



Full wwPDB EM Validation Report ⓘ

Jan 21, 2026 – 10:59 AM EST

PDB ID : 9ZNI / pdb_00009zni
EMDB ID : EMD-74448
Title : Cryo-EM structure of the Methanosarcina acetivorans 70S ribosome in complex with SriC and SriD
Authors : Nissley, A.J.; Cate, J.H.D.
Deposited on : 2025-12-12
Resolution : 2.89 Å(reported)
Based on initial model : .

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:

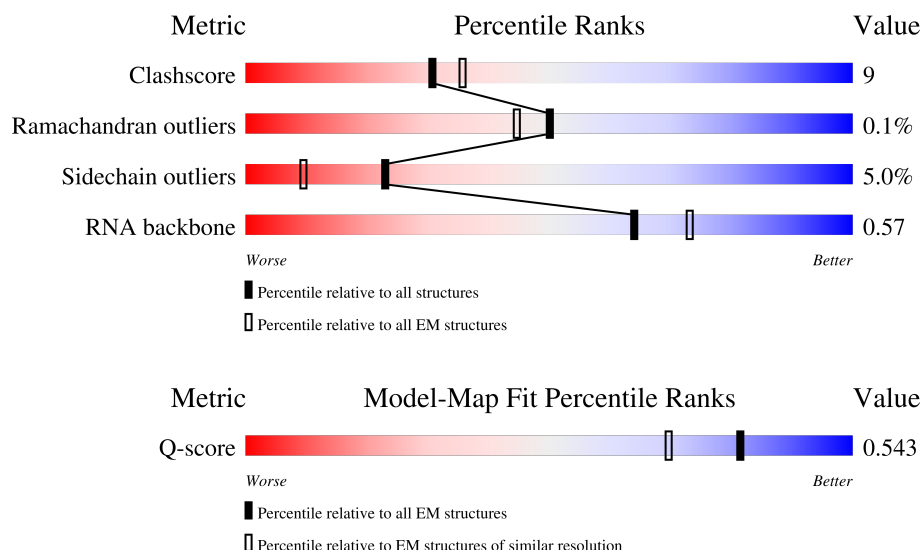
EMDB validation analysis : 0.0.1.dev129
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

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 2.89 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.



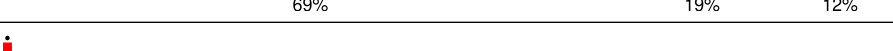
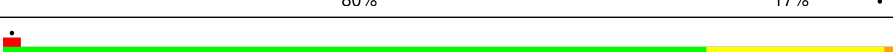
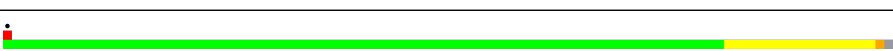
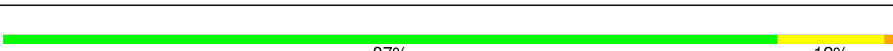
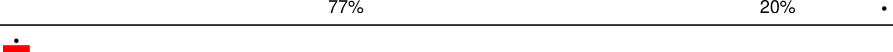
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	12148 (2.39 - 3.39)

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	1	2904	
2	2	133	
3	3	1478	

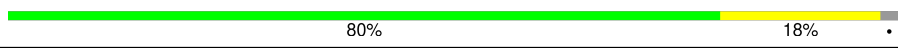
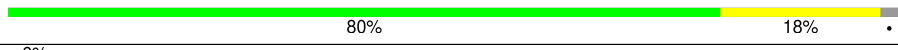
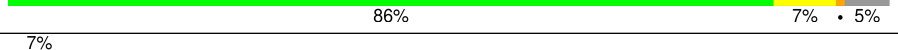
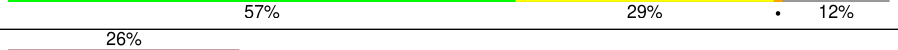
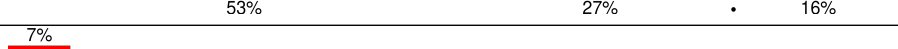
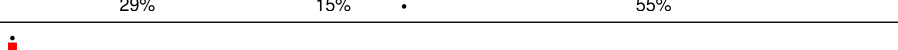
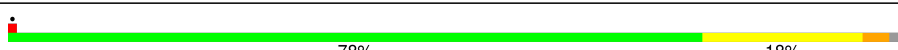
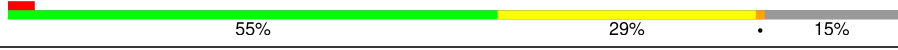
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Mol	Chain	Length	Quality of chain
4	6	281	
5	7	274	
6	AA	238	
7	AB	337	
8	AC	253	
9	AD	165	
10	AE	176	
11	AF	120	
12	AG	143	
13	AH	132	
14	AI	140	
15	AJ	196	
16	AK	173	
17	AL	174	
18	AM	126	
19	AN	151	
20	AO	61	
21	AP	97	
22	AQ	151	
23	AR	82	
24	AS	119	
25	AT	62	
26	AU	67	
27	AV	153	
28	AW	99	

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Mol	Chain	Length	Quality of chain
29	AX	89	
30	AY	129	
31	AZ	56	
32	Aa	51	
33	Ab	49	
34	Ac	92	
35	Ad	94	
36	BA	203	
37	BB	225	
38	BC	318	
39	BD	218	
40	BE	235	
41	BF	209	
42	BG	136	
43	BH	189	
44	BI	130	
45	BJ	134	
46	BK	125	
47	BL	102	
48	BM	126	
49	BN	142	
50	BO	162	
51	BP	50	
52	BQ	152	
53	BR	109	

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Mol	Chain	Length	Quality of chain
54	BS	64	
55	BT	136	
56	BU	149	
57	BV	56	
58	BW	101	
59	BX	62	
60	BY	76	
61	BZ	57	

2 Entry composition

There are 63 unique types of molecules in this entry. The entry contains 150576 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 RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	2711	Total	C	N	O	P	0	0
			58043	25909	10576	18847	2711		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	1	A	-	insertion	GB 470469544
1	2	A	-	insertion	GB 470469544
1	3	U	-	insertion	GB 470469544
1	4	U	-	insertion	GB 470469544
1	403	G	U	conflict	GB 470469544
1	408	U	C	conflict	GB 470469544
1	2716	U	C	conflict	GB 470469544
1	2721	A	G	conflict	GB 470469544
1	2904	A	-	insertion	GB 470469544

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	127	Total	C	N	O	P	0	0
			2697	1204	476	890	127		

- Molecule 3 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	1427	Total	C	N	O	P	0	0
			30583	13638	5572	9946	1427		

- Molecule 4 is a protein called CBS domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	6	281	Total	C	N	O	S	0	0
			2186	1374	381	420	11		

- Molecule 5 is a protein called CBS domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	7	257	Total	C	N	O	S	0	0
			1996	1250	353	383	10		

- Molecule 6 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AA	235	Total	C	N	O	S	0	0
			1779	1112	343	317	7		

- Molecule 7 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AB	335	Total	C	N	O	S	0	0
			2583	1631	472	473	7		

- Molecule 8 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	AC	252	Total	C	N	O	S	0	0
			1929	1208	368	352	1		

- Molecule 9 is a protein called Large ribosomal subunit protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AD	159	Total	C	N	O	S	0	0
			1241	781	228	225	7		

- Molecule 10 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	AE	171	Total	C	N	O	S	0	0
			1329	849	229	246	5		

- Molecule 11 is a protein called Large ribosomal subunit protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	AF	106	Total	C	N	O	S	0	0
			779	490	133	154	2		

- Molecule 12 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	AG	139	Total	C	N	O	S	0	0
			1092	687	201	200	4		

- Molecule 13 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	AH	132	Total	C	N	O	S	0	0
			998	623	185	181	9		

- Molecule 14 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	AI	139	Total	C	N	O	S	0	0
			1048	638	203	201	6		

- Molecule 15 is a protein called Large ribosomal subunit protein eL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AJ	195	Total	C	N	O	S	0	0
			1584	981	328	271	4		

- Molecule 16 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AK	161	Total	C	N	O	S	0	0
			1277	803	245	220	9		

- Molecule 17 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AL	172	Total	C	N	O	S	0	0
			1341	845	240	255	1		

- Molecule 18 is a protein called Large ribosomal subunit protein eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	AM	125	Total	C	N	O	S	0	0
			953	603	172	176	2		

- Molecule 19 is a protein called Large ribosomal subunit protein eL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AN	147	Total	C	N	O	S	0	0
			1159	717	236	203	3		

- Molecule 20 is a protein called Large ribosomal subunit protein eL20.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AO	56	Total	C	N	O	S	0	0
			447	284	78	85			

- Molecule 21 is a protein called Large ribosomal subunit protein eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AP	96	Total	C	N	O	S	0	0
			765	475	146	140	4		

- Molecule 22 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AQ	149	Total	C	N	O	S	0	0
			1149	718	213	209	9		

- Molecule 23 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AR	79	Total	C	N	O	S	0	0
			633	405	105	117	6		

- Molecule 24 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AS	115	Total	C	N	O	S	0	0
			880	545	166	164	5		

- Molecule 25 is a protein called Large ribosomal subunit protein eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AT	60	Total	C	N	O	S	0	0
			484	307	85	84	8		

- Molecule 26 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	AU	65	Total	C	N	O	S	0	0
			515	310	101	103	1		

- Molecule 27 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	AV	153	Total	C	N	O	S	0	0
			1236	779	230	221	6		

- Molecule 28 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	AW	84	Total	C	N	O	S	0	0
			605	383	100	118	4		

- Molecule 29 is a protein called Large ribosomal subunit protein eL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AX	84	Total	C	N	O	S	0	0
			685	437	128	117	3		

- Molecule 30 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AY	126	Total	C	N	O	S	0	0
			981	617	188	174	2		

- Molecule 31 is a protein called Large ribosomal subunit protein eL37.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AZ	55	Total	C	N	O	S	0	0
			436	264	91	74	7		

- Molecule 32 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Aa	50	Total	C	N	O	S	0	0
			430	267	100	62	1		

- Molecule 33 is a protein called Large ribosomal subunit protein eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Ab	43	Total	C	N	O	S	0	0
			348	212	73	58	5		

- Molecule 34 is a protein called Large ribosomal subunit protein eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Ac	91	Total	C	N	O	S	0	0
			750	475	150	118	7		

- Molecule 35 is a protein called Large ribosomal subunit protein eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Ad	89	Total	C	N	O	S	0	0
			699	437	139	117	6		

- Molecule 36 is a protein called Small ribosomal subunit protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	BA	178	Total	C	N	O	S	0	0
			1426	895	258	265	8		

- Molecule 37 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	BB	188	Total	C	N	O	S	0	0
			1476	933	260	278	5		

- Molecule 38 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	BC	142	Total	C	N	O	S	0	0
			1085	686	193	199	7		

- Molecule 39 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	BD	160	Total	C	N	O	S	0	0
			1288	815	238	230	5		

- Molecule 40 is a protein called Small ribosomal subunit protein eS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	BE	228	Total	C	N	O	S	0	0
			1796	1131	327	333	5		

- Molecule 41 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	BF	201	Total	C	N	O	S	0	0
			1527	966	273	281	7		

- Molecule 42 is a protein called Small ribosomal subunit protein eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	BG	125	Total	C	N	O	S	0	0
			935	594	169	168	4		

- Molecule 43 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	BH	175	Total	C	N	O	S	0	0
			1363	851	253	256	3		

- Molecule 44 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	BI	129	Total	C	N	O	S	0	0
			980	628	166	182	4		

- Molecule 45 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	BJ	132	Total	C	N	O	S	0	0
			1001	622	188	188	3		

- Molecule 46 is a protein called Small ribosomal subunit protein eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	BK	124	Total	C	N	O	S	0	0
			954	582	195	173	4		

- Molecule 47 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	BL	38	Total	C	N	O	S	0	0
			302	194	57	50	1		

- Molecule 48 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	BM	123	Total	C	N	O	S	0	0
			910	560	180	166	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BM	116	IAS	ASP	conflict	UNP Q8TRR0

- Molecule 49 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	BN	139	Total	C	N	O	S	0	0
			1057	662	202	188	5		

- Molecule 50 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	BO	138	Total	C	N	O	S	0	0
			1071	670	207	192	2		

- Molecule 51 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	BP	46	Total	C	N	O	S	0	0
			382	238	76	63	5		

- Molecule 52 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	BQ	150	Total	C	N	O	S	0	0
			1206	766	218	217	5		

- Molecule 53 is a protein called Small ribosomal subunit protein uS17A.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	BR	107	Total	C	N	O	S	0	0
			831	522	149	153	7		

- Molecule 54 is a protein called Small ribosomal subunit protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	BS	58	Total	C	N	O	S	0	0
			476	302	86	87	1		

- Molecule 55 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	BT	121	Total	C	N	O	S	0	0
			968	609	180	176	3		

- Molecule 56 is a protein called Small ribosomal subunit protein eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	BU	148	Total	C	N	O	S	0	0
			1154	734	203	213	4		

- Molecule 57 is a protein called Putative zinc finger domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	BV	52	Total	C	N	O	S	0	0
			394	247	70	69	8		

- Molecule 58 is a protein called Small ribosomal subunit protein eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	BW	89	Total	C	N	O	S	0	0
			729	458	130	137	4		

- Molecule 59 is a protein called Small ribosomal subunit protein eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	BX	61	Total	C	N	O	S	0	0
			474	293	86	91	4		

- Molecule 60 is a protein called Small ribosomal subunit protein eS28.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	BY	50	Total	C	N	O	S	0	0
			374	227	72	71	4		

- Molecule 61 is a protein called DUF5350 family protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	BZ	57	Total	C	N	O	S	0	0
			452	283	97	71	1		

- Molecule 62 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
62	1	239	Total	Mg	0
			239	239	
62	2	1	Total	Mg	0
			1	1	
62	3	64	Total	Mg	0
			64	64	
62	7	1	Total	Mg	0
			1	1	
62	AA	1	Total	Mg	0
			1	1	
62	AB	2	Total	Mg	0
			2	2	
62	AH	1	Total	Mg	0
			1	1	
62	AI	2	Total	Mg	0
			2	2	
62	AZ	1	Total	Mg	0
			1	1	
62	BF	1	Total	Mg	0
			1	1	
62	BM	1	Total	Mg	0
			1	1	

- Molecule 63 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
63	AT	1	Total	Zn	0
			1	1	
63	AZ	1	Total	Zn	0
			1	1	

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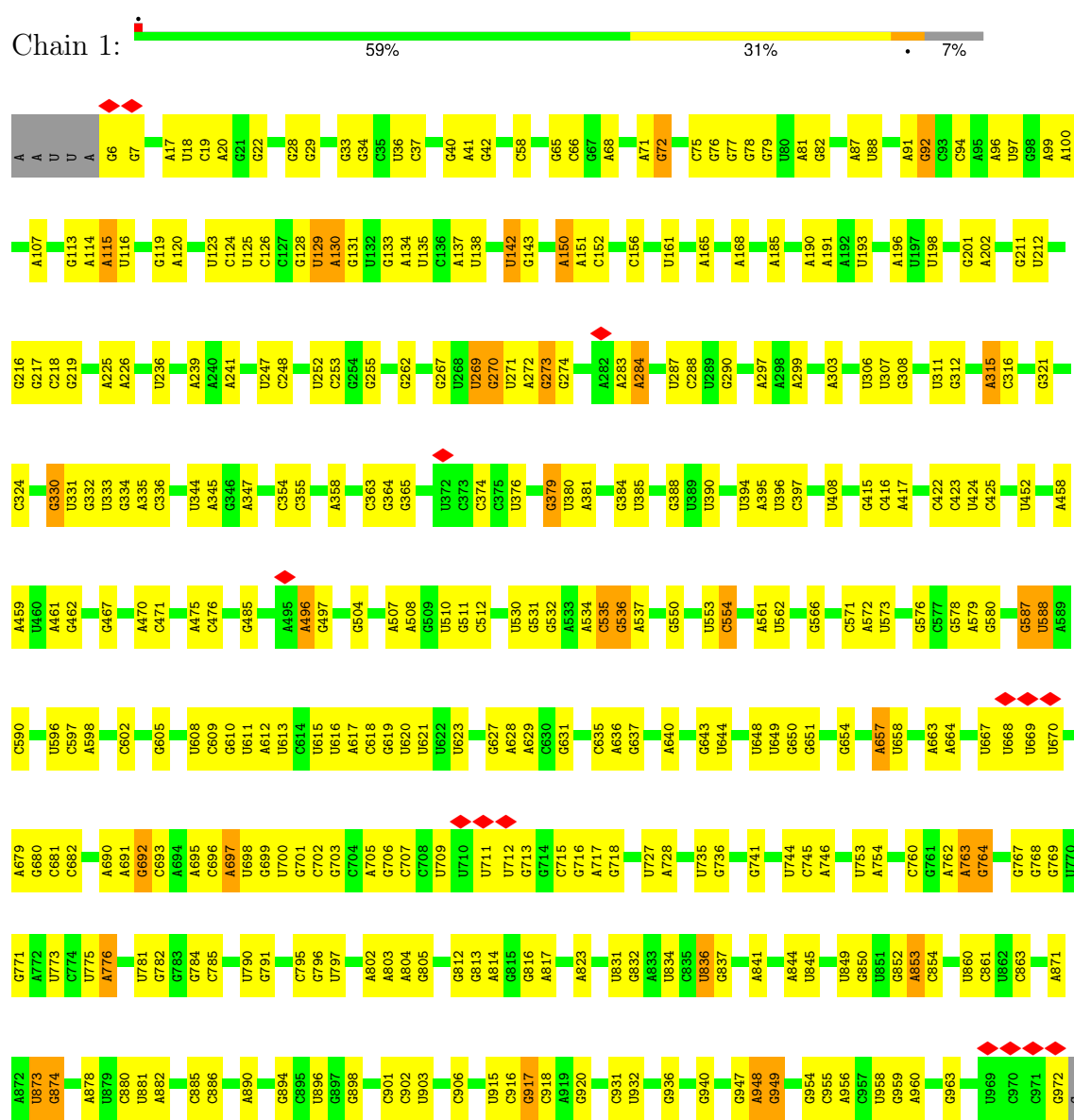
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Mol	Chain	Residues	Atoms		AltConf
63	Ab	1	Total 1	Zn 1	0
63	Ac	1	Total 1	Zn 1	0
63	Ad	1	Total 1	Zn 1	0
63	BF	1	Total 1	Zn 1	0
63	BP	1	Total 1	Zn 1	0
63	BR	1	Total 1	Zn 1	0
63	BV	2	Total 2	Zn 2	0
63	BX	1	Total 1	Zn 1	0

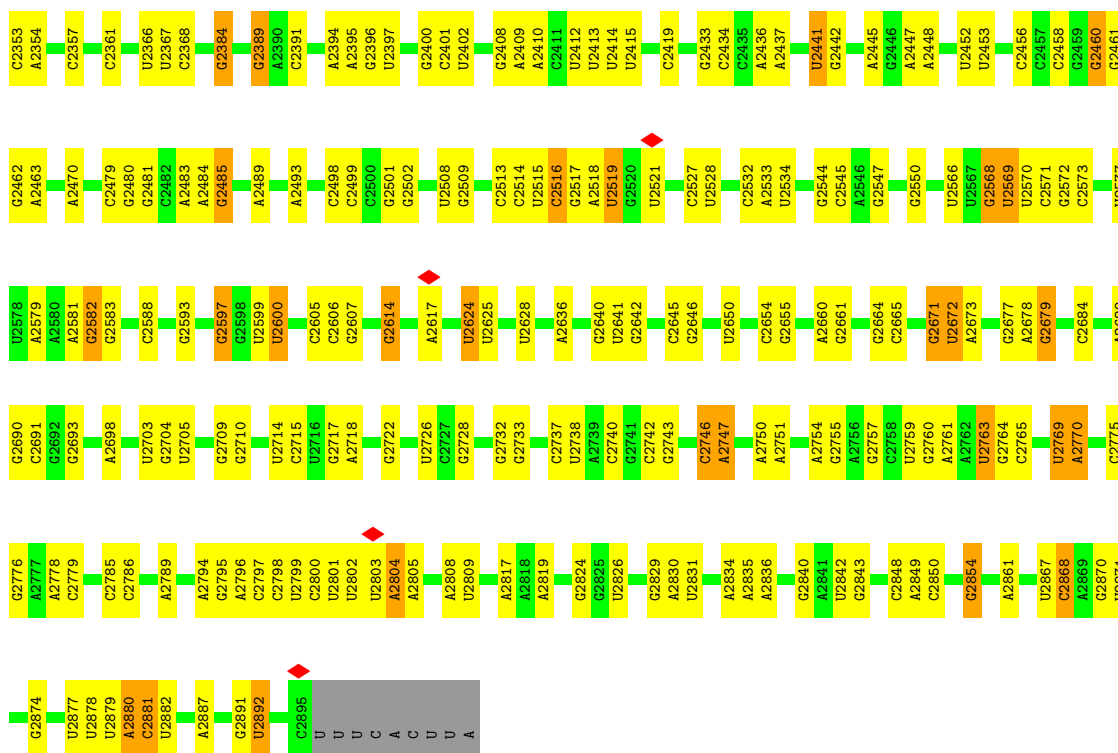
3 Residue-property plots

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: 23S rRNA



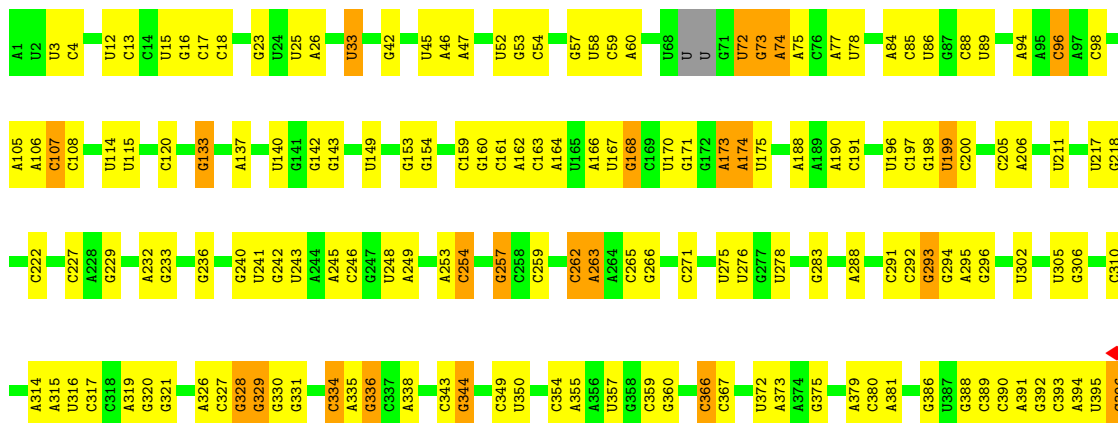
G2248	U2100	U1996	A1905	G1796	C1685	G1528	G1439	G1317	A1226	U	A1071	G
U2249	U2104	G1997	A1906	G1804	C1666	C1529	G1439	A1318	U1227	U	A1075	G
G2250	G2105	G1998	G1910	G1804	G1667	A1530	C1443	A1319	U1228	A	A1076	G
G2251	U2000	A1911	G1911	U1811	A1668	C1534	U1444	G1320	G1229	G	A1077	G
U2256	G2108	A1914	A1914	A1813	A1671	C1549	U1445	C1321	C1231	U	C1077	A
U2257	A2006	G2007	A1915	G1816	C1672	C1557	U1446	C1322	G1235	U	C1078	A
C2261	U2016	G2017	A1926	A1820	A1679	A1557	C1449	A1329	G1236	A	G1081	A
U2262	G2017	U2018	C1927	A1821	G1683	A1561	G1450	C1330	A1238	G	C1082	C
G2263	C2019	G2019	A1928	U1822	C1684	A1562	U1459	C1331	A1239	A	A1091	C
G2264	G2020	C2020	G1931	A1823	C1685	C1563	U1462	C1341	G1243	G	A1092	C
A2271	C2021	U2022	G1932	A1826	C1686	G1574	G1462	G1342	C1246	A	G1093	A
G2279	G2028	G2028	G1933	U1830	G1693	A1575	G1464	A1344	C1249	G	G1094	C
U2288	U2047	U2048	G1934	A1831	G1706	G1576	U1468	A1345	C1250	U	U1095	C
C2289	C2049	U2050	U1936	G1839	C1707	A1577	G1468	U1347	U1253	C	G1102	C
G2293	A2051	G2051	A	G1840	U1708	G1578	A1472	C1348	U1258	C	U1103	C
C2297	U2050	U2050	C	C1844	U1708	C1579	A1473	A1355	A1257	C	G1104	C
A2301	G2066	G2066	U1950	U1848	C1711	G1580	A1474	U1356	C1258	U	U1105	C
U2302	C2067	C2067	U1951	G1851	G1718	C1581	U1482	A1363	U1263	U	G1106	C
U2305	C2068	C2068	A1952	G1852	A1722	U1582	A1478	A1367	A1264	A	C1107	C
U2306	C2069	U2070	A1953	U1856	A1730	G1583	A1479	A1368	C1265	A	U1108	C
U2307	C2071	G2071	G1954	A1861	G1737	A1584	U1488	A1369	U1270	G	A1109	C
A2308	G2074	G2074	G1955	G1862	C1738	U1585	U1489	U1370	A1271	U	C1108	C
C2309	G2075	G2075	G1956	G1866	A1741	G1586	U1491	A1371	G1272	G	U1110	C
A2313	A2080	A2080	G1958	U1869	U1742	A1587	G1500	C1384	U1273	U	A1111	C
G2314	G2085	G2085	G1958	U1870	A1752	A1615	U1502	U1385	A1274	G	U1112	C
U2319	G2086	G2086	G1962	U1871	A1753	A1616	U1503	G1386	A1275	G	G1113	C
C2320	G2087	G2087	G1963	C1872	C1754	A1617	U1504	U1387	U1276	A	A1125	C
C2321	C2088	C2088	U1971	C1873	G1759	G1618	G1506	G1389	U1277	C	A1126	C
A2324	C2089	C2089	C1972	A1879	C1775	G1633	C1507	A1394	U1278	A	U1016	C
C2325	C2090	C2090	A1977	U1880	U1776	A1642	G	C1400	G1283	G	U1017	C
U2327	U2091	U2091	U1978	G1882	G1777	A1643	U	U1409	G1284	G	A1018	C
G2328	G2092	G2092	U1979	C1883	C1778	A1644	U	C1410	G1288	C	U1019	C
C2329	G2093	G2093	U1980	U1884	U1779	A1645	U	G1411	U1291	C	U1045	C
U2330	G2094	G2094	G1981	G1885	A1780	G1646	U	U1412	U1292	C	G1046	C
G2332	A2095	A2095	U1988	A1893	A1781	A1648	U	C1413	G1293	A	A1051	C
A2333	C2096	C2096	U1989	A1894	G1787	C1649	A	A1414	U1294	G	A1052	C
C2336	G2097	G2097	U1992	U1903	A1788	A	G1513	A1415	G1295	C	G1053	C
A2341	C2098	C2098	G1993	C1904	G1793	C1652	U1514	G1424	G1300	G	U1054	C
A2342	U2099	U2099	A1995			C1653	U1515	A1425	G1301	C	U1055	C
G2343						U1653	C1519	G1426	G1304	U	A1058	C
A2349						A1654	G1520	C1427	A1305	G	A1059	C
						A1655	U1521	G1428	G1311	G	C1062	C
						G1658	C1524	G1431	G1312	A	A1066	C
						U1659	A1525	G1432	G1315	C	A1067	C
						C1660		A1223	A1224	G		
						A1995		A1225	A1225	G		

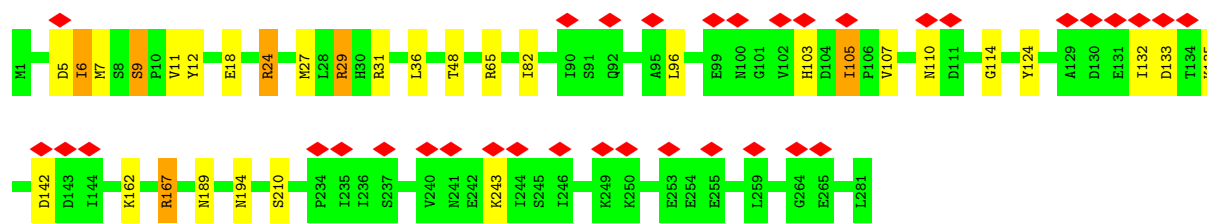


• Molecule 2: 5S rRNA

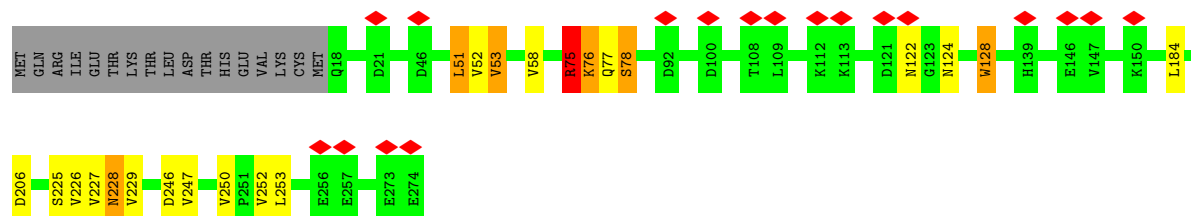
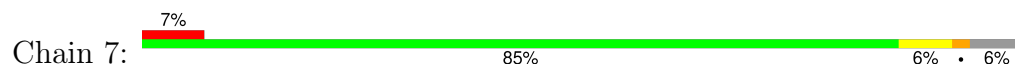


• Molecule 3: 16S rRNA

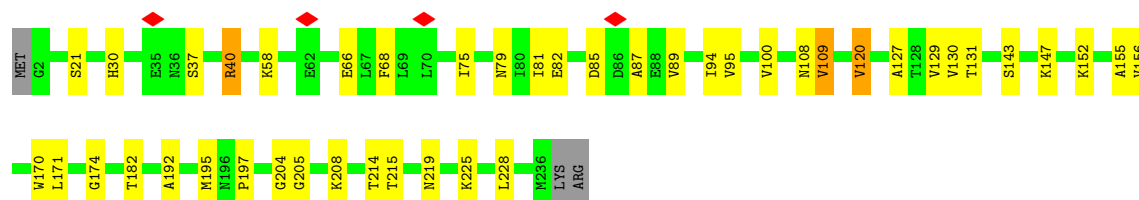
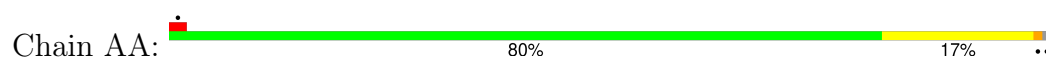




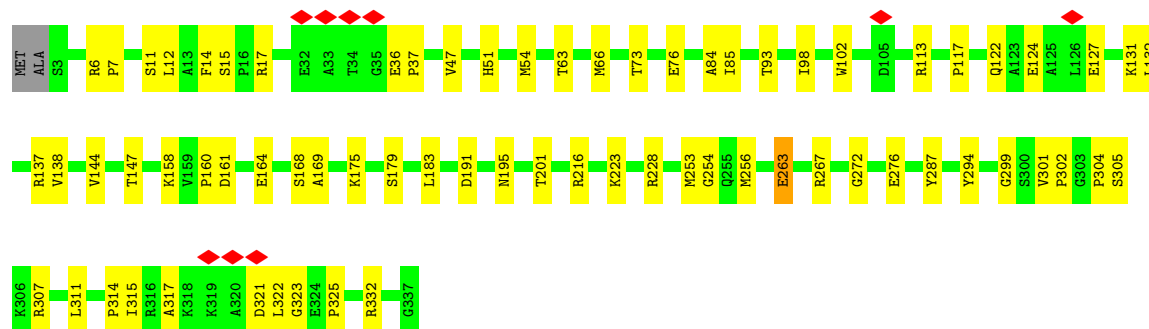
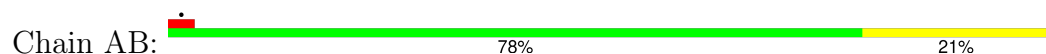
• Molecule 5: CBS domain-containing protein



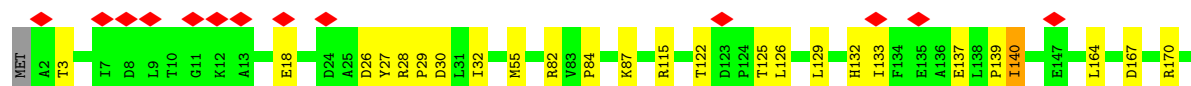
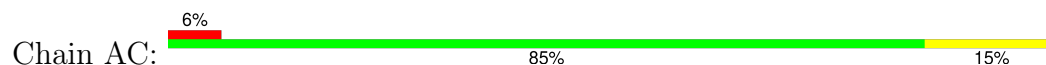
• Molecule 6: Large ribosomal subunit protein uL2

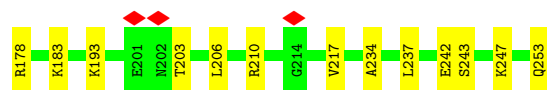


• Molecule 7: Large ribosomal subunit protein uL3

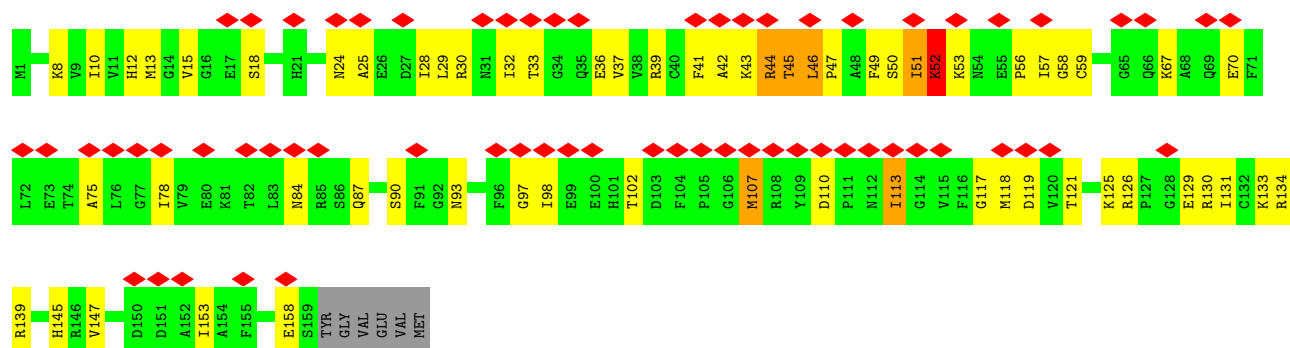
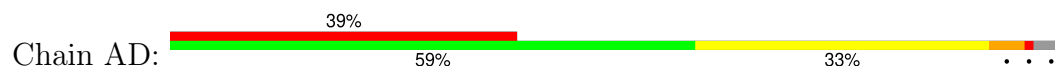


• Molecule 8: Large ribosomal subunit protein uL4

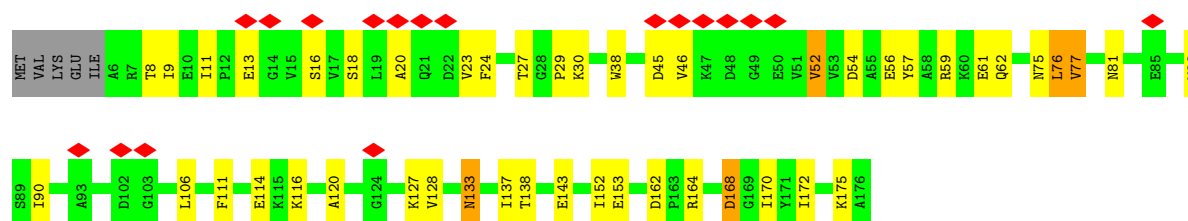




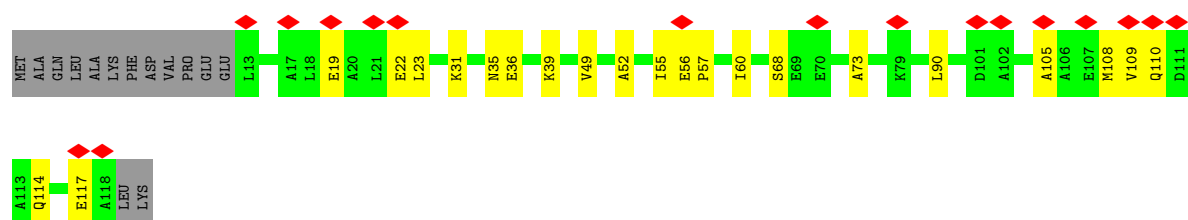
- Molecule 9: Large ribosomal subunit protein uL5



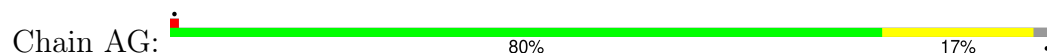
- Molecule 10: Large ribosomal subunit protein uL6



- Molecule 11: Large ribosomal subunit protein eL8

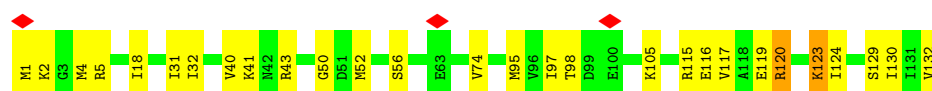


- Molecule 12: Large ribosomal subunit protein uL13



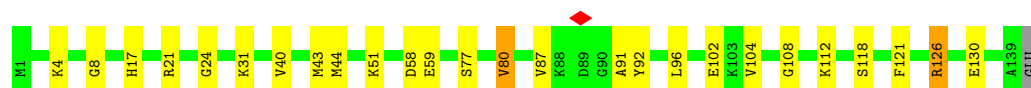
- Molecule 13: Large ribosomal subunit protein uL14

Chain AH: 



- Molecule 14: Large ribosomal subunit protein uL15

Chain AI: 



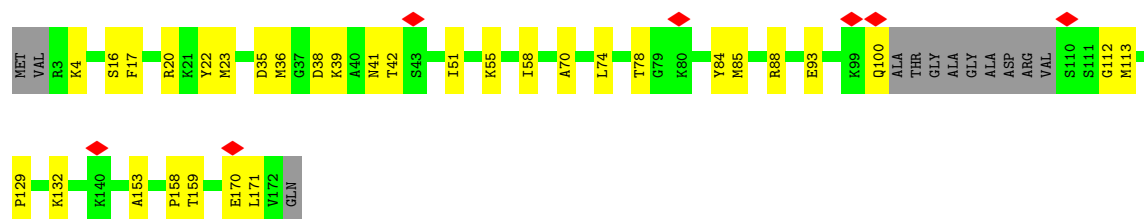
- Molecule 15: Large ribosomal subunit protein eL15

Chain AJ: 



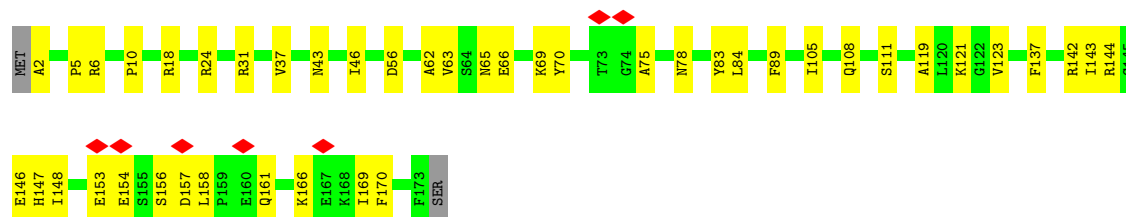
- Molecule 16: Large ribosomal subunit protein uL16

Chain AK: 



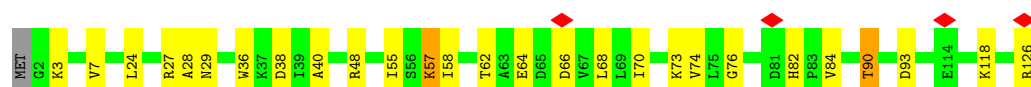
- Molecule 17: Large ribosomal subunit protein uL18

Chain AL: 



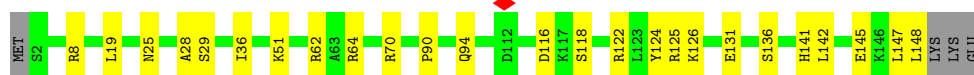
- Molecule 18: Large ribosomal subunit protein eL18

Chain AM: 



- Molecule 19: Large ribosomal subunit protein eL19

Chain AN:  81% 17% .



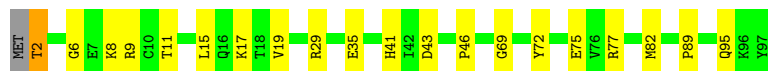
- Molecule 20: Large ribosomal subunit protein eL20

Chain AO:  13% 72% 20% 8%



- Molecule 21: Large ribosomal subunit protein eL21

Chain AP:  78% 20% ..



- Molecule 22: Large ribosomal subunit protein uL22

Chain AQ:  82% 17% .



- Molecule 23: Large ribosomal subunit protein uL23

Chain AR:  77% 20% .



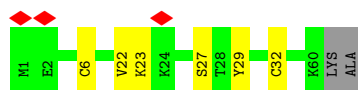
- Molecule 24: Large ribosomal subunit protein uL24

Chain AS:  76% 19% ..

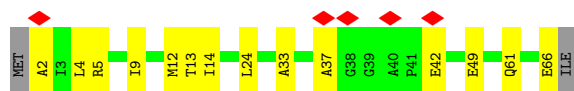
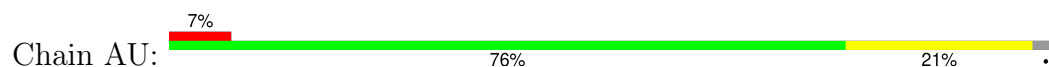


- Molecule 25: Large ribosomal subunit protein eL24

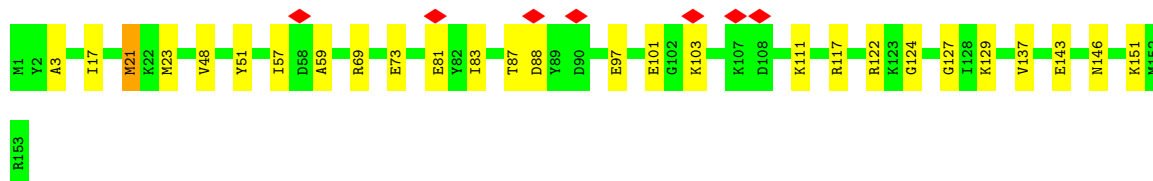
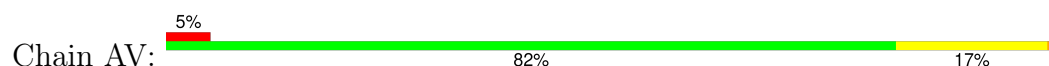
Chain AT:  5% 87% 10% .



- Molecule 26: Large ribosomal subunit protein uL29



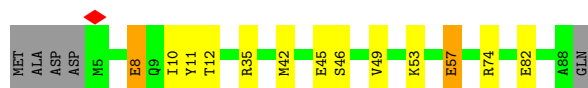
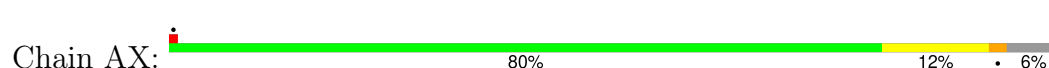
- Molecule 27: Large ribosomal subunit protein uL30



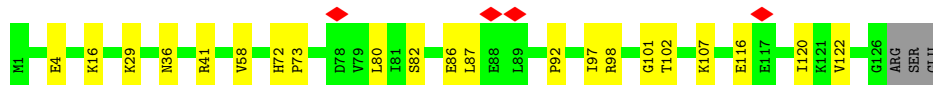
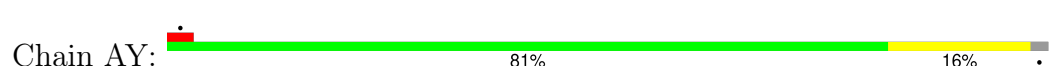
- Molecule 28: Large ribosomal subunit protein eL30



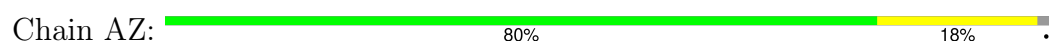
- Molecule 29: Large ribosomal subunit protein eL31



- Molecule 30: Large ribosomal subunit protein eL32

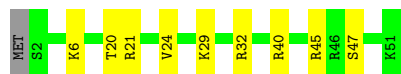


- Molecule 31: Large ribosomal subunit protein eL37



- Molecule 32: Large ribosomal subunit protein eL39

Chain Aa: 



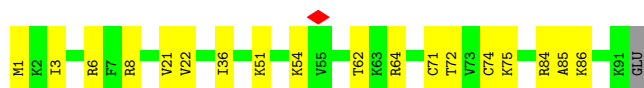
- Molecule 33: Large ribosomal subunit protein eL40

Chain Ab: 



- Molecule 34: Large ribosomal subunit protein eL42

Chain Ac: 



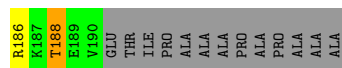
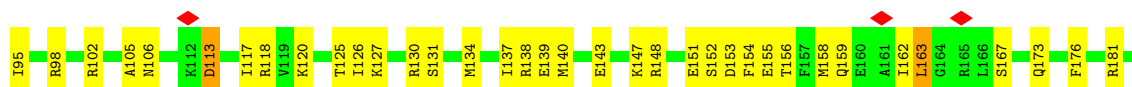
- Molecule 35: Large ribosomal subunit protein eL43

Chain Ad: 



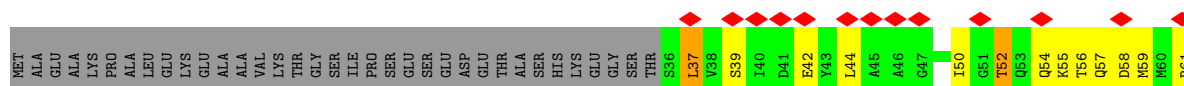
- Molecule 36: Small ribosomal subunit protein eS1

Chain BA: 

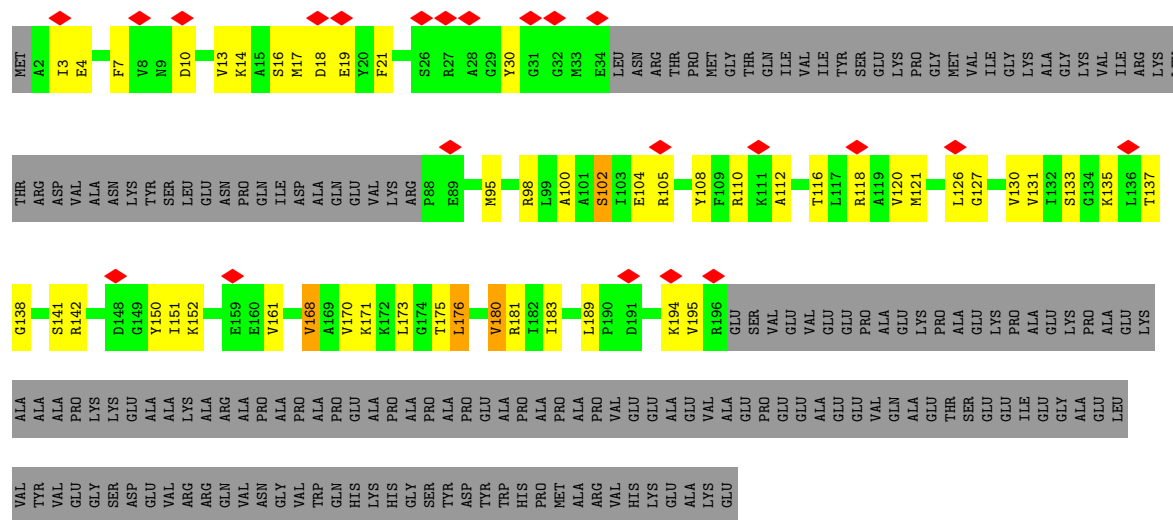
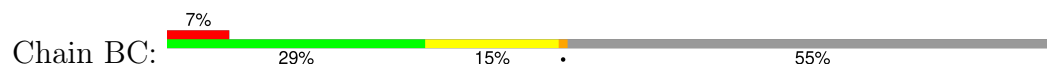


- Molecule 37: Small ribosomal subunit protein uS2

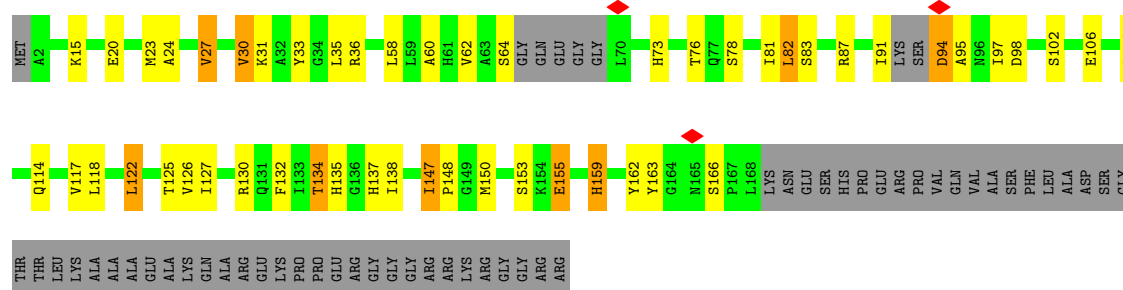
Chain BB: 



- Molecule 38: Small ribosomal subunit protein uS3



- Molecule 39: Small ribosomal subunit protein uS4

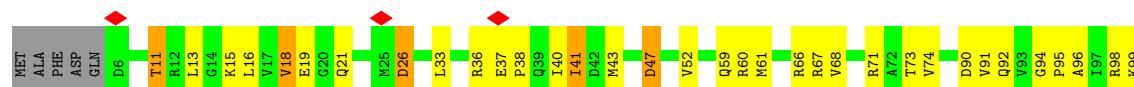


- Molecule 40: Small ribosomal subunit protein eS4

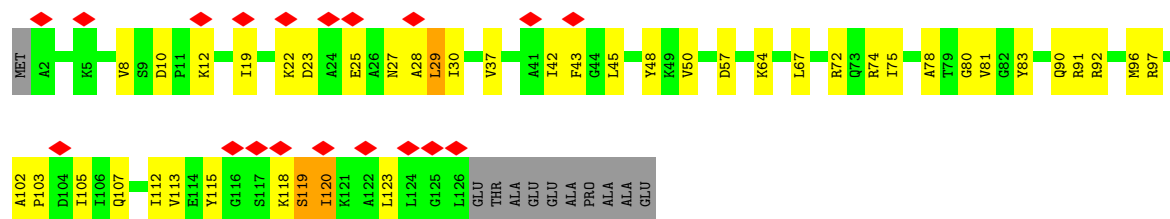




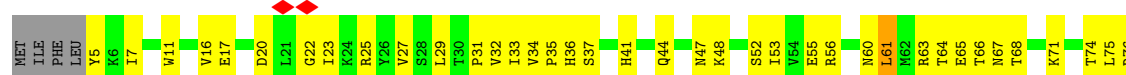
- Molecule 41: Small ribosomal subunit protein uS5



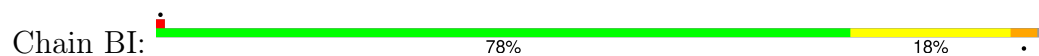
- Molecule 42: Small ribosomal subunit protein eS6



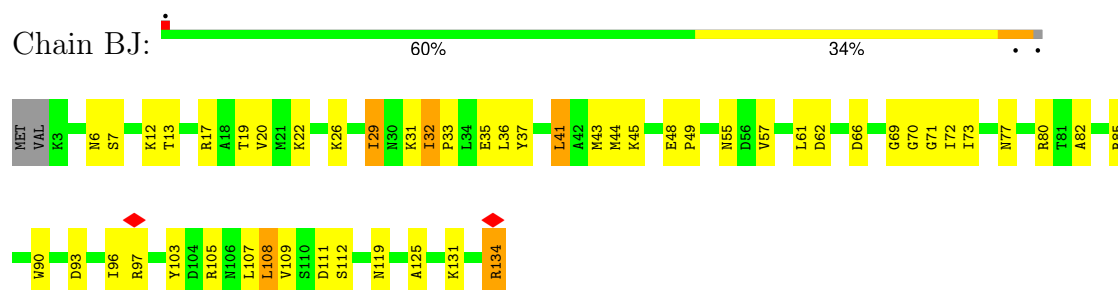
- Molecule 43: Small ribosomal subunit protein uS7



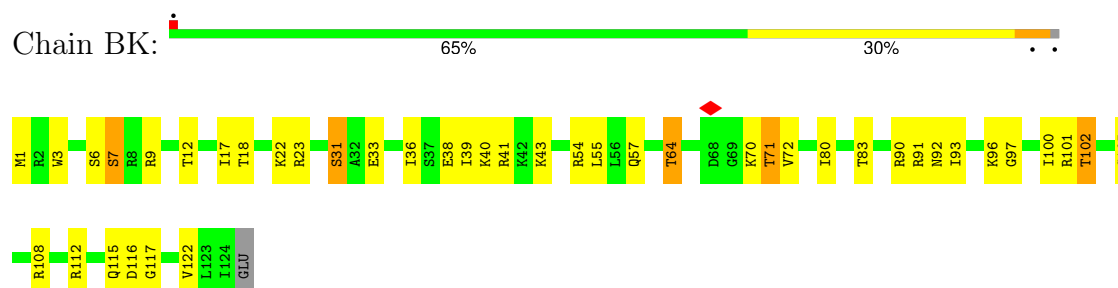
- Molecule 44: Small ribosomal subunit protein uS8



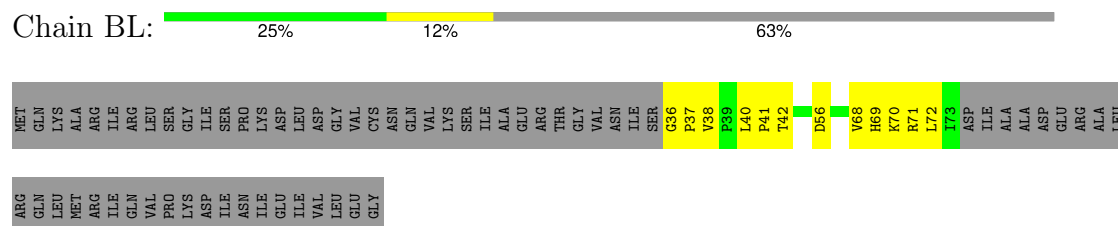
- Molecule 45: Small ribosomal subunit protein uS9



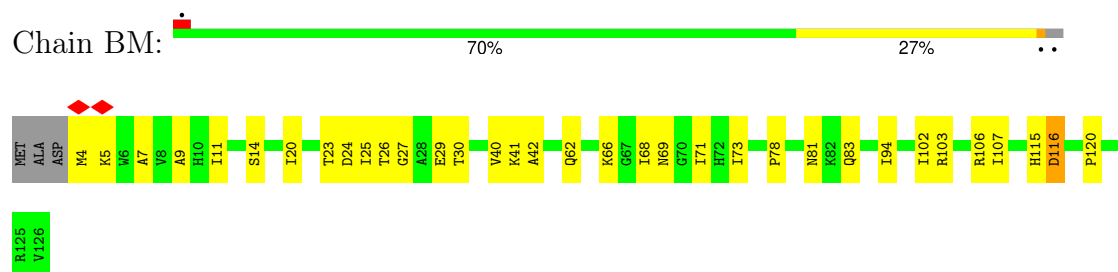
- Molecule 46: Small ribosomal subunit protein eS8



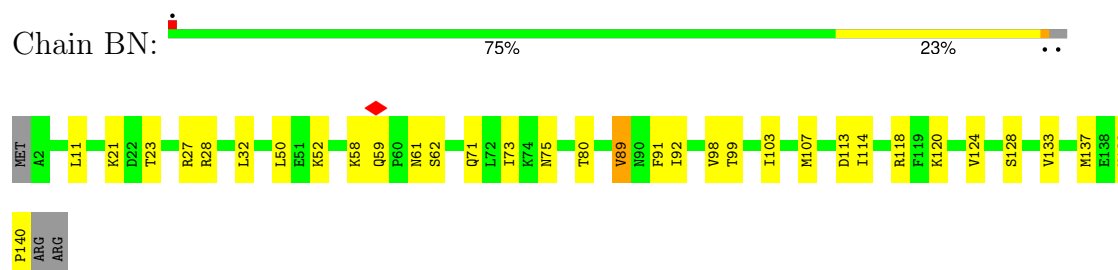
- Molecule 47: Small ribosomal subunit protein uS10



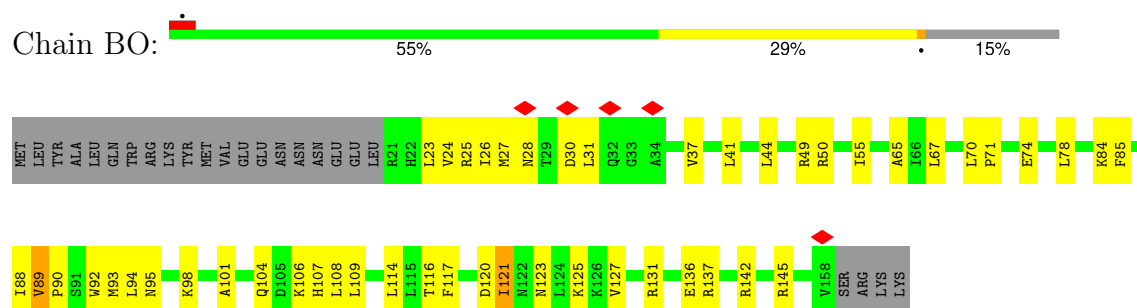
- Molecule 48: Small ribosomal subunit protein uS11



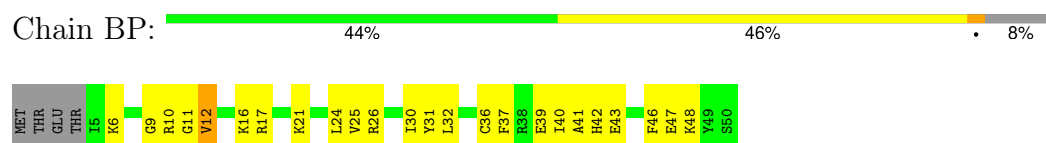
- Molecule 49: Small ribosomal subunit protein uS12



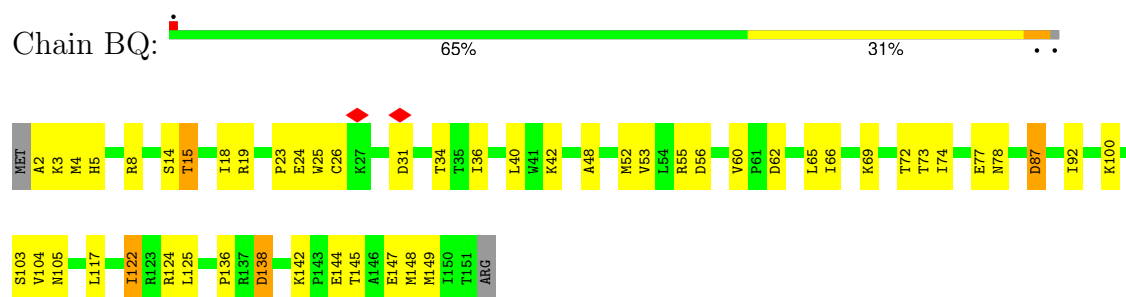
- Molecule 50: Small ribosomal subunit protein uS13



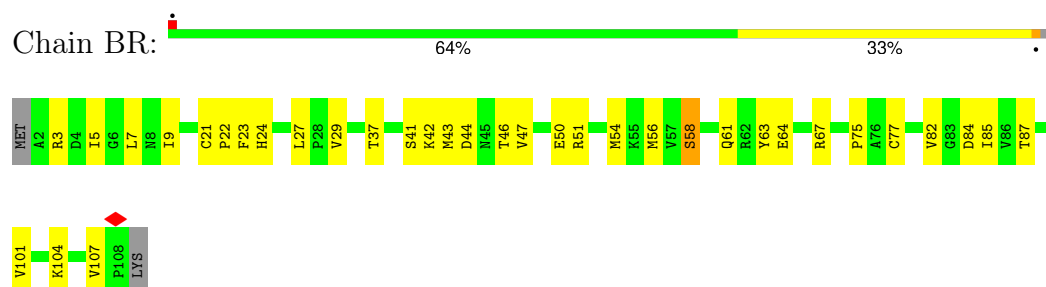
- Molecule 51: Small ribosomal subunit protein uS14



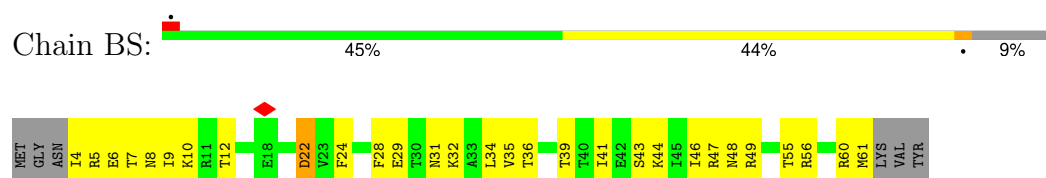
- Molecule 52: Small ribosomal subunit protein uS15



- Molecule 53: Small ribosomal subunit protein uS17A

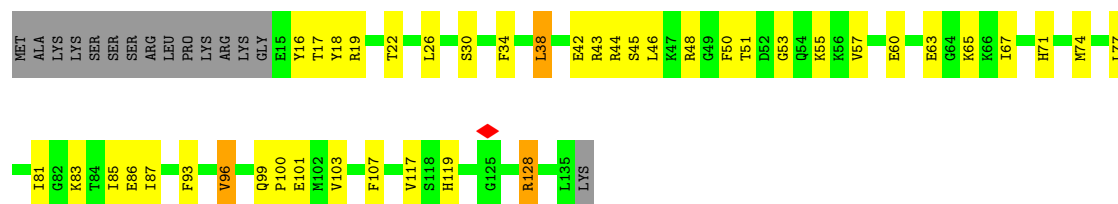


- Molecule 54: Small ribosomal subunit protein eS17

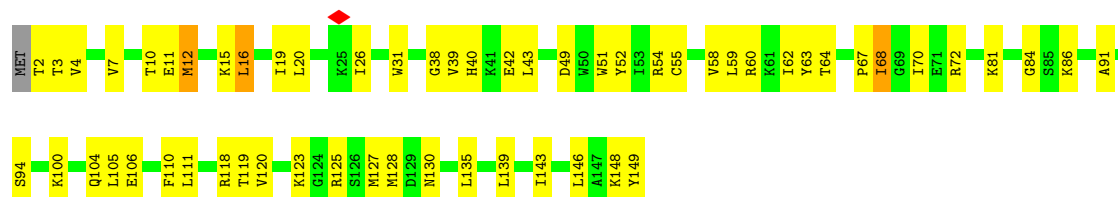


- Molecule 55: Small ribosomal subunit protein uS19

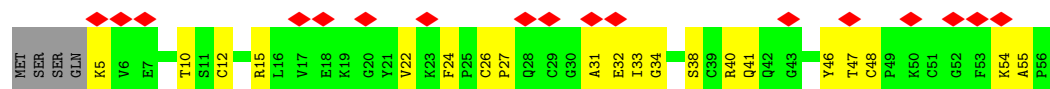




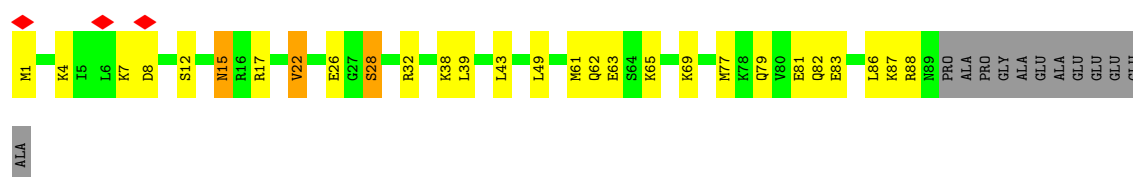
- Molecule 56: Small ribosomal subunit protein eS19



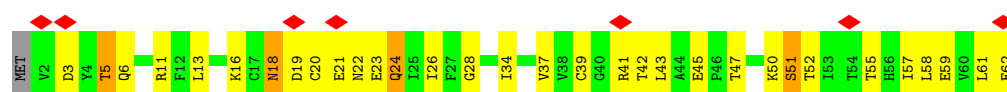
- Molecule 57: Putative zinc finger domain-containing protein



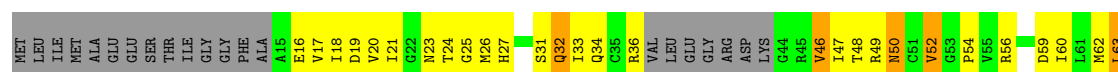
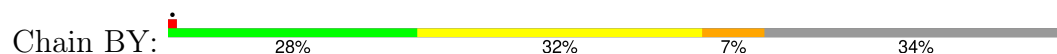
- Molecule 58: Small ribosomal subunit protein eS24



- Molecule 59: Small ribosomal subunit protein eS27

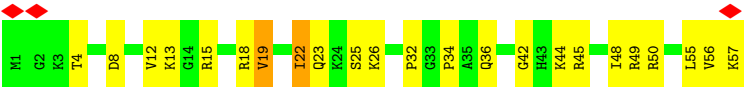


- Molecule 60: Small ribosomal subunit protein eS28





• Molecule 61: DUF5350 family protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	5477	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.734	Depositor
Minimum map value	-0.247	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.142	Depositor
Map size (Å)	423.1168, 423.1168, 423.1168	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8264, 0.8264, 0.8264	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MA6, 5MC, OMU, OMG, 6MZ, MG, ZN, 5MU, IAS

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	1	0.29	0/64866	0.32	0/101141
2	2	0.23	0/3011	0.31	0/4689
3	3	0.28	0/34118	0.35	3/53210 (0.0%)
4	6	0.79	0/2211	1.35	5/2992 (0.2%)
5	7	0.76	0/2020	1.29	0/2731
6	AA	0.26	0/1821	0.38	0/2462
7	AB	0.26	0/2632	0.38	0/3552
8	AC	0.25	0/1963	0.36	0/2654
9	AD	0.31	0/1261	0.57	0/1697
10	AE	0.29	0/1350	0.46	0/1816
11	AF	0.21	0/784	0.32	0/1055
12	AG	0.26	0/1107	0.35	0/1484
13	AH	0.25	0/1009	0.38	0/1355
14	AI	0.30	0/1061	0.45	0/1413
15	AJ	0.31	0/1616	0.39	0/2166
16	AK	0.23	0/1300	0.36	0/1741
17	AL	0.26	0/1367	0.40	0/1845
18	AM	0.23	0/966	0.36	0/1302
19	AN	0.24	0/1173	0.35	0/1558
20	AO	0.21	0/454	0.34	0/602
21	AP	0.28	0/779	0.34	0/1042
22	AQ	0.24	0/1169	0.36	0/1564
23	AR	0.27	0/641	0.42	0/856
24	AS	0.23	0/889	0.33	0/1189
25	AT	0.24	0/493	0.27	0/652
26	AU	0.23	0/517	0.43	0/695
27	AV	0.26	0/1258	0.38	0/1692
28	AW	0.20	0/610	0.42	0/825
29	AX	0.25	0/697	0.36	0/937
30	AY	0.26	0/997	0.35	0/1333
31	AZ	0.30	0/443	0.39	0/583
32	Aa	0.26	0/439	0.33	0/585

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Ab	0.23	0/350	0.45	0/461
34	Ac	0.24	0/767	0.34	0/1017
35	Ad	0.22	0/712	0.34	0/950
36	BA	0.25	0/1444	0.45	0/1947
37	BB	0.21	0/1504	0.39	0/2045
38	BC	0.22	0/1102	0.39	0/1477
39	BD	0.24	0/1309	0.34	0/1757
40	BE	0.25	0/1822	0.37	0/2451
41	BF	0.24	0/1552	0.40	0/2105
42	BG	0.27	0/948	0.46	0/1273
43	BH	0.21	0/1380	0.42	0/1858
44	BI	0.33	0/996	0.39	0/1343
45	BJ	0.23	0/1013	0.44	0/1364
46	BK	0.25	0/962	0.37	0/1288
47	BL	0.24	0/312	0.33	0/425
48	BM	0.26	0/915	0.42	0/1230
49	BN	0.24	0/1071	0.32	0/1438
50	BO	0.35	0/1085	0.61	0/1458
51	BP	0.24	0/388	0.44	0/510
52	BQ	0.30	0/1227	0.40	0/1654
53	BR	0.28	0/846	0.39	0/1144
54	BS	0.22	0/481	0.45	0/645
55	BT	0.45	0/987	0.66	0/1319
56	BU	0.27	0/1177	0.50	0/1586
57	BV	0.19	0/402	0.34	0/539
58	BW	0.23	0/736	0.35	0/983
59	BX	0.22	0/479	0.40	0/645
60	BY	0.18	0/374	0.42	0/500
61	BZ	0.24	0/459	0.38	0/603
All	All	0.30	0/161822	0.41	8/239433 (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
4	6	0	3
5	7	0	1
15	AJ	0	1
44	BI	0	1
45	BJ	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
48	BM	0	1
50	BO	0	2
55	BT	0	1
All	All	0	11

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	6	29	ARG	NE-CZ-NH2	7.84	126.26	119.20
3	3	994	A	O3'-P-O5'	-6.21	94.69	104.00
3	3	993	C	C2'-C3'-O3'	6.08	118.62	109.50
4	6	24	ARG	NE-CZ-NH2	6.04	124.64	119.20
4	6	29	ARG	CD-NE-CZ	6.03	132.85	124.40
4	6	65	ARG	NE-CZ-NH2	5.42	124.08	119.20
4	6	31	ARG	NE-CZ-NH2	5.25	123.93	119.20
3	3	991	U	C4'-C3'-C2'	-5.09	97.50	102.60

There are no chirality outliers.

All (11) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	6	167	ARG	Sidechain
4	6	24	ARG	Sidechain
4	6	9	SER	Peptide
5	7	75	ARG	Sidechain
15	AJ	177	ARG	Sidechain
44	BI	78	ARG	Sidechain
45	BJ	134	ARG	Sidechain
48	BM	124	ARG	Sidechain
50	BO	142	ARG	Sidechain
50	BO	145	ARG	Sidechain
55	BT	128	ARG	Sidechain

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	1	58043	0	29263	582	0
2	2	2697	0	1371	41	0
3	3	30583	0	15425	494	0
4	6	2186	0	2304	11	0
5	7	1996	0	2061	9	0
6	AA	1779	0	1804	32	0
7	AB	2583	0	2674	45	0
8	AC	1929	0	1989	29	0
9	AD	1241	0	1272	58	0
10	AE	1329	0	1375	31	0
11	AF	779	0	820	12	0
12	AG	1092	0	1142	21	0
13	AH	998	0	1059	21	0
14	AI	1048	0	1038	16	0
15	AJ	1584	0	1625	20	0
16	AK	1277	0	1318	21	0
17	AL	1341	0	1341	29	0
18	AM	953	0	1009	20	0
19	AN	1159	0	1233	14	0
20	AO	447	0	457	10	0
21	AP	765	0	777	13	0
22	AQ	1149	0	1186	18	0
23	AR	633	0	662	12	0
24	AS	880	0	935	15	0
25	AT	484	0	497	3	0
26	AU	515	0	524	12	0
27	AV	1236	0	1269	19	0
28	AW	605	0	643	15	0
29	AX	685	0	723	8	0
30	AY	981	0	1033	17	0
31	AZ	436	0	443	7	0
32	Aa	430	0	467	5	0
33	Ab	348	0	369	5	0
34	Ac	750	0	791	10	0
35	Ad	699	0	730	6	0
36	BA	1426	0	1477	45	0
37	BB	1476	0	1482	50	0
38	BC	1085	0	1098	38	0
39	BD	1288	0	1331	30	0
40	BE	1796	0	1878	50	0
41	BF	1527	0	1581	46	0
42	BG	935	0	988	36	0
43	BH	1363	0	1415	59	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	BI	980	0	1008	15	0
45	BJ	1001	0	1034	53	0
46	BK	954	0	1021	33	0
47	BL	302	0	314	9	0
48	BM	910	0	936	31	0
49	BN	1057	0	1104	20	0
50	BO	1071	0	1127	36	0
51	BP	382	0	384	19	0
52	BQ	1206	0	1280	50	0
53	BR	831	0	852	22	0
54	BS	476	0	499	28	0
55	BT	968	0	980	26	0
56	BU	1154	0	1185	48	0
57	BV	394	0	388	15	0
58	BW	729	0	762	19	0
59	BX	474	0	481	24	0
60	BY	374	0	386	23	0
61	BZ	452	0	502	21	0
62	1	239	0	0	0	0
62	2	1	0	0	0	0
62	3	64	0	0	0	0
62	7	1	0	0	0	0
62	AA	1	0	0	0	0
62	AB	2	0	0	0	0
62	AH	1	0	0	0	0
62	AI	2	0	0	0	0
62	AZ	1	0	0	0	0
62	BF	1	0	0	0	0
62	BM	1	0	0	0	0
63	AT	1	0	0	0	0
63	AZ	1	0	0	0	0
63	Ab	1	0	0	0	0
63	Ac	1	0	0	0	0
63	Ad	1	0	0	0	0
63	BF	1	0	0	0	0
63	BP	1	0	0	0	0
63	BR	1	0	0	0	0
63	BV	2	0	0	0	0
63	BX	1	0	0	0	0
All	All	150576	0	107122	2208	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 9.

All (2208) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:1371:G:H1	3:3:1414:U:H3	1.07	0.97
27:AV:21:MET:HE1	27:AV:51:TYR:HB2	1.60	0.84
3:3:1103:G:N7	54:BS:44:LYS:NZ	2.24	0.84
43:BH:22:GLY:H	60:BY:62:MET:HE1	1.43	0.84
46:BK:1:MET:HE3	46:BK:3:TRP:HB2	1.58	0.83
45:BJ:48:GLU:HG2	45:BJ:49:PRO:HD3	1.60	0.83
3:3:120:C:H5	3:3:154:G:H1	1.26	0.82
3:3:499:G:N3	3:3:501:U:O2'	2.13	0.82
6:AA:130:VAL:HG12	6:AA:131:THR:HG23	1.62	0.81
1:1:1820:A:HO2'	31:AZ:2:SER:N	1.78	0.80
36:BA:113:ASP:OD1	36:BA:113:ASP:N	2.13	0.80
6:AA:85:ASP:OD1	6:AA:152:LYS:NZ	2.14	0.80
24:AS:83:ILE:HD13	24:AS:91:GLU:HG3	1.63	0.79
58:BW:26:GLU:O	58:BW:62:GLN:NE2	2.14	0.79
1:1:2799:U:H4'	7:AB:117:PRO:HB3	1.63	0.79
1:1:1264:A:OP2	18:AM:3:LYS:NZ	2.14	0.79
1:1:1952:A:H2'	1:1:1953:A:C8	2.18	0.78
1:1:217:G:H5'	1:1:218:C:H5''	1.64	0.78
3:3:1294:G:N7	45:BJ:12:LYS:NZ	2.31	0.78
2:2:4:U:H3	2:2:124:G:H1	1.29	0.78
3:3:1086:G:H4'	3:3:1087:A:H5'	1.66	0.77
13:AH:31:ILE:HD11	13:AH:95:MET:HE1	1.66	0.77
3:3:625:G:H21	48:BM:30:THR:HG21	1.48	0.77
55:BT:87:ILE:HG12	55:BT:107:PHE:HB3	1.67	0.77
17:AL:43:ASN:ND2	17:AL:65:ASN:OD1	2.18	0.76
12:AG:61:ALA:H	12:AG:65:GLY:HA3	1.50	0.76
15:AJ:96:MET:HE3	15:AJ:100:ARG:HB3	1.67	0.76
55:BT:81:ILE:HD13	55:BT:100:PRO:HA	1.68	0.76
3:3:1067:C:H4'	45:BJ:17:ARG:HH12	1.51	0.76
47:BL:70:LYS:NZ	47:BL:71:ARG:O	2.18	0.75
1:1:2566:U:H3	1:1:2572:G:H22	1.33	0.75
3:3:328:G:O2'	3:3:329:G:O4'	2.05	0.75
9:AD:43:LYS:HB2	9:AD:44:ARG:HH21	1.51	0.75
3:3:597:A:H5'	52:BQ:4:MET:HE2	1.67	0.75
1:1:1295:G:OP2	8:AC:178:ARG:NH2	2.20	0.75
3:3:1073:U:H2'	3:3:1074:G:H8	1.52	0.75
3:3:908:G:H1	3:3:919:C:H5	1.34	0.74
41:BF:21:GLN:N	41:BF:21:GLN:OE1	2.19	0.74
9:AD:12:HIS:HB3	9:AD:119:ASP:HB2	1.69	0.74
1:1:718:G:OP1	18:AM:57:LYS:NZ	2.20	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:BF:201:PRO:HD2	41:BF:205:GLY:HA2	1.70	0.74
13:AH:1:MET:HE3	13:AH:2:LYS:H	1.51	0.74
22:AQ:106:PRO:HA	22:AQ:109:MET:HG3	1.70	0.74
48:BM:78:PRO:HG2	48:BM:83:GLN:HB2	1.68	0.74
3:3:892:A:H2'	3:3:893:G:C8	2.23	0.74
41:BF:47:ASP:N	41:BF:47:ASP:OD1	2.20	0.74
9:AD:102:THR:HA	9:AD:107:MET:HE3	1.69	0.74
37:BB:37:LEU:HD22	37:BB:201:LEU:HD21	1.69	0.73
3:3:1099:U:OP1	47:BL:69:HIS:ND1	2.20	0.73
3:3:1307:A:H8	51:BP:9:GLY:HA3	1.53	0.73
3:3:1371:G:N2	3:3:1414:U:O2	2.20	0.72
37:BB:182:ASP:OD1	57:BV:40:ARG:NH1	2.21	0.72
41:BF:196:ASN:OD1	41:BF:196:ASN:N	2.21	0.72
9:AD:10:ILE:HB	9:AD:121:THR:HB	1.72	0.72
51:BP:17:ARG:NH2	51:BP:39:GLU:OE1	2.22	0.72
58:BW:69:LYS:NZ	58:BW:81:GLU:OE2	2.21	0.72
43:BH:111:VAL:HG11	60:BY:52:VAL:HG11	1.72	0.72
37:BB:83:ILE:HG12	37:BB:201:LEU:HD12	1.72	0.72
42:BG:102:ALA:H	42:BG:105:ILE:HD12	1.54	0.72
44:BI:90:GLU:OE2	44:BI:113:GLN:NE2	2.19	0.72
9:AD:131:ILE:HA	9:AD:134:ARG:HE	1.54	0.72
56:BU:40:HIS:HB3	56:BU:91:ALA:HB3	1.72	0.72
3:3:1197:A:H4'	45:BJ:69:GLY:HA2	1.71	0.71
37:BB:58:ASP:O	37:BB:61:ARG:NH1	2.23	0.71
14:AI:80:VAL:HG21	14:AI:87:VAL:HG23	1.71	0.71
20:AO:9:VAL:HG22	20:AO:58:VAL:HG22	1.72	0.71
1:1:1893:A:H2'	1:1:1894:A:C8	2.26	0.71
34:Ac:62:THR:OG1	34:Ac:86:LYS:NZ	2.22	0.71
3:3:468:C:N4	49:BN:61:ASN:OD1	2.22	0.71
3:3:1118:A:H5'	54:BS:4:ILE:HG22	1.71	0.71
41:BF:19:GLU:N	41:BF:19:GLU:OE1	2.24	0.71
1:1:2801:U:O2'	1:1:2804:A:N3	2.23	0.71
3:3:1306:C:N4	51:BP:12:VAL:O	2.22	0.71
1:1:129:U:H4'	1:1:130:A:H5'	1.71	0.71
3:3:601:G:H2'	3:3:602:G:C8	2.25	0.71
1:1:2599:U:H2'	1:1:2600:U:H2'	1.71	0.71
53:BR:87:THR:HB	53:BR:104:LYS:HB2	1.73	0.71
1:1:475:A:OP1	8:AC:87:LYS:NZ	2.24	0.70
52:BQ:87:ASP:OD1	52:BQ:87:ASP:N	2.24	0.70
60:BY:20:VAL:HA	60:BY:33:ILE:HG22	1.73	0.70
1:1:1223:A:H4'	1:1:1224:A:H5''	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:1057:C:H1'	3:3:1126:A:C4	2.26	0.70
21:AP:17:LYS:HG3	21:AP:46:PRO:HG2	1.72	0.70
42:BG:118:LYS:HB3	42:BG:123:LEU:HD21	1.73	0.70
45:BJ:37:TYR:HB3	45:BJ:43:MET:HB2	1.72	0.70
45:BJ:80:ARG:HH21	45:BJ:107:LEU:HD13	1.56	0.70
3:3:1069:A:H2'	3:3:1070:G:C8	2.27	0.70
3:3:1073:U:H2'	3:3:1074:G:C8	2.27	0.69
41:BF:199:ARG:NH2	57:BV:12:CYS:O	2.24	0.69
53:BR:5:ILE:HD12	53:BR:7:LEU:HD12	1.72	0.69
28:AW:91:GLU:CD	52:BQ:42:LYS:HZ2	2.00	0.69
49:BN:92:ILE:HD11	49:BN:98:VAL:HG11	1.73	0.69
3:3:628:A:N6	3:3:644:A:O2'	2.26	0.69
28:AW:91:GLU:CD	52:BQ:42:LYS:NZ	2.50	0.69
38:BC:135:LYS:H	38:BC:141:SER:HA	1.56	0.69
60:BY:26:MET:N	60:BY:26:MET:SD	2.65	0.69
2:2:122:A:H2'	2:2:123:A:C8	2.26	0.69
3:3:786:C:H4'	3:3:787:G:H5'	1.74	0.69
3:3:1253:A:H61	3:3:1278:G:H1'	1.57	0.69
3:3:1424:G:H2'	3:3:1425:G:C8	2.28	0.69
7:AB:102:TRP:O	7:AB:122:GLN:NE2	2.19	0.69
42:BG:78:ALA:HB2	42:BG:91:ARG:HG3	1.75	0.69
3:3:434:A:H4'	3:3:435:G:H5'	1.74	0.69
3:3:660:C:N3	36:BA:102:ARG:NH1	2.40	0.69
9:AD:57:ILE:HD12	9:AD:58:GLY:N	2.08	0.69
12:AG:41:ILE:HG13	12:AG:121:MET:HE2	1.75	0.69
18:AM:64:GLU:N	18:AM:64:GLU:OE1	2.26	0.69
23:AR:9:VAL:HA	23:AR:14:MET:HE2	1.74	0.68
3:3:558:C:N4	3:3:561:A:OP2	2.24	0.68
43:BH:17:GLU:H	43:BH:95:GLN:HE22	1.41	0.68
1:1:1730:G:O2'	1:1:2016:U:O4	2.11	0.68
1:1:1934:G:H2'	1:1:1935:G:C8	2.28	0.68
3:3:853:A:H2'	3:3:854:A:H8	1.57	0.68
35:Ad:13:ARG:NH1	35:Ad:32:ASP:OD1	2.20	0.68
38:BC:98:ARG:O	38:BC:102:SER:OG	2.11	0.68
7:AB:216:ARG:HA	7:AB:256:MET:HE3	1.74	0.68
54:BS:4:ILE:O	54:BS:49:ARG:NH2	2.25	0.68
39:BD:94:ASP:N	39:BD:94:ASP:OD1	2.25	0.68
52:BQ:15:THR:HG22	59:BX:6:GLN:HG2	1.74	0.68
3:3:1013:A:OP1	41:BF:36:ARG:NH1	2.26	0.68
37:BB:171:LEU:O	37:BB:189:ASN:ND2	2.27	0.68
1:1:1793:G:N2	1:1:1796:G:OP2	2.25	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:1120:C:H2'	3:3:1121:G:H8	1.59	0.67
52:BQ:56:ASP:HB3	59:BX:34:ILE:HD11	1.76	0.67
9:AD:110:ASP:HB3	9:AD:113:ILE:HB	1.75	0.67
45:BJ:36:LEU:HD11	56:BU:146:LEU:HD21	1.76	0.67
46:BK:80:ILE:HD11	46:BK:101:ARG:HB2	1.75	0.67
3:3:697:G:OP2	52:BQ:124:ARG:NH2	2.28	0.67
3:3:1234:A:H2'	3:3:1235:A:C8	2.29	0.67
3:3:1260:G:OP2	55:BT:43:ARG:NH2	2.25	0.67
24:AS:6:SER:O	24:AS:12:GLN:NE2	2.27	0.67
45:BJ:93:ASP:HB3	45:BJ:96:ILE:HG12	1.76	0.67
36:BA:36:MET:SD	36:BA:36:MET:N	2.68	0.67
43:BH:25:ARG:NH1	60:BY:59:ASP:OD1	2.28	0.67
1:1:128:G:H21	1:1:130:A:H61	1.43	0.67
9:AD:46:LEU:HD12	9:AD:49:PHE:HB2	1.76	0.67
38:BC:104:GLU:OE2	38:BC:170:VAL:N	2.27	0.67
7:AB:304:PRO:HD2	7:AB:307:ARG:HB2	1.77	0.67
48:BM:4:MET:HB3	48:BM:69:ASN:HD21	1.60	0.67
57:BV:22:VAL:HG22	57:BV:40:ARG:HD2	1.77	0.67
3:3:1079:C:OP2	3:3:1080:C:N4	2.27	0.66
42:BG:83:TYR:OH	42:BG:90:GLN:O	2.11	0.66
1:1:2066:G:N7	12:AG:87:LYS:NZ	2.42	0.66
20:AO:29:GLN:OE1	20:AO:33:ASN:ND2	2.28	0.66
56:BU:106:GLU:OE2	56:BU:118:ARG:NE	2.29	0.66
1:1:709:U:N3	1:1:711:U:O4	2.22	0.66
12:AG:106:TYR:HA	12:AG:109:LYS:HE3	1.76	0.66
1:1:334:G:N1	24:AS:59:ASP:OD2	2.22	0.66
37:BB:108:GLN:NE2	37:BB:124:LEU:HB3	2.10	0.66
60:BY:36:ARG:HB2	60:BY:46:VAL:HG22	1.77	0.66
3:3:688:G:O2'	52:BQ:55:ARG:NH1	2.29	0.66
42:BG:64:LYS:HB2	42:BG:67:LEU:HD12	1.78	0.66
1:1:504:G:N1	1:1:507:A:OP2	2.27	0.66
9:AD:8:LYS:HE3	9:AD:10:ILE:HD11	1.78	0.66
3:3:435:G:N2	3:3:437:A:N7	2.40	0.65
9:AD:47:PRO:HA	9:AD:50:SER:HA	1.78	0.65
26:AU:14:ILE:H	26:AU:14:ILE:HD12	1.61	0.65
54:BS:56:ARG:HA	54:BS:60:ARG:HH11	1.62	0.65
2:2:122:A:H2'	2:2:123:A:H8	1.61	0.65
3:3:33:U:H5'	61:BZ:15:ARG:HB3	1.78	0.65
59:BX:20:CYS:SG	59:BX:39:CYS:HB3	2.36	0.65
17:AL:63:VAL:HG12	17:AL:65:ASN:H	1.61	0.65
40:BE:30:PRO:HD2	40:BE:78:PRO:HG2	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:BQ:62:ASP:HB3	52:BQ:65:LEU:HB2	1.78	0.65
3:3:1265:A:OP2	55:BT:48:ARG:NH2	2.29	0.65
3:3:1272:C:OP1	56:BU:86:LYS:NZ	2.30	0.65
43:BH:33:ILE:HD11	45:BJ:48:GLU:HB3	1.77	0.65
1:1:1693:G:OP1	19:AN:70:ARG:NH2	2.28	0.65
39:BD:102:SER:OG	41:BF:148:ARG:NH1	2.30	0.65
46:BK:38:GLU:OE2	46:BK:38:GLU:N	2.19	0.65
1:1:1893:A:H2'	1:1:1894:A:H8	1.62	0.65
1:1:1979:U:O2'	1:1:1981:G:N7	2.26	0.65
6:AA:75:ILE:HD11	6:AA:81:ILE:HD11	1.78	0.65
40:BE:178:GLY:HA3	40:BE:216:TYR:CG	2.32	0.65
58:BW:39:LEU:O	58:BW:43:LEU:HD12	1.97	0.65
3:3:1039:C:N4	3:3:1042:C:OP1	2.29	0.64
9:AD:29:LEU:O	9:AD:33:THR:OG1	2.15	0.64
1:1:972:G:N2	1:1:987:C:O2	2.29	0.64
37:BB:72:TYR:HB2	37:BB:174:THR:HG21	1.80	0.64
39:BD:31:LYS:NZ	61:BZ:42:GLY:O	2.30	0.64
1:1:2693:G:H4'	7:AB:11:SER:HB2	1.77	0.64
3:3:994:A:H2'	38:BC:135:LYS:HD2	1.78	0.64
36:BA:92:ILE:HD11	36:BA:186:ARG:HB2	1.79	0.64
54:BS:28:PHE:HE2	54:BS:32:LYS:HE2	1.61	0.64
3:3:615:G:O2'	48:BM:115:HIS:ND1	2.24	0.64
3:3:1063:G:O2'	3:3:1066:A:N6	2.30	0.64
42:BG:27:ASN:HA	42:BG:30:ILE:HG22	1.80	0.64
1:1:640:A:H62	1:1:1343:A:H2	1.44	0.64
1:1:1515:C:N3	1:1:1647:G:N1	2.35	0.64
45:BJ:26:LYS:HA	56:BU:148:LYS:HE3	1.80	0.64
2:2:43:C:O2'	9:AD:36:GLU:O	2.13	0.64
3:3:1093:A:N3	45:BJ:6:ASN:ND2	2.44	0.64
3:3:1429:U:H2'	3:3:1430:A:C8	2.32	0.64
24:AS:70:VAL:HG22	24:AS:77:ILE:HG22	1.80	0.64
40:BE:100:GLU:OE2	40:BE:101:LYS:HG3	1.98	0.64
50:BO:71:PRO:HD2	50:BO:74:GLU:HG3	1.80	0.64
1:1:1125:A:H2'	1:1:1126:A:C8	2.33	0.64
38:BC:121:MET:HE1	38:BC:127:GLY:HA2	1.80	0.63
3:3:764:U:HO2'	44:BI:2:VAL:N	1.96	0.63
28:AW:47:PRO:HG2	28:AW:50:ILE:HD12	1.81	0.63
43:BH:36:HIS:HD2	43:BH:71:LYS:HD3	1.61	0.63
1:1:2006:A:O2'	1:1:2007:G:OP1	2.14	0.63
10:AE:88:MET:HE3	10:AE:172:ILE:HG13	1.79	0.63
34:Ac:72:THR:O	34:Ac:75:LYS:NZ	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:BS:44:LYS:O	54:BS:48:ASN:ND2	2.31	0.63
1:1:631:G:O2'	1:1:1346:A:OP1	2.16	0.63
6:AA:40:ARG:HG2	6:AA:82:GLU:HB2	1.80	0.63
1:1:657:A:N7	1:1:741:G:O2'	2.29	0.63
1:1:2074:G:H2'	1:1:2075:G:C8	2.33	0.63
48:BM:69:ASN:HD22	48:BM:103:ARG:HH22	1.46	0.63
3:3:439:G:OP1	61:BZ:50:ARG:NH2	2.32	0.63
38:BC:19:GLU:OE2	51:BP:17:ARG:NH1	2.31	0.63
1:1:1481:C:H2'	1:1:1482:A:C8	2.33	0.62
1:1:1501:A:H2'	1:1:1502:U:C6	2.34	0.62
1:1:1658:G:H5''	1:1:1659:U:H5'	1.81	0.62
21:AP:6:GLY:O	21:AP:9:ARG:NH1	2.31	0.62
7:AB:276:GLU:N	7:AB:276:GLU:OE2	2.32	0.62
8:AC:115:ARG:NH1	8:AC:253:GLN:OE1	2.32	0.62
1:1:2515:U:O2'	1:1:2519:U:OP1	2.17	0.62
9:AD:47:PRO:C	9:AD:50:SER:H	2.07	0.62
3:3:357:U:O2'	40:BE:22:TRP:O	2.17	0.62
16:AK:70:ALA:HB2	16:AK:153:ALA:HB2	1.81	0.62
59:BX:19:ASP:OD1	59:BX:41:ARG:NH1	2.32	0.62
3:3:477:C:O2	61:BZ:4:THR:OG1	2.16	0.62
3:3:1273:C:OP1	56:BU:81:LYS:NZ	2.32	0.62
52:BQ:74:ILE:O	52:BQ:78:ASN:ND2	2.28	0.62
5:7:53:VAL:HG12	5:7:58:VAL:HA	1.82	0.62
23:AR:9:VAL:HG23	26:AU:37:ALA:HB2	1.82	0.62
39:BD:20:GLU:HA	39:BD:23:MET:HE2	1.81	0.62
59:BX:28:GLY:O	59:BX:51:SER:OG	2.18	0.62
6:AA:100:VAL:HG11	6:AA:129:VAL:HG21	1.82	0.61
18:AM:62:THR:HG21	18:AM:68:LEU:HD11	1.82	0.61
36:BA:155:GLU:HG2	36:BA:159:GLN:NE2	2.16	0.61
3:3:232:A:OP1	46:BK:9:ARG:NH2	2.32	0.61
1:1:133:G:H2'	1:1:134:A:C8	2.36	0.61
3:3:372:U:H2'	3:3:373:A:C8	2.34	0.61
3:3:920:G:N1	51:BP:24:LEU:O	2.30	0.61
3:3:1356:A:H2'	3:3:1357:A:H8	1.65	0.61
36:BA:95:ILE:O	36:BA:181:ARG:NH2	2.34	0.61
39:BD:134:THR:HG22	39:BD:135:HIS:HD2	1.64	0.61
52:BQ:147:GLU:CD	52:BQ:147:GLU:H	2.07	0.61
1:1:1949:C:H2'	1:1:1950:U:C6	2.36	0.61
1:1:2804:A:H2'	1:1:2805:A:C8	2.35	0.61
1:1:2689:A:H2'	1:1:2690:G:H8	1.65	0.61
38:BC:116:THR:O	38:BC:120:VAL:HG23	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:1105:C:H5	3:3:1128:G:H1	1.47	0.61
1:1:2319:U:H5	9:AD:97:GLY:HA3	1.64	0.61
2:2:10:G:OP1	17:AL:24:ARG:NH1	2.33	0.61
3:3:473:A:O2'	3:3:475:A:OP2	2.16	0.61
3:3:654:G:H2'	3:3:655:G:C8	2.35	0.61
51:BP:43:GLU:OE1	51:BP:43:GLU:N	2.33	0.61
1:1:1515:C:O2	1:1:1647:G:N2	2.20	0.61
39:BD:60:ALA:HB2	41:BF:119:GLU:HG3	1.82	0.61
3:3:386:G:N7	39:BD:36:ARG:NH2	2.49	0.61
43:BH:102:ALA:O	43:BH:107:ARG:NH2	2.32	0.61
1:1:1811:U:H2'	1:1:1812:A:C8	2.35	0.61
1:1:2582:G:H2'	1:1:2583:G:C8	2.36	0.61
15:AJ:23:GLU:OE2	15:AJ:23:GLU:N	2.29	0.61
41:BF:141:VAL:HG22	41:BF:174:THR:HG23	1.81	0.61
60:BY:34:GLN:HE22	60:BY:48:THR:HG22	1.65	0.61
1:1:727:U:H2'	1:1:728:A:C8	2.36	0.60
3:3:485:C:O2'	3:3:489:U:OP1	2.18	0.60
40:BE:82:PHE:O	40:BE:95:ARG:NH1	2.34	0.60
2:2:30:U:H2'	2:2:31:C:C6	2.36	0.60
22:AQ:11:ASP:OD2	22:AQ:14:THR:OG1	2.18	0.60
24:AS:56:MET:O	24:AS:61:LYS:NZ	2.34	0.60
38:BC:137:THR:OG1	38:BC:142:ARG:NH2	2.34	0.60
1:1:1263:U:H2'	1:1:1264:A:C8	2.36	0.60
3:3:161:C:H2'	3:3:162:A:H8	1.66	0.60
3:3:317:C:O2'	3:3:1380:A:N3	2.34	0.60
9:AD:45:THR:HA	9:AD:52:LYS:HA	1.83	0.60
60:BY:19:ASP:OD1	60:BY:34:GLN:HB2	2.00	0.60
40:BE:119:ARG:NH2	40:BE:121:ASN:OD1	2.34	0.60
40:BE:228:ARG:O	40:BE:228:ARG:NH1	2.34	0.60
1:1:1934:G:H2'	1:1:1935:G:H8	1.65	0.60
3:3:872:G:H2'	3:3:873:G:H5'	1.83	0.60
3:3:1270:G:H2'	3:3:1271:C:C6	2.37	0.60
37:BB:65:ARG:O	37:BB:73:VAL:N	2.32	0.60
43:BH:138:TYR:OH	43:BH:181:LYS:HD2	2.02	0.60
45:BJ:105:ARG:HH21	45:BJ:109:VAL:HG11	1.65	0.60
1:1:1040:A:H2'	1:1:1041:C:C6	2.36	0.60
3:3:614:G:H4'	36:BA:106:ASN:HD21	1.67	0.60
37:BB:66:VAL:HA	37:BB:72:TYR:HA	1.83	0.60
54:BS:22:ASP:OD1	54:BS:22:ASP:N	2.16	0.60
3:3:1252:G:H22	3:3:1278:G:H2'	1.67	0.59
3:3:1264:U:OP1	51:BP:10:ARG:NH2	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AS:34:GLU:H	24:AS:34:GLU:CD	2.09	0.59
42:BG:25:GLU:OE1	42:BG:42:ILE:HA	2.01	0.59
50:BO:85:PHE:HD2	50:BO:109:LEU:HD11	1.65	0.59
1:1:2306:U:H2'	1:1:2307:G:C8	2.37	0.59
1:1:2760:G:OP1	10:AE:75:ASN:ND2	2.31	0.59
42:BG:23:ASP:OD1	42:BG:25:GLU:HB2	2.03	0.59
1:1:467:G:N2	1:1:470:A:OP2	2.27	0.59
1:1:940:G:C4	27:AV:23:MET:HE1	2.37	0.59
1:1:1243:C:O2'	20:AO:43:GLY:O	2.17	0.59
3:3:619:U:H2'	3:3:620:A:C8	2.37	0.59
3:3:1372:U:H2'	3:3:1373:A:C8	2.37	0.59
42:BG:30:ILE:HD11	42:BG:103:PRO:HD3	1.83	0.59
1:1:705:A:O2'	18:AM:38:ASP:OD1	2.20	0.59
1:1:2319:U:C5	9:AD:97:GLY:HA3	2.37	0.59
1:1:2817:A:O2'	1:1:2819:A:OP2	2.18	0.59
3:3:1266:A:OP1	55:BT:45:SER:OG	2.19	0.59
13:AH:18:ILE:HD13	13:AH:95:MET:HE3	1.84	0.59
45:BJ:85:ARG:HH22	45:BJ:109:VAL:HA	1.67	0.59
3:3:161:C:H2'	3:3:162:A:C8	2.37	0.59
3:3:896:U:H2'	3:3:897:G:C8	2.38	0.59
3:3:1128:G:H4'	3:3:1129:G:H5'	1.85	0.59
17:AL:75:ALA:O	17:AL:78:ASN:ND2	2.36	0.59
56:BU:59:LEU:HD23	56:BU:105:LEU:HD13	1.85	0.59
7:AB:314:PRO:HB2	7:AB:317:ALA:HB2	1.84	0.59
36:BA:54:GLU:OE1	48:BM:106:ARG:NH1	2.36	0.59
1:1:682:C:O2'	1:1:744:U:OP1	2.21	0.59
28:AW:40:VAL:HG11	28:AW:54:ILE:HG12	1.85	0.59
56:BU:4:VAL:HB	56:BU:63:TYR:CE1	2.38	0.59
1:1:137:A:OP1	15:AJ:40:ARG:NH1	2.36	0.59
1:1:1861:A:H2'	1:1:1862:A:C8	2.38	0.59
3:3:1259:G:OP1	50:BO:98:LYS:NZ	2.32	0.59
21:AP:11:THR:HB	21:AP:15:LEU:HD12	1.83	0.59
40:BE:178:GLY:O	40:BE:182:SER:OG	2.19	0.59
50:BO:55:ILE:HD11	50:BO:85:PHE:CE1	2.37	0.59
1:1:2854:G:H4'	46:BK:90:ARG:HH12	1.66	0.59
2:2:50:C:H4'	17:AL:142:ARG:HH21	1.67	0.59
3:3:669:A:H2'	3:3:670:A:C8	2.38	0.58
7:AB:37:PRO:HA	7:AB:168:SER:O	2.03	0.58
1:1:896:U:OP2	14:AI:21:ARG:NH1	2.31	0.58
1:1:1529:C:H2'	1:1:1530:A:H8	1.67	0.58
3:3:690:U:H1'	52:BQ:52:MET:HG2	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:1106:C:N4	3:3:1120:C:OP2	2.36	0.58
52:BQ:144:GLU:HG2	52:BQ:145:THR:HG23	1.85	0.58
56:BU:42:GLU:HG2	56:BU:43:LEU:HG	1.85	0.58
3:3:257:G:H5''	53:BR:42:LYS:HB3	1.84	0.58
3:3:315:A:O2'	42:BG:91:ARG:O	2.17	0.58
15:AJ:171:GLY:O	15:AJ:196:LYS:NZ	2.28	0.58
1:1:2279:G:O6	21:AP:2:THR:N	2.36	0.58
1:1:2891:G:H3'	1:1:2892:U:H2'	1.84	0.58
2:2:17:G:HO2'	17:AL:2:ALA:N	2.01	0.58
3:3:459:C:OP2	49:BN:62:SER:OG	2.22	0.58
3:3:853:A:H2'	3:3:854:A:C8	2.37	0.58
6:AA:87:ALA:HB3	6:AA:95:VAL:HG12	1.86	0.58
39:BD:30:VAL:HA	39:BD:35:LEU:HD12	1.84	0.58
43:BH:94:ILE:HA	43:BH:97:LEU:HG	1.84	0.58
54:BS:35:VAL:O	54:BS:39:THR:HG22	2.03	0.58
56:BU:38:GLY:N	56:BU:94:SER:HB2	2.18	0.58
2:2:123:A:H2'	2:2:124:G:C8	2.38	0.58
41:BF:11:THR:OG1	41:BF:37:GLU:OE1	2.17	0.58
56:BU:4:VAL:HG13	56:BU:12:MET:SD	2.44	0.58
1:1:536:G:H2'	1:1:537:A:H8	1.67	0.58
3:3:1468:G:H2'	3:3:1469:A:C8	2.38	0.58
17:AL:154:GLU:OE2	17:AL:154:GLU:N	2.36	0.58
58:BW:1:MET:O	58:BW:38:LYS:NZ	2.35	0.58
1:1:72:G:H22	1:1:107:A:H2	1.51	0.58
3:3:1351:C:H2'	3:3:1352:G:C8	2.37	0.58
36:BA:159:GLN:HB3	36:BA:163:LEU:HD23	1.85	0.58
42:BG:50:VAL:HG22	42:BG:112:ILE:HG12	1.84	0.58
45:BJ:72:ILE:HD12	45:BJ:73:ILE:N	2.18	0.58
56:BU:20:LEU:HD11	56:BU:110:PHE:HE2	1.69	0.58
56:BU:148:LYS:HE2	56:BU:149:TYR:CE2	2.38	0.58
18:AM:3:LYS:O	18:AM:7:VAL:HG13	2.03	0.58
47:BL:42:THR:OG1	47:BL:68:VAL:O	2.22	0.58
3:3:16:G:H2'	3:3:17:C:C6	2.38	0.58
3:3:1022:C:O2'	3:3:1041:A:OP2	2.21	0.58
38:BC:130:VAL:HG22	38:BC:180:VAL:HG13	1.86	0.58
39:BD:106:GLU:O	39:BD:110:GLU:HG2	2.03	0.58
59:BX:3:ASP:OD1	59:BX:5:THR:OG1	2.21	0.58
1:1:1077:C:O2'	1:1:1118:A:N1	2.34	0.58
3:3:781:U:H2'	3:3:782:G:C8	2.39	0.58
4:6:132:ILE:HG12	4:6:135:LYS:HD2	1.86	0.58
37:BB:83:ILE:O	37:BB:87:SER:OG	2.21	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:BS:8:ASN:O	54:BS:12:THR:HG22	2.03	0.58
50:BO:25:ARG:HD2	50:BO:28:ASN:HA	1.86	0.57
54:BS:39:THR:HG21	54:BS:41:ILE:HG12	1.86	0.57
1:1:535:C:H5''	1:1:536:G:C8	2.39	0.57
1:1:816:G:O2'	1:1:852:G:H4'	2.04	0.57
3:3:616:U:OP2	36:BA:120:LYS:NZ	2.37	0.57
1:1:1582:U:OP2	19:AN:124:TYR:OH	2.21	0.57
1:1:2341:A:H2'	1:1:2342:A:C8	2.39	0.57
1:1:2408:G:O2'	1:1:2441:U:O4	2.23	0.57
1:1:2436:A:H2'	1:1:2437:A:C8	2.39	0.57
1:1:1945:C:H2'	1:1:1946:C:C6	2.39	0.57
1:1:2089:C:H2'	1:1:2090:C:C6	2.40	0.57
3:3:428:U:H2'	3:3:429:C:C6	2.40	0.57
41:BF:18:VAL:HG23	41:BF:43:MET:HE1	1.86	0.57
1:1:1400:C:OP2	1:1:1667:G:N1	2.31	0.57
3:3:892:A:H2'	3:3:893:G:H8	1.68	0.57
13:AH:4:MET:SD	13:AH:120:ARG:NH1	2.77	0.57
46:BK:40:LYS:HB3	46:BK:57:GLN:HG3	1.86	0.57
9:AD:28:ILE:O	9:AD:32:ILE:HG13	2.03	0.57
45:BJ:77:ASN:O	45:BJ:80:ARG:HG2	2.04	0.57
1:1:1534:C:OP1	19:AN:64:ARG:NH1	2.38	0.57
3:3:451:A:H4'	3:3:452:C:H5''	1.87	0.57
3:3:787:G:H5''	36:BA:176:PHE:CD2	2.39	0.57
36:BA:155:GLU:C	36:BA:159:GLN:HE22	2.11	0.57
37:BB:109:HIS:CE1	37:BB:113:MET:HE3	2.40	0.57
1:1:536:G:H2'	1:1:537:A:C8	2.39	0.57
1:1:1561:A:H2'	1:1:1562:G:H8	1.70	0.57
1:1:2117:U:N3	1:1:2239:C:OP2	2.38	0.57
1:1:2462:G:O4'	1:1:2516:5MC:HM52	2.05	0.57
3:3:448:A:N3	3:3:483:C:O2'	2.37	0.57
17:AL:37:VAL:HG22	17:AL:46:ILE:HG12	1.87	0.57
3:3:769:A:O2'	3:3:770:G:O5'	2.20	0.57
52:BQ:48:ALA:O	52:BQ:52:MET:HG3	2.05	0.57
55:BT:101:GLU:N	55:BT:101:GLU:OE1	2.37	0.57
1:1:417:A:H1'	1:1:1905:A:C2	2.40	0.57
1:1:1211:U:H2'	1:1:1212:U:C6	2.39	0.57
16:AK:17:PHE:N	16:AK:93:GLU:OE1	2.28	0.57
48:BM:23:THR:OG1	48:BM:27:GLY:HA2	2.05	0.56
1:1:87:A:H1'	32:Aa:29:LYS:HE2	1.87	0.56
8:AC:137:GLU:OE1	8:AC:137:GLU:N	2.28	0.56
8:AC:167:ASP:OD1	8:AC:170:ARG:NE	2.37	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:AL:144:ARG:HG3	17:AL:146:GLU:HG3	1.87	0.56
21:AP:8:LYS:O	21:AP:11:THR:OG1	2.20	0.56
26:AU:61:GLN:NE2	26:AU:66:GLU:OE2	2.26	0.56
3:3:698:U:H2'	3:3:699:G:O4'	2.04	0.56
40:BE:117:LEU:HD23	40:BE:226:GLU:HG3	1.88	0.56
42:BG:25:GLU:HB3	42:BG:42:ILE:HG23	1.87	0.56
42:BG:120:ILE:HA	42:BG:123:LEU:HD12	1.86	0.56
43:BH:85:VAL:HG11	43:BH:96:VAL:HG21	1.86	0.56
53:BR:84:ASP:HB3	53:BR:107:VAL:HA	1.87	0.56
57:BV:10:THR:HG23	57:BV:34:GLY:H	1.70	0.56
1:1:2799:U:H2'	1:1:2800:C:C6	2.40	0.56
3:3:574:U:O2'	3:3:575:C:O5'	2.23	0.56
24:AS:36:LEU:HD13	24:AS:106:LEU:HD13	1.87	0.56
43:BH:107:ARG:HH22	43:BH:178:LYS:HZ1	1.54	0.56
44:BI:49:ASP:OD1	44:BI:49:ASP:N	2.31	0.56
1:1:1644:A:H2'	1:1:1645:A:C8	2.39	0.56
3:3:1105:C:H5	3:3:1128:G:N1	2.04	0.56
3:3:1120:C:H2'	3:3:1121:G:C8	2.40	0.56
10:AE:153:GLU:OE2	33:Ab:10:ARG:HD3	2.06	0.56
26:AU:4:LEU:HB3	26:AU:9:ILE:HD11	1.87	0.56
46:BK:100:ILE:HD12	46:BK:102:THR:HG23	1.88	0.56
1:1:1445:A:H2'	1:1:1446:A:C8	2.41	0.56
1:1:2605:C:OP1	6:AA:208:LYS:NZ	2.34	0.56
3:3:872:G:C2'	3:3:873:G:H5'	2.35	0.56
60:BY:49:ARG:HH22	60:BY:63:LEU:HD22	1.71	0.56
10:AE:29:PRO:HD2	10:AE:81:ASN:HA	1.88	0.56
27:AV:143:GLU:O	27:AV:146:ASN:ND2	2.38	0.56
56:BU:26:ILE:HG22	56:BU:104:GLN:HB3	1.86	0.56
1:1:1529:C:H2'	1:1:1530:A:C8	2.40	0.56
3:3:897:G:O2'	3:3:916:C:O2'	2.16	0.56
3:3:1067:C:H2'	3:3:1068:C:C6	2.41	0.56
3:3:1356:A:H2'	3:3:1357:A:C8	2.40	0.56
46:BK:90:ARG:HD3	46:BK:91:ARG:HG2	1.88	0.56
61:BZ:26:LYS:O	61:BZ:50:ARG:NH1	2.39	0.56
1:1:284:A:N6	1:1:364:G:H1'	2.21	0.56
39:BD:98:ASP:OD1	41:BF:148:ARG:NH2	2.39	0.56
46:BK:64:THR:HG22	46:BK:122:VAL:HA	1.88	0.56
52:BQ:23:PRO:HG2	52:BQ:26:CYS:HB2	1.87	0.56
3:3:472:A:N6	38:BC:138:GLY:O	2.39	0.56
1:1:2677:G:H2'	1:1:2678:A:C8	2.41	0.55
3:3:1294:G:N2	3:3:1321:A:OP2	2.30	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:AB:76:GLU:OE1	7:AB:287:TYR:OH	2.21	0.55
36:BA:147:LYS:C	36:BA:147:LYS:HD3	2.31	0.55
37:BB:161:ALA:O	37:BB:165:GLY:N	2.37	0.55
43:BH:56:ARG:HB3	43:BH:136:LEU:HD11	1.87	0.55
53:BR:46:THR:HG23	53:BR:98:LYS:HD3	1.87	0.55
1:1:225:A:H2'	1:1:226:A:H8	1.70	0.55
1:1:1578:G:H2'	1:1:1579:C:C6	2.41	0.55
1:1:2394:A:H2'	1:1:2395:A:C8	2.41	0.55
3:3:1099:U:H2'	3:3:1100:G:H8	1.71	0.55
3:3:1223:G:H2'	3:3:1224:G:O4'	2.06	0.55
5:7:184:LEU:HD23	5:7:228:ASN:HD22	1.71	0.55
9:AD:126:ARG:HB2	9:AD:145:HIS:CE1	2.41	0.55
15:AJ:70:ARG:HD3	15:AJ:128:LYS:HG3	1.88	0.55
28:AW:13:ILE:HA	28:AW:16:VAL:HG12	1.88	0.55
34:Ac:3:ILE:HD11	34:Ac:22:VAL:HG11	1.87	0.55
55:BT:57:VAL:HG11	55:BT:74:MET:HE1	1.88	0.55
1:1:374:C:HO2'	15:AJ:2:VAL:N	2.05	0.55
1:1:2096:A:H2'	1:1:2097:G:C8	2.41	0.55
1:1:2689:A:H2'	1:1:2690:G:C8	2.41	0.55
3:3:1010:C:H2'	3:3:1011:G:H8	1.71	0.55
3:3:1403:U:H2'	3:3:1404:C:C6	2.42	0.55
36:BA:158:MET:O	36:BA:162:ILE:HD12	2.06	0.55
39:BD:147:ILE:HG13	39:BD:150:MET:HG3	1.89	0.55
54:BS:39:THR:CG2	54:BS:41:ILE:HG12	2.36	0.55
1:1:1884:A:H2'	1:1:1885:G:H8	1.72	0.55
3:3:560:C:C2	39:BD:147:ILE:HD12	2.41	0.55
3:3:902:U:O2	3:3:906:U:H5	1.89	0.55
3:3:1338:U:H2'	3:3:1339:G:C8	2.41	0.55
7:AB:144:VAL:HG22	7:AB:164:GLU:HG2	1.87	0.55
13:AH:5:ARG:NH1	13:AH:5:ARG:HB2	2.20	0.55
38:BC:152:LYS:O	38:BC:181:ARG:NH2	2.39	0.55
44:BI:111:MET:HE1	44:BI:121:ILE:HD11	1.87	0.55
54:BS:31:ASN:HD22	54:BS:55:THR:HB	1.72	0.55
3:3:391:A:H2'	3:3:392:G:H8	1.71	0.55
3:3:615:G:OP1	36:BA:118:ARG:NH2	2.40	0.55
4:6:48:THR:HG21	4:6:103:HIS:HB3	1.89	0.55
40:BE:178:GLY:HA3	40:BE:216:TYR:CD2	2.42	0.55
46:BK:102:THR:OG1	46:BK:105:GLY:O	2.22	0.55
56:BU:54:ARG:O	56:BU:58:VAL:HG12	2.06	0.55
1:1:36:U:H2'	1:1:37:C:C6	2.41	0.55
1:1:1130:C:N4	33:Ab:29:THR:OG1	2.34	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1776:U:H2'	1:1:1777:G:H8	1.71	0.55
3:3:433:U:C6	3:3:435:G:H5''	2.41	0.55
9:AD:84:ASN:HB2	9:AD:87:GLN:HG2	1.88	0.55
52:BQ:60:VAL:HG13	52:BQ:66:ILE:HD13	1.87	0.55
3:3:1109:C:H2'	3:3:1110:G:H8	1.72	0.55
7:AB:73:THR:OG1	7:AB:299:GLY:O	2.24	0.55
17:AL:119:ALA:O	17:AL:123:VAL:HG23	2.07	0.55
48:BM:73:ILE:HB	48:BM:107:ILE:HG22	1.88	0.55
50:BO:104:GLN:OE1	50:BO:104:GLN:N	2.40	0.55
1:1:1235:G:H5'	12:AG:79:THR:HG23	1.89	0.55
1:1:2090:C:H2'	1:1:2091:C:H6	1.72	0.55
3:3:380:C:H2'	3:3:381:A:C8	2.42	0.55
7:AB:36:GLU:OE2	7:AB:36:GLU:N	2.32	0.55
42:BG:83:TYR:HE1	42:BG:92:ARG:HB2	1.72	0.55
50:BO:101:ALA:O	55:BT:17:THR:OG1	2.24	0.55
1:1:954:G:H2'	1:1:955:C:C6	2.42	0.55
2:2:123:A:H2'	2:2:124:G:H8	1.72	0.55
3:3:1082:G:H2'	3:3:1083:G:H8	1.72	0.55
3:3:1307:A:C8	51:BP:9:GLY:HA3	2.37	0.55
40:BE:35:ARG:NH2	40:BE:98:GLN:OE1	2.39	0.55
43:BH:93:PRO:O	43:BH:96:VAL:HG22	2.06	0.55
50:BO:92:TRP:CD1	50:BO:92:TRP:H	2.24	0.55
1:1:128:G:H21	1:1:130:A:N6	2.04	0.54
3:3:710:G:H4'	3:3:1451:A:H4'	1.89	0.54
3:3:891:G:C2	3:3:892:A:C8	2.95	0.54
3:3:1193:G:OP1	56:BU:54:ARG:NE	2.36	0.54
53:BR:58:SER:O	53:BR:61:GLN:NE2	2.40	0.54
3:3:12:U:H2'	3:3:13:C:C6	2.42	0.54
3:3:458:C:H5''	3:3:459:C:C6	2.42	0.54
3:3:625:G:H4'	48:BM:29:GLU:OE1	2.05	0.54
3:3:1069:A:H4'	45:BJ:19:THR:HG21	1.87	0.54
1:1:796:G:H2'	1:1:797:U:C6	2.42	0.54
1:1:1501:A:H2'	1:1:1502:U:H6	1.69	0.54
54:BS:47:ARG:HE	54:BS:48:ASN:ND2	2.06	0.54
1:1:2306:U:H2'	1:1:2307:G:H8	1.72	0.54
1:1:2367:U:H2'	1:1:2368:C:C6	2.43	0.54
41:BF:52:VAL:HG22	41:BF:74:VAL:HG12	1.90	0.54
43:BH:23:ILE:HD11	43:BH:131:ARG:CZ	2.37	0.54
52:BQ:55:ARG:NE	52:BQ:56:ASP:OD1	2.40	0.54
58:BW:61:MET:HE2	58:BW:63:GLU:OE1	2.07	0.54
1:1:225:A:H2'	1:1:226:A:C8	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:273:G:H2'	1:1:274:G:H8	1.71	0.54
1:1:635:C:H2'	1:1:636:A:H8	1.72	0.54
1:1:1319:A:OP2	30:AY:36:ASN:ND2	2.31	0.54
3:3:1084:A:H5''	45:BJ:31:LYS:HD2	1.90	0.54
45:BJ:26:LYS:HG2	45:BJ:62:ASP:OD1	2.08	0.54
53:BR:41:SER:HB2	53:BR:47:VAL:HG12	1.88	0.54
1:1:1125:A:N3	1:1:2501:G:O2'	2.38	0.54
1:1:2305:U:OP1	1:1:2397:U:O2'	2.26	0.54
1:1:2324:A:N6	4:6:110:ASN:OD1	2.40	0.54
1:1:2412:U:H2'	1:1:2413:U:C6	2.43	0.54
3:3:84:A:H5'	3:3:85:C:C5	2.43	0.54
3:3:574:U:HO2'	3:3:575:C:C5'	2.21	0.54
9:AD:45:THR:HA	9:AD:52:LYS:C	2.32	0.54
11:AF:55:ILE:HG21	11:AF:60:ILE:HB	1.89	0.54
17:AL:63:VAL:O	17:AL:66:GLU:HG2	2.06	0.54
43:BH:32:VAL:HG21	43:BH:52:SER:OG	2.06	0.54
52:BQ:100:LYS:O	52:BQ:103:SER:OG	2.26	0.54
57:BV:47:THR:HG23	57:BV:54:LYS:HG3	1.90	0.54
1:1:702:C:H2'	1:1:703:G:O4'	2.07	0.54
1:1:790:U:H2'	1:1:791:G:O4'	2.07	0.54
3:3:417:U:H2'	3:3:418:G:O4'	2.07	0.54
3:3:881:A:H2'	3:3:882:C:C6	2.42	0.54
3:3:1233:C:OP2	56:BU:72:ARG:NH1	2.36	0.54
45:BJ:61:LEU:HD21	45:BJ:90:TRP:CD1	2.42	0.54
1:1:2436:A:H2'	1:1:2437:A:H8	1.73	0.54
3:3:863:A:H2'	3:3:864:A:C8	2.42	0.54
3:3:1036:A:H2'	3:3:1037:G:C8	2.42	0.54
11:AF:105:ALA:O	11:AF:109:VAL:HG23	2.08	0.54
37:BB:208:ARG:NH1	37:BB:208:ARG:O	2.41	0.54
40:BE:46:ILE:HG21	40:BE:106:LEU:HD12	1.90	0.54
49:BN:91:PHE:O	49:BN:139:LYS:NZ	2.30	0.54
1:1:576:G:N2	1:1:579:A:OP2	2.36	0.54
1:1:2090:C:H2'	1:1:2091:C:C6	2.43	0.54
27:AV:21:MET:HE3	27:AV:48:VAL:HB	1.88	0.54
1:1:390:U:H5''	15:AJ:194:ARG:HG2	1.89	0.54
1:1:2389:G:H4'	34:Ac:8:ARG:HH22	1.73	0.54
7:AB:113:ARG:NH2	7:AB:161:ASP:OD1	2.41	0.54
41:BF:200:LEU:HD12	41:BF:200:LEU:H	1.73	0.54
1:1:34:G:O6	24:AS:10:ARG:NH1	2.36	0.53
1:1:1478:A:N3	1:1:1500:C:O2'	2.40	0.53
1:1:2717:G:H2'	1:1:2718:A:H8	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:765:C:OP1	52:BQ:2:ALA:HB2	2.08	0.53
3:3:1064:U:C5	47:BL:38:VAL:HG21	2.43	0.53
52:BQ:138:ASP:OD1	52:BQ:138:ASP:N	2.30	0.53
1:1:1125:A:H2'	1:1:1126:A:H8	1.72	0.53
3:3:243:U:P	46:BK:54:ARG:HH22	2.31	0.53
3:3:359:C:H2'	3:3:360:G:C8	2.43	0.53
3:3:870:G:C2	3:3:872:G:C8	2.96	0.53
3:3:1297:A:H1'	43:BH:68:THR:HG21	1.91	0.53
7:AB:201:THR:HG22	7:AB:311:LEU:HD23	1.91	0.53
40:BE:110:ASN:HD22	40:BE:111:GLU:HG2	1.72	0.53
45:BJ:93:ASP:OD2	45:BJ:96:ILE:N	2.35	0.53
1:1:1408:C:O2'	1:1:1487:A:N3	2.41	0.53
9:AD:13:MET:HE3	9:AD:29:LEU:HB2	1.89	0.53
36:BA:53:GLY:HA2	36:BA:57:ASN:HB2	1.91	0.53
37:BB:59:MET:SD	37:BB:172:CYS:HB3	2.49	0.53
49:BN:27:ARG:HG2	49:BN:32:LEU:HD12	1.89	0.53
53:BR:37:THR:HG22	53:BR:85:ILE:HD13	1.90	0.53
56:BU:40:HIS:HA	56:BU:81:LYS:HB3	1.90	0.53
1:1:643:G:H2'	1:1:644:U:C6	2.43	0.53
1:1:1271:G:H2'	1:1:1272:G:H8	1.72	0.53
1:1:2089:C:H2'	1:1:2090:C:H6	1.72	0.53
2:2:25:G:O6	2:2:57:U:O2'	2.20	0.53
3:3:761:U:H4'	3:3:762:G:OP2	2.08	0.53
3:3:1055:U:H3	3:3:1131:G:H1	1.57	0.53
12:AG:121:MET:HG3	12:AG:122:ARG:HH11	1.74	0.53
13:AH:98:THR:HG21	13:AH:124:ILE:HD11	1.90	0.53
37:BB:64:TYR:N	37:BB:73:VAL:O	2.39	0.53
38:BC:151:ILE:HA	38:BC:183:ILE:HD11	1.90	0.53
3:3:133:G:H21	42:BG:107:GLN:NE2	2.07	0.53
3:3:845:A:H2'	3:3:846:A:C8	2.43	0.53
6:AA:109:VAL:HG13	6:AA:155:ALA:HB2	1.91	0.53
36:BA:46:ARG:NH2	48:BM:29:GLU:OE2	2.42	0.53
37:BB:80:ASP:O	37:BB:83:ILE:HG22	2.08	0.53
50:BO:23:LEU:HD21	50:BO:30:ASP:HB3	1.91	0.53
1:1:287:U:H2'	1:1:288:C:H6	1.74	0.53
1:1:1316:U:OP2	30:AY:16:LYS:NZ	2.42	0.53
3:3:1006:A:N1	3:3:1047:G:O2'	2.30	0.53
56:BU:123:LYS:O	56:BU:123:LYS:NZ	2.36	0.53
1:1:816:G:OP1	35:Ad:21:ARG:NH2	2.37	0.53
1:1:1654:A:H2'	1:1:1655:A:C8	2.43	0.53
16:AK:100:GLN:NE2	16:AK:112:GLY:O	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:BE:96:MET:HE2	40:BE:96:MET:HA	1.89	0.53
1:1:636:A:H2'	1:1:637:G:C8	2.44	0.53
3:3:241:U:H2'	3:3:242:G:C8	2.42	0.53
3:3:880:A:H8	45:BJ:131:LYS:NZ	2.07	0.53
40:BE:47:LEU:HB3	40:BE:49:LEU:HG	1.89	0.53
40:BE:92:GLU:OE1	40:BE:94:TYR:OH	2.18	0.53
53:BR:43:MET:HG3	53:BR:46:THR:HB	1.91	0.53
56:BU:49:ASP:HB2	56:BU:52:TYR:HD2	1.74	0.53
1:1:1642:A:H2'	1:1:1643:A:C8	2.44	0.53
1:1:2099:U:H2'	1:1:2100:U:C6	2.43	0.53
3:3:33:U:OP2	61:BZ:18:ARG:NH2	2.42	0.53
3:3:554:A:H2'	3:3:555:C:H6	1.74	0.53
13:AH:5:ARG:NH1	13:AH:119:GLU:OE1	2.42	0.53
38:BC:102:SER:HA	38:BC:105:ARG:NH1	2.24	0.53
59:BX:26:ILE:HG21	59:BX:34:ILE:HG21	1.90	0.53
1:1:40:G:H2'	1:1:41:A:C8	2.43	0.53
1:1:1520:G:H2'	1:1:1521:U:C6	2.44	0.53
1:1:2614:G:OP2	6:AA:205:GLY:N	2.36	0.53
2:2:107:C:H2'	2:2:108:U:O4'	2.09	0.53
41:BF:13:LEU:HG	41:BF:33:LEU:HB3	1.90	0.53
46:BK:41:ARG:NH1	46:BK:117:GLY:O	2.42	0.53
56:BU:15:LYS:O	56:BU:19:ILE:HG22	2.09	0.53
1:1:635:C:H2'	1:1:636:A:C8	2.43	0.52
1:1:1002:C:OP1	16:AK:22:TYR:OH	2.26	0.52
1:1:1652:C:H2'	1:1:1653:U:C6	2.45	0.52
3:3:800:G:OP2	3:3:816:G:N1	2.41	0.52
39:BD:58:LEU:HD13	39:BD:78:SER:HB3	1.90	0.52
55:BT:30:SER:O	55:BT:34:PHE:N	2.33	0.52
1:1:1315:G:N2	1:1:1318:A:OP2	2.37	0.52
2:2:30:U:H2'	2:2:31:C:H6	1.73	0.52
3:3:686:C:OP1	3:3:796:U:O2'	2.21	0.52
3:3:1013:A:O2'	3:3:1040:A:N1	2.38	0.52
3:3:1126:A:H4'	45:BJ:109:VAL:HG21	1.90	0.52
7:AB:305:SER:O	7:AB:305:SER:OG	2.22	0.52
16:AK:38:ASP:OD1	16:AK:41:ASN:HB2	2.10	0.52
16:AK:55:LYS:HB2	16:AK:129:PRO:HD3	1.92	0.52
20:AO:37:LYS:O	20:AO:41:ILE:HG22	2.10	0.52
37:BB:90:LEU:HD11	37:BB:147:ILE:HD11	1.91	0.52
41:BF:111:ILE:HG21	41:BF:192:LEU:HD22	1.91	0.52
45:BJ:29:ILE:HD12	45:BJ:29:ILE:O	2.08	0.52
1:1:1110:U:H2'	1:1:1111:A:C8	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1955:G:O2'	1:1:1993:G:O6	2.15	0.52
3:3:906:U:O2	3:3:1169:G:O2'	2.19	0.52
14:AI:126:ARG:O	14:AI:130:GLU:HG2	2.09	0.52
37:BB:167:PRO:HG3	57:BV:24:PHE:HB3	1.92	0.52
37:BB:187:THR:OG1	37:BB:188:ASN:N	2.41	0.52
56:BU:68:ILE:HG22	56:BU:72:ARG:HB2	1.91	0.52
60:BY:18:ILE:HG21	60:BY:36:ARG:HE	1.74	0.52
1:1:1502:U:H2'	1:1:1503:U:C6	2.44	0.52
2:2:21:U:H3	2:2:64:G:H1	1.57	0.52
3:3:1113:G:N1	3:3:1116:A:OP2	2.38	0.52
9:AD:13:MET:SD	9:AD:25:ALA:HB1	2.50	0.52
19:AN:116:ASP:OD1	19:AN:118:SER:N	2.42	0.52
37:BB:52:THR:H	37:BB:174:THR:HG1	1.56	0.52
3:3:619:U:H2'	3:3:620:A:H8	1.72	0.52
45:BJ:119:ASN:ND2	45:BJ:125:ALA:O	2.43	0.52
50:BO:94:LEU:HD22	50:BO:107:HIS:HB2	1.91	0.52
52:BQ:18:ILE:HD12	52:BQ:18:ILE:O	2.09	0.52
58:BW:4:LYS:HB3	58:BW:22:VAL:HG12	1.91	0.52
60:BY:24:THR:OG1	60:BY:25:GLY:N	2.40	0.52
1:1:762:A:N3	1:1:2458:C:O2'	2.41	0.52
19:AN:25:ASN:HB3	19:AN:28:ALA:HB3	1.92	0.52
38:BC:21:PHE:HB2	38:BC:30:TYR:HE1	1.74	0.52
45:BJ:35:GLU:CD	45:BJ:35:GLU:H	2.18	0.52
1:1:273:G:H2'	1:1:274:G:C8	2.44	0.52
1:1:620:U:H2'	1:1:621:U:C6	2.45	0.52
3:3:1083:G:H2'	3:3:1084:A:H8	1.75	0.52
3:3:1119:U:H2'	3:3:1120:C:C6	2.44	0.52
13:AH:97:ILE:HG21	13:AH:105:LYS:HE2	1.91	0.52
38:BC:95:MET:HG3	38:BC:120:VAL:HG22	1.92	0.52
43:BH:60:ASN:O	43:BH:60:ASN:ND2	2.38	0.52
55:BT:85:ILE:HG23	55:BT:96:VAL:HG13	1.91	0.52
56:BU:127:MET:HA	56:BU:130:ASN:OD1	2.10	0.52
1:1:531:G:H2'	1:1:531:G:N3	2.24	0.52
1:1:920:G:O2'	14:AI:24:GLY:O	2.28	0.52
3:3:170:U:H5''	40:BE:149:THR:HG21	1.91	0.52
3:3:456:U:O2'	3:3:459:C:N3	2.39	0.52
3:3:1011:G:H2'	3:3:1012:U:C6	2.45	0.52
3:3:1118:A:H5'	54:BS:4:ILE:CG2	2.40	0.52
3:3:1316:C:H2'	3:3:1317:G:C8	2.45	0.52
7:AB:14:PHE:O	7:AB:17:ARG:HG2	2.09	0.52
36:BA:126:ILE:H	36:BA:126:ILE:HD12	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1999:A:H2'	1:1:2000:U:O4'	2.09	0.52
2:2:116:G:H2'	2:2:117:C:C6	2.44	0.52
3:3:133:G:H21	42:BG:107:GLN:HE22	1.57	0.52
3:3:401:G:OP1	61:BZ:49:ARG:NE	2.42	0.52
3:3:689:G:N2	52:BQ:19:ARG:HD2	2.25	0.52
9:AD:45:THR:HG22	9:AD:52:LYS:HE2	1.92	0.52
13:AH:50:GLY:O	13:AH:120:ARG:NH2	2.42	0.52
41:BF:41:ILE:HG12	41:BF:105:LYS:HB3	1.90	0.52
1:1:1557:A:H2'	1:1:1558:A:C8	2.45	0.52
1:1:2229:G:N2	1:1:2232:A:OP2	2.34	0.52
3:3:771:G:OP1	37:BB:57:GLN:NE2	2.43	0.52
14:AI:40:VAL:O	14:AI:44:MET:HG3	2.10	0.52
41:BF:16:LEU:O	41:BF:18:VAL:N	2.42	0.52
50:BO:27:MET:HE2	50:BO:44:LEU:HD11	1.92	0.52
52:BQ:24:GLU:H	52:BQ:24:GLU:CD	2.09	0.52
3:3:400:U:H2'	3:3:401:G:H8	1.74	0.51
3:3:439:G:H2'	3:3:440:G:C8	2.45	0.51
3:3:896:U:H2'	3:3:897:G:H8	1.74	0.51
3:3:1374:U:H2'	3:3:1375:G:H8	1.76	0.51
9:AD:13:MET:CE	9:AD:29:LEU:HB2	2.40	0.51
35:Ad:41:HIS:HB2	35:Ad:51:VAL:HB	1.92	0.51
38:BC:126:LEU:HB2	38:BC:183:ILE:HB	1.91	0.51
1:1:1615:C:H2'	1:1:1616:A:O4'	2.10	0.51
42:BG:45:LEU:HB3	42:BG:48:TYR:CD2	2.45	0.51
43:BH:109:GLU:OE1	43:BH:109:GLU:N	2.42	0.51
49:BN:139:LYS:HG2	49:BN:140:PRO:HD2	1.92	0.51
56:BU:11:GLU:HB3	56:BU:135:LEU:HD11	1.91	0.51
1:1:613:U:OP2	12:AG:88:ARG:NH1	2.43	0.51
1:1:1643:A:H2'	1:1:1644:A:C8	2.45	0.51
3:3:245:A:H2'	3:3:246:C:C6	2.45	0.51
3:3:1256:G:OP1	50:BO:131:ARG:NH1	2.44	0.51
9:AD:13:MET:HE1	9:AD:28:ILE:HD11	1.91	0.51
50:BO:55:ILE:HD11	50:BO:85:PHE:CD1	2.45	0.51
1:1:1584:A:N1	1:1:1633:G:O2'	2.39	0.51
27:AV:81:GLU:N	27:AV:81:GLU:OE2	2.42	0.51
40:BE:212:THR:OG1	40:BE:213:ILE:N	2.39	0.51
1:1:28:G:H2'	1:1:29:G:C8	2.45	0.51
1:1:841:A:OP1	31:AZ:5:THR:OG1	2.22	0.51
1:1:2461:G:H2'	1:1:2516:5MC:HM51	1.90	0.51
3:3:166:A:H2'	3:3:167:U:C6	2.45	0.51
3:3:173:A:O2'	3:3:174:A:OP1	2.26	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:493:G:H2'	3:3:494:A:H8	1.76	0.51
12:AG:122:ARG:CZ	12:AG:122:ARG:HA	2.41	0.51
16:AK:39:LYS:HA	16:AK:84:TYR:CD1	2.45	0.51
1:1:715:C:H2'	1:1:716:G:O4'	2.11	0.51
1:1:795:C:O2'	1:1:1585:U:OP1	2.28	0.51
6:AA:171:LEU:CD2	35:Ad:26:ASP:HB3	2.40	0.51
41:BF:90:ASP:HB3	41:BF:96:ALA:HB2	1.91	0.51
43:BH:107:ARG:HH12	43:BH:178:LYS:HZ3	1.59	0.51
48:BM:7:ALA:HB2	48:BM:68:ILE:HD12	1.91	0.51
48:BM:24:ASP:OD1	48:BM:24:ASP:N	2.38	0.51
50:BO:49:ARG:CZ	56:BU:43:LEU:HD11	2.40	0.51
51:BP:16:LYS:HE2	51:BP:30:ILE:O	2.11	0.51
1:1:578:G:N3	1:1:1105:U:O2'	2.44	0.51
1:1:771:G:OP1	31:AZ:28:ASN:ND2	2.33	0.51
1:1:1884:A:H2'	1:1:1885:G:C8	2.46	0.51
3:3:449:A:O2'	3:3:482:G:O2'	2.27	0.51
3:3:677:U:H2'	3:3:678:U:H6	1.76	0.51
3:3:733:A:O2'	3:3:735:A:N7	2.39	0.51
10:AE:162:ASP:OD2	10:AE:164:ARG:NH2	2.36	0.51
11:AF:108:MET:O	11:AF:112:ILE:HG13	2.10	0.51
1:1:767:G:H2'	1:1:768:G:C8	2.45	0.51
1:1:2606:C:H2'	1:1:2607:G:C8	2.45	0.51
15:AJ:73:LEU:HD13	15:AJ:94:GLY:HA3	1.92	0.51
34:Ac:64:ARG:HG2	34:Ac:84:ARG:HG3	1.93	0.51
50:BO:95:ASN:HD21	50:BO:108:LEU:HB2	1.76	0.51
50:BO:127:VAL:HG11	55:BT:101:GLU:HB2	1.93	0.51
1:1:247:U:H2'	1:1:248:C:C6	2.45	0.51
1:1:510:U:H2'	32:Aa:32:ARG:HE	1.76	0.51
1:1:700:U:H2'	1:1:701:G:H8	1.76	0.51
1:1:764:G:HO2'	1:1:2095:G:HO2'	1.56	0.51
1:1:1787:C:H2'	1:1:1788:A:C8	2.46	0.51
1:1:2305:U:H2'	1:1:2306:U:C6	2.46	0.51
53:BR:54:MET:HG2	53:BR:63:TYR:CD1	2.46	0.51
59:BX:16:LYS:HB2	59:BX:58:LEU:HD11	1.93	0.51
1:1:384:G:H2'	1:1:385:U:C6	2.46	0.51
1:1:1462:G:H2'	1:1:1463:A:C8	2.46	0.51
3:3:1099:U:H2'	3:3:1100:G:C8	2.46	0.51
3:3:1187:U:P	43:BH:154:VAL:HG23	2.51	0.51
8:AC:28:ARG:NH2	8:AC:30:ASP:OD2	2.42	0.51
10:AE:137:ILE:HD11	10:AE:152:ILE:HD12	1.91	0.51
27:AV:124:GLY:O	27:AV:151:LYS:NZ	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:AX:11:TYR:HE2	29:AX:42:MET:HE3	1.76	0.51
37:BB:39:SER:OG	37:BB:42:GLU:OE2	2.25	0.51
39:BD:155:GLU:O	39:BD:159:HIS:NE2	2.44	0.51
43:BH:22:GLY:H	60:BY:62:MET:CE	2.21	0.51
1:1:1091:A:H2'	1:1:1092:A:C8	2.46	0.50
1:1:2582:G:H2'	1:1:2583:G:H8	1.75	0.50
36:BA:35:THR:HG22	48:BM:24:ASP:OD2	2.10	0.50
40:BE:96:MET:HE1	40:BE:106:LEU:HG	1.92	0.50
47:BL:40:LEU:HD11	47:BL:70:LYS:HB3	1.92	0.50
49:BN:103:ILE:HA	49:BN:120:LYS:HD3	1.92	0.50
1:1:1304:G:H1'	1:1:1329:A:N6	2.26	0.50
3:3:909:G:H1	3:3:918:C:H5	1.57	0.50
11:AF:110:GLN:HG2	11:AF:114:GLN:NE2	2.26	0.50
37:BB:85:VAL:HG12	37:BB:183:LEU:HD21	1.94	0.50
41:BF:90:ASP:OD1	41:BF:91:VAL:N	2.44	0.50
48:BM:9:ALA:HB2	48:BM:71:ILE:HD11	1.93	0.50
48:BM:24:ASP:OD2	48:BM:26:THR:OG1	2.28	0.50
49:BN:52:LYS:HD3	49:BN:92:ILE:HG23	1.93	0.50
52:BQ:23:PRO:HG3	52:BQ:25:TRP:CH2	2.46	0.50
1:1:587:G:H4'	1:1:588:U:O5'	2.12	0.50
1:1:1321:U:H2'	1:1:1322:C:C6	2.47	0.50
1:1:1408:C:H2'	1:1:1409:U:C6	2.46	0.50
1:1:2867:U:H4'	1:1:2868:C:H5'	1.93	0.50
3:3:396:C:H4'	3:3:397:A:H2	1.74	0.50
3:3:1056:G:H21	3:3:1127:A:H1'	1.75	0.50
36:BA:91:TYR:CZ	36:BA:95:ILE:HD11	2.45	0.50
1:1:269:U:O2	1:1:273:G:H1'	2.12	0.50
1:1:270:G:H1	1:1:408:U:H3	1.59	0.50
1:1:2829:G:H2'	1:1:2880:A:H61	1.76	0.50
6:AA:94:ILE:HG12	6:AA:156:VAL:HG22	1.93	0.50
9:AD:78:ILE:HD13	9:AD:98:ILE:HG21	1.94	0.50
10:AE:90:ILE:O	10:AE:133:ASN:ND2	2.44	0.50
29:AX:35:ARG:NH1	29:AX:49:VAL:O	2.44	0.50
41:BF:162:LEU:HD13	41:BF:170:VAL:HG11	1.94	0.50
50:BO:31:LEU:HD21	50:BO:44:LEU:HD22	1.92	0.50
2:2:98:C:H2'	2:2:99:U:C6	2.46	0.50
3:3:159:C:H2'	3:3:160:G:H8	1.77	0.50
3:3:359:C:H2'	3:3:360:G:H8	1.76	0.50
3:3:391:A:H2'	3:3:392:G:C8	2.46	0.50
3:3:993:C:H4'	3:3:994:A:H5'	1.93	0.50
9:AD:131:ILE:HA	9:AD:134:ARG:NE	2.25	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:BC:102:SER:HA	38:BC:105:ARG:HH11	1.76	0.50
1:1:667:U:H2'	1:1:668:U:C6	2.46	0.50
1:1:844:A:H2'	1:1:845:U:C6	2.47	0.50
1:1:1480:A:O2'	1:1:1491:U:O2	2.29	0.50
1:1:1738:C:O2	7:AB:228:ARG:NH2	2.44	0.50
1:1:2087:A:O2'	1:1:2088:C:O5'	2.27	0.50
3:3:1109:C:H2'	3:3:1110:G:C8	2.47	0.50
37:BB:58:ASP:OD1	37:BB:59:MET:N	2.43	0.50
40:BE:169:GLU:N	40:BE:169:GLU:OE2	2.45	0.50
42:BG:75:ILE:HD11	42:BG:96:MET:HE3	1.93	0.50
60:BY:26:MET:HG2	60:BY:27:HIS:CD2	2.47	0.50
1:1:1910:G:H2'	1:1:1911:A:H8	1.77	0.50
1:1:2342:A:H2'	1:1:2343:G:C8	2.47	0.50
1:1:2484:A:H2'	1:1:2485:G:O4'	2.11	0.50
3:3:243:U:OP2	46:BK:115:GLN:NE2	2.39	0.50
3:3:428:U:H2'	3:3:429:C:H6	1.75	0.50
3:3:436:C:N3	61:BZ:15:ARG:NH2	2.48	0.50
3:3:663:G:O3'	3:3:664:U:H2'	2.12	0.50
3:3:779:C:H5''	59:BX:50:LYS:HG3	1.93	0.50
3:3:1097:U:H4'	47:BL:41:PRO:HG3	1.94	0.50
6:AA:75:ILE:HD12	6:AA:79:ASN:HD22	1.77	0.50
41:BF:120:CYS:O	44:BI:97:LYS:NZ	2.44	0.50
57:BV:26:CYS:N	57:BV:31:ALA:O	2.38	0.50
57:BV:46:TYR:CE2	57:BV:55:ALA:HB3	2.47	0.50
1:1:640:A:N1	1:1:898:G:O2'	2.40	0.50
1:1:832:G:O2'	1:1:1722:A:OP1	2.28	0.50
1:1:2826:U:OP1	7:AB:158:LYS:NZ	2.30	0.50
1:1:2842:U:H2'	1:1:2843:G:O4'	2.12	0.50
3:3:73:G:O2'	3:3:74:A:H5'	2.12	0.50
3:3:867:G:H2'	3:3:868:G:C8	2.47	0.50
3:3:1202:G:O2'	3:3:1205:C:O2	2.27	0.50
3:3:1346:C:C2	3:3:1440:A:N6	2.80	0.50
1:1:307:U:H2'	1:1:308:G:H8	1.77	0.50
1:1:890:A:C8	8:AC:55:MET:HE1	2.47	0.50
3:3:25:U:H2'	3:3:26:A:C8	2.46	0.50
3:3:241:U:O2'	46:BK:31:SER:OG	2.23	0.50
3:3:400:U:H2'	3:3:401:G:C8	2.47	0.50
3:3:1127:A:P	45:BJ:105:ARG:HH22	2.34	0.50
10:AE:56:GLU:H	10:AE:56:GLU:CD	2.20	0.50
16:AK:88:ARG:HH11	16:AK:132:LYS:HD2	1.76	0.50
17:AL:166:LYS:HZ3	17:AL:170:PHE:HE2	1.60	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AR:67:GLU:HA	23:AR:67:GLU:OE2	2.12	0.50
45:BJ:33:PRO:HG2	45:BJ:36:LEU:HD22	1.94	0.50
45:BJ:48:GLU:HG2	45:BJ:49:PRO:CD	2.39	0.50
1:1:2054:G:H2'	1:1:2056:A:OP1	2.12	0.49
3:3:114:U:H2'	3:3:115:U:C6	2.47	0.49
3:3:399:A:H5'	61:BZ:44:LYS:O	2.12	0.49
3:3:421:A:OP2	58:BW:88:ARG:NH2	2.44	0.49
12:AG:30:GLU:OE1	12:AG:31:LYS:N	2.43	0.49
16:AK:74:LEU:O	16:AK:78:THR:HG22	2.12	0.49
34:Ac:6:ARG:HG2	34:Ac:21:VAL:HG22	1.93	0.49
43:BH:123:ALA:HB2	43:BH:188:ALA:HB3	1.93	0.49
52:BQ:19:ARG:HH12	52:BQ:23:PRO:HA	1.76	0.49
1:1:1016:U:H2'	1:1:1017:C:C6	2.46	0.49
1:1:1110:U:OP2	10:AE:59:ARG:NH2	2.37	0.49
1:1:1263:U:H2'	1:1:1264:A:H8	1.76	0.49
1:1:2401:C:H5''	1:1:2402:U:H5''	1.94	0.49
3:3:668:G:N2	3:3:671:G:OP2	2.40	0.49
11:AF:35:ASN:O	11:AF:39:LYS:HG2	2.11	0.49
18:AM:55:ILE:HG12	18:AM:76:GLY:HA2	1.95	0.49
34:Ac:1:MET:HE3	34:Ac:85:ALA:HB2	1.94	0.49
37:BB:219:THR:HA	37:BB:222:GLU:HB2	1.94	0.49
58:BW:15:ASN:N	58:BW:15:ASN:OD1	2.44	0.49
59:BX:43:LEU:HG	59:BX:55:THR:HG21	1.94	0.49
1:1:1264:A:H2'	1:1:1265:C:C6	2.48	0.49
1:1:1528:G:H2'	1:1:1529:C:C6	2.47	0.49
3:3:677:U:H2'	3:3:678:U:C6	2.47	0.49
3:3:1081:G:O2'	3:3:1082:G:O4'	2.24	0.49
10:AE:111:PHE:O	10:AE:114:GLU:HG3	2.12	0.49
20:AO:30:ASN:OD1	20:AO:30:ASN:N	2.44	0.49
40:BE:164:LYS:HE3	40:BE:166:LEU:HD21	1.94	0.49
40:BE:175:MET:HE3	40:BE:220:ILE:HD13	1.94	0.49
50:BO:123:ASN:O	50:BO:127:VAL:HG22	2.13	0.49
1:1:379:G:OP2	15:AJ:46:ARG:NH1	2.45	0.49
1:1:1291:U:H2'	1:1:1292:U:C6	2.48	0.49
11:AF:68:SER:OG	11:AF:73:ALA:O	2.31	0.49
37:BB:75:ASP:N	37:BB:75:ASP:OD1	2.45	0.49
38:BC:4:GLU:HA	38:BC:7:PHE:HD2	1.78	0.49
41:BF:38:PRO:C	41:BF:40:ILE:H	2.20	0.49
45:BJ:85:ARG:NH1	45:BJ:108:LEU:O	2.46	0.49
55:BT:63:GLU:OE1	55:BT:65:LYS:NZ	2.37	0.49
1:1:284:A:H61	1:1:364:G:H1'	1.76	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:354:C:H2'	1:1:355:C:C6	2.47	0.49
1:1:1561:A:H2'	1:1:1562:G:C8	2.47	0.49
3:3:372:U:H2'	3:3:373:A:H8	1.75	0.49
3:3:486:G:H2'	61:BZ:34:PRO:HG3	1.94	0.49
3:3:690:U:OP2	52:BQ:14:SER:OG	2.28	0.49
3:3:880:A:H8	45:BJ:131:LYS:HZ3	1.60	0.49
12:AG:105:PRO:HG2	12:AG:108:LEU:HD12	1.93	0.49
19:AN:90:PRO:O	19:AN:94:GLN:HG2	2.12	0.49
37:BB:69:ASP:OD1	37:BB:69:ASP:N	2.42	0.49
56:BU:16:LEU:HD11	56:BU:128:MET:HE3	1.94	0.49
58:BW:8:ASP:OD2	58:BW:17:ARG:NH2	2.39	0.49
1:1:1045:U:O2'	2:2:96:G:OP1	2.31	0.49
1:1:1283:G:H2'	1:1:1284:G:H8	1.78	0.49
1:1:1562:G:H2'	1:1:1563:C:H6	1.78	0.49
3:3:554:A:H2'	3:3:555:C:C6	2.47	0.49
3:3:1130:U:O2'	3:3:1131:G:OP1	2.30	0.49
28:AW:91:GLU:OE2	52:BQ:42:LYS:NZ	2.44	0.49
31:AZ:21:ARG:NH2	31:AZ:44:ARG:O	2.46	0.49
37:BB:106:TYR:CD2	37:BB:192:ARG:HG2	2.48	0.49
42:BG:57:ASP:HA	42:BG:105:ILE:HA	1.94	0.49
1:1:193:U:O4	1:1:424:U:O2'	2.30	0.49
1:1:1989:G:O2'	1:1:1992:U:OP2	2.20	0.49
1:1:2056:A:N3	1:1:2470:A:O2'	2.34	0.49
1:1:2769:U:H1'	1:1:2770:A:H5''	1.95	0.49
1:1:2798:C:H2'	1:1:2799:U:C6	2.48	0.49
1:1:2835:A:H2'	1:1:2836:A:C8	2.48	0.49
3:3:627:U:HO2'	3:3:628:A:H8	1.58	0.49
3:3:836:U:H2'	3:3:837:A:H8	1.78	0.49
8:AC:253:GLN:OE1	8:AC:253:GLN:HA	2.13	0.49
9:AD:28:ILE:HD12	9:AD:29:LEU:N	2.28	0.49
22:AQ:120:ARG:O	22:AQ:140:THR:OG1	2.31	0.49
46:BK:90:ARG:HG2	46:BK:90:ARG:HH11	1.77	0.49
1:1:113:G:OP2	1:1:115:A:O2'	2.22	0.49
1:1:623:U:O2'	1:1:1075:A:N1	2.44	0.49
1:1:803:A:H2'	1:1:804:A:C8	2.47	0.49
1:1:853:A:H5'	6:AA:174:GLY:HA2	1.94	0.49
1:1:1107:G:N2	20:AO:44:SER:HB2	2.27	0.49
1:1:1424:A:H2'	1:1:1426:C:C5	2.48	0.49
1:1:2877:U:H2'	1:1:2878:U:C6	2.48	0.49
2:2:10:G:O2'	17:AL:56:ASP:OD1	2.29	0.49
3:3:167:U:H2'	3:3:168:G:O4'	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:605:G:OP1	36:BA:131:SER:N	2.40	0.49
3:3:664:U:O2'	3:3:665:G:O5'	2.25	0.49
3:3:1241:U:H2'	3:3:1242:C:C6	2.48	0.49
3:3:1451:A:H2'	3:3:1452:G:C8	2.48	0.49
45:BJ:17:ARG:NH2	45:BJ:66:ASP:OD2	2.46	0.49
1:1:680:G:H2'	1:1:681:C:C6	2.47	0.49
1:1:2046:A:O2'	1:1:2048:U:OP2	2.30	0.49
1:1:2527:C:H2'	1:1:2528:U:C6	2.47	0.49
3:3:107:C:H2'	3:3:108:C:C6	2.48	0.49
7:AB:98:ILE:HD11	7:AB:138:VAL:HG22	1.94	0.49
26:AU:49:GLU:OE1	26:AU:49:GLU:HA	2.12	0.49
37:BB:89:LEU:HB2	57:BV:27:PRO:HB3	1.95	0.49
43:BH:34:VAL:CG1	45:BJ:44:MET:HG2	2.43	0.49
52:BQ:104:VAL:HG23	52:BQ:105:ASN:OD1	2.12	0.49
1:1:216:G:OP2	1:1:218:C:N4	2.46	0.49
1:1:896:U:H1'	1:1:2460:G:OP1	2.13	0.49
1:1:1040:A:H2'	1:1:1041:C:H6	1.75	0.49
1:1:1481:C:H2'	1:1:1482:A:H8	1.77	0.49
1:1:2068:C:H2'	1:1:2069:C:H6	1.78	0.49
2:2:99:U:H2'	2:2:100:U:C6	2.48	0.49
3:3:1016:G:N2	3:3:1019:A:OP2	2.41	0.49
3:3:1083:G:H2'	3:3:1084:A:C8	2.48	0.49
40:BE:82:PHE:HE2	40:BE:218:ILE:HD13	1.78	0.49
43:BH:32:VAL:HA	45:BJ:103:TYR:OH	2.13	0.49
1:1:1316:U:O2'	30:AY:58:VAL:HG13	2.13	0.48
1:1:2246:A:H2'	1:1:2247:G:C8	2.48	0.48
1:1:2305:U:O2'	1:1:2391:C:O2	2.30	0.48
2:2:98:C:H2'	2:2:99:U:H6	1.78	0.48
3:3:1125:G:N2	3:3:1128:G:OP2	2.45	0.48
3:3:1297:A:H2'	3:3:1298:U:O4'	2.13	0.48
3:3:1326:G:O2'	60:BY:23:ASN:ND2	2.46	0.48
9:AD:13:MET:HG3	9:AD:59:CYS:SG	2.53	0.48
41:BF:41:ILE:HD13	41:BF:108:ILE:HG13	1.93	0.48
42:BG:22:LYS:HG2	42:BG:22:LYS:O	2.13	0.48
1:1:94:C:OP1	26:AU:2:ALA:N	2.46	0.48
1:1:1439:G:O2'	1:1:1473:A:N3	2.40	0.48
3:3:770:G:H5'	37:BB:57:GLN:HG3	1.94	0.48
3:3:847:G:H2'	3:3:848:G:H8	1.78	0.48
3:3:1036:A:H2'	3:3:1037:G:H8	1.77	0.48
22:AQ:68:SER:HA	22:AQ:79:LYS:HE3	1.95	0.48
43:BH:139:ILE:O	43:BH:143:THR:HG22	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:553:U:H5''	1:1:554:C:H5	1.77	0.48
1:1:917:G:H4'	1:1:920:G:N1	2.28	0.48
1:1:1839:G:O2'	6:AA:147:LYS:HD2	2.12	0.48
1:1:2709:G:H2'	1:1:2710:G:H8	1.78	0.48
5:7:78:SER:OG	5:7:206:ASP:HB3	2.13	0.48
45:BJ:41:LEU:O	45:BJ:45:LYS:HB2	2.14	0.48
1:1:344:U:H5''	24:AS:5:VAL:HG11	1.94	0.48
1:1:1132:U:H2'	1:1:1133:C:C6	2.48	0.48
1:1:1283:G:H2'	1:1:1284:G:C8	2.48	0.48
1:1:1363:A:N3	1:1:2028:G:O2'	2.46	0.48
1:1:2075:G:H2'	1:1:2076:G:O4'	2.12	0.48
3:3:302:U:OP1	3:3:1404:C:O2'	2.31	0.48
6:AA:120:VAL:HG21	6:AA:127:ALA:HB2	1.94	0.48
7:AB:137:ARG:NH1	7:AB:137:ARG:HB3	2.28	0.48
41:BF:59:GLN:HG2	41:BF:68:VAL:HG22	1.96	0.48
61:BZ:13:LYS:HE3	61:BZ:56:VAL:HB	1.94	0.48
1:1:571:C:H2'	1:1:572:A:H8	1.79	0.48
1:1:991:C:H2'	1:1:992:G:H8	1.77	0.48
1:1:1644:A:H2'	1:1:1645:A:H8	1.78	0.48
3:3:366:C:H2'	3:3:367:C:H6	1.78	0.48
3:3:394:A:H2'	3:3:395:U:C6	2.48	0.48
3:3:1393:C:N4	42:BG:80:GLY:O	2.47	0.48
8:AC:30:ASP:OD1	8:AC:30:ASP:N	2.44	0.48
9:AD:30:ARG:HD3	9:AD:36:GLU:HA	1.95	0.48
10:AE:56:GLU:HG2	10:AE:57:TYR:CD2	2.49	0.48
39:BD:118:LEU:HD22	39:BD:126:VAL:HG13	1.95	0.48
43:BH:107:ARG:C	43:BH:126:THR:HG23	2.38	0.48
54:BS:28:PHE:CE2	54:BS:32:LYS:HE2	2.46	0.48
1:1:303:A:N3	1:1:324:C:O2'	2.42	0.48
2:2:100:U:H2'	2:2:101:C:C6	2.48	0.48
3:3:881:A:H2'	3:3:882:C:H6	1.78	0.48
3:3:1056:G:H4'	45:BJ:112:SER:HB2	1.96	0.48
5:7:228:ASN:HB2	5:7:253:LEU:HD22	1.96	0.48
7:AB:124:GLU:O	7:AB:127:GLU:HG3	2.14	0.48
20:AO:24:LYS:HE3	20:AO:24:LYS:HB3	1.61	0.48
39:BD:114:GLN:NE2	39:BD:130:ARG:HB2	2.28	0.48
40:BE:228:ARG:HD2	40:BE:228:ARG:C	2.39	0.48
42:BG:22:LYS:H	42:BG:22:LYS:HD3	1.79	0.48
43:BH:37:SER:H	43:BH:55:GLU:CD	2.21	0.48
50:BO:121:ILE:HG13	50:BO:125:LYS:HE2	1.96	0.48
1:1:79:G:H21	1:1:100:A:H62	1.61	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:161:U:H4'	1:1:764:G:H22	1.78	0.48
1:1:987:C:H2'	1:1:988:G:C8	2.49	0.48
1:1:1331:C:OP2	8:AC:183:LYS:NZ	2.47	0.48
1:1:2547:G:O2'	1:1:2673:A:N1	2.46	0.48
2:2:54:A:H2'	2:2:55:G:C8	2.49	0.48
3:3:1265:A:P	55:BT:48:ARG:HH21	2.36	0.48
3:3:1460:U:H2'	3:3:1461:G:H8	1.78	0.48
9:AD:125:LYS:HE2	9:AD:129:GLU:HG3	1.96	0.48
30:AY:82:SER:N	30:AY:86:GLU:OE1	2.40	0.48
53:BR:64:GLU:OE1	53:BR:64:GLU:HA	2.13	0.48
58:BW:8:ASP:CG	58:BW:17:ARG:HH21	2.20	0.48
59:BX:21:GLU:OE1	59:BX:21:GLU:N	2.47	0.48
1:1:1653:U:H2'	1:1:1654:A:C8	2.49	0.48
1:1:2307:G:H2'	1:1:2308:A:C8	2.49	0.48
3:3:163:C:H2'	3:3:164:A:C8	2.48	0.48
3:3:389:C:H5''	39:BD:127:ILE:CG2	2.43	0.48
10:AE:168:ASP:N	10:AE:168:ASP:OD1	2.43	0.48
11:AF:114:GLN:O	11:AF:117:GLU:HG2	2.13	0.48
17:AL:153:GLU:CD	17:AL:153:GLU:H	2.21	0.48
38:BC:100:ALA:O	38:BC:104:GLU:HG2	2.14	0.48
53:BR:3:ARG:NH1	53:BR:23:PHE:O	2.47	0.48
61:BZ:19:VAL:HG12	61:BZ:56:VAL:HG11	1.96	0.48
1:1:561:A:H2'	1:1:562:U:C6	2.48	0.48
1:1:1578:G:H2'	1:1:1579:C:H6	1.79	0.48
1:1:2090:C:H5'	1:1:2264:G:H21	1.79	0.48
3:3:142:G:H2'	3:3:143:G:H8	1.78	0.48
3:3:421:A:P	58:BW:88:ARG:HH21	2.37	0.48
3:3:435:G:H1	3:3:437:A:H62	1.62	0.48
3:3:647:C:H2'	3:3:648:C:H6	1.78	0.48
16:AK:170:GLU:HG2	16:AK:171:LEU:HD12	1.95	0.48
36:BA:140:MET:HA	36:BA:143:GLU:HG2	1.96	0.48
56:BU:123:LYS:HZ1	56:BU:127:MET:HB3	1.77	0.48
1:1:247:U:H2'	1:1:248:C:H6	1.78	0.48
1:1:287:U:H2'	1:1:288:C:C6	2.49	0.48
3:3:72:U:H4'	3:3:73:G:H5'	1.96	0.48
3:3:1011:G:H2'	3:3:1012:U:H6	1.78	0.48
3:3:1099:U:C2	3:3:1100:G:C8	3.02	0.48
3:3:1306:C:N4	51:BP:21:LYS:O	2.46	0.48
5:7:122:ASN:C	5:7:124:ASN:H	2.22	0.48
22:AQ:117:GLN:HB2	22:AQ:142:ASN:HB2	1.95	0.48
28:AW:34:ASN:O	28:AW:34:ASN:ND2	2.45	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:AY:116:GLU:N	30:AY:116:GLU:OE2	2.47	0.48
50:BO:65:ALA:HB1	50:BO:70:LEU:HD21	1.96	0.48
50:BO:92:TRP:CZ3	50:BO:93:MET:HE2	2.49	0.48
55:BT:42:GLU:N	55:BT:42:GLU:OE1	2.46	0.48
55:BT:53:GLY:HA3	55:BT:71:HIS:NE2	2.29	0.48
1:1:1562:G:H2'	1:1:1563:C:C6	2.49	0.47
22:AQ:96:GLU:HG2	22:AQ:106:PRO:HB3	1.96	0.47
23:AR:17:LEU:HD23	23:AR:17:LEU:HA	1.75	0.47
43:BH:87:LYS:HA	43:BH:90:LYS:HZ3	1.78	0.47
1:1:133:G:H2'	1:1:134:A:H8	1.78	0.47
1:1:692:G:H2'	1:1:693:C:C6	2.49	0.47
1:1:1502:U:H2'	1:1:1503:U:H6	1.79	0.47
1:1:2367:U:H2'	1:1:2368:C:H6	1.79	0.47
1:1:2409:A:H2'	1:1:2410:A:H8	1.79	0.47
3:3:259:C:H4'	46:BK:12:THR:HG22	1.97	0.47
3:3:1064:U:N3	3:3:1066:A:C8	2.82	0.47
4:6:6:ILE:HG21	4:6:124:TYR:HB2	1.96	0.47
9:AD:126:ARG:HG2	9:AD:147:VAL:HG23	1.96	0.47
19:AN:142:LEU:HB3	19:AN:148:LEU:HD11	1.96	0.47
57:BV:5:LYS:HD3	57:BV:32:GLU:HG3	1.96	0.47
61:BZ:22:ILE:HD12	61:BZ:23:GLN:O	2.13	0.47
1:1:1274:A:O2'	1:1:1276:U:OP2	2.28	0.47
1:1:1603:U:H2'	1:1:1604:C:C6	2.50	0.47
1:1:1835:G:H21	6:AA:228:LEU:CD2	2.27	0.47
1:1:2409:A:H2'	1:1:2410:A:C8	2.50	0.47
1:1:2714:U:H2'	1:1:2715:C:C6	2.49	0.47
3:3:408:G:H1'	3:3:409:U:H5	1.79	0.47
3:3:495:U:H2'	3:3:496:C:C6	2.49	0.47
3:3:865:U:H2'	3:3:866:U:C6	2.49	0.47
16:AK:20:ARG:HA	16:AK:23:MET:HG2	1.96	0.47
22:AQ:109:MET:HE3	22:AQ:149:GLU:HG2	1.96	0.47
39:BD:33:TYR:OH	39:BD:110:GLU:OE2	2.16	0.47
40:BE:154:ILE:HD11	40:BE:166:LEU:HD11	1.96	0.47
43:BH:180:ALA:O	43:BH:184:VAL:HG23	2.14	0.47
1:1:6:G:H2'	1:1:7:G:H8	1.79	0.47
1:1:2571:C:H2'	1:1:2572:G:O4'	2.14	0.47
2:2:62:C:H2'	2:2:63:U:C6	2.50	0.47
3:3:1191:U:H2'	3:3:1192:G:H8	1.79	0.47
3:3:1389:A:H2'	3:3:1390:C:C6	2.49	0.47
36:BA:15:SER:O	36:BA:15:SER:OG	2.30	0.47
36:BA:147:LYS:HD3	36:BA:147:LYS:O	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:BE:47:LEU:HD23	40:BE:49:LEU:HD11	1.96	0.47
44:BI:76:LYS:HE2	44:BI:76:LYS:HB3	1.45	0.47
48:BM:23:THR:HG22	48:BM:30:THR:HA	1.97	0.47
48:BM:69:ASN:ND2	48:BM:103:ARG:HH22	2.11	0.47
60:BY:18:ILE:HD13	60:BY:36:ARG:HB3	1.96	0.47
1:1:1836:A:H2'	1:1:1837:U:C6	2.49	0.47
1:1:2287:A:H2'	1:1:2288:U:C6	2.49	0.47
1:1:2307:G:H2'	1:1:2308:A:H8	1.79	0.47
3:3:319:A:H2'	3:3:320:G:C8	2.50	0.47
3:3:840:G:H2'	3:3:841:C:H6	1.79	0.47
3:3:1057:C:H1'	3:3:1126:A:C5	2.49	0.47
3:3:1145:G:H2'	3:3:1146:U:C6	2.49	0.47
7:AB:223:LYS:HD3	7:AB:223:LYS:HA	1.56	0.47
10:AE:20:ALA:O	10:AE:23:VAL:HB	2.14	0.47
10:AE:153:GLU:OE2	10:AE:172:ILE:HD12	2.15	0.47
12:AG:23:LYS:HA	12:AG:23:LYS:HD2	1.62	0.47
37:BB:85:VAL:HG13	57:BV:27:PRO:HB2	1.96	0.47
40:BE:151:ASP:HB3	40:BE:166:LEU:O	2.14	0.47
43:BH:34:VAL:HG12	45:BJ:44:MET:HG2	1.97	0.47
43:BH:64:THR:HG22	43:BH:65:GLU:H	1.79	0.47
50:BO:67:LEU:HD12	50:BO:70:LEU:HD12	1.97	0.47
61:BZ:36:GLN:HB3	61:BZ:45:ARG:NH2	2.29	0.47
1:1:134:A:H2'	1:1:135:U:C6	2.50	0.47
1:1:283:A:O2'	1:1:364:G:N2	2.47	0.47
1:1:1095:U:H2'	1:1:1102:G:C8	2.50	0.47
3:3:765:C:H2'	3:3:766:G:H8	1.79	0.47
3:3:882:C:C2	3:3:883:A:C8	3.03	0.47
3:3:1332:G:H2'	3:3:1333:C:C6	2.50	0.47
3:3:1404:C:H2'	3:3:1405:G:O4'	2.14	0.47
52:BQ:60:VAL:HG13	52:BQ:66:ILE:CD1	2.45	0.47
54:BS:39:THR:HG23	54:BS:41:ILE:H	1.79	0.47
1:1:28:G:H2'	1:1:29:G:H8	1.80	0.47
1:1:753:U:H2'	1:1:754:A:C8	2.49	0.47
1:1:1305:A:H5''	30:AY:102:THR:HG22	1.97	0.47
1:1:2396:G:H2'	1:1:2397:U:C6	2.50	0.47
3:3:835:G:H4'	3:3:836:U:O5'	2.14	0.47
3:3:900:G:H2'	3:3:901:U:C6	2.50	0.47
3:3:903:U:O2	3:3:905:A:H8	1.98	0.47
3:3:1096:C:C2	3:3:1097:U:C5	3.03	0.47
7:AB:85:ILE:HD12	7:AB:179:SER:HB2	1.96	0.47
10:AE:13:GLU:OE1	10:AE:13:GLU:N	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:AQ:112:ILE:HG21	22:AQ:148:SER:HB3	1.97	0.47
24:AS:29:GLY:HA2	24:AS:46:ALA:HA	1.96	0.47
28:AW:31:ALA:HB1	28:AW:37:ALA:HB2	1.97	0.47
36:BA:70:ILE:HA	36:BA:80:THR:HG22	1.96	0.47
40:BE:119:ARG:O	40:BE:136:ASN:N	2.47	0.47
41:BF:190:ASP:O	41:BF:194:GLN:HG2	2.15	0.47
46:BK:112:ARG:O	46:BK:116:ASP:N	2.44	0.47
61:BZ:45:ARG:HH11	61:BZ:45:ARG:HB2	1.79	0.47
1:1:1524:C:H2'	1:1:1525:A:H8	1.79	0.47
1:1:2732:G:H2'	1:1:2733:G:O4'	2.15	0.47
3:3:435:G:N3	3:3:435:G:O2'	2.41	0.47
3:3:663:G:H2'	3:3:663:G:N3	2.29	0.47
3:3:1258:G:OP1	55:BT:19:ARG:NH2	2.47	0.47
3:3:1318:G:O3'	45:BJ:71:GLY:HA3	2.14	0.47
12:AG:122:ARG:HA	12:AG:122:ARG:NE	2.30	0.47
37:BB:79:THR:OG1	37:BB:186:PRO:O	2.32	0.47
48:BM:73:ILE:HG21	48:BM:94:ILE:HD11	1.96	0.47
50:BO:41:LEU:HD21	50:BO:78:LEU:HD11	1.96	0.47
56:BU:7:VAL:CG2	56:BU:12:MET:HE2	2.44	0.47
56:BU:31:TRP:HZ2	56:BU:100:LYS:HG3	1.78	0.47
1:1:193:U:H4'	15:AJ:177:ARG:O	2.15	0.47
1:1:1948:U:H2'	1:1:1949:C:C6	2.49	0.47
3:3:84:A:H5'	3:3:85:C:H5	1.80	0.47
3:3:633:U:O2'	3:3:635:A:N7	2.37	0.47
3:3:921:G:OP2	3:3:1305:U:O2'	2.23	0.47
3:3:1242:C:H2'	3:3:1243:C:H6	1.80	0.47
11:AF:52:ALA:HB3	11:AF:55:ILE:HD11	1.97	0.47
40:BE:32:SER:O	40:BE:36:SER:OG	2.28	0.47
43:BH:7:ILE:N	43:BH:11:TRP:O	2.47	0.47
48:BM:62:GLN:O	48:BM:66:LYS:HG3	2.14	0.47
52:BQ:23:PRO:HB2	52:BQ:25:TRP:CE2	2.50	0.47
1:1:679:A:H3'	1:1:680:G:H8	1.80	0.47
1:1:1977:A:C6	13:AH:32:ILE:HG23	2.49	0.47
3:3:153:G:H2'	3:3:154:G:H8	1.80	0.47
3:3:599:C:H2'	3:3:600:C:C6	2.49	0.47
3:3:1286:A:H2'	3:3:1287:A:O4'	2.15	0.47
17:AL:6:ARG:HA	21:AP:19:VAL:HG21	1.97	0.47
17:AL:31:ARG:HG2	17:AL:31:ARG:HH11	1.79	0.47
41:BF:109:THR:OG1	41:BF:189:TYR:OH	2.23	0.47
1:1:151:A:H2'	1:1:152:C:C6	2.51	0.46
1:1:654:G:OP1	8:AC:28:ARG:NH1	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:947:G:H2'	1:1:948:A:O4'	2.15	0.46
1:1:1654:A:H2'	1:1:1655:A:H8	1.80	0.46
3:3:1068:C:O5'	3:3:1068:C:H6	1.98	0.46
3:3:1069:A:H1'	45:BJ:6:ASN:HD21	1.80	0.46
3:3:1372:U:H2'	3:3:1373:A:H8	1.78	0.46
7:AB:6:ARG:NH1	7:AB:7:PRO:O	2.49	0.46
26:AU:42:GLU:OE1	26:AU:42:GLU:N	2.48	0.46
38:BC:151:ILE:HD12	38:BC:183:ILE:HD11	1.97	0.46
50:BO:24:VAL:O	50:BO:30:ASP:HA	2.15	0.46
59:BX:24:GLN:HE21	59:BX:37:VAL:H	1.63	0.46
1:1:1945:C:H2'	1:1:1946:C:H6	1.79	0.46
1:1:2664:G:H2'	1:1:2665:C:C6	2.50	0.46
1:1:2671:G:H1'	1:1:2672:U:OP2	2.15	0.46
3:3:315:A:H2'	3:3:316:U:C6	2.50	0.46
7:AB:169:ALA:HB3	7:AB:175:LYS:HG3	1.96	0.46
59:BX:41:ARG:HG2	59:BX:42:THR:N	2.30	0.46
60:BY:16:GLU:OE1	60:BY:36:ARG:HG2	2.15	0.46
1:1:1136:A:H2'	1:1:1137:A:C8	2.51	0.46
1:1:1257:A:H2'	1:1:1258:C:C6	2.51	0.46
1:1:2071:C:H5''	22:AQ:65:HIS:CE1	2.50	0.46
1:1:2325:A:O2'	9:AD:51:ILE:HG12	2.15	0.46
1:1:2808:A:H2'	1:1:2809:U:H6	1.80	0.46
3:3:52:U:H2'	3:3:53:G:C8	2.50	0.46
3:3:599:C:H2'	3:3:600:C:H6	1.79	0.46
3:3:1080:C:H1'	3:3:1081:G:OP2	2.16	0.46
3:3:1388:G:H2'	3:3:1389:A:C8	2.51	0.46
9:AD:15:VAL:HG23	9:AD:57:ILE:O	2.15	0.46
10:AE:128:VAL:HG22	10:AE:137:ILE:HG12	1.97	0.46
29:AX:8:GLU:OE1	29:AX:74:ARG:NH1	2.49	0.46
51:BP:25:VAL:HG22	51:BP:32:LEU:O	2.16	0.46
61:BZ:8:ASP:N	61:BZ:8:ASP:OD1	2.49	0.46
1:1:566:G:OP1	27:AV:122:ARG:NH2	2.49	0.46
1:1:693:C:O2'	1:1:727:U:OP1	2.24	0.46
1:1:744:U:H2'	1:1:745:C:C6	2.50	0.46
1:1:996:G:H5''	16:AK:88:ARG:HH21	1.81	0.46
2:2:117:C:H2'	2:2:118:U:O4'	2.16	0.46
3:3:305:U:H2'	3:3:306:G:O4'	2.15	0.46
3:3:1062:U:H2'	3:3:1063:G:C8	2.51	0.46
3:3:1305:U:OP1	51:BP:26:ARG:HD3	2.16	0.46
4:6:82:ILE:HG13	4:6:105:ILE:HG23	1.96	0.46
7:AB:12:LEU:O	7:AB:15:SER:OG	2.25	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:AC:133:ILE:O	8:AC:167:ASP:HB2	2.16	0.46
38:BC:14:LYS:O	38:BC:17:MET:HG3	2.15	0.46
43:BH:152:ARG:NH1	43:BH:157:CYS:HA	2.31	0.46
43:BH:164:GLY:HA3	43:BH:172:SER:OG	2.15	0.46
45:BJ:96:ILE:HG13	45:BJ:97:ARG:N	2.30	0.46
52:BQ:24:GLU:OE1	52:BQ:24:GLU:N	2.25	0.46
1:1:6:G:H2'	1:1:7:G:C8	2.50	0.46
1:1:307:U:H2'	1:1:308:G:C8	2.50	0.46
1:1:496:A:H2'	1:1:497:G:O4'	2.15	0.46
1:1:1665:C:O2'	1:1:1671:A:N1	2.43	0.46
1:1:2068:C:H2'	1:1:2069:C:C6	2.50	0.46
1:1:2111:U:H2'	1:1:2112:G:H8	1.80	0.46
1:1:2794:A:H5''	1:1:2795:G:H5'	1.97	0.46
1:1:2878:U:H2'	1:1:2879:U:O4'	2.14	0.46
3:3:621:C:H2'	3:3:622:A:H8	1.81	0.46
3:3:1247:G:H1'	3:3:1250:C:N4	2.30	0.46
3:3:1312:A:H2'	3:3:1313:G:C8	2.50	0.46
28:AW:75:CYS:SG	28:AW:84:MET:HE1	2.56	0.46
37:BB:59:MET:HE3	37:BB:59:MET:HB2	1.66	0.46
37:BB:109:HIS:O	37:BB:113:MET:HG2	2.14	0.46
38:BC:112:ALA:O	38:BC:116:THR:OG1	2.30	0.46
59:BX:22:ASN:OD1	59:BX:23:GLU:N	2.49	0.46
1:1:311:U:H2'	1:1:312:G:O4'	2.16	0.46
1:1:363:C:H2'	1:1:364:G:O4'	2.14	0.46
1:1:649:U:H2'	1:1:650:G:H8	1.81	0.46
1:1:1018:A:H2'	1:1:1019:U:C6	2.50	0.46
1:1:2654:C:H5''	12:AG:71:ARG:HD2	1.97	0.46
6:AA:30:HIS:NE2	6:AA:108:ASN:O	2.47	0.46
9:AD:133:LYS:HA	9:AD:133:LYS:HE3	1.96	0.46
27:AV:69:ARG:HD2	27:AV:117:ARG:O	2.16	0.46
28:AW:42:LEU:HD11	28:AW:54:ILE:HG21	1.97	0.46
1:1:33:G:H1'	1:1:458:A:C4	2.50	0.46
1:1:201:G:H22	1:1:425:C:H5'	1.81	0.46
1:1:388:G:N2	15:AJ:196:LYS:O	2.46	0.46
1:1:618:C:H2'	1:1:619:G:H8	1.80	0.46
1:1:618:C:H2'	1:1:619:G:C8	2.51	0.46
1:1:1839:G:N7	6:AA:143:SER:OG	2.47	0.46
1:1:1971:U:H2'	1:1:1972:C:C6	2.51	0.46
1:1:2709:G:H2'	1:1:2710:G:C8	2.50	0.46
2:2:62:C:H2'	2:2:63:U:H6	1.81	0.46
3:3:789:C:H2'	3:3:790:C:C6	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:809:A:H2'	3:3:810:A:C8	2.51	0.46
3:3:1096:C:H2'	3:3:1097:U:H6	1.80	0.46
3:3:1334:U:H2'	3:3:1335:C:C6	2.51	0.46
3:3:1346:C:O2	3:3:1440:A:N6	2.49	0.46
5:7:229:VAL:HG13	5:7:250:VAL:HG11	1.98	0.46
9:AD:45:THR:HA	9:AD:52:LYS:CA	2.44	0.46
14:AI:92:TYR:CE2	14:AI:112:LYS:HD3	2.50	0.46
23:AR:33:LYS:O	23:AR:37:GLU:HG2	2.15	0.46
34:Ac:71:CYS:HB3	34:Ac:74:CYS:SG	2.56	0.46
39:BD:132:PHE:HB3	39:BD:138:ILE:HD13	1.98	0.46
46:BK:43:LYS:HB2	46:BK:43:LYS:HE2	1.73	0.46
1:1:690:A:H2'	1:1:691:A:C8	2.51	0.46
1:1:1321:U:H2'	1:1:1322:C:H6	1.80	0.46
2:2:3:G:H2'	2:2:4:U:H6	1.80	0.46
2:2:92:G:N2	2:2:95:A:OP2	2.42	0.46
3:3:1253:A:N6	3:3:1278:G:H1'	2.29	0.46
3:3:1462:C:H2'	3:3:1463:G:C8	2.51	0.46
8:AC:18:GLU:OE1	8:AC:18:GLU:HA	2.16	0.46
29:AX:45:GLU:OE2	29:AX:46:SER:N	2.49	0.46
45:BJ:7:SER:OG	45:BJ:82:ALA:O	2.30	0.46
52:BQ:65:LEU:HA	52:BQ:65:LEU:HD23	1.71	0.46
1:1:2684:C:H4'	10:AE:116:LYS:HD3	1.97	0.46
3:3:23:G:O2'	3:3:278:U:OP1	2.33	0.46
3:3:96:C:N4	3:3:218:G:OP2	2.38	0.46
3:3:241:U:HO2'	46:BK:31:SER:HG	1.54	0.46
3:3:660:C:O2	36:BA:93:ARG:NH2	2.49	0.46
3:3:1106:C:O2'	54:BS:56:ARG:NH2	2.49	0.46
3:3:1256:G:H5'	50:BO:117:PHE:HE1	1.81	0.46
3:3:1260:G:P	55:BT:43:ARG:HH21	2.36	0.46
8:AC:27:TYR:CE2	8:AC:29:PRO:HG3	2.51	0.46
15:AJ:2:VAL:HG22	15:AJ:3:LYS:H	1.81	0.46
30:AY:92:PRO:HB3	30:AY:120:ILE:HG12	1.98	0.46
36:BA:126:ILE:HG13	36:BA:181:ARG:HB2	1.98	0.46
36:BA:139:GLU:O	36:BA:143:GLU:HG2	2.16	0.46
36:BA:155:GLU:HG2	36:BA:159:GLN:HE22	1.81	0.46
48:BM:25:ILE:HD12	48:BM:26:THR:N	2.31	0.46
52:BQ:125:LEU:HD23	52:BQ:125:LEU:HA	1.75	0.46
1:1:717:A:C2	18:AM:126:ARG:HB3	2.51	0.46
1:1:841:A:OP2	31:AZ:4:GLY:HA3	2.15	0.46
1:1:1871:U:H2'	1:1:1872:C:C6	2.50	0.46
1:1:2108:G:N2	6:AA:219:ASN:O	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2569:U:H2'	1:1:2570:U:C6	2.51	0.46
3:3:3:U:O4	39:BD:15:LYS:HD2	2.16	0.46
3:3:1130:U:H3'	3:3:1131:G:H5''	1.98	0.46
6:AA:197:PRO:HG3	6:AA:204:GLY:HA3	1.98	0.46
9:AD:98:ILE:HD12	9:AD:98:ILE:O	2.16	0.46
12:AG:14:LEU:HD12	12:AG:76:LEU:HD13	1.97	0.46
16:AK:4:LYS:HA	16:AK:4:LYS:HD3	1.69	0.46
40:BE:42:ILE:HG23	40:BE:106:LEU:HD11	1.97	0.46
46:BK:55:LEU:HB2	46:BK:117:GLY:HA2	1.98	0.46
1:1:1433:U:H3'	23:AR:53:MET:HE2	1.98	0.45
3:3:291:C:H2'	3:3:292:C:C6	2.50	0.45
3:3:828:C:O2'	3:3:829:U:H5'	2.16	0.45
3:3:1050:A:O2'	54:BS:46:ILE:HD11	2.16	0.45
24:AS:108:MET:HE3	24:AS:108:MET:HB3	1.82	0.45
36:BA:159:GLN:H	36:BA:159:GLN:CD	2.24	0.45
39:BD:87:ARG:O	39:BD:153:SER:HB2	2.16	0.45
42:BG:10:ASP:HB3	42:BG:115:TYR:HE2	1.80	0.45
43:BH:35:PRO:HG2	43:BH:75:LEU:HD21	1.96	0.45
43:BH:44:GLN:HB3	43:BH:47:ASN:OD1	2.16	0.45
52:BQ:31:ASP:O	52:BQ:34:THR:HG22	2.16	0.45
56:BU:111:LEU:HD23	56:BU:120:VAL:HA	1.97	0.45
1:1:125:U:H2'	1:1:126:C:C6	2.51	0.45
1:1:578:G:H2'	1:1:579:A:C8	2.51	0.45
1:1:1500:C:H2'	1:1:1501:A:H8	1.81	0.45
3:3:999:C:H2'	3:3:1000:G:H8	1.80	0.45
3:3:1304:U:H2'	3:3:1305:U:C6	2.50	0.45
3:3:1321:A:OP1	43:BH:71:LYS:NZ	2.50	0.45
3:3:1355:A:H2'	3:3:1356:A:C8	2.51	0.45
9:AD:49:PHE:HB3	9:AD:51:ILE:HD13	1.97	0.45
12:AG:118:ASP:N	12:AG:118:ASP:OD1	2.49	0.45
39:BD:82:LEU:HD21	39:BD:97:ILE:H	1.80	0.45
42:BG:83:TYR:CE1	42:BG:92:ARG:HB2	2.50	0.45
45:BJ:72:ILE:HD12	45:BJ:73:ILE:HG12	1.98	0.45
48:BM:41:LYS:HD3	48:BM:41:LYS:HA	1.70	0.45
53:BR:3:ARG:HH12	53:BR:24:HIS:CD2	2.34	0.45
1:1:2050:U:H2'	1:1:2051:A:C8	2.52	0.45
1:1:2579:A:OP1	1:1:2664:G:O2'	2.28	0.45
1:1:2849:A:H2'	1:1:2850:C:C6	2.51	0.45
3:3:114:U:O2	40:BE:140:ASN:ND2	2.49	0.45
3:3:217:U:H2'	3:3:218:G:C8	2.52	0.45
3:3:493:G:H2'	3:3:494:A:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:783:G:H2'	3:3:784:C:O4'	2.16	0.45
3:3:1355:A:H2'	3:3:1356:A:H8	1.82	0.45
3:3:1414:U:H2'	3:3:1415:U:C6	2.52	0.45
7:AB:84:ALA:HB3	7:AB:144:VAL:HB	1.98	0.45
8:AC:170:ARG:NH2	8:AC:193:LYS:O	2.49	0.45
10:AE:16:SER:OG	10:AE:27:THR:HB	2.16	0.45
10:AE:175:LYS:NZ	33:Ab:10:ARG:HH12	2.15	0.45
11:AF:31:LYS:HB3	11:AF:36:GLU:HB3	1.98	0.45
40:BE:89:LEU:HD12	40:BE:89:LEU:HA	1.79	0.45
40:BE:151:ASP:OD1	40:BE:168:PHE:N	2.46	0.45
41:BF:200:LEU:HD11	57:BV:15:ARG:HH22	1.81	0.45
46:BK:64:THR:HA	46:BK:71:THR:HA	1.98	0.45
53:BR:5:ILE:HD11	53:BR:9:ILE:HB	1.97	0.45
55:BT:50:PHE:HB2	55:BT:55:LYS:NZ	2.31	0.45
60:BY:34:GLN:NE2	60:BY:48:THR:HG22	2.30	0.45
1:1:333:U:O2'	24:AS:97:ASN:ND2	2.45	0.45
1:1:849:U:H2'	1:1:850:G:O4'	2.17	0.45
1:1:987:C:H2'	1:1:988:G:H8	1.82	0.45
1:1:1718:A:C2	1:1:2074:G:H5''	2.51	0.45
1:1:2746:C:H1'	1:1:2747:A:C8	2.51	0.45
1:1:2848:C:H2'	1:1:2849:A:H8	1.81	0.45
3:3:637:A:H2'	3:3:638:U:H6	1.81	0.45
3:3:923:C:O2	3:3:923:C:H2'	2.17	0.45
3:3:1085:C:H2'	3:3:1087:A:C8	2.52	0.45
7:AB:73:THR:HG21	7:AB:301:VAL:HG22	1.98	0.45
9:AD:39:ARG:HA	9:AD:59:CYS:HA	1.99	0.45
10:AE:11:ILE:HD12	10:AE:77:VAL:HG21	1.98	0.45
13:AH:74:VAL:HG12	13:AH:117:VAL:HG11	1.98	0.45
13:AH:132:VAL:HG11	25:AT:22:VAL:HG21	1.99	0.45
28:AW:28:THR:HG23	28:AW:85:ALA:HB2	1.99	0.45
46:BK:90:ARG:HG2	46:BK:90:ARG:NH1	2.31	0.45
48:BM:40:VAL:HG22	48:BM:42:ALA:H	1.81	0.45
52:BQ:66:ILE:HD12	52:BQ:66:ILE:N	2.31	0.45
55:BT:18:TYR:HB3	55:BT:26:LEU:HD11	1.99	0.45
1:1:239:A:N1	1:1:376:U:H4'	2.30	0.45
1:1:475:A:H2'	1:1:476:C:O4'	2.17	0.45
1:1:948:A:H3'	1:1:949:G:N7	2.31	0.45
1:1:1370:C:H2'	1:1:1371:A:C8	2.52	0.45
1:1:1831:A:H4'	6:AA:170:TRP:HB2	1.99	0.45
1:1:2366:U:H2'	1:1:2367:U:C6	2.52	0.45
1:1:2572:G:H2'	1:1:2573:C:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:567:U:OP1	40:BE:103:ARG:NH2	2.35	0.45
3:3:993:C:H4'	3:3:994:A:C5'	2.47	0.45
3:3:1010:C:H2'	3:3:1011:G:C8	2.52	0.45
3:3:1018:G:O2'	41:BF:71:ARG:NH2	2.49	0.45
10:AE:45:ASP:HB3	10:AE:52:VAL:HG13	1.98	0.45
14:AI:77:SER:O	14:AI:80:VAL:HG12	2.16	0.45
21:AP:75:GLU:HG2	21:AP:82:MET:HG3	1.98	0.45
22:AQ:70:HIS:HA	22:AQ:76:ALA:O	2.17	0.45
30:AY:72:HIS:CG	30:AY:73:PRO:HD2	2.51	0.45
43:BH:20:ASP:HB3	43:BH:23:ILE:HD13	1.98	0.45
50:BO:136:GLU:OE2	50:BO:137:ARG:HG3	2.16	0.45
52:BQ:142:LYS:HB2	52:BQ:142:LYS:HE2	1.69	0.45
58:BW:77:MET:HE3	58:BW:77:MET:HB3	1.76	0.45
1:1:41:A:H2'	1:1:42:G:C8	2.52	0.45
1:1:380:U:H2'	1:1:381:A:H8	1.81	0.45
1:1:424:U:H2'	1:1:425:C:C6	2.52	0.45
1:1:958:U:H2'	1:1:959:G:O4'	2.17	0.45
1:1:1370:C:H2'	1:1:1371:A:H8	1.80	0.45
1:1:1500:C:H2'	1:1:1501:A:C8	2.51	0.45
1:1:1653:U:H2'	1:1:1654:A:H8	1.82	0.45
1:1:1780:U:H2'	1:1:1781:A:O4'	2.17	0.45
1:1:1870:A:C5	1:1:1871:U:C5	3.04	0.45
1:1:2452:U:H2'	1:1:2453:U:C6	2.52	0.45
3:3:560:C:H2'	3:3:561:A:C8	2.52	0.45
3:3:880:A:O2'	3:3:1290:C:OP1	2.29	0.45
3:3:1325:C:H5''	3:3:1326:G:OP1	2.17	0.45
3:3:1454:G:H2'	3:3:1456:MA6:OP2	2.17	0.45
22:AQ:122:ILE:HB	22:AQ:138:THR:HB	1.98	0.45
29:AX:53:LYS:HG3	29:AX:57:GLU:OE2	2.17	0.45
36:BA:85:HIS:ND1	36:BA:188:THR:HB	2.32	0.45
36:BA:105:ALA:HB2	36:BA:138:ARG:HG3	1.98	0.45
38:BC:95:MET:HE2	38:BC:95:MET:HA	1.99	0.45
1:1:396:U:H2'	1:1:397:C:C6	2.52	0.45
1:1:1830:U:H2'	1:1:1831:A:C8	2.52	0.45
1:1:2572:G:H2'	1:1:2573:C:H6	1.81	0.45
14:AI:96:LEU:HD11	14:AI:104:VAL:HG22	1.97	0.45
37:BB:54:GLN:HB2	37:BB:175:ASN:HB3	1.97	0.45
39:BD:163:TYR:O	39:BD:166:SER:HB3	2.17	0.45
43:BH:74:THR:O	43:BH:78:VAL:HG23	2.15	0.45
1:1:416:C:H2'	1:1:417:A:C8	2.51	0.45
1:1:1041:C:H2'	1:1:1042:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1058:U:H2'	1:1:1059:A:C8	2.52	0.45
3:3:1071:C:H2'	3:3:1072:A:H8	1.82	0.45
3:3:1153:G:H2'	3:3:1154:C:C6	2.52	0.45
3:3:1428:U:O2'	3:3:1429:U:H5'	2.16	0.45
7:AB:147:THR:O	7:AB:160:PRO:HB3	2.17	0.45
7:AB:267:ARG:NH2	7:AB:323:GLY:O	2.50	0.45
8:AC:26:ASP:OD1	8:AC:26:ASP:N	2.47	0.45
20:AO:29:GLN:HB2	20:AO:33:ASN:HD22	1.82	0.45
43:BH:23:ILE:N	43:BH:23:ILE:HD12	2.32	0.45
44:BI:87:GLU:O	44:BI:91:LYS:HG3	2.17	0.45
53:BR:27:LEU:HD11	53:BR:91:CYS:HB2	1.98	0.45
1:1:17:A:H2'	1:1:18:U:C6	2.52	0.45
1:1:572:A:H2'	1:1:573:U:C6	2.51	0.45
1:1:605:G:O2'	1:1:1312:G:OP1	2.29	0.45
1:1:1574:G:C8	28:AW:27:ARG:HD3	2.52	0.45
1:1:1848:U:OP1	15:AJ:76:VAL:HG13	2.16	0.45
3:3:1009:U:H2'	3:3:1010:C:C6	2.52	0.45
8:AC:122:THR:HG22	8:AC:139:PRO:HB3	1.99	0.45
9:AD:18:SER:HB3	9:AD:56:PRO:O	2.17	0.45
14:AI:58:ASP:OD2	14:AI:59:GLU:N	2.50	0.45
36:BA:36:MET:HG2	48:BM:29:GLU:HG2	1.98	0.45
38:BC:21:PHE:HB2	38:BC:30:TYR:CE1	2.51	0.45
39:BD:82:LEU:HD11	39:BD:95:ALA:HB3	1.99	0.45
56:BU:20:LEU:HD12	56:BU:20:LEU:HA	1.72	0.45
1:1:81:A:C2	1:1:99:A:C5	3.05	0.45
1:1:241:A:H61	1:1:267:G:H1'	1.82	0.45
2:2:47:A:OP1	9:AD:130:ARG:NH1	2.42	0.45
3:3:614:G:H2'	3:3:615:G:C8	2.51	0.45
3:3:1405:G:H2'	3:3:1406:A:H8	1.81	0.45
6:AA:89:VAL:HG11	6:AA:100:VAL:HG23	1.99	0.45
9:AD:145:HIS:ND1	9:AD:145:HIS:O	2.50	0.45
52:BQ:92:ILE:HG13	52:BQ:122:ILE:HD12	1.99	0.45
57:BV:33:ILE:HD11	57:BV:48:CYS:HB2	1.99	0.45
1:1:77:G:H2'	1:1:78:G:H8	1.82	0.44
1:1:1001:A:H2'	16:AK:22:TYR:CZ	2.51	0.44
1:1:1431:G:O2'	1:1:1488:A:N1	2.47	0.44
1:1:1811:U:H2'	1:1:1812:A:H8	1.79	0.44
1:1:1866:C:O2'	1:1:1996:U:OP2	2.31	0.44
3:3:253:A:H2'	3:3:254:C:O4'	2.17	0.44
3:3:1311:U:C5	56:BU:86:LYS:HG2	2.52	0.44
13:AH:97:ILE:CG2	13:AH:105:LYS:HE2	2.46	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:AL:69:LYS:HG2	17:AL:70:TYR:CD1	2.52	0.44
41:BF:135:LYS:HE3	41:BF:137:GLY:O	2.17	0.44
50:BO:108:LEU:HD13	50:BO:116:THR:HG21	1.99	0.44
55:BT:16:TYR:CE1	55:BT:101:GLU:HG3	2.51	0.44
1:1:1322:C:OP1	30:AY:101:GLY:N	2.34	0.44
1:1:1645:A:H2'	1:1:1646:G:O4'	2.18	0.44
1:1:1931:G:H2'	1:1:1932:G:H8	1.83	0.44
1:1:2606:C:H2'	1:1:2607:G:H8	1.82	0.44
3:3:170:U:H2'	3:3:171:G:O4'	2.17	0.44
3:3:276:U:OP1	3:3:550:U:O2'	2.32	0.44
3:3:418:G:OP2	58:BW:32:ARG:NH2	2.49	0.44
3:3:574:U:H2'	3:3:575:C:H6	1.82	0.44
3:3:1147:C:H5''	3:3:1148:A:H3'	1.97	0.44
5:7:51:LEU:HD23	5:7:128:TRP:CZ3	2.52	0.44
8:AC:132:HIS:CD2	8:AC:237:LEU:H	2.35	0.44
14:AI:40:VAL:O	14:AI:43:MET:HG2	2.16	0.44
15:AJ:154:PRO:O	15:AJ:157:ARG:HG3	2.17	0.44
20:AO:8:ILE:HA	20:AO:8:ILE:HD12	1.81	0.44
23:AR:18:ASP:OD1	23:AR:18:ASP:N	2.50	0.44
36:BA:125:THR:OG1	36:BA:127:LYS:O	2.31	0.44
43:BH:27:VAL:HG13	43:BH:53:ILE:HB	1.99	0.44
45:BJ:22:LYS:HA	45:BJ:61:LEU:HA	1.99	0.44
45:BJ:96:ILE:HG13	45:BJ:97:ARG:H	1.81	0.44
52:BQ:149:MET:H	52:BQ:149:MET:HG2	1.51	0.44
1:1:19:C:H2'	1:1:20:A:H8	1.82	0.44
1:1:784:G:H2'	1:1:785:C:C6	2.52	0.44
1:1:1557:A:H2'	1:1:1558:A:H8	1.81	0.44
1:1:1752:A:H4'	3:3:1413:A:OP1	2.18	0.44
2:2:37:C:H2'	2:2:38:C:H6	1.81	0.44
3:3:211:U:H5''	40:BE:33:GLN:HB2	1.99	0.44
3:3:520:C:H2'	3:3:521:G:O4'	2.17	0.44
3:3:689:G:H5'	52:BQ:15:THR:C	2.42	0.44
3:3:1389:A:H2'	3:3:1390:C:H6	1.81	0.44
3:3:1393:C:H41	42:BG:81:VAL:HA	1.81	0.44
5:7:51:LEU:HD23	5:7:128:TRP:HZ3	1.81	0.44
6:AA:215:THR:HG22	6:AA:228:LEU:HB2	1.99	0.44
8:AC:183:LYS:HB2	8:AC:183:LYS:HE2	1.66	0.44
9:AD:49:PHE:C	9:AD:51:ILE:H	2.25	0.44
13:AH:32:ILE:HD11	13:AH:56:SER:HB3	1.98	0.44
43:BH:90:LYS:HD3	43:BH:90:LYS:HA	1.72	0.44
49:BN:89:VAL:O	49:BN:92:ILE:HG22	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:BU:70:ILE:HD11	56:BU:118:ARG:HH12	1.82	0.44
1:1:156:C:H4'	15:AJ:96:MET:SD	2.57	0.44
1:1:290:G:H21	1:1:358:A:H62	1.66	0.44
2:2:89:U:H4'	2:2:90:G:O5'	2.17	0.44
3:3:403:U:H2'	3:3:404:G:H8	1.83	0.44
10:AE:127:LYS:HE3	10:AE:127:LYS:HB3	1.64	0.44
14:AI:118:SER:HB3	14:AI:121:PHE:CZ	2.52	0.44
24:AS:99:SER:O	24:AS:99:SER:OG	2.32	0.44
58:BW:1:MET:HE3	58:BW:1:MET:HB2	1.82	0.44
1:1:22:G:H5''	22:AQ:4:ILE:HB	2.00	0.44
1:1:312:G:N1	1:1:315:A:OP2	2.49	0.44
1:1:579:A:N1	1:1:1246:C:O2'	2.49	0.44
1:1:663:A:H2'	1:1:664:A:C8	2.52	0.44
1:1:1136:A:H2'	1:1:1137:A:H8	1.82	0.44
1:1:2759:U:O2'	10:AE:143:GLU:OE1	2.15	0.44
2:2:99:U:H2'	2:2:100:U:H6	1.83	0.44
3:3:98:C:H5''	3:3:293:G:O2'	2.18	0.44
3:3:486:G:N1	61:BZ:32:PRO:O	2.49	0.44
10:AE:24:PHE:HD1	10:AE:76:LEU:HD23	1.81	0.44
22:AQ:11:ASP:O	22:AQ:15:THR:HG22	2.18	0.44
30:AY:97:ILE:HD11	30:AY:122:VAL:HG22	2.00	0.44
40:BE:189:MET:HE2	40:BE:189:MET:HA	1.99	0.44
1:1:648:U:H2'	1:1:649:U:C6	2.53	0.44
1:1:1449:C:H2'	1:1:1450:G:H8	1.82	0.44
1:1:1882:G:H2'	1:1:1883:C:C6	2.52	0.44
2:2:41:U:N3	2:2:45:G:OP2	2.38	0.44
2:2:78:C:H3'	2:2:79:U:H2'	1.99	0.44
3:3:58:U:H2'	3:3:59:C:C6	2.52	0.44
3:3:541:U:H2'	3:3:542:C:C6	2.53	0.44
3:3:810:A:H2'	3:3:811:G:C8	2.53	0.44
3:3:847:G:H2'	3:3:848:G:C8	2.52	0.44
3:3:1096:C:O2'	3:3:1227:A:N1	2.48	0.44
3:3:1194:G:H2'	3:3:1195:A:O4'	2.17	0.44
3:3:1275:C:OP1	50:BO:50:ARG:NE	2.49	0.44
4:6:133:ASP:HB2	4:6:243:LYS:HE2	2.00	0.44
54:BS:5:ARG:O	54:BS:9:ILE:HB	2.18	0.44
1:1:345:A:O2'	8:AC:210:ARG:NH2	2.50	0.44
1:1:1428:G:H5''	32:Aa:21:ARG:HG2	1.99	0.44
3:3:236:G:O2'	53:BR:44:ASP:O	2.35	0.44
3:3:806:G:HO2'	3:3:819:G:HO2'	1.66	0.44
3:3:1230:U:OP1	56:BU:72:ARG:NH2	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:AD:24:ASN:HB3	9:AD:113:ILE:HD12	1.99	0.44
54:BS:36:THR:HB	54:BS:47:ARG:HG3	1.99	0.44
58:BW:83:GLU:O	58:BW:87:LYS:HG3	2.18	0.44
59:BX:11:ARG:HD3	59:BX:62:GLU:C	2.43	0.44
1:1:225:A:H4'	15:AJ:182:GLU:HG2	1.98	0.44
1:1:1078:C:O2'	27:AV:129:LYS:NZ	2.37	0.44
1:1:1753:A:H2'	1:1:1754:C:O4'	2.18	0.44
3:3:330:G:P	42:BG:74:ARG:HH22	2.40	0.44
3:3:1187:U:O2'	43:BH:67:ASN:OD1	2.26	0.44
3:3:1451:A:H2'	3:3:1452:G:H8	1.82	0.44
6:AA:58:LYS:HD3	6:AA:68:PHE:CE1	2.52	0.44
22:AQ:145:MET:HE3	22:AQ:145:MET:HB2	1.73	0.44
30:AY:87:LEU:HD21	30:AY:97:ILE:HD13	2.00	0.44
37:BB:78:SER:O	37:BB:81:GLU:HG3	2.18	0.44
40:BE:44:ARG:HE	40:BE:44:ARG:HB3	1.68	0.44
40:BE:147:TYR:HD1	40:BE:165:HIS:CE1	2.35	0.44
52:BQ:92:ILE:HG13	52:BQ:122:ILE:CD1	2.48	0.44
1:1:65:G:H2'	1:1:66:C:O4'	2.17	0.44
1:1:1869:A:C5	1:1:1870:A:C8	3.06	0.44
1:1:1910:G:H2'	1:1:1911:A:C8	2.52	0.44
1:1:2256:U:H2'	1:1:2257:U:C6	2.53	0.44
3:3:160:G:H2'	3:3:161:C:H6	1.82	0.44
3:3:404:G:H2'	3:3:405:G:O4'	2.18	0.44
3:3:887:G:H2'	3:3:888:G:O4'	2.17	0.44
22:AQ:96:GLU:O	22:AQ:100:GLU:HG3	2.18	0.44
37:BB:183:LEU:HD12	37:BB:183:LEU:HA	1.85	0.44
38:BC:168:VAL:HG23	38:BC:175:THR:HB	1.99	0.44
50:BO:89:VAL:HG22	50:BO:90:PRO:HD2	2.00	0.44
51:BP:6:LYS:HE3	51:BP:11:GLY:HA3	2.00	0.44
51:BP:47:GLU:HG2	51:BP:48:LYS:N	2.32	0.44
52:BQ:69:LYS:HB3	52:BQ:73:THR:HB	2.00	0.44
52:BQ:100:LYS:N	52:BQ:100:LYS:HD2	2.33	0.44
58:BW:39:LEU:HD22	58:BW:43:LEU:HD11	1.98	0.44
1:1:1835:G:H21	6:AA:228:LEU:HD23	1.83	0.43
1:1:2017:G:N2	1:1:2021:C:O2'	2.51	0.43
1:1:2498:C:H2'	1:1:2499:C:O4'	2.17	0.43
3:3:1123:A:H2'	3:3:1124:G:C8	2.53	0.43
3:3:1182:U:O2'	56:BU:84:GLY:O	2.34	0.43
3:3:1395:U:O2	42:BG:91:ARG:HD2	2.18	0.43
4:6:96:LEU:HD23	4:6:105:ILE:HG21	1.99	0.43
8:AC:32:ILE:HD13	8:AC:234:ALA:HB2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:AE:54:ASP:C	10:AE:54:ASP:OD2	2.61	0.43
18:AM:118:LYS:HB2	18:AM:118:LYS:HE2	1.81	0.43
25:AT:6:CYS:HB2	25:AT:32:CYS:HB3	2.00	0.43
39:BD:24:ALA:O	39:BD:27:VAL:HG12	2.17	0.43
42:BG:10:ASP:OD2	42:BG:10:ASP:N	2.51	0.43
43:BH:171:LYS:HD3	43:BH:171:LYS:HA	1.75	0.43
45:BJ:111:ASP:OD1	45:BJ:112:SER:N	2.50	0.43
46:BK:112:ARG:N	46:BK:116:ASP:OD2	2.41	0.43
56:BU:39:VAL:HG22	56:BU:81:LYS:HE3	1.98	0.43
59:BX:45:GLU:HB2	59:BX:52:THR:HG22	2.00	0.43
61:BZ:12:VAL:HG12	61:BZ:55:LEU:HD22	1.99	0.43
1:1:681:C:H2'	1:1:682:C:C6	2.53	0.43
1:1:1269:A:H2'	1:1:1270:A:C8	2.52	0.43
1:1:1355:A:H2'	1:1:1356:U:O4'	2.19	0.43
1:1:1478:A:OP1	1:1:1646:G:O2'	2.34	0.43
1:1:2384:G:OP1	21:AP:69:GLY:HA3	2.18	0.43
3:3:463:C:N4	49:BN:113:ASP:OD1	2.40	0.43
3:3:1252:G:N2	3:3:1278:G:H2'	2.33	0.43
28:AW:91:GLU:CD	52:BQ:42:LYS:HZ1	2.23	0.43
46:BK:33:GLU:HB3	46:BK:93:ILE:HD12	2.01	0.43
1:1:119:G:O2'	1:1:120:A:H5'	2.17	0.43
1:1:239:A:C2	1:1:376:U:H4'	2.53	0.43
1:1:2313:A:H2'	1:1:2314:G:C8	2.53	0.43
1:1:2331:U:H2'	1:1:2332:G:O4'	2.18	0.43
3:3:840:G:H2'	3:3:841:C:C6	2.53	0.43
3:3:1226:A:P	38:BC:3:ILE:HG23	2.58	0.43
3:3:1407:A:H2'	3:3:1408:C:C6	2.54	0.43
3:3:1430:A:OP1	49:BN:59:GLN:NE2	2.47	0.43
12:AG:107:GLU:H	12:AG:107:GLU:CD	2.24	0.43
36:BA:82:LEU:HD12	36:BA:83:MET:N	2.34	0.43
45:BJ:32:ILE:HD11	45:BJ:36:LEU:O	2.18	0.43
57:BV:46:TYR:O	57:BV:54:LYS:HA	2.18	0.43
59:BX:34:ILE:HG22	59:BX:43:LEU:HB2	2.00	0.43
1:1:1743:U:H2'	1:1:1744:A:O4'	2.18	0.43
3:3:262:C:O2'	3:3:263:A:OP1	2.29	0.43
3:3:338:A:N3	3:3:350:U:O2'	2.39	0.43
3:3:635:A:H2'	3:3:636:A:O4'	2.19	0.43
3:3:682:A:H2'	3:3:683:G:C8	2.53	0.43
3:3:698:U:O2'	3:3:824:C:O2	2.36	0.43
10:AE:24:PHE:CD1	10:AE:76:LEU:HD23	2.54	0.43
17:AL:83:TYR:CD2	17:AL:143:ILE:HD12	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Ac:51:LYS:HA	34:Ac:54:LYS:HG3	2.00	0.43
38:BC:118:ARG:HA	38:BC:118:ARG:HD2	1.72	0.43
53:BR:22:PRO:HD3	53:BR:101:VAL:HG21	2.01	0.43
1:1:72:G:H2'	1:1:72:G:N3	2.34	0.43
1:1:611:U:H2'	1:1:612:A:H8	1.83	0.43
1:1:1277:C:O2'	1:1:1278:U:H5'	2.18	0.43
1:1:1926:A:O2'	6:AA:214:THR:OG1	2.16	0.43
1:1:2263:G:OP1	1:1:2289:C:O2'	2.28	0.43
1:1:2742:C:H2'	1:1:2743:G:H8	1.83	0.43
3:3:77:A:H2'	3:3:78:U:C6	2.54	0.43
3:3:552:U:H2'	3:3:553:G:H8	1.82	0.43
18:AM:27:ARG:NH1	18:AM:27:ARG:HG3	2.33	0.43
28:AW:38:LYS:HA	28:AW:38:LYS:HD2	1.56	0.43
28:AW:40:VAL:HB	28:AW:61:VAL:HG22	1.98	0.43
36:BA:148:ARG:HD3	36:BA:151:GLU:OE1	2.18	0.43
38:BC:105:ARG:HH11	38:BC:105:ARG:HB2	1.83	0.43
41:BF:90:ASP:OD2	41:BF:95:PRO:HB2	2.19	0.43
45:BJ:57:VAL:O	45:BJ:61:LEU:HD12	2.18	0.43
45:BJ:73:ILE:HD13	45:BJ:73:ILE:HA	1.89	0.43
51:BP:42:HIS:HA	51:BP:46:PHE:O	2.19	0.43
1:1:252:U:H3'	1:1:253:C:O2	2.18	0.43
1:1:775:U:H2'	1:1:776:A:H8	1.82	0.43
1:1:1249:C:H2'	1:1:1250:C:C6	2.54	0.43
1:1:1443:C:H2'	1:1:1444:U:C6	2.53	0.43
1:1:2326:C:HO2'	9:AD:12:HIS:CE1	2.36	0.43
3:3:508:G:O2'	3:3:514:A:N1	2.49	0.43
7:AB:66:MET:HE1	13:AH:5:ARG:HE	1.82	0.43
8:AC:125:THR:O	8:AC:129:LEU:HB2	2.19	0.43
9:AD:49:PHE:C	9:AD:51:ILE:N	2.76	0.43
17:AL:158:LEU:HD23	17:AL:158:LEU:HA	1.77	0.43
42:BG:29:LEU:HA	42:BG:29:LEU:HD12	1.69	0.43
1:1:75:C:H2'	1:1:76:G:H8	1.83	0.43
1:1:142:U:H2'	1:1:143:G:O4'	2.19	0.43
1:1:814:A:O2'	35:Ad:17:ARG:HD2	2.18	0.43
1:1:1520:G:H2'	1:1:1521:U:H6	1.83	0.43
3:3:106:A:H1'	3:3:245:A:O2'	2.19	0.43
7:AB:47:VAL:HG22	7:AB:287:TYR:CZ	2.54	0.43
19:AN:122:ARG:O	19:AN:126:LYS:HG3	2.19	0.43
27:AV:73:GLU:HG2	27:AV:111:LYS:HB3	2.01	0.43
55:BT:99:GLN:OE1	55:BT:100:PRO:HD2	2.17	0.43
56:BU:123:LYS:NZ	56:BU:127:MET:HB3	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:BW:7:LYS:HE2	58:BW:7:LYS:HB3	1.91	0.43
1:1:1294:U:H2'	1:1:1295:G:H8	1.84	0.43
1:1:2248:G:H2'	1:1:2249:U:C6	2.54	0.43
2:2:5:U:H2'	2:2:6:U:C6	2.53	0.43
3:3:1107:G:C2	3:3:1108:C:C6	3.06	0.43
9:AD:52:LYS:HA	9:AD:52:LYS:HD2	1.82	0.43
23:AR:43:TYR:CE1	23:AR:79:ILE:HD11	2.54	0.43
24:AS:42:THR:HB	24:AS:118:LYS:HD3	2.01	0.43
36:BA:39:ASP:C	36:BA:39:ASP:OD2	2.61	0.43
44:BI:11:LEU:HD21	44:BI:41:MET:HE1	1.99	0.43
56:BU:51:TRP:HH2	56:BU:100:LYS:HB2	1.83	0.43
1:1:422:C:H2'	1:1:423:C:C6	2.54	0.43
1:1:530:U:O2'	12:AG:92:ARG:NH2	2.52	0.43
1:1:697:A:OP2	14:AI:108:GLY:HA2	2.19	0.43
1:1:2678:A:H2'	1:1:2679:G:O4'	2.19	0.43
1:1:2742:C:H2'	1:1:2743:G:C8	2.54	0.43
3:3:343:C:H2'	3:3:344:G:O4'	2.19	0.43
11:AF:110:GLN:HG2	11:AF:114:GLN:HE21	1.83	0.43
18:AM:27:ARG:HA	18:AM:27:ARG:HD2	1.79	0.43
37:BB:220:ASP:OD1	37:BB:220:ASP:N	2.52	0.43
40:BE:149:THR:O	40:BE:149:THR:OG1	2.30	0.43
41:BF:18:VAL:HG12	41:BF:19:GLU:OE1	2.19	0.43
41:BF:60:ARG:NH2	41:BF:67:ARG:HG3	2.34	0.43
52:BQ:5:HIS:CG	52:BQ:117:LEU:HD22	2.54	0.43
56:BU:7:VAL:HG21	56:BU:12:MET:HG3	2.01	0.43
1:1:834:U:O2'	1:1:837:G:H1'	2.18	0.43
1:1:885:C:H2'	1:1:886:C:C6	2.54	0.43
1:1:918:C:O2'	1:1:2261:C:OP1	2.31	0.43
1:1:1822:U:O2'	1:1:2624:U:H5''	2.19	0.43
1:1:1856:A:N7	6:AA:21:SER:HB3	2.33	0.43
1:1:2848:C:H2'	1:1:2849:A:C8	2.54	0.43
3:3:568:A:HO2'	39:BD:73:HIS:HD1	1.64	0.43
12:AG:71:ARG:HB3	12:AG:73:ASP:OD1	2.19	0.43
30:AY:80:LEU:HD12	30:AY:98:ARG:O	2.19	0.43
33:Ab:16:ILE:HD11	33:Ab:42:LYS:HD2	2.01	0.43
36:BA:82:LEU:HD12	36:BA:84:GLY:H	1.83	0.43
36:BA:155:GLU:O	36:BA:159:GLN:NE2	2.51	0.43
41:BF:36:ARG:NE	41:BF:36:ARG:HA	2.34	0.43
43:BH:47:ASN:OD1	43:BH:47:ASN:N	2.51	0.43
44:BI:77:PRO:HD2	44:BI:79:TYR:CZ	2.54	0.43
56:BU:16:LEU:HD23	56:BU:16:LEU:HA	1.87	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
60:BY:32:GLN:NE2	60:BY:71:LYS:HB3	2.34	0.43
1:1:452:U:H1'	8:AC:87:LYS:HG3	2.00	0.42
1:1:1004:C:H4'	17:AL:5:PRO:HB2	2.01	0.42
1:1:1039:G:H2'	1:1:1040:A:H8	1.83	0.42
4:6:133:ASP:O	4:6:135:LYS:HG3	2.19	0.42
7:AB:272:GLY:HA3	7:AB:294:TYR:CZ	2.54	0.42
23:AR:7:PRO:HA	23:AR:24:PHE:HA	2.01	0.42
27:AV:21:MET:CE	27:AV:51:TYR:HB2	2.41	0.42
40:BE:133:LEU:HD11	40:BE:143:GLY:HA3	2.01	0.42
41:BF:11:THR:O	41:BF:15:LYS:HG2	2.18	0.42
51:BP:40:ILE:O	51:BP:40:ILE:HG13	2.19	0.42
54:BS:28:PHE:CD2	54:BS:28:PHE:C	2.97	0.42
61:BZ:57:LYS:HE2	61:BZ:57:LYS:HA	2.01	0.42
1:1:138:U:H4'	15:AJ:139:HIS:HE2	1.84	0.42
1:1:610:G:H2'	1:1:611:U:H6	1.85	0.42
1:1:860:U:H2'	1:1:861:C:C6	2.54	0.42
1:1:902:C:H2'	1:1:903:U:C6	2.53	0.42
1:1:1024:G:OP2	1:1:1024:G:H8	2.02	0.42
2:2:89:U:H2'	27:AV:129:LYS:HE3	2.00	0.42
3:3:17:C:H2'	3:3:18:C:H6	1.85	0.42
3:3:88:C:H2'	3:3:89:U:C6	2.53	0.42
3:3:218:G:O3'	53:BR:51:ARG:NH2	2.48	0.42
3:3:678:U:H2'	3:3:679:A:H8	1.84	0.42
3:3:866:U:H2'	3:3:867:G:O4'	2.19	0.42
3:3:1374:U:H2'	3:3:1375:G:C8	2.53	0.42
18:AM:27:ARG:HG3	18:AM:27:ARG:HH11	1.84	0.42
18:AM:28:ALA:HB2	18:AM:36:TRP:HB2	2.01	0.42
19:AN:145:GLU:HB2	19:AN:147:LEU:HG	2.01	0.42
21:AP:35:GLU:H	21:AP:35:GLU:HG2	1.65	0.42
41:BF:67:ARG:HA	41:BF:67:ARG:HD3	1.74	0.42
54:BS:61:MET:HE2	54:BS:61:MET:HB2	1.91	0.42
1:1:151:A:H2'	1:1:152:C:H6	1.84	0.42
1:1:535:C:C5	30:AY:29:LYS:HE3	2.54	0.42
1:1:902:C:H2'	1:1:903:U:H6	1.83	0.42
1:1:1458:A:H2'	1:1:1459:U:C6	2.54	0.42
1:1:1740:A:H2'	1:1:1741:A:C8	2.54	0.42
1:1:2718:A:OP1	19:AN:62:ARG:NH1	2.51	0.42
3:3:366:C:H2'	3:3:367:C:C6	2.53	0.42
3:3:555:C:H2'	3:3:556:A:H8	1.84	0.42
3:3:1334:U:H2'	3:3:1335:C:H6	1.85	0.42
3:3:1405:G:H2'	3:3:1406:A:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:AB:263:GLU:OE1	7:AB:302:PRO:HD3	2.19	0.42
17:AL:147:HIS:CE1	17:AL:148:ILE:HG13	2.54	0.42
26:AU:5:ARG:O	26:AU:9:ILE:HG12	2.20	0.42
37:BB:50:ILE:HG23	37:BB:71:LEU:HD23	2.01	0.42
42:BG:19:ILE:HG21	42:BG:43:PHE:HB3	2.01	0.42
43:BH:76:ARG:O	43:BH:80:GLU:HG3	2.19	0.42
50:BO:25:ARG:C	50:BO:26:ILE:HD12	2.44	0.42
54:BS:5:ARG:HB2	54:BS:10:LYS:NZ	2.35	0.42
59:BX:61:LEU:HD13	59:BX:61:LEU:HA	1.91	0.42
1:1:596:U:H2'	1:1:597:C:C6	2.55	0.42
1:1:628:A:N3	1:1:2057:C:O2'	2.49	0.42
1:1:762:A:HO2'	1:1:763:A:H8	1.64	0.42
1:1:1519:C:O2'	1:1:1642:A:OP2	2.32	0.42
1:1:2305:U:H2'	1:1:2306:U:H6	1.84	0.42
1:1:2650:U:O2'	7:AB:164:GLU:OE2	2.32	0.42
3:3:390:C:H2'	3:3:391:A:H8	1.84	0.42
3:3:521:G:N1	3:3:700:A:OP2	2.34	0.42
3:3:621:C:H2'	3:3:622:A:C8	2.54	0.42
3:3:1076:C:H2'	3:3:1077:C:C6	2.54	0.42
7:AB:253:MET:HG2	7:AB:254:GLY:N	2.33	0.42
13:AH:40:VAL:HG22	13:AH:41:LYS:H	1.83	0.42
15:AJ:23:GLU:H	15:AJ:23:GLU:CD	2.24	0.42
18:AM:70:ILE:HD12	18:AM:74:VAL:HG22	2.01	0.42
52:BQ:105:ASN:OD1	52:BQ:105:ASN:N	2.52	0.42
52:BQ:136:PRO:HB2	52:BQ:138:ASP:OD1	2.20	0.42
55:BT:60:GLU:HB3	55:BT:67:ILE:HD11	2.00	0.42
59:BX:13:LEU:HD22	59:BX:57:ILE:HD11	2.02	0.42
1:1:150:A:H2'	1:1:151:A:C8	2.55	0.42
1:1:331:U:H2'	1:1:332:G:H8	1.85	0.42
1:1:571:C:H2'	1:1:572:A:C8	2.54	0.42
1:1:735:U:H2'	1:1:736:G:H8	1.85	0.42
1:1:775:U:H2'	1:1:776:A:C8	2.54	0.42
1:1:988:G:N3	1:1:988:G:H2'	2.35	0.42
1:1:1787:C:H2'	1:1:1788:A:H8	1.82	0.42
3:3:1063:G:H5'	47:BL:36:GLY:O	2.20	0.42
3:3:1132:C:H2'	3:3:1133:G:C8	2.54	0.42
3:3:1196:C:O2'	45:BJ:70:GLY:O	2.25	0.42
3:3:1270:G:H2'	3:3:1271:C:H6	1.84	0.42
3:3:1301:C:H2'	3:3:1302:G:H8	1.84	0.42
3:3:1325:C:H4'	3:3:1326:G:O5'	2.19	0.42
3:3:1332:G:H2'	3:3:1333:C:H6	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:AD:13:MET:HE1	9:AD:28:ILE:CD1	2.49	0.42
9:AD:45:THR:HG23	9:AD:53:LYS:H	1.85	0.42
25:AT:23:LYS:HG3	25:AT:29:TYR:HE1	1.85	0.42
40:BE:97:LEU:O	40:BE:105:THR:N	2.32	0.42
41:BF:199:ARG:HG3	44:BI:70:ASN:OD1	2.20	0.42
43:BH:96:VAL:HA	43:BH:99:ASP:OD2	2.19	0.42
48:BM:66:LYS:HG3	48:BM:66:LYS:HZ3	1.70	0.42
48:BM:69:ASN:OD1	48:BM:69:ASN:N	2.52	0.42
49:BN:114:ILE:H	49:BN:114:ILE:HG13	1.68	0.42
51:BP:26:ARG:HG2	51:BP:31:TYR:CZ	2.54	0.42
59:BX:18:ASN:HB2	59:BX:41:ARG:NH1	2.34	0.42
60:BY:19:ASP:OD1	60:BY:19:ASP:N	2.52	0.42
1:1:608:U:H2'	1:1:609:C:C6	2.53	0.42
1:1:1387:C:H4'	29:AX:57:GLU:HG2	2.00	0.42
1:1:2333:A:N6	17:AL:10:PRO:HB3	2.34	0.42
1:1:2750:A:H2'	1:1:2751:A:C8	2.55	0.42
3:3:589:A:H2'	3:3:590:G:O4'	2.20	0.42
3:3:698:U:OP1	3:3:763:C:O2'	2.36	0.42
3:3:1427:G:H2'	3:3:1428:U:H6	1.84	0.42
6:AA:171:LEU:HD21	35:Ad:26:ASP:HB3	2.02	0.42
7:AB:321:ASP:OD1	7:AB:321:ASP:C	2.62	0.42
11:AF:19:GLU:HA	11:AF:22:GLU:OE1	2.19	0.42
13:AH:4:MET:HE3	13:AH:116:GLU:HB3	2.02	0.42
18:AM:66:ASP:H	18:AM:84:VAL:HG12	1.84	0.42
19:AN:51:LYS:HB3	19:AN:51:LYS:HE2	1.81	0.42
23:AR:14:MET:HE1	23:AR:81:LEU:HD13	2.01	0.42
36:BA:13:TRP:CZ3	36:BA:36:MET:HG3	2.55	0.42
36:BA:117:ILE:HD11	36:BA:154:PHE:CD1	2.55	0.42
37:BB:179:SER:OG	57:BV:41:GLN:O	2.25	0.42
38:BC:108:TYR:HE1	38:BC:110:ARG:HB3	1.84	0.42
40:BE:108:LYS:HG3	40:BE:109:LEU:N	2.35	0.42
44:BI:89:TRP:CG	44:BI:125:LEU:HD11	2.55	0.42
50:BO:84:LYS:HG3	50:BO:88:ILE:HG12	2.00	0.42
56:BU:127:MET:SD	56:BU:128:MET:N	2.92	0.42
1:1:1409:U:H2'	1:1:1410:C:C6	2.54	0.42
1:1:1505:A:H2'	1:1:1506:G:C8	2.55	0.42
2:2:126:U:H2'	2:2:127:C:C6	2.55	0.42
3:3:435:G:N2	3:3:437:A:C8	2.79	0.42
4:6:7:MET:CG	4:6:114:GLY:HA3	2.50	0.42
7:AB:98:ILE:HD12	7:AB:132:LEU:HD13	2.02	0.42
9:AD:42:ALA:CB	9:AD:51:ILE:HG23	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:AI:31:LYS:HE3	14:AI:31:LYS:HB2	1.81	0.42
16:AK:51:ILE:HG22	16:AK:132:LYS:HG2	2.02	0.42
22:AQ:108:ASN:OD1	22:AQ:108:ASN:N	2.52	0.42
37:BB:58:ASP:OD2	37:BB:177:LEU:HA	2.20	0.42
38:BC:18:ASP:HA	38:BC:30:TYR:OH	2.20	0.42
42:BG:43:PHE:HB2	42:BG:45:LEU:CD2	2.50	0.42
43:BH:16:VAL:HG12	43:BH:95:GLN:HB2	2.00	0.42
46:BK:36:ILE:HD12	46:BK:92:ASN:CG	2.44	0.42
51:BP:17:ARG:NE	51:BP:36:CYS:SG	2.87	0.42
53:BR:46:THR:CG2	53:BR:98:LYS:HD3	2.50	0.42
1:1:706:G:H2'	1:1:707:C:C6	2.54	0.42
1:1:1661:C:H4'	32:Aa:6:LYS:HB2	2.02	0.42
1:1:2353:C:H2'	1:1:2354:A:C8	2.55	0.42
1:1:2641:U:C2	1:1:2642:G:C8	3.08	0.42
3:3:884:A:N3	3:3:1323:U:O2'	2.44	0.42
3:3:895:C:H2'	3:3:896:U:O4'	2.20	0.42
7:AB:85:ILE:HG12	7:AB:183:LEU:HD13	2.01	0.42
9:AD:139:ARG:HA	9:AD:139:ARG:HH11	1.84	0.42
16:AK:100:GLN:OE1	16:AK:100:GLN:HA	2.19	0.42
22:AQ:109:MET:HG2	22:AQ:149:GLU:OE1	2.20	0.42
31:AZ:34:CYS:HB3	31:AZ:39:PHE:H	1.83	0.42
36:BA:153:ASP:OD1	36:BA:156:THR:HG23	2.20	0.42
41:BF:61:MET:HE1	41:BF:66:ARG:CZ	2.49	0.42
50:BO:85:PHE:CD2	50:BO:109:LEU:HD21	2.55	0.42
55:BT:38:LEU:HA	55:BT:38:LEU:HD12	1.82	0.42
59:BX:22:ASN:OD1	59:BX:22:ASN:C	2.61	0.42
1:1:211:G:O2'	1:1:212:U:OP2	2.38	0.42
1:1:791:G:H1'	1:1:814:A:N6	2.35	0.42
1:1:1238:C:OP2	12:AG:125:SER:OG	2.27	0.42
1:1:2320:C:H3'	1:1:2321:G:H8	1.84	0.42
1:1:2527:C:H2'	1:1:2528:U:H6	1.84	0.42
1:1:2763:U:O2'	1:1:2765:C:N4	2.41	0.42
1:1:2870:G:H2'	1:1:2871:U:C6	2.55	0.42
3:3:399:A:H2'	3:3:400:U:C6	2.55	0.42
3:3:563:C:H2'	3:3:564:U:H6	1.85	0.42
3:3:1079:C:H1'	3:3:1080:C:H2'	2.01	0.42
27:AV:127:GLY:O	27:AV:137:VAL:HG12	2.20	0.42
34:Ac:36:ILE:HD12	34:Ac:36:ILE:HA	1.88	0.42
37:BB:55:LYS:HD3	37:BB:72:TYR:CE2	2.55	0.42
37:BB:72:TYR:HD1	37:BB:72:TYR:H	1.66	0.42
40:BE:136:ASN:OD1	40:BE:137:ASP:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:BG:72:ARG:HA	42:BG:97:ARG:HA	2.01	0.42
44:BI:97:LYS:HB3	44:BI:97:LYS:HE2	1.74	0.42
48:BM:11:ILE:HG12	48:BM:20:ILE:HG23	2.01	0.42
49:BN:50:LEU:HD11	49:BN:71:GLN:HB2	2.02	0.42
49:BN:58:LYS:HG3	49:BN:59:GLN:H	1.84	0.42
52:BQ:40:LEU:HD11	52:BQ:53:VAL:HG11	2.02	0.42
56:BU:4:VAL:H	56:BU:4:VAL:HG23	1.65	0.42
1:1:802:A:H8	1:1:802:A:OP1	2.03	0.42
1:1:1054:C:H2'	1:1:1055:U:C6	2.55	0.42
1:1:1300:G:OP1	30:AY:107:LYS:NZ	2.48	0.42
1:1:1740:A:H2'	1:1:1741:A:H8	1.85	0.42
1:1:2249:U:H2'	1:1:2250:G:O4'	2.20	0.42
1:1:2327:U:H2'	1:1:2328:C:C6	2.55	0.42
1:1:2698:A:O2'	7:AB:51:HIS:ND1	2.34	0.42
1:1:2703:U:H2'	1:1:2704:G:O4'	2.20	0.42
3:3:295:A:H2'	3:3:296:G:C8	2.55	0.42
3:3:296:G:OP2	46:BK:23:ARG:NH2	2.52	0.42
3:3:431:G:O2'	3:3:432:U:H5'	2.18	0.42
3:3:614:G:H2'	3:3:615:G:H8	1.84	0.42
3:3:789:C:H2'	3:3:790:C:H6	1.85	0.42
3:3:886:G:OP1	43:BH:63:ARG:NH2	2.39	0.42
3:3:997:G:H2'	3:3:998:C:O4'	2.19	0.42
3:3:1183:A:H2'	3:3:1184:C:C6	2.54	0.42
4:6:194:ASN:OD1	45:BJ:134:ARG:NH1	2.50	0.42
9:AD:75:ALA:HA	9:AD:78:ILE:HG22	2.01	0.42
18:AM:58:ILE:O	18:AM:62:THR:HG23	2.20	0.42
26:AU:14:ILE:H	26:AU:14:ILE:CD1	2.32	0.42
29:AX:10:ILE:CD1	29:AX:74:ARG:HG3	2.49	0.42
38:BC:95:MET:O	38:BC:98:ARG:HG3	2.19	0.42
40:BE:50:VAL:HG11	40:BE:56:GLY:HA2	2.02	0.42
40:BE:193:GLU:HA	40:BE:200:ASN:HB3	2.02	0.42
42:BG:10:ASP:HB3	42:BG:115:TYR:CE2	2.55	0.42
44:BI:86:PHE:O	44:BI:90:GLU:HG3	2.20	0.42
46:BK:38:GLU:H	46:BK:38:GLU:CD	2.18	0.42
54:BS:24:PHE:HA	54:BS:34:LEU:HD12	2.02	0.42
1:1:812:G:H5'	1:1:1584:A:H4'	2.01	0.41
1:1:2568:OMG:H1'	1:1:2597:G:N3	2.35	0.41
3:3:909:G:O2'	3:3:1146:U:OP1	2.34	0.41
3:3:1190:A:H2'	3:3:1191:U:C6	2.54	0.41
3:3:1433:U:H2'	3:3:1434:C:C6	2.55	0.41
3:3:1445:A:H2'	3:3:1446:G:C8	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:AC:140:ILE:HD12	8:AC:164:LEU:HD11	2.02	0.41
60:BY:21:ILE:HB	60:BY:32:GLN:HB3	2.01	0.41
2:2:90:G:N2	2:2:98:C:H1'	2.34	0.41
5:7:75:ARG:O	5:7:76:LYS:C	2.63	0.41
10:AE:175:LYS:HZ3	33:Ab:10:ARG:HH12	1.68	0.41
14:AI:87:VAL:HA	14:AI:91:ALA:O	2.20	0.41
27:AV:59:ALA:HB1	27:AV:97:GLU:HG2	2.01	0.41
41:BF:11:THR:O	41:BF:15:LYS:N	2.37	0.41
43:BH:100:ALA:O	43:BH:104:ALA:HB2	2.19	0.41
45:BJ:55:ASN:OD1	45:BJ:55:ASN:N	2.54	0.41
1:1:727:U:H2'	1:1:728:A:H8	1.82	0.41
1:1:836:U:O2	22:AQ:132:ARG:NH2	2.53	0.41
1:1:915:U:H5'	1:1:2445:A:O2'	2.20	0.41
1:1:1914:A:H2'	1:1:1915:A:C8	2.55	0.41
3:3:846:A:H8	3:3:846:A:O5'	2.03	0.41
3:3:1325:C:OP2	60:BY:54:PRO:HB3	2.20	0.41
11:AF:56:GLU:HB3	11:AF:57:PRO:HD3	2.01	0.41
17:AL:121:LYS:HG3	17:AL:137:PHE:CG	2.56	0.41
21:AP:72:TYR:HE2	21:AP:89:PRO:HG3	1.84	0.41
27:AV:17:ILE:HG23	27:AV:48:VAL:HG12	2.03	0.41
40:BE:119:ARG:HB3	40:BE:136:ASN:HB3	2.01	0.41
52:BQ:3:LYS:HG2	52:BQ:8:ARG:O	2.20	0.41
1:1:1039:G:H2'	1:1:1040:A:C8	2.55	0.41
1:1:1105:U:H2'	1:1:1106:C:C6	2.55	0.41
1:1:1294:U:H2'	1:1:1295:G:C8	2.56	0.41
1:1:2691:C:OP1	13:AH:43:ARG:NH1	2.51	0.41
3:3:407:U:H4'	39:BD:137:HIS:NE2	2.36	0.41
3:3:426:C:H2'	3:3:427:A:H8	1.85	0.41
3:3:548:A:H2'	3:3:549:A:O4'	2.21	0.41
3:3:1132:C:H2'	3:3:1133:G:H8	1.84	0.41
3:3:1163:U:H2'	3:3:1164:C:C6	2.55	0.41
3:3:1294:G:O2'	3:3:1295:U:P	2.79	0.41
3:3:1388:G:H2'	3:3:1389:A:H8	1.84	0.41
7:AB:63:THR:HG22	7:AB:66:MET:HE2	2.02	0.41
7:AB:195:ASN:ND2	7:AB:325:PRO:HD2	2.35	0.41
10:AE:61:GLU:HG3	10:AE:62:GLN:N	2.34	0.41
10:AE:106:LEU:HB3	10:AE:120:ALA:HB3	2.01	0.41
15:AJ:103:GLU:OE1	15:AJ:118:SER:OG	2.22	0.41
40:BE:100:GLU:OE2	40:BE:101:LYS:HE3	2.21	0.41
44:BI:66:VAL:HG23	44:BI:68:ARG:HG3	2.01	0.41
1:1:1132:U:H2'	1:1:1133:C:H6	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1463:A:H2'	1:1:1464:G:C8	2.56	0.41
1:1:1685:C:H2'	1:1:1686:C:C6	2.56	0.41
3:3:199:U:H2'	3:3:200:C:C6	2.56	0.41
3:3:294:G:H2'	3:3:295:A:C8	2.55	0.41
3:3:408:G:N2	3:3:409:U:O4	2.48	0.41
3:3:606:A:H2'	3:3:666:G:N2	2.36	0.41
6:AA:192:ALA:HA	6:AA:195:MET:HG3	2.02	0.41
7:AB:137:ARG:HB3	7:AB:137:ARG:HH11	1.84	0.41
13:AH:97:ILE:HG22	13:AH:105:LYS:HG3	2.02	0.41
14:AI:8:GLY:O	30:AY:41:ARG:HD3	2.20	0.41
17:AL:62:ALA:HB3	17:AL:89:PHE:HB2	2.01	0.41
40:BE:220:ILE:O	40:BE:225:PRO:HD2	2.20	0.41
43:BH:5:TYR:HB2	43:BH:31:PRO:HB2	2.01	0.41
50:BO:88:ILE:HD13	50:BO:88:ILE:HA	1.86	0.41
52:BQ:148:MET:HE3	52:BQ:148:MET:HB3	1.78	0.41
53:BR:24:HIS:HE1	53:BR:77:CYS:SG	2.40	0.41
1:1:1136:A:H5'	20:AO:21:LYS:O	2.21	0.41
3:3:663:G:H5'	36:BA:98:ARG:NH1	2.35	0.41
3:3:1378:U:H2'	3:3:1379:G:O4'	2.20	0.41
10:AE:88:MET:HE2	10:AE:170:ILE:HG22	2.03	0.41
16:AK:36:MET:SD	16:AK:85:MET:HE2	2.61	0.41
27:AV:3:ALA:HB2	27:AV:57:ILE:HB	2.02	0.41
27:AV:97:GLU:O	27:AV:101:GLU:HG3	2.21	0.41
37:BB:134:ASN:O	37:BB:137:ILE:HG22	2.20	0.41
38:BC:10:ASP:O	38:BC:13:VAL:HG12	2.21	0.41
45:BJ:26:LYS:HB2	56:BU:149:TYR:CE1	2.56	0.41
49:BN:75:ASN:OD1	49:BN:75:ASN:N	2.52	0.41
56:BU:62:ILE:HD11	56:BU:118:ARG:C	2.45	0.41
59:BX:21:GLU:N	59:BX:21:GLU:CD	2.79	0.41
1:1:1023:A:H3'	1:1:1024:G:H5'	2.03	0.41
1:1:1414:A:C4	1:1:1415:A:C8	3.09	0.41
1:1:1659:U:H4'	23:AR:33:LYS:HE2	2.03	0.41
1:1:1905:A:H2'	1:1:1906:A:O4'	2.20	0.41
1:1:2328:C:H2'	1:1:2329:G:H8	1.85	0.41
2:2:8:G:OP1	17:AL:18:ARG:NH2	2.54	0.41
3:3:1178:G:H5''	45:BJ:134:ARG:HD2	2.02	0.41
3:3:1242:C:H2'	3:3:1243:C:C6	2.55	0.41
3:3:1302:G:H2'	3:3:1303:U:C6	2.56	0.41
3:3:1349:C:H2'	3:3:1350:C:O4'	2.21	0.41
9:AD:51:ILE:HG13	9:AD:57:ILE:HG21	2.03	0.41
15:AJ:23:GLU:N	15:AJ:23:GLU:CD	2.77	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:AK:35:ASP:OD1	16:AK:35:ASP:N	2.54	0.41
21:AP:77:ARG:NH2	21:AP:82:MET:HE2	2.35	0.41
24:AS:86:LYS:HE3	24:AS:86:LYS:HB3	1.91	0.41
32:Aa:40:ARG:HA	32:Aa:40:ARG:HD2	1.67	0.41
37:BB:108:GLN:HE21	37:BB:124:LEU:HB3	1.83	0.41
38:BC:194:LYS:O	54:BS:39:THR:OG1	2.35	0.41
39:BD:134:THR:HG22	39:BD:135:HIS:CD2	2.50	0.41
41:BF:98:ARG:HG3	41:BF:99:LYS:N	2.36	0.41
43:BH:85:VAL:O	43:BH:89:THR:OG1	2.33	0.41
1:1:610:G:H2'	1:1:611:U:C6	2.56	0.41
1:1:931:C:H2'	1:1:932:U:H6	1.86	0.41
1:1:1503:U:H2'	1:1:1504:U:C6	2.55	0.41
1:1:1673:U:O2'	31:AZ:8:MET:O	2.33	0.41
1:1:1879:A:C4	1:1:1880:G:C8	3.08	0.41
1:1:2414:U:H2'	1:1:2415:U:C6	2.56	0.41
3:3:427:A:C2	58:BW:28:SER:HB3	2.56	0.41
3:3:455:G:N3	61:BZ:4:THR:HG21	2.35	0.41
3:3:574:U:H2'	3:3:575:C:C6	2.56	0.41
3:3:762:G:H2'	3:3:763:C:C6	2.56	0.41
3:3:858:A:H62	49:BN:107:MET:HE2	1.85	0.41
3:3:916:C:H4'	3:3:917:G:OP1	2.21	0.41
3:3:1365:A:H2'	3:3:1366:G:O4'	2.20	0.41
4:6:11:VAL:HG11	4:6:36:LEU:HD11	2.01	0.41
6:AA:152:LYS:HA	6:AA:152:LYS:HE3	2.03	0.41
8:AC:206:LEU:HD23	8:AC:217:VAL:HG22	2.02	0.41
10:AE:9:ILE:HD12	10:AE:9:ILE:HA	1.84	0.41
17:AL:66:GLU:HB2	17:AL:69:LYS:NZ	2.36	0.41
19:AN:122:ARG:HB3	19:AN:122:ARG:NH1	2.36	0.41
37:BB:134:ASN:HB3	37:BB:137:ILE:HG22	2.02	0.41
38:BC:127:GLY:HA3	38:BC:150:TYR:O	2.21	0.41
45:BJ:85:ARG:HH11	45:BJ:85:ARG:HG2	1.85	0.41
56:BU:60:ARG:O	56:BU:64:THR:HG22	2.20	0.41
59:BX:18:ASN:OD1	59:BX:18:ASN:N	2.53	0.41
61:BZ:32:PRO:HB3	61:BZ:48:ILE:HG13	2.03	0.41
1:1:99:A:C5	1:1:100:A:C8	3.09	0.41
1:1:217:G:H5''	1:1:219:G:N7	2.36	0.41
1:1:680:G:H2'	1:1:681:C:H6	1.84	0.41
1:1:760:C:H5'	8:AC:84:PRO:HD2	2.02	0.41
1:1:1093:G:H2'	1:1:1094:G:O4'	2.21	0.41
1:1:1603:U:H2'	1:1:1604:C:H6	1.85	0.41
1:1:1776:U:H2'	1:1:1777:G:C8	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1914:A:H2'	1:1:1915:A:H8	1.86	0.41
1:1:2754:A:H2'	1:1:2755:G:O4'	2.21	0.41
1:1:2785:C:H2'	1:1:2786:C:C6	2.56	0.41
1:1:2799:U:H2'	1:1:2800:C:H6	1.82	0.41
3:3:94:A:OP1	46:BK:17:ILE:HD12	2.20	0.41
3:3:173:A:HO2'	3:3:174:A:P	2.40	0.41
3:3:240:G:H5'	46:BK:96:LYS:HB3	2.03	0.41
3:3:334:C:O2'	3:3:336:G:OP1	2.30	0.41
3:3:403:U:H2'	3:3:404:G:C8	2.56	0.41
3:3:435:G:O2'	3:3:436:C:O5'	2.39	0.41
3:3:504:U:H5'	49:BN:11:LEU:HD22	2.03	0.41
3:3:1226:A:OP2	38:BC:3:ILE:HG12	2.20	0.41
3:3:1235:A:N1	3:3:1318:G:H1'	2.35	0.41
3:3:1294:G:O2'	3:3:1295:U:O5'	2.39	0.41
7:AB:131:LYS:HB2	7:AB:131:LYS:HE2	1.73	0.41
8:AC:126:LEU:HD23	8:AC:126:LEU:HA	1.96	0.41
9:AD:46:LEU:CD1	9:AD:49:PHE:HB2	2.48	0.41
9:AD:67:LYS:HB2	9:AD:67:LYS:HE2	1.79	0.41
12:AG:77:LYS:HG2	12:AG:95:MET:HE1	2.02	0.41
13:AH:123:LYS:HD2	13:AH:123:LYS:HA	1.80	0.41
16:AK:58:ILE:HG12	16:AK:158:PRO:HD2	2.02	0.41
37:BB:56:THR:OG1	37:BB:58:ASP:OD1	2.37	0.41
38:BC:108:TYR:CE1	38:BC:110:ARG:HB3	2.55	0.41
42:BG:119:SER:O	42:BG:123:LEU:HG	2.21	0.41
43:BH:97:LEU:HD12	43:BH:98:VAL:N	2.36	0.41
43:BH:107:ARG:NH2	43:BH:178:LYS:HZ1	2.19	0.41
43:BH:137:ARG:O	43:BH:141:MET:HG2	2.20	0.41
46:BK:3:TRP:CE2	46:BK:22:LYS:HG2	2.56	0.41
48:BM:4:MET:HB3	48:BM:69:ASN:ND2	2.31	0.41
49:BN:21:LYS:HA	49:BN:21:LYS:HD3	1.87	0.41
54:BS:32:LYS:O	54:BS:36:THR:HG22	2.21	0.41
1:1:330:G:H2'	1:1:331:U:C6	2.56	0.41
1:1:651:G:O6	18:AM:48:ARG:NH2	2.53	0.41
1:1:1385:U:OP2	19:AN:8:ARG:NH1	2.54	0.41
1:1:1412:G:O2'	1:1:1413:C:H5'	2.21	0.41
1:1:1844:C:OP1	6:AA:225:LYS:NZ	2.29	0.41
1:1:2797:C:H2'	1:1:2798:C:C6	2.56	0.41
2:2:3:G:H2'	2:2:4:U:C6	2.55	0.41
3:3:15:U:H2'	3:3:16:G:O4'	2.20	0.41
3:3:439:G:H2'	3:3:440:G:H8	1.85	0.41
21:AP:41:HIS:CE1	21:AP:95:GLN:HG3	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:BB:90:LEU:HD12	37:BB:202:LEU:HD11	2.03	0.41
37:BB:204:ARG:HB2	37:BB:214:PHE:CE2	2.56	0.41
38:BC:135:LYS:CE	38:BC:173:LEU:HB3	2.51	0.41
39:BD:147:ILE:HA	39:BD:148:PRO:HD3	1.90	0.41
41:BF:146:ALA:HB1	41:BF:150:LEU:HD22	2.02	0.41
43:BH:61:LEU:HD21	43:BH:143:THR:HG21	2.03	0.41
54:BS:48:ASN:HD22	54:BS:48:ASN:N	2.19	0.41
56:BU:11:GLU:HG2	56:BU:139:LEU:HD11	2.03	0.41
59:BX:24:GLN:NE2	59:BX:37:VAL:HG23	2.36	0.41
60:BY:50:ASN:OD1	60:BY:50:ASN:N	2.54	0.41
1:1:823:A:H62	1:1:850:G:H21	1.69	0.40
1:1:1052:A:H5'	1:1:1053:G:OP1	2.21	0.40
1:1:1386:G:H2'	1:1:1387:C:C6	2.56	0.40
1:1:2104:U:H2'	1:1:2105:G:O4'	2.21	0.40
1:1:2775:C:H2'	1:1:2776:G:C8	2.56	0.40
3:3:1450:U:H2'	3:3:1451:A:C8	2.56	0.40
13:AH:115:ARG:O	13:AH:119:GLU:HG3	2.21	0.40
17:AL:84:LEU:HD22	17:AL:169:ILE:HD12	2.01	0.40
18:AM:73:LYS:HG3	18:AM:90:THR:HB	2.02	0.40
19:AN:125:ARG:HD3	19:AN:125:ARG:HA	1.84	0.40
30:AY:29:LYS:HE2	30:AY:29:LYS:HB3	1.89	0.40
37:BB:114:PHE:CE2	37:BB:202:LEU:HD12	2.56	0.40
40:BE:74:ASP:OD1	40:BE:77:PHE:HB2	2.22	0.40
41:BF:26:ASP:OD1	41:BF:26:ASP:N	2.49	0.40
48:BM:5:LYS:HB2	48:BM:69:ASN:OD1	2.20	0.40
48:BM:81:ASN:HD21	48:BM:120:PRO:HA	1.85	0.40
48:BM:116:IAS:OD1	48:BM:116:IAS:O	2.39	0.40
53:BR:21:CYS:HB2	53:BR:75:PRO:HB3	2.03	0.40
53:BR:50:GLU:CD	53:BR:67:ARG:HD3	2.46	0.40
1:1:535:C:H5	30:AY:29:LYS:HE3	1.86	0.40
1:1:636:A:H2'	1:1:637:G:H8	1.85	0.40
1:1:1116:U:C4	1:1:1231:C:H1'	2.56	0.40
3:3:692:C:H2'	3:3:693:G:O4'	2.20	0.40
3:3:1171:U:O2'	3:3:1269:C:OP1	2.36	0.40
3:3:1174:A:C5	55:BT:119:HIS:HB3	2.57	0.40
3:3:1279:A:H2'	3:3:1280:A:C8	2.56	0.40
9:AD:125:LYS:HD3	9:AD:129:GLU:CD	2.46	0.40
36:BA:18:TRP:HE1	48:BM:5:LYS:HE3	1.86	0.40
41:BF:95:PRO:HA	41:BF:98:ARG:HG2	2.03	0.40
47:BL:38:VAL:HG12	47:BL:72:LEU:O	2.21	0.40
50:BO:27:MET:HE2	50:BO:44:LEU:CD1	2.50	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:BS:6:GLU:HG3	54:BS:7:THR:N	2.36	0.40
55:BT:86:GLU:HB3	55:BT:93:PHE:HB3	2.03	0.40
56:BU:67:PRO:HB3	56:BU:119:THR:OG1	2.21	0.40
60:BY:16:GLU:HB2	60:BY:60:ILE:HG12	2.02	0.40
1:1:615:U:H2'	1:1:616:U:H5''	2.02	0.40
1:1:1384:C:H2'	1:1:1385:U:C6	2.56	0.40
1:1:1944:A:H2'	1:1:1945:C:C6	2.56	0.40
1:1:2019:C:H5''	7:AB:223:LYS:HD2	2.02	0.40
1:1:2313:A:H2'	1:1:2314:G:H8	1.86	0.40
1:1:2508:U:H2'	1:1:2509:G:O4'	2.21	0.40
1:1:2834:A:H4'	29:AX:12:THR:HB	2.02	0.40
3:3:15:U:OP2	41:BF:177:THR:OG1	2.39	0.40
3:3:205:C:H2'	3:3:206:A:H8	1.85	0.40
3:3:243:U:OP1	46:BK:54:ARG:NH1	2.41	0.40
3:3:1104:A:N3	3:3:1128:G:C2	2.90	0.40
3:3:1197:A:C6	3:3:1198:A:N1	2.89	0.40
3:3:1299:C:H2'	3:3:1300:G:C8	2.57	0.40
18:AM:64:GLU:HG3	18:AM:82:HIS:HB2	2.04	0.40
27:AV:83:ILE:HD13	27:AV:83:ILE:HA	1.96	0.40
40:BE:90:VAL:HG13	40:BE:92:GLU:HG3	2.02	0.40
43:BH:41:HIS:CD2	43:BH:48:LYS:HA	2.56	0.40
43:BH:165:ALA:HA	43:BH:175:ILE:HD11	2.03	0.40
44:BI:54:ASP:OD2	44:BI:54:ASP:C	2.64	0.40
46:BK:6:SER:OG	46:BK:7:SER:N	2.55	0.40
49:BN:23:THR:O	49:BN:27:ARG:HG3	2.21	0.40
50:BO:85:PHE:CD2	50:BO:109:LEU:HD11	2.52	0.40
50:BO:106:LYS:HE2	50:BO:106:LYS:HB3	1.79	0.40
51:BP:37:PHE:O	51:BP:41:ALA:N	2.54	0.40
56:BU:63:TYR:HE2	56:BU:125:ARG:HG3	1.86	0.40
1:1:873:U:H5'	1:1:874:G:OP1	2.21	0.40
1:1:1341:C:N3	14:AI:4:LYS:NZ	2.61	0.40
1:1:2796:A:H2'	1:1:2797:C:C6	2.55	0.40
2:2:50:C:H4'	17:AL:142:ARG:NH2	2.36	0.40
2:2:121:C:H2'	2:2:122:A:C8	2.56	0.40
3:3:773:G:C6	3:3:800:G:C6	3.10	0.40
3:3:996:G:H4'	38:BC:176:LEU:O	2.21	0.40
3:3:1130:U:O2'	3:3:1132:C:OP2	2.38	0.40
3:3:1414:U:H2'	3:3:1415:U:H6	1.86	0.40
8:AC:3:THR:OG1	8:AC:18:GLU:OE1	2.33	0.40
8:AC:243:SER:O	8:AC:247:LYS:HG3	2.21	0.40
18:AM:24:LEU:HB3	18:AM:40:ALA:HB2	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AR:7:PRO:HD2	26:AU:33:ALA:HB2	2.04	0.40
39:BD:117:VAL:HG13	39:BD:122:LEU:HG	2.03	0.40
47:BL:36:GLY:HA2	47:BL:37:PRO:HD3	1.93	0.40
52:BQ:73:THR:O	52:BQ:77:GLU:HG3	2.22	0.40
58:BW:22:VAL:HG23	58:BW:65:LYS:HD2	2.01	0.40
1:1:91:A:H2'	1:1:92:G:O4'	2.21	0.40
1:1:1051:A:H2'	1:1:1052:A:C8	2.56	0.40
1:1:1052:A:H61	16:AK:113:MET:HE2	1.86	0.40
1:1:2087:A:HO2'	1:1:2088:C:P	2.43	0.40
1:1:2433:G:H2'	1:1:2434:C:H6	1.85	0.40
1:1:2480:G:H2'	1:1:2481:G:H8	1.86	0.40
1:1:2737:C:H2'	1:1:2738:U:O4'	2.22	0.40
1:1:2881:C:H2'	1:1:2882:U:C6	2.56	0.40
3:3:153:G:H2'	3:3:154:G:C8	2.56	0.40
3:3:495:U:OP1	49:BN:28:ARG:HG3	2.20	0.40
3:3:1220:G:H2'	3:3:1221:C:O4'	2.21	0.40
3:3:1294:G:O2'	3:3:1295:U:C6	2.75	0.40
3:3:1303:U:H2'	3:3:1304:U:C6	2.57	0.40
3:3:1361:C:H2'	3:3:1362:C:H6	1.86	0.40
6:AA:58:LYS:HE2	6:AA:66:GLU:OE2	2.22	0.40
9:AD:46:LEU:H	9:AD:46:LEU:HG	1.76	0.40
9:AD:117:GLY:C	9:AD:118:MET:HE3	2.46	0.40
12:AG:107:GLU:OE1	12:AG:107:GLU:N	2.51	0.40
16:AK:35:ASP:HB2	16:AK:39:LYS:HD2	2.02	0.40
17:AL:105:ILE:O	17:AL:108:GLN:NE2	2.48	0.40
21:AP:29:ARG:HH22	21:AP:43:ASP:HB3	1.87	0.40
26:AU:14:ILE:HD12	26:AU:14:ILE:N	2.31	0.40
26:AU:24:LEU:HD23	26:AU:24:LEU:HA	1.90	0.40
27:AV:103:LYS:HB3	27:AV:103:LYS:HE3	1.79	0.40
36:BA:130:ARG:O	36:BA:134:MET:HG3	2.22	0.40
41:BF:92:GLN:C	41:BF:94:GLY:H	2.29	0.40
42:BG:12:LYS:HB3	42:BG:115:TYR:CZ	2.57	0.40
42:BG:120:ILE:H	42:BG:120:ILE:HG13	1.43	0.40
43:BH:100:ALA:O	43:BH:104:ALA:CB	2.70	0.40
46:BK:97:GLY:HA2	46:BK:108:ARG:NH2	2.35	0.40
55:BT:99:GLN:HB3	55:BT:101:GLU:OE1	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	
4	6	279/281 (99%)	257 (92%)	21 (8%)	1 (0%)	30	60
5	7	255/274 (93%)	244 (96%)	11 (4%)	0	100	100
6	AA	233/238 (98%)	228 (98%)	4 (2%)	1 (0%)	30	60
7	AB	333/337 (99%)	322 (97%)	11 (3%)	0	100	100
8	AC	250/253 (99%)	244 (98%)	5 (2%)	1 (0%)	30	60
9	AD	157/165 (95%)	147 (94%)	9 (6%)	1 (1%)	22	52
10	AE	169/176 (96%)	165 (98%)	4 (2%)	0	100	100
11	AF	104/120 (87%)	103 (99%)	1 (1%)	0	100	100
12	AG	137/143 (96%)	137 (100%)	0	0	100	100
13	AH	130/132 (98%)	128 (98%)	2 (2%)	0	100	100
14	AI	137/140 (98%)	134 (98%)	3 (2%)	0	100	100
15	AJ	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
16	AK	157/173 (91%)	151 (96%)	6 (4%)	0	100	100
17	AL	170/174 (98%)	167 (98%)	3 (2%)	0	100	100
18	AM	123/126 (98%)	122 (99%)	1 (1%)	0	100	100
19	AN	145/151 (96%)	142 (98%)	3 (2%)	0	100	100
20	AO	54/61 (88%)	52 (96%)	2 (4%)	0	100	100
21	AP	94/97 (97%)	91 (97%)	3 (3%)	0	100	100
22	AQ	147/151 (97%)	145 (99%)	2 (1%)	0	100	100
23	AR	77/82 (94%)	76 (99%)	1 (1%)	0	100	100
24	AS	113/119 (95%)	112 (99%)	1 (1%)	0	100	100
25	AT	58/62 (94%)	58 (100%)	0	0	100	100
26	AU	63/67 (94%)	61 (97%)	2 (3%)	0	100	100
27	AV	151/153 (99%)	149 (99%)	2 (1%)	0	100	100
28	AW	82/99 (83%)	81 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
29	AX	82/89 (92%)	80 (98%)	2 (2%)	0	100	100
30	AY	124/129 (96%)	119 (96%)	4 (3%)	1 (1%)	16	45
31	AZ	53/56 (95%)	48 (91%)	5 (9%)	0	100	100
32	Aa	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
33	Ab	41/49 (84%)	41 (100%)	0	0	100	100
34	Ac	89/92 (97%)	88 (99%)	1 (1%)	0	100	100
35	Ad	87/94 (93%)	84 (97%)	3 (3%)	0	100	100
36	BA	176/203 (87%)	166 (94%)	10 (6%)	0	100	100
37	BB	186/225 (83%)	176 (95%)	10 (5%)	0	100	100
38	BC	138/318 (43%)	131 (95%)	7 (5%)	0	100	100
39	BD	154/218 (71%)	149 (97%)	5 (3%)	0	100	100
40	BE	226/235 (96%)	210 (93%)	16 (7%)	0	100	100
41	BF	199/209 (95%)	179 (90%)	20 (10%)	0	100	100
42	BG	123/136 (90%)	116 (94%)	6 (5%)	1 (1%)	16	45
43	BH	171/189 (90%)	156 (91%)	15 (9%)	0	100	100
44	BI	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
45	BJ	130/134 (97%)	126 (97%)	4 (3%)	0	100	100
46	BK	122/125 (98%)	116 (95%)	6 (5%)	0	100	100
47	BL	36/102 (35%)	35 (97%)	1 (3%)	0	100	100
48	BM	119/126 (94%)	116 (98%)	3 (2%)	0	100	100
49	BN	137/142 (96%)	127 (93%)	10 (7%)	0	100	100
50	BO	136/162 (84%)	129 (95%)	7 (5%)	0	100	100
51	BP	44/50 (88%)	41 (93%)	3 (7%)	0	100	100
52	BQ	148/152 (97%)	144 (97%)	4 (3%)	0	100	100
53	BR	105/109 (96%)	102 (97%)	3 (3%)	0	100	100
54	BS	56/64 (88%)	55 (98%)	1 (2%)	0	100	100
55	BT	119/136 (88%)	118 (99%)	1 (1%)	0	100	100
56	BU	146/149 (98%)	140 (96%)	6 (4%)	0	100	100
57	BV	50/56 (89%)	48 (96%)	2 (4%)	0	100	100
58	BW	87/101 (86%)	83 (95%)	4 (5%)	0	100	100
59	BX	59/62 (95%)	55 (93%)	4 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
60	BY	46/76 (60%)	40 (87%)	5 (11%)	1 (2%)	5	21
61	BZ	55/57 (96%)	49 (89%)	6 (11%)	0	100	100
All	All	7430/8196 (91%)	7142 (96%)	281 (4%)	7 (0%)	50	77

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
42	BG	28	ALA
30	AY	4	GLU
9	AD	52	LYS
4	6	12	TYR
8	AC	82	ARG
6	AA	120	VAL
60	BY	46	VAL

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	
4	6	252/252 (100%)	239 (95%)	13 (5%)	19	50
5	7	228/245 (93%)	213 (93%)	15 (7%)	14	39
6	AA	185/188 (98%)	181 (98%)	4 (2%)	47	78
7	AB	276/277 (100%)	269 (98%)	7 (2%)	42	75
8	AC	197/198 (100%)	194 (98%)	3 (2%)	60	85
9	AD	135/140 (96%)	121 (90%)	14 (10%)	5	18
10	AE	143/148 (97%)	132 (92%)	11 (8%)	10	31
11	AF	79/91 (87%)	76 (96%)	3 (4%)	28	63
12	AG	115/119 (97%)	115 (100%)	0	100	100
13	AH	109/109 (100%)	104 (95%)	5 (5%)	23	55
14	AI	107/108 (99%)	102 (95%)	5 (5%)	22	55
15	AJ	165/166 (99%)	163 (99%)	2 (1%)	67	89

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
16	AK	134/141 (95%)	131 (98%)	3 (2%)	47	78
17	AL	141/143 (99%)	137 (97%)	4 (3%)	38	73
18	AM	103/104 (99%)	99 (96%)	4 (4%)	27	62
19	AN	119/123 (97%)	113 (95%)	6 (5%)	20	52
20	AO	49/54 (91%)	49 (100%)	0	100	100
21	AP	85/86 (99%)	84 (99%)	1 (1%)	67	89
22	AQ	122/124 (98%)	122 (100%)	0	100	100
23	AR	70/73 (96%)	67 (96%)	3 (4%)	25	57
24	AS	97/100 (97%)	94 (97%)	3 (3%)	35	70
25	AT	53/54 (98%)	52 (98%)	1 (2%)	52	81
26	AU	55/57 (96%)	53 (96%)	2 (4%)	30	65
27	AV	134/134 (100%)	131 (98%)	3 (2%)	47	78
28	AW	66/78 (85%)	64 (97%)	2 (3%)	36	71
29	AX	74/78 (95%)	71 (96%)	3 (4%)	26	60
30	AY	103/106 (97%)	103 (100%)	0	100	100
31	AZ	48/49 (98%)	47 (98%)	1 (2%)	48	78
32	Aa	47/48 (98%)	43 (92%)	4 (8%)	8	27
33	Ab	37/40 (92%)	37 (100%)	0	100	100
34	Ac	81/82 (99%)	81 (100%)	0	100	100
35	Ad	73/76 (96%)	71 (97%)	2 (3%)	40	73
36	BA	157/173 (91%)	145 (92%)	12 (8%)	11	32
37	BB	164/193 (85%)	151 (92%)	13 (8%)	10	30
38	BC	111/250 (44%)	100 (90%)	11 (10%)	6	21
39	BD	136/178 (76%)	119 (88%)	17 (12%)	3	12
40	BE	204/209 (98%)	192 (94%)	12 (6%)	16	45
41	BF	163/170 (96%)	149 (91%)	14 (9%)	8	27
42	BG	96/103 (93%)	90 (94%)	6 (6%)	15	42
43	BH	147/159 (92%)	140 (95%)	7 (5%)	21	54
44	BI	104/105 (99%)	94 (90%)	10 (10%)	7	22
45	BJ	105/107 (98%)	99 (94%)	6 (6%)	17	47
46	BK	104/105 (99%)	94 (90%)	10 (10%)	7	22

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
47	BL	34/89 (38%)	33 (97%)	1 (3%)	37	72
48	BM	91/93 (98%)	89 (98%)	2 (2%)	47	78
49	BN	109/112 (97%)	100 (92%)	9 (8%)	9	28
50	BO	112/135 (83%)	107 (96%)	5 (4%)	23	56
51	BP	40/44 (91%)	39 (98%)	1 (2%)	42	75
52	BQ	136/138 (99%)	130 (96%)	6 (4%)	24	57
53	BR	94/96 (98%)	90 (96%)	4 (4%)	25	57
54	BS	52/57 (91%)	49 (94%)	3 (6%)	17	46
55	BT	105/118 (89%)	94 (90%)	11 (10%)	5	18
56	BU	122/123 (99%)	114 (93%)	8 (7%)	14	39
57	BV	44/48 (92%)	43 (98%)	1 (2%)	45	77
58	BW	80/87 (92%)	72 (90%)	8 (10%)	6	20
59	BX	55/56 (98%)	49 (89%)	6 (11%)	5	17
60	BY	41/62 (66%)	33 (80%)	8 (20%)	1	3
61	BZ	47/47 (100%)	44 (94%)	3 (6%)	14	41
All	All	6335/6848 (92%)	6017 (95%)	318 (5%)	23	52

All (318) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	6	5	ASP
4	6	6	ILE
4	6	9	SER
4	6	18	GLU
4	6	27	MET
4	6	29	ARG
4	6	105	ILE
4	6	107	VAL
4	6	142	ASP
4	6	162	LYS
4	6	167	ARG
4	6	189	ASN
4	6	210	SER
5	7	51	LEU
5	7	52	VAL
5	7	53	VAL
5	7	75	ARG

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Mol	Chain	Res	Type
5	7	76	LYS
5	7	77	GLN
5	7	78	SER
5	7	128	TRP
5	7	225	SER
5	7	226	VAL
5	7	227	VAL
5	7	228	ASN
5	7	246	ASP
5	7	247	VAL
5	7	252	VAL
6	AA	37	SER
6	AA	40	ARG
6	AA	109	VAL
6	AA	182	THR
7	AB	54	MET
7	AB	93	THR
7	AB	191	ASP
7	AB	263	GLU
7	AB	315	ILE
7	AB	322	LEU
7	AB	332	ARG
8	AC	140	ILE
8	AC	203	THR
8	AC	242	GLU
9	AD	37	VAL
9	AD	41	PHE
9	AD	44	ARG
9	AD	45	THR
9	AD	46	LEU
9	AD	51	ILE
9	AD	52	LYS
9	AD	70	GLU
9	AD	90	SER
9	AD	93	ASN
9	AD	107	MET
9	AD	113	ILE
9	AD	153	ILE
9	AD	158	GLU
10	AE	8	THR
10	AE	18	SER
10	AE	30	LYS

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Mol	Chain	Res	Type
10	AE	38	TRP
10	AE	46	VAL
10	AE	52	VAL
10	AE	76	LEU
10	AE	77	VAL
10	AE	133	ASN
10	AE	138	THR
10	AE	168	ASP
11	AF	23	LEU
11	AF	49	VAL
11	AF	90	LEU
13	AH	52	MET
13	AH	120	ARG
13	AH	123	LYS
13	AH	129	SER
13	AH	130	ILE
14	AI	17	HIS
14	AI	51	LYS
14	AI	80	VAL
14	AI	102	GLU
14	AI	126	ARG
15	AJ	41	ILE
15	AJ	176	THR
16	AK	16	SER
16	AK	42	THR
16	AK	159	THR
17	AL	111	SER
17	AL	156	SER
17	AL	157	ASP
17	AL	161	GLN
18	AM	29	ASN
18	AM	57	LYS
18	AM	90	THR
18	AM	93	ASP
19	AN	19	LEU
19	AN	29	SER
19	AN	36	ILE
19	AN	131	GLU
19	AN	136	SER
19	AN	141	HIS
21	AP	2	THR
23	AR	8	PHE

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Mol	Chain	Res	Type
23	AR	10	THR
23	AR	22	LEU
24	AS	85	THR
24	AS	99	SER
24	AS	116	SER
25	AT	27	SER
26	AU	12	MET
26	AU	13	THR
27	AV	21	MET
27	AV	87	THR
27	AV	88	ASP
28	AW	34	ASN
28	AW	54	ILE
29	AX	8	GLU
29	AX	57	GLU
29	AX	82	GLU
31	AZ	6	SER
32	Aa	20	THR
32	Aa	24	VAL
32	Aa	45	ARG
32	Aa	47	SER
35	Ad	14	SER
35	Ad	51	VAL
36	BA	27	LEU
36	BA	34	ASN
36	BA	48	VAL
36	BA	50	THR
36	BA	66	VAL
36	BA	113	ASP
36	BA	137	ILE
36	BA	152	SER
36	BA	163	LEU
36	BA	167	SER
36	BA	173	GLN
36	BA	188	THR
37	BB	37	LEU
37	BB	44	LEU
37	BB	52	THR
37	BB	66	VAL
37	BB	69	ASP
37	BB	87	SER
37	BB	100	VAL

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Mol	Chain	Res	Type
37	BB	136	GLN
37	BB	145	VAL
37	BB	174	THR
37	BB	181	VAL
37	BB	215	ASN
37	BB	220	ASP
38	BC	16	SER
38	BC	102	SER
38	BC	131	VAL
38	BC	133	SER
38	BC	161	VAL
38	BC	168	VAL
38	BC	171	LYS
38	BC	176	LEU
38	BC	180	VAL
38	BC	189	LEU
38	BC	195	VAL
39	BD	27	VAL
39	BD	30	VAL
39	BD	62	VAL
39	BD	64	SER
39	BD	76	THR
39	BD	81	ILE
39	BD	82	LEU
39	BD	83	SER
39	BD	91	ILE
39	BD	94	ASP
39	BD	122	LEU
39	BD	125	THR
39	BD	134	THR
39	BD	147	ILE
39	BD	155	GLU
39	BD	159	HIS
39	BD	162	TYR
40	BE	8	SER
40	BE	50	VAL
40	BE	54	ARG
40	BE	87	LEU
40	BE	92	GLU
40	BE	104	LEU
40	BE	105	THR
40	BE	114	VAL

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Mol	Chain	Res	Type
40	BE	117	LEU
40	BE	157	ILE
40	BE	202	VAL
40	BE	212	THR
41	BF	11	THR
41	BF	18	VAL
41	BF	26	ASP
41	BF	41	ILE
41	BF	47	ASP
41	BF	73	THR
41	BF	108	ILE
41	BF	109	THR
41	BF	115	CYS
41	BF	138	SER
41	BF	169	ASP
41	BF	193	ASN
41	BF	196	ASN
41	BF	197	VAL
42	BG	8	VAL
42	BG	29	LEU
42	BG	37	VAL
42	BG	113	VAL
42	BG	119	SER
42	BG	120	ILE
43	BH	29	LEU
43	BH	61	LEU
43	BH	66	THR
43	BH	111	VAL
43	BH	126	THR
43	BH	141	MET
43	BH	163	ILE
44	BI	24	SER
44	BI	25	CYS
44	BI	49	ASP
44	BI	64	THR
44	BI	76	LYS
44	BI	78	ARG
44	BI	80	SER
44	BI	85	SER
44	BI	111	MET
44	BI	129	VAL
45	BJ	13	THR

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Mol	Chain	Res	Type
45	BJ	20	VAL
45	BJ	29	ILE
45	BJ	32	ILE
45	BJ	41	LEU
45	BJ	108	LEU
46	BK	7	SER
46	BK	18	THR
46	BK	31	SER
46	BK	39	ILE
46	BK	64	THR
46	BK	70	LYS
46	BK	71	THR
46	BK	72	VAL
46	BK	83	THR
46	BK	102	THR
47	BL	56	ASP
48	BM	14	SER
48	BM	102	ILE
49	BN	73	ILE
49	BN	80	THR
49	BN	89	VAL
49	BN	99	THR
49	BN	118	ARG
49	BN	124	VAL
49	BN	128	SER
49	BN	133	VAL
49	BN	137	MET
50	BO	37	VAL
50	BO	89	VAL
50	BO	114	LEU
50	BO	120	ASP
50	BO	121	ILE
51	BP	12	VAL
52	BQ	15	THR
52	BQ	36	ILE
52	BQ	72	THR
52	BQ	87	ASP
52	BQ	122	ILE
52	BQ	138	ASP
53	BR	29	VAL
53	BR	56	MET
53	BR	58	SER

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Mol	Chain	Res	Type
53	BR	82	VAL
54	BS	22	ASP
54	BS	29	GLU
54	BS	43	SER
55	BT	22	THR
55	BT	38	LEU
55	BT	44	ARG
55	BT	46	LEU
55	BT	51	THR
55	BT	77	LEU
55	BT	83	LYS
55	BT	96	VAL
55	BT	103	VAL
55	BT	117	VAL
55	BT	128	ARG
56	BU	2	THR
56	BU	3	THR
56	BU	10	THR
56	BU	12	MET
56	BU	16	LEU
56	BU	55	CYS
56	BU	68	ILE
56	BU	143	ILE
57	BV	38	SER
58	BW	12	SER
58	BW	15	ASN
58	BW	22	VAL
58	BW	28	SER
58	BW	49	LEU
58	BW	79	GLN
58	BW	82	GLN
58	BW	86	LEU
59	BX	5	THR
59	BX	18	ASN
59	BX	24	GLN
59	BX	47	THR
59	BX	51	SER
59	BX	59	GLU
60	BY	17	VAL
60	BY	31	SER
60	BY	32	GLN
60	BY	47	ILE

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Mol	Chain	Res	Type
60	BY	50	ASN
60	BY	52	VAL
60	BY	56	ARG
60	BY	63	LEU
61	BZ	19	VAL
61	BZ	22	ILE
61	BZ	25	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (58) such sidechains are listed below:

Mol	Chain	Res	Type
4	6	39	ASN
4	6	92	GLN
4	6	128	HIS
4	6	150	HIS
5	7	18	GLN
5	7	56	ASN
5	7	124	ASN
5	7	138	ASN
5	7	139	HIS
5	7	215	ASN
6	AA	79	ASN
7	AB	286	ASN
8	AC	191	HIS
9	AD	93	ASN
10	AE	174	GLN
11	AF	81	GLN
16	AK	33	HIS
16	AK	71	ASN
17	AL	43	ASN
17	AL	95	GLN
17	AL	108	GLN
21	AP	5	HIS
21	AP	90	GLN
21	AP	95	GLN
22	AQ	65	HIS
22	AQ	113	HIS
23	AR	34	GLN
24	AS	25	GLN
26	AU	62	HIS
27	AV	27	HIS
27	AV	31	HIS

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Mol	Chain	Res	Type
27	AV	146	ASN
32	Aa	16	HIS
36	BA	57	ASN
36	BA	72	ASN
36	BA	106	ASN
36	BA	173	GLN
37	BB	108	GLN
37	BB	188	ASN
38	BC	115	ASN
38	BC	153	HIS
40	BE	33	GLN
40	BE	140	ASN
43	BH	36	HIS
43	BH	44	GLN
43	BH	95	GLN
44	BI	33	ASN
44	BI	124	GLN
46	BK	87	HIS
48	BM	83	GLN
50	BO	22	HIS
53	BR	61	GLN
54	BS	19	ASN
54	BS	31	ASN
54	BS	48	ASN
58	BW	89	ASN
59	BX	24	GLN
60	BY	27	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2704/2904 (93%)	341 (12%)	11 (0%)
2	2	126/133 (94%)	16 (12%)	3 (2%)
3	3	1424/1478 (96%)	237 (16%)	16 (1%)
All	All	4254/4515 (94%)	594 (13%)	30 (0%)

All (594) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	58	C
1	1	68	A

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Mol	Chain	Res	Type
1	1	71	A
1	1	72	G
1	1	82	G
1	1	88	U
1	1	92	G
1	1	97	U
1	1	114	A
1	1	115	A
1	1	116	U
1	1	123	U
1	1	124	C
1	1	129	U
1	1	130	A
1	1	131	G
1	1	142	U
1	1	150	A
1	1	165	A
1	1	168	A
1	1	185	A
1	1	190	A
1	1	191	A
1	1	196	A
1	1	198	U
1	1	202	A
1	1	236	U
1	1	255	G
1	1	262	G
1	1	269	U
1	1	270	G
1	1	271	U
1	1	272	A
1	1	273	G
1	1	284	A
1	1	297	A
1	1	299	A
1	1	306	U
1	1	315	A
1	1	316	C
1	1	321	G
1	1	330	G
1	1	335	A
1	1	336	C

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Mol	Chain	Res	Type
1	1	347	A
1	1	365	G
1	1	379	G
1	1	394	U
1	1	395	A
1	1	415	G
1	1	459	A
1	1	461	A
1	1	462	G
1	1	471	C
1	1	485	G
1	1	496	A
1	1	508	A
1	1	511	G
1	1	512	C
1	1	532	G
1	1	534	A
1	1	535	C
1	1	536	G
1	1	550	G
1	1	554	C
1	1	580	G
1	1	587	G
1	1	588	U
1	1	590	C
1	1	598	A
1	1	602	C
1	1	617	A
1	1	627	G
1	1	629	A
1	1	657	A
1	1	658	U
1	1	669	U
1	1	670	U
1	1	692	G
1	1	695	A
1	1	696	C
1	1	697	A
1	1	698	U
1	1	699	G
1	1	712	U
1	1	713	G

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Mol	Chain	Res	Type
1	1	746	A
1	1	763	A
1	1	764	G
1	1	769	G
1	1	773	U
1	1	776	A
1	1	781	U
1	1	782	G
1	1	805	G
1	1	813	G
1	1	817	A
1	1	831	U
1	1	836	U
1	1	853	A
1	1	854	C
1	1	863	C
1	1	871	A
1	1	873	U
1	1	874	G
1	1	878	A
1	1	880	C
1	1	881	U
1	1	882	A
1	1	894	G
1	1	901	C
1	1	906	C
1	1	916	C
1	1	917	G
1	1	936	G
1	1	948	A
1	1	949	G
1	1	956	A
1	1	960	A
1	1	963	G
1	1	988	G
1	1	998	C
1	1	1000	A
1	1	1024	G
1	1	1037	C
1	1	1038	G
1	1	1045	U
1	1	1046	G

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Mol	Chain	Res	Type
1	1	1053	G
1	1	1054	C
1	1	1062	C
1	1	1066	A
1	1	1067	A
1	1	1071	A
1	1	1081	G
1	1	1082	C
1	1	1102	G
1	1	1103	U
1	1	1104	G
1	1	1108	A
1	1	1113	G
1	1	1118	A
1	1	1124	A
1	1	1144	G
1	1	1145	A
1	1	1209	G
1	1	1224	A
1	1	1226	A
1	1	1227	U
1	1	1229	G
1	1	1231	C
1	1	1235	G
1	1	1239	A
1	1	1253	U
1	1	1271	G
1	1	1277	C
1	1	1288	G
1	1	1311	G
1	1	1319	A
1	1	1330	C
1	1	1345	A
1	1	1348	C
1	1	1367	A
1	1	1368	A
1	1	1389	G
1	1	1394	A
1	1	1468	G
1	1	1472	A
1	1	1474	A
1	1	1478	A

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Mol	Chain	Res	Type
1	1	1490	A
1	1	1514	U
1	1	1519	C
1	1	1549	C
1	1	1574	G
1	1	1576	G
1	1	1578	G
1	1	1579	C
1	1	1581	G
1	1	1586	G
1	1	1618	G
1	1	1642	A
1	1	1668	A
1	1	1671	A
1	1	1679	A
1	1	1683	G
1	1	1684	C
1	1	1685	C
1	1	1706	C
1	1	1708	U
1	1	1711	C
1	1	1737	G
1	1	1759	G
1	1	1775	C
1	1	1783	A
1	1	1804	G
1	1	1813	A
1	1	1816	G
1	1	1823	A
1	1	1826	A
1	1	1840	C
1	1	1851	G
1	1	1852	G
1	1	1873	C
1	1	1903	U
1	1	1926	A
1	1	1928	A
1	1	1931	G
1	1	1933	G
1	1	1934	G
1	1	1947	C
1	1	1952	A

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Mol	Chain	Res	Type
1	1	1955	G
1	1	1958	G
1	1	1962	A
1	1	1963	G
1	1	1980	U
1	1	1988	U
1	1	1989	G
1	1	1992	U
1	1	1995	A
1	1	1996	U
1	1	1997	G
1	1	2007	G
1	1	2016	U
1	1	2018	U
1	1	2022	U
1	1	2048	U
1	1	2056	A
1	1	2057	C
1	1	2058	A
1	1	2076	G
1	1	2080	A
1	1	2085	A
1	1	2086	G
1	1	2087	A
1	1	2088	C
1	1	2093	U
1	1	2094	G
1	1	2105	G
1	1	2118	G
1	1	2233	A
1	1	2236	G
1	1	2238	A
1	1	2239	C
1	1	2251	G
1	1	2256	U
1	1	2271	A
1	1	2293	G
1	1	2297	C
1	1	2301	A
1	1	2302	U
1	1	2309	C
1	1	2319	U

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Mol	Chain	Res	Type
1	1	2320	C
1	1	2321	G
1	1	2336	A
1	1	2349	A
1	1	2357	C
1	1	2361	C
1	1	2384	G
1	1	2389	G
1	1	2400	G
1	1	2419	C
1	1	2441	U
1	1	2442	G
1	1	2447	A
1	1	2448	A
1	1	2456	C
1	1	2460	G
1	1	2463	A
1	1	2479	C
1	1	2483	A
1	1	2485	G
1	1	2489	A
1	1	2493	A
1	1	2502	G
1	1	2513	C
1	1	2517	G
1	1	2518	A
1	1	2519	U
1	1	2521	U
1	1	2532	C
1	1	2533	A
1	1	2534	U
1	1	2544	G
1	1	2545	C
1	1	2550	G
1	1	2569	U
1	1	2577	U
1	1	2581	A
1	1	2582	G
1	1	2588	C
1	1	2593	G
1	1	2597	G
1	1	2600	U

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Mol	Chain	Res	Type
1	1	2614	G
1	1	2617	A
1	1	2624	U
1	1	2625	U
1	1	2628	U
1	1	2636	A
1	1	2640	G
1	1	2645	C
1	1	2646	G
1	1	2655	G
1	1	2660	A
1	1	2661	G
1	1	2671	G
1	1	2672	U
1	1	2679	G
1	1	2705	U
1	1	2722	G
1	1	2726	U
1	1	2728	G
1	1	2740	C
1	1	2746	C
1	1	2747	A
1	1	2757	G
1	1	2761	A
1	1	2763	U
1	1	2764	G
1	1	2770	A
1	1	2778	A
1	1	2779	C
1	1	2789	A
1	1	2802	U
1	1	2803	U
1	1	2804	A
1	1	2824	G
1	1	2830	A
1	1	2831	U
1	1	2840	G
1	1	2854	G
1	1	2861	A
1	1	2868	C
1	1	2874	G
1	1	2880	A

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Mol	Chain	Res	Type
1	1	2881	C
1	1	2887	A
1	1	2892	U
2	2	10	G
2	2	14	A
2	2	23	G
2	2	26	C
2	2	34	G
2	2	52	G
2	2	57	U
2	2	58	A
2	2	67	C
2	2	68	G
2	2	80	G
2	2	81	U
2	2	90	G
2	2	96	G
2	2	112	G
2	2	116	G
3	3	4	C
3	3	33	U
3	3	42	G
3	3	45	U
3	3	46	A
3	3	47	A
3	3	54	C
3	3	57	G
3	3	60	A
3	3	72	U
3	3	73	G
3	3	74	A
3	3	75	A
3	3	86	U
3	3	96	C
3	3	105	A
3	3	107	C
3	3	133	G
3	3	137	A
3	3	140	U
3	3	149	U
3	3	168	G
3	3	174	A

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Mol	Chain	Res	Type
3	3	175	U
3	3	188	A
3	3	190	A
3	3	191	C
3	3	196	U
3	3	197	C
3	3	198	G
3	3	199	U
3	3	222	C
3	3	227	C
3	3	229	G
3	3	233	G
3	3	248	U
3	3	249	A
3	3	254	C
3	3	257	G
3	3	262	C
3	3	263	A
3	3	266	G
3	3	271	C
3	3	275	U
3	3	283	G
3	3	288	A
3	3	293	G
3	3	310	C
3	3	314	A
3	3	321	G
3	3	326	A
3	3	327	C
3	3	328	G
3	3	329	G
3	3	331	G
3	3	334	C
3	3	335	A
3	3	336	G
3	3	344	G
3	3	349	C
3	3	354	C
3	3	355	A
3	3	366	C
3	3	375	G
3	3	379	A

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Mol	Chain	Res	Type
3	3	388	G
3	3	393	C
3	3	396	C
3	3	397	A
3	3	398	U
3	3	399	A
3	3	407	U
3	3	422	A
3	3	423	A
3	3	434	A
3	3	435	G
3	3	436	C
3	3	438	A
3	3	450	G
3	3	451	A
3	3	458	C
3	3	461	G
3	3	464	G
3	3	467	G
3	3	472	A
3	3	487	A
3	3	488	G
3	3	501	U
3	3	504	U
3	3	506	G
3	3	512	A
3	3	513	A
3	3	516	G
3	3	517	G
3	3	536	A
3	3	573	U
3	3	574	U
3	3	575	C
3	3	590	G
3	3	594	U
3	3	603	G
3	3	606	A
3	3	616	U
3	3	629	G
3	3	644	A
3	3	656	A
3	3	664	U

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Mol	Chain	Res	Type
3	3	665	G
3	3	672	G
3	3	675	U
3	3	690	U
3	3	696	G
3	3	718	C
3	3	734	U
3	3	735	A
3	3	741	G
3	3	756	A
3	3	757	A
3	3	758	C
3	3	762	G
3	3	769	A
3	3	770	G
3	3	785	G
3	3	812	C
3	3	817	A
3	3	835	G
3	3	836	U
3	3	847	G
3	3	859	A
3	3	871	G
3	3	872	G
3	3	873	G
3	3	874	G
3	3	879	C
3	3	880	A
3	3	881	A
3	3	888	G
3	3	906	U
3	3	907	U
3	3	912	U
3	3	915	A
3	3	916	C
3	3	917	G
3	3	920	G
3	3	921	G
3	3	922	A
3	3	923	C
3	3	924	A
3	3	992	G

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Mol	Chain	Res	Type
3	3	993	C
3	3	994	A
3	3	995	U
3	3	1009	U
3	3	1033	G
3	3	1034	U
3	3	1040	A
3	3	1041	A
3	3	1060	A
3	3	1062	U
3	3	1063	G
3	3	1069	A
3	3	1072	A
3	3	1074	G
3	3	1075	U
3	3	1076	C
3	3	1079	C
3	3	1080	C
3	3	1081	G
3	3	1082	G
3	3	1086	G
3	3	1089	G
3	3	1093	A
3	3	1099	U
3	3	1104	A
3	3	1106	C
3	3	1114	U
3	3	1115	U
3	3	1131	G
3	3	1140	G
3	3	1143	A
3	3	1144	G
3	3	1149	G
3	3	1159	A
3	3	1160	A
3	3	1162	U
3	3	1174	A
3	3	1175	C
3	3	1185	A
3	3	1203	U
3	3	1207	U
3	3	1217	A

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Mol	Chain	Res	Type
3	3	1224	G
3	3	1225	U
3	3	1227	A
3	3	1233	C
3	3	1234	A
3	3	1237	C
3	3	1243	C
3	3	1244	G
3	3	1246	A
3	3	1247	G
3	3	1249	U
3	3	1252	G
3	3	1267	C
3	3	1269	C
3	3	1285	G
3	3	1294	G
3	3	1295	U
3	3	1300	G
3	3	1306	C
3	3	1307	A
3	3	1310	A
3	3	1311	U
3	3	1326	G
3	3	1328	C
3	3	1329	C
3	3	1341	A
3	3	1345	A
3	3	1365	A
3	3	1393	C
3	3	1394	G
3	3	1395	U
3	3	1406	A
3	3	1411	G
3	3	1425	G
3	3	1430	A
3	3	1431	A
3	3	1435	G
3	3	1437	A
3	3	1440	A
3	3	1444	U
3	3	1455	G
3	3	1457	MA6

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Mol	Chain	Res	Type
3	3	1458	U
3	3	1467	G
3	3	1468	G
3	3	1472	A

All (30) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	96	A
1	1	461	A
1	1	587	G
1	1	853	A
1	1	873	U
1	1	948	A
1	1	1066	A
1	1	2006	A
1	1	2238	A
1	1	2671	G
1	1	2769	U
2	2	79	U
2	2	80	G
2	2	89	U
3	3	173	A
3	3	265	C
3	3	574	U
3	3	769	A
3	3	834	A
3	3	835	G
3	3	916	C
3	3	991	U
3	3	992	G
3	3	993	C
3	3	1080	C
3	3	1148	A
3	3	1294	G
3	3	1325	C
3	3	1430	A
3	3	1436	U

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	5MU	3	1222	3	19,22,23	0.26	0	27,32,35	0.42	0
1	5MC	1	2514	1,62	19,22,23	0.77	1 (5%)	26,32,35	0.49	0
1	OMG	1	2568	1	19,26,27	1.07	3 (15%)	21,38,41	0.75	0
3	MA6	3	1457	3	19,26,27	0.97	2 (10%)	18,38,41	0.77	0
1	OMU	1	2567	1,62	19,22,23	0.21	0	25,31,34	0.46	0
1	5MC	1	2516	1	19,22,23	0.88	1 (5%)	26,32,35	0.62	1 (3%)
48	IAS	BM	116	48	6,7,8	1.44	1 (16%)	3,8,10	0.91	0
3	MA6	3	1456	3	19,26,27	0.97	2 (10%)	18,38,41	0.68	0
3	6MZ	3	1438	62,3	17,25,26	0.84	1 (5%)	15,36,39	0.95	2 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	5MU	3	1222	3	-	0/7/25/26	0/2/2/2
1	5MC	1	2514	1,62	-	0/7/25/26	0/2/2/2
1	OMG	1	2568	1	-	0/5/27/28	0/3/3/3
3	MA6	3	1457	3	-	3/7/29/30	0/3/3/3
1	OMU	1	2567	1,62	-	0/9/27/28	0/2/2/2
1	5MC	1	2516	1	-	4/7/25/26	0/2/2/2
48	IAS	BM	116	48	-	2/7/7/8	-
3	MA6	3	1456	3	-	1/7/29/30	0/3/3/3
3	6MZ	3	1438	62,3	-	0/5/27/28	0/3/3/3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	2516	5MC	C5-C4	-3.54	1.41	1.44
1	1	2514	5MC	C5-C4	-3.10	1.41	1.44
1	1	2568	OMG	C5-C6	-2.76	1.42	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	BM	116	IAS	CB-CG	2.46	1.56	1.50
1	1	2568	OMG	C8-N7	-2.21	1.31	1.34
3	3	1457	MA6	C6-C5	-2.19	1.41	1.44
3	3	1456	MA6	C6-N1	2.17	1.35	1.32
3	3	1457	MA6	C6-N1	2.09	1.35	1.32
3	3	1456	MA6	C6-C5	-2.09	1.41	1.44
3	3	1438	6MZ	C6-C5	-2.08	1.41	1.44
1	1	2568	OMG	C5-C4	-2.05	1.38	1.43

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	3	1438	6MZ	C2-N1-C6	2.65	118.66	116.60
1	1	2516	5MC	C5-C6-N1	-2.10	121.03	123.31
3	3	1438	6MZ	C9-N6-C6	2.06	124.76	122.85

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	3	1456	MA6	C5-C6-N6-C9
3	3	1457	MA6	O4'-C4'-C5'-O5'
1	1	2516	5MC	C2'-C1'-N1-C6
3	3	1457	MA6	C3'-C4'-C5'-O5'
1	1	2516	5MC	C2'-C1'-N1-C2
1	1	2516	5MC	O4'-C1'-N1-C6
3	3	1457	MA6	C5-C6-N6-C9
1	1	2516	5MC	O4'-C1'-N1-C2
48	BM	116	IAS	OXT-C-CA-N
48	BM	116	IAS	O-C-CA-N

There are no ring outliers.

4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	1	2568	OMG	1	0
1	1	2516	5MC	2	0
48	BM	116	IAS	1	0
3	3	1456	MA6	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 325 ligands modelled in this entry, 325 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

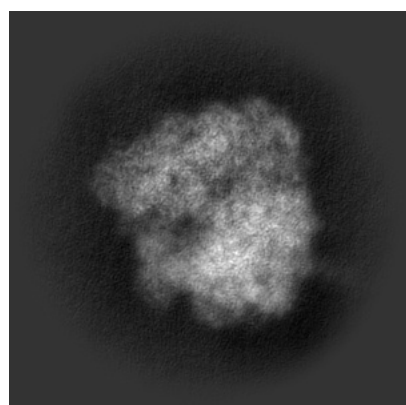
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-74448. These allow visual inspection of the internal detail of the map and identification of artifacts.

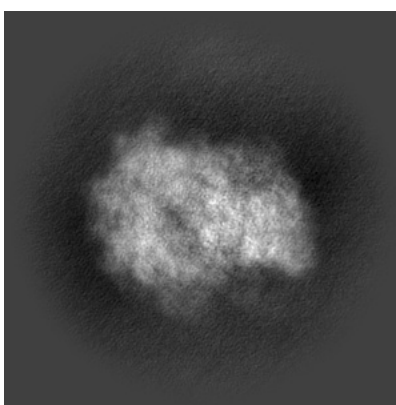
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

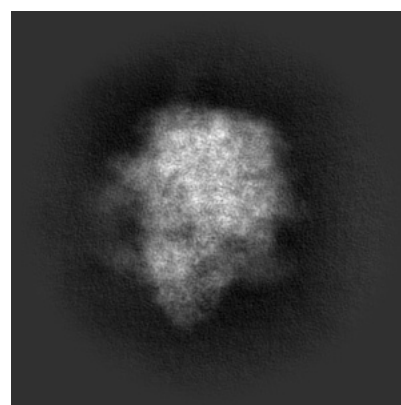
6.1.1 Primary map



X



Y

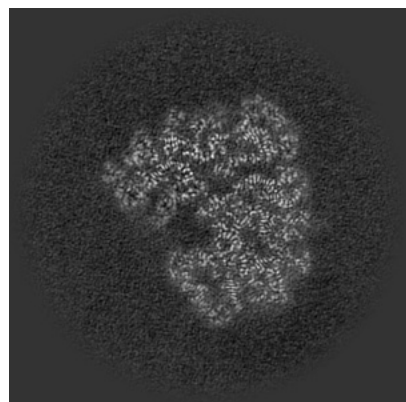


Z

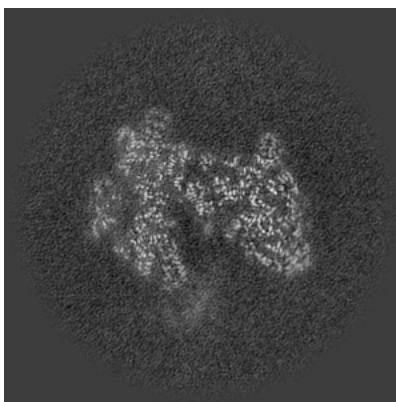
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

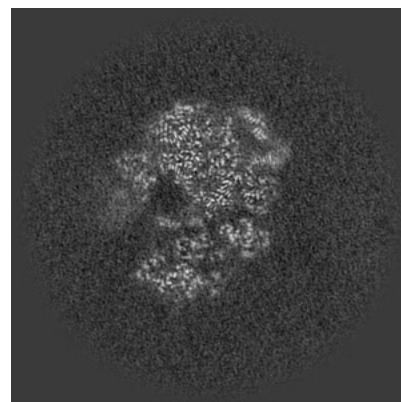
6.2.1 Primary map



X Index: 256



Y Index: 256

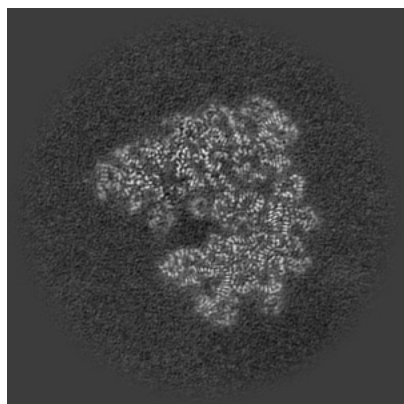


Z Index: 256

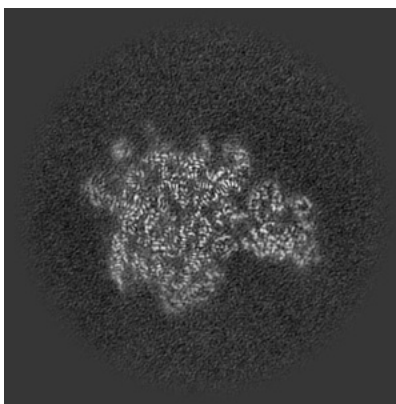
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

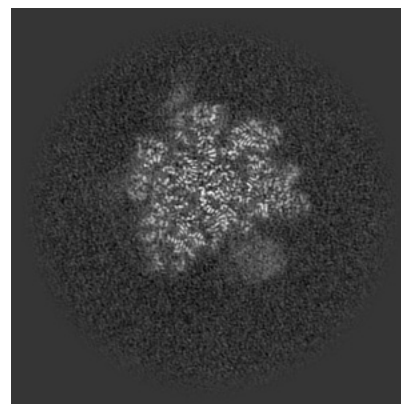
6.3.1 Primary map



X Index: 240



Y Index: 312

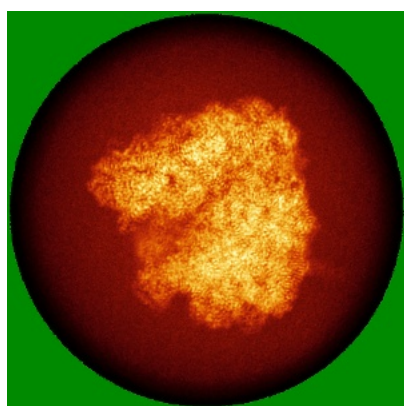


Z Index: 188

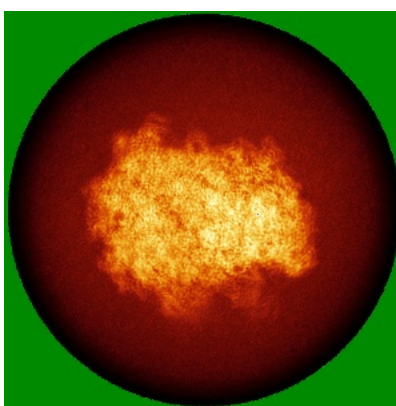
The images above show the largest variance slices of the map in three orthogonal directions.

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

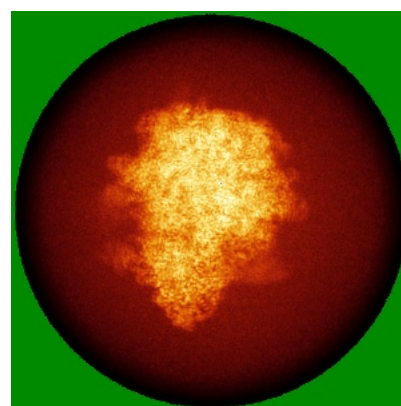
6.4.1 Primary map



X



Y

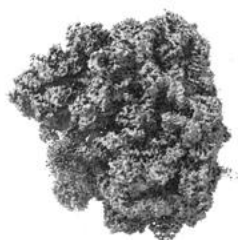


Z

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



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.142. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

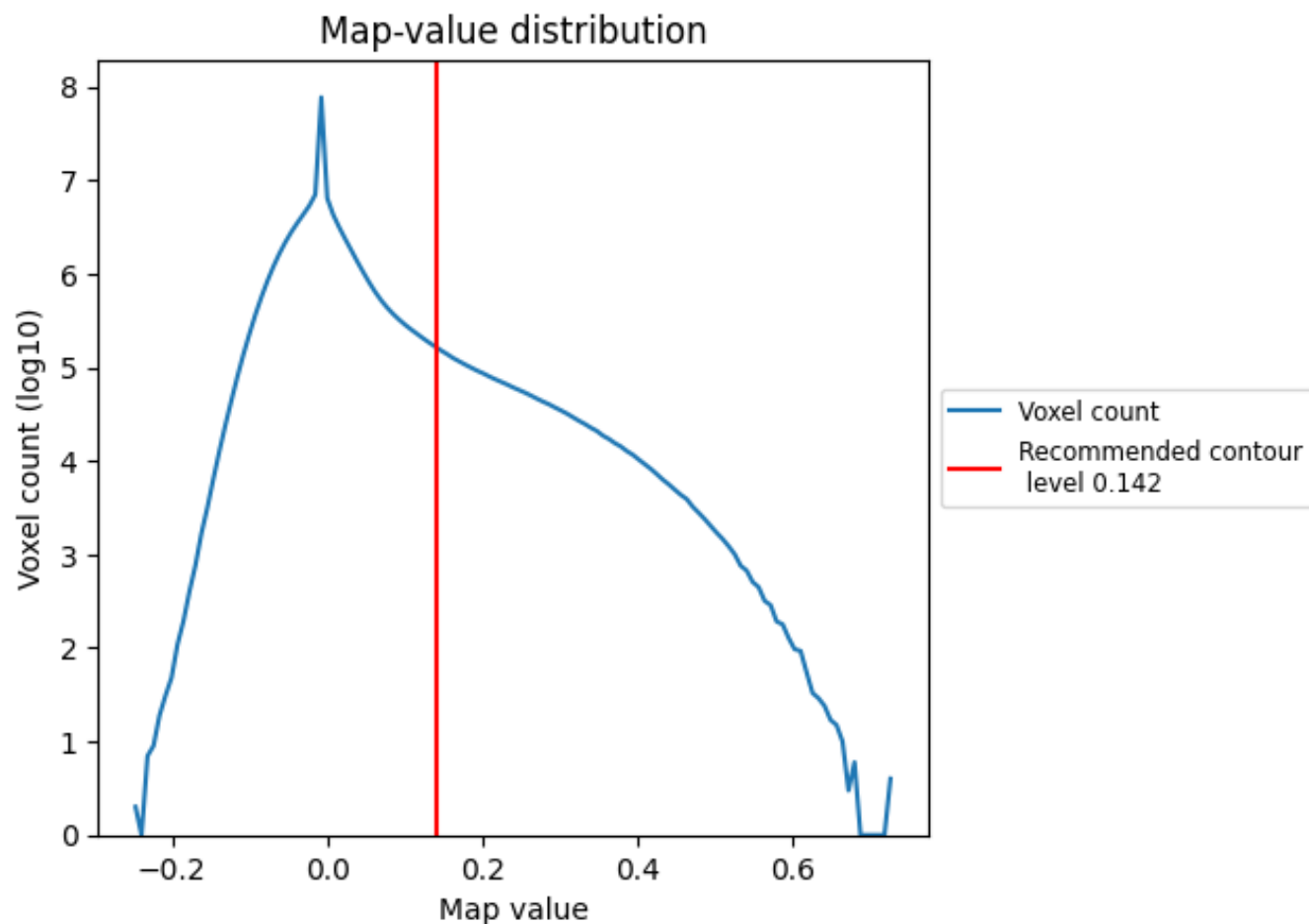
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

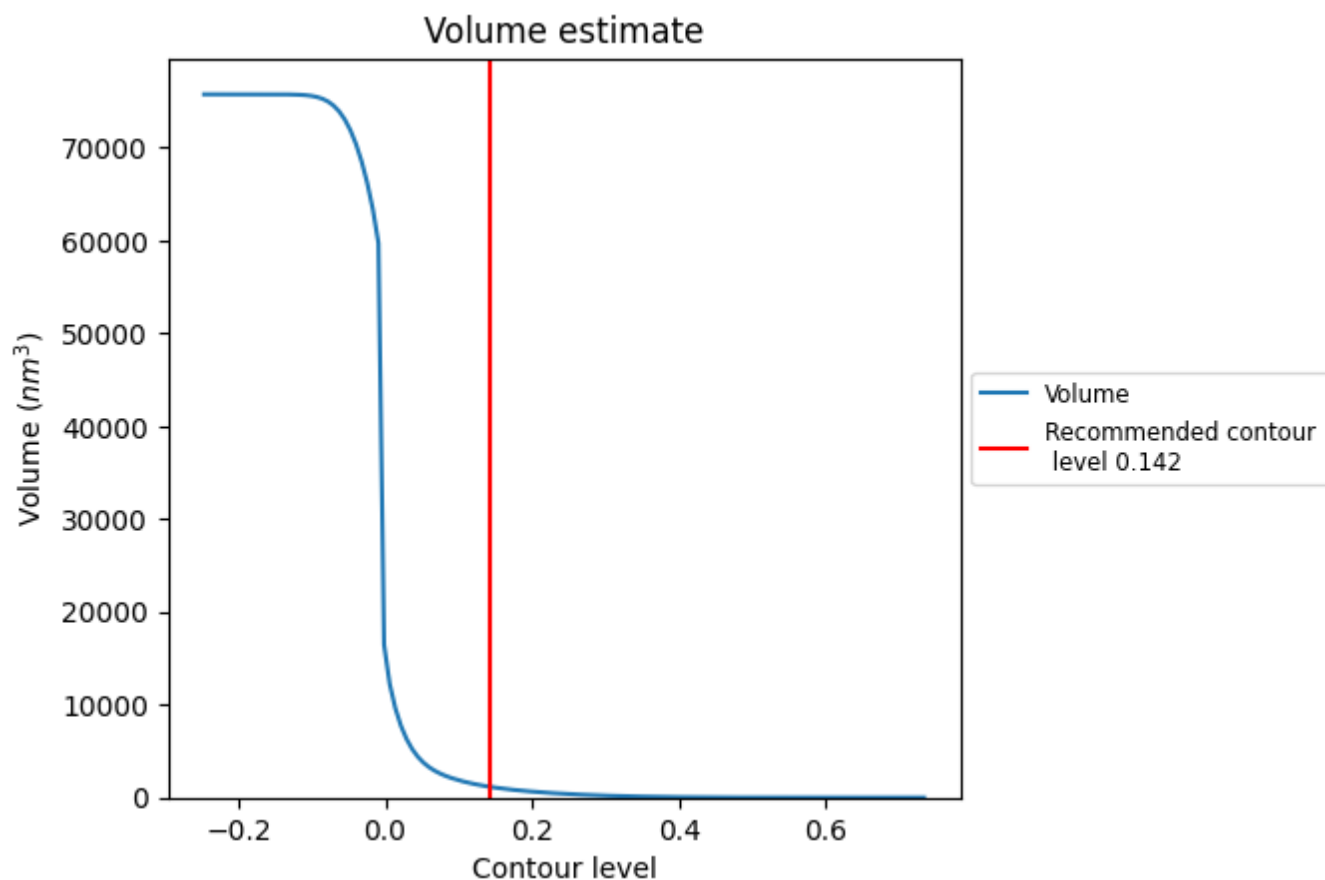
This section contains the results of statistical analysis of the map.

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.

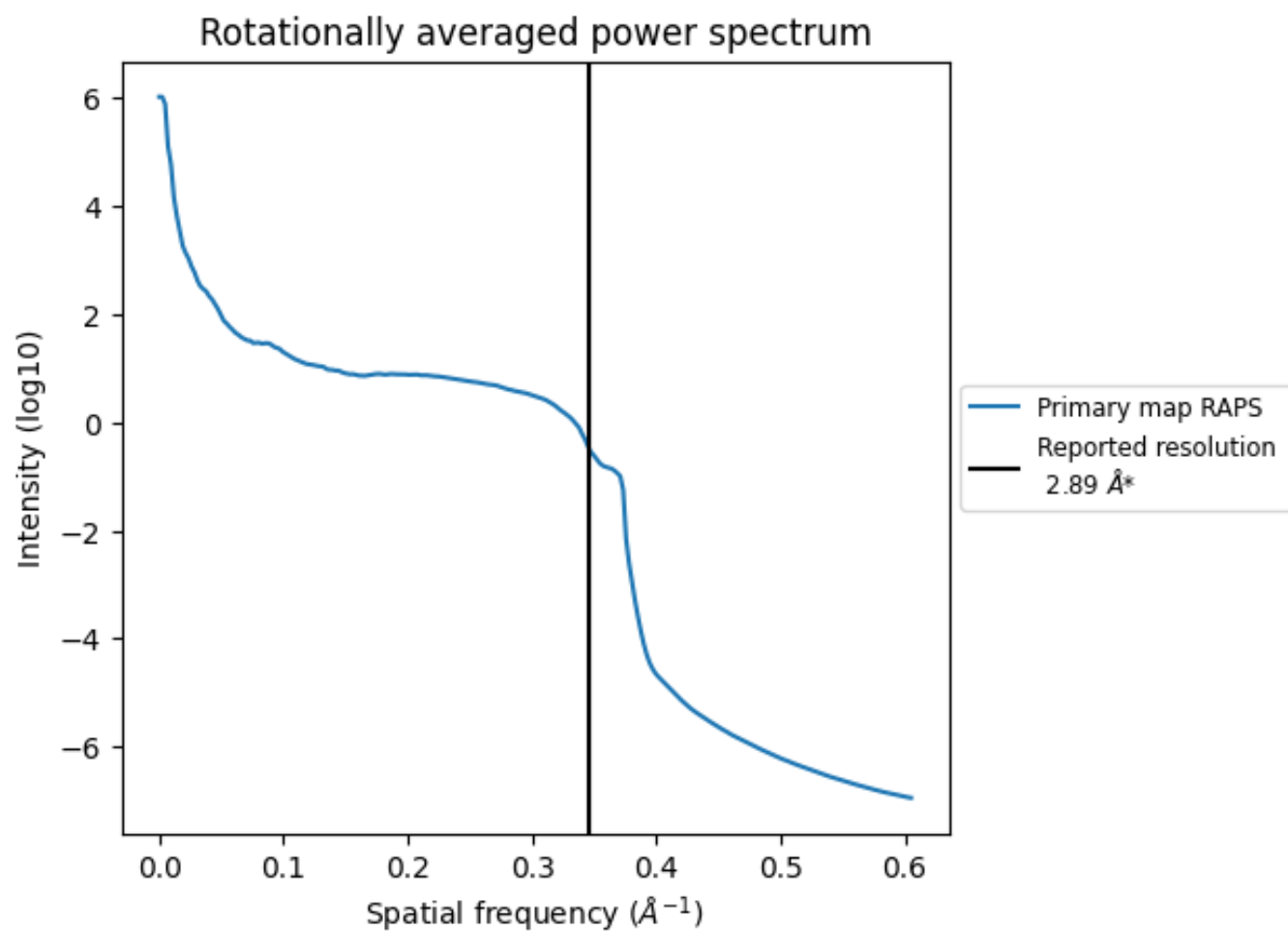
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1167 nm³; this corresponds to an approximate mass of 1054 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.346 $\text{\AA}^{-1}$

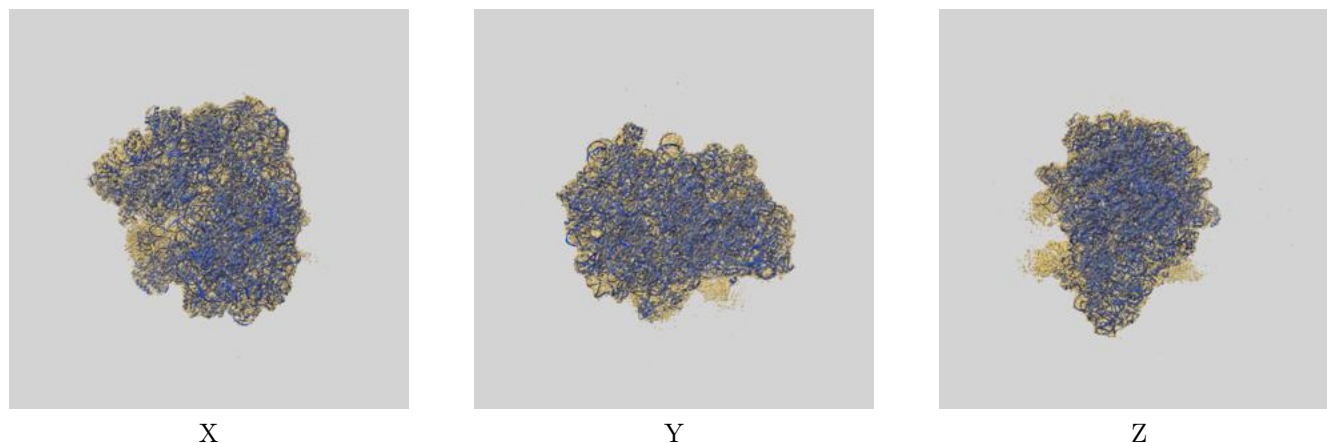
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

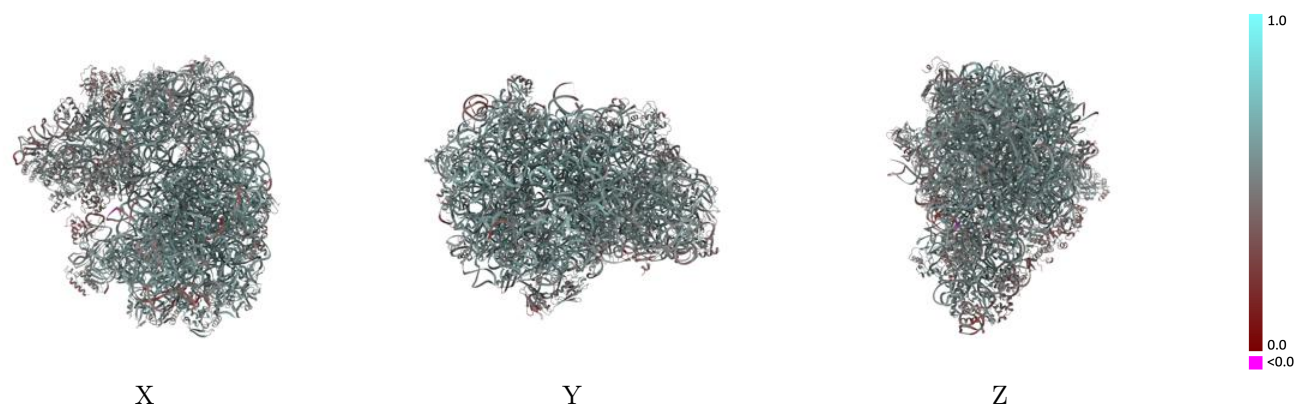
This section contains information regarding the fit between EMDB map EMD-74448 and PDB model 9ZNI. Per-residue inclusion information can be found in section [3](#) on page [17](#).

9.1 Map-model overlay [i](#)



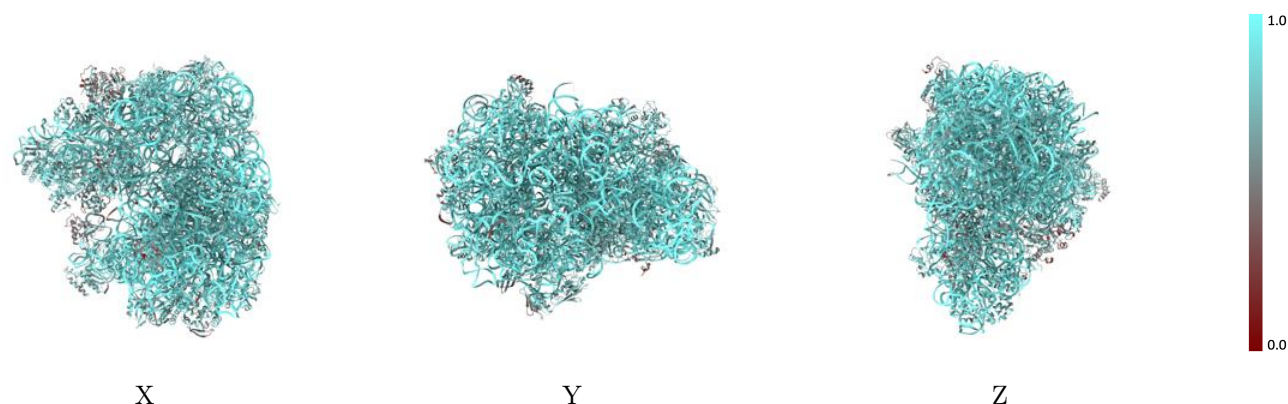
The images above show the 3D surface view of the map at the recommended contour level 0.142 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



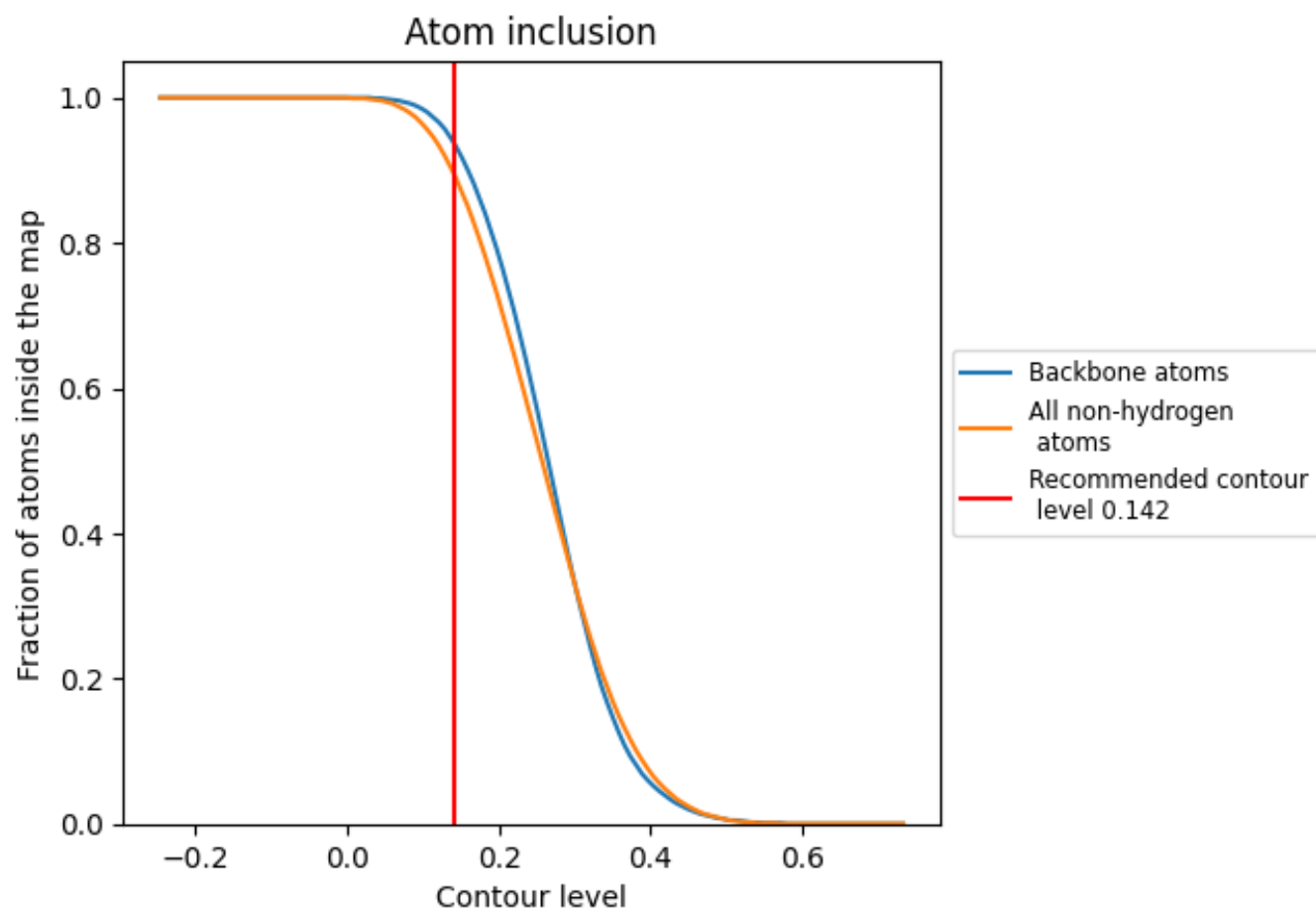
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.142).

9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 89% 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 (0.142) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8930	 0.5430
1	 0.9600	 0.5710
2	 0.9280	 0.4940
3	 0.9640	 0.5450
6	 0.6700	 0.4750
7	 0.7020	 0.4800
AA	 0.8590	 0.5750
AB	 0.8450	 0.5580
AC	 0.7990	 0.5580
AD	 0.4850	 0.3520
AE	 0.7030	 0.4750
AF	 0.6370	 0.4920
AG	 0.8340	 0.5540
AH	 0.7940	 0.5590
AI	 0.8170	 0.5450
AJ	 0.9120	 0.5810
AK	 0.8010	 0.5430
AL	 0.7630	 0.4940
AM	 0.7940	 0.5360
AN	 0.8670	 0.5500
AO	 0.6950	 0.5060
AP	 0.8940	 0.5730
AQ	 0.8510	 0.5490
AR	 0.8190	 0.5370
AS	 0.8040	 0.5410
AT	 0.8610	 0.5750
AU	 0.7750	 0.4940
AV	 0.8120	 0.5460
AW	 0.7340	 0.4780
AX	 0.8890	 0.5660
AY	 0.8480	 0.5610
AZ	 0.9530	 0.6080
Aa	 0.9020	 0.5680
Ab	 0.7460	 0.4930
Ac	 0.8600	 0.5690



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Chain	Atom inclusion	Q-score
Ad	 0.8520	 0.5670
BA	 0.7090	 0.4630
BB	 0.5140	 0.4420
BC	 0.6510	 0.4700
BD	 0.8400	 0.4990
BE	 0.8080	 0.5080
BF	 0.8060	 0.5190
BG	 0.6960	 0.4570
BH	 0.7920	 0.4770
BI	 0.8650	 0.5380
BJ	 0.8290	 0.4950
BK	 0.8810	 0.5410
BL	 0.8910	 0.5240
BM	 0.8200	 0.5180
BN	 0.8270	 0.5370
BO	 0.7890	 0.4890
BP	 0.8780	 0.5510
BQ	 0.8140	 0.5180
BR	 0.8480	 0.5370
BS	 0.7830	 0.4630
BT	 0.8120	 0.5200
BU	 0.8370	 0.4970
BV	 0.5430	 0.4830
BW	 0.7580	 0.4770
BX	 0.6550	 0.4910
BY	 0.8020	 0.4580
BZ	 0.8280	 0.4940