



Full wwPDB EM Validation Report ⓘ

Nov 4, 2024 – 12:25 am GMT

PDB ID : 7PAU
EMDB ID : EMD-13286
Title : free 50S in complex with ribosome recycling factor in untreated *Mycoplasma pneumoniae* cells
Authors : Xue, L.; Lenz, S.; Rappsilber, J.; Mahamid, J.
Deposited on : 2021-07-30
Resolution : 8.30 Å (reported)
Based on initial models : 1EH1, 7OOD

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

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

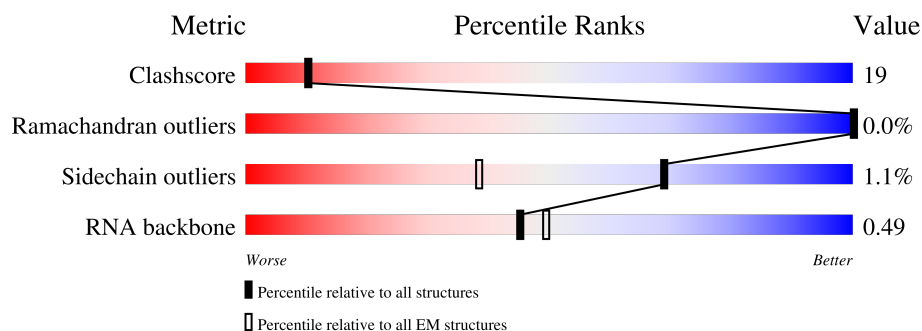
EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 8.30 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	0	48	
2	1	59	
3	2	37	
4	7	184	
5	a	287	
6	b	287	
7	c	212	

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Mol	Chain	Length	Quality of chain
8	d	180	
9	e	184	
10	f	149	
11	g	161	
12	h	137	
13	i	146	
14	j	122	
15	k	151	
16	l	139	
17	m	124	
18	n	116	
19	o	119	
20	p	127	
21	q	100	
22	r	159	
23	s	237	
24	t	111	
25	u	104	
26	v	65	
27	w	111	
28	x	97	
29	y	57	
30	z	53	
31	3	2907	
32	4	108	

2 Entry composition

There are 32 unique types of molecules in this entry. The entry contains 92803 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	47	Total	C	N	O	S	0	0
			380	236	81	61	2		

- Molecule 2 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	59	Total	C	N	O	S	0	0
			477	300	99	77	1		

- Molecule 3 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	37	Total	C	N	O	S	0	0
			304	189	65	46	4		

- Molecule 4 is a protein called Ribosome-recycling factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	7	182	Total	C	N	O	S	0	0
			1510	960	262	283	5		

- Molecule 5 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	a	285	Total	C	N	O	S	0	0
			2225	1385	437	397	6		

- Molecule 6 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	b	229	Total	C	N	O	S	0	0
			1762	1119	318	318	7		

- Molecule 7 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	c	210	Total	C	N	O	S	0	0
			1644	1047	297	297	3		

- Molecule 8 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	d	175	Total	C	N	O	S	0	0
			1388	893	245	246	4		

- Molecule 9 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	e	176	Total	C	N	O	S	0	0
			1396	899	247	250			

- Molecule 10 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	f	145	Total	C	N	O	S	0	0
			1160	746	204	207	3		

- Molecule 11 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	g	126	Total	C	N	O	S	0	0
			960	612	167	178	3		

- Molecule 12 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	h	128	Total	C	N	O	S	0	0
			959	616	160	177	6		

- Molecule 13 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	i	144	Total	C	N	O	S	0	0
			1164	737	213	209	5		

- Molecule 14 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	j	122	Total	C	N	O	S	0	0
			944	595	178	167	4		

- Molecule 15 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	k	148	Total	C	N	O	S	0	0
			1153	731	226	196			

- Molecule 16 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	l	136	Total	C	N	O	S	0	0
			1079	694	196	182	7		

- Molecule 17 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	m	119	Total	C	N	O	S	0	0
			958	609	175	171	3		

- Molecule 18 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	n	112	Total	C	N	O	S	0	0
			889	557	175	155	2		

- Molecule 19 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	o	115	Total	C	N	O	S	0	0
			938	592	180	165	1		

- Molecule 20 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	p	114	Total	C	N	O	S	0	0
			947	603	188	154	2		

- Molecule 21 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	q	99	Total	C	N	O	S	0	0
			811	525	148	134	4		

- Molecule 22 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	r	139	Total	C	N	O	S	0	0
			1068	663	207	191	7		

- Molecule 23 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	s	92	Total	C	N	O	S	0	0
			720	475	122	122	1		

- Molecule 24 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	t	111	Total	C	N	O	S	0	0
			872	550	166	153	3		

- Molecule 25 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	u	86	Total	C	N	O	S	0	0
			657	409	130	117	1		

- Molecule 26 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	v	63	Total	C	N	O	S	0	0
			513	317	108	87	1		

- Molecule 27 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	w	100	Total	C	N	O	0	0
			818	517	153	148		

- Molecule 28 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	x	44	Total	C	N	O	S	0	0
			344	221	55	64	4		

- Molecule 29 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	y	56	Total	C	N	O	S	0	0
			452	274	98	75	5		

- Molecule 30 is a protein called 50S ribosomal protein L33 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	z	50	Total	C	N	O	S	0	0
			408	255	81	68	4		

- Molecule 31 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	3	2878	Total	C	N	O	P	0	0
			61664	27558	11236	19995	2875		

- Molecule 32 is a RNA chain called 5S ribosomal RNA.

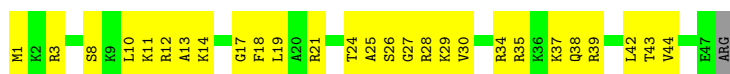
Mol	Chain	Residues	Atoms					AltConf	Trace
32	4	105	Total	C	N	O	P	0	0
			2239	1003	409	724	103		

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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 L34

Chain 0: 



- Molecule 2: 50S ribosomal protein L35

Chain 1: 




- Molecule 3: 50S ribosomal protein L36

Chain 2: 

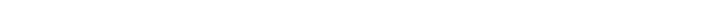


- Molecule 4: Ribosome-recycling factor

Chain 7: 



- Molecule 5: 50S ribosomal protein L2

- Chain b:  79% 20%

Position	Residue	Conservation	Annotations
1	ALA	0.00	
2	ALA	0.00	
3	PRO	0.00	
4	VAL	0.00	
5	VAL	0.00	
6	GLU	0.00	
7	LYS	0.00	
8	LYS	0.00	
9	GLY	0.00	
10	GLU	0.00	
11	ASP	0.00	
12	LYS	0.00	
13	PRO	0.00	
14	LYS	0.00	
15	PRO	0.00	
16	ALA	0.00	
17	LYS	0.00	
18	LEU	0.00	
19	LYS	0.00	
20	SER	0.00	
21	GLY	0.00	
22	LYS	0.00	
23	LYS	0.00	
24	LYS	0.00	
25	GLN	0.00	
26	ALA	0.00	
27	LYS	0.00	
28	GLU	0.00	
29	LEU	0.00	
30	ALA	0.00	
31	LYS	0.00	
32	ALA	0.00	
33	GLN	0.00	
34	ALA	0.00	
35	ALA	0.00	
36	ASN	0.00	
37	GLN	0.00	
38	GLN	0.00	
39	THR	0.00	
40	VAL	0.00	
41	GLU	0.00	
42	ALA	0.00	
43	LYS	0.00	
44	PRO	0.00	
45	VAL	0.00	
46	VAL	0.00	
47	GLU	0.00	
48	PRO	0.00	
49	LYS	0.00	
50	THR	0.00	
51	THR	0.00	
52	GLU	0.00	
53	VAL	0.00	
54	LYS	0.00	

- Chain c:  99%

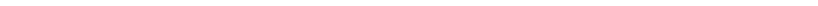
Diagram illustrating the A2K3 peptide sequence: MET-A2-K3-K19-K27-F211-LYS. The sequence is shown with amino acid residues and their corresponding mass-to-charge ratios. Red diamonds indicate phosphorylation sites at A2, K3, and K27.

- Chain d:  9% 97%

[illegible]

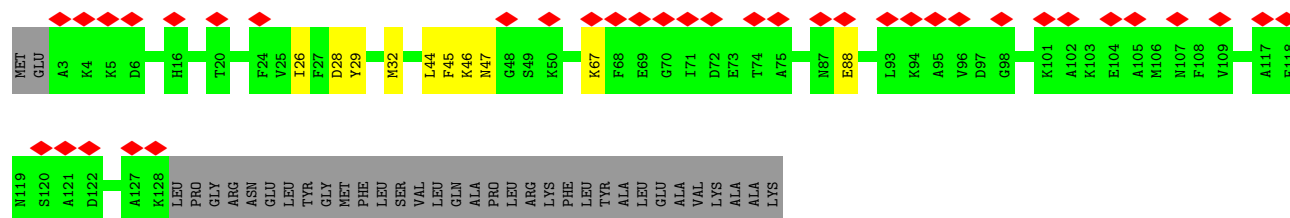
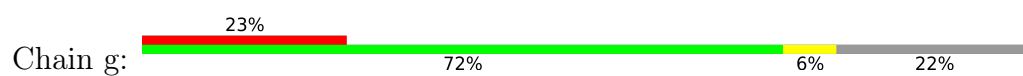
- Chain e:  8% 96% .

[illegible]

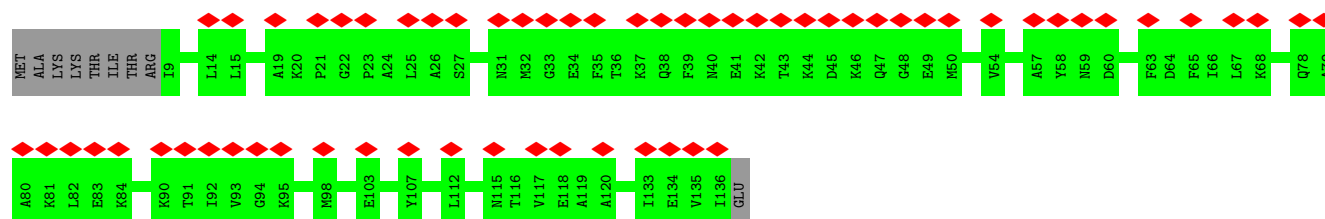
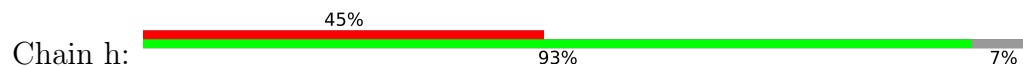
- Chain f:  42% 97%

L119	G120	F121	G122	D123	H124	E125	I126	T127	L128	H129	I130	F131	E132	D133	A136	V137	L138	K139	V140	K141	V142	T143	P144	D145	ASN	GLY	VAL	LYS																			
M1	N11	A36	A37	P38	L39	T40	S43	L44	Q45	D48	L49	F50	I60	N61	L64	L68	K69	E70	V71	T72	E73	Q74	T75	E76	L77	H78	F79	S80	L81	K82	N85	G86	R87	P88	Y89	G90	S91	I92	I93	T94	K95	Q96	G105	M106	A107	K114	V117

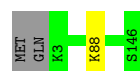
- WORLDWIDE
PDB
PROTEIN DATA BANK



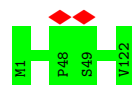
- Molecule 12: 50S ribosomal protein L11



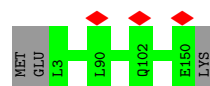
- Molecule 13: 50S ribosomal protein L13



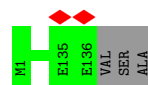
- Molecule 14: 50S ribosomal protein L14



- Molecule 15: 50S ribosomal protein L15

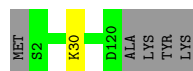


- Molecule 16: 50S ribosomal protein L16



- Molecule 17: 50S ribosomal protein L17

Chain m:  95%



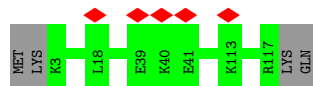
- Molecule 18: 50S ribosomal protein L18

Chain n:  96%



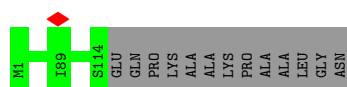
- Molecule 19: 50S ribosomal protein L19

Chain o:  97%



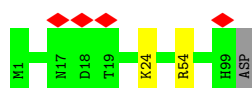
- Molecule 20: 50S ribosomal protein L20

Chain p:  90% 10%




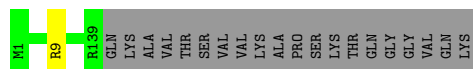
- Molecule 21: 50S ribosomal protein L21

Chain q:  97%



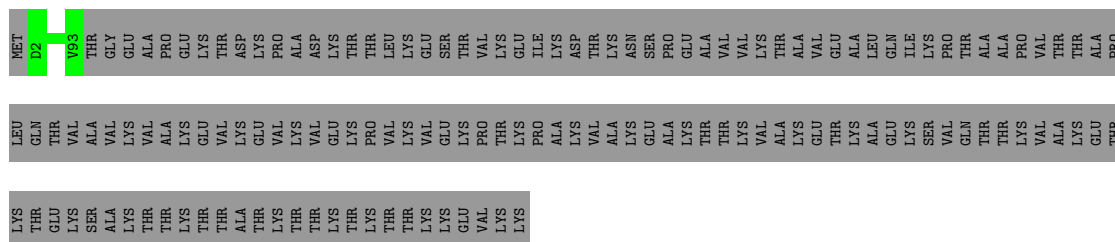
- Molecule 22: 50S ribosomal protein L22

Chain r:  87% 13%

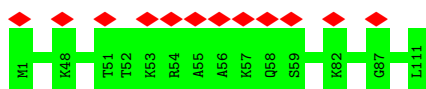


- Molecule 23: 50S ribosomal protein L23

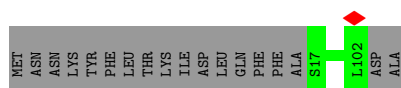
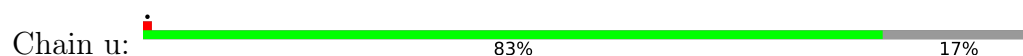
Chain s:  39% 61%



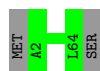
• Molecule 24: 50S ribosomal protein L24



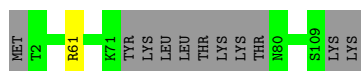
• Molecule 25: 50S ribosomal protein L27



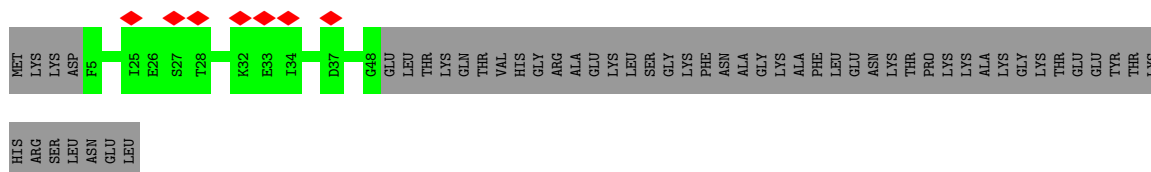
• Molecule 26: 50S ribosomal protein L28



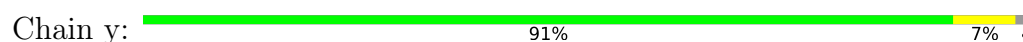
• Molecule 27: 50S ribosomal protein L29



• Molecule 28: 50S ribosomal protein L31



• Molecule 29: 50S ribosomal protein L32



U1691	C1622	A1495	U1428	C1355	A1284	G1218	U1151	U1076	A1009	U944	C880	G813	A740
A1692	U1623	A1496	G1429	G1356	U1285	U1219	U1154	G1077	G1010	U945	A881	A816	A741
U1693	U1430	U1497	U1430	C1357	U1286	A1220	G1155	G1078	G1012	A946	C882	A1011	G742
A1694	G1625	U1498	A1431	C1358	C1287	G1221	G1156		G1013	A947	A883	A817	
G1695		A1499	U1432	C1359	C1359	A1222	G1157	A1081		A948	A884	U818	U745
G1696		A1500	U1433	U1360			G1158	A1082	A1016	U950	U886	U820	G746
C1697	U1628	U1501	U1434	U1361	A1292	G1228	C1159	A1083		C951	A887	C821	G748
A1698	U1630	A1502	A1435	C1362	U1293	U1229	C1159	C1084	A1019	U952	A888	C822	
A1699	A1631	A1503	A1436	C1363	U1294	U1230	G1160	A1085		G953	G889	A823	C752
G1700	C1632	A1504		A1364	G1291	A1231	A1161	C1086	G1020	A954	G890	A824	A753
G1701	C1633		U1439		A1296	U1232	A1162	C1087	C1021		G891	U825	U754
A1702	G1634	G1507	U1440	U1369	U1297	A1233	G1163	A1088	C1022	A955	G892	U826	C755
A1703	G1635	G1508	A1441	A1370	A1298	U1234	A1164	A1089	C1023	U956	G893	A756	
G1704	U1636	U1509	G1442	G1371	A1299	U1235	U1165	G1090	A1024	G957	A894	C827	
	A1637	A1510	A1443	U1372	C1300	G1236	G1166	G1091			G894	A828	
U1707	C1638	C1511	U1444		G1301	G1237	U1167	A1092	A1026		G895	A829	A757
G1708	C1639	A1512	U1445	G1376	C1302	U1238	A1168	U1093	U1027	U964	U896	A830	G759
C1709	G1640	A1513	U1446		C1303	A1239	A1169	G1094	G1028	U965	U897	U831	G760
A1710	A1641	A1513	G1446	U1380	U1304	U1240	C1170	U1095	A1029	U966	A898	C832	G761
A1711	G1642	C1518	G1449	A1381	G1305	U1241	G1171	U1096	U1030	U967	A899	C833	A762
A1712	A1643		G1450	A1382	G1306	U1242		G1097	U1031	U967	G900	C834	G763
	C1644	C1523	A1451	G1383	G1307	A1243	C1175	G1098	A1032	U968	C901	U835	G764
A1715	C1645	C1524	G1452	C1384	A1308	A1244	U1176	C1099		A969	U902	G836	A765
A1716	G1646	G1525	U1453	U1385	G1309	G1245	A1177	U1100	U1035	U971	C904	C837	C766
	A1647	U1526	G1454	G1386	U1310	U1246	A1178	U1101	A1036	C972	U905		C767
G1721	A1648	U1527	A1455	A1387	G1311	C1247	G1179	A1102	A1037	U973	U906	C840	G768
U1722	C1649	G1528	C1456	G1388		A1248		G1103	G1038	C974	C907	C841	A769
A1723	A1650	A1529	A1457	G1389	A1315	A1250	A1183	U1104	U1039	G975	A908	U842	A770
A1724	C1651	G1530	A1458	C1390	A1316	G1251	A1186	G1105	U1040	C976	U909	G843	
	A1652	C1531	A1459	C1391	C1317	C1252	C1187	G1106	A1045	A977	G910	G844	A774
U1727	C1653	A1532	G1460	A1393	U1318	G1253	C1188	C1111	A1046	G978	U911	C847	C775
A1728	G1654	U1533	A1461	A1394		U1254	G1189	A1112	A1047	U979	A912	U848	U781
G1729	U1655	A1534	A1462		A1322	G1255	A1190	C1113	A1048	C980	U913	C849	U782
C1730		A1535	G1463	C1397			A1191	C1114	A1049	A981	U914	G850	G783
G1731	C1659	C1536	G1464	C1398	C1326	G1257	U1192	G1115	A1050	G982	A915	U851	A784
A1732	A1660	A1537	U1465	G1399	C1326	U1258	U1193	U1116	U1051	A983	G917	C852	
G1733	A1661	U1538	U1466	U1400	G1327	A1259	U1194		A1052	C984	G918	C853	G788
A1734	G1662	U1539	U1467	A1401	A1328	U1260	A1196	A1123	G1053	U985	G918	A854	A789
	G1663	G1540		G1402	A1329	U1261	U1196	G1124	U1054		C922	A855	U790
A1735	A1664	A1541	C1473	A1406	U1329	G1262	G1197	U1125	A1055	G989	A	A856	A791
G1736	C1665	G1542	C1474	A1407	U1330	G1263	G1198	G1126	A1056		C		G792
G1737	A1666	U1543	C1475	G1408	C1331	U1264	U1199	A1131	G1057	G990	U		C793
G1738	G1667	A1544	A1476	G1409	A1332	G1265	U1200	C1132	U1058		A	U862	G794
G1739	G1668	A1545	A1477	A1410	U1333	G1266	A1201			A993	A864	A865	
	A1669	U1546	U1478		U1334	G1267	A1202	U1136	A1061	U994	A866	G867	U797
U1743	A1670	G1547	A1479	C1411	A1335	A1267	G1203	C1137	A1062	A995	G928	G868	
A1744	C1671	A1548	A1480	A1412	A1336	U1268	A1204	A1138	A1063	A996	G929	G869	A798
U1745	G1672	U1549	U1481	A1413	G1337	C1269	A1205	C1139	A1064	G997	C930	C800	C800
G1746		G1550	U1482	C1414	G1338	C1270	U1206		G1065	C998	G931	U801	U801
G1747		U1551	G1483	A1415		A1271		U1140	G1066	U999	U932	U802	U802
U1748	A1675	C1552		G1416	U1341		U1209	U1141	A1067	U1000	A933	G803	G803
	G1676	G1553	U1486	G1417	C1342	A1274	A1210	U1141	A1067	U1000	A933	U804	U804
A1751	G1677	G1553	U1487	U1418	C1343	C1275	U1211	G1142	U1068	A995	C934	G805	G805
A1752	G1678	A1554	U1488		U1344		G1212	U1143	G1069	A996	U935	G873	G873
G1753	U1679	G1555	G1489	U1422	G1345	G1278	C1212	U1143	A1002	G997	G936	G874	U874
U1754	A1680	U1556	G1489	A1423		U1279	U1213	A1146	U1070	C998	G936	G875	A806
A1755	G1681	G1557	G1490	A1424	A1350	G1280	U1214	G1147	G1071	U1004	A937	G876	U807
A1756	C1682	A1558	G1491	U1424		G1280	U1215	G1147	A1072	G1005	A938	A876	
G1757	G1683	U1559	G1492	U1425		A1281	U1216	U1148	A1073	U1006	A939	G877	G877
		U	A1493	C1426	G1363	G1282	U1216	U1148	A1074	C1007	A940	G811	G811
C1758		G	U1494	C1427	U1354	A1283	G1217	U1150	G1075	A1008		U879	G812

U2636	C2566	U2601	C2430	C2363	C2398	U2228	G2164	U2102	G2036	C1969	U1829	G1760
A2637	C2567	G2503	U2431	A2364	U2299	C2229	A2165	C2103	A2037	C1999	G1830	C1761
G2638	C2568	C2504	C2432	A2365	C2301	A2230	U2166	A2104	A2038	C1900	G1831	A1762
A2643	C2569	C2505	C2435	A2366	C2302	A2231	G2167	G2105	A2039	G1904	G1763	U1764
U2644	U2570	C2506	G2436	C2367	U2303	C2232	C2168	C2106	A2040	U1903	G1835	U1765
U2645	C2572	C2507	G2437	A2368	U2304	C2233	A2169	A2107	C2041	A1907	A1836	A1766
G2646	A2573	U2608	U2438	G2369	C2305	C2234	A2170	C2108	A2042	A1908	C1837	A1767
A2647	C2574	C2509	U2439	C2370	C2306	G2238	A2171	A2109	C2045	A1909	A1838	A1768
G2648	C2575	G2510	C2440	A2371	C2307	U2239	A2172	U2110	G2046	U1908	G1776	G1777
G2649	A2576	U2511	C2442	A2372	U2308	G2240	G2173	U2111	G2047	C1909	A1841	A1769
U2650	C2577	U2512	A2443	A2373	A2309	A2241	G2174	A2112	U2048	G1910	A1770	A1771
G2653	A2578	G2513	C2448	A2374	C2310	G2242	U2175	C2114	U2049	G1913	G1842	G1772
U2654	U2579	U2514	U2449	A2375	G2311	G2243	G2176	A2115	G2050	G1914	C1843	C1844
G2655	C2580	C2515	C2450	G2376	G2312	U2244	G2177	U2116	C2053	C1915	C1845	C1846
G2656	A2581	U2516	C2451	A2377	U2313	G2245	A2178	C2117	G2054	C1916	A1846	G1778
C2657	U2582	A2517	G2452	U2380	U2314	G2246	U2180	U2118	A2055	G1917	G1847	G1779
U2658	U2583	C2518	C2453	A2381	C2315	G2247	A2181	A2126	C2056	U1918	U1848	U1780
G2659	G2584	A2521	G2454	C2382	G2316	C2248	C2182	G2127	C2057	A1919	G1849	A1786
C2663	A2585	U2522	G2455	C2383	A2317	A2249	U2183	A2123	C2058	C1920	C1850	A1920
U2664	G2586	C2523	G2456	A2384	C2318	G2250	A2184	U2125	G2059	A1921	U1851	G1783
A2665	U2587	U2524	A2456	A2385	A2319	U2251	C2185	U2126	C2060	U1922	G1852	U1784
C2666	U2588	C2525	U2457	A2386	U2320	G2252	C2186	G2127	C2061	U1923	G1853	U1785
G2667	G2589	A2526	U2458	U2387	C2321	G2253	U2189	G2128	C2062	U1924	A1854	U1786
A2668	U2590	C2527	A2459	C2388	G2322	G2254	C2189	U2129	C2063	A1925	A1855	A1789
C2669	U2593	C2528	G2462	A2389	U2323	C2255	G2190	U2130	G2064	A1926	G1856	C1789
A2670	C2594	U2530	G2463	G2390	U2324	C2256	G2191	A2131	A2065	U1930	U1790	U1791
A2673	C2598	C2533	G2464	C2391	U2325	U2257	U2192	G2132	A2066	C1931	A1861	A1792
A2677	C2599	G2534	U2465	U2392	C2326	G2258	U2193	A2133	A2067	C1932	A1862	A1793
G2678	G2600	C2535	U2466	C2393	U2327	G2259	G2194	A2134	C2068	U1933	A1863	A1794
G2679	G2603	U2536	A2467	A2394	G2328	G2260	U2195	C2135	A2069	A1934	A1864	A1798
G2680	U2604	C2537	U2468	U2395	G2329	C2262	G2196	C2136	C2070	A1935	A1865	A1799
G2681	C2605	U2538	G2469	C2396	C2330	G2263	U2197	A2137	C2071	U1936	G1866	A1799
A2682	A2606	A2539	C2470	U2397	U2331	G2264	G2198	U2138	C2072	G1937	C1800	C1800
G2683	G2607	G2540	U2471	C2398	G2332	U2265	C2199	U2139	C2073	U1938	A1868	U1801
G2684	C2608	C2541	C2472	A2400	U2333	C2266	U2200	C2139	G2074	U1938	G1869	C1802
A2685	C2609	A2542	C2473	U2401	A2335	C2269	G2201	G2140	U2075	G1942	G1870	U1803
C2686	A2610	U2543	C2474	C2402	A2336	C2270	U2202	A2141	A2077	A1943	U1871	U1804
A2687	G2611	G2544	C2475	U2403	U2337	C2272	C2204	U2142	A2078	A1944	U1872	U1805
C2688	U2614	C2547	A2476	G2404	G2338	U2273	U2205	G2143	G2079	A1945	A1873	G1806
U2693	G2615	G2548	G2477	G2405	G2339	A2274	A2206	C2144	U2083	U1946	G1874	C1807
A2694	U2616	A2549	C2478	U2409	U2340	A2275	A2207	A2145	A2084	U1947	G1875	C1808
U2695	C2617	U2550	U2481	C2410	U2341	A2276	G2211	A2146	C2085	C1948	G1876	A1809
G2696	A2618	G2551	U2482	U2411	A2342	A2277	U2212	G2147	C2086	U1949	C1877	C1812
C2697	C2619	G2552	C2483	A2414	A2343	G2278	A2213	U2148	U2088	U1950	G1881	A1816
U2698	C2620	G2553	A2484	A2415	G2345	G2279	G2219	U2149	A2089	A1951	G1882	A1817
C2699	U2621	U2554	U2485	G2418	U2346	U2280	A2214	C2150	G2090	G1952	A1883	G1818
C2700	A2622	U2555	U2486	G2419	G2349	A2281	G2215	G2151	C2091	U1953	A1884	G1819
A2701	U2625	C2556	U2487	A2420	G2353	A2282	G2217	C2152	U2092	C2026	U1820	U1820
G2702	G2626	U2557	C2488	U2421	A2354	A2286	U2218	U2153	U2093	A2027	G1885	G1821
U2703	U2627	G2560	G2489	G2422	C2355	G2290	U2219	G2155	A2094	U2028	C1886	A1822
G2704	A2628	C2561	A2495	U2423	U2356	U2291	U2221	G2156	U2095	A1959	U1887	U1822
G2705	U2630	U2562	G2496	G2424	C2357	G2292	A2157	A2096	A2030	A1961	U1888	U1823
U2706	C2634	C2563	U2497	C2425	U2358	C2223	C2158	U2097	A2036	U1962	U1889	G1824
A2707	U2635	U2564	U2498	A2426	G2359	A2294	C2223	U2098	U2033	U1963	U1890	U1825
G2708	C2636	G2565	U2499	U2427	A2362	A2295	A2224	U2099	G2034	C1964	A1891	A1826
C2709	G2635		U2500			G2297	G2225	G2100	A2101	C1965	U1827	A1828

4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	8203	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	3.2	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3750	Depositor
Magnification	81000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.619	Depositor
Minimum map value	-0.546	Depositor
Average map value	0.016	Depositor
Map value standard deviation	0.104	Depositor
Recommended contour level	0.46	Depositor
Map size (\AA)	480.00003, 480.00003, 480.00003	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	2.4, 2.4, 2.4	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0	0.22	0/383	0.43	0/504
2	1	0.23	0/484	0.41	0/637
3	2	0.23	0/306	0.46	0/401
4	7	0.26	0/1535	0.43	0/2061
5	a	0.24	0/2267	0.45	0/3044
6	b	0.25	0/1795	0.47	0/2412
7	c	0.25	0/1671	0.47	0/2246
8	d	0.24	0/1409	0.45	0/1894
9	e	0.25	0/1420	0.47	0/1912
10	f	0.24	0/1183	0.47	0/1587
11	g	0.38	0/969	0.57	0/1295
12	h	0.24	0/968	0.46	0/1298
13	i	0.24	0/1186	0.43	0/1592
14	j	0.25	0/953	0.46	0/1275
15	k	0.23	0/1170	0.43	0/1559
16	l	0.24	0/1104	0.44	0/1481
17	m	0.23	0/973	0.43	0/1309
18	n	0.23	0/897	0.44	0/1198
19	o	0.24	0/948	0.46	0/1262
20	p	0.23	0/961	0.39	0/1278
21	q	0.25	0/828	0.46	0/1111
22	r	0.25	0/1077	0.46	0/1441
23	s	0.24	0/732	0.46	0/988
24	t	0.24	0/879	0.44	0/1165
25	u	0.25	0/665	0.47	0/884
26	v	0.22	0/519	0.49	0/695
27	w	0.22	0/826	0.40	0/1104
28	x	0.25	0/353	0.45	0/474
29	y	0.29	0/457	0.54	0/601
30	z	0.23	0/412	0.43	0/547
31	3	0.19	0/69073	0.78	31/107710 (0.0%)
32	4	0.18	0/2505	0.77	0/3902
All	All	0.21	0/100908	0.71	31/150867 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
10	f	0	1

There are no bond length outliers.

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
31	3	545	C	N1-C2-O2	8.87	124.22	118.90
31	3	440	C	N1-C2-O2	8.73	124.14	118.90
31	3	440	C	C2-N1-C1'	8.04	127.65	118.80
31	3	1341	U	C2-N1-C1'	7.91	127.19	117.70
31	3	1786	U	C2-N1-C1'	7.66	126.90	117.70
31	3	1341	U	N1-C2-O2	7.42	128.00	122.80
31	3	545	C	N3-C2-O2	-7.26	116.82	121.90
31	3	1786	U	N1-C2-O2	7.22	127.86	122.80
31	3	1341	U	N3-C2-O2	-7.15	117.19	122.20
31	3	440	C	N3-C2-O2	-7.15	116.89	121.90
31	3	1786	U	N3-C2-O2	-6.78	117.45	122.20
31	3	659	C	N1-C2-O2	6.75	122.95	118.90
31	3	1247	C	N3-C2-O2	-6.57	117.30	121.90
31	3	1507	G	O4'-C1'-N9	6.56	113.45	108.20
31	3	659	C	N3-C2-O2	-6.55	117.31	121.90
31	3	445	C	N3-C2-O2	-6.33	117.47	121.90
31	3	144	C	N3-C2-O2	-6.31	117.48	121.90
31	3	2604	U	P-O3'-C3'	6.07	126.99	119.70
31	3	440	C	C6-N1-C2	-5.70	118.02	120.30
31	3	440	C	C6-N1-C1'	-5.39	114.33	120.80
31	3	469	C	N3-C2-O2	-5.37	118.14	121.90
31	3	1262	G	N3-C4-N9	5.31	129.18	126.00
31	3	1659	C	N1-C2-O2	5.28	122.07	118.90
31	3	2070	C	N1-C2-O2	5.13	121.98	118.90
31	3	1924	U	C2-N1-C1'	5.11	123.84	117.70
31	3	1010	G	O4'-C1'-N9	5.08	112.26	108.20
31	3	144	C	N1-C2-O2	5.06	121.94	118.90
31	3	426	U	C2-N1-C1'	5.04	123.74	117.70
31	3	98	C	N1-C2-O2	5.02	121.91	118.90
31	3	1924	U	N1-C2-O2	5.01	126.31	122.80
31	3	1659	C	C2-N1-C1'	5.00	124.31	118.80

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
10	f	11	ASN	Peptide

5.2 Too-close contacts ⓘ

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	0	380	0	429	25	0
2	1	477	0	530	12	0
3	2	304	0	350	18	0
4	7	1510	0	1553	60	0
5	a	2225	0	2301	0	0
6	b	1762	0	1808	0	0
7	c	1644	0	1731	0	0
8	d	1388	0	1469	0	0
9	e	1396	0	1481	0	0
10	f	1160	0	1172	0	0
11	g	960	0	1014	0	0
12	h	959	0	1039	0	0
13	i	1164	0	1192	0	0
14	j	944	0	1019	0	0
15	k	1153	0	1256	0	0
16	l	1079	0	1134	0	0
17	m	958	0	1011	0	0
18	n	889	0	952	0	0
19	o	938	0	1008	0	0
20	p	947	0	1028	0	0
21	q	811	0	858	0	0
22	r	1068	0	1150	0	0
23	s	720	0	803	0	0
24	t	872	0	972	0	0
25	u	657	0	695	0	0
26	v	513	0	560	0	0
27	w	818	0	870	0	0
28	x	344	0	333	0	0
29	y	452	0	472	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	z	408	0	440	0	0
31	3	61664	0	30954	1703	0
32	4	2239	0	1137	52	0
All	All	92803	0	62721	1839	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 19.

All (1839) 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)
31:3:900:G:N2	31:3:903:A:H61	1.58	1.01
31:3:1807:C:H42	31:3:1824:G:N2	1.57	1.01
31:3:2299:U:H3	31:3:2349:G:H1	1.03	1.00
31:3:1746:U:H3	31:3:1753:G:H1	1.04	1.00
31:3:1807:C:N4	31:3:1824:G:H22	1.59	0.99
31:3:2143:G:H1	31:3:2162:U:H3	1.01	0.96
31:3:61:U:H3	31:3:70:G:H1	1.02	0.96
31:3:2409:U:H3	31:3:2423:G:H1	1.06	0.96
31:3:1027:U:H3	31:3:1198:G:H1	1.08	0.95
31:3:1803:U:H3	31:3:1830:G:H1	1.10	0.94
31:3:989:G:H1	31:3:1000:U:H3	1.13	0.94
31:3:2123:A:H62	31:3:2173:G:H21	1.14	0.94
31:3:137:U:H3	31:3:146:G:H1	0.94	0.93
31:3:2059:G:H1	31:3:2625:U:H3	1.10	0.93
31:3:990:G:H1	31:3:999:U:H3	0.99	0.92
31:3:2465:U:H3	31:3:2502:G:H1	1.13	0.92
31:3:1245:G:H1	31:3:1264:U:H3	1.09	0.92
31:3:629:G:H1	31:3:696:U:H3	0.96	0.91
31:3:1914:G:H1	31:3:1930:U:H3	1.00	0.91
31:3:1807:C:H42	31:3:1824:G:H22	0.95	0.90
31:3:569:U:H3	31:3:592:G:H1	1.12	0.90
31:3:748:G:H21	31:3:753:A:H62	1.21	0.88
31:3:900:G:H21	31:3:903:A:H61	1.18	0.88
31:3:29:G:H1	31:3:547:G:HO2'	0.88	0.88
31:3:900:G:H21	31:3:903:A:N6	1.72	0.87
31:3:2483:C:H42	31:3:2537:G:H22	1.18	0.86
31:3:305:U:H3	31:3:399:G:H1	1.21	0.86
31:3:2090:G:H1	31:3:2244:U:H3	1.21	0.86
31:3:1772:G:H1	31:3:1994:U:H3	1.23	0.86
31:3:1942:G:H1	31:3:1969:C:HO2'	1.21	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:329:G:H1	31:3:377:U:H3	0.85	0.84
31:3:742:G:H1	31:3:759:U:H3	0.87	0.84
31:3:144:C:H2'	31:3:145:A:H8	1.43	0.83
31:3:633:G:H1	31:3:692:U:H3	1.25	0.83
31:3:1504:G:H1	31:3:1539:U:H3	1.24	0.83
31:3:2667:G:H2'	31:3:2668:A:H3'	1.61	0.82
31:3:17:G:H1	31:3:560:U:H3	1.24	0.82
31:3:2151:G:H1'	31:3:2154:A:H61	1.45	0.82
31:3:641:U:O2	31:3:657:A:N7	2.13	0.81
31:3:89:U:H5''	31:3:90:G:H5''	1.62	0.81
31:3:1743:U:O2	31:3:2863:G:N2	2.14	0.80
31:3:230:G:O6	31:3:454:G:N2	2.15	0.79
31:3:712:A:H61	31:3:835:U:H3	1.28	0.79
1:0:34:ARG:HE	1:0:42:LEU:HA	1.48	0.79
31:3:297:G:H1	31:3:440:C:HO2'	1.30	0.79
31:3:2110:U:H3	31:3:2194:G:H1	1.30	0.79
31:3:1054:U:O2'	31:3:1056:A:N7	2.16	0.79
31:3:2547:C:H2'	31:3:2548:G:H8	1.47	0.78
31:3:534:U:H3	31:3:538:A:H62	1.31	0.78
31:3:1111:C:N4	31:3:1112:A:N6	2.32	0.78
31:3:730:G:H1	31:3:802:U:H3	1.29	0.78
31:3:2132:G:H21	31:3:2181:A:H62	1.31	0.78
31:3:2458:A:N6	31:3:2509:C:O2	2.17	0.77
31:3:2536:U:H3	31:3:2543:G:H1	1.32	0.77
31:3:906:G:H1	31:3:945:U:H3	1.31	0.77
31:3:325:G:H1	31:3:383:U:H3	1.33	0.76
31:3:1457:A:H61	31:3:1598:U:H3	1.34	0.76
31:3:2603:G:N2	31:3:2606:A:OP2	2.17	0.76
31:3:313:G:N1	31:3:394:C:N3	2.34	0.76
31:3:2303:U:H3	31:3:2345:G:H1	1.34	0.76
31:3:200:A:H61	31:3:866:G:N2	1.83	0.75
31:3:748:G:H21	31:3:753:A:N6	1.83	0.75
31:3:2145:A:N6	31:3:2161:G:O6	2.18	0.75
31:3:748:G:N2	31:3:753:A:H62	1.84	0.75
3:2:8:LYS:NZ	31:3:2475:C:OP1	2.19	0.75
31:3:313:G:N2	31:3:394:C:O2	2.20	0.75
31:3:1040:U:H1'	31:3:1046:A:H2'	1.67	0.75
31:3:2736:U:HO2'	31:3:2737:G:H8	1.32	0.75
31:3:1252:C:N3	31:3:1257:G:N1	2.33	0.74
31:3:1807:C:N3	31:3:1824:G:N1	2.30	0.74
31:3:1446:G:O2'	31:3:1613:A:N6	2.21	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:63:U:H3	31:3:97:A:H1'	1.52	0.74
31:3:1354:U:O2'	31:3:2017:G:O2'	2.03	0.74
4:7:21:LEU:HD13	4:7:126:ILE:HG13	1.68	0.74
31:3:2549:A:O2'	31:3:2773:A:N1	2.19	0.74
31:3:1071:G:H1	31:3:1154:U:H3	1.34	0.74
31:3:1111:C:N4	31:3:1112:A:H62	1.84	0.74
31:3:2092:U:H3	31:3:2242:G:H1	1.36	0.73
32:4:28:C:H1'	32:4:55:A:H61	1.53	0.73
31:3:418:G:H1	31:3:430:U:H3	1.36	0.73
31:3:47:G:H5''	31:3:48:G:H5'	1.71	0.73
31:3:1067:A:H2	31:3:1157:G:H1	1.34	0.73
31:3:2458:A:N6	31:3:2509:C:C2	2.57	0.73
31:3:2483:C:N4	31:3:2537:G:H22	1.87	0.73
31:3:2291:U:O2	31:3:2333:G:O6	2.07	0.72
32:4:31:G:O6	32:4:48:A:N6	2.21	0.72
31:3:2321:C:H2'	31:3:2322:G:H8	1.55	0.72
31:3:513:A:H2'	31:3:514:A:C8	2.23	0.72
31:3:2141:A:OP2	31:3:2164:G:N2	2.22	0.72
31:3:2820:G:N3	31:3:2887:A:O2'	2.23	0.72
31:3:1414:C:H2'	31:3:1415:A:H8	1.55	0.72
31:3:1252:C:O2	31:3:1257:G:N2	2.20	0.72
3:2:36:GLN:OE1	31:3:1159:C:O2'	2.07	0.72
31:3:725:G:N2	31:3:807:U:O2	2.23	0.72
31:3:250:U:H3	31:3:256:G:H1	1.38	0.71
31:3:2807:G:O2'	31:3:2809:A:N6	2.21	0.71
31:3:107:C:O2	31:3:328:A:O2'	2.07	0.71
31:3:2483:C:H42	31:3:2537:G:N2	1.89	0.71
31:3:518:A:O2'	31:3:532:A:N1	2.24	0.71
31:3:2140:G:O2'	31:3:2165:A:N6	2.24	0.71
31:3:2696:G:OP1	31:3:2721:C:N4	2.24	0.71
31:3:1067:A:N1	31:3:1157:G:O6	2.23	0.70
31:3:1702:A:N3	31:3:1704:C:N4	2.38	0.70
31:3:2106:G:H22	31:3:2198:G:H1	1.37	0.70
31:3:2299:U:H1'	31:3:2382:A:H1'	1.74	0.70
31:3:849:C:H2'	31:3:850:G:H8	1.56	0.70
32:4:8:C:H42	32:4:100:G:H1	1.38	0.70
4:7:69:LYS:HD3	4:7:99:LYS:HB3	1.73	0.70
31:3:293:G:H2'	31:3:294:G:C4	2.27	0.70
31:3:856:A:H61	31:3:1008:A:H2'	1.57	0.69
31:3:618:G:H3'	31:3:1281:A:H61	1.58	0.69
31:3:1699:A:H2'	31:3:1700:G:H8	1.58	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1558:A:H5''	31:3:1570:A:H61	1.57	0.69
31:3:587:U:H2'	31:3:588:G:C8	2.27	0.69
31:3:2026:A:H61	31:3:2042:A:H61	1.39	0.69
31:3:2129:U:H2'	31:3:2130:A:H8	1.58	0.69
31:3:514:A:H61	31:3:535:G:HO2'	1.41	0.68
31:3:306:G:N2	31:3:398:C:O2	2.18	0.68
31:3:2299:U:O2'	31:3:2382:A:N3	2.27	0.68
31:3:2852:G:O2'	31:3:2871:G:N2	2.27	0.68
31:3:1670:U:H1'	31:3:1768:G:H21	1.58	0.68
3:2:11:CYS:SG	3:2:12:LYS:N	2.67	0.68
31:3:2306:A:N6	31:3:2326:G:O2'	2.27	0.68
31:3:2533:A:HO2'	31:3:2750:A:HO2'	1.37	0.68
31:3:1020:G:H5''	31:3:1021:C:H5	1.57	0.68
31:3:1976:A:H2'	31:3:1979:G:H21	1.59	0.68
31:3:1414:C:H2'	31:3:1415:A:C8	2.29	0.68
31:3:864:A:N7	31:3:2255:A:O2'	2.27	0.67
31:3:200:A:N6	31:3:866:G:N2	2.42	0.67
31:3:585:U:H2'	31:3:586:G:H8	1.60	0.67
31:3:665:C:O2'	31:3:675:U:O2	2.12	0.67
31:3:1328:A:N7	31:3:1660:A:O2'	2.27	0.67
31:3:1446:G:H22	31:3:1612:U:H3'	1.59	0.67
4:7:17:LYS:NZ	4:7:129:GLU:OE2	2.27	0.67
31:3:1137:C:H2'	31:3:1138:A:H8	1.59	0.67
31:3:1422:U:H5''	31:3:1637:A:H4'	1.76	0.67
31:3:2143:G:O6	31:3:2162:U:O4	2.12	0.67
31:3:210:U:H2'	31:3:211:A:H8	1.59	0.67
31:3:1264:U:H3'	31:3:1265:G:H8	1.58	0.67
4:7:18:PHE:HZ	4:7:173:ILE:HG13	1.60	0.67
4:7:31:GLY:H	4:7:181:LEU:HA	1.58	0.67
31:3:733:C:O2'	31:3:769:A:N6	2.28	0.67
3:2:19:ARG:HA	31:3:2764:U:H5''	1.76	0.67
31:3:2747:U:O2	31:3:2772:A:N7	2.28	0.67
31:3:1099:C:N4	31:3:1105:A:OP1	2.28	0.67
31:3:1092:A:OP2	31:3:1124:G:N2	2.28	0.66
31:3:1200:U:H2'	31:3:1201:A:H8	1.59	0.66
31:3:306:G:N1	31:3:398:C:N3	2.33	0.66
31:3:1206:U:O2	31:3:1210:A:N6	2.28	0.66
31:3:1807:C:O2	31:3:1824:G:O6	2.13	0.66
31:3:2122:G:O2'	31:3:2175:U:O2	2.12	0.66
31:3:1942:G:N2	31:3:1971:G:OP1	2.28	0.66
31:3:2007:U:O2	31:3:2697:C:N4	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2104:A:H2'	31:3:2105:G:H8	1.60	0.66
31:3:2810:A:H62	31:3:2896:G:H1	1.41	0.66
31:3:984:C:O2	31:3:1020:G:O2'	2.14	0.66
31:3:1836:A:N6	31:3:1983:U:O2'	2.28	0.66
31:3:625:G:H1	31:3:700:U:H3	1.44	0.66
31:3:909:U:H2'	31:3:910:G:H8	1.61	0.66
31:3:1801:U:H3	31:3:1832:G:H1	1.44	0.66
2:1:39:ARG:NH2	31:3:2359:G:O6	2.28	0.66
31:3:139:G:O6	31:3:145:A:N6	2.28	0.66
31:3:1261:U:H2'	31:3:1262:G:H8	1.60	0.66
31:3:1164:A:N6	31:3:2499:U:OP1	2.29	0.65
1:0:39:ARG:NH2	31:3:504:G:O6	2.30	0.65
31:3:300:G:H2'	31:3:301:G:H8	1.60	0.65
31:3:519:A:OP2	31:3:520:C:N4	2.26	0.65
31:3:572:G:N2	31:3:588:G:O2'	2.23	0.65
31:3:615:G:H2'	31:3:616:G:C8	2.31	0.65
31:3:694:U:H2'	31:3:695:G:H8	1.61	0.65
31:3:1039:G:N2	31:3:1046:A:O2'	2.30	0.65
31:3:2849:G:H1	31:3:2875:U:H3	1.42	0.65
31:3:1166:G:HO2'	31:3:2032:G:HO2'	1.42	0.65
31:3:1536:C:H2'	31:3:1537:A:H8	1.61	0.65
31:3:2376:C:H2'	31:3:2377:A:H8	1.62	0.65
31:3:2867:U:H2'	31:3:2868:G:C8	2.31	0.65
31:3:1442:G:H1	31:3:1622:C:H42	1.45	0.65
31:3:1487:U:O2'	31:3:2710:G:N2	2.30	0.65
31:3:2521:A:H2'	31:3:2522:U:C6	2.32	0.65
31:3:812:G:H2'	31:3:813:G:H8	1.62	0.65
31:3:165:U:O2'	31:3:168:A:N6	2.29	0.65
31:3:1023:C:O2'	31:3:1036:A:N3	2.28	0.65
31:3:2383:G:N2	31:3:2386:A:OP2	2.30	0.64
31:3:259:A:O2'	31:3:422:A:OP1	2.14	0.64
31:3:2305:C:H3'	31:3:2326:G:H22	1.63	0.64
31:3:2580:A:H5''	31:3:2582:G:H4'	1.79	0.64
31:3:80:U:H3	31:3:109:G:H1	0.78	0.64
31:3:413:G:H1	31:3:435:U:H3	1.45	0.64
31:3:482:G:H21	31:3:490:A:N6	1.96	0.64
31:3:1027:U:O4	31:3:1198:G:O6	2.14	0.64
31:3:1063:A:OP2	31:3:1161:A:N6	2.30	0.64
31:3:865:A:N1	31:3:2453:G:O2'	2.29	0.64
31:3:1306:G:H2'	31:3:1307:G:H8	1.61	0.64
31:3:2764:U:H1'	31:3:2765:A:H5''	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:272:C:N4	31:3:295:U:O2'	2.31	0.64
31:3:641:U:C2	31:3:657:A:N7	2.66	0.64
31:3:2057:C:H2'	31:3:2058:G:C8	2.32	0.64
31:3:2829:G:N2	31:3:2829:G:OP2	2.30	0.64
31:3:2879:U:H2'	31:3:2880:A:C8	2.33	0.64
31:3:2259:G:N1	31:3:2458:A:O2'	2.31	0.64
31:3:1070:U:O2	31:3:1155:G:O6	2.16	0.64
31:3:2321:C:H2'	31:3:2322:G:C8	2.33	0.64
31:3:1495:A:OP2	31:3:1548:A:N6	2.31	0.63
31:3:1999:G:N2	31:3:2003:C:O2'	2.31	0.63
31:3:50:G:H1	31:3:179:A:H5''	1.63	0.63
31:3:2104:A:H2'	31:3:2105:G:C8	2.33	0.63
31:3:2655:U:O2	31:3:2681:G:O6	2.15	0.63
31:3:433:A:O2'	31:3:2238:G:N2	2.31	0.63
31:3:793:C:H2'	31:3:794:G:H8	1.62	0.63
4:7:30:THR:O	4:7:32:ARG:NH1	2.32	0.63
4:7:65:GLU:HG2	4:7:103:ASN:HA	1.79	0.63
31:3:450:C:H2'	31:3:451:A:H8	1.62	0.63
31:3:603:G:H1'	31:3:1019:A:N6	2.13	0.63
31:3:609:U:H2'	31:3:610:G:H8	1.64	0.63
31:3:2205:U:O2'	31:3:2207:A:OP2	2.15	0.63
3:2:29:THR:HG22	3:2:31:LYS:H	1.63	0.63
31:3:662:U:H5''	31:3:663:A:H5''	1.79	0.63
31:3:1592:A:H4'	31:3:1593:U:H3'	1.81	0.63
31:3:1754:U:H2'	31:3:1755:A:H8	1.64	0.63
31:3:900:G:N2	31:3:903:A:N6	2.34	0.63
31:3:1009:A:O2'	31:3:1217:G:N2	2.32	0.63
31:3:2103:C:H2'	31:3:2104:A:H8	1.64	0.63
31:3:609:U:H2'	31:3:610:G:C8	2.34	0.63
31:3:1697:C:H4'	31:3:2694:A:H4'	1.82	0.62
31:3:1786:U:OP2	31:3:1791:A:N6	2.32	0.62
31:3:2068:G:H4'	31:3:2069:A:H5'	1.80	0.62
1:0:37:LYS:HD3	1:0:39:ARG:HD3	1.80	0.62
31:3:2700:C:O2	31:3:2851:U:O2'	2.15	0.62
31:3:200:A:N6	31:3:866:G:H21	1.96	0.62
31:3:453:U:H2'	31:3:454:G:H8	1.65	0.62
31:3:515:A:H4'	31:3:516:A:H5'	1.80	0.62
31:3:535:G:N1	31:3:538:A:OP2	2.25	0.62
31:3:892:G:H2'	31:3:893:A:C8	2.35	0.62
31:3:383:U:H2'	31:3:384:G:H8	1.63	0.62
31:3:1981:U:H2'	31:3:1982:G:C8	2.35	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:253:C:OP2	31:3:2402:C:O2'	2.17	0.62
31:3:1171:G:O2'	31:3:2045:C:O2'	2.17	0.62
31:3:2481:U:OP1	31:3:2483:C:N4	2.33	0.62
31:3:454:G:H2'	31:3:455:G:C8	2.35	0.62
31:3:2168:C:O2'	31:3:2170:A:O2'	2.17	0.62
31:3:133:G:H1	31:3:150:U:H3	1.48	0.62
31:3:489:A:N3	31:3:493:A:O2'	2.33	0.61
31:3:622:U:H2'	31:3:623:A:H8	1.65	0.61
31:3:862:U:O2'	31:3:2075:U:N3	2.33	0.61
31:3:1723:A:H2'	31:3:1724:A:H8	1.63	0.61
32:4:6:U:H2'	32:4:7:G:H8	1.64	0.61
31:3:742:G:N2	31:3:759:U:O2	2.33	0.61
31:3:1803:U:H2'	31:3:1804:A:C8	2.34	0.61
31:3:1803:U:O2	31:3:1830:G:N2	2.28	0.61
31:3:1818:G:H2'	31:3:1819:G:H8	1.65	0.61
31:3:1981:U:H2'	31:3:1982:G:H8	1.65	0.61
31:3:2614:U:H2'	31:3:2615:G:C8	2.36	0.61
4:7:29:ARG:O	4:7:115:SER:OG	2.12	0.61
31:3:534:U:O4	31:3:538:A:N7	2.33	0.61
31:3:1508:G:OP2	31:3:1508:G:H4'	1.98	0.61
31:3:2100:G:H2'	31:3:2101:A:H8	1.64	0.61
31:3:1245:G:O6	31:3:1264:U:O4	2.17	0.61
31:3:1776:G:O2'	31:3:1965:C:OP1	2.18	0.61
31:3:2013:C:O2'	31:3:2827:A:N3	2.32	0.61
31:3:2547:C:H2'	31:3:2548:G:C8	2.33	0.61
32:4:104:C:H2'	32:4:105:A:H8	1.66	0.61
31:3:599:U:H4'	31:3:844:G:OP1	2.00	0.61
31:3:1463:G:H2'	31:3:1464:G:C8	2.35	0.61
31:3:1113:U:O2'	31:3:1123:A:OP1	2.17	0.61
31:3:1536:C:H2'	31:3:1537:A:C8	2.35	0.61
31:3:1845:C:H4'	31:3:1846:A:H5'	1.82	0.61
31:3:2704:U:H2'	31:3:2705:G:C8	2.35	0.61
31:3:2160:U:H2'	31:3:2161:G:H8	1.66	0.60
32:4:6:U:H3	32:4:102:A:H61	1.48	0.60
31:3:802:U:H2'	31:3:803:G:H8	1.65	0.60
31:3:2604:U:O2'	31:3:2605:G:O5'	2.17	0.60
31:3:569:U:O4	31:3:592:G:O6	2.18	0.60
31:3:2297:G:N2	31:3:2354:A:OP1	2.33	0.60
31:3:2567:C:H2'	31:3:2568:G:H8	1.66	0.60
31:3:2634:C:H2'	31:3:2635:G:H8	1.67	0.60
31:3:18:G:H2'	31:3:19:G:H8	1.65	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:450:C:H2'	31:3:451:A:C8	2.35	0.60
31:3:219:G:H21	31:3:220:A:H1'	1.67	0.60
31:3:1806:G:N1	31:3:1826:A:OP2	2.30	0.60
31:3:1789:C:O2	31:3:2616:G:O2'	2.19	0.60
1:0:24:THR:HG23	1:0:27:GLY:H	1.66	0.60
31:3:828:A:OP1	31:3:2078:A:O2'	2.20	0.60
31:3:2032:G:H2'	31:3:2033:G:H8	1.65	0.60
31:3:515:A:H1'	31:3:517:G:H5''	1.84	0.60
31:3:632:A:H2'	31:3:633:G:H8	1.66	0.60
1:0:12:ARG:HB2	31:3:721:G:H1	1.67	0.60
31:3:450:C:O2'	31:3:1871:U:O2	2.20	0.60
31:3:578:A:H1'	31:3:579:U:H5	1.67	0.60
31:3:612:G:O2'	31:3:2026:A:OP1	2.20	0.60
31:3:2084:A:N3	31:3:2442:A:O2'	2.35	0.60
31:3:2132:G:N2	31:3:2181:A:H62	2.00	0.60
31:3:2299:U:H2'	31:3:2300:A:C8	2.36	0.60
31:3:2504:C:OP2	31:3:2505:A:N6	2.35	0.60
31:3:591:G:H2'	31:3:592:G:H8	1.67	0.59
31:3:2759:G:OP2	31:3:2759:G:N2	2.31	0.59
31:3:2849:G:H2'	31:3:2850:G:H8	1.67	0.59
31:3:2190:G:H2'	31:3:2191:G:C8	2.37	0.59
31:3:2745:G:H2'	31:3:2746:A:C8	2.37	0.59
1:0:35:ARG:HG3	1:0:42:LEU:HD11	1.84	0.59
31:3:1623:U:H2'	31:3:1624:A:H8	1.67	0.59
31:3:629:G:O6	31:3:696:U:O4	2.21	0.59
31:3:1558:A:OP2	31:3:1570:A:N6	2.36	0.59
31:3:2195:U:H2'	31:3:2196:G:H8	1.67	0.59
4:7:17:LYS:HE2	31:3:1923:A:H1'	1.85	0.59
4:7:17:LYS:HD2	4:7:126:ILE:HG23	1.84	0.59
31:3:774:A:H1'	31:3:775:C:H5	1.68	0.59
31:3:915:A:N6	31:3:936:G:O2'	2.35	0.59
31:3:1344:U:H2'	31:3:1345:G:H8	1.68	0.59
31:3:2036:G:N1	31:3:2040:A:OP2	2.22	0.59
31:3:1743:U:O2'	31:3:2863:G:N3	2.33	0.59
31:3:35:U:O4	31:3:482:G:O2'	2.21	0.59
31:3:2514:U:OP2	31:3:2584:G:N1	2.35	0.59
31:3:2552:G:H1'	31:3:2654:U:H4'	1.84	0.59
31:3:2664:U:H2'	31:3:2665:A:H8	1.67	0.59
31:3:408:G:OP1	31:3:440:C:N4	2.35	0.58
31:3:892:G:H2'	31:3:893:A:H8	1.67	0.58
31:3:945:U:H2'	31:3:946:A:C8	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2100:G:H2'	31:3:2101:A:C8	2.38	0.58
2:1:28:HIS:NE2	31:3:2430:C:OP2	2.36	0.58
31:3:229:C:H3'	31:3:230:G:H8	1.68	0.58
31:3:1262:G:H2'	31:3:1263:G:C8	2.37	0.58
31:3:1950:U:H4'	31:3:1951:A:H2'	1.86	0.58
31:3:1923:A:OP2	31:3:1925:A:N6	2.36	0.58
31:3:2189:U:H2'	31:3:2190:G:C8	2.37	0.58
31:3:2266:C:O2'	31:3:2435:C:OP2	2.21	0.58
31:3:566:G:OP1	31:3:594:G:N2	2.36	0.58
31:3:697:U:H2'	31:3:698:A:C8	2.39	0.58
31:3:697:U:H2'	31:3:698:A:H8	1.69	0.58
31:3:1123:A:H4'	31:3:1124:G:H8	1.68	0.58
31:3:1572:U:H2'	31:3:1573:A:H8	1.68	0.58
31:3:2538:A:OP2	31:3:2543:G:N2	2.36	0.58
31:3:2879:U:H2'	31:3:2880:A:H8	1.68	0.58
31:3:54:A:OP2	31:3:118:G:N1	2.37	0.58
31:3:300:G:H2'	31:3:301:G:C8	2.38	0.58
31:3:313:G:O6	31:3:394:C:N4	2.37	0.58
31:3:1691:U:O4	31:3:1692:A:N6	2.36	0.58
32:4:60:C:H2'	32:4:61:A:H8	1.68	0.58
31:3:2190:G:H2'	31:3:2191:G:H8	1.69	0.58
31:3:2863:G:H2'	31:3:2864:A:C8	2.38	0.58
32:4:93:U:H2'	32:4:94:A:H8	1.67	0.58
4:7:62:PRO:HG2	4:7:65:GLU:HB2	1.84	0.58
31:3:517:G:O6	31:3:544:U:O4	2.21	0.58
31:3:1777:G:H1	31:3:1989:U:H3	1.51	0.58
31:3:2197:U:H2'	31:3:2198:G:C8	2.38	0.58
31:3:112:A:H2'	31:3:113:U:C6	2.39	0.58
31:3:1297:U:H2'	31:3:1298:A:C8	2.38	0.58
31:3:1837:C:H2'	31:3:1838:A:H8	1.67	0.58
31:3:2654:U:OP2	31:3:2773:A:O2'	2.22	0.58
31:3:603:G:H1'	31:3:1019:A:H61	1.69	0.57
31:3:1885:G:H2'	31:3:1886:C:C6	2.39	0.57
31:3:2865:U:H2'	31:3:2866:A:H8	1.69	0.57
31:3:161:U:H3	31:3:171:G:H1	1.52	0.57
31:3:998:C:O2'	31:3:2505:A:OP1	2.19	0.57
31:3:2229:C:H2'	31:3:2230:A:H8	1.68	0.57
31:3:2862:U:O2'	31:3:2863:G:OP1	2.21	0.57
31:3:270:G:O2'	31:3:315:A:N6	2.37	0.57
31:3:812:G:H2'	31:3:813:G:C8	2.40	0.57
31:3:963:U:H2'	31:3:964:A:H8	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2533:A:H2'	31:3:2534:G:H8	1.70	0.57
31:3:622:U:H2'	31:3:623:A:C8	2.40	0.57
31:3:1460:G:H2'	31:3:1461:A:C8	2.40	0.57
31:3:1475:C:O2'	31:3:1577:A:N3	2.36	0.57
31:3:2336:A:H2'	31:3:2337:U:C6	2.39	0.57
31:3:2471:U:H2'	31:3:2472:G:H8	1.69	0.57
31:3:1265:G:H2'	31:3:1266:G:C4	2.40	0.57
31:3:2216:U:H2'	31:3:2217:G:C8	2.39	0.57
32:4:4:G:OP1	32:4:58:C:O2'	2.22	0.57
1:0:13:ALA:HA	1:0:44:VAL:HG21	1.86	0.57
31:3:632:A:H2'	31:3:633:G:C8	2.39	0.57
31:3:641:U:O2	31:3:657:A:C5	2.58	0.57
31:3:2093:U:H2'	31:3:2094:A:H8	1.69	0.57
31:3:2451:C:H2'	31:3:2452:G:C8	2.39	0.57
31:3:2828:C:O5'	31:3:2829:G:N2	2.38	0.57
31:3:42:U:H2'	31:3:43:A:C8	2.40	0.57
31:3:144:C:H2'	31:3:145:A:C8	2.32	0.57
31:3:174:A:H2'	31:3:175:A:H8	1.69	0.57
31:3:762:A:OP1	31:3:1459:A:O2'	2.19	0.57
31:3:914:G:N2	31:3:937:A:OP2	2.34	0.57
31:3:2458:A:H2'	31:3:2459:A:H8	1.68	0.57
31:3:2469:A:H1'	31:3:2500:U:C2	2.40	0.57
31:3:2587:U:H2'	31:3:2588:U:C6	2.40	0.57
31:3:12:A:H5''	31:3:13:C:H5	1.69	0.57
31:3:1531:C:H2'	31:3:1532:A:H4'	1.85	0.57
31:3:1947:U:H1'	31:3:1949:C:N4	2.20	0.57
31:3:2451:C:H2'	31:3:2452:G:H8	1.70	0.57
31:3:2740:U:H5''	31:3:2741:A:C8	2.40	0.57
32:4:58:C:H2'	32:4:59:A:C8	2.40	0.57
32:4:79:U:O2	32:4:86:G:N2	2.36	0.57
31:3:229:C:H3'	31:3:230:G:C8	2.40	0.57
31:3:752:C:H3'	31:3:753:A:H8	1.70	0.57
31:3:928:G:H2'	31:3:929:G:C8	2.39	0.57
31:3:1633:C:H2'	31:3:1634:A:H8	1.69	0.57
31:3:1960:A:O2'	31:3:2567:C:O2	2.23	0.57
3:2:24:ARG:HG2	3:2:35:ARG:HG3	1.86	0.56
31:3:291:G:C2	31:3:292:G:N7	2.73	0.56
31:3:524:G:N2	31:3:527:A:OP2	2.33	0.56
31:3:1504:G:N2	31:3:1539:U:O2	2.30	0.56
32:4:31:G:H2'	32:4:32:G:C8	2.40	0.56
4:7:18:PHE:CZ	4:7:173:ILE:HG13	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:627:U:H2'	31:3:628:A:H8	1.70	0.56
31:3:982:G:H2'	31:3:983:A:C8	2.40	0.56
31:3:982:G:H2'	31:3:983:A:H8	1.70	0.56
31:3:1653:C:H2'	31:3:1654:G:C8	2.41	0.56
31:3:1715:A:H4'	31:3:1733:G:H1	1.69	0.56
31:3:2589:G:OP2	31:3:2589:G:N2	2.28	0.56
32:4:60:C:H2'	32:4:61:A:C8	2.39	0.56
4:7:120:LYS:HD3	31:3:1953:U:H4'	1.87	0.56
4:7:152:GLU:O	4:7:156:LYS:HG3	2.04	0.56
31:3:190:G:H2'	31:3:191:G:H8	1.69	0.56
31:3:1588:A:O2'	31:3:1589:A:OP1	2.21	0.56
31:3:2793:U:H2'	31:3:2794:U:H6	1.70	0.56
31:3:822:C:H5''	31:3:823:A:H5'	1.87	0.56
31:3:1175:C:HO2'	31:3:1177:A:H8	1.54	0.56
31:3:1803:U:H2'	31:3:1804:A:H8	1.70	0.56
31:3:2118:U:OP2	31:3:2152:C:N4	2.33	0.56
31:3:80:U:O4	31:3:109:G:O6	2.22	0.56
31:3:243:U:H3	31:3:262:G:H1	1.53	0.56
31:3:329:G:O6	31:3:377:U:O4	2.24	0.56
31:3:1723:A:OP2	31:3:1732:A:N6	2.35	0.56
31:3:2269:C:H1'	31:3:2396:A:H1'	1.87	0.56
31:3:2584:G:OP1	31:3:2584:G:N2	2.38	0.56
31:3:1350:A:N1	31:3:1361:U:O2'	2.37	0.56
31:3:1446:G:N2	31:3:1613:A:OP2	2.39	0.56
31:3:2436:G:O2'	31:3:2437:G:N7	2.37	0.56
31:3:2473:C:H2'	31:3:2474:C:C6	2.41	0.56
31:3:2840:U:H2'	31:3:2841:A:C8	2.41	0.56
32:4:3:U:OP1	32:4:59:A:O2'	2.22	0.56
31:3:1942:G:N1	31:3:1969:C:O2'	2.32	0.56
31:3:2646:G:H1	31:3:2783:A:H2'	1.71	0.56
4:7:46:TYR:OH	4:7:75:ASN:O	2.21	0.56
31:3:700:U:H2'	31:3:701:A:H8	1.69	0.56
31:3:756:A:H2'	31:3:757:A:C8	2.40	0.56
31:3:1888:U:H2'	31:3:1889:U:C6	2.41	0.56
31:3:1961:A:O2'	31:3:1963:U:O4	2.19	0.56
31:3:559:C:O2'	31:3:589:A:OP1	2.23	0.56
31:3:1020:G:H5''	31:3:1021:C:C5	2.39	0.56
31:3:1932:C:O2	31:3:1936:G:O6	2.24	0.56
32:4:22:G:H2'	32:4:25:A:H62	1.71	0.56
31:3:678:U:N3	31:3:681:A:OP2	2.38	0.56
31:3:1583:G:O2'	31:3:1584:U:OP1	2.24	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2706:U:O4	31:3:2707:A:N6	2.39	0.56
31:3:134:U:H2'	31:3:135:A:C8	2.41	0.55
31:3:289:U:H2'	31:3:290:A:C8	2.41	0.55
31:3:2572:A:N6	31:3:2655:U:O2'	2.39	0.55
31:3:2646:G:H22	31:3:2783:A:H2'	1.71	0.55
31:3:2829:G:H3'	31:3:2830:A:H8	1.71	0.55
31:3:2847:C:H2'	31:3:2848:A:H8	1.70	0.55
31:3:597:C:H2'	31:3:598:G:C8	2.41	0.55
31:3:1077:G:N7	31:3:1149:G:N1	2.54	0.55
31:3:2126:A:H61	31:3:2176:G:H1'	1.72	0.55
31:3:2205:U:H2'	31:3:2232:G:H1	1.70	0.55
31:3:2819:C:H2'	31:3:2820:G:H8	1.71	0.55
31:3:899:A:H2'	31:3:900:G:C8	2.41	0.55
31:3:631:A:H2'	31:3:632:A:H8	1.72	0.55
31:3:683:G:H2'	31:3:684:A:H8	1.72	0.55
31:3:2195:U:H2'	31:3:2196:G:C8	2.42	0.55
31:3:2323:U:H2'	31:3:2324:A:H8	1.71	0.55
31:3:1296:G:N2	31:3:2020:A:OP2	2.29	0.55
31:3:2054:C:H2'	31:3:2055:A:H8	1.70	0.55
31:3:2231:A:H3'	31:3:2232:G:H8	1.72	0.55
31:3:341:G:N1	31:3:344:A:OP2	2.28	0.55
31:3:742:G:O6	31:3:759:U:O4	2.24	0.55
31:3:1623:U:H2'	31:3:1624:A:C8	2.42	0.55
31:3:2093:U:H2'	31:3:2094:A:C8	2.41	0.55
3:2:11:CYS:N	3:2:14:CYS:SG	2.72	0.55
31:3:597:C:H2'	31:3:598:G:H8	1.71	0.55
31:3:759:U:H3'	31:3:760:G:H8	1.72	0.55
31:3:1487:U:H2'	31:3:1488:U:C6	2.41	0.55
31:3:1527:U:H2'	31:3:1528:G:H8	1.72	0.55
31:3:2274:A:N6	31:3:2281:A:OP2	2.40	0.55
31:3:2701:A:H2'	31:3:2702:G:C8	2.41	0.55
32:4:104:C:H2'	32:4:105:A:C8	2.42	0.55
31:3:155:A:H2'	31:3:156:A:H8	1.71	0.55
31:3:173:C:H2'	31:3:174:A:C8	2.42	0.55
31:3:306:G:H2'	31:3:307:C:C6	2.42	0.55
4:7:95:ILE:HG12	4:7:100:ILE:HG12	1.88	0.55
31:3:890:U:H2'	31:3:891:G:H8	1.72	0.55
31:3:2852:G:HO2'	31:3:2871:G:N2	2.05	0.55
1:0:30:VAL:O	1:0:34:ARG:HG3	2.06	0.55
3:2:21:GLN:NE2	31:3:2765:A:OP2	2.40	0.55
31:3:614:C:H2'	31:3:615:G:H8	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1164:A:O2'	31:3:2523:C:O2	2.19	0.55
31:3:406:C:H2'	31:3:407:U:C6	2.41	0.54
31:3:598:G:H1	31:3:609:U:H3	1.54	0.54
31:3:1619:A:H2'	31:3:1620:A:C8	2.42	0.54
31:3:2072:C:H2'	31:3:2073:C:C6	2.42	0.54
31:3:2156:G:H2'	31:3:2157:A:C8	2.42	0.54
31:3:2157:A:H2'	31:3:2158:C:C6	2.42	0.54
31:3:2254:G:H2'	31:3:2255:A:C8	2.42	0.54
31:3:522:C:H2'	31:3:523:A:H8	1.72	0.54
31:3:597:C:HO2'	31:3:1283:A:H61	1.53	0.54
1:0:25:ALA:HA	1:0:28:ARG:HG3	1.88	0.54
31:3:337:U:H2'	31:3:338:G:C8	2.42	0.54
31:3:793:C:H2'	31:3:794:G:C8	2.41	0.54
31:3:840:G:N3	31:3:866:G:H1'	2.23	0.54
31:3:50:G:H22	31:3:179:A:H5''	1.72	0.54
31:3:234:G:H2'	31:3:235:U:C6	2.42	0.54
31:3:1089:A:H2'	31:3:1090:G:C8	2.43	0.54
31:3:2117:G:OP1	31:3:2150:C:O2'	2.19	0.54
31:3:2174:G:H2'	31:3:2175:U:C6	2.43	0.54
31:3:2555:U:OP2	31:3:2574:A:O2'	2.22	0.54
31:3:2645:U:H3'	31:3:2646:G:H8	1.73	0.54
31:3:631:A:H2'	31:3:632:A:C8	2.42	0.54
31:3:984:C:H2'	31:3:985:A:H8	1.72	0.54
31:3:1198:G:H2'	31:3:1199:A:H8	1.73	0.54
31:3:2155:G:H2'	31:3:2156:G:H8	1.70	0.54
31:3:2794:U:H2'	31:3:2795:C:H6	1.72	0.54
31:3:2823:A:O2'	31:3:2825:A:OP2	2.26	0.54
31:3:227:A:O2'	31:3:456:G:N3	2.39	0.54
31:3:1307:G:H2'	31:3:1308:A:C8	2.42	0.54
31:3:1398:C:H2'	31:3:1399:G:O4'	2.07	0.54
31:3:1507:G:O2'	31:3:1508:G:OP1	2.25	0.54
31:3:1526:U:H2'	31:3:1527:U:C6	2.43	0.54
31:3:2032:G:H2'	31:3:2033:G:C8	2.42	0.54
31:3:2808:A:OP2	31:3:2811:G:N1	2.34	0.54
31:3:1140:U:H2'	31:3:1141:U:H6	1.72	0.54
31:3:1416:G:H2'	31:3:1417:G:C8	2.43	0.54
31:3:1454:G:N2	31:3:1607:G:O6	2.40	0.54
31:3:2306:A:OP2	31:3:2326:G:N2	2.39	0.54
31:3:2828:C:H3'	31:3:2829:G:H21	1.73	0.54
1:0:8:SER:OG	31:3:721:G:N2	2.40	0.54
31:3:578:A:O2'	31:3:581:A:N6	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1529:U:H2'	31:3:1530:G:H8	1.73	0.54
31:3:152:A:H2'	31:3:153:U:C6	2.43	0.54
31:3:674:G:H2'	31:3:675:U:H6	1.73	0.54
31:3:1020:G:N2	31:3:1020:G:OP2	2.41	0.54
31:3:1818:G:H2'	31:3:1819:G:C8	2.43	0.54
31:3:1994:U:H2'	31:3:1995:G:C8	2.43	0.54
31:3:2880:A:H2'	31:3:2881:A:C8	2.43	0.54
31:3:605:A:H61	31:3:2036:G:H21	1.56	0.54
31:3:714:G:H2'	31:3:715:G:C8	2.42	0.54
31:3:725:G:C2	31:3:807:U:O2	2.60	0.54
31:3:1114:C:N4	31:3:1115:G:O6	2.41	0.54
31:3:1230:U:H2'	31:3:1231:G:C8	2.42	0.54
31:3:1816:A:H2'	31:3:1817:A:C8	2.43	0.54
31:3:2094:A:H2'	31:3:2095:A:C8	2.43	0.54
31:3:387:U:H2'	31:3:388:U:C6	2.43	0.53
31:3:674:G:H2'	31:3:675:U:C6	2.43	0.53
31:3:761:G:H5''	31:3:1460:G:H1'	1.90	0.53
3:2:22:ILE:HG21	3:2:35:ARG:HE	1.74	0.53
31:3:29:G:O2'	31:3:547:G:N2	2.42	0.53
31:3:540:A:HO2'	31:3:544:U:HO2'	1.55	0.53
31:3:2170:A:H5''	31:3:2173:G:H1	1.74	0.53
31:3:190:G:H2'	31:3:191:G:C8	2.43	0.53
31:3:349:G:H2'	31:3:350:C:C6	2.44	0.53
31:3:1268:U:H2'	31:3:1269:C:O4'	2.09	0.53
31:3:2725:G:H2'	31:3:2726:G:O4'	2.07	0.53
31:3:40:A:H2'	31:3:41:C:O4'	2.09	0.53
31:3:141:A:H2'	31:3:142:A:C4	2.43	0.53
31:3:173:C:H2'	31:3:174:A:H8	1.73	0.53
31:3:1488:U:H2'	31:3:1489:G:C8	2.42	0.53
31:3:1994:U:H2'	31:3:1995:G:H8	1.73	0.53
31:3:2031:C:H2'	31:3:2032:G:C8	2.43	0.53
31:3:2867:U:H2'	31:3:2868:G:H8	1.73	0.53
31:3:816:A:H2'	31:3:1784:U:H1'	1.91	0.53
31:3:1236:G:H2'	31:3:1237:G:C8	2.43	0.53
31:3:1848:U:H2'	31:3:1849:G:H8	1.73	0.53
32:4:78:C:H5	32:4:79:U:H3	1.56	0.53
31:3:1063:A:N6	31:3:1161:A:OP1	2.41	0.53
31:3:1305:G:H2'	31:3:1306:G:H8	1.74	0.53
31:3:1754:U:H2'	31:3:1755:A:C8	2.43	0.53
31:3:345:A:N6	31:3:363:G:OP1	2.41	0.53
31:3:410:G:H4'	31:3:411:U:O5'	2.07	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1589:A:H2'	31:3:1590:U:C6	2.44	0.53
31:3:2103:C:H2'	31:3:2104:A:C8	2.44	0.53
31:3:2278:G:H3'	31:3:2279:G:H8	1.74	0.53
31:3:2664:U:H2'	31:3:2665:A:C8	2.44	0.53
31:3:2797:C:H4'	31:3:2813:A:C6	2.44	0.53
31:3:2825:A:H2	31:3:2830:A:H61	1.55	0.53
31:3:2849:G:H2'	31:3:2850:G:C8	2.43	0.53
4:7:62:PRO:HG3	4:7:101:ARG:HH12	1.73	0.53
31:3:355:A:C5	31:3:375:U:H4'	2.43	0.53
31:3:487:C:N4	31:3:490:A:OP2	2.35	0.53
31:3:1490:G:H2'	31:3:1491:G:C8	2.44	0.53
31:3:2436:G:H4'	31:3:2437:G:C4	2.44	0.53
31:3:427:A:H1'	31:3:447:G:H1'	1.91	0.53
31:3:442:G:H2'	31:3:443:C:C6	2.44	0.53
31:3:443:C:H2'	31:3:444:C:C6	2.43	0.53
31:3:904:C:N3	31:3:949:C:O2'	2.34	0.53
4:7:139:GLN:O	4:7:142:LYS:HG2	2.09	0.53
31:3:215:A:H2'	31:3:216:C:C6	2.44	0.53
31:3:450:C:O3'	31:3:1885:G:N2	2.39	0.53
31:3:714:G:H2'	31:3:715:G:H8	1.74	0.53
31:3:774:A:N3	31:3:775:C:N4	2.55	0.53
31:3:2220:A:O2'	31:3:2222:C:N4	2.32	0.53
31:3:2334:U:H3	31:3:2397:G:H1	1.54	0.53
31:3:2495:A:H2'	31:3:2496:G:H8	1.74	0.53
32:4:3:U:H2'	32:4:4:G:H8	1.73	0.53
31:3:482:G:H21	31:3:490:A:H61	1.55	0.52
31:3:918:G:O6	31:3:932:U:O2'	2.27	0.52
31:3:990:G:O6	31:3:999:U:O4	2.27	0.52
31:3:1307:G:H2'	31:3:1308:A:H8	1.75	0.52
31:3:1851:U:H2'	31:3:1852:G:H8	1.74	0.52
31:3:2635:G:H22	31:3:2785:G:P	2.32	0.52
31:3:2700:C:O2'	31:3:2851:U:O2	2.27	0.52
3:2:31:LYS:HE3	31:3:2536:U:H4'	1.92	0.52
31:3:226:A:N6	31:3:236:G:H1'	2.25	0.52
31:3:606:G:O2'	31:3:608:A:OP1	2.27	0.52
31:3:2683:G:H2'	31:3:2684:G:C8	2.44	0.52
31:3:2736:U:O2'	31:3:2737:G:H8	1.92	0.52
4:7:172:THR:HA	4:7:175:LYS:HD2	1.92	0.52
31:3:911:U:H2'	31:3:912:A:H8	1.74	0.52
31:3:1306:G:H2'	31:3:1307:G:C8	2.42	0.52
31:3:1451:A:H2'	31:3:1452:G:H8	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1459:A:H61	31:3:1596:U:H3	1.56	0.52
31:3:1466:U:H3'	31:3:1467:U:H5''	1.92	0.52
31:3:2094:A:H2'	31:3:2095:A:H8	1.74	0.52
31:3:2425:C:H2'	31:3:2426:A:H8	1.75	0.52
31:3:2551:G:H2'	31:3:2552:G:C8	2.44	0.52
31:3:189:U:H2'	31:3:190:G:C8	2.45	0.52
31:3:534:U:H2'	31:3:535:G:O4'	2.08	0.52
31:3:576:A:H2'	31:3:577:C:O4'	2.10	0.52
31:3:639:G:H2'	31:3:640:U:O4'	2.10	0.52
31:3:1229:U:H2'	31:3:1230:U:H6	1.74	0.52
31:3:2468:U:H2'	31:3:2469:A:H8	1.74	0.52
31:3:2751:C:OP2	31:3:2763:C:N4	2.43	0.52
31:3:1456:C:N4	31:3:1604:A:OP2	2.32	0.52
31:3:1772:G:N2	31:3:1994:U:O2	2.28	0.52
31:3:2404:G:H2'	31:3:2405:G:H8	1.75	0.52
4:7:30:THR:HG22	4:7:181:LEU:HD12	1.92	0.52
31:3:2310:C:H2'	31:3:2311:G:C8	2.44	0.52
31:3:289:U:H2'	31:3:290:A:H8	1.74	0.52
31:3:642:A:OP2	31:3:655:G:N2	2.36	0.52
31:3:790:U:H2'	31:3:791:A:H8	1.74	0.52
31:3:2071:C:H2'	31:3:2072:C:H6	1.74	0.52
31:3:2854:A:OP2	31:3:2870:U:N3	2.43	0.52
32:4:11:A:H4'	32:4:13:G:C8	2.44	0.52
31:3:42:U:H2'	31:3:43:A:H8	1.74	0.52
31:3:188:G:H2'	31:3:189:U:C6	2.45	0.52
31:3:276:A:O2'	31:3:405:C:O2	2.19	0.52
31:3:532:A:H2'	31:3:533:G:H8	1.74	0.52
31:3:701:A:H2'	31:3:702:U:C6	2.45	0.52
31:3:1198:G:H2'	31:3:1199:A:C8	2.44	0.52
31:3:1633:C:H2'	31:3:1634:A:C8	2.45	0.52
31:3:2115:A:O2'	31:3:2149:U:O2	2.24	0.52
32:4:12:U:O2'	32:4:97:A:O2'	2.27	0.52
31:3:155:A:H2'	31:3:156:A:C8	2.44	0.52
31:3:425:U:H4'	31:3:426:U:OP2	2.10	0.52
31:3:730:G:H2'	31:3:731:A:H8	1.75	0.52
31:3:869:U:C2	31:3:870:A:C8	2.98	0.52
31:3:2146:A:H2'	31:3:2147:G:C8	2.45	0.52
31:3:2300:A:H5''	31:3:2386:A:H61	1.75	0.52
31:3:2684:G:H2'	31:3:2685:A:C8	2.44	0.52
31:3:195:A:H2'	31:3:196:G:C8	2.45	0.52
31:3:713:C:H2'	31:3:714:G:C8	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:829:A:H2'	31:3:830:A:C8	2.45	0.52
31:3:984:C:H2'	31:3:985:A:C8	2.45	0.52
31:3:1229:U:H2'	31:3:1230:U:C6	2.45	0.52
31:3:1830:G:H2'	31:3:1831:G:H8	1.75	0.52
31:3:1881:C:H2'	31:3:1882:G:O4'	2.10	0.52
31:3:1945:A:C6	31:3:2598:C:H1'	2.45	0.52
31:3:2141:A:N6	31:3:2163:U:O2'	2.43	0.52
31:3:2144:C:N4	31:3:2145:A:H62	2.08	0.52
31:3:2259:G:C5	31:3:2458:A:H4'	2.45	0.52
31:3:2644:U:H2'	31:3:2645:U:C6	2.44	0.52
2:1:42:ARG:O	2:1:44:GLN:NE2	2.43	0.51
31:3:69:U:H2'	31:3:70:G:H8	1.74	0.51
31:3:343:A:N3	31:3:363:G:O2'	2.42	0.51
31:3:389:C:H2'	31:3:390:A:C8	2.45	0.51
31:3:393:C:H2'	31:3:394:C:C6	2.45	0.51
31:3:428:U:H2'	31:3:429:U:C6	2.44	0.51
31:3:1187:C:H2'	31:3:1188:C:H6	1.74	0.51
31:3:1755:A:H2'	31:3:1756:A:H8	1.74	0.51
31:3:2135:C:H2'	31:3:2136:A:C8	2.44	0.51
31:3:2323:U:H2'	31:3:2324:A:C8	2.44	0.51
4:7:44:GLU:H	4:7:83:GLU:HG3	1.75	0.51
31:3:70:G:H21	31:3:76:A:H5''	1.75	0.51
31:3:539:U:O2'	31:3:1265:G:OP1	2.28	0.51
31:3:891:G:H2'	31:3:892:G:H8	1.75	0.51
31:3:606:G:N2	31:3:2038:A:OP1	2.43	0.51
31:3:663:A:O2'	31:3:672:G:N2	2.36	0.51
31:3:997:G:N2	31:3:2037:A:OP2	2.42	0.51
31:3:2072:C:H2'	31:3:2073:C:H6	1.74	0.51
31:3:1325:C:H2'	31:3:1326:C:C6	2.45	0.51
31:3:1924:U:H3'	31:3:1925:A:C8	2.45	0.51
31:3:2495:A:H2'	31:3:2496:G:C8	2.46	0.51
31:3:2645:U:H3'	31:3:2646:G:C8	2.45	0.51
31:3:509:G:H2'	31:3:510:G:C8	2.46	0.51
31:3:511:U:H2'	31:3:512:G:O4'	2.10	0.51
31:3:1149:G:H2'	31:3:1150:U:C6	2.44	0.51
31:3:1297:U:H2'	31:3:1298:A:H8	1.75	0.51
31:3:2380:U:H2'	31:3:2381:G:C8	2.45	0.51
31:3:2750:A:H2'	31:3:2751:C:C6	2.46	0.51
32:4:4:G:H2'	32:4:5:G:C8	2.46	0.51
2:1:2:LYS:HA	31:3:246:G:H2'	1.91	0.51
31:3:444:C:N3	31:3:456:G:N1	2.58	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:513:A:N6	31:3:536:A:N7	2.59	0.51
31:3:684:A:H2'	31:3:685:G:H8	1.76	0.51
31:3:746:G:H2'	31:3:747:A:H8	1.76	0.51
31:3:1007:C:H2'	31:3:1008:A:O4'	2.10	0.51
31:3:1264:U:H3'	31:3:1265:G:C8	2.43	0.51
31:3:2697:C:OP2	31:3:2876:G:N1	2.38	0.51
31:3:78:C:H2'	31:3:79:U:H6	1.76	0.51
31:3:614:C:H2'	31:3:615:G:C8	2.45	0.51
31:3:802:U:H2'	31:3:803:G:C8	2.46	0.51
31:3:1311:G:N1	31:3:1314:A:OP2	2.43	0.51
31:3:1385:U:H3	31:3:1402:G:H1	1.57	0.51
31:3:1443:A:O2'	31:3:1445:U:OP2	2.19	0.51
31:3:1848:U:H2'	31:3:1849:G:C8	2.46	0.51
31:3:2264:G:H2'	31:3:2265:U:C6	2.46	0.51
31:3:142:A:O2'	31:3:143:A:O4'	2.28	0.51
31:3:484:U:H3	31:3:616:G:H1'	1.76	0.51
31:3:823:A:OP1	31:3:826:C:N4	2.27	0.51
31:3:1050:A:N6	31:3:1183:A:H61	2.08	0.51
31:3:1293:U:H3'	31:3:1294:G:C8	2.46	0.51
31:3:1861:A:H4'	31:3:2241:A:H4'	1.93	0.51
31:3:2078:A:H2'	31:3:2079:G:C8	2.46	0.51
31:3:2567:C:H2'	31:3:2568:G:C8	2.45	0.51
4:7:3:PRO:O	4:7:7:LEU:HG	2.11	0.51
31:3:62:G:H1'	31:3:64:U:C4	2.46	0.51
31:3:546:U:H3'	31:3:547:G:C8	2.46	0.51
31:3:1868:A:H2'	31:3:1869:G:C8	2.46	0.51
31:3:2694:A:H2'	31:3:2695:U:C6	2.46	0.51
31:3:2861:G:N2	31:3:2864:A:OP2	2.29	0.51
31:3:660:U:N3	31:3:661:G:O6	2.43	0.51
31:3:805:G:H2'	31:3:806:A:H8	1.76	0.51
31:3:1621:U:H2'	31:3:1622:C:H6	1.76	0.51
31:3:2189:U:H2'	31:3:2190:G:H8	1.75	0.51
31:3:2205:U:N3	31:3:2233:A:N7	2.58	0.51
31:3:2384:A:H2'	31:3:2385:A:O4'	2.10	0.51
31:3:2743:U:H2'	31:3:2744:A:H8	1.76	0.51
31:3:2840:U:H2'	31:3:2841:A:H8	1.76	0.51
31:3:142:A:H2	31:3:1628:G:H21	1.57	0.50
31:3:453:U:H2'	31:3:454:G:C8	2.46	0.50
31:3:684:A:H2'	31:3:685:G:C8	2.46	0.50
31:3:1645:C:H2'	31:3:1646:G:C8	2.46	0.50
31:3:1851:U:H2'	31:3:1852:G:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2376:C:H2'	31:3:2377:A:C8	2.43	0.50
3:2:27:CYS:SG	3:2:28:LYS:N	2.83	0.50
31:3:359:G:H2'	31:3:360:G:H8	1.76	0.50
31:3:418:G:N2	31:3:430:U:O2	2.36	0.50
31:3:675:U:H3	31:3:685:G:H1	1.58	0.50
31:3:1072:A:H2'	31:3:1073:A:H8	1.76	0.50
31:3:633:G:O6	31:3:692:U:O4	2.28	0.50
31:3:877:G:H2'	31:3:878:A:C8	2.45	0.50
31:3:1554:A:N6	31:3:1576:G:O2'	2.44	0.50
31:3:299:A:H2'	31:3:300:G:C8	2.46	0.50
31:3:720:A:H1'	31:3:724:A:N6	2.27	0.50
31:3:2705:G:H2'	31:3:2706:U:C6	2.47	0.50
4:7:57:GLN:NE2	4:7:58:ILE:O	2.45	0.50
31:3:529:G:H2'	31:3:530:G:H8	1.75	0.50
31:3:1026:A:H5''	31:3:1192:U:H5''	1.93	0.50
31:3:1581:U:H2'	31:3:1582:G:C8	2.47	0.50
31:3:1868:A:H2'	31:3:1869:G:H8	1.76	0.50
4:7:23:GLU:O	4:7:26:SER:OG	2.30	0.50
31:3:174:A:H2'	31:3:175:A:C8	2.46	0.50
31:3:297:G:N1	31:3:440:C:O2'	2.28	0.50
31:3:1111:C:C4	31:3:1112:A:N6	2.80	0.50
31:3:1494:U:H3	31:3:1550:G:H1	1.59	0.50
31:3:2425:C:H2'	31:3:2426:A:C8	2.45	0.50
31:3:2599:C:N4	31:3:2600:G:O6	2.44	0.50
31:3:863:U:H4'	31:3:866:G:C6	2.47	0.50
31:3:1317:C:H2'	31:3:1318:U:C6	2.47	0.50
31:3:1777:G:H2'	31:3:1778:G:C8	2.46	0.50
31:3:1914:G:O6	31:3:1930:U:O4	2.30	0.50
31:3:2374:A:H3'	31:3:2375:A:H8	1.75	0.50
31:3:2709:C:P	31:3:2710:G:H5''	2.51	0.50
31:3:512:G:H1'	31:3:516:A:H61	1.77	0.50
31:3:1983:U:HO2'	31:3:1984:A:H8	1.57	0.50
31:3:2820:G:H2'	31:3:2821:U:C6	2.46	0.50
32:4:59:A:O2'	32:4:60:C:OP1	2.30	0.50
4:7:25:LEU:HA	4:7:28:ILE:HD12	1.94	0.50
31:3:512:G:H21	31:3:514:A:H8	1.60	0.50
31:3:820:U:H2'	31:3:821:C:C6	2.47	0.50
31:3:993:A:H61	31:3:2466:G:H4'	1.77	0.50
31:3:1111:C:H42	31:3:1112:A:N6	2.10	0.50
31:3:1270:C:H2'	31:3:1271:A:H8	1.77	0.50
31:3:1451:A:H2'	31:3:1452:G:C8	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2249:A:H2'	31:3:2250:G:C8	2.47	0.50
31:3:2315:G:H4'	31:3:2316:G:O4'	2.12	0.50
31:3:2528:C:H2'	31:3:2529:C:C6	2.47	0.50
31:3:769:A:H3'	31:3:770:A:H8	1.77	0.49
31:3:1529:U:H2'	31:3:1530:G:C8	2.47	0.49
31:3:1723:A:H2'	31:3:1724:A:C8	2.44	0.49
31:3:2033:G:H2'	31:3:2034:G:C8	2.47	0.49
31:3:2539:A:H61	31:3:2670:A:H61	1.59	0.49
31:3:2587:U:H2'	31:3:2588:U:H6	1.75	0.49
32:4:4:G:O6	32:4:105:A:N6	2.44	0.49
4:7:139:GLN:O	4:7:143:LYS:HG2	2.12	0.49
31:3:235:U:H2'	31:3:236:G:O4'	2.12	0.49
31:3:340:U:H2'	31:3:341:G:O4'	2.12	0.49
31:3:1837:C:H2'	31:3:1838:A:C8	2.46	0.49
31:3:2421:U:H2'	31:3:2422:G:H8	1.77	0.49
31:3:2752:G:H1	31:3:2768:U:H3	1.60	0.49
31:3:2814:A:H2'	31:3:2815:G:O4'	2.12	0.49
1:0:1:MET:N	31:3:1653:C:O2	2.45	0.49
4:7:107:MET:H	4:7:112:ARG:NH2	2.10	0.49
31:3:29:G:H1'	31:3:30:A:C8	2.46	0.49
31:3:690:U:O2'	31:3:691:G:O4'	2.27	0.49
31:3:729:U:H3	31:3:803:G:H1	1.60	0.49
31:3:730:G:H2'	31:3:731:A:C8	2.47	0.49
31:3:1019:A:H2'	31:3:1020:G:C4	2.47	0.49
31:3:1069:G:H2'	31:3:1070:U:O4'	2.13	0.49
31:3:1073:A:H2'	31:3:1074:A:C8	2.47	0.49
31:3:1439:U:H2'	31:3:1440:U:C6	2.47	0.49
31:3:1473:C:H2'	31:3:1474:C:H6	1.77	0.49
31:3:1829:U:H2'	31:3:1830:G:H8	1.76	0.49
31:3:2363:C:H2'	31:3:2364:A:C8	2.47	0.49
31:3:2554:U:O2'	31:3:2574:A:N3	2.38	0.49
31:3:130:C:H2'	31:3:131:C:C6	2.47	0.49
31:3:455:G:H2'	31:3:456:G:C8	2.47	0.49
31:3:627:U:H2'	31:3:628:A:C8	2.48	0.49
31:3:755:C:H2'	31:3:756:A:C8	2.47	0.49
31:3:1007:C:O2'	31:3:1019:A:N3	2.36	0.49
31:3:2034:G:H2'	31:3:2035:U:C6	2.47	0.49
31:3:2242:G:H2'	31:3:2243:G:H8	1.78	0.49
31:3:1158:C:H2'	31:3:1159:C:H6	1.78	0.49
31:3:1440:U:H2'	31:3:1441:A:C8	2.48	0.49
31:3:2099:U:N3	31:3:2234:C:OP2	2.28	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2893:C:H2'	31:3:2894:G:O4'	2.13	0.49
31:3:294:G:O2'	31:3:295:U:O4'	2.17	0.49
31:3:385:U:H2'	31:3:386:U:H6	1.77	0.49
31:3:389:C:H2'	31:3:390:A:H8	1.77	0.49
31:3:585:U:H2'	31:3:586:G:C8	2.45	0.49
31:3:868:C:H2'	31:3:869:U:H6	1.76	0.49
31:3:1010:G:H22	31:3:1025:G:H1'	1.78	0.49
31:3:2522:U:H2'	31:3:2523:C:C6	2.47	0.49
31:3:634:C:H2'	31:3:635:G:O4'	2.12	0.49
31:3:840:G:OP2	31:3:841:C:N4	2.44	0.49
31:3:1344:U:H2'	31:3:1345:G:C8	2.46	0.49
31:3:1414:C:O2'	31:3:1495:A:N3	2.35	0.49
31:3:2825:A:H3'	31:3:2826:G:H8	1.78	0.49
31:3:189:U:H2'	31:3:190:G:H8	1.77	0.49
31:3:522:C:H2'	31:3:523:A:C8	2.47	0.49
31:3:1543:U:H2'	31:3:1544:G:C8	2.47	0.49
31:3:1700:G:H3'	31:3:1701:G:C8	2.48	0.49
31:3:2088:U:H2'	31:3:2089:A:H8	1.78	0.49
31:3:2244:U:H2'	31:3:2245:G:O4'	2.13	0.49
4:7:61:ASN:HB3	4:7:62:PRO:HD3	1.95	0.49
31:3:121:U:H5''	31:3:123:G:OP2	2.13	0.49
31:3:784:A:H61	31:3:788:G:H21	1.61	0.49
31:3:1801:U:H2'	31:3:1802:C:H6	1.78	0.49
31:3:2005:G:H2'	31:3:2006:C:C6	2.48	0.49
31:3:2328:A:H5''	31:3:2329:G:C6	2.47	0.49
31:3:2392:U:H5''	31:3:2394:A:OP1	2.12	0.49
32:4:59:A:H2'	32:4:60:C:C6	2.48	0.49
32:4:75:U:H2'	32:4:76:A:H8	1.78	0.49
31:3:225:A:C4	31:3:237:A:H1'	2.47	0.49
31:3:269:A:N6	31:3:315:A:O4'	2.46	0.49
31:3:874:U:H2'	31:3:875:G:C8	2.47	0.49
31:3:1409:G:O6	31:3:1410:A:N6	2.46	0.49
31:3:2025:C:H2'	31:3:2026:A:H8	1.78	0.49
31:3:2154:A:H2'	31:3:2155:G:H8	1.77	0.49
31:3:2820:G:H2'	31:3:2821:U:H6	1.78	0.49
31:3:2851:U:H3	31:3:2873:G:H1	1.59	0.49
32:4:42:G:H1'	32:4:45:C:H42	1.77	0.49
4:7:151:PHE:O	4:7:155:LEU:HG	2.12	0.48
31:3:352:C:H2'	31:3:353:G:C8	2.47	0.48
31:3:640:U:O2	31:3:658:G:O6	2.31	0.48
31:3:756:A:H2'	31:3:757:A:H8	1.76	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:805:G:H2'	31:3:806:A:C8	2.48	0.48
31:3:1085:A:H1'	31:3:2759:G:C2	2.48	0.48
31:3:2053:G:H1	31:3:2630:U:H3	1.60	0.48
31:3:2458:A:N7	31:3:2509:C:C4	2.81	0.48
31:3:2701:A:H2'	31:3:2702:G:H8	1.77	0.48
32:4:29:C:O2'	32:4:51:A:N1	2.43	0.48
31:3:177:U:H2'	31:3:178:A:C8	2.47	0.48
31:3:358:A:N6	31:3:373:U:O4'	2.46	0.48
31:3:1049:U:H2'	31:3:1050:A:C8	2.47	0.48
31:3:1305:G:H2'	31:3:1306:G:C8	2.48	0.48
31:3:1587:U:H2'	31:3:1588:A:C8	2.48	0.48
31:3:1841:U:H5''	31:3:1842:G:H5'	1.94	0.48
31:3:2054:C:HO2'	31:3:2055:A:H5'	1.77	0.48
31:3:2223:C:H2'	31:3:2224:A:C8	2.47	0.48
31:3:2699:C:O2'	31:3:2875:U:O2'	2.24	0.48
31:3:2729:A:H2'	31:3:2730:G:O4'	2.13	0.48
31:3:2892:U:H2'	31:3:2893:C:C6	2.47	0.48
31:3:333:A:N6	31:3:356:A:O2'	2.41	0.48
31:3:464:A:H3'	31:3:465:A:C8	2.48	0.48
31:3:1045:A:H3'	31:3:1046:A:C8	2.48	0.48
31:3:1218:G:N2	31:3:1219:U:O4	2.46	0.48
31:3:1412:A:H1'	31:3:1433:U:H1'	1.95	0.48
31:3:1462:A:O2'	31:3:1463:G:O5'	2.20	0.48
31:3:2272:C:H2'	31:3:2273:U:O4'	2.13	0.48
31:3:2792:C:H2'	31:3:2793:U:C6	2.48	0.48
31:3:2851:U:H2'	31:3:2852:G:O4'	2.13	0.48
31:3:336:C:H2'	31:3:337:U:C6	2.48	0.48
31:3:337:U:H2'	31:3:338:G:H8	1.78	0.48
31:3:488:G:N2	31:3:493:A:H1'	2.27	0.48
31:3:517:G:H1	31:3:544:U:H3	1.56	0.48
31:3:1246:U:H2'	31:3:1247:C:C6	2.48	0.48
31:3:2054:C:H2'	31:3:2055:A:C8	2.47	0.48
31:3:2405:G:N2	31:3:2427:U:O2	2.43	0.48
31:3:2476:A:OP2	31:3:2484:A:N6	2.47	0.48
31:3:2560:U:C2	31:3:2562:U:H5''	2.48	0.48
31:3:195:A:H2	31:3:835:U:H5	1.61	0.48
31:3:494:G:H1'	31:3:495:U:H5	1.77	0.48
31:3:800:C:H2'	31:3:801:U:C6	2.49	0.48
31:3:1010:G:N2	31:3:1025:G:H1'	2.29	0.48
31:3:1248:A:O2'	31:3:1249:A:H5'	2.14	0.48
31:3:1476:C:H2'	31:3:1477:A:C8	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1756:A:H2'	31:3:1757:G:C8	2.49	0.48
31:3:2536:U:OP2	31:3:2538:A:N6	2.46	0.48
31:3:155:A:N6	31:3:178:A:H61	2.12	0.48
31:3:1490:G:H2'	31:3:1491:G:H8	1.78	0.48
31:3:1692:A:H2'	31:3:1693:U:C6	2.48	0.48
31:3:2223:C:H2'	31:3:2224:A:H8	1.77	0.48
3:2:3:VAL:HG11	31:3:2547:C:H5'	1.95	0.48
31:3:766:C:H2'	31:3:767:C:H6	1.79	0.48
31:3:1459:A:H2'	31:3:1460:G:C8	2.49	0.48
31:3:1544:G:H2'	31:3:1545:A:H8	1.78	0.48
31:3:1617:U:H1'	31:3:1619:A:C6	2.48	0.48
31:3:1662:G:H2'	31:3:1663:G:H8	1.78	0.48
31:3:1871:U:H3	31:3:1885:G:H1	1.61	0.48
31:3:2159:U:H2'	31:3:2160:U:C6	2.49	0.48
31:3:2529:C:O2'	31:3:2572:A:N3	2.41	0.48
31:3:226:A:H61	31:3:236:G:H1'	1.77	0.48
31:3:562:C:N4	31:3:2787:U:OP2	2.42	0.48
31:3:629:G:N2	31:3:696:U:O2	2.41	0.48
31:3:1094:G:H2'	31:3:1095:U:C5	2.49	0.48
31:3:2045:C:N4	31:3:2046:G:O6	2.46	0.48
31:3:2420:A:H2'	31:3:2421:U:O4'	2.14	0.48
31:3:2794:U:H2'	31:3:2795:C:C6	2.49	0.48
32:4:95:G:H2'	32:4:96:G:C8	2.49	0.48
1:0:26:SER:O	1:0:29:LYS:HG2	2.14	0.48
31:3:500:U:O2'	31:3:501:G:OP1	2.31	0.48
31:3:1006:U:H2'	31:3:1007:C:C6	2.48	0.48
31:3:1085:A:H61	31:3:1143:U:H3	1.62	0.48
31:3:1158:C:H2'	31:3:1159:C:C6	2.48	0.48
31:3:1830:G:H2'	31:3:1831:G:C8	2.48	0.48
31:3:1861:A:N6	31:3:1895:G:H1'	2.28	0.48
31:3:2462:G:N2	31:3:2507:C:H41	2.12	0.48
31:3:2533:A:H2'	31:3:2534:G:C8	2.48	0.48
4:7:122:VAL:O	4:7:126:ILE:HG12	2.13	0.48
31:3:260:A:H2'	31:3:261:A:H8	1.79	0.48
31:3:529:G:H2'	31:3:530:G:C8	2.49	0.48
31:3:790:U:H2'	31:3:791:A:C8	2.49	0.48
31:3:897:A:N3	32:4:77:G:O2'	2.46	0.48
31:3:1166:G:O2'	31:3:2032:G:O2'	2.19	0.48
31:3:1230:U:H2'	31:3:1231:G:H8	1.77	0.48
31:3:1916:C:H2'	31:3:1917:G:C8	2.48	0.48
31:3:2543:G:H2'	31:3:2544:G:C8	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2615:G:H2'	31:3:2616:G:O4'	2.13	0.48
3:2:4:ARG:NH1	31:3:2485:U:O2	2.45	0.47
3:2:27:CYS:HB3	3:2:32:HIS:HB3	1.96	0.47
3:2:31:LYS:HE2	31:3:2486:A:H5'	1.96	0.47
3:2:35:ARG:HG2	3:2:36:GLN:H	1.78	0.47
4:7:147:LYS:HZ3	31:3:2263:G:H5''	1.78	0.47
31:3:851:U:H2'	31:3:852:C:C6	2.48	0.47
31:3:2038:A:N3	31:3:2463:G:O2'	2.45	0.47
31:3:2126:A:N6	31:3:2176:G:H1'	2.28	0.47
31:3:2644:U:H2'	31:3:2645:U:H6	1.79	0.47
31:3:2718:C:H2'	31:3:2719:A:C8	2.49	0.47
31:3:59:C:H2'	31:3:60:G:C8	2.50	0.47
31:3:237:A:H2'	31:3:238:U:O4'	2.14	0.47
31:3:746:G:O6	31:3:756:A:N6	2.47	0.47
31:3:1010:G:O2'	31:3:1011:A:OP2	2.29	0.47
31:3:1393:A:H3'	31:3:1394:A:H8	1.79	0.47
31:3:1793:A:O2'	31:3:1945:A:N6	2.47	0.47
31:3:1979:G:H2'	31:3:1980:G:H8	1.79	0.47
31:3:2213:A:H2'	31:3:2214:A:H8	1.79	0.47
31:3:2576:A:H2'	31:3:2577:G:C8	2.50	0.47
31:3:2657:C:H2'	31:3:2658:U:C6	2.50	0.47
31:3:360:G:H2'	31:3:361:G:C8	2.49	0.47
31:3:562:C:N3	31:3:2787:U:H2'	2.29	0.47
31:3:719:G:O2'	31:3:823:A:N7	2.46	0.47
31:3:1416:G:H2'	31:3:1417:G:H8	1.79	0.47
31:3:1512:A:N6	31:3:1513:A:N6	2.62	0.47
31:3:1700:G:H3'	31:3:1701:G:H8	1.80	0.47
31:3:2097:A:N6	31:3:2238:G:O6	2.47	0.47
31:3:2757:A:OP2	31:3:2758:A:O2'	2.22	0.47
31:3:2822:C:H2'	31:3:2823:A:C8	2.49	0.47
32:4:77:G:C2	32:4:78:C:H1'	2.49	0.47
4:7:119:ALA:O	4:7:123:VAL:HG23	2.15	0.47
31:3:931:G:H2'	31:3:932:U:H4'	1.96	0.47
31:3:1304:U:H2'	31:3:1305:G:C8	2.50	0.47
31:3:1507:G:O2'	31:3:1508:G:P	2.73	0.47
31:3:1552:C:H2'	31:3:1553:G:O4'	2.14	0.47
31:3:1798:A:N6	31:3:1835:G:H1'	2.29	0.47
31:3:2598:C:H2'	31:3:2599:C:C6	2.49	0.47
31:3:2701:A:H4'	31:3:2852:G:H4'	1.97	0.47
32:4:58:C:H2'	32:4:59:A:H8	1.78	0.47
31:3:18:G:H2'	31:3:19:G:C8	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:694:U:H2'	31:3:695:G:C8	2.47	0.47
31:3:768:G:N2	31:3:769:A:N7	2.62	0.47
31:3:855:A:H2	31:3:979:U:H4'	1.79	0.47
31:3:889:G:H2'	31:3:890:U:C6	2.49	0.47
31:3:1888:U:H2'	31:3:1889:U:C5	2.50	0.47
31:3:2259:G:H1	31:3:2458:A:HO2'	1.51	0.47
31:3:2599:C:H2'	31:3:2600:G:C8	2.50	0.47
31:3:2865:U:H2'	31:3:2866:A:C8	2.49	0.47
31:3:660:U:H2'	31:3:661:G:C8	2.50	0.47
31:3:963:U:H2'	31:3:964:A:C8	2.48	0.47
31:3:1083:A:N1	31:3:1147:G:O2'	2.40	0.47
31:3:1284:A:H5''	31:3:1285:U:H5''	1.95	0.47
31:3:1415:A:H2'	31:3:1416:G:C8	2.49	0.47
31:3:2513:G:O2'	31:3:2514:U:O4'	2.33	0.47
31:3:2737:G:H2'	31:3:2738:U:H6	1.80	0.47
31:3:172:U:H2'	31:3:173:C:C6	2.49	0.47
31:3:243:U:H2'	31:3:244:G:O4'	2.15	0.47
31:3:263:C:H2'	31:3:264:G:C8	2.50	0.47
31:3:1025:G:H5''	31:3:1192:U:H4'	1.97	0.47
31:3:1137:C:H2'	31:3:1138:A:C8	2.45	0.47
31:3:1299:A:H61	31:3:2018:U:H3	1.61	0.47
31:3:1363:C:H2'	31:3:1364:A:H8	1.80	0.47
31:3:1638:C:H2'	31:3:1639:C:H6	1.80	0.47
31:3:1844:C:O2'	31:3:1934:A:N3	2.40	0.47
31:3:1886:C:H2'	31:3:1887:U:O4'	2.14	0.47
31:3:1916:C:H2'	31:3:1917:G:H8	1.80	0.47
31:3:2064:G:C2	31:3:2065:A:C8	3.03	0.47
31:3:2071:C:H2'	31:3:2072:C:C6	2.49	0.47
31:3:2124:A:H8	31:3:2124:A:OP2	1.98	0.47
31:3:2424:C:H2'	31:3:2425:C:C6	2.50	0.47
31:3:2474:C:H2'	31:3:2475:C:C6	2.49	0.47
31:3:2551:G:H4'	31:3:2653:G:C6	2.50	0.47
2:1:51:ASP:OD1	2:1:54:ARG:NH1	2.47	0.47
4:7:67:VAL:HG22	4:7:101:ARG:HG2	1.97	0.47
31:3:8:A:H5''	31:3:2790:A:H5''	1.97	0.47
31:3:293:G:H2'	31:3:294:G:C5	2.49	0.47
31:3:720:A:H1'	31:3:724:A:H61	1.80	0.47
31:3:333:A:H2'	31:3:334:A:C8	2.50	0.47
31:3:485:A:O2'	31:3:1278:G:N2	2.46	0.47
31:3:626:A:H2'	31:3:627:U:C6	2.50	0.47
31:3:747:A:H2'	31:3:748:G:C8	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:767:C:H2'	31:3:768:G:O4'	2.15	0.47
31:3:1065:G:C6	31:3:1160:G:N2	2.83	0.47
31:3:1088:A:H61	31:3:1141:U:H3	1.63	0.47
31:3:1387:A:OP2	31:3:1399:G:N2	2.26	0.47
31:3:1925:A:H2	31:3:1926:A:H62	1.61	0.47
31:3:1954:C:H2'	31:3:1955:G:C8	2.49	0.47
31:3:2242:G:H2'	31:3:2243:G:C8	2.50	0.47
31:3:2737:G:H2'	31:3:2738:U:C6	2.50	0.47
31:3:2738:U:H2'	31:3:2739:C:C6	2.49	0.47
31:3:124:A:H3'	31:3:125:G:H8	1.80	0.47
31:3:251:G:OP1	31:3:424:G:O2'	2.32	0.47
31:3:329:G:N2	31:3:377:U:O2	2.34	0.47
31:3:340:U:H1'	31:3:1241:U:H5	1.79	0.47
31:3:371:C:H2'	31:3:372:G:O4'	2.15	0.47
31:3:886:U:H2'	31:3:887:A:C8	2.50	0.47
31:3:1677:G:H2'	31:3:1678:U:C6	2.50	0.47
31:3:2850:G:H2'	31:3:2851:U:C6	2.50	0.47
4:7:32:ARG:HH22	4:7:107:MET:HG2	1.79	0.46
31:3:154:U:H2'	31:3:155:A:C8	2.50	0.46
31:3:252:G:H5'	31:3:254:G:C5	2.50	0.46
31:3:658:G:H2'	31:3:659:C:C6	2.50	0.46
31:3:1162:A:O2'	31:3:2526:A:OP1	2.26	0.46
31:3:1263:G:C2	31:3:1264:U:C5	3.03	0.46
31:3:1730:C:H2'	31:3:1731:G:O4'	2.15	0.46
31:3:2380:U:H2'	31:3:2381:G:H8	1.81	0.46
2:1:30:ALA:HB2	31:3:2427:U:OP1	2.16	0.46
31:3:260:A:H2'	31:3:261:A:C8	2.50	0.46
31:3:385:U:H2'	31:3:386:U:C6	2.50	0.46
31:3:386:U:H2'	31:3:387:U:C6	2.50	0.46
31:3:696:U:H2'	31:3:697:U:C6	2.49	0.46
31:3:894:G:O2'	31:3:2276:A:H1'	2.14	0.46
31:3:1801:U:H2'	31:3:1802:C:C6	2.50	0.46
31:3:2015:C:H2'	31:3:2016:G:H8	1.79	0.46
31:3:2059:G:O6	31:3:2625:U:O4	2.33	0.46
31:3:2855:A:H3'	31:3:2856:G:H8	1.80	0.46
4:7:161:LYS:HA	4:7:164:LYS:HD2	1.98	0.46
31:3:86:A:H2	31:3:104:A:C5	2.33	0.46
31:3:444:C:H2'	31:3:445:C:C6	2.50	0.46
31:3:763:G:HO2'	31:3:765:A:H8	1.62	0.46
31:3:1499:C:H2'	31:3:1500:A:C8	2.50	0.46
31:3:1545:A:H2'	31:3:1546:U:C6	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1638:C:H2'	31:3:1639:C:C6	2.51	0.46
31:3:1819:G:H2'	31:3:1820:U:C6	2.50	0.46
31:3:1828:A:H2'	31:3:1829:U:C6	2.49	0.46
31:3:2897:G:HO2'	31:3:2898:A:P	2.39	0.46
4:7:58:ILE:HD11	4:7:66:ILE:HG12	1.97	0.46
4:7:112:ARG:HD3	4:7:181:LEU:HD21	1.98	0.46
31:3:86:A:H2	31:3:104:A:C6	2.34	0.46
31:3:1231:G:H2'	31:3:1232:U:C6	2.50	0.46
31:3:1428:U:H2'	31:3:1429:G:C8	2.50	0.46
31:3:1605:A:H2'	31:3:1606:A:H8	1.81	0.46
31:3:1849:G:H2'	31:3:1850:C:H6	1.81	0.46
31:3:2539:A:N6	31:3:2670:A:H61	2.11	0.46
31:3:2678:A:H2'	31:3:2679:G:C8	2.51	0.46
31:3:31:U:C2	31:3:32:G:C8	3.03	0.46
31:3:282:C:C4	31:3:284:U:H5'	2.51	0.46
31:3:591:G:H2'	31:3:592:G:C8	2.49	0.46
31:3:902:U:N3	31:3:940:A:OP1	2.47	0.46
31:3:1433:U:H2'	31:3:1434:U:C6	2.50	0.46
31:3:1463:G:N1	31:3:1464:G:O6	2.48	0.46
31:3:1755:A:H2'	31:3:1756:A:C8	2.50	0.46
31:3:1820:U:O2'	31:3:1821:G:OP1	2.30	0.46
31:3:259:A:H3'	31:3:260:A:H8	1.80	0.46
31:3:360:G:H2'	31:3:361:G:H8	1.80	0.46
31:3:405:C:H2'	31:3:406:C:C6	2.51	0.46
31:3:561:A:O2'	31:3:2050:G:N3	2.40	0.46
31:3:758:C:H2'	31:3:759:U:H6	1.81	0.46
31:3:1408:G:H2'	31:3:1409:G:H8	1.81	0.46
31:3:1551:U:H2'	31:3:1552:C:C6	2.51	0.46
31:3:1624:A:H2'	31:3:1625:G:C8	2.51	0.46
31:3:1709:C:H3'	31:3:1710:A:H8	1.79	0.46
31:3:1913:G:O5'	31:3:1936:G:O2'	2.25	0.46
31:3:1961:A:H61	31:3:1993:U:H5''	1.81	0.46
1:0:3:ARG:NE	31:3:1646:G:H21	2.14	0.46
31:3:139:G:H2'	31:3:140:G:C8	2.51	0.46
31:3:639:G:N2	31:3:660:U:O2	2.48	0.46
31:3:645:C:H2'	31:3:646:A:C8	2.50	0.46
31:3:666:G:N2	31:3:668:A:H3'	2.30	0.46
31:3:1300:C:H42	31:3:2017:G:H1	1.64	0.46
31:3:1356:G:H2'	31:3:1358:C:C4	2.51	0.46
31:3:1721:G:H2'	31:3:1722:U:C6	2.51	0.46
31:3:1722:U:O2'	31:3:1734:A:N7	2.43	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1766:A:H2'	31:3:1767:A:C8	2.50	0.46
31:3:2025:C:H2'	31:3:2026:A:C8	2.51	0.46
31:3:2230:A:H2'	31:3:2231:A:C8	2.50	0.46
31:3:2310:C:H2'	31:3:2311:G:H8	1.80	0.46
31:3:2693:U:H2'	31:3:2694:A:C8	2.50	0.46
31:3:246:G:H22	31:3:258:G:H3'	1.79	0.46
31:3:333:A:H61	31:3:356:A:HO2'	1.62	0.46
31:3:338:G:H2'	31:3:339:U:C6	2.51	0.46
31:3:1237:G:H2'	31:3:1238:A:H8	1.81	0.46
31:3:1370:A:O2'	31:3:1372:U:OP1	2.33	0.46
31:3:1575:C:H2'	31:3:1576:G:O4'	2.14	0.46
31:3:1777:G:H2'	31:3:1778:G:H8	1.81	0.46
31:3:2076:G:H2'	31:3:2077:A:C8	2.51	0.46
31:3:2249:A:H2'	31:3:2250:G:H8	1.79	0.46
31:3:2422:G:C2	31:3:2423:G:C8	3.04	0.46
31:3:2551:G:H2'	31:3:2552:G:H8	1.79	0.46
31:3:2576:A:H2'	31:3:2577:G:H8	1.80	0.46
31:3:464:A:H2'	31:3:464:A:N3	2.31	0.46
31:3:869:U:O2'	31:3:2366:A:H1'	2.16	0.46
31:3:1804:A:H2'	31:3:1805:U:C6	2.51	0.46
31:3:2154:A:H2'	31:3:2155:G:C8	2.51	0.46
31:3:2358:U:H2'	31:3:2359:G:O4'	2.16	0.46
31:3:2863:G:O5'	31:3:2863:G:H8	1.99	0.46
4:7:17:LYS:HZ2	4:7:126:ILE:HD13	1.80	0.46
31:3:713:C:H2'	31:3:714:G:H8	1.81	0.46
31:3:1035:U:H5''	31:3:1189:G:O6	2.16	0.46
31:3:1355:C:H2'	31:3:1356:G:C4	2.51	0.46
31:3:1422:U:H2'	31:3:1423:A:O4'	2.16	0.46
31:3:1454:G:OP2	31:3:1455:A:O2'	2.27	0.46
31:3:1546:U:H3'	31:3:1547:G:H8	1.81	0.46
31:3:1610:U:H2'	31:3:1611:C:C6	2.51	0.46
31:3:1846:A:C4	31:3:1847:G:C8	3.03	0.46
31:3:2521:A:H2'	31:3:2522:U:H6	1.77	0.46
31:3:2663:G:H22	31:3:2673:A:P	2.39	0.46
31:3:2850:G:H2'	31:3:2851:U:H6	1.81	0.46
1:0:37:LYS:NZ	31:3:504:G:OP2	2.42	0.45
31:3:10:U:H2'	31:3:11:U:C6	2.51	0.45
31:3:117:C:O2'	31:3:127:A:H1'	2.17	0.45
31:3:192:U:H2'	31:3:193:G:O4'	2.16	0.45
31:3:219:G:N2	31:3:220:A:H1'	2.31	0.45
31:3:454:G:N1	31:3:455:G:C6	2.84	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:519:A:P	31:3:520:C:H41	2.37	0.45
31:3:682:A:N3	31:3:682:A:H2'	2.30	0.45
31:3:745:U:H2'	31:3:746:G:C8	2.51	0.45
31:3:880:C:O2'	31:3:881:A:N7	2.45	0.45
31:3:1389:G:H2'	31:3:1390:C:C6	2.50	0.45
31:3:1608:C:H2'	31:3:1609:U:C6	2.51	0.45
31:3:2372:C:H2'	31:3:2373:G:O4'	2.15	0.45
31:3:2477:A:H2'	31:3:2478:G:O4'	2.16	0.45
31:3:2516:G:H2'	31:3:2517:A:H8	1.81	0.45
31:3:2584:G:H3'	31:3:2584:G:N3	2.31	0.45
32:4:93:U:H2'	32:4:94:A:C8	2.48	0.45
31:3:336:C:H2'	31:3:337:U:H6	1.81	0.45
31:3:915:A:OP2	31:3:936:G:N2	2.49	0.45
31:3:1252:C:H2'	31:3:1253:G:O4'	2.17	0.45
31:3:1873:A:C6	31:3:1883:A:N7	2.84	0.45
31:3:2015:C:H2'	31:3:2016:G:C8	2.51	0.45
31:3:2076:G:H2'	31:3:2077:A:H8	1.81	0.45
31:3:2191:G:H2'	31:3:2192:U:O4'	2.16	0.45
31:3:2204:C:H2'	31:3:2205:U:C6	2.51	0.45
31:3:2483:C:O2	31:3:2537:G:O6	2.34	0.45
31:3:2684:G:H2'	31:3:2685:A:H8	1.80	0.45
31:3:2700:C:H2'	31:3:2701:A:H8	1.82	0.45
31:3:2825:A:H2'	31:3:2826:G:O4'	2.17	0.45
32:4:11:A:H61	32:4:67:G:HO2'	1.64	0.45
31:3:110:A:N6	31:3:111:G:O6	2.49	0.45
31:3:452:U:H3	31:3:2415:A:H61	1.64	0.45
31:3:683:G:H2'	31:3:684:A:C8	2.51	0.45
31:3:1257:G:H2'	31:3:1258:C:C6	2.51	0.45
31:3:1261:U:H2'	31:3:1262:G:C8	2.46	0.45
31:3:1389:G:H2'	31:3:1390:C:H6	1.81	0.45
31:3:1630:A:H2'	31:3:1631:A:H8	1.81	0.45
31:3:2194:G:C2	31:3:2195:U:C4	3.05	0.45
31:3:2695:U:H2'	31:3:2696:G:O4'	2.16	0.45
32:4:76:A:H1'	32:4:89:A:C6	2.51	0.45
31:3:307:C:H2'	31:3:308:A:H8	1.82	0.45
31:3:443:C:H2'	31:3:444:C:H6	1.81	0.45
31:3:482:G:N2	31:3:490:A:H61	2.13	0.45
31:3:532:A:H2'	31:3:533:G:C8	2.52	0.45
31:3:865:A:O2'	31:3:866:G:O4'	2.35	0.45
31:3:876:A:H2'	31:3:877:G:C8	2.52	0.45
31:3:1308:A:H2'	31:3:1309:G:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2221:U:H3'	31:3:2222:C:H5'	1.98	0.45
31:3:2228:U:H2'	31:3:2229:C:C6	2.51	0.45
31:3:2750:A:H2'	31:3:2751:C:H6	1.81	0.45
1:0:17:GLY:HA2	1:0:44:VAL:HG22	1.98	0.45
31:3:66:A:H2'	31:3:67:C:C6	2.52	0.45
31:3:851:U:H2'	31:3:852:C:H6	1.82	0.45
31:3:1308:A:H2'	31:3:1309:G:H8	1.81	0.45
31:3:1325:C:H2'	31:3:1326:C:H6	1.82	0.45
31:3:2037:A:N3	31:3:2507:C:H4'	2.31	0.45
31:3:2388:C:H2'	31:3:2389:A:C8	2.52	0.45
31:3:2548:G:H2'	31:3:2549:A:O4'	2.17	0.45
31:3:2568:G:H2'	31:3:2569:A:H8	1.82	0.45
31:3:2608:A:H2'	31:3:2609:C:C6	2.51	0.45
31:3:2862:U:HO2'	31:3:2863:G:P	2.40	0.45
4:7:178:GLU:O	4:7:181:LEU:HB3	2.17	0.45
31:3:204:U:H3	31:3:254:G:H1	1.64	0.45
31:3:228:A:H2'	31:3:229:C:O4'	2.17	0.45
31:3:263:C:H2'	31:3:264:G:H8	1.80	0.45
31:3:680:A:C2	31:3:2377:A:H1'	2.51	0.45
31:3:852:C:H2'	31:3:853:G:O4'	2.17	0.45
31:3:876:A:H2'	31:3:877:G:H8	1.81	0.45
31:3:2176:G:H2'	31:3:2178:A:OP2	2.17	0.45
31:3:2299:U:O2	31:3:2382:A:O2'	2.34	0.45
31:3:2332:U:O4	31:3:2339:G:O6	2.35	0.45
31:3:2400:A:N6	31:3:2432:C:O2	2.49	0.45
31:3:2572:A:N1	31:3:2655:U:H4'	2.31	0.45
1:0:21:ARG:O	1:0:27:GLY:HA3	2.17	0.45
4:7:28:ILE:HG21	4:7:119:ALA:HB2	1.98	0.45
31:3:26:G:H2'	31:3:27:U:H6	1.81	0.45
31:3:454:G:C6	31:3:455:G:C6	3.05	0.45
31:3:569:U:H2'	31:3:570:C:C6	2.52	0.45
31:3:659:C:H2'	31:3:660:U:C6	2.51	0.45
31:3:1806:G:O5'	31:3:1826:A:N6	2.49	0.45
31:3:2300:A:H2'	31:3:2301:C:C6	2.51	0.45
31:3:2308:U:C2	31:3:2309:A:C8	3.04	0.45
31:3:2496:G:H2'	31:3:2497:U:C6	2.52	0.45
31:3:2537:G:H5''	31:3:2538:A:H5''	1.97	0.45
31:3:2810:A:N6	31:3:2896:G:H1	2.12	0.45
2:1:30:ALA:N	2:1:31:PRO:HD2	2.32	0.45
31:3:217:A:H2'	31:3:218:G:C8	2.52	0.45
31:3:723:U:O2	31:3:821:C:O2'	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:804:U:H2'	31:3:805:G:C8	2.51	0.45
31:3:895:G:H1'	31:3:953:G:N1	2.31	0.45
31:3:975:G:H2'	31:3:976:C:C6	2.52	0.45
31:3:1297:U:HO2'	31:3:1298:A:P	2.38	0.45
31:3:1310:U:H3	31:3:1314:A:H62	1.64	0.45
31:3:1382:A:H8	31:3:1383:G:C8	2.35	0.45
31:3:1538:U:H2'	31:3:1539:U:C6	2.52	0.45
31:3:1649:C:OP2	31:3:1651:C:N4	2.30	0.45
31:3:2353:G:H1'	31:3:2389:A:H2'	1.99	0.45
31:3:2523:C:H2'	31:3:2524:U:C6	2.52	0.45
32:4:4:G:H2'	32:4:5:G:H8	1.81	0.45
31:3:202:C:O2'	31:3:203:A:H5'	2.17	0.45
31:3:359:G:H2'	31:3:360:G:C8	2.51	0.45
31:3:501:G:N2	31:3:719:G:H1'	2.32	0.45
31:3:1699:A:H2'	31:3:1700:G:C8	2.44	0.45
31:3:1849:G:H2'	31:3:1850:C:C6	2.52	0.45
31:3:2077:A:H2'	31:3:2078:A:C8	2.52	0.45
31:3:2305:C:H3'	31:3:2326:G:N2	2.31	0.45
31:3:31:U:O2	31:3:1245:G:O2'	2.35	0.45
31:3:164:A:OP2	31:3:164:A:H8	2.00	0.45
31:3:705:A:H4'	31:3:706:C:H5'	1.99	0.45
31:3:1274:A:H2'	31:3:1275:C:C6	2.52	0.45
31:3:1417:G:H2'	31:3:1418:U:C6	2.52	0.45
31:3:1473:C:H2'	31:3:1474:C:C6	2.51	0.45
31:3:2058:G:H2'	31:3:2622:A:N6	2.32	0.45
31:3:2512:U:H1'	31:3:2580:A:C2	2.51	0.45
31:3:2515:C:H2'	31:3:2516:G:O4'	2.16	0.45
31:3:2746:A:H3'	31:3:2747:U:H5''	1.98	0.45
32:4:74:G:H1	32:4:91:A:N6	2.14	0.45
2:1:4:LYS:HB3	2:1:4:LYS:HE3	1.76	0.44
31:3:90:G:H2'	31:3:91:G:H8	1.82	0.44
31:3:155:A:N1	31:3:178:A:N6	2.64	0.44
31:3:252:G:H1'	31:3:2439:U:O2'	2.17	0.44
31:3:386:U:H2'	31:3:387:U:H6	1.81	0.44
31:3:870:A:H2'	31:3:871:G:C8	2.52	0.44
31:3:1441:A:H2'	31:3:1442:G:C8	2.51	0.44
31:3:1798:A:H2'	31:3:1799:A:O4'	2.17	0.44
31:3:2255:A:H2'	31:3:2256:C:C6	2.52	0.44
31:3:2259:G:C4	31:3:2458:A:H4'	2.53	0.44
31:3:2388:C:H2'	31:3:2389:A:H8	1.83	0.44
31:3:2534:G:H2'	31:3:2535:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2764:U:H4'	31:3:2765:A:OP1	2.15	0.44
31:3:2814:A:N1	31:3:2894:G:O2'	2.38	0.44
4:7:153:GLU:OE2	4:7:156:LYS:NZ	2.38	0.44
31:3:234:G:H2'	31:3:235:U:H6	1.80	0.44
31:3:407:U:H3'	31:3:440:C:H42	1.82	0.44
31:3:582:A:H3'	31:3:582:A:N3	2.32	0.44
31:3:638:A:N6	31:3:639:G:O6	2.50	0.44
31:3:702:U:H2'	31:3:703:A:O4'	2.16	0.44
31:3:1012:G:H2'	31:3:1013:G:C8	2.51	0.44
31:3:1069:G:C6	31:3:1157:G:C5	3.06	0.44
31:3:1942:G:H1'	31:3:1971:G:N2	2.32	0.44
31:3:2424:C:C2	31:3:2425:C:C5	3.05	0.44
31:3:2656:G:H2'	31:3:2657:C:C6	2.52	0.44
31:3:2789:A:H5''	31:3:2790:A:H5'	1.99	0.44
32:4:3:U:H2'	32:4:4:G:C8	2.50	0.44
31:3:326:A:H2'	31:3:327:U:C6	2.52	0.44
31:3:448:A:H2	31:3:1888:U:H5'	1.82	0.44
31:3:465:A:H2'	31:3:466:A:C4	2.52	0.44
31:3:666:G:H22	31:3:668:A:H3'	1.81	0.44
31:3:830:A:H2'	31:3:831:U:C6	2.53	0.44
31:3:983:A:H2'	31:3:984:C:H6	1.82	0.44
31:3:1221:G:H2'	31:3:1222:A:H8	1.83	0.44
31:3:1381:A:H2'	31:3:1382:A:C8	2.52	0.44
31:3:178:A:H2'	31:3:179:A:C8	2.53	0.44
31:3:1248:A:H2'	31:3:1249:A:C8	2.52	0.44
31:3:1253:G:N1	31:3:1255:G:H3'	2.32	0.44
31:3:1326:C:H42	31:3:1677:G:H22	1.66	0.44
31:3:1415:A:H2'	31:3:1416:G:H8	1.82	0.44
31:3:2304:U:OP2	31:3:2342:U:N3	2.27	0.44
31:3:159:G:H2'	31:3:160:A:C8	2.53	0.44
31:3:178:A:C6	31:3:179:A:N6	2.85	0.44
31:3:205:C:O2'	31:3:424:G:O6	2.29	0.44
31:3:214:C:H2'	31:3:215:A:C8	2.51	0.44
31:3:1200:U:H2'	31:3:1201:A:C8	2.45	0.44
31:3:1299:A:O2'	31:3:1353:G:O6	2.30	0.44
31:3:1304:U:H2'	31:3:1305:G:H8	1.82	0.44
31:3:1488:U:H2'	31:3:1489:G:H8	1.81	0.44
31:3:1654:G:H2'	31:3:1655:U:C6	2.52	0.44
31:3:1672:C:H1'	31:3:2706:U:O2'	2.17	0.44
31:3:1920:A:H4'	31:3:1921:C:H5'	2.00	0.44
31:3:2231:A:H3'	31:3:2232:G:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2394:A:H2'	31:3:2395:U:C6	2.53	0.44
31:3:2478:G:O6	31:3:2484:A:O2'	2.28	0.44
31:3:2853:U:N3	31:3:2871:G:O4'	2.50	0.44
32:4:89:A:H2'	32:4:90:G:O4'	2.18	0.44
1:0:11:LYS:HA	1:0:14:LYS:HD2	2.00	0.44
31:3:219:G:H1'	31:3:220:A:H4'	1.99	0.44
31:3:799:A:N7	31:3:1783:G:H1'	2.33	0.44
31:3:1115:G:H2'	31:3:1116:U:C6	2.53	0.44
31:3:1335:A:OP2	31:3:1640:G:N1	2.42	0.44
31:3:1780:A:C4	31:3:1836:A:H1'	2.53	0.44
31:3:2054:C:O2'	31:3:2827:A:N1	2.50	0.44
31:3:2155:G:H2'	31:3:2156:G:C8	2.51	0.44
31:3:2291:U:OP2	31:3:2397:G:O2'	2.36	0.44
31:3:2505:A:H2	31:3:2506:C:H41	1.64	0.44
31:3:41:C:H2'	31:3:42:U:C6	2.53	0.44
31:3:158:U:H2'	31:3:159:G:C8	2.53	0.44
31:3:317:U:N3	31:3:392:A:N7	2.65	0.44
31:3:562:C:H42	31:3:2787:U:P	2.40	0.44
31:3:616:G:H2'	31:3:617:C:O4'	2.17	0.44
31:3:734:A:H2'	31:3:735:G:O4'	2.18	0.44
31:3:1301:G:O2'	31:3:1652:A:OP1	2.36	0.44
31:3:2039:G:OP1	31:3:2507:C:N4	2.51	0.44
31:3:59:C:H2'	31:3:60:G:H8	1.83	0.44
31:3:548:A:C4	31:3:549:A:C8	3.05	0.44
31:3:1217:G:H2'	31:3:1218:G:O4'	2.18	0.44
31:3:1326:C:H2'	31:3:1327:G:O4'	2.18	0.44
31:3:1449:G:H2'	31:3:1450:G:H8	1.82	0.44
31:3:1666:A:H2'	31:3:1667:G:C4	2.53	0.44
31:3:1738:G:H2'	31:3:1739:G:H8	1.83	0.44
31:3:1776:G:H2'	31:3:1777:G:H8	1.83	0.44
31:3:2090:G:O6	31:3:2244:U:O4	2.36	0.44
31:3:2106:G:N2	31:3:2198:G:H1	2.11	0.44
31:3:2325:U:H2'	31:3:2326:G:C8	2.53	0.44
31:3:2469:A:H2'	31:3:2470:C:C6	2.52	0.44
31:3:2488:C:H2'	31:3:2489:G:O4'	2.18	0.44
31:3:2643:A:H2'	31:3:2644:U:O4'	2.18	0.44
1:0:18:PHE:HB2	1:0:43:THR:HG21	1.99	0.44
31:3:26:G:H2'	31:3:27:U:C6	2.53	0.44
31:3:270:G:H2'	31:3:271:G:O4'	2.18	0.44
31:3:274:A:OP2	31:3:294:G:N1	2.50	0.44
31:3:370:C:H2'	31:3:371:C:C6	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2161:G:C2	31:3:2162:U:C4	3.06	0.44
31:3:2201:G:H2'	31:3:2202:U:H5''	2.00	0.44
31:3:2308:U:H2'	31:3:2309:A:H8	1.82	0.44
32:4:69:C:O2	32:4:96:G:N1	2.51	0.44
2:1:47:VAL:HG21	2:1:55:ILE:HG13	2.00	0.43
31:3:143:A:N3	31:3:1436:C:H1'	2.33	0.43
31:3:451:A:H2'	31:3:452:U:C6	2.53	0.43
31:3:719:G:O3'	31:3:823:A:N6	2.50	0.43
31:3:761:G:O5'	31:3:1460:G:O2'	2.35	0.43
31:3:998:C:H2'	31:3:999:U:C6	2.53	0.43
31:3:1036:A:H2'	31:3:1037:A:C8	2.52	0.43
31:3:1821:G:OP2	31:3:1822:A:H3'	2.18	0.43
31:3:2158:C:H2'	31:3:2159:U:C6	2.53	0.43
31:3:2251:U:O2'	31:3:2442:A:N1	2.41	0.43
31:3:2473:C:H2'	31:3:2474:C:H6	1.83	0.43
31:3:170:A:C2	31:3:171:G:H1'	2.53	0.43
31:3:242:G:H2'	31:3:243:U:C6	2.53	0.43
31:3:440:C:H2'	31:3:440:C:O2	2.18	0.43
31:3:571:A:H2'	31:3:572:G:O4'	2.18	0.43
31:3:664:G:H2'	31:3:665:C:C6	2.53	0.43
31:3:806:A:HO2'	31:3:1383:G:HO2'	1.61	0.43
31:3:1446:G:N2	31:3:1612:U:H3'	2.32	0.43
31:3:1458:A:H2'	31:3:1459:A:H8	1.84	0.43
31:3:1756:A:H2'	31:3:1757:G:H8	1.82	0.43
31:3:2068:G:O4'	31:3:2511:A:N6	2.50	0.43
31:3:2137:A:H5''	31:3:2140:G:OP1	2.18	0.43
31:3:2562:U:H2'	31:3:2563:U:C5	2.54	0.43
31:3:2572:A:C6	31:3:2656:G:H5'	2.54	0.43
31:3:2604:U:HO2'	31:3:2605:G:P	2.41	0.43
32:4:8:C:C4	32:4:9:C:C4	3.06	0.43
4:7:103:ASN:OD1	4:7:104:PHE:N	2.51	0.43
31:3:69:U:H2'	31:3:70:G:C8	2.52	0.43
31:3:307:C:H2'	31:3:308:A:C8	2.53	0.43
31:3:509:G:H2'	31:3:510:G:H8	1.82	0.43
31:3:1037:A:H3'	31:3:1038:G:H8	1.82	0.43
31:3:1537:A:H2'	31:3:1538:U:O4'	2.18	0.43
31:3:1918:U:H2'	31:3:1919:A:H5''	2.00	0.43
31:3:2260:G:H2'	31:3:2261:G:C4	2.54	0.43
31:3:2528:C:H2'	31:3:2529:C:H6	1.83	0.43
31:3:2705:G:H2'	31:3:2706:U:H6	1.83	0.43
4:7:129:GLU:O	4:7:133:VAL:HG23	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:698:A:H2'	31:3:699:U:C6	2.53	0.43
31:3:816:A:H5''	31:3:817:A:N7	2.33	0.43
31:3:868:C:H2'	31:3:869:U:C6	2.53	0.43
31:3:965:U:H2'	31:3:966:U:C6	2.53	0.43
31:3:1924:U:O2	31:3:1924:U:H2'	2.17	0.43
31:3:1986:C:H2'	31:3:1987:C:C6	2.53	0.43
31:3:2278:G:C2	31:3:2279:G:H1'	2.53	0.43
31:3:2486:A:C8	31:3:2537:G:C5	3.06	0.43
31:3:2604:U:H1'	31:3:2605:G:OP1	2.18	0.43
31:3:172:U:H2'	31:3:173:C:H6	1.83	0.43
31:3:188:G:C5	31:3:217:A:N6	2.87	0.43
31:3:586:G:C5	31:3:587:U:C4	3.06	0.43
31:3:746:G:H2'	31:3:747:A:C8	2.53	0.43
31:3:840:G:N2	31:3:864:A:OP1	2.51	0.43
31:3:937:A:H3'	31:3:938:A:H8	1.84	0.43
31:3:1070:U:H2'	31:3:1071:G:C8	2.53	0.43
31:3:1077:G:H2'	31:3:1078:C:C6	2.53	0.43
31:3:1089:A:H2'	31:3:1090:G:H8	1.82	0.43
31:3:1104:A:C4	31:3:1131:A:H5''	2.53	0.43
31:3:1287:C:H2'	31:3:1288:C:C6	2.54	0.43
31:3:1343:C:H2'	31:3:1344:U:C6	2.54	0.43
31:3:1457:A:H2'	31:3:1458:A:H8	1.83	0.43
31:3:1534:A:O2'	31:3:1535:A:H8	2.02	0.43
31:3:1947:U:H1'	31:3:1949:C:H41	1.83	0.43
31:3:2077:A:H2'	31:3:2078:A:H8	1.84	0.43
31:3:2217:G:OP2	31:3:2218:U:O2'	2.32	0.43
31:3:2424:C:H2'	31:3:2425:C:H6	1.84	0.43
31:3:2472:G:H2'	31:3:2473:C:H6	1.82	0.43
31:3:2856:G:H2'	31:3:2857:C:H6	1.83	0.43
1:0:34:ARG:O	1:0:38:GLN:N	2.51	0.43
2:1:25:TYR:HA	31:3:2400:A:H5''	2.00	0.43
31:3:512:G:N2	31:3:514:A:H8	2.16	0.43
31:3:1048:A:H2'	31:3:1049:U:H6	1.82	0.43
31:3:1140:U:H2'	31:3:1141:U:C6	2.51	0.43
31:3:1166:G:H1	31:3:2046:G:H21	1.65	0.43
31:3:1497:A:H2'	31:3:1498:U:C6	2.54	0.43
31:3:1850:C:H2'	31:3:1851:U:C6	2.53	0.43
31:3:2073:C:H2'	31:3:2074:G:C8	2.53	0.43
31:3:2341:G:OP2	31:3:2341:G:N2	2.52	0.43
31:3:2656:G:H2'	31:3:2657:C:H6	1.84	0.43
31:3:2696:G:N1	31:3:2728:U:OP2	2.39	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:90:G:H2'	31:3:91:G:C8	2.53	0.43
31:3:137:U:O4	31:3:146:G:O6	2.36	0.43
31:3:195:A:O2'	31:3:713:C:O2	2.27	0.43
31:3:230:G:H1'	31:3:232:A:H61	1.84	0.43
31:3:552:C:H2'	31:3:553:A:C8	2.54	0.43
31:3:683:G:O2'	31:3:2359:G:H4'	2.18	0.43
31:3:764:G:H8	31:3:799:A:H5''	1.84	0.43
31:3:829:A:H2'	31:3:830:A:H8	1.83	0.43
31:3:900:G:C2	31:3:903:A:N6	2.85	0.43
31:3:971:U:H2'	31:3:972:C:C6	2.53	0.43
31:3:1220:A:H3'	31:3:1221:G:H8	1.83	0.43
31:3:1297:U:O2'	31:3:1298:A:OP1	2.31	0.43
31:3:1843:C:H2'	31:3:1844:C:C6	2.54	0.43
31:3:1862:A:H2'	31:3:1863:G:H8	1.83	0.43
31:3:2196:G:H2'	31:3:2197:U:C6	2.54	0.43
31:3:2229:C:H2'	31:3:2230:A:C8	2.50	0.43
31:3:2462:G:H21	31:3:2507:C:H41	1.66	0.43
31:3:2472:G:H2'	31:3:2473:C:C6	2.54	0.43
31:3:2523:C:H2'	31:3:2524:U:H6	1.83	0.43
3:2:4:ARG:H	3:2:36:GLN:HB3	1.83	0.43
31:3:474:U:H2'	31:3:475:A:C8	2.54	0.43
31:3:720:A:C2	31:3:822:C:H1'	2.54	0.43
31:3:820:U:H4'	31:3:1786:U:H4'	2.00	0.43
31:3:952:U:H3'	31:3:953:G:H8	1.83	0.43
31:3:1086:G:O6	31:3:1143:U:C4	2.72	0.43
31:3:1136:U:H2'	31:3:1137:C:C6	2.54	0.43
31:3:1386:G:N1	31:3:1400:U:OP2	2.41	0.43
31:3:1883:A:C4	31:3:1884:A:C8	3.07	0.43
31:3:1923:A:C8	31:3:1924:U:H6	2.36	0.43
31:3:2000:U:H2'	31:3:2001:C:O4'	2.19	0.43
31:3:2117:G:O2'	31:3:2127:G:OP2	2.32	0.43
31:3:2379:G:H2'	31:3:2380:U:O4'	2.18	0.43
31:3:2647:A:H2'	31:3:2648:A:O4'	2.17	0.43
1:0:3:ARG:NH2	31:3:1647:A:H1'	2.34	0.43
4:7:19:GLN:HA	4:7:22:LYS:HE2	2.01	0.43
31:3:1176:U:O2	31:3:1177:A:N6	2.52	0.43
31:3:1187:C:H2'	31:3:1188:C:C6	2.53	0.43
31:3:1853:G:H2'	31:3:1854:A:C8	2.53	0.43
31:3:2328:A:H1'	31:3:2330:A:N7	2.34	0.43
31:3:2835:G:H2'	31:3:2888:U:OP1	2.19	0.43
32:4:59:A:H2'	32:4:60:C:H6	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:7:131:ARG:HD3	31:3:1949:C:O2	2.19	0.43
31:3:196:G:H4'	31:3:712:A:H2	1.84	0.43
31:3:891:G:H2'	31:3:892:G:C8	2.54	0.43
31:3:896:U:C2	31:3:897:A:C8	3.06	0.43
31:3:1047:A:C6	31:3:1186:A:C5	3.07	0.43
31:3:1077:G:H2'	31:3:1078:C:H6	1.84	0.43
31:3:1664:A:H2'	31:3:1665:G:O4'	2.19	0.43
31:3:1870:G:H2'	31:3:1871:U:C6	2.54	0.43
31:3:2498:G:O3'	31:3:2499:U:H2'	2.18	0.43
31:3:2530:U:N3	31:3:2773:A:N7	2.66	0.43
31:3:2556:C:H2'	31:3:2557:G:H8	1.84	0.43
31:3:2666:C:H2'	31:3:2667:G:O4'	2.19	0.43
1:0:34:ARG:HB2	1:0:42:LEU:HG	2.01	0.42
2:1:4:LYS:NZ	31:3:255:A:OP1	2.43	0.42
4:7:107:MET:HG3	4:7:112:ARG:HH21	1.83	0.42
4:7:153:GLU:HA	4:7:156:LYS:HD2	2.00	0.42
31:3:12:A:H5''	31:3:13:C:C5	2.53	0.42
31:3:108:G:H2'	31:3:109:G:H8	1.84	0.42
31:3:158:U:H2'	31:3:159:G:H8	1.84	0.42
31:3:159:G:H2'	31:3:160:A:H8	1.84	0.42
31:3:971:U:H2'	31:3:972:C:H6	1.84	0.42
31:3:1196:U:H2'	31:3:1197:G:C8	2.54	0.42
31:3:1409:G:O2'	31:3:1455:A:OP1	2.33	0.42
31:3:1433:U:H2'	31:3:1434:U:H6	1.83	0.42
31:3:1758:C:O2'	31:3:2865:U:H4'	2.19	0.42
31:3:1907:A:O2'	31:3:1908:A:OP1	2.32	0.42
31:3:2048:U:H2'	31:3:2049:A:H8	1.84	0.42
31:3:2151:G:H1'	31:3:2154:A:N6	2.23	0.42
31:3:2218:U:H3	31:3:2220:A:HO2'	1.65	0.42
31:3:2254:G:H2'	31:3:2255:A:H8	1.84	0.42
31:3:2758:A:H1'	31:3:2760:C:H41	1.84	0.42
31:3:2885:U:H2'	31:3:2886:A:C8	2.53	0.42
32:4:11:A:N6	32:4:67:G:O2'	2.45	0.42
2:1:3:VAL:HG23	31:3:246:G:H3'	2.00	0.42
31:3:175:A:H2'	31:3:176:U:C6	2.55	0.42
31:3:573:A:N6	31:3:588:G:H1'	2.34	0.42
31:3:932:U:H2'	31:3:934:C:N4	2.35	0.42
31:3:1008:A:C8	31:3:1009:A:H2'	2.54	0.42
31:3:1073:A:H2'	31:3:1074:A:H8	1.84	0.42
31:3:1097:G:OP1	31:3:1105:A:H4'	2.19	0.42
31:3:1193:U:H2'	31:3:1194:U:H6	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1406:A:O2'	31:3:1408:G:N7	2.46	0.42
31:3:1524:C:C2	31:3:1525:G:C8	3.06	0.42
31:3:1692:A:H2'	31:3:1693:U:H6	1.83	0.42
31:3:2134:G:H2'	31:3:2135:C:C6	2.53	0.42
31:3:2421:U:H2'	31:3:2422:G:C8	2.54	0.42
31:3:2463:G:H2'	31:3:2464:C:C6	2.54	0.42
31:3:2536:U:O4	31:3:2543:G:O6	2.36	0.42
31:3:341:G:N2	31:3:343:A:H3'	2.34	0.42
31:3:615:G:H2'	31:3:616:G:H8	1.82	0.42
31:3:832:C:H2'	31:3:833:C:C6	2.54	0.42
31:3:1201:A:H2'	31:3:1202:A:H8	1.84	0.42
31:3:1397:G:H21	31:3:1817:A:H2	1.65	0.42
31:3:1711:A:H2'	31:3:1712:A:C8	2.54	0.42
31:3:2169:G:H1'	31:3:2173:G:N2	2.34	0.42
31:3:2524:U:H2'	31:3:2525:C:C6	2.53	0.42
31:3:2663:G:N2	31:3:2673:A:O5'	2.49	0.42
31:3:2681:G:H2'	31:3:2682:A:C8	2.54	0.42
32:4:8:C:N4	32:4:100:G:H1	2.11	0.42
31:3:240:C:H2'	31:3:241:C:H6	1.84	0.42
31:3:504:G:H2'	31:3:505:G:O4'	2.20	0.42
31:3:576:A:N1	31:3:586:G:C6	2.87	0.42
31:3:603:G:H1	31:3:2507:C:P	2.42	0.42
31:3:870:A:C6	31:3:871:G:C6	3.07	0.42
31:3:1067:A:N1	31:3:1157:G:C6	2.88	0.42
31:3:1441:A:H2'	31:3:1442:G:H8	1.83	0.42
31:3:1512:A:C6	31:3:1513:A:N6	2.88	0.42
31:3:2682:A:H2'	31:3:2683:G:C8	2.54	0.42
31:3:81:C:H2'	31:3:82:G:C8	2.54	0.42
31:3:704:G:N3	31:3:704:G:H2'	2.34	0.42
31:3:915:A:H8	31:3:936:G:H21	1.67	0.42
31:3:986:G:H1	31:3:1003:U:H3	1.67	0.42
31:3:998:C:H2'	31:3:999:U:H6	1.85	0.42
31:3:1021:C:H2'	31:3:1022:C:H6	1.84	0.42
31:3:1219:U:C2	31:3:1220:A:C8	3.07	0.42
31:3:1385:U:H2'	31:3:1386:G:C8	2.55	0.42
31:3:1458:A:H2'	31:3:1459:A:C8	2.55	0.42
31:3:1547:G:H3'	31:3:1548:A:H2'	2.02	0.42
31:3:1588:A:H2'	31:3:1589:A:C8	2.54	0.42
31:3:1591:C:H3'	31:3:1592:A:H2'	2.00	0.42
31:3:1959:A:H3'	31:3:1960:A:C8	2.54	0.42
31:3:2122:G:C6	31:3:2124:A:H2'	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2261:G:H2'	31:3:2262:C:C2	2.55	0.42
31:3:2463:G:H2'	31:3:2464:C:H6	1.83	0.42
31:3:2712:C:C2	31:3:2713:A:C8	3.07	0.42
4:7:4:GLU:HA	4:7:7:LEU:HD12	2.01	0.42
4:7:38:PHE:HB3	4:7:52:MET:HE1	2.02	0.42
31:3:82:G:N2	31:3:328:A:O2'	2.52	0.42
31:3:194:A:H5''	31:3:208:A:N1	2.34	0.42
31:3:199:A:H2'	31:3:202:C:N4	2.34	0.42
31:3:1309:G:H2'	31:3:1310:U:C6	2.54	0.42
31:3:1480:A:H3'	31:3:1481:U:H5''	2.02	0.42
31:3:2084:A:H2'	31:3:2085:C:C6	2.55	0.42
31:3:2117:G:P	31:3:2125:U:H3	2.42	0.42
31:3:2163:U:H2'	31:3:2164:G:C4	2.54	0.42
31:3:2366:A:H2'	31:3:2367:C:C6	2.55	0.42
31:3:2565:G:H2'	31:3:2566:C:H6	1.83	0.42
31:3:2667:G:H3'	31:3:2668:A:H5''	2.02	0.42
31:3:2819:C:H2'	31:3:2820:G:C8	2.53	0.42
31:3:2859:U:C2	31:3:2860:A:C8	3.06	0.42
31:3:61:U:O4	31:3:70:G:O6	2.37	0.42
31:3:156:A:H2'	31:3:157:U:C6	2.55	0.42
31:3:156:A:H2'	31:3:157:U:H6	1.85	0.42
31:3:728:A:N6	31:3:805:G:O6	2.52	0.42
31:3:985:A:N6	31:3:1005:G:O6	2.53	0.42
31:3:1877:C:H3'	31:3:1878:A:C2	2.54	0.42
31:3:2123:A:H5''	31:3:2124:A:OP2	2.20	0.42
31:3:2165:A:H4'	31:3:2166:U:H5'	2.00	0.42
31:3:2745:G:H2'	31:3:2746:A:H8	1.83	0.42
31:3:2752:G:H2'	31:3:2753:C:H6	1.84	0.42
31:3:344:A:H1'	31:3:346:G:N7	2.35	0.42
31:3:573:A:H2'	31:3:574:G:O4'	2.20	0.42
31:3:622:U:O2'	31:3:623:A:H5'	2.20	0.42
31:3:1538:U:H2'	31:3:1539:U:H6	1.85	0.42
31:3:2471:U:H2'	31:3:2472:G:C8	2.52	0.42
31:3:2617:U:O2'	31:3:2618:C:H5'	2.20	0.42
4:7:39:ASP:OD2	4:7:53:VAL:HG23	2.19	0.42
31:3:1228:G:H1'	31:3:1257:G:OP1	2.19	0.42
31:3:1239:G:O2'	31:3:1267:A:N1	2.38	0.42
31:3:1309:G:H2'	31:3:1310:U:H6	1.84	0.42
31:3:1856:G:H2'	31:3:1857:G:C8	2.55	0.42
31:3:2058:G:H8	31:3:2058:G:OP2	2.03	0.42
31:3:2099:U:OP2	31:3:2207:A:O2'	2.29	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2306:A:H8	31:3:2326:G:H21	1.67	0.42
31:3:2516:G:H2'	31:3:2517:A:C8	2.55	0.42
31:3:2709:C:O5'	31:3:2710:G:H5''	2.19	0.42
31:3:116:C:H2'	31:3:117:C:H6	1.84	0.42
31:3:231:A:N1	31:3:454:G:H1'	2.34	0.42
31:3:354:C:O2'	31:3:355:A:H5''	2.20	0.42
31:3:410:G:N2	31:3:437:A:OP2	2.50	0.42
31:3:909:U:H2'	31:3:910:G:C8	2.49	0.42
31:3:929:G:H2'	31:3:930:C:C6	2.55	0.42
31:3:972:C:H2'	31:3:973:U:C6	2.55	0.42
31:3:1212:C:H2'	31:3:1213:U:C6	2.55	0.42
31:3:1262:G:C6	31:3:1263:G:C6	3.07	0.42
31:3:1381:A:O2'	31:3:1382:A:O4'	2.28	0.42
31:3:1800:C:H2'	31:3:1801:U:H6	1.85	0.42
31:3:2679:G:H2'	31:3:2680:C:C6	2.54	0.42
31:3:2694:A:H2'	31:3:2695:U:H6	1.83	0.42
31:3:2857:C:H2'	31:3:2858:A:C8	2.55	0.42
31:3:2868:G:H2'	31:3:2869:U:O4'	2.19	0.42
1:0:19:LEU:HB2	31:3:126:C:H5''	2.02	0.41
31:3:53:G:N1	31:3:121:U:O2'	2.47	0.41
31:3:171:G:H2'	31:3:172:U:C6	2.55	0.41
31:3:299:A:N6	31:3:440:C:H2'	2.35	0.41
31:3:361:G:N1	31:3:370:C:N3	2.68	0.41
31:3:625:G:H2'	31:3:626:A:H8	1.84	0.41
31:3:856:A:N6	31:3:1008:A:H2'	2.31	0.41
31:3:1388:G:C5	31:3:1389:G:C8	3.07	0.41
31:3:1491:G:H2'	31:3:1492:G:O4'	2.20	0.41
31:3:1546:U:H3'	31:3:1547:G:C8	2.55	0.41
31:3:1642:G:N2	31:3:1644:A:H2'	2.34	0.41
31:3:1937:G:N2	31:3:1975:G:H2'	2.34	0.41
31:3:2305:C:N4	31:3:2326:G:H2'	2.35	0.41
31:3:2320:U:H2'	31:3:2321:C:C6	2.55	0.41
31:3:2425:C:C2	31:3:2426:A:C8	3.08	0.41
31:3:2476:A:H2	31:3:2489:G:H2'	1.85	0.41
31:3:2570:U:H2'	31:3:2571:U:C6	2.55	0.41
3:2:19:ARG:HE	31:3:2763:C:H3'	1.85	0.41
31:3:111:G:H2'	31:3:112:A:C8	2.55	0.41
31:3:444:C:H2'	31:3:445:C:O4'	2.19	0.41
31:3:498:C:H2'	31:3:499:G:C8	2.55	0.41
31:3:682:A:C4	31:3:683:G:C8	3.08	0.41
31:3:956:U:C2	31:3:957:G:C8	3.08	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1456:C:N4	31:3:1603:A:H3'	2.34	0.41
31:3:1715:A:HO2'	31:3:1716:A:H8	1.67	0.41
31:3:2634:C:H2'	31:3:2635:G:C8	2.51	0.41
31:3:2695:U:H3	31:3:2730:G:H1	1.68	0.41
32:4:42:G:C1'	32:4:45:C:H42	2.32	0.41
4:7:10:PHE:HE2	4:7:163:ASN:HD21	1.68	0.41
31:3:506:A:H2'	31:3:507:A:C8	2.55	0.41
31:3:517:G:N1	31:3:544:U:N3	2.61	0.41
31:3:868:C:C2	31:3:869:U:C5	3.08	0.41
31:3:1057:G:H1'	31:3:1058:U:H5	1.85	0.41
31:3:1445:U:H2'	31:3:1446:G:O4'	2.20	0.41
31:3:1790:U:H1'	31:3:2615:G:H21	1.85	0.41
31:3:1980:G:H2'	31:3:1981:U:C6	2.56	0.41
31:3:2033:G:H2'	31:3:2034:G:H8	1.86	0.41
31:3:2048:U:H2'	31:3:2049:A:C8	2.55	0.41
31:3:2088:U:H2'	31:3:2089:A:C8	2.55	0.41
31:3:2132:G:H2'	31:3:2133:A:C2	2.54	0.41
31:3:2264:G:H2'	31:3:2265:U:H6	1.83	0.41
31:3:2575:G:H2'	31:3:2576:A:C8	2.55	0.41
31:3:2752:G:H2'	31:3:2753:C:C6	2.55	0.41
31:3:306:G:H2'	31:3:307:C:H6	1.83	0.41
31:3:335:G:C6	31:3:351:G:C6	3.08	0.41
31:3:440:C:H1'	31:3:442:G:C4	2.55	0.41
31:3:512:G:H1'	31:3:516:A:N6	2.35	0.41
31:3:632:A:O2'	31:3:633:G:H5'	2.20	0.41
31:3:675:U:H2'	31:3:676:U:C6	2.55	0.41
31:3:1104:A:O5'	31:3:1131:A:H4'	2.20	0.41
31:3:1464:G:N1	31:3:1591:C:O2	2.53	0.41
31:3:1518:C:H41	31:3:2219:U:H5'	1.85	0.41
31:3:1539:U:H2'	31:3:1540:G:C8	2.55	0.41
31:3:1903:A:H2'	31:3:1904:G:C8	2.55	0.41
31:3:2421:U:C2	31:3:2422:G:C8	3.09	0.41
31:3:2496:G:H2'	31:3:2497:U:H6	1.85	0.41
31:3:2589:G:N2	31:3:2618:C:H2'	2.36	0.41
31:3:2589:G:H8	31:3:2590:G:O6	2.04	0.41
31:3:79:U:C2	31:3:80:U:C5	3.08	0.41
31:3:180:A:H3'	31:3:181:G:H8	1.85	0.41
31:3:242:G:H2'	31:3:243:U:H6	1.85	0.41
31:3:597:C:O2'	31:3:1283:A:N6	2.37	0.41
31:3:886:U:H2'	31:3:887:A:H8	1.85	0.41
31:3:1333:C:H2'	31:3:1334:U:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1630:A:H2'	31:3:1631:A:C8	2.54	0.41
31:3:1645:C:H2'	31:3:1646:G:H8	1.85	0.41
31:3:2469:A:H1'	31:3:2500:U:N3	2.35	0.41
31:3:2598:C:H2'	31:3:2599:C:H6	1.86	0.41
31:3:2781:C:H2'	31:3:2782:A:C8	2.55	0.41
4:7:155:LEU:O	4:7:159:VAL:HG23	2.20	0.41
31:3:55:A:H62	31:3:118:G:H21	1.68	0.41
31:3:135:A:H2'	31:3:136:G:H8	1.85	0.41
31:3:387:U:H2'	31:3:388:U:H6	1.84	0.41
31:3:514:A:N1	31:3:535:G:H4'	2.36	0.41
31:3:518:A:N1	31:3:541:G:O2'	2.48	0.41
31:3:526:G:H2'	31:3:527:A:C8	2.56	0.41
31:3:696:U:H2'	31:3:697:U:H6	1.85	0.41
31:3:1237:G:H2'	31:3:1238:A:C8	2.56	0.41
31:3:1779:G:H2'	31:3:1780:A:O3'	2.21	0.41
31:3:2184:A:H2'	31:3:2185:C:C6	2.56	0.41
31:3:2213:A:H2'	31:3:2214:A:C8	2.54	0.41
31:3:2577:G:H2'	31:3:2578:A:C8	2.56	0.41
31:3:2582:G:H2'	31:3:2583:U:O4'	2.21	0.41
31:3:2619:C:H2'	31:3:2620:C:C6	2.56	0.41
4:7:140:MET:N	4:7:140:MET:SD	2.94	0.41
4:7:180:GLU:N	4:7:180:GLU:OE1	2.54	0.41
31:3:176:U:H2'	31:3:177:U:C6	2.56	0.41
31:3:244:G:H3'	31:3:245:U:H6	1.84	0.41
31:3:391:U:H2'	31:3:392:A:H8	1.86	0.41
31:3:589:A:H2'	31:3:590:U:O4'	2.20	0.41
31:3:755:C:H2'	31:3:756:A:H8	1.86	0.41
31:3:1507:G:H1'	31:3:1508:G:OP2	2.20	0.41
31:3:1624:A:H2'	31:3:1625:G:H8	1.86	0.41
31:3:1934:A:H2'	31:3:1935:A:C8	2.55	0.41
31:3:2134:G:H2'	31:3:2135:C:H6	1.86	0.41
31:3:2224:A:H2'	31:3:2225:G:H8	1.86	0.41
31:3:115:U:H2'	31:3:116:C:C6	2.56	0.41
31:3:409:A:H5''	31:3:459:A:C2	2.56	0.41
31:3:876:A:N6	31:3:974:C:N3	2.68	0.41
31:3:1363:C:H2'	31:3:1364:A:C8	2.55	0.41
31:3:1675:A:H2'	31:3:1676:G:O4'	2.21	0.41
31:3:1889:U:H2'	31:3:1890:U:C6	2.56	0.41
31:3:2357:G:H2'	31:3:2358:U:O4'	2.20	0.41
31:3:2486:A:H2'	31:3:2487:U:H5'	2.02	0.41
31:3:2541:C:H2'	31:3:2542:A:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2555:U:H2'	31:3:2556:C:C6	2.56	0.41
31:3:2568:G:H2'	31:3:2569:A:C8	2.55	0.41
31:3:2626:A:H2'	31:3:2627:U:O4'	2.20	0.41
31:3:2646:G:H1'	31:3:2786:A:N6	2.36	0.41
31:3:2753:C:H2'	31:3:2754:U:C6	2.56	0.41
32:4:5:G:H2'	32:4:6:U:O4'	2.20	0.41
32:4:45:C:H2'	32:4:46:C:C6	2.55	0.41
4:7:15:ASP:O	4:7:19:GLN:HG2	2.21	0.41
4:7:26:SER:O	4:7:37:LEU:HD12	2.21	0.41
31:3:27:U:H3	31:3:550:A:N6	2.19	0.41
31:3:37:G:H2'	31:3:38:G:H8	1.86	0.41
31:3:331:A:H2'	31:3:332:G:O4'	2.20	0.41
31:3:338:G:H2'	31:3:339:U:H6	1.86	0.41
31:3:363:G:H21	31:3:513:A:H2	1.69	0.41
31:3:417:G:N1	31:3:432:G:C6	2.89	0.41
31:3:625:G:H2'	31:3:626:A:C8	2.55	0.41
31:3:810:G:C6	31:3:829:A:C8	3.09	0.41
31:3:833:C:H2'	31:3:834:G:C8	2.56	0.41
31:3:1264:U:C2'	31:3:1265:G:H5'	2.51	0.41
31:3:1534:A:C4	31:3:1535:A:C8	3.08	0.41
31:3:1583:G:H2'	31:3:1584:U:C6	2.56	0.41
31:3:1588:A:HO2'	31:3:1589:A:P	2.43	0.41
31:3:1743:U:H2'	31:3:1744:U:C6	2.56	0.41
31:3:2007:U:H2'	31:3:2008:A:C8	2.56	0.41
31:3:2259:G:C2	31:3:2260:G:N7	2.89	0.41
31:3:2295:A:H1'	31:3:2296:A:H2'	2.03	0.41
31:3:2402:C:H2'	31:3:2403:C:O4'	2.20	0.41
31:3:2754:U:H2'	31:3:2755:G:O4'	2.20	0.41
31:3:2784:A:O2'	31:3:2790:A:N7	2.42	0.41
32:4:38:U:O2'	32:4:40:U:H2'	2.20	0.41
31:3:70:G:H2'	31:3:71:C:C6	2.56	0.41
31:3:608:A:H2'	31:3:609:U:C6	2.55	0.41
31:3:626:A:H2'	31:3:627:U:H6	1.86	0.41
31:3:775:C:H5'	31:3:1791:A:H2'	2.03	0.41
31:3:939:U:H2'	31:3:940:A:C8	2.56	0.41
31:3:1232:U:O4	31:3:1233:A:N6	2.54	0.41
31:3:1432:C:H2'	31:3:1433:U:C6	2.56	0.41
31:3:1456:C:C4	31:3:1603:A:H5''	2.56	0.41
31:3:1555:G:H2'	31:3:1556:U:C6	2.56	0.41
31:3:1584:U:H5''	31:3:1585:A:H2	1.86	0.41
31:3:1690:C:H2'	31:3:1691:U:H6	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1800:C:H2'	31:3:1801:U:C6	2.56	0.41
31:3:2162:U:H2'	31:3:2163:U:O4'	2.21	0.41
31:3:2185:C:H2'	31:3:2186:C:C6	2.56	0.41
31:3:2265:U:H2'	31:3:2266:C:C6	2.56	0.41
31:3:2589:G:H22	31:3:2618:C:H2'	1.86	0.41
31:3:2857:C:H2'	31:3:2858:A:H8	1.86	0.41
31:3:2861:G:N2	31:3:2863:G:H3'	2.35	0.41
31:3:2864:A:H8	31:3:2864:A:O5'	2.04	0.41
32:4:87:U:H3'	32:4:88:G:C8	2.56	0.41
31:3:333:A:C6	31:3:356:A:C4	3.09	0.40
31:3:342:G:H2'	31:3:343:A:O4'	2.21	0.40
31:3:499:G:N1	31:3:502:A:OP2	2.41	0.40
31:3:539:U:O2	31:3:1264:U:O2'	2.28	0.40
31:3:665:C:H2'	31:3:666:G:C8	2.56	0.40
31:3:699:U:H2'	31:3:700:U:C6	2.55	0.40
31:3:876:A:H61	31:3:973:U:H3	1.68	0.40
31:3:1286:G:H2'	31:3:1286:G:N3	2.36	0.40
31:3:1337:G:H2'	31:3:1338:G:C8	2.57	0.40
31:3:1667:G:N7	31:3:1669:A:N6	2.68	0.40
31:3:2062:C:O2	31:3:2580:A:N6	2.54	0.40
31:3:2104:A:C6	31:3:2201:G:N1	2.89	0.40
31:3:2204:C:H2'	31:3:2205:U:N1	2.36	0.40
31:3:2281:A:H2'	31:3:2282:A:C8	2.57	0.40
31:3:251:G:H2'	31:3:254:G:N7	2.36	0.40
31:3:549:A:C4	31:3:550:A:C8	3.09	0.40
31:3:947:A:H2	31:3:2272:C:O2	2.03	0.40
31:3:1362:C:H2'	31:3:1363:C:H6	1.86	0.40
31:3:1457:A:H2'	31:3:1458:A:C8	2.57	0.40
4:7:28:ILE:HD13	4:7:119:ALA:HA	2.04	0.40
4:7:107:MET:HB2	4:7:112:ARG:HE	1.85	0.40
4:7:147:LYS:HD2	4:7:147:LYS:HA	1.81	0.40
31:3:161:U:H2'	31:3:162:G:O4'	2.22	0.40
31:3:536:A:H2'	31:3:537:A:O4'	2.20	0.40
31:3:680:A:H2'	31:3:682:A:H8	1.86	0.40
31:3:788:G:H2'	31:3:789:A:H8	1.86	0.40
31:3:874:U:H3	31:3:975:G:H1	1.70	0.40
31:3:880:C:H4'	31:3:881:A:C4	2.57	0.40
31:3:1150:U:O2'	31:3:1151:U:H5'	2.20	0.40
31:3:1235:U:H3'	31:3:1236:G:H5''	2.03	0.40
31:3:1336:A:H2'	31:3:1337:G:O4'	2.21	0.40
31:3:1444:C:O2'	31:3:1445:U:O5'	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:1465:U:H5''	31:3:1466:U:OP1	2.21	0.40
31:3:1476:C:H4'	31:3:1554:A:H2	1.85	0.40
31:3:1550:G:H2'	31:3:1551:U:C6	2.57	0.40
31:3:1609:U:H2'	31:3:1610:U:O4'	2.20	0.40
31:3:1690:C:H2'	31:3:1691:U:C6	2.56	0.40
31:3:1899:C:H2'	31:3:1900:C:C6	2.56	0.40
31:3:1930:U:H2'	31:3:1931:C:C6	2.56	0.40
31:3:2239:U:H2'	31:3:2240:U:C6	2.56	0.40
31:3:2330:A:H2'	31:3:2331:G:O4'	2.21	0.40
31:3:2603:G:N2	31:3:2605:G:H8	2.19	0.40
31:3:2665:A:H1'	31:3:2673:A:N6	2.36	0.40
31:3:2687:A:H2'	31:3:2688:C:C6	2.56	0.40
32:4:7:G:C2	32:4:8:C:C5	3.09	0.40
32:4:76:A:C2	32:4:77:G:H1'	2.56	0.40
32:4:91:A:C4	32:4:92:A:C8	3.10	0.40
1:0:3:ARG:HH21	31:3:1647:A:H1'	1.87	0.40
31:3:44:A:H2'	31:3:45:U:H6	1.86	0.40
31:3:116:C:H2'	31:3:117:C:C6	2.56	0.40
31:3:556:U:C2	31:3:557:G:C8	3.09	0.40
31:3:692:U:H2'	31:3:693:U:C6	2.56	0.40
31:3:890:U:H2'	31:3:891:G:C8	2.54	0.40
31:3:1337:G:H1	31:3:1639:C:H42	1.69	0.40
31:3:1589:A:H2'	31:3:1590:U:H6	1.86	0.40
31:3:1698:A:H2'	31:3:1699:A:C8	2.56	0.40
31:3:1867:G:H2'	31:3:1868:A:H8	1.86	0.40
31:3:2552:G:H2'	31:3:2553:G:C8	2.56	0.40
31:3:2693:U:N3	31:3:2733:A:N1	2.69	0.40
31:3:2755:G:N2	31:3:2756:A:H62	2.19	0.40
1:0:10:LEU:O	1:0:14:LYS:HG3	2.22	0.40
1:0:34:ARG:NH1	31:3:502:A:OP1	2.55	0.40
4:7:38:PHE:HB3	4:7:52:MET:CE	2.52	0.40
31:3:33:C:H2'	31:3:34:C:C6	2.56	0.40
31:3:448:A:H2'	31:3:449:C:O4'	2.20	0.40
31:3:650:G:H2'	31:3:651:A:C8	2.57	0.40
31:3:816:A:H5''	31:3:817:A:C8	2.56	0.40
31:3:1056:A:H2'	31:3:1057:G:H4'	2.02	0.40
31:3:1343:C:H2'	31:3:1344:U:H6	1.87	0.40
31:3:1620:A:H2'	31:3:1621:U:N1	2.37	0.40
31:3:1820:U:HO2'	31:3:1821:G:P	2.44	0.40
31:3:1873:A:H2'	31:3:1874:G:O4'	2.21	0.40
31:3:2055:A:O4'	31:3:2827:A:N6	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:3:2274:A:H4'	31:3:2275:A:N3	2.36	0.40
31:3:2353:G:O2'	31:3:2389:A:N3	2.37	0.40
31:3:2404:G:H2'	31:3:2405:G:C8	2.56	0.40
31:3:2677:A:H2'	31:3:2678:A:H8	1.87	0.40
32:4:76:A:H1'	32:4:89:A:N6	2.37	0.40

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 PDB entries followed by that with respect to all EM entries.

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	0	45/48 (94%)	44 (98%)	1 (2%)	0	100	100
2	1	57/59 (97%)	55 (96%)	2 (4%)	0	100	100
3	2	35/37 (95%)	32 (91%)	3 (9%)	0	100	100
4	7	180/184 (98%)	168 (93%)	12 (7%)	0	100	100
5	a	283/287 (99%)	266 (94%)	17 (6%)	0	100	100
6	b	227/287 (79%)	209 (92%)	18 (8%)	0	100	100
7	c	208/212 (98%)	196 (94%)	12 (6%)	0	100	100
8	d	173/180 (96%)	163 (94%)	10 (6%)	0	100	100
9	e	174/184 (95%)	167 (96%)	7 (4%)	0	100	100
10	f	143/149 (96%)	130 (91%)	13 (9%)	0	100	100
11	g	124/161 (77%)	109 (88%)	14 (11%)	1 (1%)	16	55
12	h	126/137 (92%)	118 (94%)	8 (6%)	0	100	100
13	i	142/146 (97%)	135 (95%)	7 (5%)	0	100	100
14	j	120/122 (98%)	118 (98%)	2 (2%)	0	100	100
15	k	146/151 (97%)	137 (94%)	9 (6%)	0	100	100
16	l	134/139 (96%)	126 (94%)	8 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	m	117/124 (94%)	109 (93%)	8 (7%)	0	100	100
18	n	108/116 (93%)	98 (91%)	10 (9%)	0	100	100
19	o	113/119 (95%)	102 (90%)	11 (10%)	0	100	100
20	p	112/127 (88%)	109 (97%)	3 (3%)	0	100	100
21	q	97/100 (97%)	86 (89%)	11 (11%)	0	100	100
22	r	137/159 (86%)	126 (92%)	11 (8%)	0	100	100
23	s	90/237 (38%)	84 (93%)	6 (7%)	0	100	100
24	t	109/111 (98%)	102 (94%)	7 (6%)	0	100	100
25	u	84/104 (81%)	79 (94%)	5 (6%)	0	100	100
26	v	61/65 (94%)	57 (93%)	4 (7%)	0	100	100
27	w	96/111 (86%)	92 (96%)	4 (4%)	0	100	100
28	x	42/97 (43%)	34 (81%)	8 (19%)	0	100	100
29	y	54/57 (95%)	49 (91%)	5 (9%)	0	100	100
30	z	48/53 (91%)	47 (98%)	1 (2%)	0	100	100
All	All	3585/4063 (88%)	3347 (93%)	237 (7%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	g	45	PHE

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	0	40/41 (98%)	40 (100%)	0	100	100
2	1	51/51 (100%)	51 (100%)	0	100	100
3	2	35/35 (100%)	35 (100%)	0	100	100
4	7	170/172 (99%)	164 (96%)	6 (4%)	31	51

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	a	241/243 (99%)	240 (100%)	1 (0%)	89	91
6	b	186/233 (80%)	183 (98%)	3 (2%)	58	73
7	c	182/184 (99%)	181 (100%)	1 (0%)	86	89
8	d	150/154 (97%)	149 (99%)	1 (1%)	81	87
9	e	153/159 (96%)	153 (100%)	0	100	100
10	f	123/134 (92%)	123 (100%)	0	100	100
11	g	101/129 (78%)	92 (91%)	9 (9%)	8	25
12	h	102/110 (93%)	102 (100%)	0	100	100
13	i	126/128 (98%)	125 (99%)	1 (1%)	79	85
14	j	103/103 (100%)	103 (100%)	0	100	100
15	k	123/126 (98%)	123 (100%)	0	100	100
16	l	113/115 (98%)	113 (100%)	0	100	100
17	m	105/109 (96%)	104 (99%)	1 (1%)	73	82
18	n	96/99 (97%)	95 (99%)	1 (1%)	73	82
19	o	101/105 (96%)	101 (100%)	0	100	100
20	p	100/108 (93%)	100 (100%)	0	100	100
21	q	90/91 (99%)	88 (98%)	2 (2%)	47	65
22	r	116/132 (88%)	115 (99%)	1 (1%)	75	83
23	s	82/208 (39%)	82 (100%)	0	100	100
24	t	96/96 (100%)	96 (100%)	0	100	100
25	u	69/85 (81%)	69 (100%)	0	100	100
26	v	58/60 (97%)	58 (100%)	0	100	100
27	w	87/98 (89%)	86 (99%)	1 (1%)	70	80
28	x	41/86 (48%)	41 (100%)	0	100	100
29	y	48/49 (98%)	44 (92%)	4 (8%)	9	27
30	z	47/50 (94%)	46 (98%)	1 (2%)	48	66
All	All	3135/3493 (90%)	3102 (99%)	33 (1%)	69	80

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	7	144	ASP
4	7	146	HIS

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Mol	Chain	Res	Type
4	7	147	LYS
4	7	148	ASP
4	7	149	GLU
4	7	150	ASP
5	a	24	LYS
6	b	117	ARG
6	b	173	LYS
6	b	180	ARG
7	c	19	LYS
8	d	80	ARG
11	g	26	ILE
11	g	28	ASP
11	g	29	TYR
11	g	32	MET
11	g	44	LEU
11	g	46	LYS
11	g	47	ASN
11	g	67	LYS
11	g	88	GLU
13	i	88	LYS
17	m	30	LYS
18	n	17	LYS
21	q	24	LYS
21	q	54	ARG
22	r	9	ARG
27	w	61	ARG
29	y	37	LYS
29	y	47	MET
29	y	51	LEU
29	y	52	ARG
30	z	23	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
5	a	240	HIS
6	b	35	GLN
7	c	156	ASN
7	c	177	ASN
17	m	81	HIS
18	n	37	ASN
25	u	26	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
31	3	2875/2907 (98%)	790 (27%)	28 (0%)
32	4	103/108 (95%)	25 (24%)	4 (3%)
All	All	2978/3015 (98%)	815 (27%)	32 (1%)

All (815) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
31	3	10	U
31	3	15	A
31	3	28	G
31	3	37	G
31	3	38	G
31	3	41	C
31	3	42	U
31	3	44	A
31	3	48	G
31	3	52	U
31	3	53	G
31	3	57	G
31	3	64	U
31	3	65	A
31	3	73	A
31	3	75	A
31	3	77	G
31	3	82	G
31	3	86	A
31	3	87	G
31	3	90	G
31	3	94	A
31	3	98	C
31	3	102	A
31	3	103	G
31	3	112	A
31	3	115	U
31	3	116	C
31	3	120	A
31	3	121	U
31	3	122	G
31	3	126	C
31	3	132	G
31	3	134	U

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Mol	Chain	Res	Type
31	3	146	G
31	3	163	A
31	3	164	A
31	3	165	U
31	3	166	A
31	3	169	U
31	3	172	U
31	3	176	U
31	3	178	A
31	3	179	A
31	3	181	G
31	3	184	A
31	3	188	G
31	3	200	A
31	3	201	A
31	3	210	U
31	3	215	A
31	3	218	G
31	3	219	G
31	3	220	A
31	3	226	A
31	3	227	A
31	3	229	C
31	3	232	A
31	3	233	U
31	3	234	G
31	3	237	A
31	3	245	U
31	3	246	G
31	3	247	U
31	3	251	G
31	3	252	G
31	3	254	G
31	3	261	A
31	3	262	G
31	3	270	G
31	3	276	A
31	3	277	C
31	3	283	A
31	3	284	U
31	3	285	U
31	3	286	A

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Mol	Chain	Res	Type
31	3	287	G
31	3	293	G
31	3	294	G
31	3	295	U
31	3	296	U
31	3	297	G
31	3	298	U
31	3	299	A
31	3	306	G
31	3	309	A
31	3	310	U
31	3	311	G
31	3	312	U
31	3	314	G
31	3	315	A
31	3	316	C
31	3	319	G
31	3	320	A
31	3	325	G
31	3	333	A
31	3	336	C
31	3	345	A
31	3	351	G
31	3	354	C
31	3	357	A
31	3	358	A
31	3	363	G
31	3	364	A
31	3	377	U
31	3	393	C
31	3	399	G
31	3	402	A
31	3	404	C
31	3	408	G
31	3	409	A
31	3	410	G
31	3	411	U
31	3	414	C
31	3	418	G
31	3	422	A
31	3	424	G
31	3	425	U

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Mol	Chain	Res	Type
31	3	426	U
31	3	432	G
31	3	437	A
31	3	440	C
31	3	441	U
31	3	442	G
31	3	447	G
31	3	448	A
31	3	456	G
31	3	460	G
31	3	465	A
31	3	466	A
31	3	470	U
31	3	479	A
31	3	482	G
31	3	483	A
31	3	484	U
31	3	487	C
31	3	491	A
31	3	492	C
31	3	493	A
31	3	500	U
31	3	501	G
31	3	509	G
31	3	511	U
31	3	513	A
31	3	514	A
31	3	515	A
31	3	517	G
31	3	520	C
31	3	531	G
31	3	532	A
31	3	539	U
31	3	543	U
31	3	544	U
31	3	545	C
31	3	553	A
31	3	554	U
31	3	562	C
31	3	563	A
31	3	565	C
31	3	566	G

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Mol	Chain	Res	Type
31	3	567	U
31	3	568	G
31	3	571	A
31	3	581	A
31	3	583	U
31	3	584	G
31	3	587	U
31	3	589	A
31	3	596	G
31	3	603	G
31	3	605	A
31	3	606	G
31	3	607	U
31	3	608	A
31	3	609	U
31	3	620	G
31	3	623	A
31	3	633	G
31	3	636	U
31	3	637	U
31	3	650	G
31	3	656	G
31	3	657	A
31	3	661	G
31	3	663	A
31	3	673	A
31	3	674	G
31	3	681	A
31	3	682	A
31	3	689	U
31	3	691	G
31	3	703	A
31	3	705	A
31	3	706	C
31	3	707	C
31	3	712	A
31	3	716	G
31	3	719	G
31	3	721	G
31	3	722	C
31	3	723	U
31	3	725	G

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Mol	Chain	Res	Type
31	3	730	G
31	3	732	G
31	3	734	A
31	3	738	U
31	3	740	A
31	3	752	C
31	3	760	G
31	3	761	G
31	3	763	G
31	3	764	G
31	3	765	A
31	3	775	C
31	3	781	U
31	3	782	U
31	3	797	U
31	3	799	A
31	3	800	C
31	3	803	G
31	3	810	G
31	3	811	G
31	3	817	A
31	3	818	A
31	3	819	U
31	3	820	U
31	3	824	A
31	3	825	U
31	3	827	G
31	3	828	A
31	3	836	G
31	3	837	A
31	3	840	G
31	3	841	C
31	3	842	U
31	3	847	C
31	3	854	A
31	3	862	U
31	3	864	A
31	3	865	A
31	3	866	G
31	3	871	G
31	3	873	G
31	3	881	A

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Mol	Chain	Res	Type
31	3	882	C
31	3	883	A
31	3	885	A
31	3	886	U
31	3	896	U
31	3	902	U
31	3	903	A
31	3	906	G
31	3	908	A
31	3	917	G
31	3	931	G
31	3	932	U
31	3	933	A
31	3	934	C
31	3	936	G
31	3	944	U
31	3	945	U
31	3	947	A
31	3	949	C
31	3	951	C
31	3	952	U
31	3	953	G
31	3	954	A
31	3	958	C
31	3	968	U
31	3	970	U
31	3	977	A
31	3	981	A
31	3	982	G
31	3	989	G
31	3	993	A
31	3	994	U
31	3	995	A
31	3	997	G
31	3	1001	C
31	3	1009	A
31	3	1011	A
31	3	1016	A
31	3	1019	A
31	3	1021	C
31	3	1026	A
31	3	1027	U

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Mol	Chain	Res	Type
31	3	1029	A
31	3	1031	U
31	3	1032	A
31	3	1035	U
31	3	1047	A
31	3	1048	A
31	3	1049	U
31	3	1052	A
31	3	1055	A
31	3	1057	G
31	3	1061	A
31	3	1068	U
31	3	1075	G
31	3	1081	A
31	3	1082	A
31	3	1086	G
31	3	1095	U
31	3	1097	G
31	3	1100	U
31	3	1102	A
31	3	1104	A
31	3	1105	A
31	3	1106	G
31	3	1112	A
31	3	1123	A
31	3	1125	U
31	3	1126	G
31	3	1131	A
31	3	1132	C
31	3	1146	A
31	3	1147	G
31	3	1151	U
31	3	1157	G
31	3	1163	G
31	3	1165	U
31	3	1167	U
31	3	1168	A
31	3	1170	C
31	3	1176	U
31	3	1177	A
31	3	1178	A
31	3	1179	G

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Mol	Chain	Res	Type
31	3	1183	A
31	3	1186	A
31	3	1189	G
31	3	1191	A
31	3	1203	G
31	3	1204	A
31	3	1209	U
31	3	1210	A
31	3	1215	G
31	3	1217	G
31	3	1234	U
31	3	1235	U
31	3	1236	G
31	3	1243	A
31	3	1249	A
31	3	1250	A
31	3	1251	G
31	3	1253	G
31	3	1255	G
31	3	1257	G
31	3	1259	A
31	3	1265	G
31	3	1266	G
31	3	1268	U
31	3	1278	G
31	3	1279	U
31	3	1281	A
31	3	1283	A
31	3	1285	U
31	3	1286	G
31	3	1287	C
31	3	1292	A
31	3	1295	A
31	3	1297	U
31	3	1298	A
31	3	1301	G
31	3	1302	C
31	3	1303	U
31	3	1304	U
31	3	1308	A
31	3	1315	A
31	3	1317	C

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Mol	Chain	Res	Type
31	3	1322	A
31	3	1328	A
31	3	1329	U
31	3	1330	U
31	3	1331	G
31	3	1342	C
31	3	1353	G
31	3	1356	G
31	3	1357	U
31	3	1360	U
31	3	1361	U
31	3	1369	U
31	3	1371	G
31	3	1376	G
31	3	1380	U
31	3	1393	A
31	3	1402	G
31	3	1406	A
31	3	1407	U
31	3	1412	A
31	3	1414	C
31	3	1422	U
31	3	1423	A
31	3	1424	U
31	3	1426	C
31	3	1431	A
31	3	1435	A
31	3	1439	U
31	3	1444	C
31	3	1445	U
31	3	1456	C
31	3	1463	G
31	3	1466	U
31	3	1467	U
31	3	1479	A
31	3	1480	A
31	3	1481	U
31	3	1483	G
31	3	1486	U
31	3	1487	U
31	3	1493	A
31	3	1495	A

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Mol	Chain	Res	Type
31	3	1502	A
31	3	1507	G
31	3	1508	G
31	3	1510	A
31	3	1518	C
31	3	1523	C
31	3	1526	U
31	3	1532	A
31	3	1533	U
31	3	1534	A
31	3	1541	A
31	3	1543	U
31	3	1546	U
31	3	1548	A
31	3	1550	G
31	3	1555	G
31	3	1558	A
31	3	1571	G
31	3	1579	G
31	3	1581	U
31	3	1584	U
31	3	1585	A
31	3	1587	U
31	3	1588	A
31	3	1589	A
31	3	1594	G
31	3	1600	A
31	3	1601	A
31	3	1603	A
31	3	1612	U
31	3	1615	G
31	3	1618	U
31	3	1619	A
31	3	1636	U
31	3	1641	A
31	3	1642	G
31	3	1643	A
31	3	1644	A
31	3	1647	A
31	3	1648	A
31	3	1650	A
31	3	1651	C

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Mol	Chain	Res	Type
31	3	1652	A
31	3	1668	G
31	3	1679	U
31	3	1680	A
31	3	1681	G
31	3	1682	C
31	3	1683	G
31	3	1694	A
31	3	1695	G
31	3	1698	A
31	3	1701	G
31	3	1707	U
31	3	1708	G
31	3	1715	A
31	3	1716	A
31	3	1721	G
31	3	1727	U
31	3	1728	A
31	3	1736	G
31	3	1747	G
31	3	1748	U
31	3	1751	A
31	3	1759	C
31	3	1761	C
31	3	1763	G
31	3	1764	U
31	3	1765	G
31	3	1767	A
31	3	1768	G
31	3	1769	A
31	3	1770	A
31	3	1771	C
31	3	1780	A
31	3	1784	U
31	3	1789	C
31	3	1791	A
31	3	1794	A
31	3	1807	C
31	3	1809	A
31	3	1812	C
31	3	1821	G
31	3	1822	A

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Mol	Chain	Res	Type
31	3	1823	U
31	3	1828	A
31	3	1832	G
31	3	1835	G
31	3	1836	A
31	3	1842	G
31	3	1843	C
31	3	1849	G
31	3	1855	A
31	3	1856	G
31	3	1865	A
31	3	1871	U
31	3	1876	G
31	3	1889	U
31	3	1890	U
31	3	1891	A
31	3	1907	A
31	3	1910	G
31	3	1913	G
31	3	1919	A
31	3	1920	A
31	3	1921	C
31	3	1925	A
31	3	1926	A
31	3	1934	A
31	3	1936	G
31	3	1937	G
31	3	1938	U
31	3	1943	A
31	3	1944	A
31	3	1945	A
31	3	1951	A
31	3	1952	G
31	3	1953	U
31	3	1962	U
31	3	1969	C
31	3	1971	G
31	3	1974	U
31	3	1977	A
31	3	1978	U
31	3	1979	G
31	3	1982	G

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Mol	Chain	Res	Type
31	3	1984	A
31	3	1988	A
31	3	1989	U
31	3	1998	U
31	3	1999	G
31	3	2000	U
31	3	2004	G
31	3	2009	U
31	3	2011	G
31	3	2020	A
31	3	2025	C
31	3	2028	G
31	3	2030	A
31	3	2037	A
31	3	2038	A
31	3	2040	A
31	3	2041	C
31	3	2046	G
31	3	2050	G
31	3	2055	A
31	3	2057	C
31	3	2059	G
31	3	2062	C
31	3	2063	G
31	3	2067	A
31	3	2068	G
31	3	2069	A
31	3	2070	C
31	3	2071	C
31	3	2075	U
31	3	2076	G
31	3	2083	U
31	3	2084	A
31	3	2099	U
31	3	2100	G
31	3	2106	G
31	3	2107	A
31	3	2109	A
31	3	2110	U
31	3	2111	U
31	3	2112	A
31	3	2114	C

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Mol	Chain	Res	Type
31	3	2115	A
31	3	2117	G
31	3	2123	A
31	3	2124	A
31	3	2125	U
31	3	2127	G
31	3	2131	G
31	3	2132	G
31	3	2133	A
31	3	2139	C
31	3	2145	A
31	3	2153	U
31	3	2154	A
31	3	2167	G
31	3	2171	A
31	3	2173	G
31	3	2180	U
31	3	2183	U
31	3	2184	A
31	3	2193	U
31	3	2194	G
31	3	2195	U
31	3	2198	G
31	3	2199	C
31	3	2200	U
31	3	2202	U
31	3	2203	U
31	3	2205	U
31	3	2206	A
31	3	2207	A
31	3	2211	G
31	3	2212	U
31	3	2220	A
31	3	2222	C
31	3	2231	A
31	3	2232	G
31	3	2233	A
31	3	2246	G
31	3	2247	G
31	3	2257	U
31	3	2258	G
31	3	2260	G

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Mol	Chain	Res	Type
31	3	2261	G
31	3	2276	A
31	3	2280	U
31	3	2281	A
31	3	2286	A
31	3	2290	G
31	3	2291	U
31	3	2294	A
31	3	2295	A
31	3	2296	A
31	3	2297	G
31	3	2305	C
31	3	2310	C
31	3	2313	U
31	3	2316	G
31	3	2317	A
31	3	2319	A
31	3	2322	G
31	3	2327	U
31	3	2328	A
31	3	2331	G
31	3	2333	G
31	3	2334	U
31	3	2335	A
31	3	2338	G
31	3	2341	G
31	3	2342	U
31	3	2343	A
31	3	2353	G
31	3	2355	C
31	3	2358	U
31	3	2362	A
31	3	2364	A
31	3	2365	U
31	3	2369	G
31	3	2380	U
31	3	2391	G
31	3	2393	C
31	3	2396	A
31	3	2399	G
31	3	2401	U
31	3	2410	C

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Mol	Chain	Res	Type
31	3	2414	U
31	3	2415	A
31	3	2418	G
31	3	2431	U
31	3	2435	C
31	3	2436	G
31	3	2437	G
31	3	2438	A
31	3	2439	U
31	3	2443	A
31	3	2448	C
31	3	2449	U
31	3	2455	G
31	3	2456	A
31	3	2457	U
31	3	2458	A
31	3	2459	A
31	3	2477	A
31	3	2481	U
31	3	2483	C
31	3	2484	A
31	3	2487	U
31	3	2495	A
31	3	2499	U
31	3	2500	U
31	3	2503	G
31	3	2505	A
31	3	2506	C
31	3	2507	C
31	3	2509	C
31	3	2510	G
31	3	2511	A
31	3	2512	U
31	3	2513	G
31	3	2521	A
31	3	2526	A
31	3	2528	C
31	3	2538	A
31	3	2539	A
31	3	2543	G
31	3	2550	A
31	3	2562	U

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Mol	Chain	Res	Type
31	3	2563	U
31	3	2571	U
31	3	2572	A
31	3	2574	A
31	3	2575	G
31	3	2576	A
31	3	2580	A
31	3	2581	C
31	3	2584	G
31	3	2586	G
31	3	2589	G
31	3	2590	G
31	3	2593	U
31	3	2604	U
31	3	2605	G
31	3	2606	A
31	3	2608	A
31	3	2610	A
31	3	2611	G
31	3	2618	C
31	3	2619	C
31	3	2622	A
31	3	2636	U
31	3	2637	A
31	3	2638	G
31	3	2647	A
31	3	2649	G
31	3	2653	G
31	3	2654	U
31	3	2663	G
31	3	2664	U
31	3	2668	A
31	3	2669	G
31	3	2681	G
31	3	2695	U
31	3	2697	C
31	3	2698	U
31	3	2704	U
31	3	2722	G
31	3	2732	A
31	3	2734	C
31	3	2735	G

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Mol	Chain	Res	Type
31	3	2737	G
31	3	2740	U
31	3	2741	A
31	3	2747	U
31	3	2752	G
31	3	2756	A
31	3	2759	G
31	3	2765	A
31	3	2772	A
31	3	2774	A
31	3	2777	A
31	3	2785	G
31	3	2786	A
31	3	2788	U
31	3	2798	A
31	3	2799	U
31	3	2801	U
31	3	2805	A
31	3	2806	A
31	3	2807	G
31	3	2812	U
31	3	2813	A
31	3	2814	A
31	3	2822	C
31	3	2823	A
31	3	2825	A
31	3	2827	A
31	3	2835	G
31	3	2837	U
31	3	2838	G
31	3	2853	U
31	3	2863	G
31	3	2871	G
31	3	2876	G
31	3	2883	A
31	3	2884	C
31	3	2887	A
31	3	2888	U
31	3	2890	G
31	3	2897	G
31	3	2898	A
31	3	2899	C

Continued on next page...

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Mol	Chain	Res	Type
32	4	9	C
32	4	11	A
32	4	12	U
32	4	22	G
32	4	23	A
32	4	25	A
32	4	26	C
32	4	28	C
32	4	33	U
32	4	40	U
32	4	41	C
32	4	42	G
32	4	46	C
32	4	48	A
32	4	55	A
32	4	56	A
32	4	60	C
32	4	78	C
32	4	80	G
32	4	88	G
32	4	89	A
32	4	99	A
32	4	102	A
32	4	106	A
32	4	108	C

All (32) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
31	3	295	U
31	3	296	U
31	3	311	G
31	3	315	A
31	3	410	G
31	3	425	U
31	3	500	U
31	3	508	A
31	3	513	A
31	3	881	A
31	3	1048	A
31	3	1209	U
31	3	1216	U

Continued on next page...

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Mol	Chain	Res	Type
31	3	1297	U
31	3	1507	G
31	3	1583	G
31	3	1587	U
31	3	1588	A
31	3	1820	U
31	3	2333	G
31	3	2482	U
31	3	2504	C
31	3	2604	U
31	3	2668	A
31	3	2764	U
31	3	2862	U
31	3	2889	U
31	3	2897	G
32	4	10	C
32	4	54	U
32	4	59	A
32	4	107	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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.

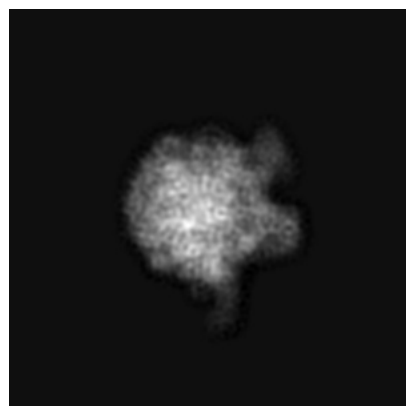
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13286. These allow visual inspection of the internal detail of the map and identification of artifacts.

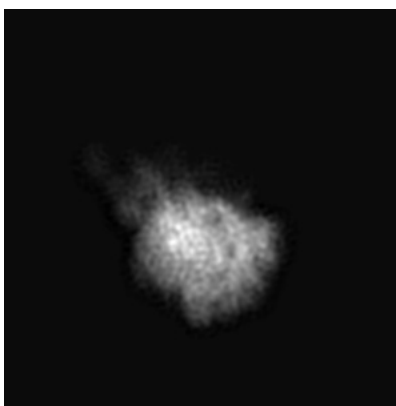
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

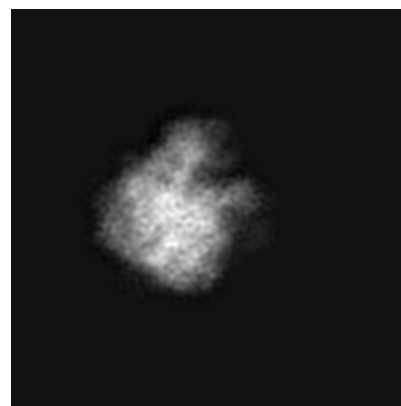
6.1.1 Primary map



X

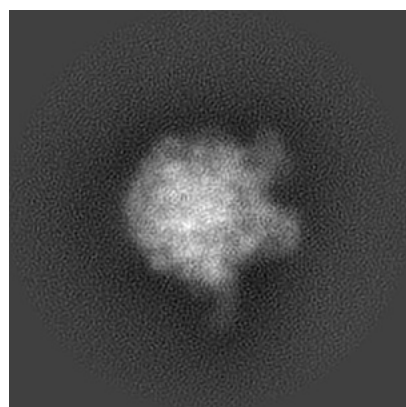


Y

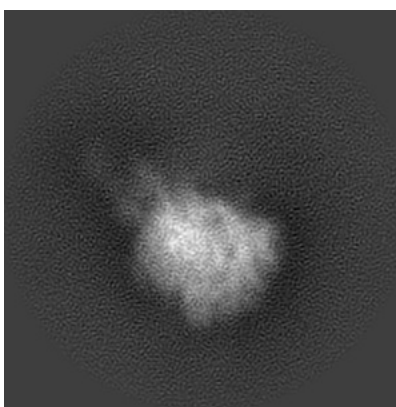


Z

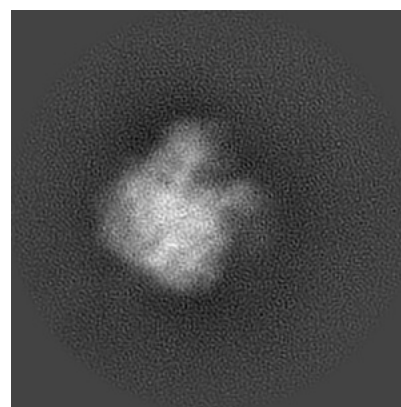
6.1.2 Raw map



X



Y

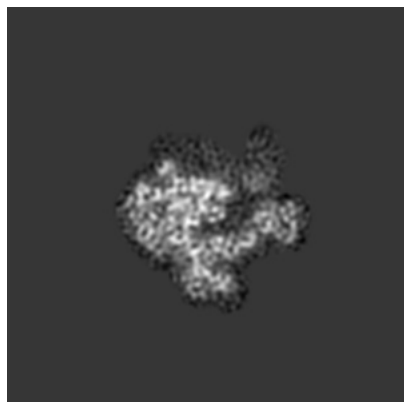


Z

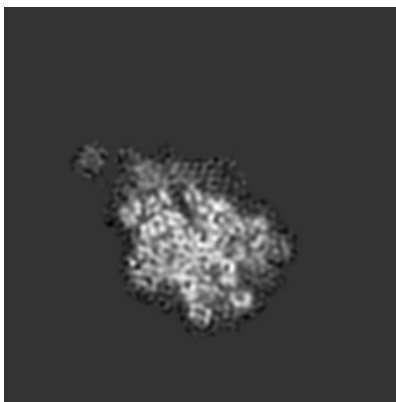
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

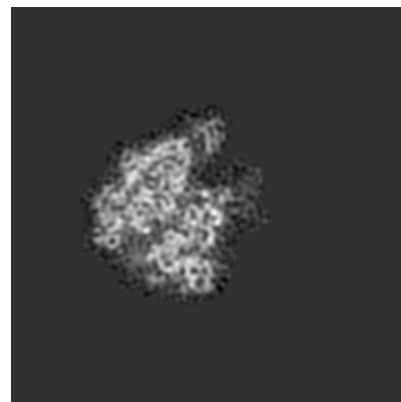
6.2.1 Primary map



X Index: 100

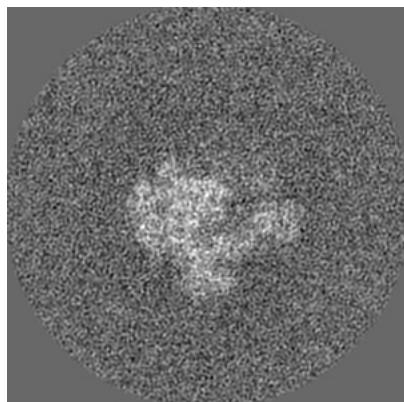


Y Index: 100

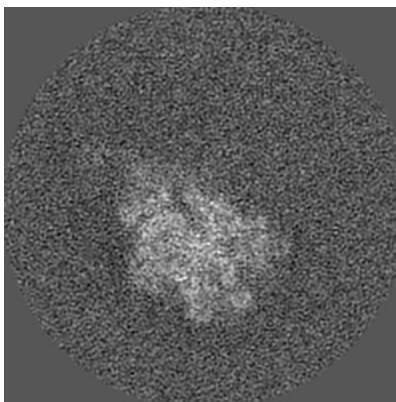


Z Index: 100

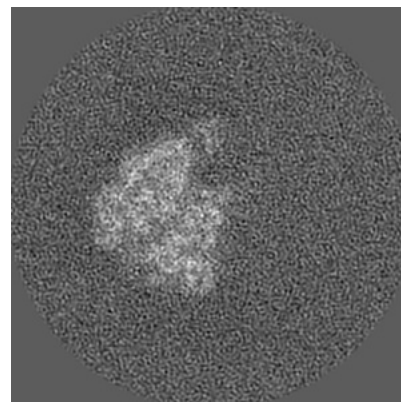
6.2.2 Raw map



X Index: 100



Y Index: 100

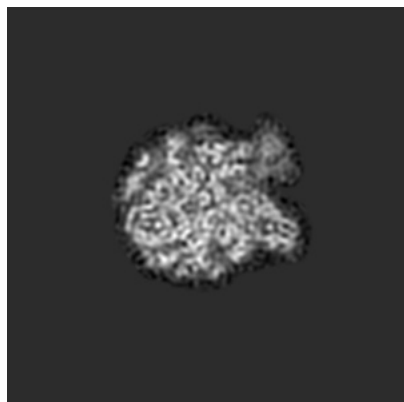


Z Index: 100

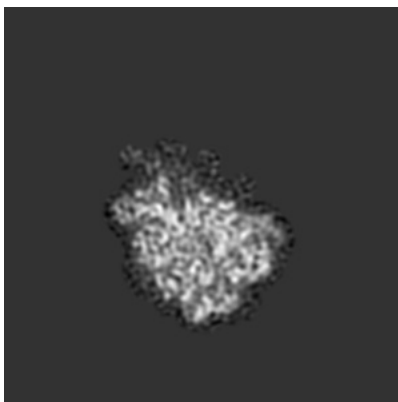
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

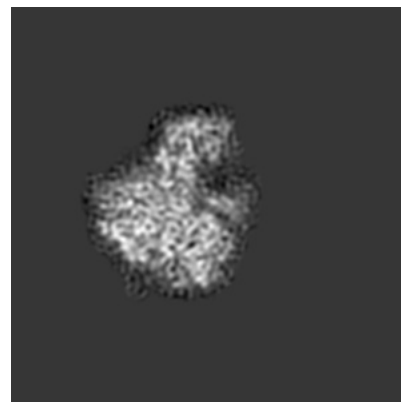
6.3.1 Primary map



X Index: 83

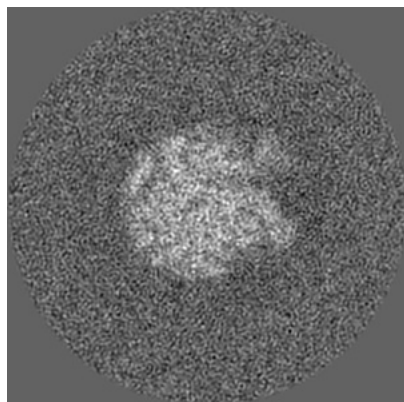


Y Index: 93

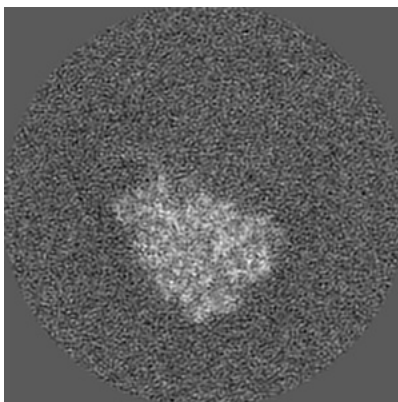


Z Index: 93

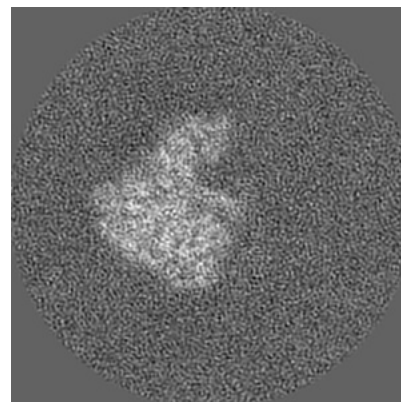
6.3.2 Raw map



X Index: 80



Y Index: 93



Z Index: 94

The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

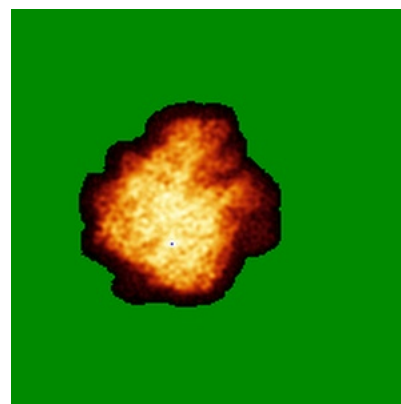
6.4.1 Primary map



X

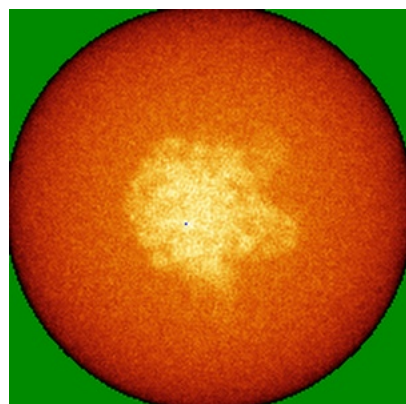


Y

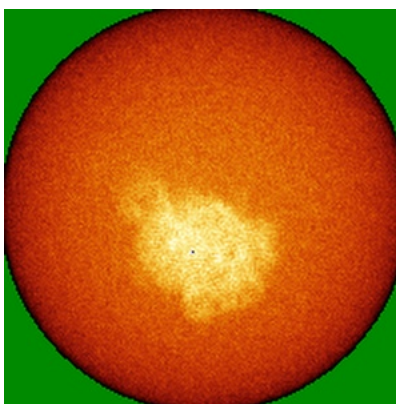


Z

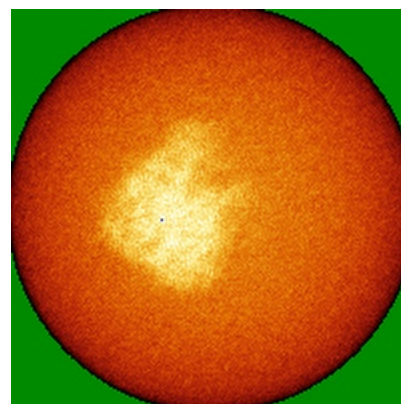
6.4.2 Raw map



X



Y

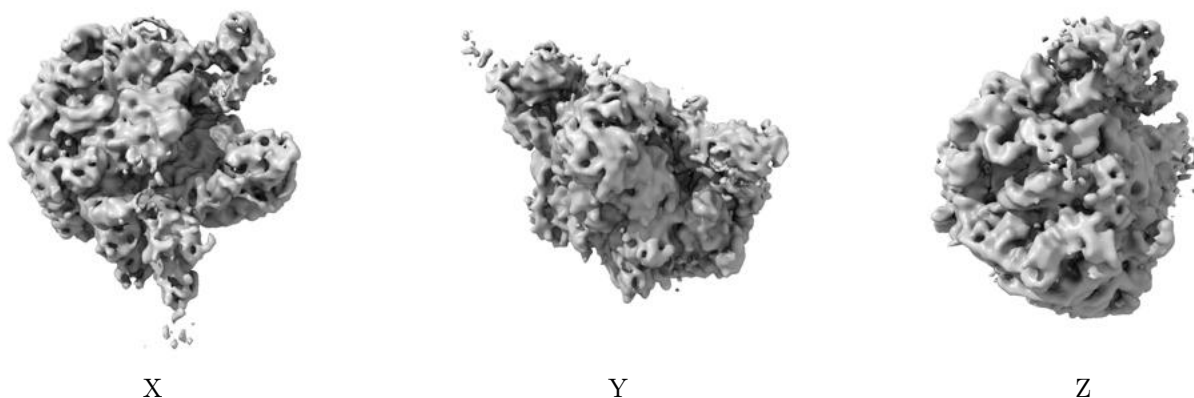


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

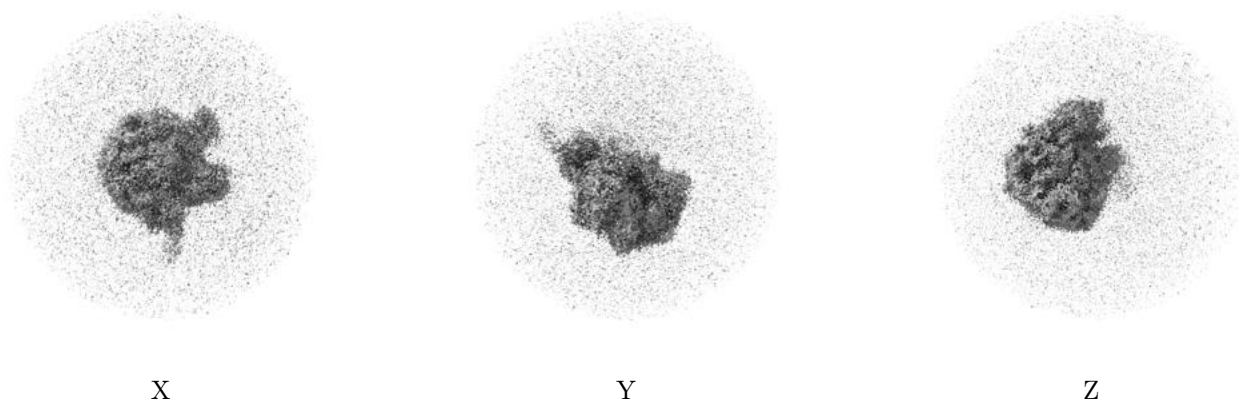
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.46. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

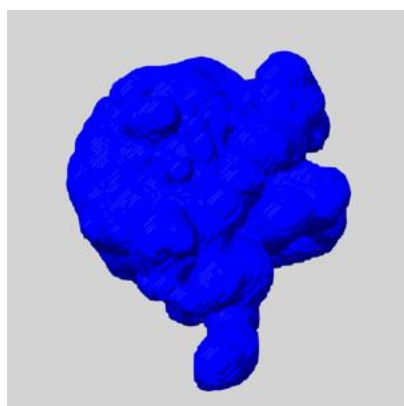
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

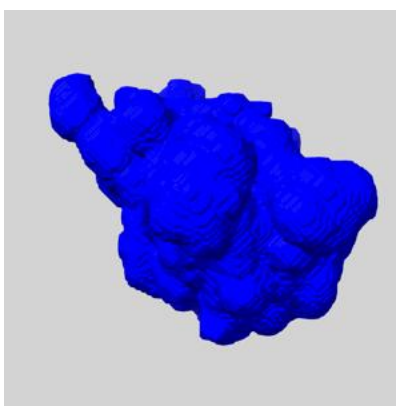
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

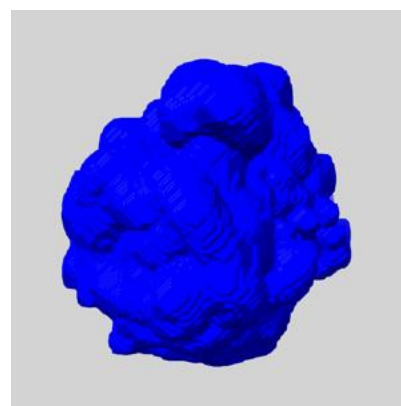
6.6.1 emd_13286_msk_1.map [i](#)



X



Y

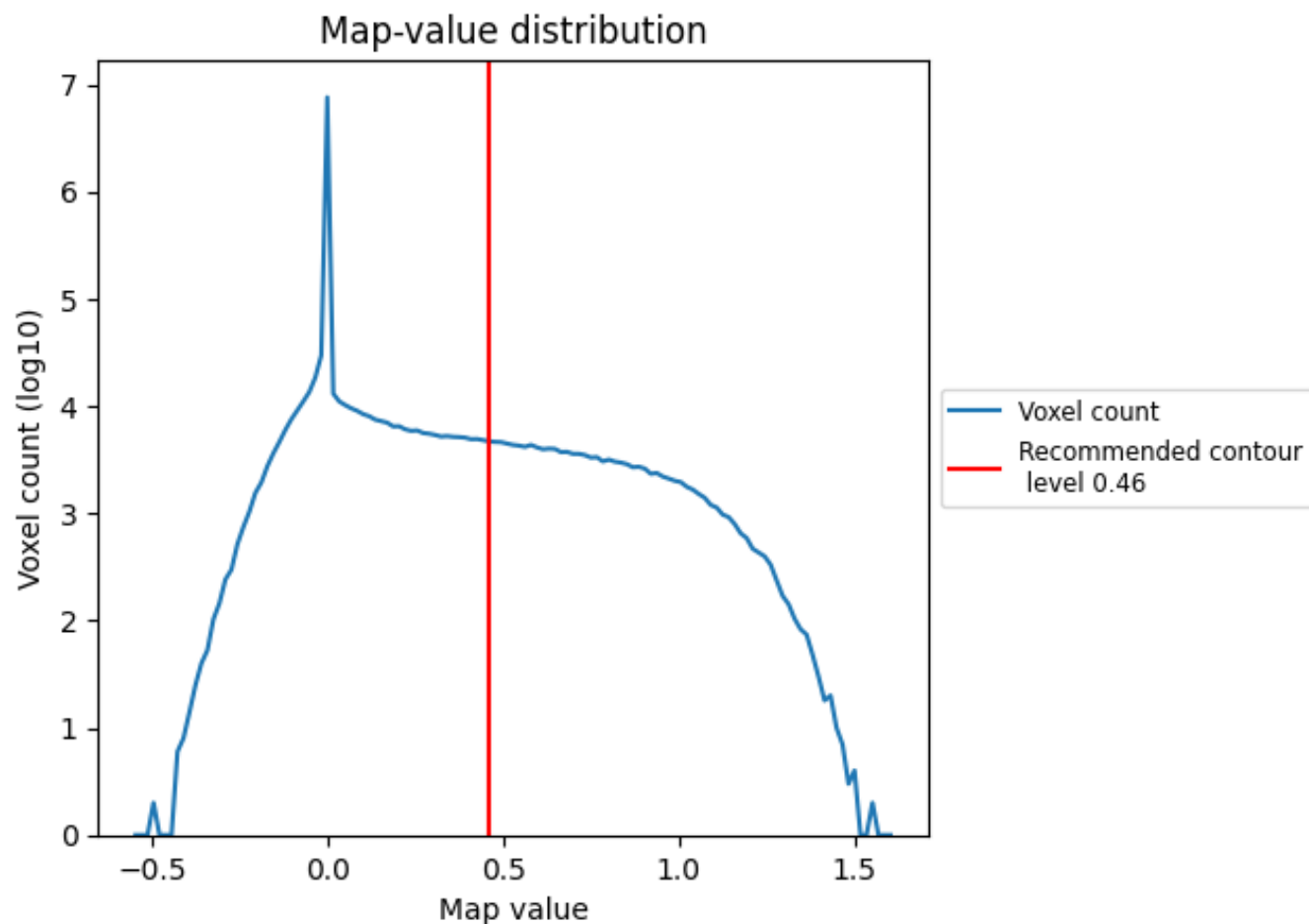


Z

7 Map analysis [i](#)

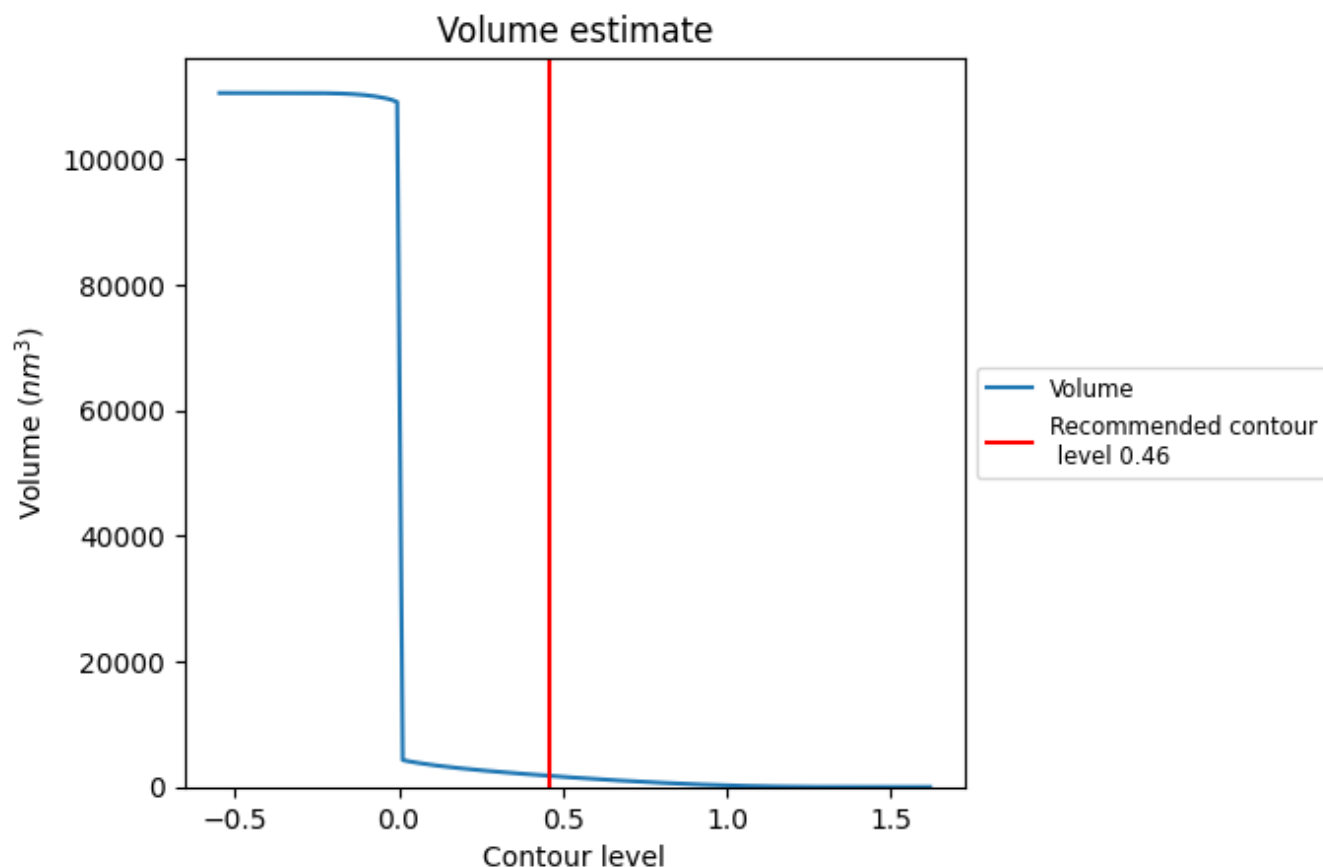
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

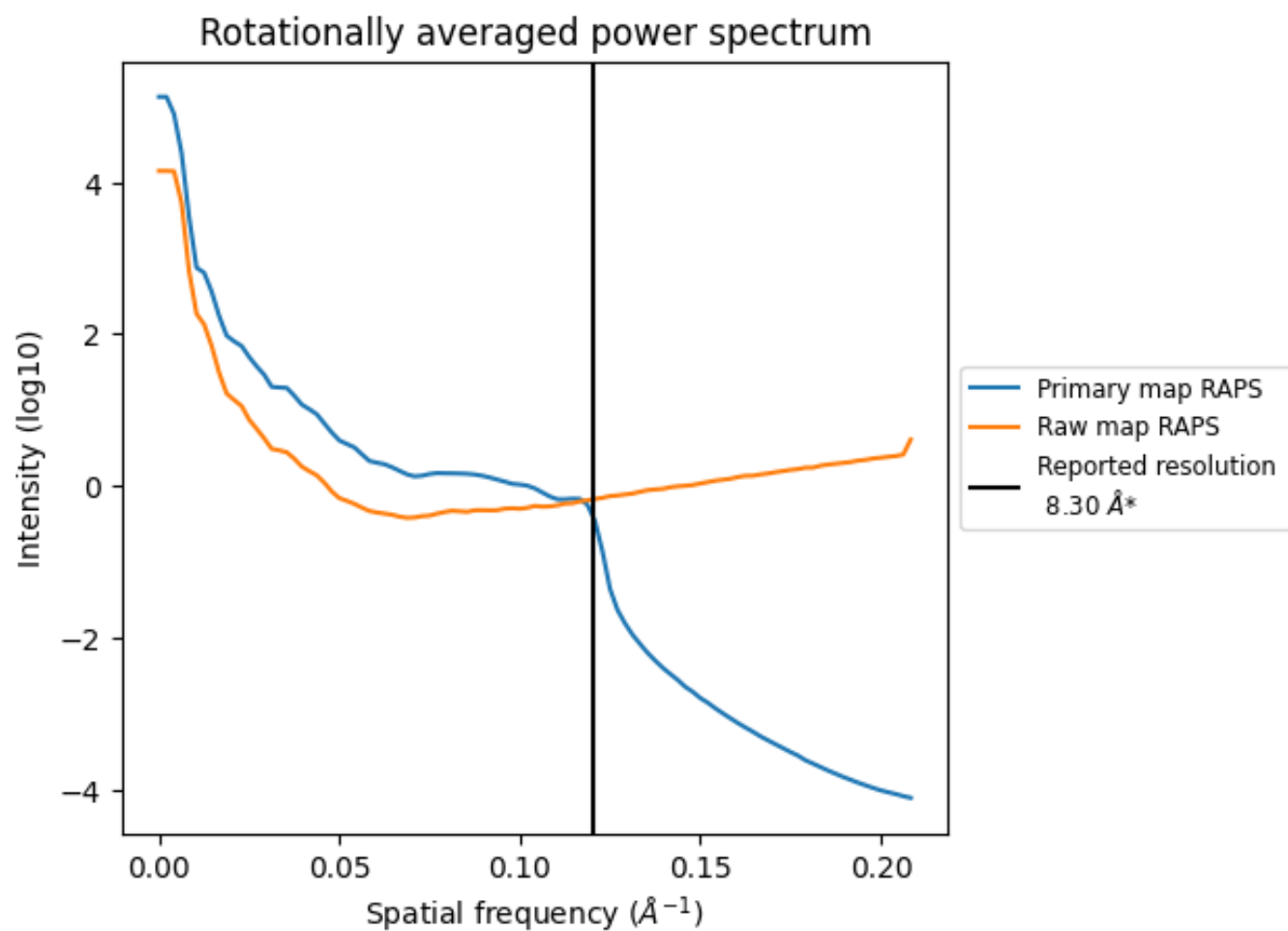
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1764 nm³; this corresponds to an approximate mass of 1593 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

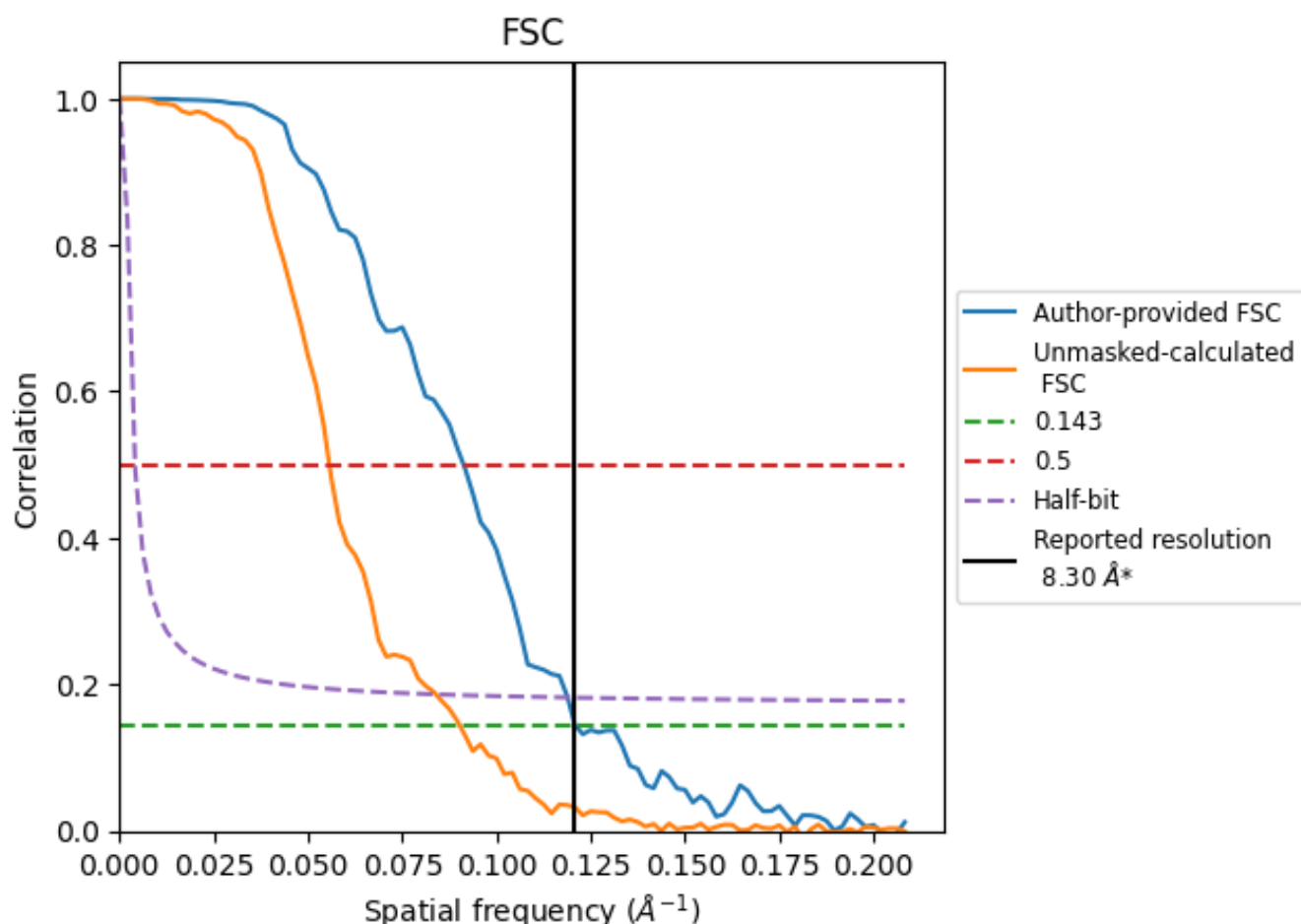


*Reported resolution corresponds to spatial frequency of 0.120 \AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.120 Å⁻¹

8.2 Resolution estimates [i](#)

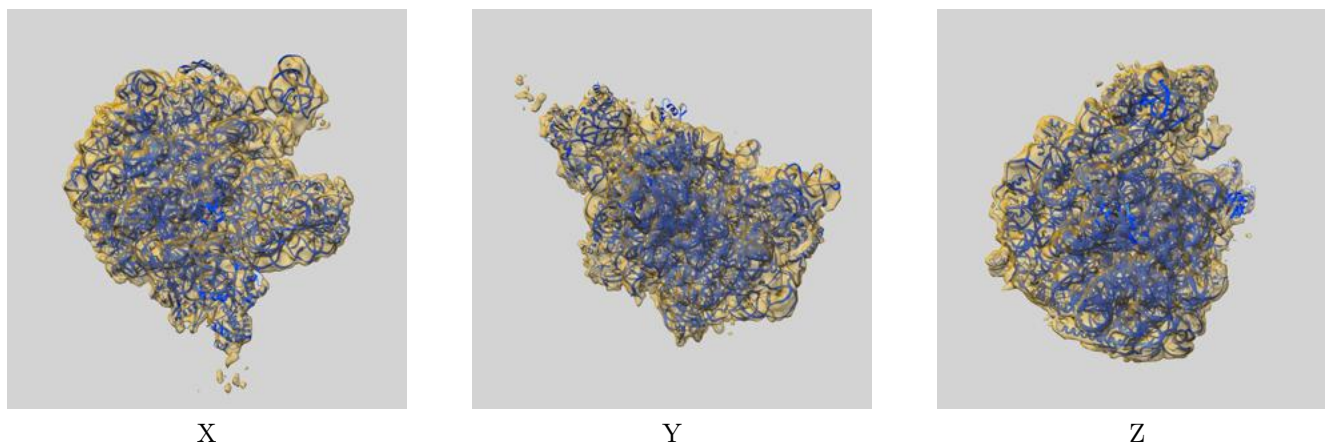
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.30	-	-
Author-provided FSC curve	8.26	10.96	8.42
Unmasked-calculated*	11.07	17.95	11.90

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 11.07 differs from the reported value 8.3 by more than 10 %

9 Map-model fit [i](#)

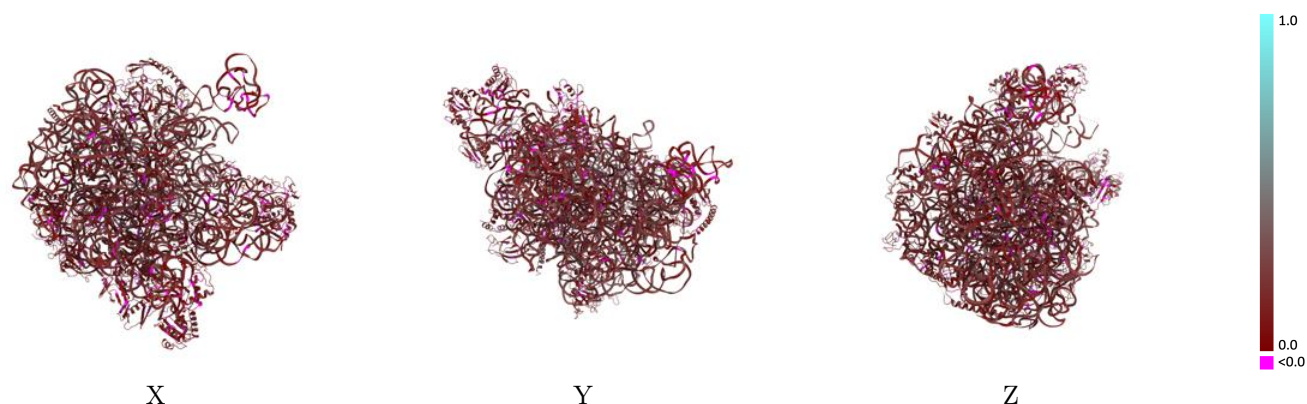
This section contains information regarding the fit between EMDB map EMD-13286 and PDB model 7PAU. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay [i](#)



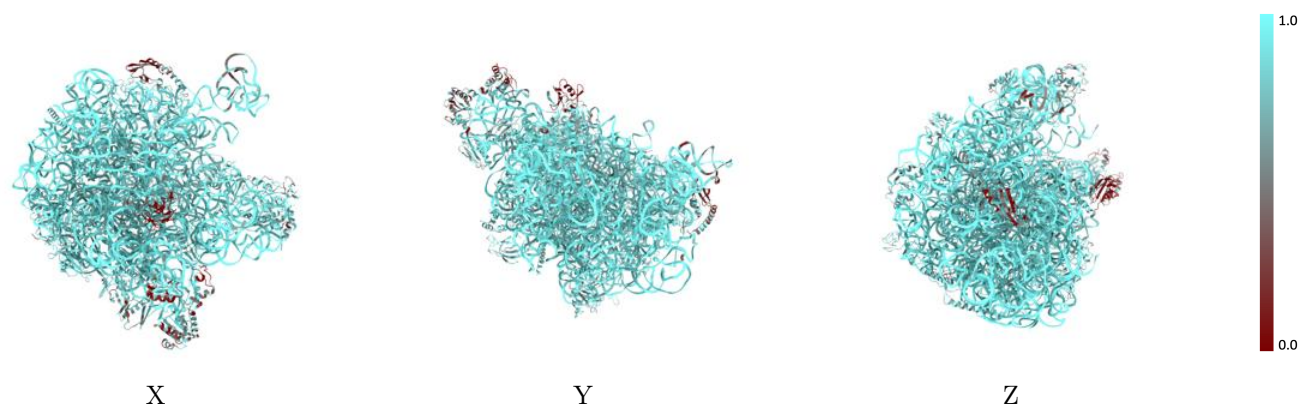
The images above show the 3D surface view of the map at the recommended contour level 0.46 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



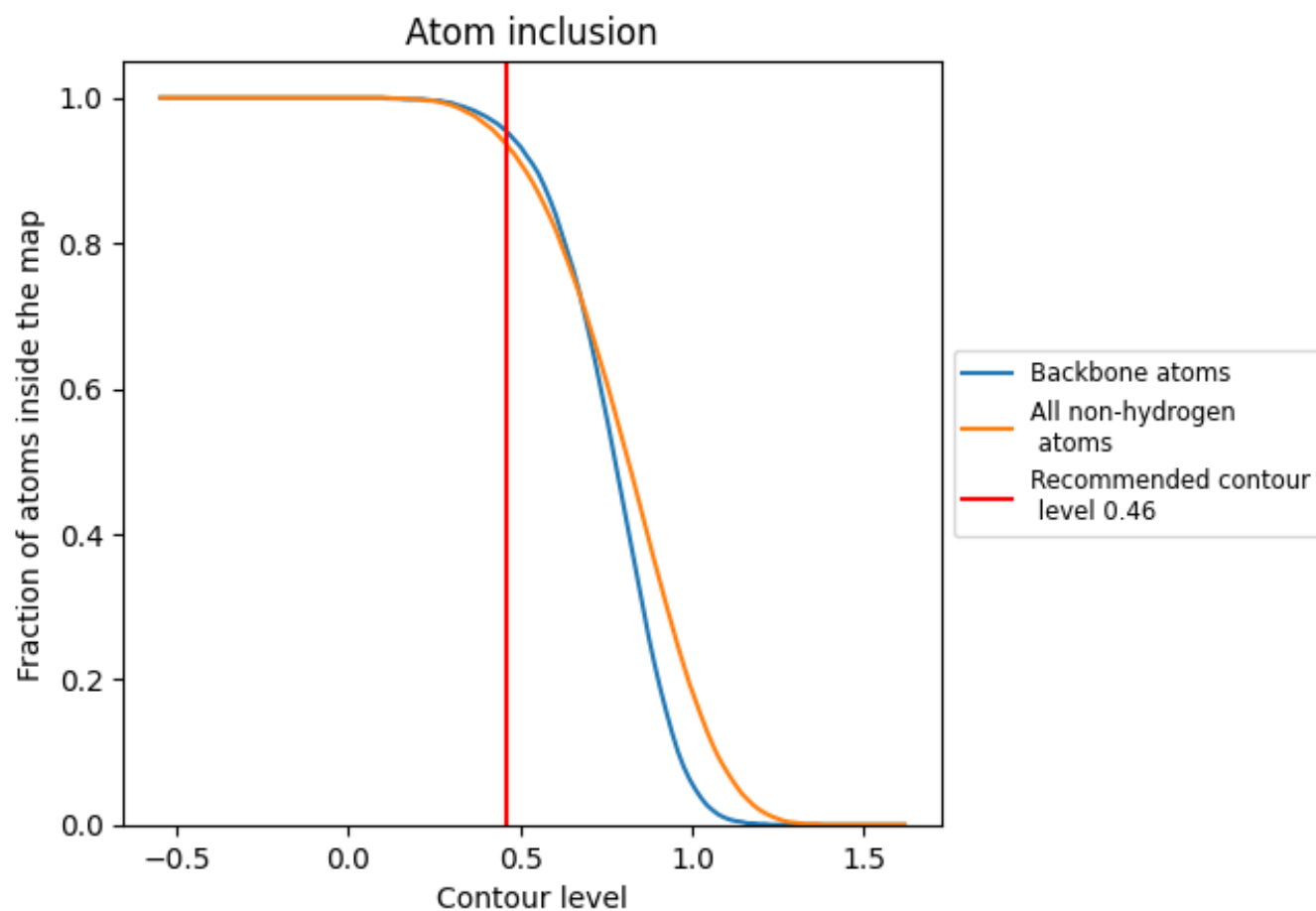
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.46).



































































9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 94% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.46) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9360	 0.1700
0	 0.9840	 0.1250
1	 0.9720	 0.1360
2	 0.9320	 0.0950
3	 0.9860	 0.1820
4	 0.9810	 0.1820
7	 0.5420	 0.1310
a	 0.9370	 0.1320
b	 0.8980	 0.1330
c	 0.8780	 0.1540
d	 0.7640	 0.1510
e	 0.7430	 0.1610
f	 0.4950	 0.1440
g	 0.5820	 0.1350
h	 0.4560	 0.1170
i	 0.9370	 0.1510
j	 0.8900	 0.1390
k	 0.9010	 0.1450
l	 0.9210	 0.1460
m	 0.9250	 0.1480
n	 0.8430	 0.1510
o	 0.8550	 0.1580
p	 0.9190	 0.1360
q	 0.8520	 0.1370
r	 0.9540	 0.1610
s	 0.9360	 0.1520
t	 0.7650	 0.1330
u	 0.9420	 0.1330
v	 0.9620	 0.1290
w	 0.8480	 0.1880
x	 0.6300	 0.1540
y	 0.9490	 0.1370
z	 0.9500	 0.1610

