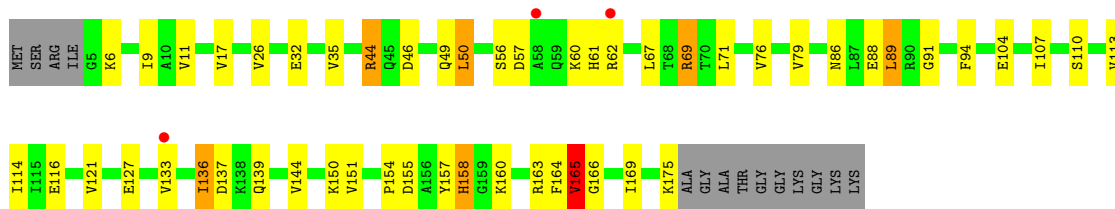




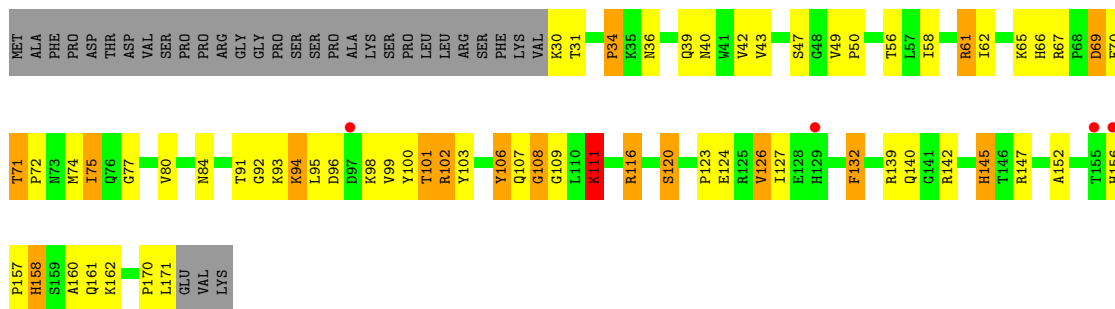
• Molecule 4: 50S ribosomal protein L5



• Molecule 5: 50S ribosomal protein L6

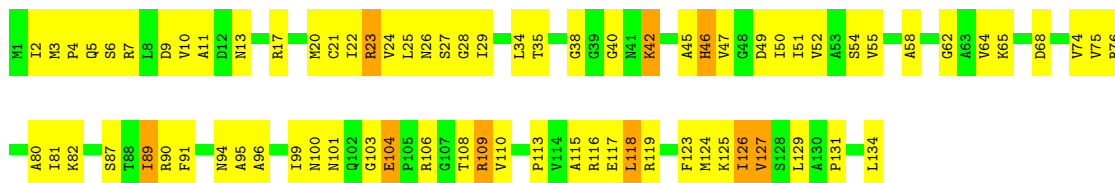


• Molecule 6: 50S ribosomal protein L13



• Molecule 7: 50S ribosomal protein L14

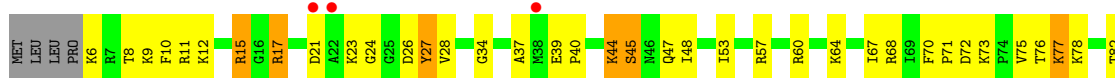




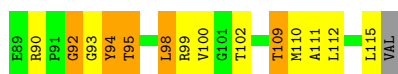
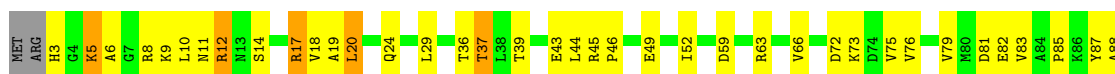
- Molecule 8: 50S ribosomal protein L15



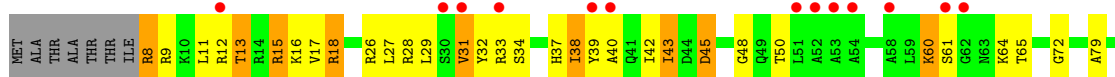
- Molecule 9: 50S ribosomal protein L16



- Molecule 10: 50S ribosomal protein L17



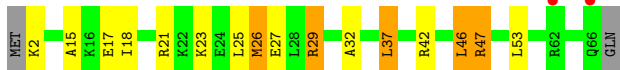
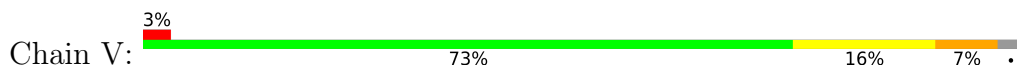
- Molecule 11: 50S ribosomal protein L18



- Molecule 12: 50S ribosomal protein L19



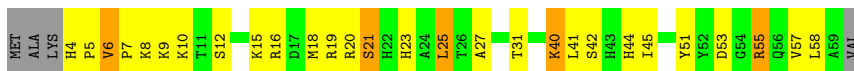




- Molecule 22: 50S ribosomal protein L30



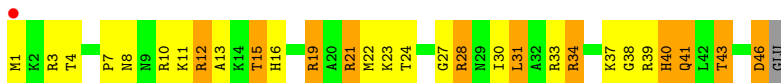
- Molecule 23: 50S ribosomal protein L32



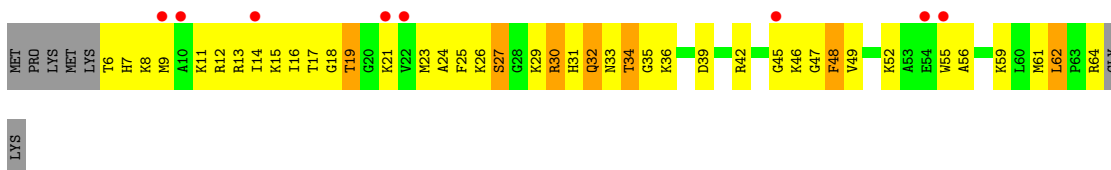
- Molecule 24: 50S ribosomal protein L33



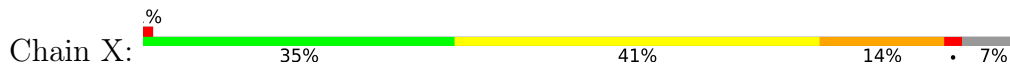
- Molecule 25: 50S ribosomal protein L34



- Molecule 26: 50S ribosomal protein L35



- Molecule 27: 23s RNA





C2056	C1991	U1914	G1844	A1777	C1703	G1485	C1311	C1230	U1156	C1087
U2057	G1992	A1919	A1845	U1778	G1704	C1466	G1312	C1234	G1157	A1088
U2058	G1993	A1920	A1846	C1779	U1705	C1467	U1313	C1235	U1158	C1089
U2062	G1995	A1921	G1850	A1781	G1710	A1468	A1314	C1236	C1160	C1090
A2063	A1996	U1922	G1851	C1640	G1711	U1469	A1315	A1239	C	U
A2065	A1997	U1923	G1852	C1641	G1712	G1470	A1316	G1240	U	U
G2066	A1998	C1924	G1853	G1642	G1713	G1471	G1317	G1241	C	C
U2073	U2000	U1926	G1854	A1785	G1714	U1475	G1322	U1247	A	A
U2074	G2001	G1925	G1855	C1786	A1714	G1476	U1325	G1248	C1103	C1103
U2075	A2002	C1926	G1856	U1787	A1715	G1477	G1326	G1249	G1104	A1097
G2076	A2003	A1935	U1857	C1788	A1716	C1477	U1326	G1250	G1105	A1098
G2077	A2004	A1936	G1858	G1646	G1717	U1478	C1327	G1251	U1106	A1099
G2078	U2005	C1937	A1859	A1791	A1718	G1479	G1328	G1252	G1107	A1100
A2079	G2006	G1938	G1860	C1792	U1723	U1480	U1329	A1255	U1172	U1172
A2080	G2007	U1939	A1861	A1793	C1724	U1481	G1330	C1256	G1173	C1103
U2081	C2008	A1943	C1865	A1794	G1725	U1482	G1331	U1257	G1174	G1104
G2082	U2009	C1944	G1866	A1796	G1726	G1483	G1332	G1258	A1175	U1105
G2083	G2010	C1945	A1867	C1797	C1727	U1484	G1333	G1259	U1106	A1106
G2084	G2011	U1946	A1868	G1798	C1731	U1488	A1334	G1261	A1179	A1107
G2085	A2012	A1947	G1871	A1800	U1732	U1489	A1335	U1262	A1180	U1108
G2089	A2013	G1948	A1872	A1801	U1733	U1490	G1336	G1263	C1181	A1109
U2090	G2014	A1949	A1873	A1802	C1734	U1495	G1337	G1264	U1182	G1110
C	A2015	C1950	G1874	G1803	G1735	U1496	U1342	G1265	C1183	A1114
C	U2017	A1953	G1879	U1804	A1682	U1497	C1343	A1267	C1185	G
C	G2018	A1954	G1880	G1805	G1683	U1498	C1344	U1268	G	G1117
C	C2019	G1955	G1881	A1806	A1684	G1499	G1345	U1269	A	G1118
C	G2020	U1955	G1882	A1807	C1665	U1501	C1346	A1270	A	G1119
C	G2021	U1956	G1883	A1808	A1586	G1502	C1347	C1271	G	G1121
C	C2022	U1957	G1884	G1809	A1587	U1506	C1348	G1272	G	A1122
A	C2023	U1958	C1885	U1810	G1688	C1506	A1349	G1273	G	G1123
G	U2024	U1959	G1886	A1811	A1689	U1514	G1350	C1274	A	U1124
G	A2025	G1963	G1887	A1812	G1670	C1514	A1429	U1275	A	G1125
A	C2026	U1964	C1888	A1813	A1671	U1516	G1430	U1276	G	U1126
U	C2027	U1965	G	A1814	A1672	A1516	U1431	G1277	G	G1128
A	A2031	C1966	G	G1816	C1674	C1517	G1432	A1278	A	A1129
G	G2032	U1967	C	U1817	C1675	U1522	A1433	G1279	A	U1130
G	C2033	G1968	C	G1818	U1676	A1523	U1434	U1280	G	G1133
G	A2034	U1969	G	U1819	C1677	A1524	G1435	A1281	G	C1134
C	G2035	G1970	U	A1820	C1678	U1524	C1357	A1282	G	U1135
C	C2036	U1973	A	G1821	U1679	A1525	C1358	C1283	G	G1136
A	A2037	U1974	C	A1822	G1755	U1528	G1361	G1284	G	A1137
C	C2038	G1975	U	C1824	G1760	C1528	G1371	U1285	A	A1138
C	G2039	U1976	A	C1825	C1761	G1531	A1372	U1286	G	U1139
C	A2040	G1977	A	U1826	G1762	A1532	G1373	A1287	G	A1140
C	U2041	U1978	A	G1827	G1763	G1533	G1374	A1288	G	U1141
C	A2042	C1979	C	G1831	A1764	A1534	C1375	A1289	G	G1142
C	A2043	A1980	C	G1832	G1765	U1537	C1376	G1296	G	A1143
C	G2044	C1981	G	U1833	U1687	U1538	G1377	A1299	G	U1144
A	A2045	G1982	G	G1834	C1688	A1539	A1378	A1300	G	U1145
A	C2046	U1983	U	U1835	G1691	U1540	U1379	U1301	G	G1146
C	C2049	G1985	C	C1836	A1625	G1541	C1380	G1302	G	G1149
C	G2052	U1986	U	A1836	A1626	G1542	G1381	U1303	G	G1152
U	G2053	C1987	A	U1840	A1627	U1543	G1382	U1304	G	C1153
G	A2054	U1988	G	G1841	C1628	A1544	C1383	C1305	G	A1154
C	G2055	U1990	G	U1843	G1629	G1545	A1384	G1310	G	G1155



C	A2188	C2334	C9406	A2482	C9552	U2625	G2702	G2761	C2855	G2781	C2856	A
U	A2189	U2335	G2407	U2483	G2553	U2626	C2703	G2762	U2856	G2763	U2857	C2
U	A2190	G2336	G2408	C2484	C2554	G2627	U2704	U2783	C2857	A2784	A2858	C5
U	A2191	A2337	A2409	U2485	G2555	C2628	A2705	A2785	U2859	U2785	U2860	C6
U	U2192	G2338	U2410	C2486	A2556	U2629	U2706	U2786	U2861	A2787	A2862	C7
G	C2193	G2269	G2269	G2487	G2557	A2633	G2707	A2788	A2863	A2789	A2864	C8
G	A2194	U2270	U2270	U2488	C2558	U2708	U2708	U2788	G2864	U2790	U2865	G9
G	C2195	A2271	A2271	U2489	U2559	C2709	C2709	C2789	G2865	C2791	C2866	U10
G	U2196	C2272	C2272	U2490	G2560	U2710	C2710	U2790	G2866	C2792	A2867	U11
C	U2197	A2277	A2277	C2491	G2561	G2711	G2711	G2791	G2867	G2793	G2868	C14
U	U2198	A2278	A2278	U2492	G2562	C2637	G2712	G2792	U2869	G2794	U2869	A15
C	C2199	G2200	G2200	U2493	U2563	U2638	A2713	G2793	C2870	A2795	C2870	U16
G	G2200	G2200	G2200	C2494	U2564	U2639	A2714	A2796	U2871	A2796	C2871	C87
U	G2201	C2281	C2281	G2495	C2565	A2841	A2720	G2797	U2872	G2797	U2872	A17
G	G2202	G2282	G2282	U2496	A2566	G2642	A2721	A2798	U2873	A2798	U2873	G18
G	G2203	G2283	G2283	G2497	A2567	G2643	C2722	C2803	A2874	C2803	A2874	G23
A	A2204	U2284	U2284	G2498	G2568	C2644	U2726	G2804	C2875	G2804	A2875	U22
G	C2205	U2285	U2285	U2499	G2569	G2645	U2727	G2805	C2876	G2805	A2876	G26
A	A2206	G2286	G2286	U2500	C2570	G2646	G2728	G2806	U2877	G2806	A2877	A27
G	U2212	G2287	G2287	U2501	G2571	G2647	A2729	G2807	U2878	G2807	U2878	A28
C	G2213	A2288	A2288	G2502	A2572	G2648	U2730	G2808	U2879	G2808	U2879	A29
A	G2217	A2289	A2289	U2503	A2573	G2649	C2732	U2809	U2880	U2809	U2880	C29
C	G2218	U2291	U2291	C2432	A2574	A2653	A2733	A2810	C30	A2810	C30	C30
G	U2222	C2292	C2292	G2433	C2580	A2654	A2734	G2811	A31	G2811	A31	C31
U	U2223	G2293	G2293	U2428	A2581	C2855	A2735	A2812	C32	A2812	C32	C32
G	U2224	U2294	U2294	A2429	G2576	G2650	A2736	G2813	C33	G2813	C33	C33
A	G2225	U2298	U2298	A2430	A2577	U2651	G2741	G2814	C34	G2814	C34	C34
A	U2226	A2299	A2299	C2431	G2578	U2652	A2742	C2815	C37	C2815	C37	C37
A	G2227	G2300	G2300	C2432	A2579	C2653	A2743	G2816	C38	A2579	C2654	C38
U	U2228	A2301	A2301	G2433	A2580	C2654	A2744	G2817	C39	G2817	C39	C39
C	G2229	G2302	G2302	U2428	A2581	C2655	A2745	G2818	C40	G2818	C40	C40
C	G2230	C2303	C2303	A2429	A2582	G2656	A2746	G2819	U41	G2819	U41	U41
A	G2234	G2304	G2304	U2430	U2583	U2664	C2751	G2820	U42	G2820	U42	U42
C	G2235	C2305	C2305	G2437	G2584	U2665	C2752	C2821	G43	C2821	G43	G43
C	U2236	A2306	A2306	A2438	G2585	U2666	C2753	C2822	C44	C2822	C44	C44
C	U2237	A2307	A2307	U2441	C2586	C2667	A2755	G2823	C45	G2823	C45	C45
U	C2237	A2308	A2308	C2442	U2589	U2668	G2757	G2824	G46	G2824	G46	G46
G	U2241	G2309	G2309	C2443	G2590	C2669	A2758	G2825	A47	G2825	A47	A47
C	C2242	U2310	U2310	G2447	U2591	C2670	U2759	G2826	C48	G2826	C48	C48
C	C2243	G2311	G2311	U2448	U2592	U2671	G2760	G2827	C49	G2827	C49	C49
A	A2168	A2312	A2312	A2450	A2593	U2672	G2761	G2828	U50	G2828	U50	U50
A	A2169	G2313	G2313	A2451	U2594	C2673	A2762	G2829	C51	G2829	C51	C51
A	A2170	A2314	A2314	U2452	C2595	U2674	G2763	G2830	G52	G2830	G52	G52
U	A2247	G2315	G2315	U2453	C2596	U2675	G2764	G2831	G53	G2831	G53	G53
G	G2174	U2318	U2318	U2454	G2597	U2676	G2765	G2832	C55	G2832	C55	C55
A	U2175	U2323	U2323	A2455	G2598	U2677	G2766	G2833	G58	G2833	G58	G58
C	U2176	G2324	G2324	U2456	U2599	U2678	G2767	G2834	A59	G2834	A59	A59
C	U2177	A2325	A2325	U2457	A2600	U2679	G2768	G2835	A63	G2835	A63	A63
C	U2178	G2326	G2326	U2458	A2601	U2680	A2769	G2836	C64	G2836	C64	C64
C	C2179	U2327	U2327	U2459	G2617	U2681	U2770	G2837	A65	G2837	A65	A65
G	U2180	G2328	G2328	U2460	G2620	U2682	G2773	G2838	A66	G2838	A66	A66
C	A2181	C2329	C2329	U2461	G2621	U2683	U2774	G2839	C70	G2839	C70	C70
A	U2185	G2330	G2330	U2462	G2622	U2684	U2775	G2840	G71	G2840	G71	G71
A	G2186	A2331	A2331	U2463	G2623	U2685	U2776	G2841		G2841		
A	G2187	A2332	A2332	U2464	G2624	U2686	U2777	G2842		G2842		
A	G2188	A2333	A2333	U2465	G2625	U2687	U2778	G2843		G2843		
A	G2189	A2334	A2334	U2466	G2626	U2688	U2779	G2844		G2844		
A	A2190	A2335	A2335	U2467	G2627	U2689	U2780	G2845		G2845		
A	A2191	A2336	A2336	U2468	G2628	U2690	U2781	G2846		G2846		
A	A2192	A2337	A2337	U2469	G2629	U2691	U2782	G2847		G2847		
A	C2193	A2338	A2338	U2470	G2630	U2692	U2783	G2848		G2848		
A	A2194	A2339	A2339	U2471	G2631	U2693	U2784	G2849		G2849		
A	A2195	A2340	A2340	U2472	G2632	U2694	U2785	G2850		G2850		
A	C2196	A2341	A2341	U2473	G2633	U2695	U2786	G2851		G2851		
A	U2196	A2342	A2342	U2474	G2634	U2696	U2787	G2852		G2852		
A	U2197	A2343	A2343	U2475	G2635	U2697	U2788	G2853		G2853		
A	U2198	A2344	A2344	U2476	G2636	U2698	U2789	G2854		G2854		
A	U2199	A2345	A2345	U2477	G2637	U2699	U2790	G2855		G2855		
A	C2200	A2346	A2346	U2478	G2638	U2700	U2791	G2856		G2856		
A	G2201	A2347	A2347	U2479	G2639	U2701	U2792	G2857		G2857		
A	G2202	A2348	A2348	U2480	G2640	U2702	U2793	G2858		G2858		
A	G2203	A2349	A2349	U2481	G2641	U2703	U2794	G2859		G2859		
A	A2204	A2350	A2350	U2482	G2642	U2704	U2795	G2860		G2860		
A	A2205	A2351	A2351	U2483	G2643	U2705	U2796	G2861		G2861		
A	U2212	A2352	A2352	U2484	G2644	U2706	U2797	G2862		G2862		
A	G2213	A2353	A2353	U2485	G2645	U2707	U2798	G2863		G2863		
A	G2217	A2354	A2354	U2486	G2646	U2708	U2799	G2864		G2864		
A	G2218	A2355	A2355	U2487	G2647	U2709	U2800	G2865		G2865		
A	U2222	A2356	A2356	U2488	G2648	U2710	U2801	G2866		G2866		
A	U2223	A2357	A2357	U2489	G2649	U2711	U2802	G2867		G2867		
A	U2224	A2358	A2358	U2490	G2650	U2712	U2803	G2868		G2868		
A	G2225	A2359	A2359	U2491	G2651	U2713	U2804	G2869		G2869		
A	U2226	A2360	A2360	U2492	G2652	U2714	U2805	G2870		G2870		
A	U2227	A2361	A2361	U2493	G2653	U2715	U2806	G2871		G2871		
A	U2228	A2362	A2362	U2494	G2654	U2716	U2807	G2872		G2872		
A	U2229	A2363	A2363	U2495	G2655	U2717	U2808	G2873		G2873		
A	U2230	A2364	A2364	U2496	G2656	U2718	U2809	G2874		G2874		
A	U2231	A2365	A2365	U2497	G2657	U2719	U2810	G2875		G2875		
A	U2232	A2366	A2366	U2498	G2658	U2720	U2811	G2876		G2876		
A	U2233	A2367	A2367	U2499	G2659	U2721	U2812	G2877		G2877		
A	U2234	A2368	A2368	U2500	G2660	U2722	U2813	G2878		G2878		
A	U2235	A2369	A2369	U2501	G2661	U2723	U2814	G2879		G2879		
A	U2236	A2370	A2370	U2502	G2662	U2724	U2815	G2880		G2880		
A	U2237	A2371	A2371	U2503	G2663	U2725	U2816	G2881		G2881		
A	U2238	A2372	A2372	U2504	G2664	U2726	U2817	G2882		G2882		
A	U2239	A2373	A2373	U2505	G2665	U2727	U2818	G2883		G2883		
A	U2240	A2374	A2374	U2506	G2666	U2728	U2819	G2884		G2884		
A	U2241	A2375	A2375	U2507	G2667	U2729	U2820	G2885		G2885		
A	U2242	A2376	A2376	U2508	G2668	U2730	U2821	G2886		G2886		
A	U2243	A2377	A2377	U2509	G2669	U2731	U2822	G2887		G2887		
A	U2244	A2378	A2378	U2510	G2670	U2732	U2823	G2888		G2888		
A	U2245	A2379	A2379	U2511	G2671	U2733	U2824	G2889		G2889		
A	U2246	A2380	A2380	U2512	G2672	U2734	U2825	G2890		G2890		
A	U2247	A2381	A2381	U2513	G2673	U2735	U2826	G2891		G2891		
A	U2248	A2382	A2382	U2514	G2674	U2736	U2827	G2892		G2892		
A	U2249	A2383	A2383	U2515	G2675	U2737	U2828	G2893		G2893		
A	U2250	A2384	A2384	U2516	G2676	U2738	U2829	G2894		G2894		
A	U2251	A2385	A2385	U2517	G2677	U2739	U2830	G2895		G2895		
A	U2252	A2386	A2386	U2518	G2678	U2740	U2831	G2896		G2896		
A	U2253	A2387	A2387	U2519	G2679	U2741	U2832	G28				

## 4 Data and refinement statistics

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	169.72Å 412.59Å 696.97Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.99 – 3.65 49.45 – 3.63	Depositor EDS
% Data completeness (in resolution range)	95.9 (19.99-3.65) 95.2 (49.45-3.63)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.10 (at 3.67Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, $R_{free}$	0.226 , 0.270 0.227 , 0.269	Depositor DCC
$R_{free}$ test set	13158 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	108.4	Xtrriage
Anisotropy	0.636	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.17 , 17.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.45$ , $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	83768	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	90.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.72% 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: 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	0.44	0/2025	0.71	1/2726 (0.0%)
2	B	0.53	0/1567	0.78	0/2105
3	C	0.45	0/1504	0.70	1/2036 (0.0%)
4	D	0.28	0/1419	0.51	0/1903
5	E	0.30	0/1308	0.51	0/1771
6	G	0.49	0/1138	0.75	1/1539 (0.1%)
7	H	0.53	0/1007	0.75	0/1352
8	I	0.47	0/1022	0.73	0/1366
9	J	0.47	0/1113	0.74	0/1486
10	K	0.61	0/886	0.84	1/1188 (0.1%)
11	L	0.32	0/785	0.59	0/1048
12	M	0.57	0/884	0.86	1/1186 (0.1%)
13	N	0.46	0/994	0.66	0/1323
14	O	0.40	0/750	0.72	0/1000
15	P	0.54	0/1052	0.79	0/1409
16	Q	0.42	0/737	0.70	1/988 (0.1%)
17	R	0.43	0/835	0.73	0/1121
18	S	0.30	0/1370	0.56	0/1862
19	T	0.41	0/563	0.63	0/747
20	U	0.41	0/556	0.66	0/741
21	V	0.34	0/529	0.54	0/704
22	W	0.35	0/426	0.58	0/568
23	Z	0.51	0/455	0.78	0/611
24	1	0.47	0/438	0.71	0/583
25	2	0.43	0/387	0.75	1/509 (0.2%)
26	3	0.49	0/468	0.86	1/614 (0.2%)
27	X	0.59	3/64113 (0.0%)	1.17	296/99999 (0.3%)
28	Y	0.40	0/2907	0.94	2/4529 (0.0%)
All	All	0.55	3/91238 (0.0%)	1.07	306/137014 (0.2%)

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	0	1
2	B	0	2
6	G	0	4
7	H	0	1
8	I	0	2
10	K	0	1
17	R	0	2
20	U	0	1
26	3	0	1
All	All	0	15

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
27	X	1	G	OP3-P	-10.66	1.48	1.61
27	X	774	A	N7-C5	-6.22	1.35	1.39
27	X	542	A	N9-C4	-5.92	1.34	1.37

The worst 5 of 306 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
27	X	1468	A	C8-N9-C4	-15.21	99.72	105.80
27	X	774	A	C8-N9-C4	-13.39	100.45	105.80
27	X	774	A	N7-C8-N9	11.68	119.64	113.80
27	X	1333	G	N3-C4-N9	-11.32	119.21	126.00
27	X	1468	A	N7-C8-N9	11.23	119.41	113.80

There are no chirality outliers.

5 of 15 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	18	THR	Peptide
2	B	122	PHE	Peptide
2	B	146	THR	Peptide
6	G	108	GLY	Peptide
6	G	34	PRO	Peptide

## 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1987	0	2056	130	0
2	B	1539	0	1600	101	0
3	C	1481	0	1504	101	0
4	D	1400	0	1481	62	0
5	E	1286	0	1336	35	0
6	G	1114	0	1144	63	0
7	H	997	0	1046	63	0
8	I	1011	0	1047	54	0
9	J	1090	0	1125	56	0
10	K	878	0	930	37	0
11	L	779	0	820	40	0
12	M	871	0	894	49	0
13	N	978	0	1020	72	0
14	O	741	0	756	46	0
15	P	1038	0	1125	78	0
16	Q	726	0	753	35	0
17	R	825	0	881	51	0
18	S	1345	0	1372	41	0
19	T	556	0	579	28	0
20	U	552	0	604	29	0
21	V	525	0	546	14	0
22	W	424	0	470	15	0
23	Z	443	0	444	27	0
24	1	431	0	456	30	0
25	2	383	0	414	27	0
26	3	462	0	506	52	0
27	X	57254	0	28850	1328	0
28	Y	2601	0	1327	54	0
29	K	1	0	0	0	0
29	X	50	0	0	0	0
All	All	83768	0	55086	2361	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 17.

The worst 5 of 2361 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)
1:A:55:GLY:H	1:A:217:ARG:HB2	1.20	1.04
2:B:136:ARG:HB3	27:X:1673:C:H5'	1.36	1.04
27:X:571:U:HO2'	27:X:581:A:H8	1.12	0.98
27:X:517:A:H5''	27:X:518:A:H5'	1.45	0.95
2:B:116:VAL:HG22	2:B:136:ARG:HG3	1.49	0.95

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	
1	A	258/275 (94%)	223 (86%)	34 (13%)	1 (0%)	34	69
2	B	203/211 (96%)	182 (90%)	20 (10%)	1 (0%)	29	66
3	C	192/205 (94%)	165 (86%)	25 (13%)	2 (1%)	15	52
4	D	175/180 (97%)	153 (87%)	21 (12%)	1 (1%)	25	62
5	E	169/185 (91%)	155 (92%)	13 (8%)	1 (1%)	25	62
6	G	140/174 (80%)	126 (90%)	14 (10%)	0	100	100
7	H	132/134 (98%)	123 (93%)	8 (6%)	1 (1%)	19	56
8	I	132/156 (85%)	101 (76%)	28 (21%)	3 (2%)	6	36
9	J	134/141 (95%)	115 (86%)	19 (14%)	0	100	100
10	K	111/116 (96%)	102 (92%)	9 (8%)	0	100	100
11	L	102/114 (90%)	86 (84%)	16 (16%)	0	100	100
12	M	106/166 (64%)	101 (95%)	5 (5%)	0	100	100
13	N	115/118 (98%)	103 (90%)	10 (9%)	2 (2%)	9	42
14	O	92/100 (92%)	81 (88%)	11 (12%)	0	100	100
15	P	128/137 (93%)	109 (85%)	17 (13%)	2 (2%)	9	43
16	Q	91/95 (96%)	78 (86%)	11 (12%)	2 (2%)	6	37

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	R	108/114 (95%)	86 (80%)	22 (20%)	0	100	100
18	S	173/237 (73%)	152 (88%)	21 (12%)	0	100	100
19	T	72/91 (79%)	61 (85%)	9 (12%)	2 (3%)	5	33
20	U	70/81 (86%)	52 (74%)	14 (20%)	4 (6%)	1	19
21	V	63/67 (94%)	59 (94%)	4 (6%)	0	100	100
22	W	53/55 (96%)	49 (92%)	4 (8%)	0	100	100
23	Z	54/60 (90%)	48 (89%)	6 (11%)	0	100	100
24	1	51/55 (93%)	37 (72%)	11 (22%)	3 (6%)	1	18
25	2	44/47 (94%)	40 (91%)	4 (9%)	0	100	100
26	3	57/66 (86%)	46 (81%)	11 (19%)	0	100	100
All	All	3025/3380 (90%)	2633 (87%)	367 (12%)	25 (1%)	19	56

5 of 25 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	Q	6	ILE
13	N	94	VAL
15	P	127	ILE
24	1	9	ILE
24	1	10	VAL

### 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	
1	A	202/216 (94%)	158 (78%)	44 (22%)	1	6
2	B	155/157 (99%)	137 (88%)	18 (12%)	5	27
3	C	154/163 (94%)	126 (82%)	28 (18%)	1	10
4	D	153/156 (98%)	140 (92%)	13 (8%)	10	40
5	E	136/144 (94%)	122 (90%)	14 (10%)	7	31
6	G	118/146 (81%)	98 (83%)	20 (17%)	2	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	H	103/103 (100%)	88 (85%)	15 (15%)	3	18
8	I	101/121 (84%)	83 (82%)	18 (18%)	2	11
9	J	110/115 (96%)	86 (78%)	24 (22%)	1	6
10	K	90/93 (97%)	75 (83%)	15 (17%)	2	14
11	L	74/82 (90%)	53 (72%)	21 (28%)	0	2
12	M	94/134 (70%)	71 (76%)	23 (24%)	0	5
13	N	96/97 (99%)	81 (84%)	15 (16%)	2	16
14	O	75/79 (95%)	65 (87%)	10 (13%)	4	21
15	P	112/118 (95%)	92 (82%)	20 (18%)	2	11
16	Q	75/76 (99%)	59 (79%)	16 (21%)	1	7
17	R	91/95 (96%)	78 (86%)	13 (14%)	3	19
18	S	149/192 (78%)	126 (85%)	23 (15%)	2	17
19	T	55/67 (82%)	49 (89%)	6 (11%)	6	29
20	U	57/66 (86%)	43 (75%)	14 (25%)	0	5
21	V	53/55 (96%)	46 (87%)	7 (13%)	4	21
22	W	48/48 (100%)	45 (94%)	3 (6%)	18	49
23	Z	50/53 (94%)	43 (86%)	7 (14%)	3	20
24	1	46/48 (96%)	33 (72%)	13 (28%)	0	2
25	2	39/40 (98%)	26 (67%)	13 (33%)	0	1
26	3	46/52 (88%)	37 (80%)	9 (20%)	1	8
All	All	2482/2716 (91%)	2060 (83%)	422 (17%)	2	13

5 of 422 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
12	M	6	LYS
15	P	91	PHE
24	1	54	LYS
12	M	31	ASP
13	N	59	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 58 such sidechains are listed below:



Mol	Chain	Res	Type
13	N	63	GLN
25	2	8	ASN
15	P	81	HIS
25	2	6	GLN
20	U	16	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
27	X	2657/2880 (92%)	611 (22%)	39 (1%)
28	Y	121/123 (98%)	31 (25%)	2 (1%)
All	All	2778/3003 (92%)	642 (23%)	41 (1%)

5 of 642 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
27	X	4	C
27	X	13	A
27	X	14	A
27	X	15	G
27	X	17	G

5 of 41 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
27	X	1923	U
27	X	2409	A
27	X	1975	G
27	X	2299	A
27	X	2756	A

## 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 51 ligands modelled in this entry, 51 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	260/275 (94%)	0.06	14 (5%) 25 18	45, 101, 165, 255	0
2	B	205/211 (97%)	-0.53	0 100 100	26, 43, 97, 208	0
3	C	194/205 (94%)	-0.12	10 (5%) 27 19	38, 101, 172, 256	0
4	D	177/180 (98%)	0.36	21 (11%) 4 3	108, 173, 225, 261	0
5	E	171/185 (92%)	-0.26	3 (1%) 68 55	51, 120, 177, 236	0
6	G	142/174 (81%)	-0.13	4 (2%) 53 39	35, 72, 151, 204	0
7	H	134/134 (100%)	-0.43	0 100 100	31, 42, 85, 136	0
8	I	134/156 (85%)	0.44	10 (7%) 14 9	53, 125, 199, 245	0
9	J	136/141 (96%)	0.00	6 (4%) 34 23	56, 88, 168, 221	0
10	K	113/116 (97%)	-0.58	0 100 100	25, 30, 61, 99	0
11	L	104/114 (91%)	0.63	18 (17%) 1 1	128, 160, 197, 232	0
12	M	108/166 (65%)	-0.49	1 (0%) 84 74	29, 37, 93, 143	0
13	N	117/118 (99%)	-0.36	1 (0%) 84 74	40, 78, 123, 213	0
14	O	94/100 (94%)	-0.23	2 (2%) 63 50	51, 96, 164, 191	0
15	P	130/137 (94%)	-0.35	4 (3%) 49 35	31, 51, 149, 168	0
16	Q	93/95 (97%)	-0.35	1 (1%) 80 70	45, 83, 145, 192	0
17	R	110/114 (96%)	0.17	7 (6%) 19 12	66, 97, 187, 238	0
18	S	175/237 (73%)	-0.26	3 (1%) 70 57	89, 141, 204, 258	0
19	T	74/91 (81%)	0.16	3 (4%) 37 26	70, 110, 148, 231	0
20	U	72/81 (88%)	0.80	11 (15%) 2 1	73, 123, 178, 252	0
21	V	65/67 (97%)	-0.19	2 (3%) 49 35	67, 111, 168, 222	0
22	W	55/55 (100%)	0.33	5 (9%) 9 6	72, 94, 147, 177	0
23	Z	56/60 (93%)	-0.57	0 100 100	30, 36, 87, 100	0
24	1	53/55 (96%)	0.85	9 (16%) 1 1	98, 127, 189, 275	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
25	2	46/47 (97%)	-0.21	1 (2%) 62 48	39, 69, 102, 127	0
26	3	59/66 (89%)	0.81	8 (13%) 3 2	79, 99, 176, 252	0
27	X	2667/2880 (92%)	-0.55	22 (0%) 86 77	25, 73, 176, 304	0
28	Y	122/123 (99%)	-0.51	3 (2%) 57 43	74, 150, 189, 279	0
All	All	5866/6383 (91%)	-0.30	169 (2%) 51 37	25, 87, 182, 304	0

The worst 5 of 169 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
20	U	28	GLY	11.0
27	X	1086	C	9.3
27	X	1525	A	5.9
27	X	1085	G	5.8
27	X	1734	C	5.7

## 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
29	MG	K	201	1/1	0.86	0.71	25,25,25,25	0
29	MG	X	2944	1/1	0.86	1.42	55,55,55,55	0
29	MG	X	2941	1/1	0.87	0.77	115,115,115,115	0
29	MG	X	2907	1/1	0.90	1.23	42,42,42,42	0
29	MG	X	2927	1/1	0.91	0.16	69,69,69,69	0
29	MG	X	2935	1/1	0.91	0.32	74,74,74,74	0
29	MG	X	2909	1/1	0.91	0.52	51,51,51,51	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
29	MG	X	2926	1/1	0.91	0.83	32,32,32,32	0
29	MG	X	2916	1/1	0.92	1.11	26,26,26,26	0
29	MG	X	2904	1/1	0.92	0.40	29,29,29,29	0
29	MG	X	2906	1/1	0.92	0.88	27,27,27,27	0
29	MG	X	2950	1/1	0.92	0.84	37,37,37,37	0
29	MG	X	2917	1/1	0.93	1.07	55,55,55,55	0
29	MG	X	2924	1/1	0.93	0.65	77,77,77,77	0
29	MG	X	2915	1/1	0.93	0.37	28,28,28,28	0
29	MG	X	2948	1/1	0.93	0.23	48,48,48,48	0
29	MG	X	2912	1/1	0.93	0.59	27,27,27,27	0
29	MG	X	2903	1/1	0.94	0.60	30,30,30,30	0
29	MG	X	2947	1/1	0.94	0.63	49,49,49,49	0
29	MG	X	2940	1/1	0.95	0.64	54,54,54,54	0
29	MG	X	2933	1/1	0.95	0.33	55,55,55,55	0
29	MG	X	2922	1/1	0.95	0.34	30,30,30,30	0
29	MG	X	2923	1/1	0.96	0.37	33,33,33,33	0
29	MG	X	2901	1/1	0.96	0.32	37,37,37,37	0
29	MG	X	2910	1/1	0.96	0.56	39,39,39,39	0
29	MG	X	2942	1/1	0.96	0.33	28,28,28,28	0
29	MG	X	2911	1/1	0.96	0.87	40,40,40,40	0
29	MG	X	2929	1/1	0.96	0.45	37,37,37,37	0
29	MG	X	2930	1/1	0.96	0.45	30,30,30,30	0
29	MG	X	2902	1/1	0.96	0.54	33,33,33,33	0
29	MG	X	2937	1/1	0.97	0.38	36,36,36,36	0
29	MG	X	2938	1/1	0.97	0.40	27,27,27,27	0
29	MG	X	2939	1/1	0.97	0.31	32,32,32,32	0
29	MG	X	2908	1/1	0.97	0.49	31,31,31,31	0
29	MG	X	2919	1/1	0.97	0.51	59,59,59,59	0
29	MG	X	2932	1/1	0.97	0.48	39,39,39,39	0
29	MG	X	2943	1/1	0.97	0.31	31,31,31,31	0
29	MG	X	2920	1/1	0.97	0.32	41,41,41,41	0
29	MG	X	2945	1/1	0.97	0.47	61,61,61,61	0
29	MG	X	2946	1/1	0.97	0.68	27,27,27,27	0
29	MG	X	2934	1/1	0.97	0.45	42,42,42,42	0
29	MG	X	2913	1/1	0.97	0.52	27,27,27,27	0
29	MG	X	2936	1/1	0.97	0.21	33,33,33,33	0
29	MG	X	2905	1/1	0.98	0.46	27,27,27,27	0
29	MG	X	2925	1/1	0.98	0.53	32,32,32,32	0
29	MG	X	2918	1/1	0.98	0.56	36,36,36,36	0
29	MG	X	2914	1/1	0.98	0.55	26,26,26,26	0
29	MG	X	2949	1/1	0.98	0.21	32,32,32,32	0
29	MG	X	2928	1/1	0.98	0.28	36,36,36,36	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
29	MG	X	2931	1/1	0.99	0.39	25,25,25,25	0
29	MG	X	2921	1/1	0.99	0.70	51,51,51,51	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.