



Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 12:12 PM UTC

PDB ID : 7PIB / pdb_00007pib
EMDB ID : EMD-13435
Title : 70S ribosome with EF-G, A/P- and P/E-site tRNAs in spectinomycin-treated Mycoplasma pneumoniae cells
Authors : Xue, L.; Lenz, S.; Rappsilber, J.; Mahamid, J.
Deposited on : 2021-08-19
Resolution : 4.70 Å (reported)
Based on initial models : 4V7D, 7OOC, 4V7C, 7OOD

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.49

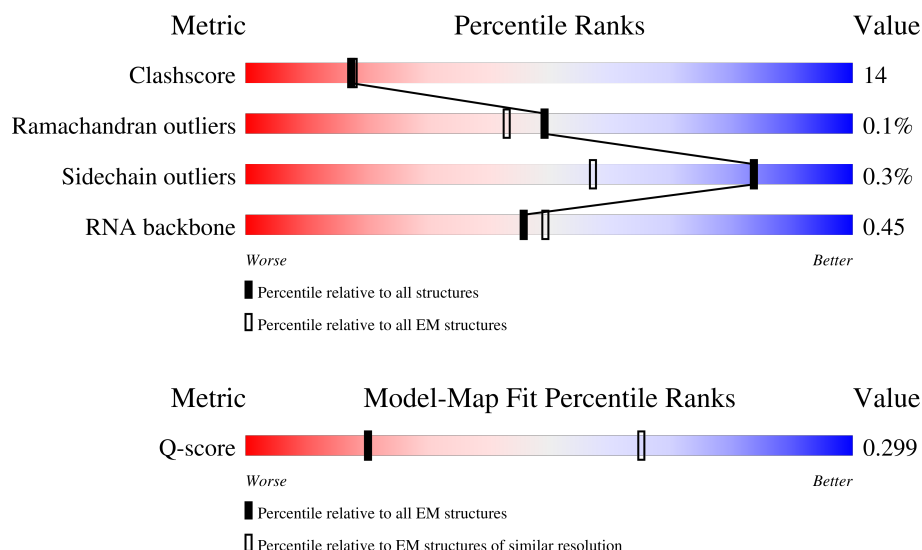
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.70 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	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	1989 (4.20 - 5.20)

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

Mol	Chain	Length	Quality of chain
1	0	48	 10% 71% 27%
2	1	59	 16% 81% 19%
3	2	37	 16% 51% 49%

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Mol	Chain	Length	Quality of chain
4	9	688	
5	A	294	
6	B	273	
7	C	205	
8	D	219	
9	E	215	
10	F	155	
11	G	142	
12	H	132	
13	I	108	
14	J	121	
15	K	139	
16	L	124	
17	M	61	
18	N	86	
19	O	94	
20	P	85	
21	Q	104	
22	R	87	
23	S	87	
24	T	60	
25	W	122	
26	a	287	
27	b	287	
28	c	212	

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Mol	Chain	Length	Quality of chain
29	d	180	
30	e	184	
31	f	149	
32	g	161	
33	h	137	
34	i	146	
35	j	122	
36	k	151	
37	l	139	
38	m	124	
39	n	116	
40	o	119	
41	p	127	
42	q	100	
43	r	159	
44	s	237	
45	t	111	
46	u	104	
47	v	65	
48	w	111	
49	x	97	
50	y	57	
51	z	53	
52	3	2907	
53	4	108	

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Mol	Chain	Length	Quality of chain
54	5	1520	33% 53% 12%
55	7	76	34% 50% 16%
55	8	76	13% 30% 61% 8%

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 152025 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called 50S ribosomal protein L34.

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

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

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

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

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

- Molecule 4 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	9	682	Total	C	N	O	S	0	0
			5326	3369	911	1021	25		

- Molecule 5 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	A	240	Total	C	N	O	S	0	0
			1921	1226	334	352	9		

- Molecule 6 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	B	215	Total	C	N	O	S	0	0
			1698	1073	313	307	5		

- Molecule 7 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	C	203	Total	C	N	O	S	0	0
			1660	1051	314	290	5		

- Molecule 8 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	D	153	Total	C	N	O	S	0	0
			1173	742	226	202	3		

- Molecule 9 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	E	167	Total	C	N	O	S	0	0
			1362	857	240	263	2		

- Molecule 10 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	F	154	Total	C	N	O	S	0	0
			1246	785	239	216	6		

- Molecule 11 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	G	141	Total	C	N	O	S	0	0
			1110	723	193	192	2		

- Molecule 12 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	H	128	Total	C	N	O	S	0	0
			1028	655	191	181	1		

- Molecule 13 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	I	101	Total	C	N	O	S	0	0
			809	523	142	143	1		

- Molecule 14 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	J	114	Total	C	N	O	S	0	0
			829	514	153	156	6		

- Molecule 15 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	K	136	Total	C	N	O	S	0	0
			1076	680	213	181	2		

- Molecule 16 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	L	118	Total	C	N	O		0	0
			951	594	191	166			

- Molecule 17 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	M	60	Total	C	N	O	S	0	0
			474	302	96	72	4		

- Molecule 18 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	N	83	Total	C	N	O		0	0
			673	428	125	120			

- Molecule 19 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	O	80	Total	C	N	O	S	0	0
			646	414	119	111	2		

- Molecule 20 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	P	83	Total	C	N	O		0	0
			675	425	135	115			

- Molecule 21 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	Q	65	Total	C	N	O	S	0	0
			535	342	103	86	4		

- Molecule 22 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	R	84	Total	C	N	O	S	0	0
			682	435	127	118	2		

- Molecule 23 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	S	77	Total	C	N	O		0	0
			629	383	135	111			

- Molecule 24 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	T	53	Total	C	N	O	S	0	0
			471	295	103	72	1		

- Molecule 25 is a protein called 50S ribosomal protein L7/L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	W	69	Total	C	N	O	S	0	0
			534	342	87	103	2		

- Molecule 26 is a protein called 50S ribosomal protein L2.

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

- Molecule 27 is a protein called 50S ribosomal protein L3.

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

- Molecule 28 is a protein called 50S ribosomal protein L4.

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

- Molecule 29 is a protein called 50S ribosomal protein L5.

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

- Molecule 30 is a protein called 50S ribosomal protein L6.

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

- Molecule 31 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	145	Total	C	N	O	S	0	0
			1182	763	206	210	3		

- Molecule 32 is a protein called 50S ribosomal protein L10.

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

- Molecule 33 is a protein called 50S ribosomal protein L11.

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

- Molecule 34 is a protein called 50S ribosomal protein L13.

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

- Molecule 35 is a protein called 50S ribosomal protein L14.

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

- Molecule 36 is a protein called 50S ribosomal protein L15.

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

- Molecule 37 is a protein called 50S ribosomal protein L16.

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

- Molecule 38 is a protein called 50S ribosomal protein L17.

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

- Molecule 39 is a protein called 50S ribosomal protein L18.

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

- Molecule 40 is a protein called 50S ribosomal protein L19.

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

- Molecule 41 is a protein called 50S ribosomal protein L20.

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

- Molecule 42 is a protein called 50S ribosomal protein L21.

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

- Molecule 43 is a protein called 50S ribosomal protein L22.

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

- Molecule 44 is a protein called 50S ribosomal protein L23.

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

- Molecule 45 is a protein called 50S ribosomal protein L24.

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

- Molecule 46 is a protein called 50S ribosomal protein L27.

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

- Molecule 47 is a protein called 50S ribosomal protein L28.

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

- Molecule 48 is a protein called 50S ribosomal protein L29.

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

- Molecule 49 is a protein called 50S ribosomal protein L31.

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

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

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

- Molecule 51 is a protein called 50S ribosomal protein L33 1.

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

- Molecule 52 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	3	2878	Total	C	N	O	P	0	0
			61664	27558	11236	19995	2875		

- Molecule 53 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	4	105	Total	C	N	O	P	0	0
			2239	1003	409	724	103		

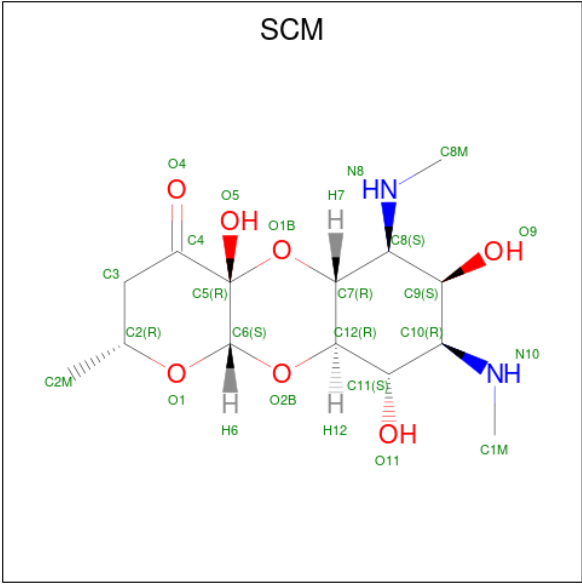
- Molecule 54 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	5	1493	Total	C	N	O	P	0	0
			31943	14279	5792	10382	1490		

- Molecule 55 is a RNA chain called tRNA-Phe.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	7	76	Total	C	N	O	P	0	0
			1618	723	289	531	75		
55	8	76	Total	C	N	O	P	0	0
			1618	723	289	531	75		

- Molecule 56 is SPECTINOMYCIN (CCD ID: SCM) (formula: $C_{14}H_{24}N_2O_7$) (labeled as "Ligand of Interest" by depositor).

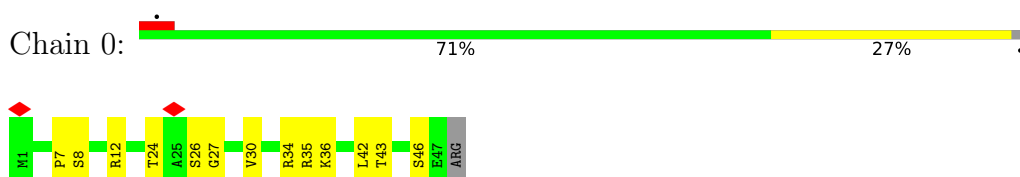


Mol	Chain	Residues	Atoms				AltConf
56	5	1	Total	C	N	O	0
			23	14	2	7	

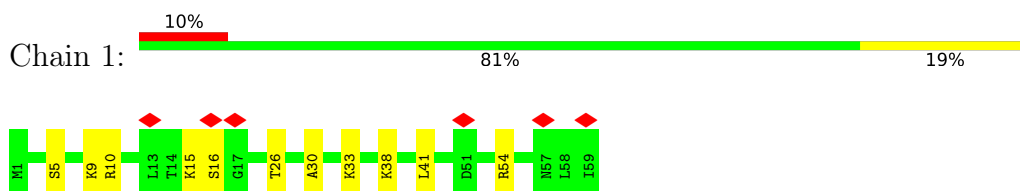
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

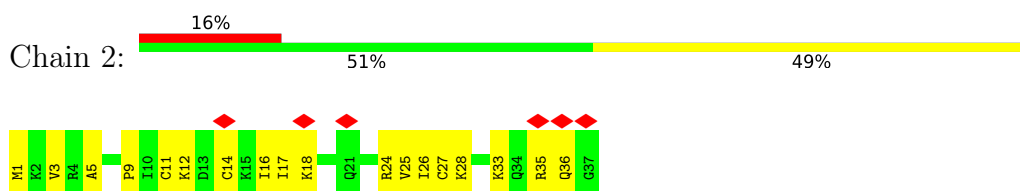
- Molecule 1: 50S ribosomal protein L34



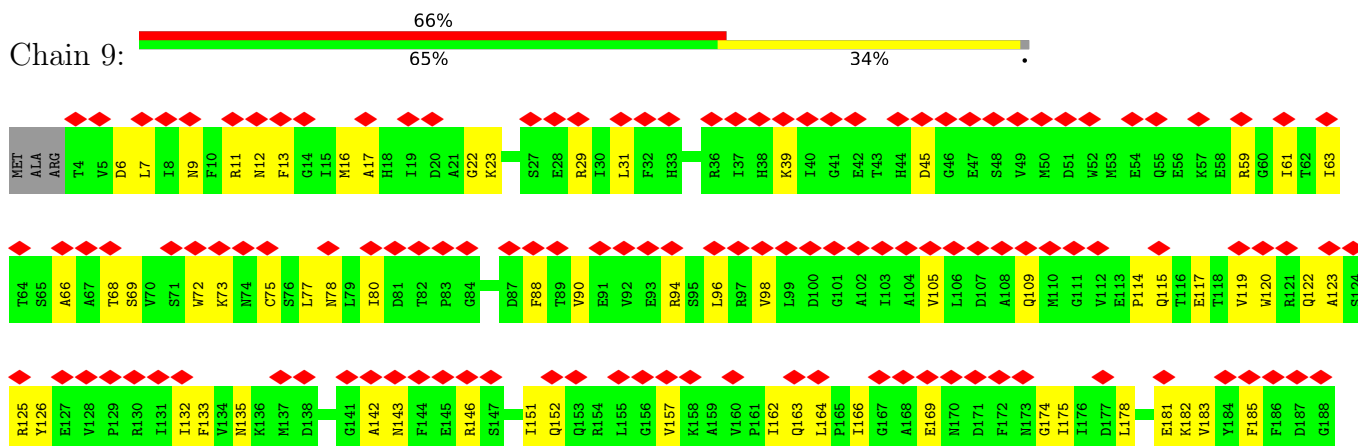
- Molecule 2: 50S ribosomal protein L35



- Molecule 3: 50S ribosomal protein L36

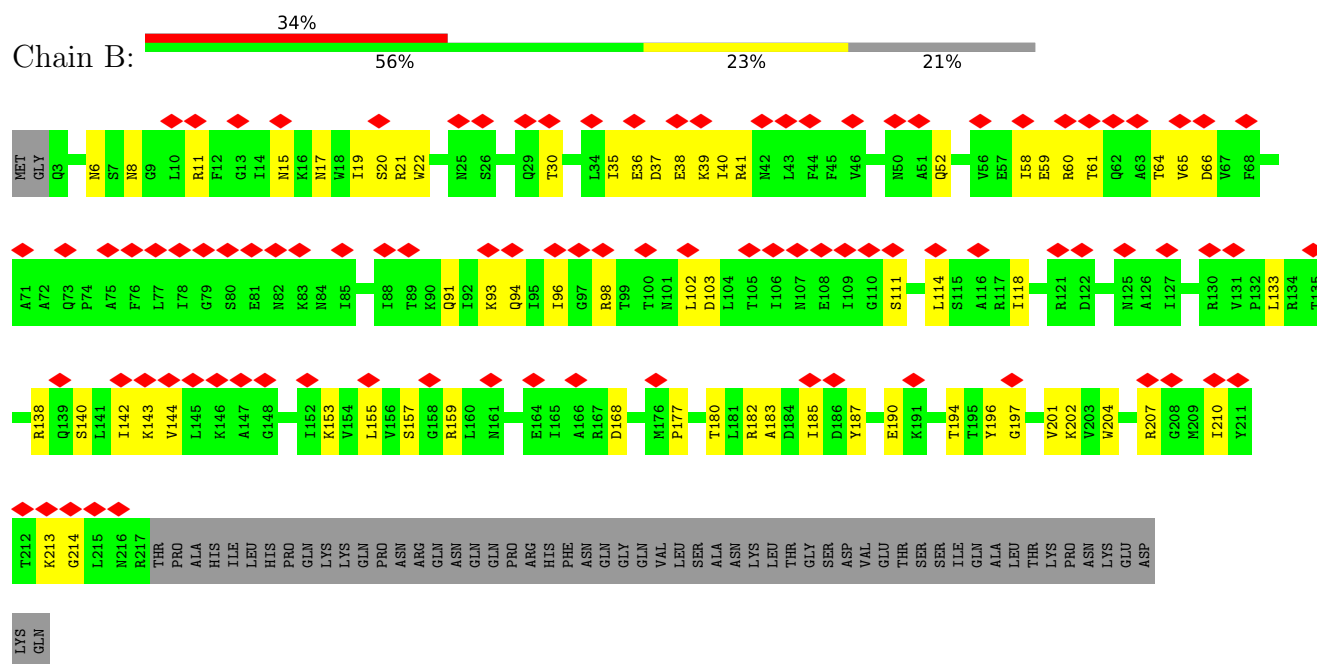


- Molecule 4: Elongation factor G

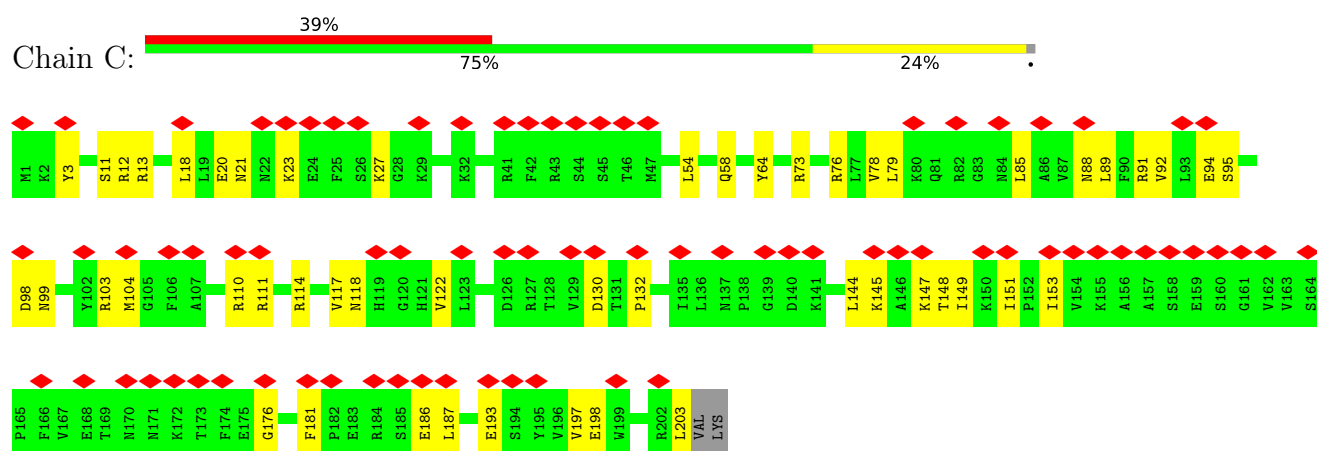




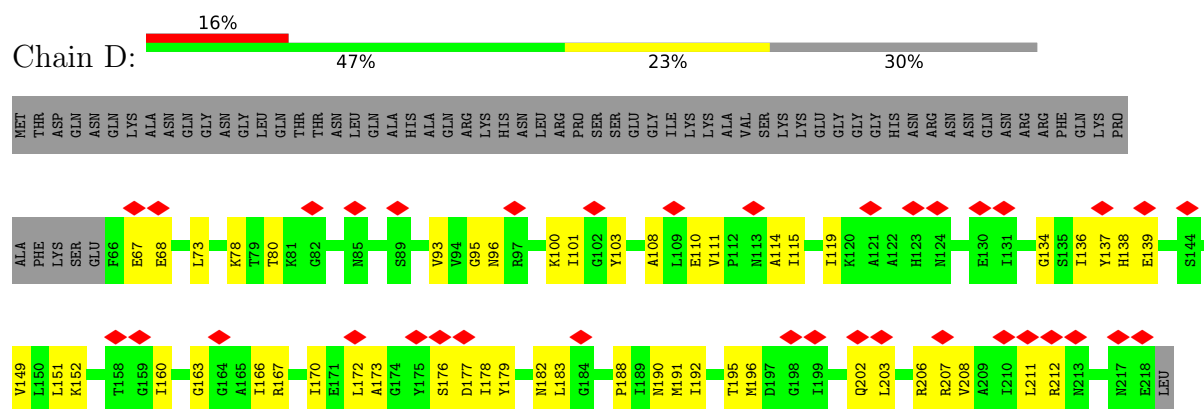
- Molecule 6: 30S ribosomal protein S3



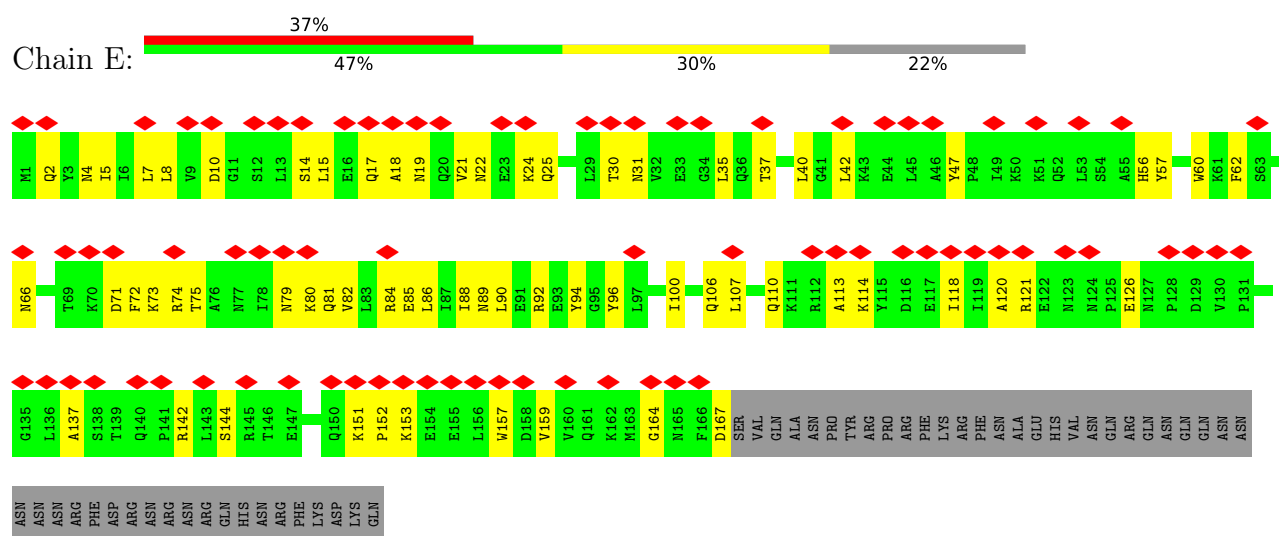
- Molecule 7: 30S ribosomal protein S4



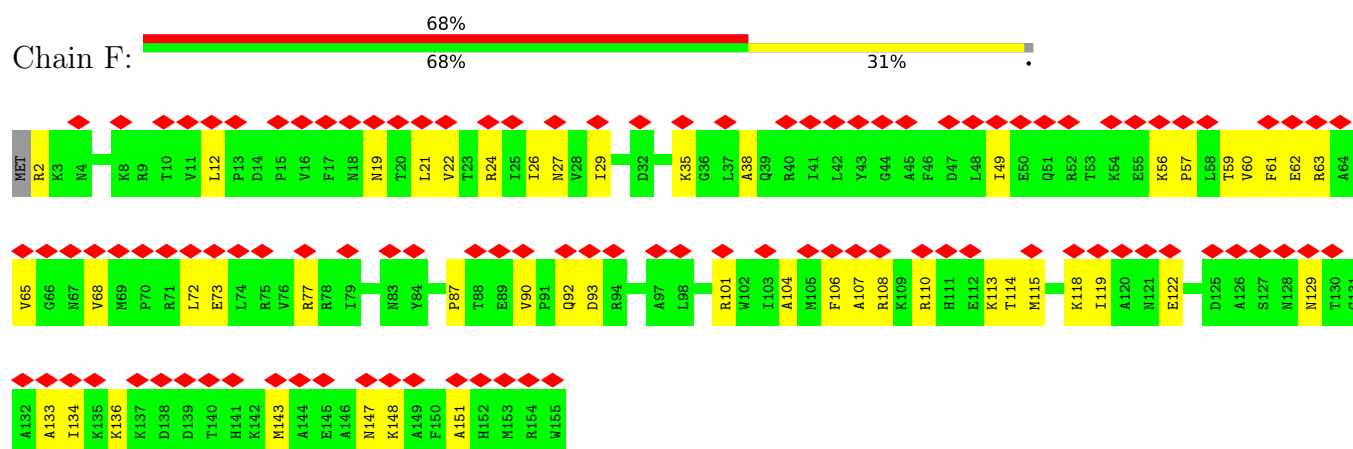
- Molecule 8: 30S ribosomal protein S5



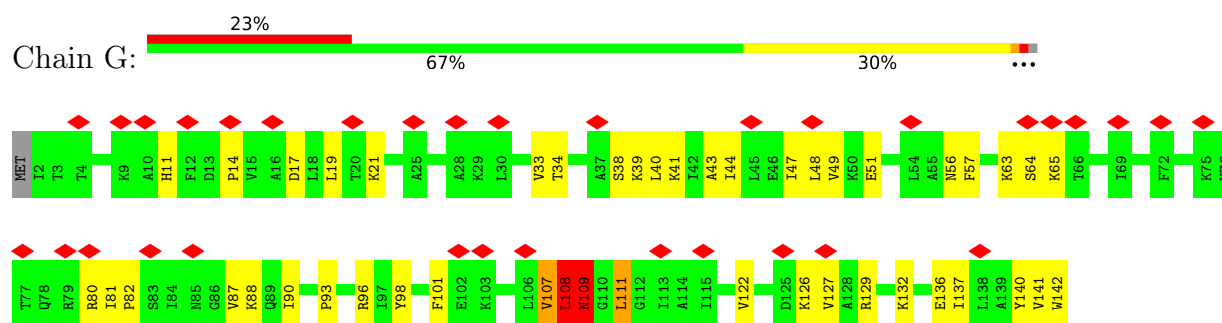
- Molecule 9: 30S ribosomal protein S6



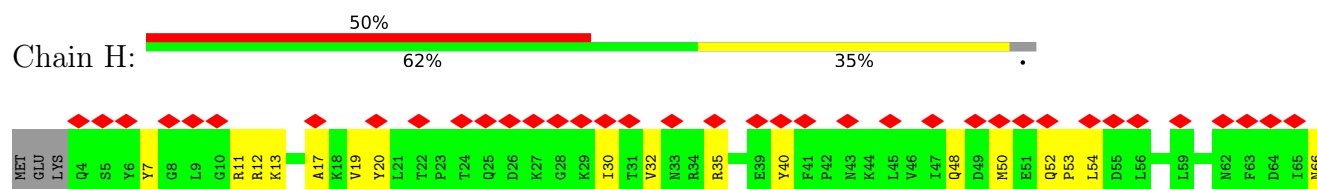
- Molecule 10: 30S ribosomal protein S7

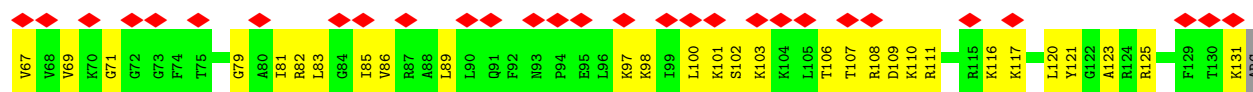


- Molecule 11: 30S ribosomal protein S8

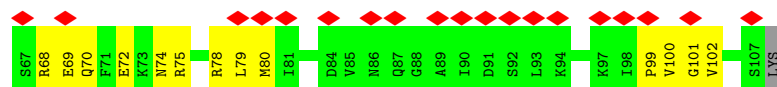
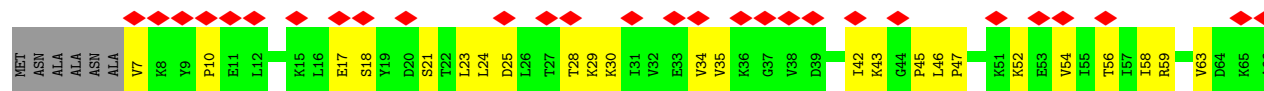
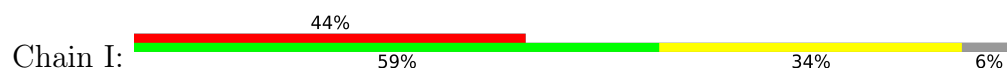


- Molecule 12: 30S ribosomal protein S9

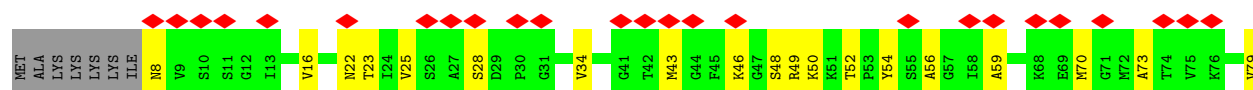




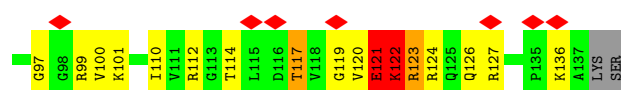
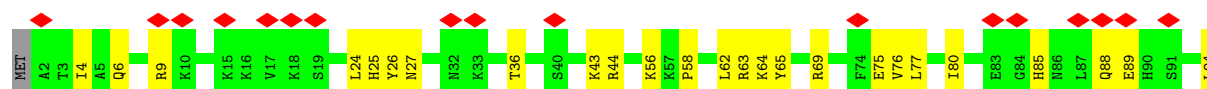
• Molecule 13: 30S ribosomal protein S10



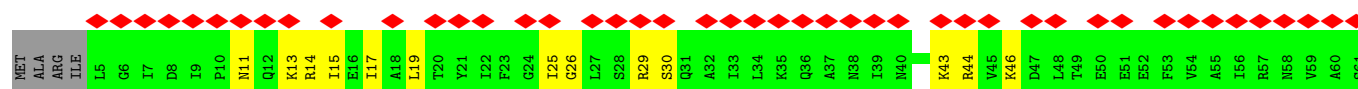
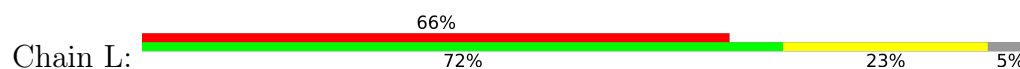
• Molecule 14: 30S ribosomal protein S11



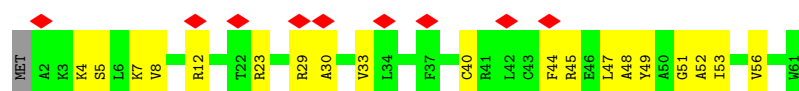
• Molecule 15: 30S ribosomal protein S12



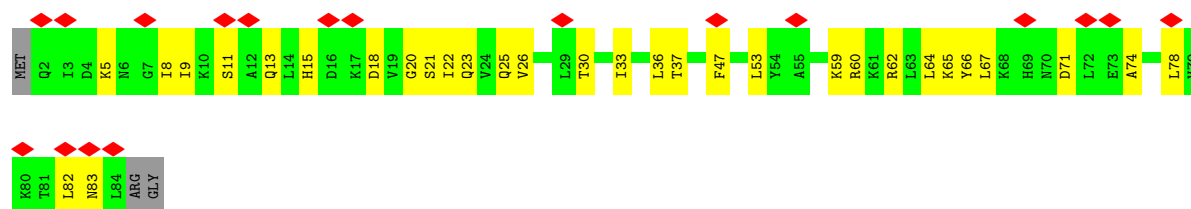
• Molecule 16: 30S ribosomal protein S13



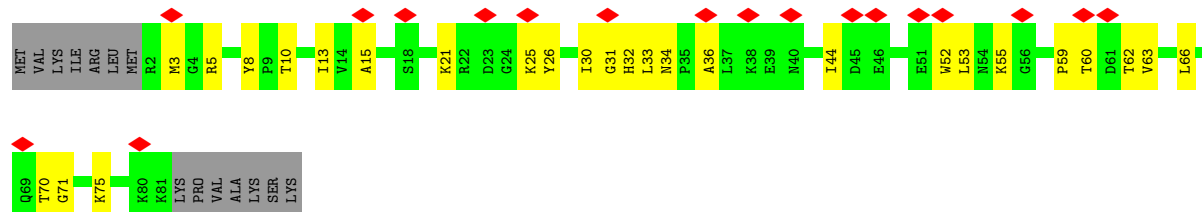
• Molecule 17: 30S ribosomal protein S14 type Z



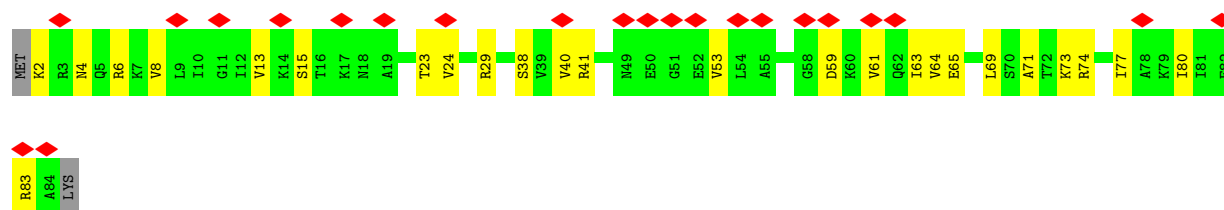
• Molecule 18: 30S ribosomal protein S15



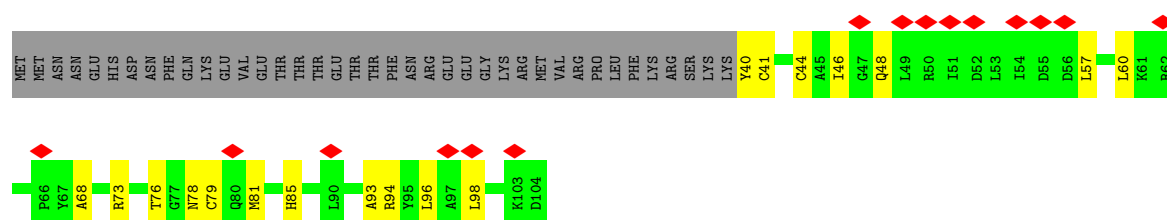
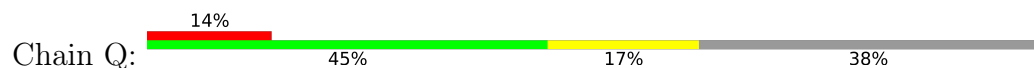
• Molecule 19: 30S ribosomal protein S16



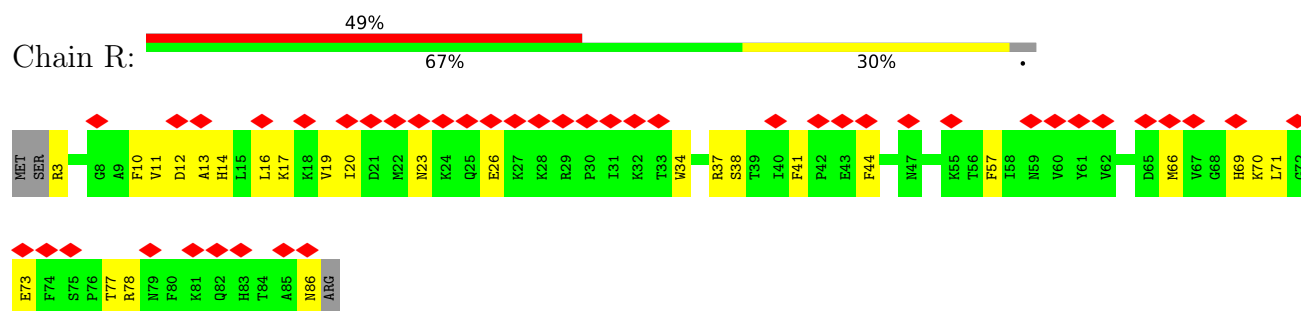
• Molecule 20: 30S ribosomal protein S17



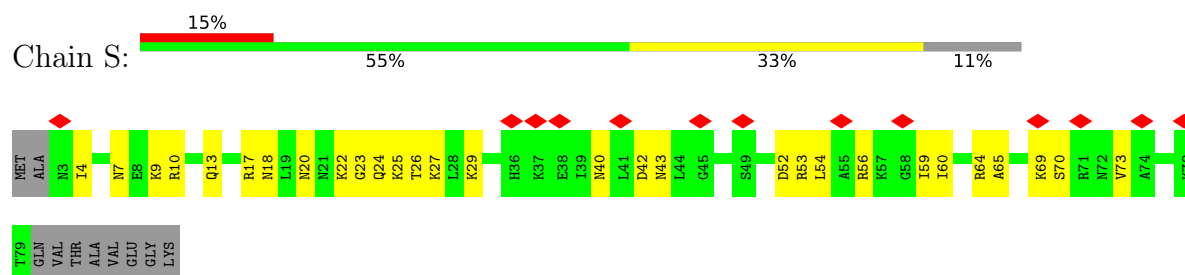
• Molecule 21: 30S ribosomal protein S18



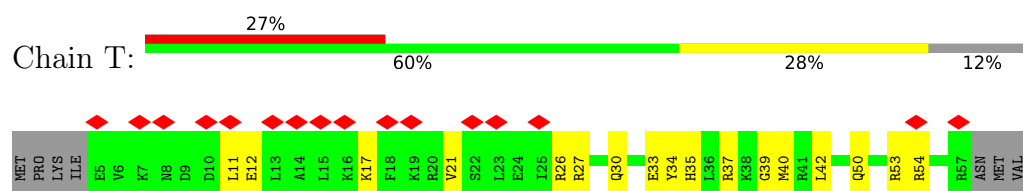
- Molecule 22: 30S ribosomal protein S19



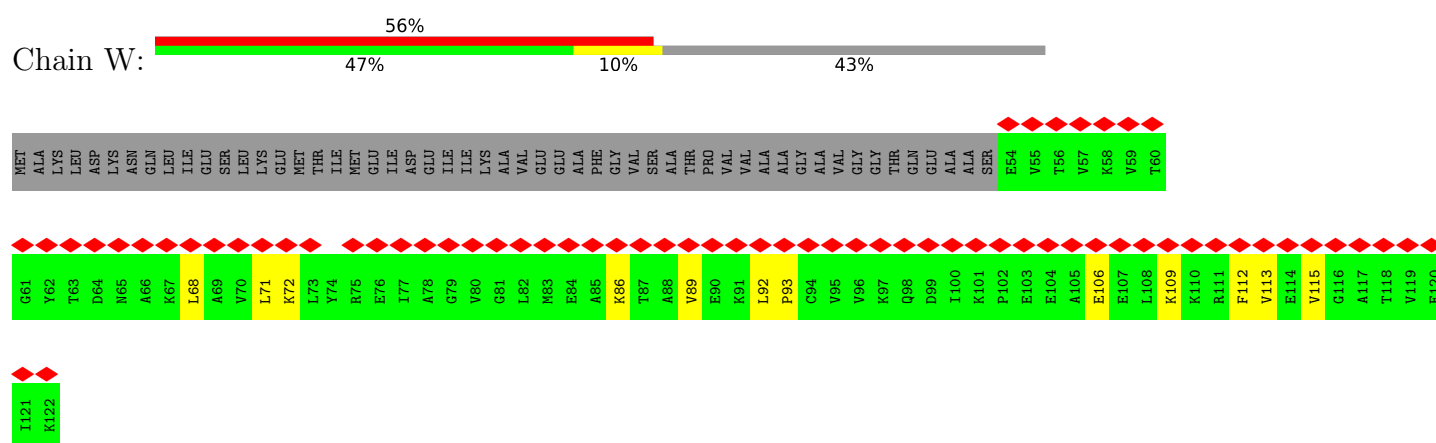
- Molecule 23: 30S ribosomal protein S20



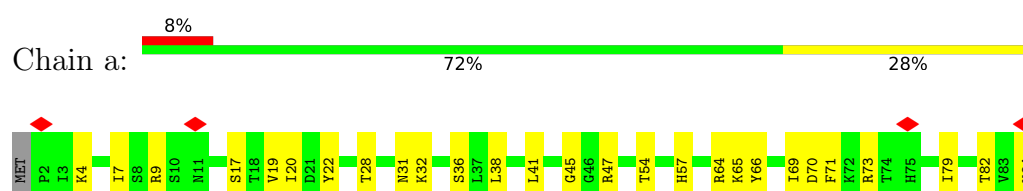
- Molecule 24: 30S ribosomal protein S21

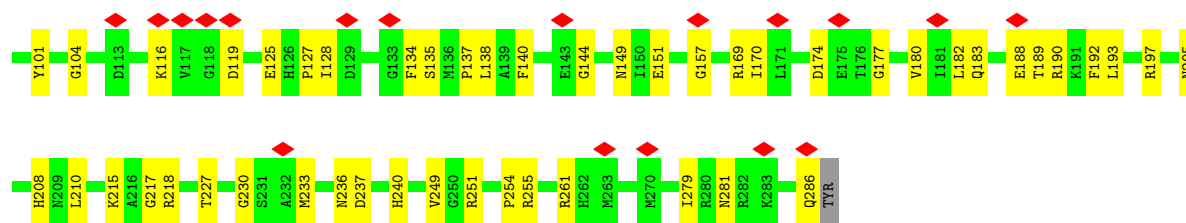


- Molecule 25: 50S ribosomal protein L7/L12

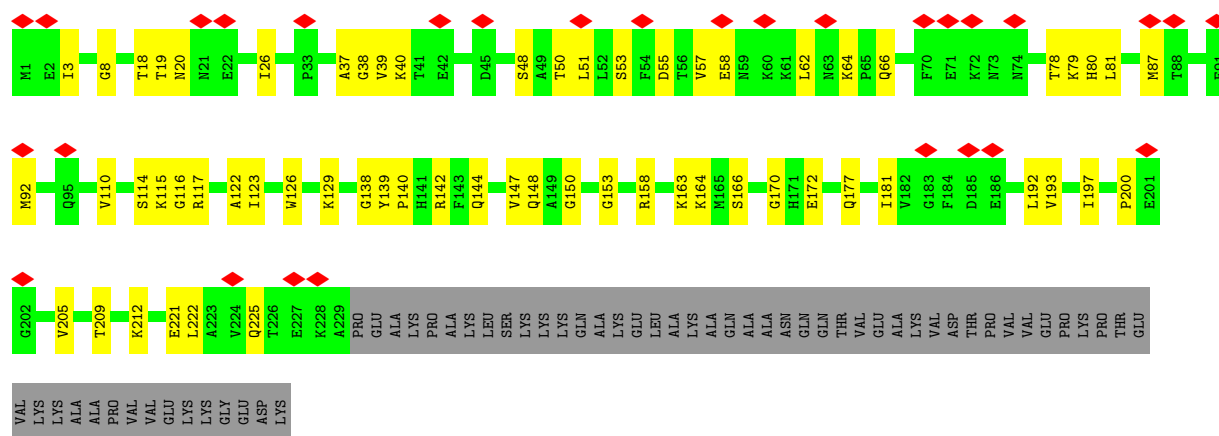


- Molecule 26: 50S ribosomal protein L2

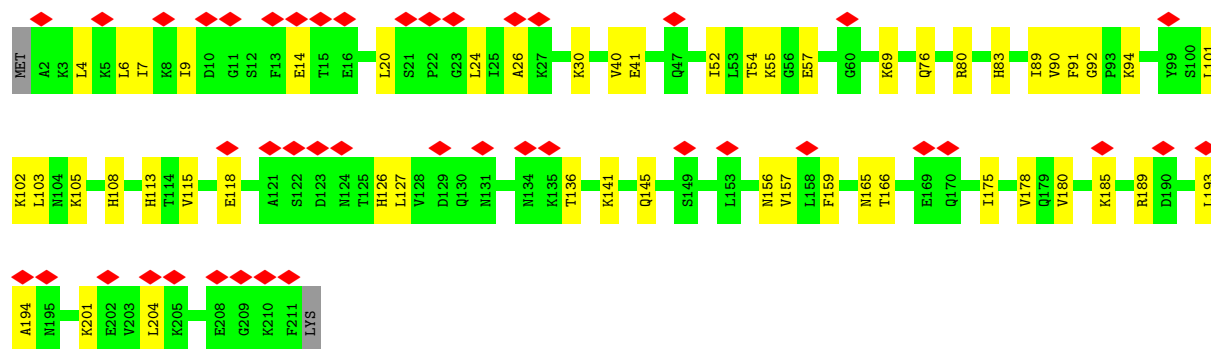
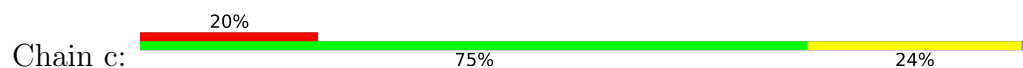




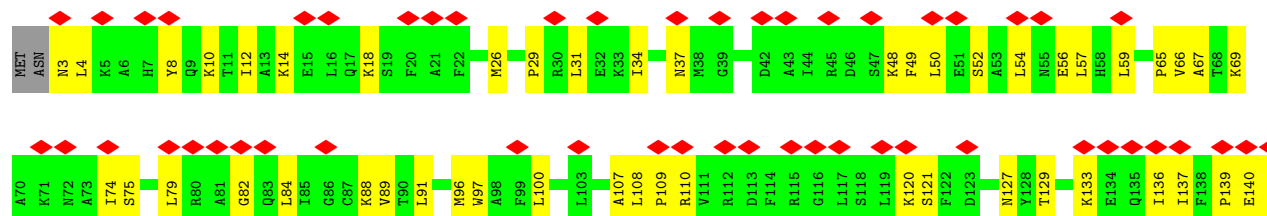
• Molecule 27: 50S ribosomal protein L3

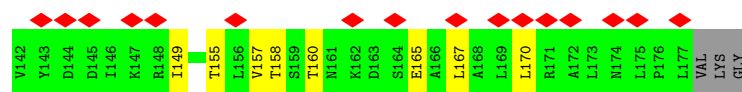


• Molecule 28: 50S ribosomal protein L4

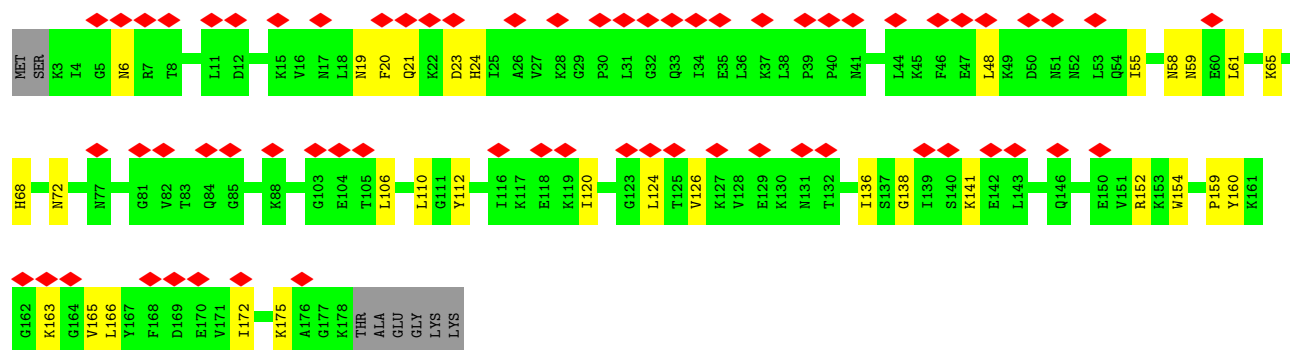
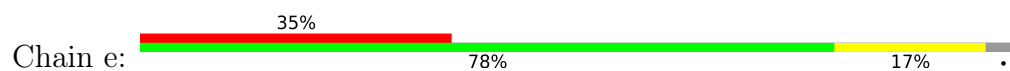


• Molecule 29: 50S ribosomal protein L5

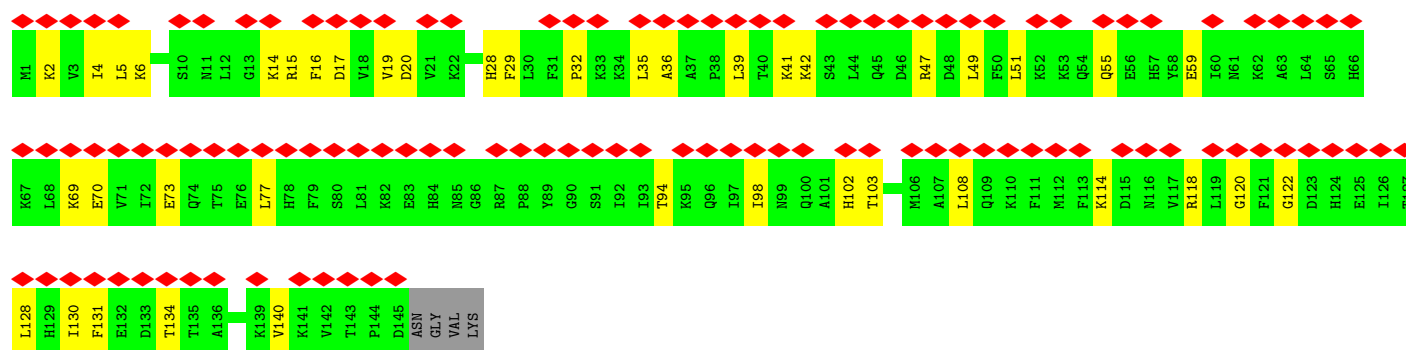
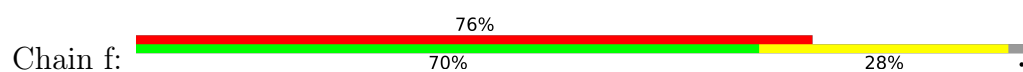




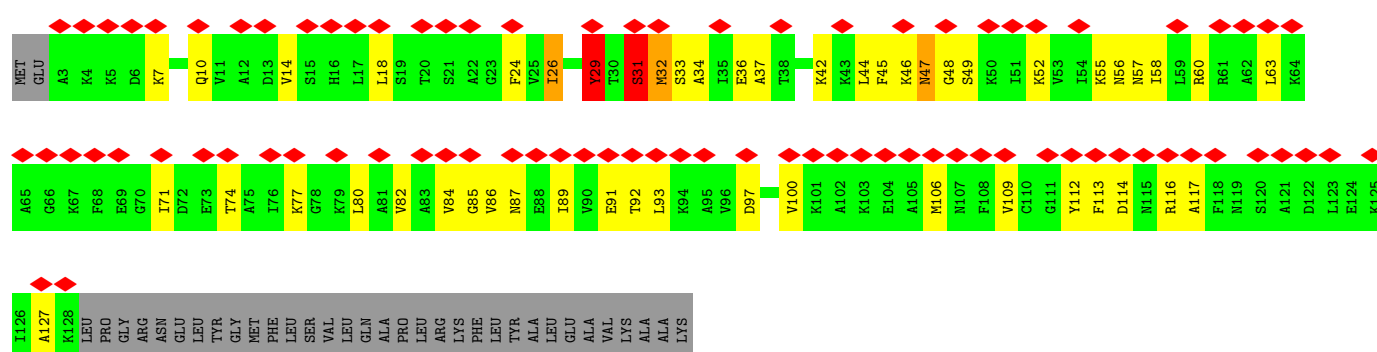
• Molecule 30: 50S ribosomal protein L6



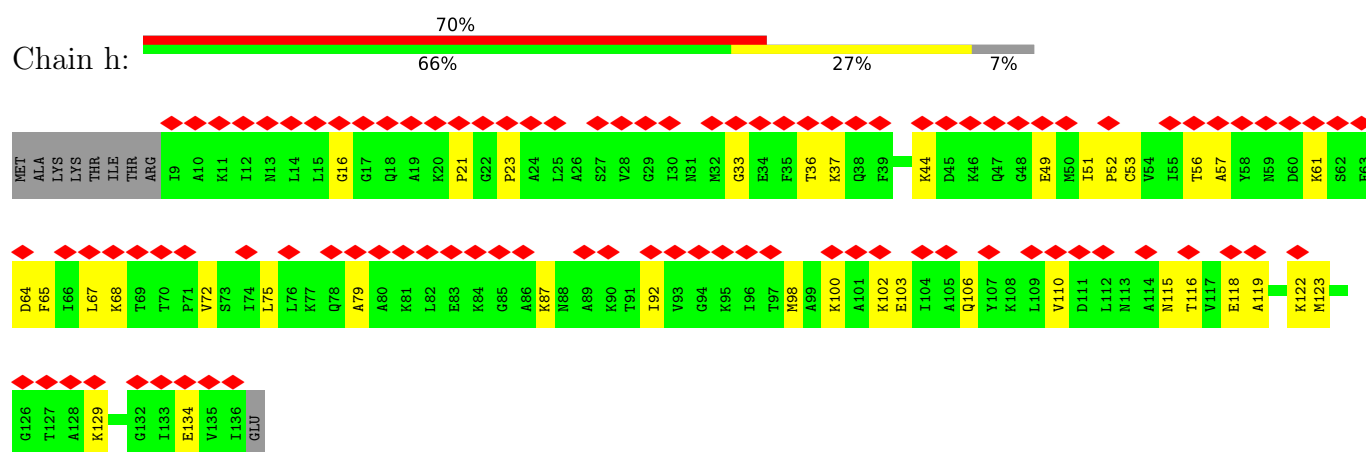
• Molecule 31: 50S ribosomal protein L9



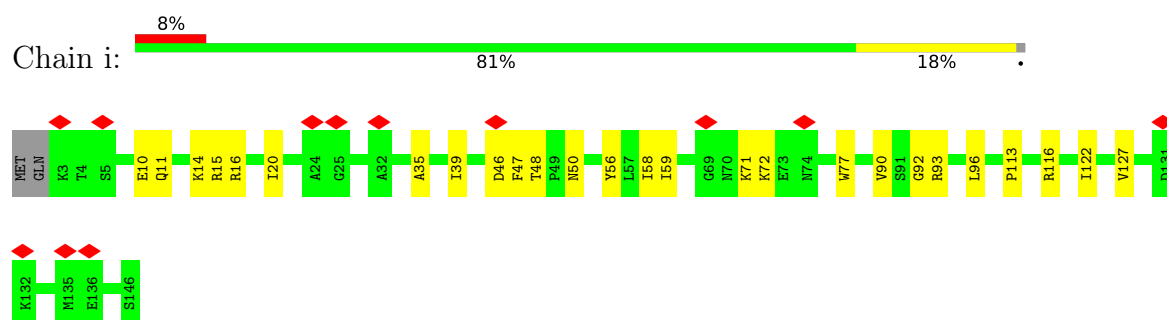
• Molecule 32: 50S ribosomal protein L10



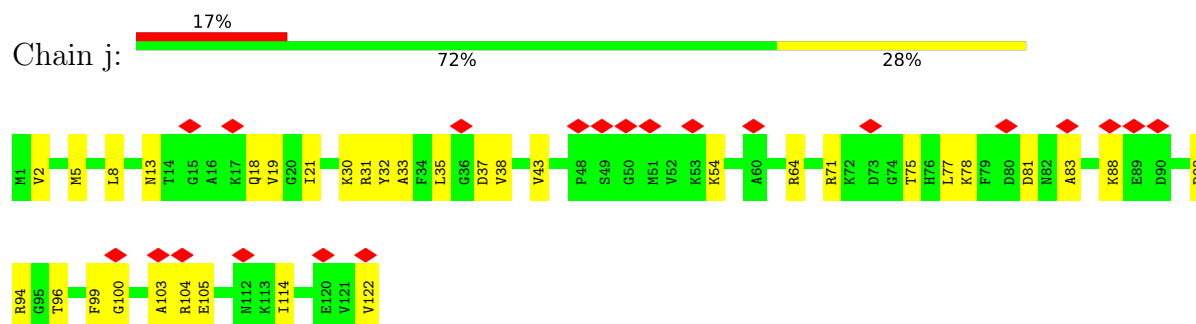
• Molecule 33: 50S ribosomal protein L11



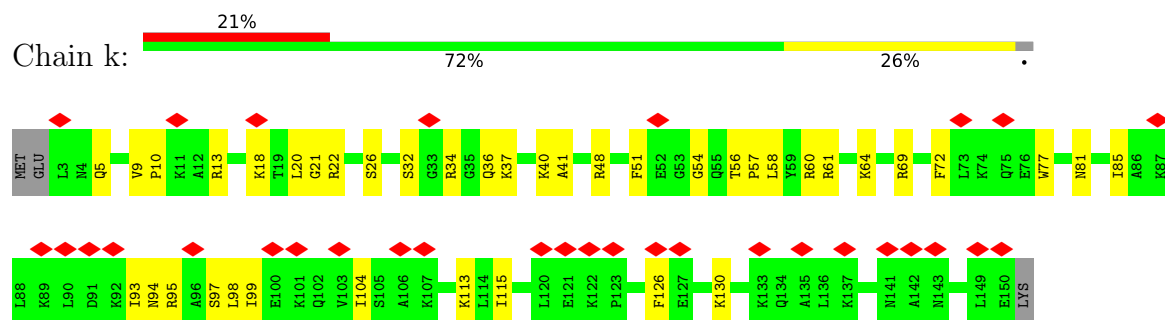
• Molecule 34: 50S ribosomal protein L13



• Molecule 35: 50S ribosomal protein L14

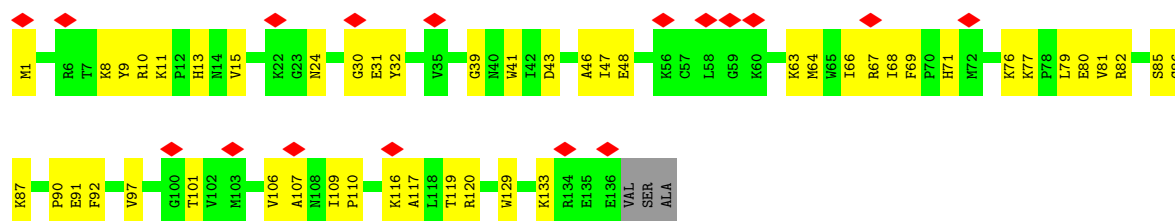


• Molecule 36: 50S ribosomal protein L15

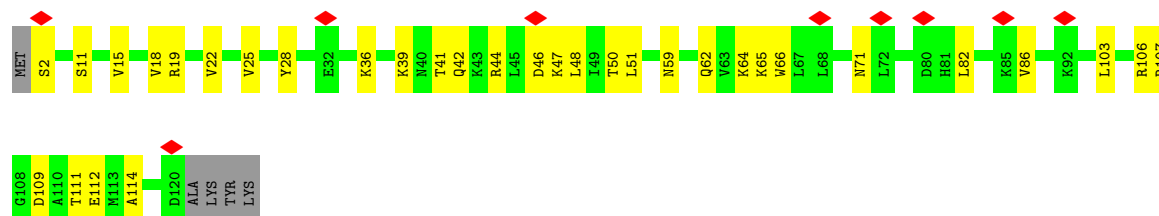


• Molecule 37: 50S ribosomal protein L16

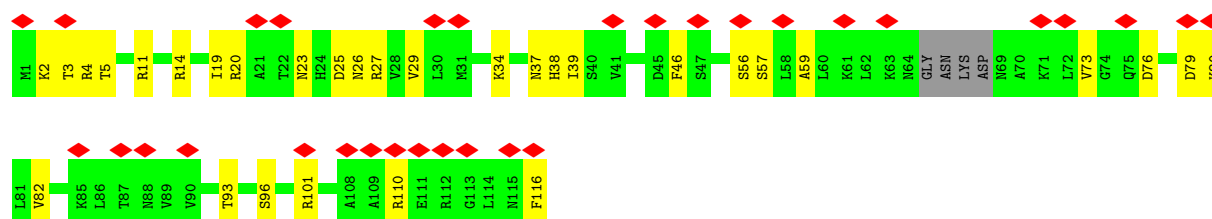




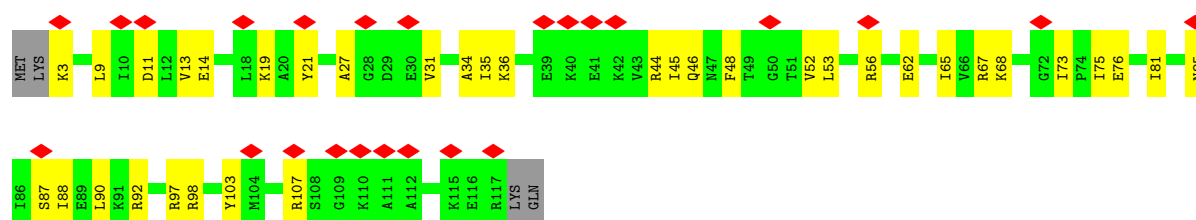
• Molecule 38: 50S ribosomal protein L17



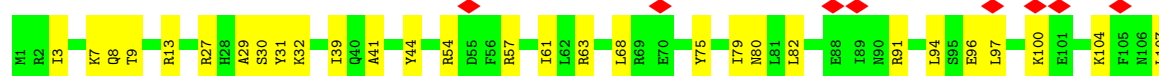
• Molecule 39: 50S ribosomal protein L18

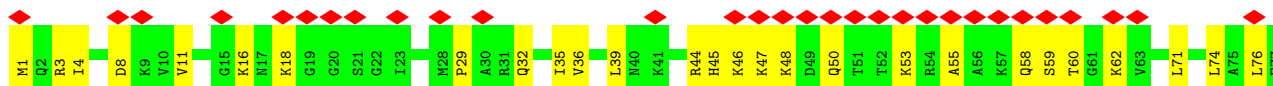


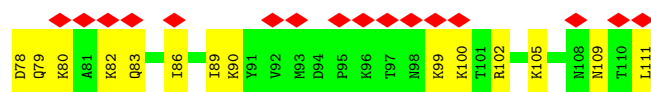
• Molecule 40: 50S ribosomal protein L19



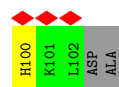
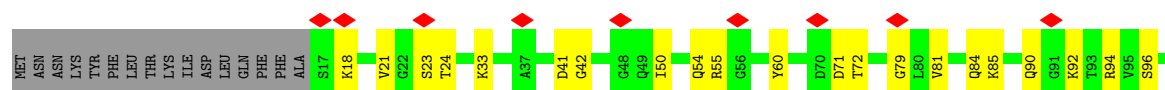
• Molecule 41: 50S ribosomal protein L20







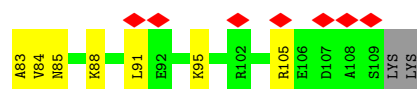
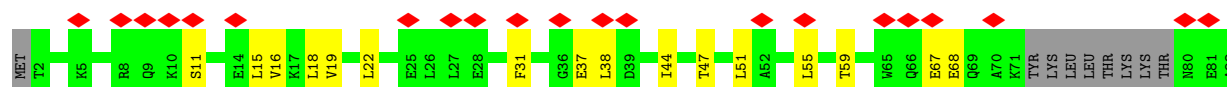
• Molecule 46: 50S ribosomal protein L27



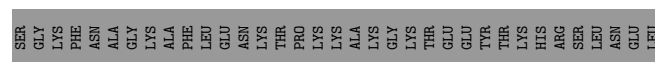
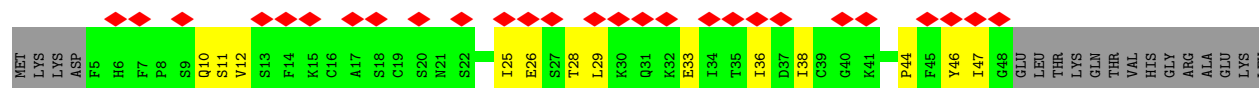
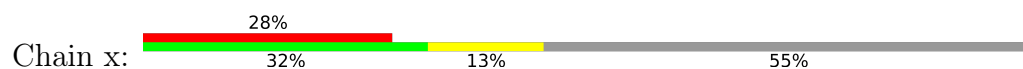
• Molecule 47: 50S ribosomal protein L28



• Molecule 48: 50S ribosomal protein L29

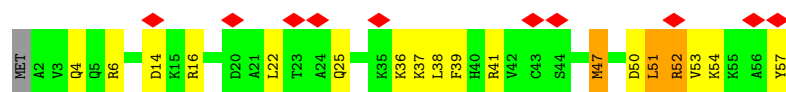


• Molecule 49: 50S ribosomal protein L31

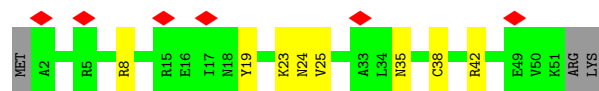
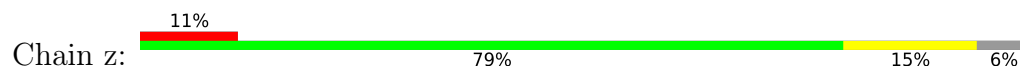


• Molecule 50: 50S ribosomal protein L32

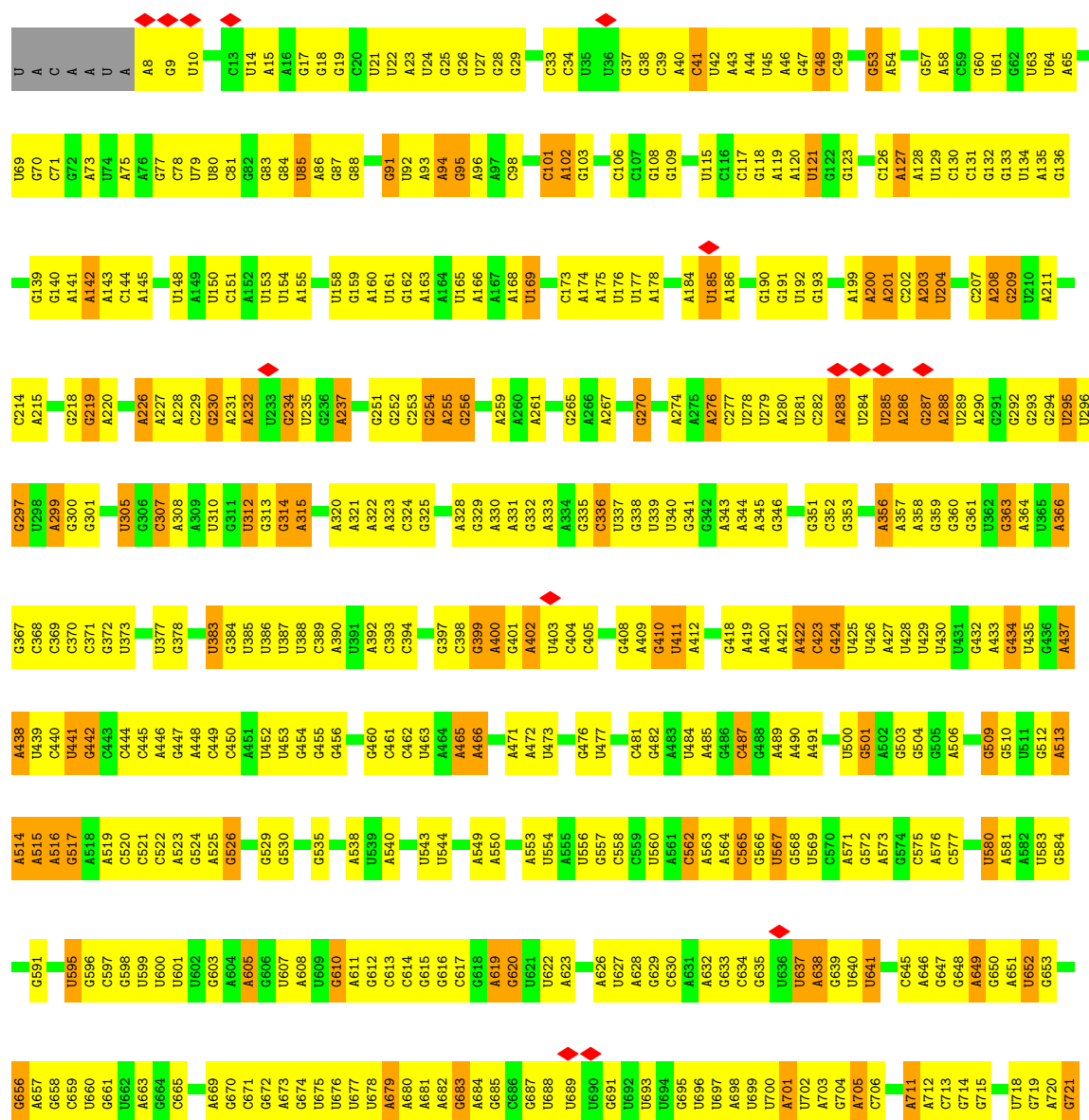




• Molecule 51: 50S ribosomal protein L33 1

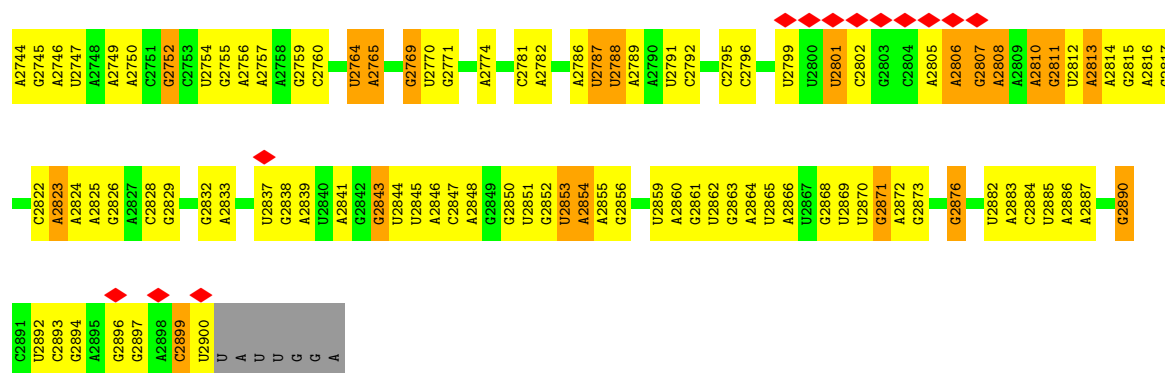


• Molecule 52: 23S ribosomal RNA

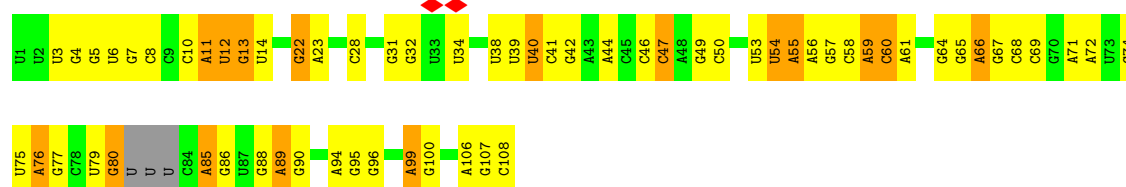


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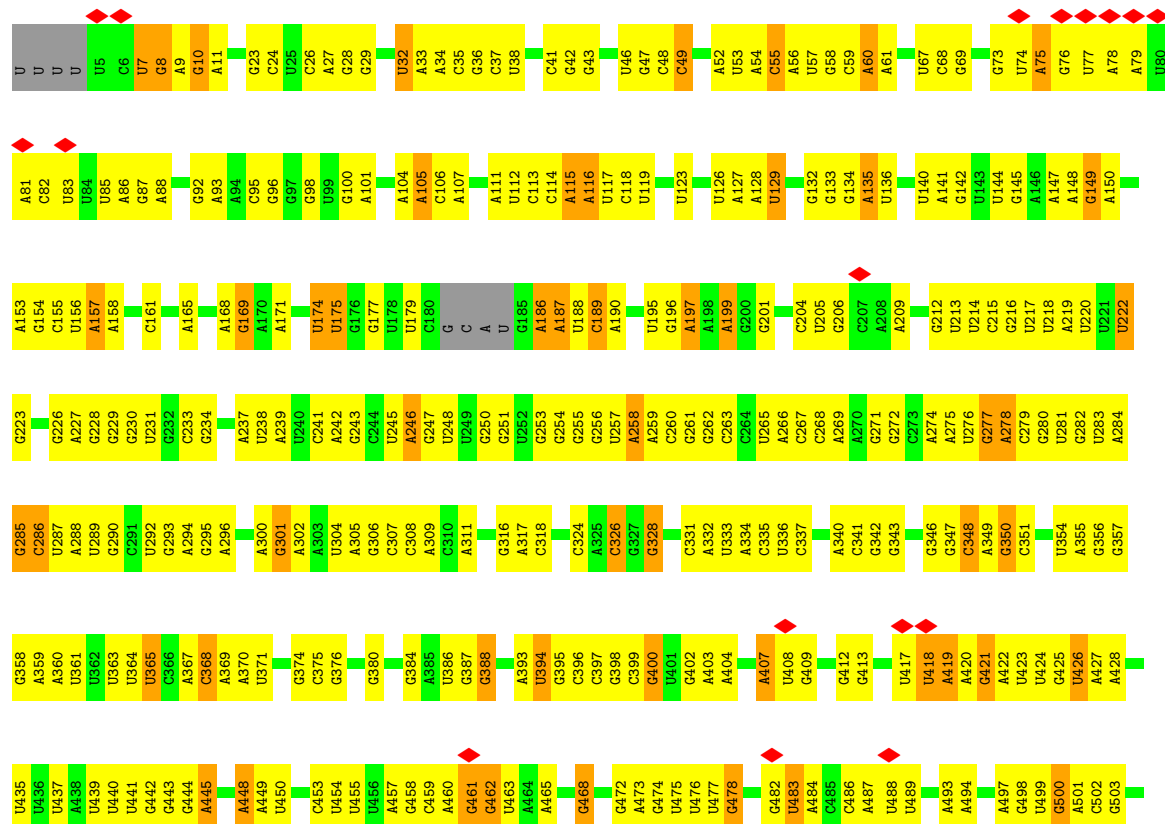
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G2708	G2629	U2548	A2479	U2409	U2196	G2133	C2072	U1999	U1924	G1777	G1777
C2709	C2630	G2552	U2480	G2410	U2197	C2134	G2073	U2000	G1928	G1857	G1778
G2710	U2631	G2553	U2481	G2411	U2198	A2135	G2074	U2001	U1929	U1858	G1779
C2711	C2632	U2554	C2482	C2412	U2199	A2136	U2075	C2003	U1930	A1860	A1780
G2712	G2633	G2555	U2483	G2413	U2200	A2137	G2076	G2004	U1931	A1861	U1784
C2713	C2634	G2556	A2484	U2414	U2201	U2138	G2076	G2005	C1932	U1785	U1785
U2714	U2635	U2557	U2485	A2415	U2202	C2139	G2079	C2006	U2007	U1786	U1786
A2715	G2636	G2558	U2486	U2416	U2203	A2141	C2080	U2008	G1866	A1787	A1787
G2716	U2637	G2559	G2487	G2417	U2204	U2142	U2081	A2009	G1867	A1788	A1788
A2717	A2638	A2569	A2488	U2418	U2205	G2143	U2082	G2010	G1868	C1789	C1789
C2718	G2639	U2570	U2489	G2419	U2206	C2144	U2083	A2011	U1869	U1790	U1790
A2719	U2640	U2571	C2490	A2420	U2207	A2145	C2084	A2012	C1941	G1870	A1791
G2722	G2641	A2572	G2491	G2421	U2208	U2146	C2085	G2016	U1942	U1871	A1792
C2723	A2650	A2573	U2492	U2422	U2209	G2147	U2086	G2017	A1943	U1872	A1793
U2724	G2651	G2574	C2493	C2423	U2210	U2148	U2087	A2020	A1944	A1873	A1794
G2727	U2652	U2575	A2494	A2424	U2211	U2149	U2088	A2021	A1945	G1874	C1795
C2730	G2653	A2580	U2495	U2425	U2212	C2150	A2089	G2024	U1946	G1875	A1796
U2731	U2654	C2581	U2500	U2426	U2213	G2151	U2092	C2025	U1947	C1876	C1797
A2732	G2655	G2584	U2501	U2427	U2214	C2152	U2093	A2026	C1948	C1877	U1803
G2733	U2656	U2585	G2502	U2428	U2215	U2153	C1949	A2027	U1949	A1878	A1804
U2734	C2657	G2586	G2503	A2429	U2216	A2154	A2095	G2028	U1950	A1879	U1805
G2735	U2658	U2587	C2504	U2430	U2217	G2155	U2096	G2029	A1951	G1880	G1806
C2736	G2659	U2588	A2505	G2431	U2218	G2156	A2097	U2030	G1952	G1881	C1807
U2737	U2660	U2589	U2506	U2432	U2219	A2157	U2098	C2031	U1953	G1882	C1808
G2738	A2661	U2590	C2507	U2433	U2220	C2158	U2099	G2032	C1954	A1884	A1809
C2739	U2662	G2591	U2508	U2434	U2221	U2159	G2100	G1957	U1957	G1885	C1812
U2740	G2663	U2592	G2509	A2435	U2222	U2160	A2101	G2033	U1958	C1886	C1813
A2741	C2664	U2593	C2510	A2436	U2223	U2161	C2103				
U2742	U2665	A2594	G2511	U2437	U2224	U2162					
G2743	A2666	U2595	U2512	A2438	U2225	U2163					
	U2667	A2596	G2513	U2439	U2226	U2164					
	A2670	U2597	G2513	U2440	U2227						
	G2671	U2598	G2513	U2441	U2228						
					U2229						



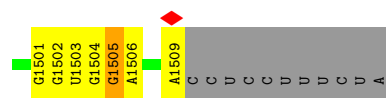
• Molecule 53: 5S ribosomal RNA



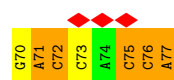
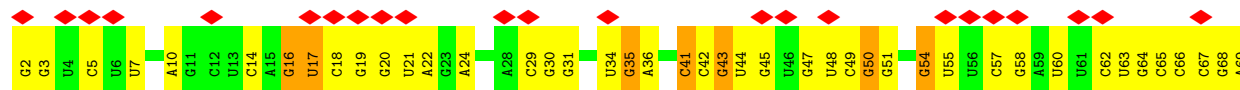
• Molecule 54: 16S ribosomal RNA



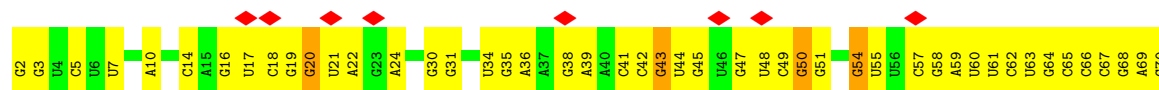
U1427	U1358	G1290	C1218	U1148	U1082	C1013	A953	U882	A806	G722	A645	A571	U506
A1428	C1359	C1291	C1219	G1149	U1085	A1014	A954	A883	A646	C723	A646	A572	A507
G1429	G1360	A1292	G1150	G1150	U1086	A1015	U955	U884	U647	A724	U647	G573	A508
G1430	G1361	A1293	G1151	G1151	U1087	A1016	U956	U885	C648	A725	C648	C574	C509
A1431	U1362	C1224	G1152	G1152	C1087	A1017	C957	A886	U649	A726	U649	A575	U510
A1432	U1363	U1295	G1153	G1153	C1088	U1018	C958	A887	A650	A731	A650	A576	A511
	C1364	C1225	A1154	A1154	C1089	G1019	A959	A888	G651	A732	G651	G577	U512
		A1227	A1155	A1155	G1090	G	C960	A889	A652	A733	A652	G578	G513
		C1228	G1156	G1156	C1091	A	C961	C891	G653	A734	G653	C579	U514
		A1229	G1157	G1157	A1092	G	U962	C892	U654	A735	U654	G580	G515
		C1300	G1158	A1158	A1093	G	C963	C893	C735	C736	C735	C581	C516
		U1231	A1159	A1159	C1094	U	A964	A894	A736	U736	A736	A517	A517
		C1232	G1160	G1160	G1095	U	C965	A895	U737	U737	U737	C518	C518
			G1161	G1161	A1096	A	A966	A896	U738	A738	U738	G519	G519
		A1236	G1162	G1162	G1097	A	C967	A897	G661		G661	C520	C520
		G1237	A1163	A1163	C1098		C968	A898	G662		G662	A521	A521
			A1164	A1164	G1099		A969	A899	G670		G670	U588	U588
		U1241	G1165	G1165	C1100		A970	A902	G671		G671	U589	U589
		A1242	A1166	A1166	A1101		A971	A903	G672		G672	U590	U590
		C1243	G1167	G1167			A972	C904	A672		A672	A591	A591
		A1244	G1168	G1168	C1104		A973	U905	A673		A673	A592	A592
		U1245	A1169	A1169	C1105		C974	A906	U674		U674	A593	A593
		A1246	A1170	A1170	U1106		C975	A907	U675		U675	A594	A594
		G1247	A1171	A1171	U1107		U976	A908	U676		U676	A595	A595
		A1248	G1172	G1172	A1108		U977	A909	A677		A677	A530	A530
		U1249	A1173	A1173	U1109		A978	C910	U678		U678	A531	A531
			A1174	A1174	C1110		C979	G911	U679		U679	U532	U532
		A1255	G1175	G1175	U1111		C980	G912	G680		G680	A533	A533
		U1256	A1176	A1176	U1112		U981		C534		C534	G682	G682
		C1257	A1177	A1177	U1113		A982	G917	G683		G683	U603	U603
			U1187	U1187	A1114		C983	A918	U608		U608	G608	G608
			A1188	A1188	U1115		A984	C919	G609		G609	C610	C610
		U1260	A1189	A1189	U1116		C985	G920	G687		G687	G538	G538
		A1261	G1191	G1191	U1117		U986	G921	G688		G688	G539	G539
		C1262	A1192	A1192	A1118		U987	G922	U689		U689	U540	U540
		U1263	G1193	G1193	C1119		U988		G690		G690	G612	G612
		A1265	A1194	A1194	A1120		C989	G928	A691		A691	C613	C613
		G1266	G1195	G1195	U1121		C990	C929	A692		A692	U614	U614
		U1267	A1196	A1196	U1051		A991	A930	A699		A699	G615	G615
		G1268	G1197	G1197	U1052		U992	C931	G700		G700	C616	C616
		U1269	C1198	C1198	C1054		C993	A932	U617		U617	U618	U618
			U1199	U1199	U1056		C994	A933	A619		A619	A619	A619
		C1272	G1200	G1200	U1057		U995	G934	G704		G704	G626	G626
		A1273	C1201	C1201	C1058		U996	U935	A705		A705	U627	U627
			A1202	A1202	G1059		C997	G936	U706		U706	A628	A628
		G1274	A1203	A1203	C1060		C998	U937	A707		A707	U629	U629
		U1275	A1204	A1204	U1061		C999	G938	A708		A708	G630	G630
		C1276	C1205	C1205	C1062		A1000	G939	G710		G710	C631	C631
		C1277	G1206	G1206	G1063		A1001	A941	A632		A632	U633	U633
		G1278	U1207	U1207	U1064		A1002	G942	G711		G711	U558	U558
		U1279	G1208	G1208	U1065		G1003	C943	A712		A712	U560	U560
		A1280	C1209	C1209	G1066		U1004	A944	A713		A713	A561	A561
		U1281	U1210	U1210	C1067		U1005	U945	G635		G635	U562	U562
		U1282	A1211	A1211	G1068		A1006	G946	U563		U563	G564	G564
		G1283	C1212	C1212	U1069		U1007	U947	G636		G636	A637	A637
		A1284	G1142	G1142	U1070		G1008	U948	A638		A638	A639	A639
		G1285	A1213	A1213	G1071		G1009	G949	U643		U643	U644	U644
		U1286	A1144	A1144	A1071		U1010	C950	G721		G721	G568	G568
		G1287	U1215	U1215	G1072		A1011	U951	G719		G719	U569	U569
		U1288	G1216	G1216	A1073		A1012	U952	A804		A804	G570	G570
		U1289	G1217	G1217	A1073				G720		G720	A570	A570



• Molecule 55: tRNA-Phe



• Molecule 55: tRNA-Phe



4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	8371	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	3.2	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3750	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	4.055	Depositor
Minimum map value	-1.778	Depositor
Average map value	0.026	Depositor
Map value standard deviation	0.164	Depositor
Recommended contour level	0.66	Depositor
Map size (Å)	435.328, 435.328, 435.328	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.7005, 1.7005, 1.7005	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SCM

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	0	0.15	0/383	0.43	0/504
2	1	0.15	0/484	0.44	0/637
3	2	0.13	0/306	0.41	0/401
4	9	0.16	0/5419	0.43	0/7307
5	A	0.14	0/1954	0.39	0/2642
6	B	0.14	0/1721	0.41	0/2323
7	C	0.13	0/1691	0.41	0/2267
8	D	0.16	0/1188	0.47	0/1593
9	E	0.13	0/1384	0.39	0/1867
10	F	0.13	0/1266	0.39	0/1700
11	G	0.20	0/1126	0.55	0/1517
12	H	0.14	0/1044	0.43	0/1395
13	I	0.14	0/820	0.41	0/1103
14	J	0.13	0/844	0.36	0/1136
15	K	0.25	0/1094	0.56	1/1468 (0.1%)
16	L	0.15	0/962	0.45	0/1289
17	M	0.15	0/483	0.43	0/643
18	N	0.13	0/679	0.41	0/907
19	O	0.16	0/659	0.43	0/885
20	P	0.15	0/684	0.43	0/913
21	Q	0.15	0/545	0.39	0/730
22	R	0.15	0/698	0.43	0/936
23	S	0.12	0/631	0.39	0/838
24	T	0.13	0/475	0.40	0/621
25	W	0.13	0/538	0.40	0/722
26	a	0.15	0/2267	0.42	0/3044
27	b	0.14	0/1795	0.40	0/2412
28	c	0.15	0/1671	0.39	0/2246
29	d	0.15	0/1409	0.43	0/1894
30	e	0.14	0/1420	0.38	0/1912
31	f	0.14	0/1205	0.41	0/1616
32	g	0.39	0/969	0.78	3/1295 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	h	0.15	0/968	0.42	0/1298
34	i	0.13	0/1186	0.38	0/1592
35	j	0.15	0/953	0.46	0/1275
36	k	0.14	0/1170	0.39	0/1559
37	l	0.17	0/1104	0.44	0/1481
38	m	0.14	0/973	0.39	0/1309
39	n	0.14	0/897	0.44	0/1198
40	o	0.14	0/948	0.42	0/1262
41	p	0.13	0/961	0.37	0/1278
42	q	0.13	0/828	0.40	0/1111
43	r	0.14	0/1077	0.40	0/1441
44	s	0.13	0/732	0.43	0/988
45	t	0.14	0/879	0.42	0/1165
46	u	0.17	0/665	0.47	0/884
47	v	0.28	0/519	0.53	0/695
48	w	0.13	0/826	0.41	0/1104
49	x	0.15	0/353	0.36	0/474
50	y	0.30	0/457	0.71	0/601
51	z	0.14	0/412	0.41	0/547
52	3	0.10	0/69073	0.25	3/107710 (0.0%)
53	4	0.10	0/2505	0.26	0/3902
54	5	0.09	0/35768	0.23	1/55764 (0.0%)
55	7	0.18	0/1808	0.40	0/2817
55	8	0.18	0/1808	0.40	1/2817 (0.0%)
All	All	0.12	0/164684	0.32	9/245035 (0.0%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	3	2069	A	C4'-C3'-O3'	7.39	124.09	113.00
32	g	31	SER	N-CA-C	-6.70	105.43	112.93
15	K	117	THR	CA-CB-OG1	-6.00	100.60	109.60
32	g	47	ASN	CA-CB-CG	-5.91	106.69	112.60
52	3	2070	C	C3'-C2'-O2'	5.89	119.54	110.70
54	5	1361	G	C2'-C3'-O3'	-5.71	105.13	113.70
52	3	2071	C	C4'-C3'-O3'	-5.21	105.19	113.00
32	g	29	TYR	CB-CA-C	5.16	120.69	110.42
55	8	76	C	N1-C1'-C2'	-5.01	104.48	112.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	380	0	429	12	0
2	1	477	0	530	8	0
3	2	304	0	350	14	0
4	9	5326	0	5343	163	0
5	A	1921	0	1973	44	0
6	B	1698	0	1768	47	0
7	C	1660	0	1719	33	0
8	D	1173	0	1267	38	0
9	E	1362	0	1377	46	0
10	F	1246	0	1308	36	0
11	G	1110	0	1226	33	0
12	H	1028	0	1094	38	0
13	I	809	0	894	27	0
14	J	829	0	855	20	0
15	K	1076	0	1170	38	0
16	L	951	0	1014	25	0
17	M	474	0	509	16	0
18	N	673	0	730	25	0
19	O	646	0	677	19	0
20	P	675	0	728	19	0
21	Q	535	0	562	17	0
22	R	682	0	691	26	0
23	S	629	0	681	23	0
24	T	471	0	522	12	0
25	W	534	0	572	8	0
26	a	2225	0	2301	60	0
27	b	1762	0	1808	43	0
28	c	1644	0	1731	38	0
29	d	1388	0	1469	49	0
30	e	1396	0	1481	24	0
31	f	1182	0	1228	68	0
32	g	960	0	1014	43	0
33	h	959	0	1039	26	0
34	i	1164	0	1192	19	0
35	j	944	0	1019	27	0
36	k	1153	0	1256	37	0
37	l	1079	0	1134	36	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	m	958	0	1011	24	0
39	n	889	0	952	22	0
40	o	938	0	1008	27	0
41	p	947	0	1028	31	0
42	q	811	0	858	24	0
43	r	1068	0	1150	23	0
44	s	720	0	803	17	0
45	t	872	0	972	30	0
46	u	657	0	695	22	0
47	v	513	0	560	22	0
48	w	818	0	870	19	0
49	x	344	0	333	10	0
50	y	452	0	472	16	0
51	z	408	0	440	7	0
52	3	61664	0	30954	1309	0
53	4	2239	0	1137	42	0
54	5	31943	0	16058	747	0
55	7	1618	0	821	41	0
55	8	1618	0	821	38	0
56	5	23	0	24	3	0
All	All	152025	0	105628	3352	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 14.

All (3352) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:f:5:LEU:HD11	31:f:14:LYS:CG	1.26	1.62
31:f:5:LEU:CD1	31:f:14:LYS:HG3	1.26	1.54
31:f:2:LYS:HZ3	31:f:28:HIS:N	1.21	1.34
31:f:2:LYS:HE2	31:f:29:PHE:N	1.41	1.32
31:f:2:LYS:HZ3	31:f:28:HIS:CA	1.44	1.29
31:f:2:LYS:NZ	31:f:28:HIS:CB	2.01	1.23
31:f:5:LEU:HD11	31:f:14:LYS:CD	1.68	1.23
31:f:5:LEU:HD13	31:f:14:LYS:HG3	1.24	1.17
31:f:5:LEU:HD12	31:f:15:ARG:O	1.49	1.12
31:f:2:LYS:NZ	31:f:28:HIS:N	1.96	1.11
31:f:2:LYS:NZ	31:f:28:HIS:H	1.45	1.11
31:f:2:LYS:NZ	31:f:28:HIS:CG	2.20	1.09
31:f:2:LYS:HZ2	31:f:28:HIS:CG	1.71	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:f:2:LYS:HG2	31:f:29:PHE:HB3	1.13	1.08
31:f:2:LYS:CE	31:f:29:PHE:H	1.67	1.07
31:f:5:LEU:CD1	31:f:14:LYS:CG	2.03	1.05
31:f:2:LYS:NZ	31:f:28:HIS:HB2	1.74	1.00
52:3:17:G:H1	52:3:560:U:H3	1.10	1.00
32:g:49:SER:HB2	32:g:85:GLY:HA2	1.44	0.99
54:5:136:U:H3	54:5:157:A:N6	1.59	0.99
31:f:2:LYS:HZ3	31:f:28:HIS:CB	1.66	0.97
31:f:2:LYS:HE2	31:f:29:PHE:H	0.83	0.96
52:3:418:G:H1	52:3:430:U:H3	1.07	0.96
54:5:445:A:H62	54:5:483:U:H3	1.11	0.96
31:f:2:LYS:HZ2	31:f:28:HIS:CD2	1.85	0.95
54:5:1138:U:H3	54:5:1149:G:H1	1.04	0.94
54:5:412:G:H1	54:5:424:U:H3	1.15	0.93
54:5:201:G:H1	54:5:214:U:H3	1.13	0.92
54:5:242:A:N6	54:5:277:G:N2	2.18	0.92
31:f:2:LYS:HZ2	31:f:28:HIS:CB	1.69	0.92
52:3:1067:A:H2	52:3:1157:G:H1	0.92	0.91
52:3:1067:A:H2	52:3:1157:G:N1	1.69	0.91
52:3:1027:U:H3	52:3:1198:G:H1	1.18	0.89
52:3:742:G:H1	52:3:759:U:H3	1.21	0.89
32:g:26:ILE:HD11	32:g:80:LEU:HB3	1.54	0.89
54:5:136:U:H3	54:5:157:A:H62	0.94	0.89
52:3:1067:A:C2	52:3:1157:G:N1	2.40	0.88
27:b:40:LYS:O	27:b:48:SER:HA	1.72	0.88
31:f:2:LYS:HG2	31:f:29:PHE:CB	2.03	0.88
52:3:2610:A:N6	55:7:75:C:OP1	2.07	0.86
32:g:44:LEU:HD11	32:g:47:ASN:HD22	1.38	0.86
52:3:1871:U:H3	52:3:1885:G:H1	1.18	0.86
31:f:2:LYS:CG	31:f:29:PHE:HB3	2.03	0.85
16:L:119:LYS:NZ	55:7:41:C:O2'	2.09	0.85
52:3:2068:G:N7	52:3:2509:C:O2'	2.10	0.85
5:A:111:ARG:HH11	54:5:1091:C:H5''	1.43	0.84
31:f:2:LYS:HZ2	31:f:28:HIS:HB2	1.32	0.84
52:3:1071:G:H1	52:3:1154:U:H3	1.24	0.84
8:D:136:ILE:HG23	8:D:202:GLN:HE22	1.43	0.84
52:3:1746:U:H3	52:3:1753:G:H1	0.86	0.82
4:9:609:PRO:HG3	4:9:662:ARG:HE	1.43	0.82
32:g:47:ASN:HD21	32:g:92:THR:HG22	1.42	0.82
52:3:1902:C:H2'	52:3:1903:A:H8	1.43	0.82
52:3:2299:U:H3	52:3:2349:G:H1	1.26	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:703:A:H2'	52:3:705:A:H62	1.44	0.81
20:P:4:ASN:HB3	20:P:6:ARG:HH22	1.43	0.81
31:f:2:LYS:NZ	31:f:28:HIS:CA	2.28	0.81
22:R:37:ARG:HB3	54:5:1294:U:H3	1.46	0.80
52:3:1509:U:H3	52:3:1530:G:H1	1.30	0.80
4:9:307:PHE:HA	4:9:330:SER:O	1.82	0.80
54:5:603:U:H3	54:5:630:G:H1	1.25	0.80
31:f:2:LYS:CE	31:f:29:PHE:N	2.33	0.79
54:5:561:A:H61	54:5:878:U:H3	1.29	0.79
52:3:2070:C:C6	52:3:2070:C:H5'	2.17	0.79
54:5:136:U:O4	54:5:157:A:N7	2.14	0.79
54:5:1331:A:H61	54:5:1340:G:H1	1.30	0.78
52:3:2099:U:H3	52:3:2235:A:H61	1.32	0.78
52:3:632:A:H2'	52:3:633:G:H8	1.49	0.77
4:9:608:VAL:HG12	4:9:610:GLU:H	1.48	0.77
54:5:586:G:H21	54:5:650:A:H62	1.30	0.77
31:f:2:LYS:HZ1	31:f:28:HIS:H	1.33	0.77
12:H:106:THR:HG22	12:H:107:THR:H	1.51	0.76
31:f:5:LEU:HD11	31:f:14:LYS:HD2	1.65	0.76
52:3:2274:A:N7	52:3:2281:A:N6	2.33	0.76
28:c:157:VAL:H	28:c:178:VAL:HG12	1.49	0.76
31:f:2:LYS:NZ	31:f:28:HIS:CD2	2.49	0.76
26:a:64:ARG:HE	26:a:90:PRO:HB2	1.49	0.76
54:5:651:G:O6	54:5:749:G:N2	2.18	0.76
12:H:131:LYS:HD3	54:5:1315:U:H4'	1.68	0.76
52:3:2170:A:OP2	52:3:2174:G:N2	2.18	0.75
11:G:14:PRO:HB3	11:G:41:LYS:HG2	1.68	0.75
52:3:2755:G:H21	52:3:2765:A:H62	1.31	0.75
29:d:88:LYS:HD2	52:3:2321:C:H4'	1.66	0.75
52:3:230:G:O2'	52:3:232:A:N6	2.20	0.75
54:5:1016:A:H2'	54:5:1017:A:C8	2.22	0.74
24:T:11:LEU:HD12	24:T:12:GLU:HG2	1.67	0.74
3:2:1:MET:HE2	3:2:35:ARG:HB2	1.67	0.74
54:5:1120:A:H5''	54:5:1121:U:H5'	1.69	0.74
39:n:4:ARG:NH1	53:4:44:A:OP1	2.21	0.74
1:0:7:PRO:HB2	52:3:1337:G:H4'	1.70	0.74
52:3:1555:G:H22	52:3:1576:G:H1'	1.52	0.74
13:I:59:ARG:HE	13:I:69:GLU:HB3	1.50	0.74
13:I:70:GLN:NE2	54:5:1343:G:OP1	2.21	0.74
30:e:106:LEU:HD21	30:e:126:VAL:HG21	1.70	0.74
52:3:2070:C:C4	55:7:77:A:H5''	2.23	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1237:G:H2'	52:3:1238:A:H8	1.53	0.73
15:K:124:ARG:O	15:K:127:ARG:NH2	2.21	0.73
52:3:274:A:H62	52:3:295:U:H3	1.34	0.73
52:3:1261:U:H2'	52:3:1262:G:C8	2.23	0.73
28:c:69:LYS:HE2	52:3:2067:A:H3'	1.70	0.73
1:0:24:THR:HG23	1:0:27:GLY:H	1.53	0.72
9:E:75:THR:O	9:E:79:ASN:ND2	2.22	0.72
12:H:11:ARG:H	12:H:83:LEU:HD23	1.54	0.72
51:z:8:ARG:NH2	52:3:2427:U:O2'	2.21	0.72
6:B:11:ARG:HH11	6:B:183:ALA:H	1.36	0.72
35:j:30:LYS:NZ	35:j:32:TYR:O	2.22	0.72
4:9:640:LYS:HD3	52:3:1102:A:H61	1.53	0.72
10:F:104:ALA:HB1	10:F:108:ARG:HH21	1.55	0.72
43:r:128:ARG:HG2	52:3:1262:G:H1'	1.71	0.72
4:9:9:ASN:HB3	4:9:75:CYS:HA	1.71	0.72
26:a:182:LEU:HD21	26:a:192:PHE:HD2	1.55	0.72
52:3:2334:U:H3	52:3:2397:G:H1	1.37	0.72
22:R:78:ARG:NH1	54:5:1197:G:OP1	2.22	0.72
52:3:283:A:N7	52:3:286:A:N1	2.36	0.72
52:3:1381:A:N7	52:3:1405:G:N2	2.37	0.72
54:5:412:G:H2'	54:5:413:G:H8	1.55	0.72
54:5:610:C:H2'	54:5:611:A:H8	1.55	0.72
54:5:680:G:O6	54:5:705:A:C6	2.43	0.72
54:5:805:C:H2'	54:5:806:A:C8	2.24	0.72
15:K:85:HIS:HA	15:K:112:ARG:HH22	1.55	0.71
37:l:82:ARG:NH1	52:3:2504:C:OP2	2.22	0.71
46:u:84:GLN:HE22	46:u:96:SER:HB3	1.53	0.71
54:5:445:A:N6	54:5:483:U:H3	1.85	0.71
52:3:902:U:N3	52:3:941:C:OP2	2.22	0.71
52:3:2183:U:O4	52:3:2184:A:N6	2.24	0.71
54:5:579:G:N1	54:5:756:A:OP2	2.22	0.71
6:B:59:GLU:HB3	13:I:100:VAL:HG11	1.72	0.71
33:h:119:ALA:HB1	52:3:1116:U:H4'	1.73	0.71
47:v:18:ARG:HB2	47:v:21:SER:HB2	1.71	0.71
52:3:1747:G:H21	52:3:1752:A:H62	1.37	0.71
52:3:2122:G:O2'	52:3:2179:A:N6	2.23	0.71
54:5:169:G:H1	54:5:196:G:H22	1.39	0.71
4:9:308:VAL:HG23	4:9:329:TYR:HB2	1.73	0.70
18:N:65:LYS:NZ	54:5:581:A:OP1	2.24	0.70
52:3:580:U:OP1	52:3:1249:A:O2'	2.09	0.70
52:3:2749:A:H62	52:3:2771:G:H21	1.37	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:C:20:GLU:HG2	7:C:21:ASN:H	1.54	0.70
54:5:822:A:H61	54:5:869:U:H3	1.39	0.70
4:9:164:LEU:HD11	4:9:210:MET:HE3	1.74	0.70
35:j:2:VAL:HB	35:j:33:ALA:HB3	1.73	0.70
31:f:6:LYS:HE2	31:f:35:LEU:H	1.55	0.70
52:3:2058:G:N2	52:3:2059:G:O6	2.24	0.70
52:3:2829:G:OP2	52:3:2829:G:N2	2.23	0.70
54:5:242:A:N6	54:5:277:G:C2	2.59	0.70
29:d:54:LEU:HA	29:d:65:PRO:HG2	1.73	0.70
52:3:1487:U:O2'	52:3:2710:G:N2	2.24	0.70
4:9:12:ASN:HD21	4:9:371:ASP:HA	1.57	0.70
52:3:1067:A:N1	52:3:1157:G:O6	2.25	0.70
54:5:933:A:N3	54:5:1351:U:O2'	2.23	0.70
52:3:562:C:N4	52:3:2787:U:OP2	2.25	0.70
15:K:112:ARG:HE	15:K:119:GLY:HA2	1.55	0.69
31:f:5:LEU:HD11	31:f:14:LYS:HG2	1.61	0.69
52:3:733:C:H5''	52:3:734:A:H5'	1.72	0.69
52:3:1495:A:OP2	52:3:1548:A:N6	2.25	0.69
52:3:1509:U:O2	52:3:1530:G:N2	2.25	0.69
3:2:9:PRO:HB3	3:2:14:CYS:HB3	1.75	0.69
10:F:113:LYS:HG3	10:F:114:THR:HG23	1.73	0.69
54:5:803:C:H2'	54:5:804:A:H8	1.56	0.69
26:a:9:ARG:HH11	52:3:740:A:H5'	1.58	0.69
54:5:1345:G:H2'	54:5:1346:G:H8	1.57	0.69
10:F:129:ASN:HA	10:F:134:ILE:HG13	1.73	0.69
26:a:4:LYS:HE3	26:a:19:VAL:HB	1.75	0.69
32:g:52:LYS:HG3	32:g:82:VAL:HB	1.73	0.69
37:l:11:LYS:HB3	37:l:87:LYS:HD3	1.75	0.69
52:3:366:A:O2'	52:3:368:C:OP2	2.09	0.69
53:4:60:C:H2'	53:4:61:A:H8	1.56	0.69
54:5:1217:G:H1	54:5:1269:U:H3	1.41	0.69
9:E:2:GLN:H	9:E:90:LEU:HG	1.57	0.69
34:i:71:LYS:NZ	52:3:1175:C:OP2	2.22	0.69
43:r:11:ARG:NH1	52:3:1350:A:OP1	2.26	0.69
4:9:322:ARG:HH12	4:9:427:LYS:HG3	1.58	0.69
54:5:242:A:C6	54:5:277:G:N2	2.61	0.69
13:I:24:LEU:HD21	13:I:78:ARG:HG3	1.76	0.68
23:S:24:GLN:HA	23:S:27:LYS:HE2	1.76	0.68
54:5:473:A:H2'	54:5:474:G:H8	1.57	0.68
54:5:525:G:O2'	54:5:533:A:N1	2.24	0.68
52:3:1441:A:H2'	52:3:1442:G:C8	2.28	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:420:LYS:HE3	4:9:469:VAL:HG23	1.73	0.68
12:H:35:ARG:HH11	12:H:40:TYR:HA	1.57	0.68
52:3:1495:A:H2'	52:3:1496:A:H8	1.58	0.68
54:5:1193:U:H2'	54:5:1194:A:H8	1.58	0.68
41:p:3:ILE:HD12	52:3:1230:U:H1'	1.75	0.68
12:H:108:ARG:NH1	12:H:111:ARG:O	2.27	0.68
40:o:92:ARG:HH22	54:5:1436:C:C5'	2.07	0.68
6:B:182:ARG:NH2	6:B:210:ILE:O	2.27	0.68
15:K:63:ARG:NH2	54:5:519:G:N7	2.42	0.68
16:L:11:ASN:HA	16:L:46:LYS:HE3	1.75	0.68
54:5:1290:G:N1	54:5:1293:A:OP2	2.26	0.68
38:m:111:THR:HG21	52:3:1684:A:H1'	1.75	0.68
3:2:18:LYS:NZ	52:3:1067:A:O2'	2.27	0.68
52:3:177:U:H2'	52:3:178:A:C8	2.28	0.68
20:P:8:VAL:HG22	20:P:64:VAL:HG12	1.75	0.67
26:a:249:VAL:HG21	26:a:254:PRO:HB3	1.76	0.67
54:5:600:G:H1	54:5:633:U:H3	1.42	0.67
6:B:36:GLU:OE2	6:B:60:ARG:NH1	2.28	0.67
12:H:71:GLY:HA2	54:5:1225:A:H4'	1.76	0.67
52:3:2125:U:H5	52:3:2152:C:H41	1.43	0.67
8:D:134:GLY:O	8:D:176:SER:OG	2.12	0.67
52:3:2755:G:N2	52:3:2765:A:H62	1.92	0.67
55:7:7:U:H3	55:7:68:G:H1	1.42	0.67
51:z:24:ASN:ND2	52:3:2293:C:OP2	2.26	0.67
52:3:610:G:O2'	52:3:1284:A:OP1	2.12	0.67
20:P:15:SER:OG	20:P:23:THR:OG1	2.12	0.67
35:j:71:ARG:NH1	35:j:75:THR:OG1	2.28	0.67
27:b:115:LYS:HE2	27:b:200:PRO:HB3	1.77	0.67
54:5:1138:U:O2	54:5:1149:G:N2	2.26	0.67
55:7:2:G:H2'	55:7:3:G:C8	2.30	0.67
29:d:129:THR:OG1	52:3:2311:G:O2'	2.13	0.67
27:b:8:GLY:O	27:b:205:VAL:HB	1.95	0.67
52:3:622:U:H2'	52:3:623:A:H8	1.60	0.67
4:9:39:LYS:HZ3	4:9:69:SER:HB3	1.60	0.66
4:9:632:GLN:HA	4:9:637:GLN:HA	1.77	0.66
8:D:207:ARG:HE	8:D:211:LEU:HD23	1.60	0.66
16:L:13:LYS:HD3	16:L:17:ILE:HG22	1.77	0.66
54:5:1384:A:H2'	54:5:1385:A:H8	1.60	0.66
4:9:222:ASP:HB3	4:9:225:LEU:HD23	1.77	0.66
52:3:1589:A:H2'	52:3:1590:U:C6	2.29	0.66
55:8:2:G:H2'	55:8:3:G:C8	2.30	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:255:GLN:NE2	5:A:256:ILE:O	2.28	0.66
22:R:11:VAL:HG12	22:R:13:ALA:H	1.59	0.66
54:5:677:C:H2'	54:5:678:A:H8	1.60	0.66
48:w:84:VAL:HG22	48:w:88:LYS:HE2	1.77	0.66
54:5:358:G:N2	54:5:361:U:OP2	2.23	0.66
33:h:72:VAL:HG12	33:h:75:LEU:H	1.60	0.66
52:3:853:G:N1	52:3:1219:U:OP2	2.25	0.66
54:5:76:G:N2	54:5:79:A:OP2	2.28	0.66
55:8:7:U:H3	55:8:68:G:H1	1.42	0.66
11:G:11:HIS:HB3	11:G:17:ASP:HB2	1.77	0.66
29:d:167:LEU:HD12	29:d:170:LEU:HD21	1.77	0.66
52:3:2189:U:H2'	52:3:2190:G:H8	1.61	0.66
54:5:242:A:H62	54:5:277:G:N2	1.90	0.66
28:c:6:LEU:HD22	28:c:14:GLU:HG3	1.78	0.66
32:g:56:ASN:OD1	32:g:60:ARG:NH2	2.29	0.66
34:i:16:ARG:NH2	34:i:56:TYR:OH	2.29	0.66
52:3:1470:C:H2'	52:3:1471:A:H8	1.61	0.66
52:3:2755:G:H21	52:3:2765:A:N6	1.93	0.66
52:3:2810:A:H62	52:3:2896:G:H1	1.44	0.66
54:5:1321:G:N2	54:5:1349:A:OP2	2.28	0.66
6:B:6:ASN:ND2	17:M:49:TYR:O	2.29	0.66
12:H:67:VAL:HB	12:H:81:ILE:HD13	1.78	0.66
33:h:53:CYS:HB2	33:h:65:PHE:HE1	1.61	0.66
52:3:1852:G:H2'	52:3:1853:G:C8	2.30	0.66
54:5:133:G:H2'	54:5:134:G:C8	2.30	0.66
54:5:239:A:N6	54:5:277:G:N3	2.44	0.66
54:5:1110:C:H2'	54:5:1111:G:H8	1.60	0.66
4:9:311:ALA:HA	4:9:326:VAL:HG12	1.77	0.65
54:5:714:C:O2'	54:5:731:A:O4'	2.13	0.65
54:5:733:A:H2'	54:5:734:A:H8	1.61	0.65
3:2:16:ILE:HG12	3:2:25:VAL:HG12	1.79	0.65
31:f:5:LEU:HG	31:f:20:ASP:OD2	1.95	0.65
40:o:56:ARG:NH1	52:3:2727:G:OP1	2.28	0.65
52:3:652:U:H2'	52:3:653:G:H8	1.60	0.65
52:3:984:C:H2'	52:3:985:A:H8	1.60	0.65
52:3:1860:A:N6	52:3:1896:A:N7	2.44	0.65
52:3:2070:C:H5'	52:3:2070:C:H6	1.59	0.65
54:5:671:G:H2'	54:5:672:A:H8	1.61	0.65
54:5:149:G:H2'	54:5:150:A:C8	2.31	0.65
4:9:109:GLN:NE2	52:3:2667:G:O6	2.27	0.65
15:K:56:LYS:HG3	15:K:58:PRO:HD2	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:L:100:GLN:NE2	54:5:1281:U:OP1	2.29	0.65
22:R:77:THR:O	54:5:953:A:N6	2.30	0.65
8:D:163:GLY:O	8:D:167:ARG:N	2.25	0.65
28:c:90:VAL:HG21	52:3:619:A:H4'	1.79	0.65
32:g:47:ASN:ND2	32:g:92:THR:HG22	2.10	0.65
52:3:1947:U:O2	52:3:1949:C:N4	2.30	0.65
11:G:81:ILE:HD12	11:G:82:PRO:HD2	1.78	0.65
30:e:55:ILE:HD11	30:e:72:ASN:HB2	1.77	0.65
52:3:755:C:H2'	52:3:756:A:H8	1.62	0.65
52:3:982:G:H2'	52:3:983:A:C8	2.31	0.65
52:3:2458:A:O2'	55:7:76:C:OP1	2.15	0.65
28:c:193:LEU:HA	36:k:5:GLN:HE22	1.62	0.65
54:5:445:A:N7	54:5:483:U:O4	2.29	0.65
7:C:144:LEU:HD23	7:C:149:ILE:HG13	1.78	0.65
15:K:26:TYR:O	15:K:43:LYS:NZ	2.30	0.65
47:v:17:ASN:O	47:v:25:THR:OG1	2.15	0.65
55:8:50:G:H2'	55:8:51:G:C8	2.32	0.65
45:t:53:LYS:HE3	45:t:55:ALA:HB3	1.78	0.65
28:c:102:LYS:NZ	52:3:641:U:OP1	2.30	0.65
54:5:271:G:H2'	54:5:272:G:H8	1.60	0.65
52:3:1979:G:H2'	52:3:1980:G:H8	1.62	0.64
54:5:896:G:H2'	54:5:897:A:H8	1.62	0.64
23:S:64:ARG:NH1	54:5:256:G:OP1	2.31	0.64
36:k:13:ARG:HD3	52:3:695:G:H21	1.61	0.64
45:t:44:ARG:NH1	52:3:517:G:O5'	2.30	0.64
52:3:101:C:H3'	52:3:102:A:H2	1.62	0.64
52:3:2335:A:H2'	52:3:2336:A:C8	2.32	0.64
52:3:2584:G:O2'	52:3:2587:U:OP2	2.14	0.64
52:3:312:U:H2'	52:3:313:G:C8	2.32	0.64
52:3:1814:G:O2'	52:3:1816:A:N6	2.30	0.64
52:3:2843:G:O6	52:3:2882:U:O2	2.16	0.64
52:3:957:G:N2	52:3:2277:A:OP2	2.30	0.64
54:5:506:U:O2	54:5:507:A:N6	2.30	0.64
2:1:9:LYS:NZ	52:3:253:C:O2	2.30	0.64
15:K:114:THR:HG22	15:K:117:THR:HG22	1.80	0.64
42:q:67:LYS:NZ	52:3:1253:G:N7	2.45	0.64
46:u:85:LYS:NZ	52:3:893:A:OP1	2.30	0.64
52:3:652:U:H2'	52:3:653:G:C8	2.32	0.64
52:3:1073:A:H2'	52:3:1074:A:H8	1.63	0.64
54:5:680:G:O6	54:5:705:A:N6	2.30	0.64
23:S:26:THR:HA	23:S:29:LYS:HE2	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:e:124:LEU:HB3	30:e:136:ILE:HD11	1.79	0.64
53:4:3:U:H2'	53:4:4:G:H8	1.63	0.64
54:5:1106:U:O4	54:5:1160:G:O6	2.14	0.64
32:g:44:LEU:CD1	32:g:47:ASN:HD22	2.09	0.64
40:o:44:ARG:NH1	40:o:46:GLN:OE1	2.31	0.64
2:1:5:SER:OG	52:3:256:G:O6	2.15	0.64
9:E:66:ASN:ND2	54:5:736:U:OP1	2.31	0.64
45:t:71:LEU:HA	45:t:74:LEU:HD12	1.80	0.64
52:3:1866:G:N1	52:3:1891:A:N7	2.46	0.64
54:5:790:U:O2	54:5:1491:A:O2'	2.16	0.64
34:i:10:GLU:H	34:i:48:THR:HG21	1.62	0.64
52:3:1672:C:H2'	52:3:1673:U:O4'	1.98	0.64
52:3:2811:G:N2	52:3:2896:G:O6	2.31	0.64
54:5:880:G:N1	54:5:906:C:N3	2.46	0.64
30:e:65:LYS:NZ	52:3:2757:A:O3'	2.30	0.64
44:s:65:ILE:HG22	44:s:66:ARG:H	1.62	0.64
52:3:139:G:H2'	52:3:140:G:C8	2.32	0.64
52:3:412:A:N3	52:3:437:A:N6	2.46	0.64
52:3:1914:G:O6	52:3:1931:C:N4	2.32	0.64
52:3:2070:C:H6	52:3:2070:C:C5'	2.11	0.64
55:7:50:G:H2'	55:7:51:G:C8	2.32	0.64
52:3:80:U:H3	52:3:109:G:H1	1.46	0.63
52:3:2665:A:H62	52:3:2672:G:H21	1.47	0.63
4:9:17:ALA:HB1	4:9:105:VAL:HG12	1.79	0.63
4:9:143:ASN:HB3	4:9:146:ARG:HG2	1.80	0.63
7:C:85:LEU:HA	7:C:88:ASN:HB2	1.79	0.63
14:J:46:LYS:O	14:J:49:ARG:NH1	2.31	0.63
31:f:4:ILE:HG23	31:f:16:PHE:HE1	1.64	0.63
48:w:16:VAL:HG21	48:w:67:GLU:HG3	1.80	0.63
54:5:412:G:N2	54:5:424:U:O2	2.31	0.63
5:A:198:VAL:HG23	5:A:212:ASP:H	1.63	0.63
27:b:142:ARG:NH2	52:3:2005:G:OP2	2.31	0.63
36:k:26:SER:OG	52:3:848:U:OP2	2.15	0.63
52:3:24:U:H2'	52:3:25:G:H8	1.62	0.63
52:3:2137:A:H4'	52:3:2140:G:H1'	1.78	0.63
52:3:2610:A:H61	55:7:75:C:P	2.21	0.63
54:5:928:G:N2	54:5:1359:C:N3	2.44	0.63
12:H:53:PRO:HG3	12:H:82:ARG:HG3	1.79	0.63
16:L:15:ILE:HG13	16:L:46:LYS:HA	1.79	0.63
47:v:34:GLN:HE22	52:3:2236:G:H22	1.46	0.63
52:3:2291:U:O2	52:3:2333:G:O6	2.15	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:I:28:THR:HG21	13:I:78:ARG:HD2	1.78	0.63
39:n:101:ARG:HH21	53:4:47:C:H5''	1.64	0.63
54:5:331:C:H2'	54:5:332:A:H8	1.63	0.63
54:5:680:G:C6	54:5:705:A:C6	2.86	0.63
54:5:1501:G:H2'	54:5:1502:G:H8	1.64	0.63
8:D:149:VAL:HG21	8:D:195:THR:HG22	1.81	0.63
9:E:118:ILE:HG22	9:E:120:ALA:H	1.64	0.63
15:K:122:LYS:HB2	15:K:122:LYS:NZ	2.14	0.63
4:9:415:LYS:NZ	4:9:419:GLU:OE2	2.30	0.62
5:A:113:LEU:HB3	54:5:1093:A:H4'	1.81	0.62
26:a:92:ARG:NH1	52:3:1824:G:OP1	2.20	0.62
39:n:27:ARG:HH22	52:3:2386:A:H4'	1.63	0.62
14:J:8:ASN:N	14:J:70:MET:O	2.32	0.62
52:3:855:A:OP2	52:3:1009:A:N6	2.28	0.62
54:5:510:U:H2'	54:5:511:A:H8	1.64	0.62
23:S:24:GLN:HB3	23:S:54:LEU:HD22	1.81	0.62
26:a:36:SER:OG	52:3:1452:G:OP1	2.16	0.62
52:3:2177:G:C2	55:8:57:C:H5	2.17	0.62
4:9:72:TRP:CG	4:9:73:LYS:H	2.16	0.62
29:d:48:LYS:HG3	29:d:52:SER:HB3	1.81	0.62
44:s:25:LYS:HD3	44:s:90:ALA:HB2	1.81	0.62
52:3:2655:U:H2'	52:3:2656:G:H8	1.64	0.62
54:5:1007:U:H3	54:5:1015:U:H3	1.47	0.62
52:3:595:U:H2'	52:3:605:A:H1'	1.80	0.62
52:3:1055:A:H2	52:3:1176:U:H1'	1.63	0.62
52:3:2080:C:O2'	52:3:2606:A:O2'	2.17	0.62
54:5:136:U:N3	54:5:157:A:N6	2.28	0.62
54:5:1384:A:H2'	54:5:1385:A:C8	2.33	0.62
30:e:152:ARG:HA	30:e:165:VAL:HG11	1.81	0.62
36:k:20:LEU:HD11	36:k:32:SER:H	1.65	0.62
52:3:1452:G:H2'	52:3:1453:U:C6	2.35	0.62
52:3:2253:U:H5''	52:3:2254:G:H5'	1.80	0.62
2:1:26:THR:HG22	2:1:41:LEU:HB3	1.80	0.62
4:9:122:GLN:OE1	4:9:125:ARG:NH2	2.28	0.62
39:n:20:ARG:NH2	53:4:8:C:OP1	2.31	0.62
41:p:44:TYR:HD2	52:3:568:G:H21	1.45	0.62
44:s:62:PRO:HD3	44:s:77:LEU:HD13	1.82	0.62
52:3:2261:G:N2	55:7:73:C:O2'	2.33	0.62
54:5:331:C:H2'	54:5:332:A:C8	2.35	0.62
54:5:370:A:N1	54:5:386:U:O2'	2.30	0.62
54:5:1297:G:H1'	54:5:1335:G:H21	1.65	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1370:C:H5'	54:5:1376:G:H21	1.64	0.62
5:A:78:ASN:ND2	9:E:167:ASP:OD1	2.33	0.62
32:g:32:MET:HE2	32:g:37:ALA:HA	1.79	0.62
41:p:57:ARG:NH2	52:3:1189:G:OP2	2.33	0.62
52:3:1104:A:N6	52:3:1130:A:O2'	2.32	0.62
13:I:17:GLU:HG3	13:I:75:ARG:HH11	1.65	0.62
16:L:107:ARG:NH2	54:5:1203:A:OP2	2.33	0.62
52:3:1232:U:H2'	52:3:1233:A:H8	1.65	0.62
54:5:459:C:H2'	54:5:460:A:C8	2.34	0.62
54:5:933:A:H2'	54:5:934:G:H8	1.65	0.62
54:5:1124:U:H5'	54:5:1125:C:H5	1.64	0.62
18:N:62:ARG:HH22	54:5:579:G:H5'	1.64	0.62
27:b:144:GLN:NE2	52:3:2057:C:O2'	2.33	0.62
34:i:14:LYS:HD2	34:i:16:ARG:HD3	1.80	0.62
52:3:711:A:HO2'	52:3:2450:C:HO2'	1.47	0.62
52:3:1005:G:N2	52:3:1021:C:OP1	2.28	0.62
52:3:1429:G:O2'	52:3:1548:A:OP1	2.17	0.62
54:5:810:U:OP2	54:5:813:A:N6	2.26	0.62
26:a:9:ARG:HE	52:3:740:A:H4'	1.64	0.61
52:3:565:C:H1'	52:3:567:U:H3	1.64	0.61
6:B:155:LEU:HG	6:B:202:LYS:HB2	1.82	0.61
52:3:748:G:N2	52:3:754:U:O4	2.33	0.61
52:3:1493:A:H2'	52:3:1494:U:O4'	2.00	0.61
54:5:662:G:O6	54:5:721:G:O6	2.17	0.61
52:3:444:C:H2'	52:3:445:C:H6	1.65	0.61
52:3:1778:G:H2'	52:3:1779:G:C8	2.35	0.61
54:5:177:G:N2	54:5:188:U:O2'	2.29	0.61
7:C:111:ARG:HB3	54:5:403:A:H5''	1.82	0.61
12:H:121:TYR:HB2	12:H:125:ARG:HB3	1.82	0.61
29:d:136:ILE:HG12	29:d:149:ILE:HG12	1.82	0.61
52:3:2105:G:H2'	52:3:2106:G:H8	1.65	0.61
52:3:2859:U:H2'	52:3:2860:A:H8	1.63	0.61
54:5:1241:G:O6	54:5:1245:A:N6	2.33	0.61
38:m:2:SER:HA	52:3:1692:A:H1'	1.80	0.61
41:p:68:LEU:HD13	41:p:75:TYR:HA	1.83	0.61
42:q:24:LYS:HG2	42:q:88:PRO:HB2	1.83	0.61
52:3:1507:G:O2'	52:3:1508:G:OP1	2.17	0.61
2:1:38:LYS:NZ	52:3:2427:U:OP1	2.31	0.61
14:J:52:THR:HG22	14:J:54:TYR:H	1.65	0.61
21:Q:68:ALA:O	21:Q:94:ARG:NH2	2.33	0.61
26:a:104:GLY:HA3	52:3:1525:G:H21	1.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:a:236:ASN:OD1	26:a:237:ASP:N	2.33	0.61
52:3:2177:G:H1	55:8:20:G:H22	1.49	0.61
8:D:151:LEU:HB3	8:D:178:ILE:HD11	1.83	0.61
11:G:19:LEU:HD22	11:G:87:VAL:HG21	1.82	0.61
43:r:44:ALA:HA	43:r:47:ILE:HG12	1.82	0.61
52:3:274:A:N7	52:3:295:U:O4	2.34	0.61
52:3:1243:A:H2'	52:3:1244:A:C8	2.36	0.61
52:3:1558:A:OP2	52:3:1571:G:N2	2.33	0.61
52:3:1724:A:H62	52:3:1731:G:H21	1.49	0.61
54:5:1266:U:H2'	54:5:1267:G:H8	1.66	0.61
7:C:114:ARG:HG3	7:C:132:PRO:HG3	1.82	0.61
10:F:87:PRO:HD3	10:F:147:ASN:HB3	1.82	0.61
38:m:106:ARG:NH1	38:m:109:ASP:OD2	2.34	0.61
52:3:2059:G:N2	52:3:2625:U:O2	2.31	0.61
54:5:608:G:O6	54:5:628:A:N1	2.33	0.61
54:5:1237:G:O6	54:5:1248:U:O2	2.19	0.61
54:5:1368:U:HO2'	54:5:1476:C:HO2'	1.48	0.61
52:3:1232:U:H2'	52:3:1233:A:C8	2.34	0.61
52:3:2029:U:HO2'	52:3:2624:C:HO2'	1.48	0.61
52:3:2254:G:H2'	52:3:2255:A:C8	2.36	0.61
53:4:3:U:H2'	53:4:4:G:C8	2.35	0.61
54:5:24:C:OP2	54:5:559:U:N3	2.32	0.61
54:5:590:G:H1	54:5:644:U:H3	1.48	0.61
1:0:36:LYS:NZ	52:3:185:U:OP2	2.31	0.60
5:A:119:ASN:HD21	5:A:122:THR:HG23	1.66	0.60
17:M:29:ARG:NH1	54:5:968:G:O2'	2.33	0.60
42:q:36:ASP:OD1	42:q:37:LYS:N	2.33	0.60
49:x:12:VAL:HG11	49:x:33:GLU:H	1.66	0.60
52:3:283:A:H62	52:3:286:A:H2	1.47	0.60
52:3:2254:G:H2'	52:3:2255:A:H8	1.65	0.60
4:9:353:LEU:HD23	4:9:375:ILE:HG12	1.83	0.60
40:o:53:LEU:HB2	40:o:65:ILE:HB	1.81	0.60
52:3:1701:G:O2'	52:3:1998:U:O4	2.17	0.60
52:3:1820:U:O2'	52:3:1821:G:OP1	2.19	0.60
52:3:1973:U:O2	52:3:2600:G:O2'	2.18	0.60
52:3:2115:A:O2'	52:3:2149:U:O2'	2.18	0.60
52:3:2299:U:H2'	52:3:2300:A:C8	2.36	0.60
15:K:88:GLN:HG2	15:K:89:GLU:H	1.65	0.60
38:m:19:ARG:HE	38:m:66:TRP:HA	1.65	0.60
52:3:1261:U:H2'	52:3:1262:G:H8	1.66	0.60
52:3:1662:G:H2'	52:3:1663:G:C8	2.37	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1225:A:H2	54:5:1345:G:H1'	1.65	0.60
52:3:1691:U:H2'	52:3:1692:A:H8	1.65	0.60
52:3:1972:C:OP1	52:3:1973:U:O2'	2.16	0.60
54:5:670:G:H2'	54:5:671:G:C8	2.36	0.60
52:3:339:U:O4	52:3:346:G:O6	2.19	0.60
52:3:1338:G:H1	52:3:1638:C:H42	1.46	0.60
52:3:1508:G:OP2	52:3:1508:G:H4'	1.96	0.60
52:3:1663:G:H2'	52:3:1664:A:C8	2.36	0.60
52:3:2007:U:H2'	52:3:2008:A:C8	2.37	0.60
52:3:2478:G:H2'	52:3:2479:A:H8	1.66	0.60
1:0:34:ARG:NH1	52:3:503:G:OP2	2.33	0.60
12:H:20:TYR:O	12:H:66:ASN:HB3	2.01	0.60
12:H:108:ARG:HG3	12:H:110:LYS:H	1.66	0.60
27:b:177:GLN:OE1	27:b:212:LYS:NZ	2.33	0.60
42:q:71:ILE:HG22	42:q:82:LYS:HA	1.82	0.60
52:3:1129:U:N3	52:3:1132:C:OP2	2.27	0.60
52:3:2229:C:H2'	52:3:2230:A:H8	1.66	0.60
29:d:129:THR:HG1	52:3:2311:G:HO2'	1.45	0.60
49:x:10:GLN:HG3	49:x:11:SER:H	1.67	0.60
52:3:2516:G:H2'	52:3:2517:A:C8	2.36	0.60
54:5:1505:G:H2'	54:5:1506:A:H8	1.67	0.60
4:9:341:ASN:ND2	4:9:385:GLU:OE1	2.35	0.60
4:9:631:GLU:OE2	4:9:633:ARG:NH2	2.32	0.60
32:g:56:ASN:ND2	32:g:74:THR:O	2.27	0.60
37:l:39:GLY:HA2	37:l:97:VAL:O	2.02	0.60
46:u:41:ASP:HA	46:u:81:VAL:HG23	1.84	0.60
52:3:2156:G:H2'	52:3:2157:A:H8	1.66	0.60
4:9:117:GLU:OE2	4:9:662:ARG:NH1	2.34	0.60
4:9:683:ILE:HG23	4:9:684:ILE:HG23	1.84	0.60
5:A:31:GLY:O	5:A:220:HIS:ND1	2.33	0.60
22:R:86:ASN:OD1	55:7:42:C:O2'	2.19	0.60
33:h:56:THR:OG1	33:h:64:ASP:OD1	2.18	0.60
52:3:2031:C:H2'	52:3:2032:G:H8	1.67	0.60
52:3:2111:U:O2	52:3:2194:G:N1	2.34	0.60
52:3:2847:C:H2'	52:3:2848:A:H8	1.66	0.60
5:A:85:VAL:HB	5:A:178:VAL:HA	1.84	0.60
6:B:61:THR:O	6:B:64:THR:OG1	2.16	0.60
28:c:201:LYS:HA	28:c:204:LEU:HD23	1.83	0.60
29:d:165:GLU:OE1	29:d:165:GLU:N	2.35	0.60
54:5:36:G:H2'	54:5:37:C:C6	2.37	0.60
54:5:129:U:H3	54:5:216:G:H1	1.50	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:462:G:O2'	54:5:463:U:O4'	2.15	0.60
54:5:885:U:H2'	54:5:886:A:C8	2.36	0.60
54:5:1150:G:H2'	54:5:1151:A:C8	2.36	0.60
9:E:10:ASP:OD2	9:E:80:LYS:NZ	2.35	0.59
34:i:59:ILE:HB	34:i:127:VAL:HG12	1.83	0.59
37:l:86:GLY:N	52:3:2284:G:OP2	2.35	0.59
52:3:679:A:N1	52:3:2377:A:O2'	2.35	0.59
52:3:2135:C:H2'	52:3:2136:A:C8	2.37	0.59
54:5:1438:U:H2'	54:5:1439:G:C8	2.37	0.59
4:9:125:ARG:NH2	4:9:400:GLN:OE1	2.35	0.59
9:E:96:TYR:HA	9:E:100:ILE:HD12	1.84	0.59
13:I:43:LYS:HD2	13:I:46:LEU:HD11	1.84	0.59
16:L:93:LYS:HG3	16:L:95:LEU:HD23	1.83	0.59
28:c:52:ILE:HG21	28:c:92:GLY:HA3	1.85	0.59
31:f:41:LYS:HD3	31:f:49:LEU:HD13	1.82	0.59
35:j:122:VAL:HG21	40:o:75:ILE:HG12	1.85	0.59
52:3:610:G:H2'	52:3:611:A:C8	2.37	0.59
52:3:2031:C:H2'	52:3:2032:G:C8	2.37	0.59
52:3:2187:C:H2'	52:3:2188:U:C6	2.37	0.59
54:5:369:A:H61	54:5:387:G:H1'	1.67	0.59
4:9:570:GLU:HG2	4:9:571:VAL:HG23	1.84	0.59
28:c:105:LYS:NZ	52:3:656:G:O6	2.35	0.59
36:k:48:ARG:HB2	36:k:51:PHE:HB2	1.84	0.59
52:3:153:U:H2'	52:3:154:U:C6	2.37	0.59
52:3:1083:A:H1'	52:3:1147:G:H21	1.67	0.59
52:3:1691:U:H2'	52:3:1692:A:C8	2.36	0.59
52:3:1776:G:H2'	52:3:1777:G:H8	1.67	0.59
54:5:394:U:H2'	54:5:395:G:H8	1.68	0.59
7:C:92:VAL:O	7:C:95:SER:OG	2.19	0.59
35:j:114:ILE:H	35:j:114:ILE:HD12	1.68	0.59
41:p:91:ARG:HB2	41:p:94:LEU:HD23	1.85	0.59
52:3:2482:U:H5''	52:3:2483:C:H5	1.66	0.59
54:5:407:A:H61	54:5:427:A:H62	1.51	0.59
54:5:1161:G:H2'	54:5:1162:G:H8	1.68	0.59
54:5:1437:A:H2'	54:5:1438:U:O4'	2.03	0.59
4:9:114:PRO:HB2	4:9:115:GLN:HE21	1.67	0.59
4:9:506:HIS:CE1	4:9:508:LYS:HD2	2.37	0.59
12:H:116:LYS:NZ	54:5:1343:G:OP2	2.30	0.59
15:K:123:ARG:CZ	15:K:123:ARG:HB2	2.32	0.59
23:S:20:ASN:O	23:S:24:GLN:HG2	2.02	0.59
28:c:30:LYS:NZ	52:3:633:G:OP1	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:q:28:PRO:HD2	42:q:31:LYS:HE2	1.82	0.59
45:t:78:ASP:OD1	45:t:79:GLN:N	2.36	0.59
52:3:1453:U:H2'	52:3:1454:G:O4'	2.03	0.59
52:3:1619:A:H2'	52:3:1620:A:C8	2.37	0.59
52:3:1820:U:H2'	52:3:1821:G:C8	2.38	0.59
54:5:1388:A:H2	54:5:1462:G:H22	1.51	0.59
13:I:46:LEU:HB2	13:I:79:LEU:HB3	1.84	0.59
15:K:9:ARG:NH2	54:5:875:G:OP1	2.35	0.59
52:3:274:A:OP2	52:3:294:G:N1	2.33	0.59
52:3:1166:G:N2	52:3:1167:U:O4	2.35	0.59
52:3:1473:C:H2'	52:3:1474:C:C6	2.38	0.59
55:8:67:C:H2'	55:8:68:G:H8	1.67	0.59
7:C:130:ASP:OD1	54:5:617:U:N3	2.36	0.59
31:f:5:LEU:CD1	31:f:14:LYS:CD	2.61	0.59
41:p:91:ARG:HD2	52:3:1033:A:H5'	1.84	0.59
52:3:634:C:H2'	52:3:635:G:C8	2.37	0.59
54:5:87:G:H2'	54:5:88:A:H8	1.67	0.59
54:5:281:U:H2'	54:5:282:G:H8	1.68	0.59
11:G:87:VAL:HG23	11:G:141:VAL:HG12	1.83	0.59
27:b:153:GLY:HA3	52:3:2039:G:H1'	1.85	0.59
31:f:102:HIS:CE1	31:f:108:LEU:H	2.21	0.59
43:r:41:LYS:HE2	50:y:22:LEU:HD11	1.83	0.59
52:3:18:G:H2'	52:3:19:G:H8	1.68	0.59
52:3:255:A:N6	52:3:424:G:O6	2.36	0.59
52:3:847:C:O2'	52:3:1256:A:O2'	2.20	0.59
54:5:988:G:N2	54:5:1035:A:N7	2.50	0.59
55:7:63:U:H2'	55:7:64:G:C8	2.38	0.59
9:E:40:LEU:HD12	9:E:57:TYR:HB3	1.83	0.59
41:p:7:LYS:NZ	52:3:1246:U:OP2	2.36	0.59
52:3:678:U:O2'	52:3:680:A:N7	2.29	0.59
52:3:1271:A:H2'	52:3:1272:A:H8	1.67	0.59
17:M:12:ARG:NH1	54:5:1193:U:OP1	2.33	0.58
29:d:31:LEU:HD21	29:d:34:ILE:HD11	1.84	0.58
35:j:18:GLN:NE2	35:j:19:VAL:O	2.36	0.58
36:k:34:ARG:NH2	36:k:40:LYS:O	2.35	0.58
31:f:2:LYS:CE	31:f:28:HIS:HB2	2.33	0.58
43:r:77:ASN:OD1	52:3:25:G:N2	2.30	0.58
52:3:2082:U:OP2	52:3:2246:G:O2'	2.21	0.58
52:3:2482:U:O4	52:3:2537:G:N2	2.34	0.58
54:5:311:A:HO2'	54:5:326:C:HO2'	1.46	0.58
54:5:671:G:H2'	54:5:672:A:C8	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1361:G:H2'	54:5:1361:G:N3	2.18	0.58
2:1:10:ARG:NH2	52:3:254:G:OP2	2.34	0.58
4:9:45:ASP:OD1	54:5:340:A:N6	2.36	0.58
45:t:58:GLN:HG3	45:t:59:SER:H	1.69	0.58
52:3:2336:A:H2'	52:3:2337:U:C6	2.38	0.58
54:5:551:A:H2'	54:5:552:U:C6	2.38	0.58
55:7:67:C:H2'	55:7:68:G:H8	1.67	0.58
20:P:73:LYS:HD3	54:5:250:G:H5''	1.85	0.58
30:e:141:LYS:HE3	52:3:2754:U:H4'	1.84	0.58
33:h:57:ALA:HA	33:h:61:LYS:HE2	1.85	0.58
42:q:96:ARG:HG2	42:q:98:VAL:HG13	1.84	0.58
52:3:684:A:H2'	52:3:685:G:H8	1.68	0.58
52:3:788:G:H2'	52:3:789:A:H8	1.69	0.58
52:3:1583:G:O2'	52:3:1584:U:OP1	2.21	0.58
54:5:712:A:H2'	54:5:713:A:H8	1.69	0.58
26:a:116:LYS:N	26:a:119:ASP:OD2	2.32	0.58
27:b:158:ARG:NH1	52:3:2031:C:O3'	2.35	0.58
32:g:29:TYR:C	32:g:29:TYR:HD1	2.12	0.58
35:j:104:ARG:NH2	54:5:342:G:OP1	2.37	0.58
37:l:39:GLY:CA	37:l:97:VAL:O	2.51	0.58
52:3:727:C:O2'	52:3:1382:A:O2'	2.21	0.58
52:3:1661:A:N6	52:3:1673:U:O4	2.36	0.58
52:3:2189:U:H2'	52:3:2190:G:C8	2.38	0.58
52:3:2684:G:H2'	52:3:2685:A:H8	1.67	0.58
52:3:2822:C:H4'	52:3:2841:A:H4'	1.84	0.58
54:5:1416:U:H2'	54:5:1417:U:C6	2.38	0.58
55:8:63:U:H2'	55:8:64:G:C8	2.38	0.58
31:f:102:HIS:HB3	52:3:166:A:N7	2.18	0.58
52:3:418:G:N2	52:3:430:U:O2	2.24	0.58
54:5:75:A:N6	54:5:81:A:H61	2.02	0.58
54:5:317:A:N1	54:5:328:G:O6	2.36	0.58
5:A:158:ARG:NH1	54:5:1089:C:OP2	2.37	0.58
7:C:153:ILE:H	7:C:153:ILE:HD12	1.69	0.58
41:p:32:LYS:HB3	52:3:1282:G:N2	2.18	0.58
52:3:1036:A:OP2	52:3:1189:G:N1	2.36	0.58
52:3:1243:A:H2'	52:3:1244:A:H8	1.66	0.58
53:4:53:U:O2'	53:4:55:A:N7	2.29	0.58
54:5:585:G:N1	54:5:751:C:OP2	2.32	0.58
41:p:57:ARG:O	41:p:61:ILE:HG12	2.04	0.58
45:t:8:ASP:OD2	45:t:102:ARG:NH2	2.34	0.58
52:3:1237:G:H2'	52:3:1238:A:C8	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:311:A:O2'	54:5:326:C:O2'	2.20	0.58
54:5:803:C:H2'	54:5:804:A:C8	2.39	0.58
54:5:1200:G:H8	54:5:1200:G:OP2	1.86	0.58
3:2:12:LYS:NZ	52:3:1125:U:O2'	2.37	0.58
52:3:95:G:O2'	52:3:96:A:O4'	2.16	0.58
52:3:1093:U:O2	52:3:1115:G:N2	2.35	0.58
52:3:1902:C:H2'	52:3:1903:A:C8	2.33	0.58
54:5:911:G:H2'	54:5:912:G:H8	1.69	0.58
54:5:933:A:H2'	54:5:934:G:C8	2.37	0.58
26:a:190:ARG:NH1	52:3:1806:G:O2'	2.34	0.58
30:e:160:TYR:CZ	52:3:2539:A:H5''	2.39	0.58
32:g:44:LEU:HD11	32:g:47:ASN:ND2	2.15	0.58
41:p:32:LYS:HB3	52:3:1282:G:C2	2.39	0.58
52:3:162:G:N2	52:3:169:U:OP2	2.35	0.58
54:5:591:A:H2'	54:5:592:A:C8	2.38	0.58
54:5:825:A:H62	54:5:852:G:H21	1.52	0.58
54:5:981:U:H2'	54:5:982:A:H8	1.69	0.58
54:5:1463:A:H2'	54:5:1464:G:C8	2.39	0.58
12:H:117:LYS:HE2	12:H:120:LEU:HD12	1.85	0.57
23:S:65:ALA:O	23:S:69:LYS:HG2	2.04	0.57
52:3:1449:G:N2	52:3:1612:U:O2	2.37	0.57
52:3:1921:C:N4	54:5:1384:A:O2'	2.37	0.57
53:4:60:C:H2'	53:4:61:A:C8	2.36	0.57
54:5:677:C:H2'	54:5:678:A:C8	2.39	0.57
54:5:1197:G:OP2	54:5:1296:C:N4	2.37	0.57
54:5:1323:A:N3	54:5:1349:A:N6	2.52	0.57
5:A:145:THR:HG1	54:5:1134:C:HO2'	1.49	0.57
20:P:63:ILE:HG22	20:P:77:ILE:HA	1.85	0.57
26:a:251:ARG:NE	52:3:2082:U:OP1	2.37	0.57
39:n:34:LYS:NZ	53:4:47:C:OP2	2.37	0.57
52:3:740:A:H2'	52:3:741:A:H8	1.68	0.57
52:3:1262:G:H2'	52:3:1263:G:H8	1.69	0.57
52:3:2123:A:N1	52:3:2174:G:N2	2.51	0.57
54:5:1319:U:H4'	54:5:1320:A:H5''	1.86	0.57
12:H:13:LYS:H	12:H:108:ARG:NH2	2.03	0.57
52:3:1590:U:H2'	52:3:1591:C:C5	2.40	0.57
52:3:2321:C:H2'	52:3:2322:G:C8	2.40	0.57
4:9:200:PRO:HD2	4:9:203:PHE:HD2	1.70	0.57
4:9:535:ILE:O	4:9:539:GLN:HG3	2.04	0.57
23:S:56:ARG:NH1	54:5:197:A:O2'	2.38	0.57
23:S:64:ARG:NH2	54:5:257:U:OP2	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:g:97:ASP:HA	32:g:100:VAL:HG12	1.87	0.57
47:v:22:LYS:HD2	55:8:76:C:O2'	2.03	0.57
52:3:1492:G:H5''	52:3:1493:A:H5''	1.86	0.57
52:3:1523:C:H5'	52:3:1611:C:H5'	1.86	0.57
54:5:1282:U:H2'	54:5:1283:G:H8	1.69	0.57
55:7:63:U:H2'	55:7:64:G:H8	1.69	0.57
8:D:212:ARG:NH2	11:G:51:GLU:OE1	2.37	0.57
28:c:9:ILE:HD11	28:c:136:THR:HB	1.86	0.57
35:j:13:ASN:HD21	35:j:96:THR:HB	1.69	0.57
54:5:1030:G:H2'	54:5:1031:A:H8	1.70	0.57
4:9:31:LEU:HD11	4:9:68:THR:HG21	1.86	0.57
6:B:111:SER:OG	6:B:207:ARG:NH2	2.38	0.57
14:J:83:GLY:O	24:T:26:ARG:NH1	2.37	0.57
41:p:29:ALA:HB1	52:3:550:A:H5''	1.87	0.57
52:3:305:U:O4	52:3:399:G:O6	2.22	0.57
52:3:2743:U:H2'	52:3:2744:A:H8	1.70	0.57
54:5:1495:C:H2'	54:5:1496:G:C8	2.39	0.57
55:8:63:U:H2'	55:8:64:G:H8	1.69	0.57
32:g:47:ASN:HB2	32:g:91:GLU:HB3	1.85	0.57
52:3:270:G:O2'	52:3:315:A:N6	2.37	0.57
54:5:610:C:H2'	54:5:611:A:C8	2.37	0.57
52:3:1476:C:H2'	52:3:1477:A:C8	2.40	0.57
52:3:2323:U:H2'	52:3:2324:A:C8	2.40	0.57
54:5:59:C:O2'	54:5:384:G:N7	2.35	0.57
54:5:1098:C:H2'	54:5:1099:G:H8	1.69	0.57
54:5:1279:G:N2	54:5:1305:G:O2'	2.38	0.57
54:5:1298:U:H2'	54:5:1299:C:C6	2.39	0.57
5:A:85:VAL:HG21	5:A:178:VAL:HG22	1.86	0.57
15:K:24:LEU:HA	15:K:43:LYS:HD2	1.86	0.57
27:b:50:THR:OG1	27:b:87:MET:O	2.23	0.57
41:p:27:ARG:HH11	52:3:2026:A:H2	1.53	0.57
54:5:778:A:H62	54:5:798:U:H3	1.52	0.57
16:L:101:ARG:NH1	54:5:946:G:OP2	2.38	0.56
26:a:251:ARG:NH2	52:3:2247:G:OP1	2.38	0.56
27:b:148:GLN:HB2	52:3:2059:G:H5''	1.87	0.56
52:3:337:U:H2'	52:3:338:G:H8	1.70	0.56
52:3:452:U:H3	52:3:2415:A:H61	1.51	0.56
52:3:1899:C:O2'	55:8:72:C:OP1	2.21	0.56
52:3:2299:U:H1'	52:3:2382:A:H1'	1.87	0.56
52:3:2329:G:H21	52:3:2330:A:H5''	1.70	0.56
54:5:603:U:O2	54:5:630:G:N2	2.33	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:779:A:H62	54:5:797:G:H21	1.51	0.56
12:H:98:LYS:NZ	12:H:102:SER:OG	2.38	0.56
27:b:117:ARG:NH2	52:3:2731:U:OP1	2.38	0.56
34:i:116:ARG:NE	52:3:564:A:OP1	2.37	0.56
35:j:8:LEU:H	35:j:18:GLN:HE22	1.53	0.56
40:o:11:ASP:HA	40:o:14:GLU:HB2	1.87	0.56
52:3:1746:U:O2	52:3:1753:G:N2	2.34	0.56
4:9:600:PRO:HB2	4:9:602:MET:HE2	1.87	0.56
7:C:54:LEU:O	7:C:58:GLN:HG2	2.04	0.56
23:S:9:LYS:O	23:S:13:GLN:HB2	2.06	0.56
30:e:6:ASN:ND2	30:e:55:ILE:O	2.37	0.56
36:k:21:GLY:C	36:k:22:ARG:HD2	2.29	0.56
52:3:26:G:H2'	52:3:27:U:C6	2.39	0.56
52:3:177:U:H2'	52:3:178:A:H8	1.70	0.56
52:3:339:U:H2'	52:3:340:U:C6	2.40	0.56
52:3:420:A:H2'	52:3:421:A:O4'	2.06	0.56
52:3:746:G:H2'	52:3:747:A:H8	1.70	0.56
52:3:2055:A:H2'	52:3:2056:A:H8	1.71	0.56
52:3:2070:C:H3'	55:7:77:A:H3'	1.87	0.56
52:3:2099:U:H3	52:3:2235:A:N6	2.02	0.56
54:5:212:G:O2'	54:5:465:A:N6	2.38	0.56
54:5:929:C:O2	54:5:932:A:N6	2.37	0.56
54:5:1062:C:H2'	54:5:1063:G:C8	2.41	0.56
54:5:1062:C:H2'	54:5:1063:G:H8	1.69	0.56
54:5:1098:C:N4	54:5:1099:G:O6	2.38	0.56
54:5:1301:U:H2'	54:5:1302:C:H6	1.70	0.56
55:8:50:G:H2'	55:8:51:G:H8	1.70	0.56
9:E:37:THR:HA	9:E:60:TRP:HZ3	1.71	0.56
10:F:101:ARG:NH1	54:5:1350:A:O2'	2.38	0.56
19:O:5:ARG:HB3	19:O:8:TYR:HB3	1.87	0.56
26:a:9:ARG:NH2	52:3:1729:G:O2'	2.38	0.56
28:c:7:ILE:HB	28:c:126:HIS:HB3	1.87	0.56
39:n:2:LYS:NZ	52:3:2342:U:O4	2.31	0.56
46:u:55:ARG:NH2	52:3:2395:U:O2'	2.37	0.56
52:3:734:A:H62	52:3:768:G:H21	1.54	0.56
52:3:2104:A:H2'	52:3:2105:G:H8	1.71	0.56
52:3:2115:A:H2'	52:3:2116:U:H5'	1.86	0.56
4:9:677:LYS:HA	4:9:680:VAL:HG12	1.86	0.56
10:F:72:LEU:HD12	10:F:87:PRO:HB2	1.87	0.56
28:c:41:GLU:HB3	28:c:189:ARG:HE	1.70	0.56
52:3:1450:G:H2'	52:3:1451:A:H8	1.71	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1672:C:H4'	52:3:2717:G:H21	1.70	0.56
52:3:2868:G:C6	52:3:2869:U:O4	2.58	0.56
54:5:941:A:H2'	54:5:942:G:H8	1.69	0.56
4:9:190:LYS:H	4:9:264:ASN:HB2	1.70	0.56
20:P:59:ASP:OD2	20:P:83:ARG:NH2	2.38	0.56
26:a:210:LEU:HD22	54:5:770:G:H5''	1.86	0.56
36:k:48:ARG:HH12	52:3:255:A:H5'	1.69	0.56
37:l:67:ARG:NH1	52:3:943:A:O2'	2.38	0.56
52:3:267:A:O2'	52:3:465:A:O2'	2.24	0.56
52:3:1054:U:OP1	52:3:1070:U:O2'	2.24	0.56
54:5:473:A:H2'	54:5:474:G:C8	2.39	0.56
54:5:1402:U:H2'	54:5:1403:A:C8	2.41	0.56
29:d:34:ILE:HD12	29:d:96:MET:HG3	1.86	0.56
52:3:2097:A:H2'	52:3:2098:U:C6	2.40	0.56
52:3:2359:G:O2'	52:3:2374:A:N6	2.39	0.56
54:5:834:G:H2'	54:5:835:G:C8	2.41	0.56
29:d:57:LEU:HD21	29:d:89:VAL:HG23	1.88	0.56
52:3:174:A:H2'	52:3:175:A:H8	1.71	0.56
52:3:433:A:N6	52:3:434:G:O6	2.39	0.56
52:3:740:A:H2'	52:3:741:A:C8	2.41	0.56
7:C:118:ASN:ND2	54:5:400:G:O5'	2.39	0.56
35:j:88:LYS:HA	35:j:94:ARG:HE	1.70	0.56
44:s:51:LYS:NZ	52:3:1630:A:OP1	2.37	0.56
52:3:725:G:H4'	52:3:815:G:H5'	1.87	0.56
52:3:1979:G:H2'	52:3:1980:G:C8	2.40	0.56
52:3:2059:G:N1	52:3:2625:U:N3	2.41	0.56
52:3:2129:U:H2'	52:3:2130:A:C8	2.41	0.56
54:5:116:A:N1	54:5:229:G:O2'	2.35	0.56
54:5:253:G:O6	54:5:266:A:N6	2.39	0.56
10:F:56:LYS:HD3	10:F:57:PRO:HD2	1.87	0.56
18:N:78:LEU:HD11	18:N:83:ASN:HB3	1.88	0.56
52:3:24:U:H2'	52:3:25:G:C8	2.40	0.56
52:3:401:G:O2'	52:3:402:A:OP1	2.24	0.56
52:3:1187:C:H2'	52:3:1188:C:H6	1.69	0.56
52:3:2070:C:C6	52:3:2070:C:C5'	2.84	0.56
52:3:2683:G:O6	52:3:2740:U:O2	2.23	0.56
54:5:735:C:H2'	54:5:736:U:C6	2.40	0.56
54:5:1093:A:H2'	54:5:1094:C:C6	2.40	0.56
4:9:438:PHE:HB2	4:9:447:ILE:HB	1.88	0.55
11:G:101:PHE:HE1	11:G:129:ARG:HA	1.71	0.55
16:L:26:GLY:H	16:L:29:ARG:HB2	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:i:50:ASN:HB3	52:3:591:G:H1'	1.88	0.55
44:s:63:THR:N	44:s:75:SER:OG	2.39	0.55
52:3:513:A:O2'	52:3:514:A:OP1	2.24	0.55
54:5:649:U:O2	54:5:750:A:N7	2.38	0.55
54:5:1051:U:H2'	54:5:1052:G:H8	1.70	0.55
54:5:1316:C:H2'	54:5:1317:A:C4	2.41	0.55
54:5:1331:A:N6	54:5:1340:G:H1	2.01	0.55
20:P:15:SER:HG	20:P:23:THR:HG1	1.47	0.55
26:a:182:LEU:HD21	26:a:192:PHE:CD2	2.39	0.55
29:d:75:SER:OG	29:d:79:LEU:O	2.17	0.55
46:u:42:GLY:O	52:3:960:A:O2'	2.25	0.55
54:5:472:G:H2'	54:5:473:A:C8	2.41	0.55
54:5:1383:A:H2'	54:5:1384:A:H8	1.71	0.55
11:G:64:SER:OG	11:G:65:LYS:N	2.39	0.55
42:q:36:ASP:HA	42:q:54:ARG:HD3	1.88	0.55
47:v:39:LYS:HE2	47:v:64:LEU:HD11	1.88	0.55
52:3:1294:G:H2'	52:3:2021:A:H62	1.71	0.55
53:4:59:A:O2'	53:4:60:C:OP1	2.25	0.55
55:7:50:G:H2'	55:7:51:G:H8	1.70	0.55
8:D:110:GLU:HG3	8:D:111:VAL:H	1.71	0.55
11:G:21:LYS:HB3	11:G:33:VAL:HG11	1.87	0.55
45:t:3:ARG:NH1	45:t:74:LEU:O	2.35	0.55
45:t:80:LYS:HG3	45:t:109:ASN:HB3	1.88	0.55
52:3:603:G:N1	52:3:2507:C:OP1	2.38	0.55
52:3:1307:G:H2'	52:3:1308:A:C8	2.41	0.55
52:3:1744:U:H2'	52:3:1745:A:H8	1.72	0.55
54:5:707:G:H2'	54:5:708:A:H8	1.72	0.55
54:5:905:U:H2'	54:5:906:C:C6	2.42	0.55
50:y:50:ASP:HB3	50:y:51:LEU:HG	1.88	0.55
52:3:383:U:H2'	52:3:384:G:C8	2.42	0.55
52:3:2699:C:H2'	52:3:2700:C:H6	1.71	0.55
54:5:368:C:N4	54:5:384:G:OP2	2.39	0.55
54:5:558:U:H5'	54:5:559:U:H3'	1.89	0.55
4:9:414:THR:HB	4:9:417:ASP:HB3	1.88	0.55
11:G:21:LYS:NZ	11:G:34:THR:O	2.39	0.55
16:L:101:ARG:HE	54:5:1199:U:H4'	1.71	0.55
52:3:615:G:H2'	52:3:616:G:H8	1.71	0.55
52:3:646:A:N1	52:3:653:G:C6	2.75	0.55
52:3:2770:U:H2'	52:3:2771:G:O4'	2.07	0.55
53:4:31:G:H2'	53:4:32:G:C8	2.41	0.55
8:D:67:GLU:HB2	8:D:172:LEU:HD11	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:18:ALA:O	9:E:22:ASN:ND2	2.39	0.55
17:M:47:LEU:HB3	17:M:52:ALA:HB3	1.88	0.55
41:p:9:THR:OG1	52:3:1281:A:OP1	2.22	0.55
42:q:39:LEU:HD11	42:q:45:ILE:HG23	1.87	0.55
52:3:1137:C:H2'	52:3:1138:A:H8	1.72	0.55
52:3:1318:U:H2'	52:3:1319:C:C6	2.42	0.55
52:3:1884:A:H2'	52:3:1885:G:C8	2.41	0.55
52:3:2759:G:OP1	52:3:2759:G:N2	2.32	0.55
54:5:111:A:OP1	54:5:603:U:O2'	2.24	0.55
4:9:162:ILE:HG23	4:9:163:GLN:HG3	1.87	0.55
4:9:486:LYS:NZ	4:9:513:PRO:O	2.40	0.55
20:P:53:VAL:HG21	20:P:77:ILE:HG23	1.88	0.55
31:f:102:HIS:HE1	31:f:108:LEU:H	1.55	0.55
52:3:305:U:H3	52:3:399:G:H1	1.55	0.55
52:3:455:G:H2'	52:3:456:G:C8	2.42	0.55
52:3:1416:G:H2'	52:3:1417:G:H8	1.72	0.55
52:3:2126:A:N6	52:3:2176:G:O2'	2.40	0.55
52:3:2158:C:H2'	52:3:2159:U:C6	2.42	0.55
52:3:2637:A:O2'	52:3:2899:C:N4	2.39	0.55
54:5:1149:G:H2'	54:5:1150:G:C8	2.41	0.55
52:3:193:G:O6	52:3:209:G:O2'	2.22	0.55
52:3:276:A:O2'	52:3:405:C:O2'	2.21	0.55
54:5:1359:C:H2'	54:5:1360:G:C8	2.42	0.55
4:9:22:GLY:HA3	4:9:135:ASN:HD22	1.71	0.55
6:B:8:ASN:HD21	6:B:187:TYR:N	2.05	0.55
9:E:15:LEU:O	9:E:19:ASN:ND2	2.36	0.55
10:F:12:LEU:HD13	12:H:103:LYS:HD2	1.89	0.55
36:k:48:ARG:HH21	36:k:51:PHE:HD1	1.55	0.55
39:n:56:SER:H	39:n:59:ALA:HB3	1.72	0.55
44:s:60:ARG:NH1	52:3:1368:U:OP2	2.40	0.55
47:v:26:ARG:NH1	52:3:193:G:OP2	2.40	0.55
52:3:1496:A:N6	52:3:1547:G:O2'	2.40	0.55
52:3:2097:A:N6	52:3:2238:G:O6	2.40	0.55
54:5:118:C:H42	54:5:226:G:H1	1.54	0.55
54:5:141:A:H2'	54:5:142:G:C8	2.42	0.55
54:5:397:C:H2'	54:5:398:G:C8	2.42	0.55
54:5:947:U:H5''	54:5:959:A:H61	1.71	0.55
4:9:504:TYR:H	4:9:573:SER:HA	1.71	0.54
7:C:12:ARG:NH1	54:5:424:U:OP1	2.37	0.54
17:M:4:LYS:NZ	54:5:990:C:O2	2.41	0.54
52:3:632:A:H2'	52:3:633:G:C8	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2337:U:H2'	52:3:2338:G:C8	2.42	0.54
5:A:143:ASP:OD1	5:A:144:LEU:N	2.40	0.54
9:E:113:ALA:HB1	9:E:121:ARG:HH12	1.72	0.54
12:H:20:TYR:O	12:H:66:ASN:CB	2.55	0.54
21:Q:46:ILE:HG23	21:Q:48:GLN:H	1.71	0.54
26:a:174:ASP:OD1	26:a:177:GLY:N	2.28	0.54
29:d:8:TYR:HA	29:d:12:ILE:HD13	1.88	0.54
48:w:15:LEU:O	48:w:19:VAL:HG23	2.07	0.54
54:5:1439:G:H2'	54:5:1440:U:H6	1.72	0.54
23:S:40:ASN:OD1	23:S:43:ASN:ND2	2.34	0.54
27:b:225:GLN:HB3	40:o:19:LYS:HD3	1.89	0.54
30:e:141:LYS:NZ	52:3:2754:U:O3'	2.40	0.54
32:g:29:TYR:C	32:g:29:TYR:CD1	2.85	0.54
40:o:98:ARG:NH2	52:3:1761:C:OP1	2.40	0.54
52:3:1943:A:OP2	52:3:1969:C:N4	2.41	0.54
54:5:643:U:H2'	54:5:644:U:C6	2.43	0.54
35:j:64:ARG:NH2	35:j:99:PHE:O	2.41	0.54
39:n:11:ARG:HA	39:n:14:ARG:HE	1.72	0.54
44:s:93:VAL:HG11	48:w:31:PHE:HB3	1.89	0.54
52:3:321:A:H2'	52:3:322:A:C8	2.43	0.54
52:3:1071:G:O6	52:3:1154:U:O4	2.26	0.54
52:3:1328:A:OP2	52:3:1661:A:N6	2.41	0.54
54:5:719:G:O2'	54:5:720:U:O5'	2.25	0.54
4:9:7:LEU:HB3	4:9:282:VAL:HB	1.90	0.54
4:9:577:ALA:HA	4:9:580:ILE:HB	1.89	0.54
15:K:6:GLN:HA	15:K:9:ARG:HG2	1.89	0.54
15:K:123:ARG:HB2	15:K:123:ARG:NH1	2.22	0.54
37:l:82:ARG:HE	46:u:18:LYS:HB2	1.73	0.54
52:3:776:U:H2'	52:3:777:C:H6	1.72	0.54
52:3:2177:G:C2	55:8:57:C:C5	2.95	0.54
52:3:2476:A:N3	52:3:2490:A:N6	2.55	0.54
53:4:95:G:H2'	53:4:96:G:C8	2.43	0.54
54:5:113:C:O2	54:5:230:G:N2	2.40	0.54
54:5:292:U:H2'	54:5:293:G:C8	2.41	0.54
4:9:39:LYS:NZ	4:9:69:SER:HB3	2.22	0.54
21:Q:76:THR:OG1	21:Q:78:ASN:OD1	2.22	0.54
24:T:53:ARG:NH2	54:5:720:U:OP1	2.41	0.54
32:g:57:ASN:ND2	52:3:1081:A:O3'	2.40	0.54
52:3:1738:G:H2'	52:3:1739:G:C8	2.42	0.54
52:3:2038:A:O2'	52:3:2462:G:N2	2.37	0.54
52:3:2302:C:H2'	52:3:2303:U:O4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2451:C:H2'	52:3:2452:G:H8	1.72	0.54
10:F:29:ILE:HG13	10:F:38:ALA:HB1	1.89	0.54
26:a:82:THR:OG1	26:a:84:LYS:NZ	2.40	0.54
30:e:112:TYR:OH	30:e:154:TRP:O	2.25	0.54
50:y:57:TYR:OH	52:3:1311:G:N7	2.40	0.54
52:3:1414:C:H2'	52:3:1415:A:C8	2.42	0.54
52:3:1446:G:O2'	52:3:1613:A:N6	2.41	0.54
52:3:1774:G:H2'	52:3:1775:G:H8	1.71	0.54
52:3:2655:U:H2'	52:3:2656:G:C8	2.42	0.54
54:5:169:G:N2	54:5:219:A:O2'	2.40	0.54
4:9:490:VAL:HG12	4:9:509:ILE:H	1.71	0.54
10:F:87:PRO:HD2	10:F:151:ALA:HB2	1.90	0.54
13:I:52:LYS:HG2	13:I:74:ASN:HA	1.88	0.54
19:O:13:ILE:HG22	19:O:30:ILE:HB	1.90	0.54
41:p:79:ILE:HA	41:p:82:LEU:HD12	1.90	0.54
52:3:42:U:H2'	52:3:43:A:H8	1.73	0.54
52:3:371:C:H2'	52:3:372:G:O4'	2.08	0.54
52:3:1415:A:H2'	52:3:1416:G:H8	1.72	0.54
52:3:2802:C:OP2	52:3:2805:A:N6	2.40	0.54
54:5:421:G:H2'	54:5:422:A:H8	1.72	0.54
4:9:494:TYR:HE1	4:9:503:GLN:HB3	1.73	0.54
6:B:22:TRP:HB3	6:B:60:ARG:H	1.71	0.54
6:B:52:GLN:HB3	6:B:118:ILE:HG22	1.89	0.54
9:E:107:LEU:HD22	21:Q:46:ILE:HB	1.89	0.54
15:K:25:HIS:HE1	54:5:551:A:H4'	1.72	0.54
18:N:47:PHE:HB3	54:5:761:U:H4'	1.88	0.54
32:g:93:LEU:HB3	32:g:127:ALA:HB2	1.90	0.54
39:n:96:SER:OG	53:4:46:C:OP1	2.16	0.54
52:3:313:G:H2'	52:3:314:G:C8	2.43	0.54
52:3:2413:G:O2'	52:3:2419:A:N6	2.39	0.54
52:3:2822:C:H2'	52:3:2823:A:C8	2.43	0.54
54:5:214:U:H2'	54:5:215:C:C6	2.43	0.54
4:9:332:VAL:HG22	4:9:368:ARG:HA	1.89	0.54
4:9:540:ALA:O	4:9:544:ASN:N	2.38	0.54
9:E:57:TYR:OH	21:Q:96:LEU:O	2.22	0.54
14:J:48:SER:OG	54:5:692:A:OP2	2.26	0.54
32:g:26:ILE:O	32:g:109:VAL:HB	2.08	0.54
40:o:31:VAL:HG12	40:o:90:LEU:HA	1.89	0.54
41:p:80:ASN:HD22	52:3:1186:A:H4'	1.73	0.54
47:v:18:ARG:NH1	47:v:23:THR:O	2.40	0.54
52:3:1344:U:H2'	52:3:1345:G:C8	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1556:U:N3	52:3:1574:G:O6	2.41	0.54
52:3:1582:G:H2'	52:3:1583:G:C8	2.43	0.54
52:3:2088:U:H2'	52:3:2089:A:H8	1.73	0.54
54:5:834:G:H2'	54:5:835:G:H8	1.73	0.54
6:B:159:ARG:NH2	6:B:196:TYR:O	2.41	0.53
15:K:123:ARG:HA	54:5:536:U:OP1	2.08	0.53
25:W:71:LEU:HA	25:W:89:VAL:HG11	1.89	0.53
26:a:28:THR:OG1	26:a:32:LYS:NZ	2.40	0.53
26:a:45:GLY:O	26:a:47:ARG:NH1	2.41	0.53
33:h:79:ALA:HB1	33:h:100:LYS:HD3	1.90	0.53
36:k:115:ILE:HD11	52:3:672:G:C4	2.43	0.53
43:r:132:GLN:NE2	52:3:580:U:O3'	2.39	0.53
52:3:190:G:H2'	52:3:191:G:H8	1.73	0.53
52:3:915:A:N7	52:3:936:G:O2'	2.39	0.53
52:3:2441:A:N3	55:8:75:C:N4	2.56	0.53
54:5:26:C:H2'	54:5:27:A:H8	1.73	0.53
54:5:884:G:N2	54:5:885:U:O4	2.41	0.53
54:5:928:G:H1	54:5:1359:C:H42	1.56	0.53
54:5:1417:U:N3	54:5:1418:G:O6	2.42	0.53
54:5:1438:U:H2'	54:5:1439:G:H8	1.72	0.53
55:7:30:G:H2'	55:7:31:G:C8	2.43	0.53
7:C:91:ARG:HH21	7:C:181:PHE:HB3	1.73	0.53
29:d:37:ASN:HD22	52:3:2321:C:H1'	1.73	0.53
33:h:16:GLY:N	33:h:49:GLU:O	2.41	0.53
52:3:1470:C:H2'	52:3:1471:A:C8	2.40	0.53
52:3:1514:U:O2	52:3:1525:G:O6	2.26	0.53
52:3:1829:U:H2'	52:3:1830:G:H8	1.72	0.53
52:3:2159:U:H2'	52:3:2160:U:C6	2.43	0.53
52:3:2411:C:H2'	52:3:2412:A:H8	1.73	0.53
52:3:2504:C:H2'	52:3:2505:A:C4	2.43	0.53
52:3:2508:U:O2'	52:3:2512:U:OP1	2.23	0.53
54:5:733:A:H2'	54:5:734:A:C8	2.42	0.53
54:5:976:U:H3'	54:5:977:U:H2'	1.89	0.53
55:7:65:C:H2'	55:7:66:C:C6	2.43	0.53
22:R:37:ARG:HB3	54:5:1294:U:N3	2.21	0.53
24:T:37:ARG:HB2	24:T:40:MET:HB2	1.89	0.53
52:3:2054:C:H2'	52:3:2055:A:C8	2.43	0.53
52:3:2150:C:H2'	52:3:2151:G:O4'	2.09	0.53
54:5:195:U:H2'	54:5:196:G:C8	2.43	0.53
54:5:797:G:N2	54:5:798:U:O4	2.41	0.53
54:5:1087:C:H2'	54:5:1088:C:C6	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:8:30:G:H2'	55:8:31:G:C8	2.43	0.53
4:9:310:LEU:H	4:9:329:TYR:HE1	1.54	0.53
8:D:78:LYS:NZ	8:D:80:THR:OG1	2.34	0.53
8:D:182:ASN:ND2	8:D:191:MET:SD	2.81	0.53
27:b:26:ILE:HG21	27:b:192:LEU:HB3	1.90	0.53
29:d:110:ARG:HB3	29:d:137:ILE:HD11	1.90	0.53
35:j:35:LEU:H	35:j:35:LEU:HD12	1.72	0.53
44:s:14:GLU:N	44:s:14:GLU:OE1	2.41	0.53
52:3:360:G:H2'	52:3:361:G:C8	2.44	0.53
52:3:1511:C:H2'	52:3:1512:A:H8	1.74	0.53
52:3:2853:U:O2'	52:3:2870:U:O2	2.27	0.53
54:5:308:C:H2'	54:5:309:A:H8	1.73	0.53
54:5:1349:A:H2'	54:5:1350:A:C8	2.43	0.53
4:9:340:LYS:HB2	4:9:347:LYS:HD3	1.91	0.53
39:n:37:ASN:OD1	53:4:50:C:N4	2.37	0.53
43:r:88:ARG:HG3	43:r:89:ALA:H	1.73	0.53
52:3:1612:U:H2'	52:3:1613:A:H8	1.74	0.53
52:3:1803:U:H2'	52:3:1804:A:C8	2.43	0.53
52:3:2071:C:C2	55:7:77:A:H4'	2.43	0.53
52:3:2093:U:H2'	52:3:2094:A:C8	2.44	0.53
52:3:2531:C:H2'	52:3:2532:G:H8	1.74	0.53
52:3:2745:G:H2'	52:3:2746:A:C8	2.44	0.53
54:5:74:U:O4	54:5:75:A:N6	2.42	0.53
12:H:97:LYS:O	12:H:101:LYS:N	2.38	0.53
52:3:960:A:O2'	52:3:961:U:O4'	2.23	0.53
52:3:1415:A:H2'	52:3:1416:G:C8	2.43	0.53
52:3:2105:G:H2'	52:3:2106:G:C8	2.43	0.53
52:3:2704:U:H2'	52:3:2705:G:H8	1.74	0.53
4:9:569:HIS:HB3	4:9:572:ASP:HB2	1.91	0.53
52:3:722:C:H42	52:3:822:C:H4'	1.74	0.53
52:3:1082:A:O2'	52:3:1146:A:N6	2.42	0.53
52:3:1344:U:H2'	52:3:1345:G:H8	1.74	0.53
52:3:2407:G:H2'	52:3:2408:G:C8	2.43	0.53
37:l:31:GLU:N	37:l:106:VAL:O	2.38	0.53
52:3:647:G:O2'	52:3:649:A:OP1	2.23	0.53
52:3:731:A:H2'	52:3:732:G:C8	2.44	0.53
52:3:1032:A:H2'	52:3:1033:A:C8	2.43	0.53
52:3:1504:G:H2'	52:3:1505:G:H8	1.73	0.53
52:3:2155:G:H2'	52:3:2156:G:O4'	2.08	0.53
52:3:2407:G:H2'	52:3:2408:G:H8	1.74	0.53
52:3:2436:G:H5''	52:3:2437:G:H5'	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2599:C:H2'	52:3:2600:G:H8	1.72	0.53
53:4:85:A:O2'	53:4:86:G:O4'	2.25	0.53
16:L:109:ARG:HD2	54:5:1281:U:H4'	1.91	0.53
19:O:3:MET:HG2	19:O:10:THR:O	2.09	0.53
30:e:106:LEU:HG	30:e:120:ILE:HD11	1.91	0.53
36:k:95:ARG:O	36:k:99:ILE:HG23	2.09	0.53
52:3:39:C:H2'	52:3:40:A:H8	1.73	0.53
52:3:831:U:H2'	52:3:832:C:C6	2.43	0.53
52:3:874:U:H2'	52:3:875:G:C8	2.44	0.53
52:3:1544:G:H2'	52:3:1545:A:C8	2.44	0.53
52:3:1860:A:H2'	52:3:1861:A:C8	2.44	0.53
52:3:2119:A:H2'	52:3:2120:G:C8	2.44	0.53
52:3:2447:A:O2'	52:3:2608:A:OP1	2.17	0.53
54:5:528:G:OP2	54:5:528:G:N2	2.32	0.53
55:8:65:C:H2'	55:8:66:C:C6	2.43	0.53
4:9:602:MET:SD	4:9:669:PHE:HA	2.48	0.53
12:H:109:ASP:O	12:H:110:LYS:HG2	2.09	0.53
13:I:63:VAL:HG23	54:5:967:C:O2'	2.08	0.53
19:O:10:THR:HG23	19:O:32:HIS:NE2	2.23	0.53
19:O:25:LYS:NZ	54:5:307:C:OP1	2.27	0.53
28:c:83:HIS:HB2	52:3:1284:A:N6	2.24	0.53
45:t:3:ARG:HG2	45:t:4:ILE:HG13	1.91	0.53
52:3:2094:A:H2'	52:3:2095:A:C8	2.44	0.53
52:3:2103:C:H2'	52:3:2104:A:H8	1.74	0.53
52:3:2476:A:H2'	52:3:2484:A:C2	2.44	0.53
52:3:2657:C:H2'	52:3:2658:U:C6	2.44	0.53
54:5:37:C:O2'	54:5:499:U:OP1	2.26	0.53
54:5:674:U:H3	54:5:710:G:H22	1.57	0.53
54:5:1304:U:H3'	54:5:1305:G:C8	2.44	0.53
4:9:419:GLU:O	4:9:423:ILE:HG13	2.09	0.52
5:A:87:THR:HG21	5:A:111:ARG:HB3	1.91	0.52
19:O:62:THR:HG21	54:5:371:U:H5''	1.90	0.52
26:a:144:GLY:H	26:a:170:ILE:HB	1.74	0.52
27:b:18:THR:OG1	27:b:221:GLU:O	2.24	0.52
32:g:7:LYS:NZ	52:3:1081:A:O2'	2.41	0.52
52:3:33:C:H2'	52:3:34:C:C6	2.44	0.52
52:3:279:U:H2'	52:3:280:A:H8	1.75	0.52
52:3:2516:G:H1	52:3:2588:U:H3	1.57	0.52
52:3:2787:U:C4	52:3:2789:A:N1	2.78	0.52
54:5:1068:G:N2	54:5:1071:A:OP2	2.35	0.52
11:G:98:TYR:HD2	54:5:596:U:H4'	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:M:23:ARG:HB3	17:M:30:ALA:HA	1.91	0.52
30:e:23:ASP:O	30:e:24:HIS:ND1	2.43	0.52
37:l:109:ILE:HG13	37:l:110:PRO:HD2	1.92	0.52
52:3:1946:U:H4'	52:3:2611:G:H21	1.74	0.52
52:3:2653:G:OP2	52:3:2653:G:N2	2.32	0.52
54:5:157:A:O2'	54:5:158:A:O4'	2.25	0.52
11:G:38:SER:HB3	11:G:41:LYS:HG3	1.92	0.52
14:J:16:VAL:HG13	14:J:79:VAL:HG23	1.91	0.52
18:N:22:ILE:HG21	18:N:67:LEU:HG	1.92	0.52
26:a:69:ILE:HD12	26:a:92:ARG:HE	1.73	0.52
34:i:72:LYS:HD2	34:i:93:ARG:HA	1.91	0.52
38:m:28:TYR:OH	38:m:71:ASN:OD1	2.26	0.52
45:t:11:VAL:HG11	45:t:86:ILE:HG22	1.90	0.52
52:3:444:C:H2'	52:3:445:C:C6	2.43	0.52
52:3:1848:U:H2'	52:3:1849:G:H8	1.74	0.52
52:3:2744:A:H2'	52:3:2745:G:C8	2.44	0.52
8:D:208:VAL:HA	8:D:211:LEU:HG	1.91	0.52
26:a:138:LEU:HD13	26:a:180:VAL:HG11	1.91	0.52
28:c:175:ILE:HG22	28:c:178:VAL:H	1.75	0.52
52:3:1416:G:H2'	52:3:1417:G:C8	2.44	0.52
52:3:2268:C:H2'	52:3:2269:C:H6	1.75	0.52
52:3:2861:G:N2	52:3:2864:A:OP2	2.38	0.52
4:9:77:LEU:HD21	4:9:275:VAL:HG12	1.91	0.52
9:E:8:LEU:HD23	9:E:84:ARG:HB2	1.91	0.52
12:H:12:ARG:HD3	12:H:79:GLY:HA3	1.92	0.52
28:c:156:ASN:HB2	28:c:194:ALA:HA	1.91	0.52
34:i:72:LYS:HA	34:i:92:GLY:HA3	1.91	0.52
36:k:22:ARG:HH11	52:3:1280:G:P	2.33	0.52
43:r:2:ILE:HG13	43:r:3:ALA:H	1.73	0.52
52:3:1073:A:H2'	52:3:1074:A:C8	2.42	0.52
52:3:1186:A:H2'	52:3:1187:C:O4'	2.09	0.52
52:3:1762:A:H2	52:3:2724:U:H1'	1.74	0.52
52:3:1994:U:H2'	52:3:1995:G:H8	1.74	0.52
52:3:2781:C:H2'	52:3:2782:A:C8	2.45	0.52
54:5:536:U:H2'	54:5:537:A:C8	2.45	0.52
54:5:644:U:H2'	54:5:645:A:H8	1.74	0.52
55:7:66:C:H2'	55:7:67:C:H6	1.74	0.52
4:9:417:ASP:HA	4:9:420:LYS:HE2	1.91	0.52
12:H:89:LEU:HD23	12:H:100:LEU:HD22	1.92	0.52
18:N:36:LEU:HB3	18:N:53:LEU:HD13	1.91	0.52
33:h:98:MET:HE3	33:h:102:LYS:HB2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:l:32:TYR:HE1	37:l:133:LYS:HD2	1.74	0.52
38:m:44:ARG:O	38:m:48:LEU:HG	2.10	0.52
52:3:279:U:H2'	52:3:280:A:C8	2.44	0.52
52:3:509:G:H2'	52:3:510:G:C8	2.44	0.52
52:3:984:C:H2'	52:3:985:A:C8	2.41	0.52
52:3:2484:A:O2'	52:3:2485:U:O4'	2.16	0.52
54:5:421:G:H2'	54:5:422:A:C8	2.45	0.52
54:5:557:A:H4'	54:5:558:U:H5''	1.90	0.52
1:0:43:THR:O	1:0:46:SER:OG	2.25	0.52
2:1:30:ALA:HB1	2:1:33:LYS:HD3	1.90	0.52
4:9:243:CYS:HA	4:9:246:LYS:HD3	1.90	0.52
27:b:144:GLN:OE1	27:b:144:GLN:N	2.40	0.52
29:d:120:LYS:HG3	52:3:2311:G:H5''	1.91	0.52
41:p:97:LEU:HB3	42:q:13:LEU:HD22	1.91	0.52
48:w:105:ARG:NH2	52:3:1431:A:OP1	2.43	0.52
51:z:8:ARG:HH21	52:3:2427:U:HO2'	1.54	0.52
52:3:615:G:H2'	52:3:616:G:C8	2.45	0.52
52:3:1095:U:O4'	52:3:1097:G:H5'	2.10	0.52
54:5:501:A:O2'	54:5:508:A:N6	2.43	0.52
4:9:442:GLU:HG3	4:9:443:THR:H	1.73	0.52
20:P:74:ARG:HE	54:5:230:G:H4'	1.75	0.52
29:d:29:PRO:HB3	29:d:165:GLU:HB3	1.90	0.52
30:e:166:LEU:HD21	30:e:172:ILE:HD11	1.92	0.52
36:k:69:ARG:HB3	36:k:72:PHE:HB2	1.91	0.52
40:o:62:GLU:HB3	40:o:81:ILE:HD12	1.92	0.52
41:p:75:TYR:O	41:p:79:ILE:HG12	2.10	0.52
8:D:183:LEU:HD11	54:5:558:U:C4	2.44	0.52
12:H:97:LYS:HE3	12:H:106:THR:HG21	1.92	0.52
13:I:18:SER:HB2	13:I:102:VAL:HG12	1.92	0.52
15:K:76:VAL:HG22	15:K:77:LEU:H	1.74	0.52
32:g:49:SER:HA	32:g:86:VAL:H	1.75	0.52
52:3:144:C:H2'	52:3:145:A:C8	2.45	0.52
52:3:399:G:H2'	52:3:400:A:H8	1.75	0.52
52:3:1363:C:H2'	52:3:1364:A:H8	1.74	0.52
52:3:1743:U:H2'	52:3:1744:U:C6	2.44	0.52
54:5:41:C:H2'	54:5:42:G:C8	2.45	0.52
54:5:507:A:O2'	54:5:508:A:O4'	2.24	0.52
54:5:891:C:N4	54:5:892:G:O6	2.42	0.52
4:9:352:ARG:HG2	4:9:363:GLU:HG3	1.91	0.52
6:B:22:TRP:HZ3	6:B:30:THR:HB	1.74	0.52
26:a:233:MET:N	26:a:233:MET:SD	2.83	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:g:100:VAL:HG23	32:g:106:MET:HG2	1.92	0.52
52:3:47:G:H5''	52:3:48:G:H5'	1.92	0.52
52:3:599:U:H2'	52:3:600:U:C6	2.44	0.52
52:3:1015:G:H3'	52:3:1016:A:H5''	1.92	0.52
52:3:1028:C:H2'	52:3:1029:A:H8	1.74	0.52
52:3:2104:A:H2'	52:3:2105:G:C8	2.45	0.52
52:3:2749:A:H62	52:3:2771:G:N2	2.06	0.52
54:5:394:U:H2'	54:5:395:G:C8	2.45	0.52
54:5:510:U:H2'	54:5:511:A:C8	2.44	0.52
54:5:1099:G:O2'	54:5:1100:C:OP1	2.26	0.52
4:9:132:ILE:HB	4:9:256:VAL:HG22	1.92	0.51
4:9:261:ALA:O	4:9:264:ASN:ND2	2.42	0.51
32:g:48:GLY:O	32:g:86:VAL:HB	2.10	0.51
42:q:87:GLN:NE2	42:q:88:PRO:O	2.42	0.51
52:3:17:G:O6	52:3:560:U:O4	2.28	0.51
52:3:947:A:H1'	52:3:2272:C:O2'	2.10	0.51
52:3:1511:C:H2'	52:3:1512:A:C8	2.45	0.51
54:5:141:A:H2'	54:5:142:G:H8	1.74	0.51
54:5:1301:U:H2'	54:5:1302:C:C6	2.45	0.51
16:L:14:ARG:HG2	16:L:44:ARG:H	1.76	0.51
26:a:205:ASN:ND2	26:a:208:HIS:HE1	2.08	0.51
27:b:18:THR:HA	27:b:222:LEU:HA	1.92	0.51
37:l:1:MET:N	37:l:48:GLU:HB2	2.25	0.51
39:n:25:ASP:OD1	39:n:26:ASN:N	2.43	0.51
43:r:28:LYS:HG3	43:r:29:THR:H	1.75	0.51
52:3:597:C:H2'	52:3:598:G:H8	1.74	0.51
52:3:1758:C:H2'	52:3:1759:C:C6	2.45	0.51
52:3:2552:G:H2'	52:3:2553:G:C8	2.45	0.51
54:5:165:A:H61	54:5:197:A:H3'	1.74	0.51
54:5:300:A:H2'	54:5:301:G:O4'	2.11	0.51
54:5:1385:A:H2'	54:5:1386:C:C6	2.45	0.51
55:7:72:C:H2'	55:7:73:C:C6	2.45	0.51
15:K:122:LYS:HB2	15:K:122:LYS:HZ3	1.76	0.51
22:R:10:PHE:HB3	54:5:1292:A:H4'	1.92	0.51
23:S:59:ILE:HG22	23:S:60:ILE:HG12	1.90	0.51
29:d:89:VAL:HA	53:4:40:U:H3	1.74	0.51
52:3:118:G:OP2	52:3:120:A:O2'	2.18	0.51
52:3:919:C:N4	52:3:920:G:O6	2.43	0.51
52:3:2085:C:H2'	52:3:2086:U:C6	2.45	0.51
54:5:115:A:N6	54:5:179:U:O2'	2.44	0.51
54:5:680:G:H2'	54:5:681:U:C6	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:941:A:H2'	54:5:942:G:C8	2.45	0.51
55:8:66:C:H2'	55:8:67:C:H6	1.74	0.51
20:P:6:ARG:HG3	20:P:64:VAL:HB	1.93	0.51
32:g:29:TYR:CD1	32:g:29:TYR:O	2.64	0.51
36:k:94:ASN:N	36:k:97:SER:OG	2.36	0.51
41:p:8:GLN:OE1	52:3:1228:G:O2'	2.27	0.51
52:3:39:C:H2'	52:3:40:A:C8	2.46	0.51
52:3:731:A:H2'	52:3:732:G:H8	1.75	0.51
52:3:1319:C:H2'	52:3:1320:C:H6	1.75	0.51
52:3:1697:C:O2'	52:3:2694:A:H4'	2.10	0.51
54:5:595:G:H2'	54:5:596:U:O4'	2.11	0.51
10:F:92:GLN:NE2	10:F:93:ASP:OD1	2.43	0.51
14:J:28:SER:HA	14:J:34:VAL:HA	1.93	0.51
21:Q:41:CYS:HB3	21:Q:44:CYS:HB2	1.92	0.51
29:d:129:THR:HG22	29:d:155:THR:HG22	1.91	0.51
52:3:627:U:H2'	52:3:628:A:H8	1.74	0.51
52:3:960:A:H2'	52:3:961:U:C6	2.45	0.51
52:3:1246:U:H2'	52:3:1247:C:C6	2.46	0.51
52:3:1537:A:H2'	52:3:1538:U:C6	2.45	0.51
54:5:461:G:O6	54:5:462:G:N2	2.43	0.51
54:5:568:G:H2'	54:5:569:U:C6	2.46	0.51
54:5:644:U:H2'	54:5:645:A:C8	2.46	0.51
54:5:1501:G:H2'	54:5:1502:G:C8	2.44	0.51
6:B:59:GLU:HB2	6:B:66:ASP:HB2	1.93	0.51
6:B:138:ARG:O	6:B:142:ILE:HG23	2.10	0.51
8:D:136:ILE:HG23	8:D:202:GLN:NE2	2.21	0.51
9:E:4:ASN:HB2	9:E:88:ILE:HB	1.92	0.51
10:F:19:ASN:HD21	10:F:21:LEU:HB2	1.75	0.51
10:F:22:VAL:O	10:F:26:ILE:HG13	2.11	0.51
52:3:1049:U:H2'	52:3:1050:A:C8	2.45	0.51
52:3:2470:C:H1'	52:3:2499:U:H3	1.76	0.51
52:3:2704:U:H2'	52:3:2705:G:C8	2.45	0.51
54:5:245:U:H2'	54:5:246:A:C8	2.46	0.51
54:5:1262:A:H2'	54:5:1263:A:C8	2.45	0.51
55:7:18:C:H5''	55:7:19:G:H5''	1.92	0.51
10:F:62:GLU:HA	10:F:65:VAL:HG22	1.93	0.51
15:K:80:ILE:HG12	15:K:110:ILE:HG21	1.92	0.51
15:K:123:ARG:HH11	15:K:123:ARG:CG	2.24	0.51
29:d:66:VAL:HG21	53:4:40:U:C6	2.45	0.51
30:e:61:LEU:O	30:e:65:LYS:HG2	2.11	0.51
36:k:58:LEU:HD12	36:k:61:ARG:HH12	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:l:10:ARG:HH21	37:l:90:PRO:HG2	1.76	0.51
50:y:14:ASP:HB3	52:3:18:G:H5''	1.93	0.51
52:3:321:A:H2'	52:3:322:A:H8	1.75	0.51
52:3:1450:G:H2'	52:3:1451:A:C8	2.45	0.51
52:3:2736:U:O2'	52:3:2737:G:H8	1.93	0.51
54:5:747:C:H2'	54:5:748:U:C6	2.46	0.51
54:5:951:U:O2	54:5:1200:G:N2	2.44	0.51
54:5:1144:A:H8	54:5:1145:A:C8	2.29	0.51
55:7:69:A:H2'	55:7:70:G:H8	1.76	0.51
55:8:68:G:H2'	55:8:69:A:H8	1.76	0.51
55:8:69:A:H2'	55:8:70:G:H8	1.76	0.51
20:P:69:LEU:O	54:5:261:G:O2'	2.21	0.51
23:S:23:GLY:O	23:S:27:LYS:HG2	2.11	0.51
47:v:56:ARG:NH1	52:3:435:U:OP2	2.43	0.51
48:w:11:SER:HB3	48:w:15:LEU:HD12	1.93	0.51
52:3:1792:A:C6	52:3:1794:A:H1'	2.46	0.51
54:5:512:U:H2'	54:5:513:G:H8	1.76	0.51
54:5:770:G:H2'	54:5:771:G:H8	1.74	0.51
26:a:38:LEU:HD23	26:a:65:LYS:HD2	1.93	0.51
26:a:137:PRO:HA	26:a:197:ARG:HA	1.93	0.51
32:g:31:SER:O	32:g:31:SER:OG	2.23	0.51
32:g:33:SER:O	32:g:36:GLU:N	2.44	0.51
33:h:122:LYS:HE3	52:3:1115:G:H4'	1.92	0.51
37:l:77:LYS:HB3	37:l:81:VAL:HG11	1.92	0.51
52:3:61:U:H1'	52:3:75:A:H2'	1.93	0.51
52:3:168:A:H2'	52:3:169:U:C6	2.46	0.51
52:3:874:U:H2'	52:3:875:G:H8	1.75	0.51
52:3:1734:A:N6	54:5:1450:C:OP1	2.43	0.51
52:3:2459:A:N6	52:3:2512:U:O4	2.44	0.51
52:3:2623:U:H2'	52:3:2624:C:C6	2.45	0.51
54:5:123:U:H3	54:5:222:U:H3	1.58	0.51
54:5:1330:A:H2'	54:5:1331:A:H8	1.75	0.51
55:8:72:C:H2'	55:8:73:C:C6	2.45	0.51
4:9:66:ALA:HA	4:9:80:ILE:HG13	1.93	0.51
4:9:310:LEU:HD21	4:9:395:GLN:HG3	1.92	0.51
4:9:466:GLU:OE1	4:9:466:GLU:N	2.44	0.51
7:C:79:LEU:HD12	7:C:203:LEU:HD13	1.92	0.51
13:I:69:GLU:OE2	17:M:45:ARG:NE	2.40	0.51
27:b:129:LYS:HD3	52:3:2519:U:H5''	1.92	0.51
35:j:43:VAL:HG23	35:j:54:LYS:HA	1.92	0.51
52:3:383:U:H2'	52:3:384:G:H8	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:441:U:H3'	52:3:442:G:H8	1.75	0.51
52:3:730:G:H2'	52:3:731:A:H8	1.76	0.51
52:3:875:G:H2'	52:3:876:A:H8	1.76	0.51
52:3:1300:C:O2	52:3:1353:G:O2'	2.23	0.51
52:3:1311:G:N1	52:3:1314:A:OP2	2.44	0.51
54:5:818:A:H2'	54:5:819:G:C8	2.47	0.51
54:5:1010:A:H2'	54:5:1011:A:C8	2.46	0.51
54:5:1100:C:H2'	54:5:1101:A:C8	2.46	0.51
8:D:138:HIS:CE1	8:D:203:LEU:H	2.29	0.50
9:E:152:PRO:HA	11:G:56:ASN:HD22	1.77	0.50
14:J:16:VAL:HG23	14:J:25:VAL:HG12	1.94	0.50
16:L:14:ARG:HG2	16:L:43:LYS:HA	1.93	0.50
16:L:26:GLY:O	16:L:30:SER:N	2.36	0.50
32:g:63:LEU:HD22	32:g:71:ILE:HA	1.93	0.50
35:j:8:LEU:N	35:j:18:GLN:HE22	2.10	0.50
36:k:72:PHE:HZ	52:3:2414:U:H1'	1.76	0.50
37:l:85:SER:HB3	46:u:21:VAL:HG12	1.93	0.50
46:u:23:SER:HA	52:3:2264:G:H4'	1.92	0.50
52:3:827:G:H21	52:3:2079:G:H1'	1.76	0.50
52:3:1070:U:H2'	52:3:1071:G:C8	2.46	0.50
52:3:1188:C:H2'	52:3:1189:G:O4'	2.11	0.50
52:3:2062:C:H2'	52:3:2512:U:H4'	1.93	0.50
54:5:857:U:O2	54:5:860:C:N4	2.35	0.50
54:5:1156:G:H1'	54:5:1157:G:C4	2.46	0.50
54:5:1410:A:H2'	54:5:1411:A:H8	1.76	0.50
54:5:1463:A:H2'	54:5:1464:G:H8	1.76	0.50
55:7:68:G:H2'	55:7:69:A:H8	1.76	0.50
5:A:35:ARG:HE	5:A:37:TRP:HE1	1.59	0.50
12:H:30:ILE:HG12	12:H:50:MET:HE1	1.93	0.50
38:m:18:VAL:HG13	38:m:41:THR:HG22	1.93	0.50
45:t:36:VAL:HG23	45:t:39:LEU:HB3	1.92	0.50
52:3:676:U:H2'	52:3:677:U:C6	2.46	0.50
52:3:2094:A:H2'	52:3:2095:A:H8	1.76	0.50
52:3:2299:U:H2'	52:3:2300:A:H8	1.76	0.50
54:5:636:G:O6	54:5:637:A:N6	2.44	0.50
54:5:1436:C:H2'	54:5:1437:A:C8	2.47	0.50
10:F:73:GLU:HG2	10:F:90:VAL:HB	1.93	0.50
14:J:34:VAL:HG12	54:5:681:U:O2	2.11	0.50
26:a:279:ILE:HA	26:a:286:GLN:HE22	1.76	0.50
49:x:25:ILE:O	49:x:26:GLU:HG3	2.12	0.50
52:3:665:C:O2	52:3:675:U:O2'	2.30	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1007:C:H2'	52:3:1008:A:O4'	2.11	0.50
52:3:1106:G:O2'	52:3:1124:G:OP2	2.22	0.50
52:3:2134:G:H2'	52:3:2135:C:C6	2.45	0.50
52:3:2209:U:H2'	52:3:2210:G:C8	2.46	0.50
52:3:2744:A:H2'	52:3:2745:G:H8	1.75	0.50
54:5:561:A:O2'	54:5:564:G:O2'	2.23	0.50
54:5:940:G:C2	54:5:941:A:C8	2.99	0.50
55:8:18:C:H5''	55:8:19:G:H5''	1.92	0.50
28:c:165:ASN:OD1	28:c:166:THR:N	2.44	0.50
45:t:79:GLN:N	45:t:79:GLN:OE1	2.44	0.50
51:z:19:TYR:OH	52:3:2355:C:O2'	2.30	0.50
52:3:646:A:N6	52:3:647:G:O6	2.44	0.50
52:3:713:C:H2'	52:3:714:G:C8	2.46	0.50
52:3:755:C:H2'	52:3:756:A:C8	2.43	0.50
52:3:849:C:H42	52:3:1224:G:H1	1.60	0.50
52:3:1767:A:H2'	52:3:1768:G:C8	2.46	0.50
52:3:2812:U:H1'	52:3:2813:A:C8	2.46	0.50
54:5:968:G:H2'	54:5:969:A:C8	2.46	0.50
4:9:410:VAL:HB	4:9:474:GLY:H	1.75	0.50
5:A:32:MET:SD	5:A:203:ASN:ND2	2.81	0.50
5:A:176:LEU:HD21	5:A:198:VAL:HG12	1.94	0.50
11:G:108:LEU:HD23	11:G:111:LEU:HB3	1.94	0.50
43:r:74:CYS:HB2	43:r:105:VAL:HG12	1.94	0.50
43:r:102:ASN:HD21	52:3:26:G:H4'	1.76	0.50
52:3:1201:A:H2'	52:3:1202:A:C8	2.47	0.50
54:5:1204:A:H2'	54:5:1205:C:C6	2.46	0.50
2:1:15:LYS:O	2:1:16:SER:OG	2.30	0.50
4:9:175:ILE:HB	4:9:183:VAL:HB	1.92	0.50
14:J:105:GLU:OE1	14:J:105:GLU:N	2.44	0.50
26:a:230:GLY:HA2	26:a:233:MET:HE1	1.93	0.50
27:b:116:GLY:HA2	27:b:170:GLY:HA3	1.92	0.50
28:c:26:ALA:HB2	28:c:113:HIS:HD2	1.76	0.50
44:s:50:ILE:HG23	48:w:83:ALA:HB2	1.93	0.50
52:3:752:C:H3'	52:3:753:A:H8	1.76	0.50
52:3:2084:A:H2'	52:3:2085:C:H6	1.77	0.50
52:3:2528:C:C6	52:3:2575:G:H1'	2.46	0.50
52:3:2593:U:H4'	52:3:2594:C:H5'	1.92	0.50
54:5:134:G:H2'	54:5:135:A:O4'	2.11	0.50
54:5:412:G:H2'	54:5:413:G:C8	2.42	0.50
54:5:418:U:O2'	54:5:419:A:N7	2.42	0.50
54:5:973:A:N6	54:5:1290:G:O2'	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1246:A:H2'	54:5:1247:G:C8	2.46	0.50
4:9:525:ILE:HG21	4:9:530:ILE:HG12	1.94	0.50
22:R:3:ARG:NH1	54:5:1287:G:N7	2.60	0.50
22:R:19:VAL:O	22:R:23:ASN:N	2.44	0.50
28:c:83:HIS:O	52:3:1286:G:N2	2.45	0.50
52:3:214:C:H2'	52:3:215:A:C8	2.46	0.50
52:3:802:U:H2'	52:3:803:G:H8	1.76	0.50
52:3:1163:G:O6	52:3:2526:A:N6	2.45	0.50
52:3:2032:G:H2'	52:3:2033:G:C8	2.46	0.50
52:3:2059:G:O6	52:3:2625:U:O4	2.28	0.50
52:3:2518:C:H2'	52:3:2519:U:H6	1.76	0.50
54:5:570:A:H5''	54:5:912:G:H4'	1.93	0.50
3:2:24:ARG:NH1	52:3:2750:A:OP1	2.45	0.50
4:9:240:ILE:O	4:9:244:ILE:HG12	2.12	0.50
42:q:75:SER:OG	42:q:76:GLN:NE2	2.42	0.50
45:t:29:PRO:O	45:t:32:GLN:NE2	2.38	0.50
50:y:39:PHE:CE1	52:3:2890:G:H1'	2.46	0.50
52:3:638:A:N6	52:3:661:G:O6	2.45	0.50
52:3:2069:A:N3	52:3:2069:A:OP1	2.44	0.50
52:3:2093:U:H2'	52:3:2094:A:H8	1.76	0.50
54:5:399:C:H2'	54:5:400:G:C8	2.47	0.50
54:5:554:C:H2'	54:5:555:G:H8	1.75	0.50
54:5:563:U:OP2	54:5:564:G:O2'	2.29	0.50
54:5:631:C:H2'	54:5:632:A:C8	2.47	0.50
54:5:880:G:C2	54:5:906:C:C2	2.99	0.50
4:9:178:LEU:HD23	4:9:214:LEU:HD22	1.94	0.50
14:J:23:THR:HG21	14:J:56:ALA:HB2	1.93	0.50
18:N:15:HIS:N	18:N:18:ASP:OD2	2.44	0.50
52:3:2528:C:O2'	52:3:2573:A:O2'	2.20	0.50
54:5:683:G:O6	54:5:700:G:O2'	2.29	0.50
54:5:753:C:H2'	54:5:754:U:C6	2.46	0.50
54:5:1008:G:H2'	54:5:1009:G:O4'	2.11	0.50
54:5:1059:G:H4'	56:5:1601:SCM:H8M1	1.94	0.50
3:2:35:ARG:HD2	52:3:2750:A:OP1	2.12	0.49
5:A:49:ARG:NH2	54:5:843:C:OP1	2.44	0.49
23:S:52:ASP:OD2	54:5:195:U:O2'	2.27	0.49
27:b:64:LYS:NZ	52:3:2814:A:OP1	2.41	0.49
38:m:107:ARG:HE	52:3:1314:A:H4'	1.77	0.49
52:3:2203:U:H2'	52:3:2204:C:C6	2.47	0.49
54:5:519:G:O2'	54:5:534:C:O2'	2.28	0.49
8:D:138:HIS:HE1	8:D:203:LEU:H	1.60	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:G:107:VAL:O	11:G:109:ASN:N	2.45	0.49
20:P:13:VAL:HA	20:P:24:VAL:HA	1.94	0.49
36:k:36:GLN:NE2	52:3:600:U:OP1	2.45	0.49
36:k:56:THR:O	36:k:61:ARG:NH2	2.31	0.49
40:o:92:ARG:HH22	54:5:1436:C:H5''	1.77	0.49
42:q:47:ALA:HB3	42:q:48:PRO:HD3	1.93	0.49
50:y:25:GLN:HB3	50:y:38:LEU:HD13	1.93	0.49
52:3:320:A:H2'	52:3:321:A:H8	1.77	0.49
52:3:627:U:H2'	52:3:628:A:C8	2.47	0.49
52:3:2229:C:H2'	52:3:2230:A:C8	2.47	0.49
52:3:2707:A:H2'	52:3:2708:G:C8	2.48	0.49
52:3:2764:U:H4'	52:3:2765:A:OP1	2.12	0.49
54:5:333:U:H2'	54:5:334:A:C8	2.46	0.49
54:5:590:G:H2'	54:5:591:A:C8	2.47	0.49
54:5:661:G:N2	54:5:723:C:O2'	2.45	0.49
4:9:484:PHE:HB2	4:9:593:CYS:HB3	1.93	0.49
4:9:678:SER:HA	4:9:681:ASN:HD21	1.76	0.49
6:B:11:ARG:HH22	6:B:185:ILE:HG12	1.77	0.49
7:C:76:ARG:HG2	7:C:203:LEU:HD11	1.94	0.49
21:Q:73:ARG:HA	21:Q:76:THR:HG22	1.95	0.49
25:W:92:LEU:HB3	25:W:93:PRO:HD3	1.92	0.49
26:a:54:THR:OG1	52:3:1812:C:O2	2.24	0.49
33:h:118:GLU:OE1	33:h:118:GLU:N	2.42	0.49
52:3:600:U:H2'	52:3:601:U:O4'	2.12	0.49
52:3:1954:C:H2'	52:3:1955:G:C8	2.47	0.49
52:3:2454:G:O2'	52:3:2456:A:C8	2.65	0.49
52:3:2568:G:H2'	52:3:2569:A:C8	2.48	0.49
54:5:32:U:N3	54:5:49:C:O4'	2.46	0.49
54:5:413:G:O6	54:5:423:U:O2	2.30	0.49
54:5:1236:A:N7	54:5:1249:G:C2	2.80	0.49
4:9:16:MET:HG2	4:9:119:VAL:HG21	1.94	0.49
13:I:25:ASP:OD2	54:5:1128:G:O2'	2.31	0.49
23:S:53:ARG:NH1	54:5:197:A:OP2	2.44	0.49
32:g:10:GLN:O	32:g:14:VAL:HG12	2.12	0.49
46:u:72:THR:HG21	52:3:2372:C:O2'	2.12	0.49
54:5:1225:A:N6	54:5:1261:A:C4	2.81	0.49
4:9:72:TRP:CG	4:9:73:LYS:N	2.80	0.49
19:O:53:LEU:HD21	19:O:59:PRO:HD3	1.94	0.49
33:h:102:LYS:O	33:h:106:GLN:HG2	2.12	0.49
52:3:45:U:H2'	52:3:46:A:O4'	2.13	0.49
52:3:437:A:O2'	52:3:438:A:O5'	2.22	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1616:G:O2'	52:3:1619:A:N3	2.39	0.49
52:3:2727:G:H4'	52:3:2850:G:H4'	1.95	0.49
54:5:41:C:H2'	54:5:42:G:H8	1.77	0.49
54:5:707:G:H2'	54:5:708:A:C8	2.47	0.49
54:5:1300:C:H2'	54:5:1301:U:C6	2.48	0.49
22:R:41:PHE:HB2	22:R:44:PHE:CD2	2.47	0.49
31:f:32:PRO:HA	31:f:35:LEU:HD12	1.94	0.49
35:j:8:LEU:O	35:j:18:GLN:NE2	2.44	0.49
37:l:79:LEU:O	37:l:80:GLU:HG2	2.13	0.49
38:m:65:LYS:HD2	52:3:2716:U:H5'	1.93	0.49
52:3:283:A:N6	52:3:285:U:H5'	2.28	0.49
52:3:820:U:H2'	52:3:821:C:C6	2.48	0.49
52:3:964:A:H2'	52:3:965:U:C6	2.47	0.49
52:3:1067:A:N1	52:3:1157:G:C6	2.80	0.49
52:3:1104:A:O2'	52:3:1108:A:N7	2.45	0.49
52:3:1446:G:N2	52:3:1614:G:O6	2.45	0.49
52:3:2294:A:H8	52:3:2295:A:C6	2.31	0.49
54:5:126:U:H2'	54:5:127:A:C8	2.47	0.49
54:5:174:U:H2'	54:5:175:U:C6	2.47	0.49
54:5:228:G:H2'	54:5:229:G:C8	2.46	0.49
54:5:974:C:H2'	54:5:974:C:O2	2.11	0.49
54:5:1065:G:H2'	54:5:1066:U:H6	1.78	0.49
54:5:1402:U:H2'	54:5:1403:A:H8	1.77	0.49
55:7:10:A:N7	55:7:47:G:N2	2.61	0.49
4:9:90:VAL:O	4:9:94:ARG:HG3	2.11	0.49
5:A:95:LEU:O	5:A:99:ILE:HG12	2.12	0.49
6:B:11:ARG:HB2	6:B:15:ASN:HB3	1.94	0.49
8:D:96:ASN:HD22	8:D:100:LYS:HE2	1.78	0.49
11:G:109:ASN:N	11:G:109:ASN:HD22	2.11	0.49
12:H:83:LEU:HD13	12:H:107:THR:HA	1.94	0.49
27:b:126:TRP:CD1	27:b:164:LYS:HB3	2.48	0.49
28:c:4:LEU:HD23	28:c:127:LEU:HG	1.95	0.49
43:r:74:CYS:SG	43:r:75:VAL:N	2.85	0.49
52:3:1141:U:H2'	52:3:1142:G:C8	2.48	0.49
52:3:2196:G:H2'	52:3:2197:U:O4'	2.12	0.49
52:3:2388:C:H2'	52:3:2389:A:C8	2.48	0.49
54:5:271:G:H2'	54:5:272:G:C8	2.46	0.49
54:5:455:U:H3	54:5:472:G:H1	1.61	0.49
20:P:29:ARG:HG2	20:P:38:SER:OG	2.13	0.49
26:a:169:ARG:NH1	54:5:709:A:O2'	2.46	0.49
40:o:97:ARG:HH11	40:o:97:ARG:HA	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:r:18:ARG:NH1	52:3:553:A:OP1	2.46	0.49
52:3:9:G:O2'	52:3:10:U:O4'	2.24	0.49
52:3:292:G:H2'	52:3:293:G:C8	2.48	0.49
52:3:833:C:H2'	52:3:834:G:C8	2.47	0.49
52:3:1231:G:H2'	52:3:1232:U:H6	1.78	0.49
52:3:1507:G:O2'	52:3:1508:G:P	2.71	0.49
52:3:2531:C:H2'	52:3:2532:G:C8	2.48	0.49
53:4:71:A:H2'	53:4:72:A:C8	2.48	0.49
54:5:132:G:H2'	54:5:133:G:C8	2.48	0.49
54:5:206:G:O2'	54:5:209:A:N6	2.41	0.49
54:5:1376:G:C2	54:5:1377:C:H1'	2.46	0.49
4:9:69:SER:HA	4:9:77:LEU:O	2.13	0.49
4:9:120:TRP:HE1	4:9:157:VAL:HG21	1.78	0.49
52:3:234:G:H2'	52:3:235:U:C6	2.48	0.49
52:3:274:A:N6	52:3:295:U:H3	2.05	0.49
52:3:526:G:H22	52:3:1312:A:N6	2.10	0.49
52:3:671:C:H2'	52:3:672:G:H8	1.77	0.49
52:3:732:G:H2'	52:3:733:C:C6	2.48	0.49
52:3:1398:C:H2'	52:3:1399:G:C8	2.48	0.49
52:3:1520:A:H2	52:3:1612:U:H1'	1.76	0.49
52:3:1872:U:O2'	52:3:1882:G:N2	2.46	0.49
52:3:2394:A:H2'	52:3:2395:U:C6	2.48	0.49
54:5:682:G:N1	54:5:701:A:OP2	2.46	0.49
54:5:1089:C:H2'	54:5:1090:G:C8	2.48	0.49
54:5:1297:G:H2'	54:5:1298:U:O4'	2.13	0.49
4:9:223:ASP:OD1	4:9:223:ASP:N	2.45	0.49
15:K:123:ARG:HH11	15:K:123:ARG:HG3	1.76	0.49
23:S:10:ARG:NH1	54:5:92:G:O6	2.33	0.49
51:z:35:ASN:HD21	52:3:2352:U:P	2.36	0.49
52:3:158:U:H2'	52:3:159:G:C8	2.48	0.49
52:3:622:U:H2'	52:3:623:A:C8	2.43	0.49
52:3:985:A:N6	52:3:1005:G:O6	2.46	0.49
52:3:1024:A:N1	52:3:1025:G:N2	2.61	0.49
52:3:2298:G:H2'	52:3:2299:U:C6	2.47	0.49
52:3:2709:C:P	52:3:2710:G:H5''	2.53	0.49
54:5:673:A:H2'	54:5:674:U:H6	1.77	0.49
54:5:1245:A:H2'	54:5:1246:A:H8	1.78	0.49
54:5:1417:U:H2'	54:5:1418:G:N7	2.28	0.49
18:N:22:ILE:HG13	18:N:67:LEU:HD11	1.95	0.48
29:d:136:ILE:HA	29:d:141:ILE:HG13	1.95	0.48
43:r:118:ILE:O	43:r:122:LYS:HG2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:y:6:ARG:NH1	52:3:2024:C:O2'	2.46	0.48
52:3:95:G:H2'	52:3:96:A:C8	2.48	0.48
52:3:199:A:H3'	52:3:200:A:H4'	1.94	0.48
52:3:389:C:H2'	52:3:390:A:C8	2.47	0.48
52:3:1184:U:H2'	52:3:1185:U:C6	2.48	0.48
54:5:189:C:H2'	54:5:190:A:H8	1.77	0.48
54:5:847:G:H2'	54:5:848:U:O4'	2.13	0.48
54:5:1054:C:OP2	54:5:1055:G:O2'	2.28	0.48
4:9:6:ASP:HB2	4:9:9:ASN:OD1	2.13	0.48
4:9:185:PHE:HE2	4:9:265:LYS:HD3	1.77	0.48
5:A:192:ASN:ND2	5:A:210:LEU:HD22	2.27	0.48
15:K:43:LYS:O	15:K:94:LEU:HD12	2.13	0.48
16:L:29:ARG:N	54:5:1303:A:OP1	2.36	0.48
31:f:94:THR:O	31:f:98:ILE:HG12	2.13	0.48
33:h:52:PRO:HG2	33:h:68:LYS:HD3	1.95	0.48
37:l:76:LYS:HD2	37:l:92:PHE:HE1	1.77	0.48
52:3:159:G:H2'	52:3:160:A:C8	2.48	0.48
52:3:2134:G:H2'	52:3:2135:C:H6	1.78	0.48
54:5:442:G:H2'	54:5:443:G:C8	2.48	0.48
54:5:985:C:O2'	54:5:986:U:O4'	2.31	0.48
54:5:1065:G:H2'	54:5:1066:U:C6	2.48	0.48
7:C:198:GLU:CD	8:D:167:ARG:HH12	2.22	0.48
8:D:101:ILE:HD12	8:D:173:ALA:HB2	1.94	0.48
9:E:71:ASP:O	9:E:74:ARG:HG3	2.13	0.48
28:c:54:THR:HG22	28:c:55:LYS:H	1.78	0.48
52:3:158:U:H2'	52:3:159:G:H8	1.77	0.48
52:3:1005:G:H2'	52:3:1006:U:C6	2.47	0.48
52:3:1309:G:H2'	52:3:1310:U:H6	1.78	0.48
52:3:1383:G:H2'	52:3:1384:C:H6	1.78	0.48
52:3:1442:G:H2'	52:3:1443:A:O4'	2.12	0.48
52:3:1820:U:HO2'	52:3:1821:G:P	2.36	0.48
52:3:2106:G:H22	52:3:2198:G:H1	1.59	0.48
52:3:2190:G:C6	52:3:2191:G:C6	3.01	0.48
53:4:79:U:O4	53:4:80:G:N2	2.38	0.48
54:5:226:G:H2'	54:5:227:A:H8	1.78	0.48
54:5:256:G:H2'	54:5:257:U:C6	2.49	0.48
54:5:858:A:H2'	54:5:859:A:C8	2.48	0.48
54:5:1423:C:H2'	54:5:1424:C:C6	2.48	0.48
54:5:1439:G:H2'	54:5:1440:U:C6	2.48	0.48
4:9:142:ALA:N	4:9:169:GLU:OE1	2.45	0.48
7:C:104:MET:SD	7:C:176:GLY:HA3	2.54	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:E:21:VAL:HG21	9:E:81:GLN:HG2	1.95	0.48
29:d:69:LYS:HE3	29:d:82:GLY:HA2	1.96	0.48
36:k:34:ARG:NE	52:3:620:G:H22	2.11	0.48
36:k:98:LEU:HD23	36:k:104:ILE:HB	1.94	0.48
40:o:21:TYR:HE1	40:o:88:ILE:H	1.62	0.48
52:3:954:A:H5''	52:3:2276:A:N6	2.28	0.48
52:3:1154:U:H2'	52:3:1155:G:C8	2.48	0.48
52:3:1297:U:H2'	52:3:1298:A:C8	2.49	0.48
52:3:1355:C:H2'	52:3:1356:G:O4'	2.13	0.48
52:3:1422:U:H4'	52:3:1637:A:H4'	1.95	0.48
54:5:369:A:N1	54:5:387:G:O2'	2.37	0.48
54:5:575:A:H2'	54:5:576:A:H8	1.78	0.48
1:0:26:SER:O	1:0:30:VAL:HG23	2.14	0.48
4:9:455:HIS:O	4:9:459:LEU:HD23	2.13	0.48
34:i:20:ILE:HG12	34:i:58:ILE:HD12	1.96	0.48
37:l:8:LYS:HG3	37:l:9:TYR:HD1	1.77	0.48
37:l:117:ALA:HA	37:l:120:ARG:HE	1.78	0.48
52:3:453:U:H2'	52:3:454:G:C8	2.48	0.48
52:3:671:C:H2'	52:3:672:G:C8	2.47	0.48
52:3:869:U:H2'	52:3:870:A:C8	2.48	0.48
52:3:869:U:H2'	52:3:870:A:H8	1.79	0.48
52:3:1886:C:H2'	52:3:1887:U:C6	2.49	0.48
52:3:2100:G:N2	52:3:2205:U:O2	2.47	0.48
52:3:2309:A:H2'	52:3:2310:C:C6	2.49	0.48
54:5:226:G:H2'	54:5:227:A:C8	2.48	0.48
54:5:460:A:C2	54:5:468:G:C2	3.01	0.48
54:5:632:A:H2'	54:5:633:U:C6	2.48	0.48
54:5:675:U:H2'	54:5:676:U:C6	2.48	0.48
54:5:1107:U:H2'	54:5:1108:A:C8	2.48	0.48
54:5:1118:A:N7	54:5:1119:C:H1'	2.28	0.48
54:5:1362:G:OP2	54:5:1362:G:C8	2.67	0.48
8:D:188:PRO:O	8:D:192:ILE:HG12	2.13	0.48
12:H:110:LYS:NZ	54:5:1155:A:H4'	2.28	0.48
21:Q:81:MET:O	21:Q:85:HIS:ND1	2.46	0.48
49:x:10:GLN:HB3	49:x:29:LEU:HD13	1.96	0.48
52:3:487:C:O2	52:3:489:A:N6	2.47	0.48
52:3:646:A:C2	52:3:653:G:C2	3.01	0.48
52:3:829:A:H2'	52:3:830:A:C8	2.49	0.48
52:3:1090:G:H3'	52:3:1091:G:H8	1.79	0.48
52:3:1327:G:C4	52:3:1673:U:H5	2.32	0.48
52:3:1480:A:N6	52:3:1487:U:O2	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1538:U:H2'	52:3:1539:U:O4'	2.13	0.48
52:3:2084:A:H2'	52:3:2085:C:C6	2.48	0.48
52:3:2177:G:N2	55:8:57:C:H5	2.12	0.48
52:3:2337:U:H2'	52:3:2338:G:H8	1.77	0.48
54:5:317:A:H2'	54:5:318:C:C6	2.49	0.48
54:5:1279:G:H2'	54:5:1305:G:N2	2.29	0.48
54:5:1358:U:H2'	54:5:1359:C:C6	2.48	0.48
2:1:54:ARG:HH11	2:1:54:ARG:HG3	1.78	0.48
4:9:602:MET:HE1	4:9:669:PHE:HD1	1.79	0.48
13:I:7:VAL:HG11	13:I:10:PRO:HB3	1.96	0.48
40:o:48:PHE:HE1	40:o:68:LYS:HE2	1.77	0.48
44:s:55:VAL:HG12	44:s:83:ILE:HD13	1.96	0.48
52:3:440:C:H5''	52:3:441:U:C2	2.48	0.48
52:3:1493:A:H2	52:3:1552:C:H1'	1.79	0.48
52:3:2684:G:H2'	52:3:2685:A:C8	2.46	0.48
53:4:13:G:H1'	53:4:99:A:C5	2.49	0.48
54:5:1088:C:H2'	54:5:1089:C:C6	2.48	0.48
54:5:1282:U:H2'	54:5:1283:G:C8	2.46	0.48
54:5:1293:A:H4'	54:5:1294:U:C5	2.48	0.48
4:9:656:ARG:HG2	52:3:2668:A:H61	1.78	0.48
10:F:49:ILE:HB	10:F:57:PRO:HG3	1.96	0.48
23:S:42:ASP:N	23:S:42:ASP:OD1	2.45	0.48
31:f:4:ILE:HD11	31:f:39:LEU:HD11	1.95	0.48
33:h:87:LYS:HE2	52:3:1110:C:H1'	1.95	0.48
42:q:2:HIS:HD2	42:q:13:LEU:HD11	1.78	0.48
45:t:47:LYS:O	45:t:48:LYS:NZ	2.44	0.48
49:x:25:ILE:HG23	49:x:26:GLU:H	1.78	0.48
52:3:28:G:H4'	52:3:1290:G:H4'	1.95	0.48
52:3:297:G:N2	52:3:441:U:OP2	2.32	0.48
52:3:307:C:H2'	52:3:308:A:C8	2.49	0.48
52:3:341:G:N2	52:3:343:A:H3'	2.29	0.48
52:3:399:G:H2'	52:3:400:A:C8	2.49	0.48
52:3:1730:C:H2'	52:3:1731:G:O4'	2.14	0.48
52:3:2865:U:H2'	52:3:2866:A:H8	1.79	0.48
54:5:28:G:H2'	54:5:29:G:C8	2.49	0.48
3:2:1:MET:HE1	3:2:33:LYS:HG2	1.96	0.48
8:D:160:ILE:HB	8:D:177:ASP:HA	1.95	0.48
18:N:66:TYR:CD2	18:N:67:LEU:HD22	2.49	0.48
29:d:67:ALA:HB1	29:d:84:LEU:HD13	1.95	0.48
31:f:19:VAL:HG22	31:f:42:LYS:HE3	1.96	0.48
47:v:18:ARG:NH1	47:v:23:THR:C	2.72	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:132:G:H2'	52:3:133:G:H8	1.79	0.48
52:3:422:A:H2'	52:3:423:C:H5'	1.94	0.48
52:3:651:A:H3'	52:3:652:U:C6	2.49	0.48
52:3:858:A:H2'	52:3:859:G:C8	2.48	0.48
52:3:1396:A:H2'	52:3:1397:G:H8	1.79	0.48
54:5:333:U:H2'	54:5:334:A:H8	1.77	0.48
54:5:439:U:H2'	54:5:440:U:C6	2.49	0.48
54:5:1139:A:N6	54:5:1149:G:O6	2.47	0.48
54:5:1241:G:N2	54:5:1244:A:OP2	2.38	0.48
54:5:1285:G:H2'	54:5:1286:G:H8	1.77	0.48
54:5:1444:G:H2'	54:5:1445:G:H8	1.79	0.48
54:5:1490:G:H2'	54:5:1491:A:C8	2.48	0.48
55:8:10:A:N7	55:8:47:G:N2	2.61	0.48
9:E:7:LEU:HD21	9:E:82:VAL:HG12	1.96	0.48
20:P:61:VAL:HG12	20:P:80:ILE:HG22	1.96	0.48
45:t:46:LYS:HE3	45:t:60:THR:HG21	1.96	0.48
52:3:25:G:H2'	52:3:26:G:C8	2.49	0.48
52:3:1211:U:H2'	52:3:1212:C:H6	1.79	0.48
54:5:517:C:H2'	54:5:518:A:C8	2.49	0.48
54:5:649:U:O4	54:5:749:G:O2'	2.22	0.48
54:5:708:A:H2'	54:5:709:A:C8	2.48	0.48
54:5:818:A:H2'	54:5:819:G:H8	1.78	0.48
6:B:93:LYS:HE2	6:B:98:ARG:NH2	2.29	0.47
8:D:160:ILE:HG23	8:D:167:ARG:NH2	2.29	0.47
9:E:10:ASP:HB2	9:E:81:GLN:HA	1.94	0.47
39:n:93:THR:HB	52:3:2384:A:H61	1.79	0.47
47:v:21:SER:O	55:8:76:C:O2'	2.17	0.47
48:w:85:ASN:HA	48:w:88:LYS:HE3	1.95	0.47
52:3:892:G:H2'	52:3:893:A:C8	2.49	0.47
52:3:1083:A:H1'	52:3:1147:G:N2	2.28	0.47
54:5:246:A:H1'	54:5:248:U:C6	2.49	0.47
54:5:295:G:H2'	54:5:296:A:C4	2.49	0.47
54:5:369:A:O2'	54:5:448:A:N7	2.47	0.47
6:B:91:GLN:HA	6:B:94:GLN:HG3	1.96	0.47
6:B:157:SER:OG	54:5:1048:G:H5''	2.14	0.47
10:F:107:ALA:HA	10:F:122:GLU:HG3	1.96	0.47
37:l:15:VAL:CG1	37:l:41:TRP:HE1	2.27	0.47
45:t:18:LYS:NZ	52:3:344:A:OP1	2.41	0.47
52:3:385:U:H2'	52:3:386:U:C6	2.50	0.47
52:3:1091:G:H4'	52:3:1121:A:C8	2.49	0.47
52:3:1149:G:H2'	52:3:1150:U:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1231:G:H2'	52:3:1232:U:C6	2.48	0.47
52:3:1461:A:H2'	52:3:1462:A:C8	2.49	0.47
52:3:2141:A:N6	52:3:2164:G:H1'	2.29	0.47
54:5:761:U:H2'	54:5:762:G:O4'	2.14	0.47
54:5:770:G:C6	54:5:804:A:N6	2.82	0.47
54:5:1053:U:H2'	54:5:1054:C:C6	2.49	0.47
54:5:1116:U:O2'	54:5:1117:U:O5'	2.24	0.47
54:5:1489:C:H2'	54:5:1490:G:C8	2.49	0.47
4:9:648:MET:HA	4:9:651:TYR:HB3	1.96	0.47
29:d:127:ASN:HD22	29:d:157:VAL:HG23	1.79	0.47
52:3:255:A:C5	52:3:256:G:H1'	2.49	0.47
52:3:1298:A:N6	52:3:2020:A:N7	2.62	0.47
52:3:2624:C:H2'	52:3:2625:U:C6	2.48	0.47
53:4:57:G:C5	53:4:58:C:C5	3.03	0.47
54:5:196:G:H2'	54:5:197:A:H5''	1.97	0.47
54:5:307:C:H2'	54:5:308:C:C6	2.49	0.47
54:5:1302:C:C2	54:5:1303:A:C8	3.03	0.47
54:5:1344:C:H2'	54:5:1345:G:C8	2.49	0.47
6:B:41:ARG:HB2	6:B:41:ARG:NH2	2.28	0.47
9:E:142:ARG:NH2	9:E:144:SER:OG	2.47	0.47
18:N:18:ASP:OD1	18:N:18:ASP:N	2.47	0.47
18:N:71:ASP:HB2	18:N:74:ALA:HB2	1.96	0.47
41:p:54:ARG:NE	52:3:1190:A:OP1	2.48	0.47
43:r:41:LYS:NZ	52:3:2016:G:OP1	2.42	0.47
45:t:46:LYS:HD2	45:t:48:LYS:HE2	1.96	0.47
52:3:1230:U:H2'	52:3:1231:G:C8	2.49	0.47
52:3:2328:A:H2'	52:3:2341:G:C6	2.50	0.47
52:3:2381:G:H2'	52:3:2382:A:H8	1.78	0.47
52:3:2816:A:H2'	52:3:2817:G:H8	1.79	0.47
53:4:89:A:C4	53:4:90:G:C8	3.03	0.47
54:5:346:G:H2'	54:5:347:G:C8	2.50	0.47
54:5:882:U:H3'	54:5:883:A:H8	1.79	0.47
54:5:1206:G:H2'	54:5:1207:U:C6	2.50	0.47
54:5:1229:A:H4'	54:5:1330:A:H4'	1.96	0.47
10:F:115:MET:HA	10:F:118:LYS:HG2	1.96	0.47
20:P:6:ARG:HD3	20:P:65:GLU:O	2.15	0.47
23:S:4:ILE:HG12	23:S:7:ASN:HB2	1.97	0.47
26:a:73:ARG:NH2	26:a:135:SER:OG	2.47	0.47
27:b:79:LYS:HG2	27:b:80:HIS:ND1	2.29	0.47
27:b:147:VAL:HG12	27:b:163:LYS:HG2	1.96	0.47
28:c:4:LEU:HB3	28:c:20:LEU:HD21	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:i:35:ALA:O	34:i:39:ILE:HG12	2.15	0.47
44:s:47:VAL:HG13	44:s:48:TYR:HD1	1.78	0.47
50:y:38:LEU:HD12	50:y:39:PHE:H	1.80	0.47
52:3:1133:A:H3'	52:3:1134:G:H8	1.80	0.47
52:3:2005:G:H2'	52:3:2006:C:H6	1.79	0.47
52:3:2303:U:O2'	52:3:2304:U:H5'	2.14	0.47
52:3:2650:A:H2'	52:3:2651:G:H8	1.80	0.47
52:3:2701:A:H2'	52:3:2702:G:H8	1.79	0.47
54:5:499:U:H2'	54:5:500:G:C8	2.50	0.47
54:5:1006:A:N7	54:5:1016:A:N6	2.62	0.47
54:5:1227:A:H2'	54:5:1228:C:O4'	2.15	0.47
54:5:1291:C:H2'	54:5:1292:A:O4'	2.15	0.47
54:5:1363:U:O5'	54:5:1363:U:H6	1.97	0.47
54:5:1488:A:H2'	54:5:1489:C:C6	2.49	0.47
3:2:11:CYS:SG	3:2:14:CYS:HB2	2.55	0.47
4:9:16:MET:HE1	4:9:96:LEU:HD13	1.96	0.47
5:A:179:ASP:O	5:A:201:LEU:HB2	2.15	0.47
12:H:7:TYR:HA	12:H:19:VAL:O	2.15	0.47
12:H:48:GLN:O	12:H:52:GLN:N	2.48	0.47
15:K:99:ARG:HE	15:K:101:LYS:HZ2	1.63	0.47
39:n:38:HIS:HB3	39:n:57:SER:OG	2.15	0.47
52:3:42:U:H2'	52:3:43:A:C8	2.49	0.47
52:3:746:G:H2'	52:3:747:A:C8	2.48	0.47
52:3:1121:A:O2'	52:3:1122:G:N7	2.47	0.47
52:3:1447:A:O2'	52:3:1448:U:H5''	2.15	0.47
52:3:1738:G:C6	52:3:1739:G:C6	3.02	0.47
52:3:2529:C:H2'	52:3:2530:U:H6	1.79	0.47
52:3:2700:C:H2'	52:3:2701:A:H8	1.78	0.47
54:5:68:C:H2'	54:5:69:G:C8	2.50	0.47
54:5:578:C:H2'	54:5:579:G:O4'	2.13	0.47
54:5:1241:G:O2'	54:5:1243:A:N6	2.47	0.47
4:9:504:TYR:HB3	4:9:573:SER:HB3	1.96	0.47
5:A:83:LEU:HG	5:A:106:ALA:HB3	1.97	0.47
6:B:11:ARG:NH1	6:B:183:ALA:H	2.08	0.47
6:B:103:ASP:N	6:B:103:ASP:OD1	2.48	0.47
6:B:168:ASP:N	6:B:168:ASP:OD1	2.48	0.47
8:D:93:VAL:HG22	8:D:172:LEU:HD23	1.97	0.47
8:D:139:GLU:OE1	8:D:152:LYS:HE3	2.13	0.47
8:D:190:ASN:ND2	54:5:1069:U:O2	2.43	0.47
14:J:22:ASN:ND2	54:5:687:G:OP2	2.48	0.47
17:M:23:ARG:HE	17:M:30:ALA:HB2	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:W:68:LEU:O	25:W:72:LYS:HG2	2.15	0.47
26:a:57:HIS:ND1	26:a:227:THR:OG1	2.44	0.47
28:c:141:LYS:O	28:c:145:GLN:HG2	2.15	0.47
41:p:13:ARG:HG2	41:p:31:TYR:CD1	2.50	0.47
41:p:63:ARG:HD2	41:p:96:GLU:OE2	2.15	0.47
50:y:4:GLN:OE1	52:3:1293:U:O2'	2.32	0.47
52:3:57:G:H2'	52:3:58:A:H8	1.80	0.47
52:3:359:G:O6	52:3:372:G:N2	2.48	0.47
52:3:759:U:C4	52:3:760:G:C6	3.02	0.47
52:3:1200:U:H2'	52:3:1201:A:H8	1.79	0.47
52:3:1271:A:H2'	52:3:1272:A:C8	2.48	0.47
52:3:1543:U:H2'	52:3:1544:G:C8	2.50	0.47
52:3:1633:C:H2'	52:3:1634:A:C8	2.49	0.47
52:3:1931:C:H2'	52:3:1932:C:C6	2.49	0.47
52:3:2465:U:H2'	52:3:2466:G:C8	2.49	0.47
52:3:2860:A:H61	52:3:2865:U:H3	1.63	0.47
52:3:2861:G:O2'	52:3:2863:G:O6	2.28	0.47
54:5:483:U:C2	54:5:484:A:C8	3.03	0.47
54:5:575:A:H2'	54:5:576:A:C8	2.50	0.47
54:5:1066:U:H2'	54:5:1067:C:C6	2.50	0.47
54:5:1288:C:H2'	54:5:1289:U:C6	2.50	0.47
54:5:1313:A:H1'	55:8:42:C:H1'	1.97	0.47
54:5:1390:G:H22	54:5:1461:G:H1'	1.79	0.47
54:5:1502:G:H2'	54:5:1503:U:C6	2.50	0.47
4:9:29:ARG:HD3	4:9:264:ASN:HD21	1.80	0.47
4:9:120:TRP:HH2	4:9:132:ILE:HG13	1.79	0.47
4:9:349:ARG:HE	4:9:351:SER:HB3	1.79	0.47
11:G:11:HIS:O	54:5:821:U:O2'	2.33	0.47
15:K:62:LEU:HB3	54:5:518:A:OP1	2.14	0.47
16:L:107:ARG:HB2	54:5:942:G:OP1	2.15	0.47
26:a:64:ARG:NH2	26:a:90:PRO:O	2.47	0.47
35:j:30:LYS:O	35:j:31:ARG:HG2	2.15	0.47
37:l:47:ILE:HD11	37:l:68:ILE:HD11	1.97	0.47
48:w:95:LYS:NZ	52:3:1628:G:OP2	2.34	0.47
52:3:288:A:H2'	52:3:289:U:C6	2.49	0.47
52:3:322:A:H2'	52:3:323:A:C8	2.49	0.47
52:3:352:C:H2'	52:3:353:G:C8	2.50	0.47
52:3:501:G:H21	52:3:718:U:H1'	1.79	0.47
52:3:1016:A:H2'	52:3:1017:A:C8	2.49	0.47
52:3:1381:A:H2'	52:3:1382:A:O4'	2.15	0.47
52:3:1504:G:H2'	52:3:1505:G:C8	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2502:G:C2	52:3:2503:G:N7	2.83	0.47
52:3:2544:G:H2'	52:3:2545:U:C6	2.50	0.47
52:3:2568:G:H2'	52:3:2569:A:H8	1.80	0.47
52:3:2665:A:H62	52:3:2672:G:N2	2.13	0.47
52:3:2810:A:N6	52:3:2896:G:H22	2.13	0.47
53:4:5:G:H2'	53:4:6:U:O4'	2.15	0.47
54:5:440:U:H2'	54:5:441:U:C6	2.50	0.47
54:5:537:A:H2'	54:5:538:G:C8	2.50	0.47
54:5:980:C:H2'	54:5:981:U:C6	2.49	0.47
54:5:991:A:N6	54:5:1035:A:H61	2.13	0.47
54:5:1012:A:O2'	54:5:1192:C:O2'	2.31	0.47
10:F:19:ASN:HD22	10:F:22:VAL:HG23	1.79	0.47
13:I:56:THR:HB	54:5:970:A:H61	1.79	0.47
16:L:81:SER:OG	16:L:92:ARG:HB3	2.15	0.47
27:b:139:TYR:HB3	27:b:140:PRO:HD3	1.96	0.47
52:3:130:C:H2'	52:3:131:C:C6	2.50	0.47
52:3:207:C:H3'	52:3:208:A:H8	1.79	0.47
54:5:1448:A:H2'	54:5:1449:G:C8	2.50	0.47
14:J:73:ALA:O	14:J:99:SER:OG	2.28	0.47
52:3:323:A:H2'	52:3:324:C:C6	2.50	0.47
52:3:766:C:H2'	52:3:767:C:H6	1.80	0.47
52:3:2413:G:H1'	52:3:2420:A:N6	2.30	0.47
54:5:779:A:H62	54:5:797:G:N2	2.13	0.47
54:5:979:C:N4	54:5:980:C:H41	2.12	0.47
54:5:992:U:H2'	54:5:993:C:C6	2.50	0.47
54:5:1360:G:H2'	54:5:1361:G:O4'	2.15	0.47
4:9:166:ILE:HD12	4:9:174:GLY:HA3	1.95	0.46
7:C:13:ARG:CZ	54:5:541:C:H5'	2.45	0.46
9:E:110:GLN:O	9:E:114:LYS:HB3	2.16	0.46
52:3:150:U:H2'	52:3:151:C:C6	2.49	0.46
52:3:388:U:H2'	52:3:389:C:C6	2.50	0.46
52:3:513:A:H61	52:3:535:G:H4'	1.79	0.46
52:3:2048:U:H2'	52:3:2049:A:C8	2.50	0.46
52:3:2070:C:O5'	55:7:77:A:H2'	2.15	0.46
54:5:292:U:H2'	54:5:293:G:H8	1.78	0.46
54:5:708:A:H2'	54:5:709:A:H8	1.80	0.46
54:5:1008:G:H1	54:5:1014:A:H61	1.60	0.46
11:G:47:ILE:HG23	11:G:48:LEU:HD12	1.97	0.46
22:R:86:ASN:ND2	55:7:42:C:O2'	2.48	0.46
25:W:86:LYS:HA	25:W:89:VAL:HG22	1.97	0.46
27:b:37:ALA:HB3	27:b:51:LEU:HG	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:c:159:PHE:HB2	28:c:180:VAL:HG23	1.96	0.46
37:l:15:VAL:HG11	37:l:41:TRP:HE1	1.80	0.46
37:l:46:ALA:HA	52:3:2492:G:H4'	1.96	0.46
37:l:76:LYS:N	37:l:91:GLU:OE1	2.48	0.46
45:t:90:LYS:HG3	45:t:105:LYS:HB3	1.96	0.46
46:u:21:VAL:HG13	46:u:24:THR:HG22	1.97	0.46
46:u:41:ASP:OD1	52:3:891:G:N2	2.37	0.46
47:v:18:ARG:HH11	47:v:23:THR:C	2.23	0.46
52:3:28:G:N3	52:3:550:A:N6	2.63	0.46
52:3:48:G:H2'	52:3:49:C:C6	2.49	0.46
52:3:127:A:O2'	52:3:128:A:O4'	2.17	0.46
52:3:337:U:H2'	52:3:338:G:C8	2.49	0.46
52:3:612:G:H2'	52:3:613:C:C6	2.50	0.46
52:3:715:G:P	52:3:811:G:H1	2.39	0.46
52:3:766:C:H2'	52:3:767:C:C6	2.50	0.46
52:3:1440:U:H2'	52:3:1441:A:C8	2.50	0.46
52:3:1491:G:C6	52:3:1492:G:C6	3.02	0.46
52:3:1743:U:H2'	52:3:1744:U:H6	1.80	0.46
52:3:2521:A:H2'	52:3:2522:U:C6	2.50	0.46
52:3:2869:U:OP2	52:3:2870:U:O2'	2.19	0.46
54:5:680:G:C6	54:5:705:A:C5	3.02	0.46
54:5:873:U:H2'	54:5:874:C:H6	1.79	0.46
5:A:83:LEU:HD13	5:A:173:PRO:HB3	1.97	0.46
5:A:179:ASP:OD1	5:A:179:ASP:N	2.46	0.46
6:B:17:ASN:HD21	6:B:21:ARG:HH21	1.63	0.46
14:J:43:MET:HE1	14:J:59:ALA:HB2	1.96	0.46
32:g:42:LYS:HG3	33:h:115:ASN:HD21	1.80	0.46
32:g:112:TYR:HB2	32:g:117:ALA:HA	1.98	0.46
52:3:159:G:H2'	52:3:160:A:H8	1.78	0.46
52:3:901:C:H4'	52:3:902:U:O5'	2.14	0.46
52:3:910:G:H2'	52:3:911:U:C6	2.51	0.46
52:3:2478:G:H2'	52:3:2479:A:C8	2.48	0.46
32:g:29:TYR:HD1	32:g:29:TYR:O	1.97	0.46
52:3:1093:U:H3	52:3:1115:G:H1	1.63	0.46
52:3:1548:A:H4'	52:3:1550:G:H1'	1.97	0.46
52:3:2552:G:H2'	52:3:2553:G:H8	1.81	0.46
54:5:594:A:N6	54:5:595:G:O6	2.48	0.46
54:5:1214:A:H2'	54:5:1272:C:H41	1.80	0.46
8:D:95:GLY:HA3	8:D:172:LEU:HG	1.97	0.46
9:E:151:LYS:HG2	9:E:153:LYS:HZ3	1.80	0.46
10:F:68:VAL:HG21	10:F:133:ALA:HB1	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:I:54:VAL:HG13	13:I:72:GLU:HG3	1.98	0.46
27:b:129:LYS:HA	52:3:2004:G:OP1	2.16	0.46
28:c:115:VAL:HA	28:c:118:GLU:HG2	1.97	0.46
29:d:97:TRP:HA	29:d:100:LEU:HD12	1.97	0.46
35:j:100:GLY:HA3	40:o:73:ILE:HG13	1.97	0.46
52:3:41:C:H2'	52:3:42:U:C6	2.51	0.46
52:3:129:U:H2'	52:3:130:C:C6	2.50	0.46
52:3:286:A:H4'	52:3:287:G:C8	2.51	0.46
52:3:954:A:H5''	52:3:2276:A:H61	1.81	0.46
52:3:1032:A:H2'	52:3:1033:A:H8	1.79	0.46
52:3:1248:A:C2	52:3:1262:G:C2	3.03	0.46
52:3:1965:C:H2'	52:3:1966:G:C8	2.50	0.46
52:3:2477:A:H2'	52:3:2478:G:O4'	2.15	0.46
52:3:2523:C:H2'	52:3:2524:U:H6	1.80	0.46
52:3:2658:U:H2'	52:3:2659:U:H6	1.81	0.46
53:4:76:A:N6	53:4:89:A:C4	2.83	0.46
54:5:255:G:H2'	54:5:256:G:C8	2.50	0.46
54:5:1284:A:H2'	54:5:1285:G:C8	2.51	0.46
4:9:411:GLU:OE1	4:9:445:GLN:HA	2.16	0.46
7:C:99:ASN:O	7:C:103:ARG:HG2	2.16	0.46
12:H:86:VAL:HG12	12:H:100:LEU:HD21	1.96	0.46
12:H:110:LYS:HZ3	54:5:1155:A:H4'	1.80	0.46
15:K:65:TYR:HD2	15:K:77:LEU:HD12	1.80	0.46
18:N:67:LEU:HB3	18:N:74:ALA:HB1	1.97	0.46
26:a:41:LEU:HG	26:a:66:TYR:HB2	1.97	0.46
38:m:64:LYS:HE2	52:3:2714:G:H21	1.80	0.46
40:o:36:LYS:HB2	40:o:85:ASN:HB3	1.98	0.46
52:3:1023:C:O2'	52:3:1036:A:N3	2.47	0.46
52:3:1124:G:N2	52:3:1125:U:O4	2.48	0.46
52:3:1270:C:H2'	52:3:1271:A:H8	1.80	0.46
52:3:1460:G:H2'	52:3:1461:A:C8	2.51	0.46
52:3:1473:C:H2'	52:3:1474:C:O4'	2.15	0.46
52:3:2177:G:N2	55:8:57:C:OP1	2.39	0.46
52:3:2304:U:OP2	52:3:2342:U:N3	2.49	0.46
52:3:2501:U:H2'	52:3:2502:G:O4'	2.16	0.46
53:4:31:G:H2'	53:4:32:G:H8	1.79	0.46
54:5:354:U:H2'	54:5:355:A:H8	1.80	0.46
54:5:486:C:H2'	54:5:487:A:H8	1.81	0.46
54:5:711:G:H2'	54:5:712:A:C8	2.51	0.46
4:9:271:LEU:O	4:9:275:VAL:HG13	2.15	0.46
9:E:25:GLN:HG3	9:E:72:PHE:HE1	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:M:7:LYS:HB2	17:M:7:LYS:HE3	1.74	0.46
21:Q:57:LEU:HA	21:Q:60:LEU:HD12	1.98	0.46
26:a:17:SER:HB2	26:a:218:ARG:HH12	1.80	0.46
52:3:461:C:H2'	52:3:462:C:C6	2.51	0.46
52:3:849:C:H1'	52:3:1255:G:H21	1.80	0.46
52:3:1260:U:H2'	52:3:1261:U:C6	2.50	0.46
52:3:1699:A:N1	52:3:2003:C:N4	2.64	0.46
52:3:2314:U:OP2	52:3:2315:G:O2'	2.25	0.46
52:3:2522:U:H2'	52:3:2523:C:C6	2.51	0.46
52:3:2640:A:H2'	52:3:2641:A:C8	2.51	0.46
54:5:56:A:OP2	54:5:348:C:N4	2.48	0.46
54:5:118:C:H2'	54:5:119:U:O4'	2.16	0.46
54:5:1139:A:H2'	54:5:1140:A:C8	2.51	0.46
10:F:35:LYS:HE3	54:5:1348:G:H5''	1.98	0.46
11:G:39:LYS:HG2	54:5:588:U:OP1	2.16	0.46
43:r:124:LEU:HB3	43:r:128:ARG:HH12	1.81	0.46
52:3:723:U:H2'	52:3:724:A:H8	1.81	0.46
52:3:1253:G:N1	52:3:1256:A:OP2	2.41	0.46
52:3:1722:U:O2'	52:3:1734:A:N7	2.35	0.46
52:3:2596:A:N6	52:3:2615:G:O6	2.49	0.46
52:3:2656:G:H2'	52:3:2657:C:C6	2.51	0.46
52:3:2707:A:N6	52:3:2717:G:O6	2.49	0.46
52:3:2787:U:C2	52:3:2789:A:C6	3.04	0.46
54:5:725:A:H2'	54:5:726:A:C8	2.51	0.46
54:5:880:G:N2	54:5:906:C:C2	2.84	0.46
54:5:1245:A:H2'	54:5:1246:A:C8	2.50	0.46
54:5:1431:A:H2'	54:5:1432:A:H8	1.81	0.46
7:C:27:LYS:HE2	54:5:426:U:H5'	1.98	0.46
16:L:66:GLU:OE1	16:L:66:GLU:N	2.48	0.46
17:M:48:ALA:HB1	17:M:56:VAL:HG21	1.97	0.46
18:N:82:LEU:HD23	18:N:83:ASN:O	2.16	0.46
52:3:331:A:H2'	52:3:332:G:O4'	2.16	0.46
52:3:372:G:H2'	52:3:373:U:C6	2.51	0.46
52:3:1829:U:H2'	52:3:1830:G:C8	2.51	0.46
52:3:2069:A:OP1	52:3:2069:A:O4'	2.33	0.46
52:3:2557:G:H2'	52:3:2558:G:C8	2.50	0.46
54:5:34:A:H2'	54:5:35:C:C6	2.50	0.46
54:5:54:A:H2'	54:5:55:C:O4'	2.16	0.46
54:5:1045:C:C5	55:7:35:G:H1'	2.51	0.46
54:5:1168:G:H2'	54:5:1169:U:H6	1.80	0.46
54:5:1260:U:H3'	54:5:1261:A:H4'	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1456:U:H2'	54:5:1457:G:C8	2.51	0.46
54:5:1495:C:H2'	54:5:1496:G:H8	1.80	0.46
12:H:32:VAL:HG12	12:H:67:VAL:HG11	1.97	0.46
12:H:54:LEU:HD21	12:H:85:ILE:HG12	1.97	0.46
27:b:55:ASP:O	27:b:79:LYS:HB3	2.16	0.46
29:d:34:ILE:O	29:d:91:LEU:HD23	2.16	0.46
37:l:69:PHE:HB3	37:l:71:HIS:CE1	2.51	0.46
52:3:60:G:H2'	52:3:61:U:C6	2.51	0.46
52:3:638:A:H2'	52:3:639:G:C8	2.51	0.46
52:3:696:U:H2'	52:3:697:U:C6	2.51	0.46
52:3:795:G:H2'	52:3:796:A:O4'	2.16	0.46
52:3:1180:U:O4	52:3:1181:A:N6	2.49	0.46
52:3:1229:U:H2'	52:3:1230:U:C6	2.51	0.46
52:3:1396:A:H2'	52:3:1397:G:C8	2.50	0.46
52:3:1744:U:H2'	52:3:1745:A:C8	2.51	0.46
52:3:2598:C:H2'	52:3:2599:C:C6	2.51	0.46
52:3:2599:C:H2'	52:3:2600:G:C8	2.50	0.46
52:3:2806:A:OP2	52:3:2807:G:N2	2.49	0.46
54:5:242:A:N6	54:5:277:G:H21	1.99	0.46
54:5:258:A:H2'	54:5:259:A:C4	2.51	0.46
54:5:833:G:H1	54:5:844:U:H3	1.64	0.46
54:5:1109:U:H2'	54:5:1110:C:C6	2.50	0.46
3:2:5:ALA:HB3	52:3:2474:C:H5'	1.99	0.45
4:9:268:LYS:HA	4:9:271:LEU:HD12	1.98	0.45
13:I:23:LEU:HD21	13:I:101:GLY:HA3	1.97	0.45
16:L:19:LEU:HB2	16:L:25:ILE:HG21	1.99	0.45
26:a:215:LYS:HG3	26:a:217:GLY:H	1.81	0.45
31:f:5:LEU:HD12	31:f:15:ARG:C	2.31	0.45
31:f:130:ILE:HG22	31:f:131:PHE:CD1	2.51	0.45
52:3:335:G:O2'	52:3:336:C:O5'	2.33	0.45
52:3:1212:C:H2'	52:3:1213:U:H6	1.81	0.45
52:3:2098:U:H2'	52:3:2099:U:C5	2.52	0.45
52:3:2149:U:H2'	52:3:2150:C:C6	2.51	0.45
52:3:2451:C:H2'	52:3:2452:G:C8	2.51	0.45
52:3:2603:G:H21	52:3:2605:G:H8	1.64	0.45
52:3:2650:A:H2'	52:3:2651:G:C8	2.51	0.45
52:3:2685:A:H2'	52:3:2686:C:C6	2.51	0.45
53:4:59:A:H2'	53:4:60:C:C6	2.51	0.45
54:5:73:G:H2'	54:5:74:U:C6	2.52	0.45
54:5:75:A:H2'	54:5:76:G:C8	2.51	0.45
54:5:326:C:H42	54:5:350:G:H1'	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:b:222:LEU:H	27:b:222:LEU:HD23	1.81	0.45
32:g:47:ASN:ND2	32:g:49:SER:H	2.15	0.45
33:h:33:GLY:HA2	33:h:36:THR:HG22	1.97	0.45
33:h:116:THR:OG1	33:h:119:ALA:HB3	2.17	0.45
38:m:46:ASP:OD1	38:m:47:LYS:N	2.50	0.45
47:v:20:HIS:ND1	55:8:76:C:N4	2.63	0.45
52:3:659:C:H2'	52:3:660:U:C6	2.50	0.45
52:3:854:A:H2'	52:3:854:A:N3	2.31	0.45
52:3:1523:C:H2'	52:3:1524:C:H6	1.81	0.45
54:5:442:G:H2'	54:5:443:G:H8	1.81	0.45
54:5:1212:C:H5''	54:5:1213:A:H8	1.82	0.45
55:7:69:A:H2'	55:7:70:G:C8	2.52	0.45
4:9:349:ARG:HH22	54:5:365:U:H4'	1.81	0.45
4:9:598:LEU:HG	4:9:672:TYR:HB3	1.96	0.45
11:G:40:LEU:O	11:G:44:ILE:HG12	2.16	0.45
15:K:44:ARG:HB2	54:5:359:A:H5'	1.99	0.45
19:O:33:LEU:HD22	19:O:66:LEU:HD13	1.98	0.45
29:d:75:SER:HB2	55:7:57:C:C5	2.52	0.45
32:g:55:LYS:HB2	32:g:58:ILE:HG22	1.98	0.45
35:j:64:ARG:HG3	35:j:83:ALA:HB3	1.99	0.45
36:k:18:LYS:N	52:3:698:A:OP1	2.43	0.45
38:m:39:LYS:O	38:m:42:GLN:HG2	2.17	0.45
41:p:107:LEU:HD22	42:q:43:GLU:HB3	1.97	0.45
44:s:7:LEU:HD22	44:s:43:ALA:HB1	1.98	0.45
44:s:43:ALA:O	44:s:47:VAL:HG12	2.16	0.45
47:v:39:LYS:HA	47:v:45:THR:HG22	1.97	0.45
52:3:465:A:H2'	52:3:466:A:C4	2.52	0.45
52:3:739:G:O2'	52:3:740:A:OP2	2.28	0.45
52:3:1857:G:H2'	52:3:1858:U:C6	2.52	0.45
54:5:1136:G:O6	54:5:1151:A:N1	2.49	0.45
54:5:1441:C:H2'	54:5:1442:A:O4'	2.16	0.45
1:0:8:SER:H	52:3:721:G:H21	1.65	0.45
4:9:324:THR:O	4:9:374:ALA:HA	2.16	0.45
11:G:98:TYR:CD1	11:G:136:GLU:HB3	2.51	0.45
12:H:17:ALA:HB2	12:H:69:VAL:HG12	1.99	0.45
16:L:101:ARG:HB3	54:5:1200:G:OP1	2.16	0.45
22:R:66:MET:HB2	22:R:69:HIS:ND1	2.32	0.45
37:l:119:THR:HG22	37:l:129:TRP:CH2	2.50	0.45
43:r:22:GLN:NE2	52:3:554:U:OP1	2.49	0.45
52:3:683:G:H2'	52:3:684:A:C8	2.50	0.45
52:3:1870:G:N2	52:3:1887:U:O2	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1956:G:H2'	52:3:1957:G:C8	2.50	0.45
52:3:2079:G:H2'	52:3:2080:C:C6	2.51	0.45
52:3:2174:G:H2'	52:3:2175:U:C6	2.51	0.45
52:3:2533:A:H2'	52:3:2534:G:H8	1.81	0.45
52:3:2787:U:N3	52:3:2789:A:C6	2.85	0.45
52:3:2814:A:H61	52:3:2894:G:H1'	1.82	0.45
53:4:54:U:H1'	53:4:55:A:OP2	2.17	0.45
54:5:75:A:H2'	54:5:76:G:H8	1.81	0.45
54:5:395:G:H2'	54:5:396:C:C6	2.52	0.45
54:5:873:U:H2'	54:5:874:C:C6	2.52	0.45
54:5:1109:U:H2'	54:5:1110:C:H6	1.81	0.45
54:5:1266:U:H2'	54:5:1267:G:C8	2.49	0.45
8:D:206:ARG:HD2	8:D:207:ARG:N	2.31	0.45
10:F:57:PRO:O	10:F:61:PHE:HB2	2.16	0.45
23:S:25:LYS:O	23:S:29:LYS:HG3	2.17	0.45
26:a:240:HIS:NE2	26:a:255:ARG:O	2.50	0.45
30:e:124:LEU:HG	30:e:138:GLY:HA3	1.98	0.45
36:k:57:PRO:HG2	36:k:60:ARG:HB2	1.98	0.45
37:l:43:ASP:OD1	37:l:43:ASP:N	2.47	0.45
40:o:9:LEU:O	40:o:13:VAL:HG22	2.16	0.45
40:o:67:ARG:HG3	40:o:76:GLU:HG3	1.99	0.45
52:3:214:C:H2'	52:3:215:A:H8	1.81	0.45
52:3:330:A:H2'	52:3:331:A:C8	2.51	0.45
52:3:704:G:N3	52:3:704:G:H2'	2.32	0.45
52:3:932:U:H4'	52:3:933:A:OP2	2.17	0.45
52:3:1585:A:N6	52:3:1749:A:N1	2.64	0.45
52:3:2329:G:H3'	52:3:2329:G:N3	2.32	0.45
52:3:2347:G:H2'	52:3:2348:U:C6	2.51	0.45
52:3:2656:G:H2'	52:3:2657:C:H6	1.81	0.45
54:5:7:U:O2'	54:5:294:A:N3	2.49	0.45
54:5:59:C:H2'	54:5:60:A:H8	1.81	0.45
54:5:512:U:H2'	54:5:513:G:C8	2.51	0.45
54:5:618:U:H2'	54:5:619:A:C4	2.52	0.45
54:5:975:C:H3'	54:5:976:U:C6	2.51	0.45
54:5:1098:C:H2'	54:5:1099:G:C8	2.50	0.45
1:0:8:SER:H	52:3:721:G:N2	2.15	0.45
4:9:88:PHE:CE2	4:9:90:VAL:HG22	2.52	0.45
26:a:251:ARG:HH22	52:3:2246:G:H3'	1.80	0.45
35:j:37:ASP:OD1	35:j:38:VAL:N	2.48	0.45
35:j:77:LEU:HD12	35:j:78:LYS:H	1.80	0.45
41:p:54:ARG:NH2	52:3:1190:A:O5'	2.35	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:53:G:H4'	52:3:54:A:H5'	1.99	0.45
52:3:645:C:H2'	52:3:646:A:C8	2.52	0.45
52:3:700:U:H2'	52:3:701:A:C8	2.52	0.45
52:3:767:C:H2'	52:3:768:G:O4'	2.17	0.45
52:3:1384:C:H2'	52:3:1385:U:C6	2.52	0.45
52:3:2190:G:H2'	52:3:2191:G:C8	2.51	0.45
52:3:2557:G:H2'	52:3:2558:G:H8	1.82	0.45
54:5:168:A:H3'	54:5:169:G:H8	1.82	0.45
54:5:186:A:N7	54:5:187:A:N6	2.65	0.45
54:5:214:U:H2'	54:5:215:C:H6	1.82	0.45
54:5:536:U:H2'	54:5:537:A:H8	1.82	0.45
54:5:830:U:H2'	54:5:831:C:C6	2.50	0.45
54:5:1387:U:H2'	54:5:1388:A:C8	2.52	0.45
4:9:105:VAL:HA	4:9:133:PHE:O	2.17	0.45
4:9:325:PHE:CE1	4:9:374:ALA:HB2	2.52	0.45
8:D:137:TYR:HE2	11:G:111:LEU:HD13	1.82	0.45
18:N:37:THR:HG22	52:3:750:A:N3	2.31	0.45
22:R:12:ASP:HB3	22:R:14:HIS:HD2	1.82	0.45
26:a:183:GLN:OE1	26:a:189:THR:OG1	2.22	0.45
29:d:3:ASN:OD1	29:d:4:LEU:N	2.49	0.45
31:f:4:ILE:HB	31:f:36:ALA:HA	1.99	0.45
37:l:82:ARG:HH11	52:3:2504:C:P	2.40	0.45
38:m:50:THR:HG21	52:3:2844:U:H5''	1.98	0.45
41:p:41:ALA:HB1	52:3:569:U:H5'	1.99	0.45
43:r:86:ILE:HD12	43:r:87:PRO:HD2	1.99	0.45
52:3:476:G:H2'	52:3:477:U:C6	2.52	0.45
52:3:521:C:H2'	52:3:522:C:C6	2.51	0.45
52:3:1014:G:H2'	52:3:1015:G:C8	2.51	0.45
52:3:2044:C:H2'	52:3:2045:C:C6	2.51	0.45
54:5:132:G:H2'	54:5:133:G:H8	1.81	0.45
54:5:304:U:H2'	54:5:305:A:C8	2.52	0.45
54:5:760:U:H2'	54:5:761:U:C6	2.51	0.45
54:5:895:A:O2'	54:5:1488:A:OP1	2.34	0.45
54:5:1099:G:HO2'	54:5:1100:C:P	2.39	0.45
55:7:67:C:H2'	55:7:68:G:C8	2.51	0.45
4:9:647:GLU:N	4:9:647:GLU:OE2	2.50	0.45
13:I:21:SER:HB3	54:5:1128:G:H5'	1.99	0.45
15:K:127:ARG:HE	54:5:499:U:P	2.40	0.45
29:d:14:LYS:O	29:d:18:LYS:HG2	2.17	0.45
29:d:26:MET:HE1	53:4:53:U:H1'	1.99	0.45
35:j:5:MET:HA	35:j:21:ILE:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:k:93:ILE:HD12	36:k:126:PHE:CE2	2.52	0.45
38:m:11:SER:O	38:m:15:VAL:HG22	2.16	0.45
41:p:30:SER:OG	52:3:614:C:OP1	2.28	0.45
44:s:10:PRO:HD3	48:w:31:PHE:HD1	1.82	0.45
52:3:57:G:H2'	52:3:58:A:C8	2.52	0.45
52:3:503:G:H2'	52:3:504:G:H8	1.82	0.45
52:3:522:C:H2'	52:3:523:A:C8	2.51	0.45
52:3:526:G:H22	52:3:1312:A:H61	1.64	0.45
52:3:1200:U:H2'	52:3:1201:A:C8	2.52	0.45
52:3:1426:C:H2'	52:3:1427:C:C6	2.51	0.45
52:3:1669:A:H2'	52:3:1669:A:N3	2.32	0.45
52:3:1960:A:O2'	52:3:2567:C:O2'	2.28	0.45
52:3:2048:U:H2'	52:3:2049:A:H8	1.82	0.45
52:3:2743:U:H2'	52:3:2744:A:C8	2.51	0.45
52:3:2764:U:H1'	52:3:2765:A:H5''	1.98	0.45
54:5:616:C:H5'	54:5:617:U:H5''	1.98	0.45
54:5:935:U:H2'	54:5:936:G:H8	1.82	0.45
54:5:1043:U:H2'	54:5:1175:C:H41	1.82	0.45
1:0:35:ARG:HG3	1:0:42:LEU:HD21	1.98	0.45
4:9:123:ALA:HA	4:9:126:TYR:HB2	1.99	0.45
4:9:556:MET:HB3	4:9:559:ILE:HD12	1.99	0.45
6:B:20:SER:HB2	6:B:22:TRP:HE1	1.82	0.45
9:E:86:LEU:HD13	21:Q:96:LEU:HG	1.99	0.45
12:H:11:ARG:N	12:H:83:LEU:HD23	2.25	0.45
16:L:110:LYS:NZ	54:5:1202:A:H5''	2.32	0.45
17:M:33:VAL:HG23	17:M:40:CYS:HA	1.97	0.45
17:M:53:ILE:O	17:M:56:VAL:HG12	2.17	0.45
19:O:34:ASN:HD21	19:O:36:ALA:HB3	1.82	0.45
26:a:255:ARG:NE	26:a:261:ARG:HH11	2.14	0.45
27:b:123:ILE:HG13	27:b:142:ARG:HG2	1.99	0.45
30:e:21:GLN:HB2	30:e:24:HIS:O	2.17	0.45
40:o:27:ALA:HA	40:o:52:VAL:HB	1.99	0.45
46:u:54:GLN:O	46:u:71:ASP:HB3	2.17	0.45
47:v:23:THR:HG21	52:3:2087:G:O2'	2.17	0.45
47:v:46:THR:HG23	47:v:48:ILE:HD11	1.99	0.45
51:z:38:CYS:O	51:z:42:ARG:N	2.50	0.45
52:3:117:C:H2'	52:3:118:G:O4'	2.16	0.45
52:3:300:G:H2'	52:3:301:G:H8	1.81	0.45
52:3:698:A:H2'	52:3:699:U:C6	2.51	0.45
52:3:877:G:H2'	52:3:878:A:H8	1.82	0.45
52:3:1006:U:H2'	52:3:1007:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1223:C:H2'	52:3:1224:G:H8	1.82	0.45
52:3:1338:G:O2'	52:3:1645:C:OP1	2.34	0.45
52:3:1471:A:H61	52:3:1581:U:H3	1.63	0.45
52:3:1900:C:H2'	52:3:1900:C:O2	2.16	0.45
52:3:2121:A:H2'	52:3:2122:G:H5'	1.99	0.45
52:3:2470:C:H2'	52:3:2471:U:C6	2.52	0.45
53:4:54:U:H4'	53:4:55:A:O5'	2.17	0.45
54:5:230:G:H2'	54:5:231:U:C6	2.52	0.45
54:5:957:C:H2'	54:5:958:G:H8	1.81	0.45
4:9:98:VAL:HG11	4:9:312:PHE:CD1	2.52	0.45
4:9:616:THR:O	4:9:620:ILE:HG13	2.17	0.45
6:B:194:THR:HG23	6:B:197:GLY:H	1.82	0.45
7:C:193:GLU:O	7:C:197:VAL:HG23	2.17	0.45
8:D:68:GLU:CD	8:D:119:ILE:HG12	2.42	0.45
10:F:106:PHE:HZ	10:F:136:LYS:HD2	1.81	0.45
16:L:115:THR:HA	54:5:1203:A:H5'	1.99	0.45
16:L:118:ASN:HD22	54:5:1203:A:H1'	1.82	0.45
27:b:38:GLY:HA2	27:b:92:MET:SD	2.56	0.45
27:b:114:SER:HB3	27:b:172:GLU:H	1.82	0.45
29:d:127:ASN:ND2	29:d:157:VAL:HG23	2.31	0.45
30:e:175:LYS:NZ	52:3:2538:A:H62	2.15	0.45
31:f:5:LEU:CD1	31:f:14:LYS:HG2	2.28	0.45
31:f:98:ILE:HG22	31:f:102:HIS:CD2	2.52	0.45
32:g:77:LYS:NZ	52:3:1143:U:O2'	2.42	0.45
36:k:34:ARG:HD3	36:k:41:ALA:HA	1.99	0.45
38:m:103:LEU:H	38:m:114:ALA:HA	1.82	0.45
52:3:202:C:O2'	52:3:203:A:H5'	2.17	0.45
52:3:1385:U:H2'	52:3:1386:G:C8	2.52	0.45
52:3:1557:G:H3'	52:3:1571:G:H22	1.82	0.45
52:3:1873:A:H2'	52:3:1874:G:O4'	2.17	0.45
52:3:2424:C:H2'	52:3:2425:C:C6	2.52	0.45
53:4:6:U:H2'	53:4:7:G:C8	2.52	0.45
54:5:285:G:H2'	54:5:286:C:C6	2.52	0.45
54:5:369:A:O4'	54:5:478:G:H5''	2.17	0.45
54:5:767:U:O2'	54:5:894:A:N3	2.44	0.45
54:5:872:C:H2'	54:5:873:U:C6	2.51	0.45
55:8:69:A:H2'	55:8:70:G:C8	2.52	0.45
15:K:124:ARG:HH11	15:K:136:LYS:HG2	1.81	0.44
26:a:190:ARG:NH1	52:3:1806:G:O3'	2.50	0.44
36:k:18:LYS:HG3	52:3:698:A:H5''	1.99	0.44
47:v:27:ARG:HD3	47:v:29:TRP:HE1	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:8:A:H5''	52:3:2788:U:H5''	1.99	0.44
52:3:757:A:H2'	52:3:758:C:H6	1.82	0.44
52:3:1445:U:H3	52:3:1614:G:H22	1.66	0.44
52:3:1784:U:H2'	52:3:1785:U:C6	2.52	0.44
52:3:2055:A:H2'	52:3:2056:A:C8	2.52	0.44
52:3:2232:G:H4'	52:3:2234:C:H1'	1.99	0.44
52:3:2851:U:H2'	52:3:2852:G:O4'	2.17	0.44
54:5:134:G:N2	54:5:161:C:O2	2.50	0.44
54:5:253:G:H2'	54:5:254:G:H8	1.83	0.44
54:5:554:C:H2'	54:5:555:G:C8	2.52	0.44
54:5:911:G:H2'	54:5:912:G:C8	2.51	0.44
54:5:948:U:H2'	54:5:949:G:C8	2.52	0.44
54:5:1223:A:H2'	54:5:1224:C:C6	2.51	0.44
9:E:14:SER:OG	9:E:15:LEU:N	2.50	0.44
22:R:3:ARG:NH2	54:5:1286:G:N7	2.66	0.44
27:b:181:ILE:HG22	27:b:193:VAL:HG22	1.98	0.44
47:v:21:SER:HA	55:8:76:C:C2	2.53	0.44
52:3:201:A:O2'	52:3:2252:U:H5'	2.18	0.44
52:3:490:A:H3'	52:3:491:A:H8	1.81	0.44
52:3:597:C:H2'	52:3:598:G:C8	2.51	0.44
52:3:605:A:N3	52:3:605:A:H2'	2.32	0.44
52:3:776:U:H2'	52:3:777:C:C6	2.51	0.44
52:3:940:A:H2'	52:3:941:C:C6	2.53	0.44
52:3:1108:A:C5	52:3:1109:G:C8	3.06	0.44
52:3:1414:C:H2'	52:3:1415:A:H8	1.83	0.44
52:3:2086:U:H2'	52:3:2087:G:O4'	2.18	0.44
52:3:2854:A:H5'	52:3:2872:A:H2	1.82	0.44
54:5:710:G:H2'	54:5:711:G:C8	2.52	0.44
54:5:1505:G:H2'	54:5:1506:A:C8	2.48	0.44
55:7:16:G:O2'	55:7:17:U:OP1	2.34	0.44
6:B:190:GLU:HB3	6:B:201:VAL:HG13	1.98	0.44
7:C:64:TYR:OH	7:C:94:GLU:OE1	2.22	0.44
9:E:90:LEU:HD22	9:E:94:TYR:CZ	2.53	0.44
11:G:101:PHE:CE1	11:G:132:LYS:HA	2.52	0.44
26:a:128:ILE:HD12	26:a:134:PHE:HD2	1.81	0.44
49:x:10:GLN:O	49:x:28:THR:N	2.50	0.44
52:3:961:U:H2'	52:3:962:U:H6	1.82	0.44
52:3:1336:A:H2'	52:3:1337:G:O4'	2.17	0.44
52:3:2584:G:H21	52:3:2584:G:P	2.40	0.44
52:3:2649:G:H2'	52:3:2650:A:C8	2.52	0.44
52:3:2701:A:H2'	52:3:2702:G:C8	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2825:A:H2'	52:3:2826:G:O4'	2.18	0.44
54:5:944:A:O2'	54:5:1338:A:OP2	2.35	0.44
6:B:133:LEU:HD23	6:B:133:LEU:HA	1.87	0.44
7:C:79:LEU:HD23	7:C:79:LEU:HA	1.88	0.44
10:F:60:VAL:HG12	10:F:63:ARG:HH12	1.82	0.44
18:N:5:LYS:O	18:N:9:ILE:HG12	2.18	0.44
26:a:20:ILE:HB	26:a:22:TYR:CZ	2.53	0.44
30:e:20:PHE:HE2	30:e:48:LEU:HD22	1.83	0.44
42:q:41:LEU:HD11	42:q:99:HIS:CE1	2.52	0.44
48:w:15:LEU:O	48:w:18:LEU:HG	2.17	0.44
50:y:6:ARG:NH1	50:y:6:ARG:HA	2.32	0.44
52:3:70:G:H2'	52:3:71:C:O4'	2.17	0.44
52:3:176:U:C2	52:3:177:U:C5	3.06	0.44
52:3:472:A:H2'	52:3:473:U:C6	2.52	0.44
52:3:669:A:O2'	52:3:2412:A:OP1	2.35	0.44
52:3:858:A:H2'	52:3:859:G:H8	1.81	0.44
52:3:1093:U:H2'	52:3:1094:G:C8	2.52	0.44
52:3:1317:C:H2'	52:3:1318:U:C6	2.53	0.44
52:3:1677:G:H2'	52:3:1678:U:C6	2.52	0.44
52:3:1686:U:H2'	52:3:1687:G:O4'	2.17	0.44
52:3:1692:A:H2'	52:3:1693:U:C6	2.52	0.44
52:3:2752:G:C6	52:3:2769:G:C5	3.06	0.44
54:5:111:A:H2'	54:5:112:U:O4'	2.17	0.44
54:5:579:G:N2	54:5:757:G:N7	2.65	0.44
54:5:655:G:O2'	54:5:656:U:H5'	2.18	0.44
54:5:1447:U:O4	54:5:1448:A:N6	2.51	0.44
54:5:1459:U:H2'	54:5:1460:U:C6	2.52	0.44
14:J:22:ASN:HB2	14:J:50:LYS:HD3	1.98	0.44
27:b:51:LEU:HD11	27:b:81:LEU:HB3	1.99	0.44
33:h:44:LYS:HE3	33:h:44:LYS:HB3	1.84	0.44
35:j:104:ARG:HH12	40:o:44:ARG:NH2	2.16	0.44
37:l:116:LYS:O	37:l:119:THR:OG1	2.31	0.44
47:v:3:LYS:HG3	52:3:1392:G:H5'	1.98	0.44
52:3:367:G:H2'	52:3:367:G:N3	2.33	0.44
52:3:711:A:O2'	52:3:2450:C:O2'	2.20	0.44
52:3:1381:A:H2	52:3:1406:A:N1	2.16	0.44
52:3:1876:G:N2	52:3:1878:A:H5''	2.33	0.44
52:3:2511:A:O2'	52:3:2513:G:OP2	2.36	0.44
52:3:2735:G:H2'	52:3:2736:U:C6	2.52	0.44
54:5:281:U:H2'	54:5:282:G:C8	2.51	0.44
54:5:501:A:H2'	54:5:502:C:C6	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:760:U:H2'	54:5:761:U:H6	1.82	0.44
54:5:930:A:H2'	54:5:931:C:C6	2.53	0.44
54:5:1105:C:H2'	54:5:1106:U:H6	1.82	0.44
54:5:1151:A:H2'	54:5:1152:G:C8	2.51	0.44
5:A:83:LEU:HD23	5:A:108:ILE:HD11	1.99	0.44
7:C:85:LEU:H	7:C:85:LEU:HD12	1.82	0.44
24:T:17:LYS:O	24:T:21:VAL:HG23	2.18	0.44
27:b:53:SER:HB2	27:b:78:THR:HG21	2.00	0.44
28:c:101:LEU:HD13	52:3:695:G:H5''	2.00	0.44
33:h:129:LYS:HE3	33:h:129:LYS:HB2	1.86	0.44
37:l:30:GLY:HA2	37:l:107:ALA:HB2	1.99	0.44
52:3:330:A:H2'	52:3:331:A:H8	1.82	0.44
52:3:699:U:H2'	52:3:700:U:O4'	2.17	0.44
52:3:1883:A:H3'	52:3:1884:A:H8	1.83	0.44
52:3:2504:C:H2'	52:3:2505:A:N3	2.33	0.44
52:3:2633:C:H2'	52:3:2634:C:C6	2.52	0.44
53:4:66:A:H2'	53:4:67:G:O4'	2.17	0.44
54:5:140:U:H2'	54:5:141:A:H8	1.83	0.44
54:5:1317:A:H2'	54:5:1318:C:C6	2.52	0.44
54:5:1425:A:O2'	54:5:1428:A:N6	2.36	0.44
4:9:11:ARG:HD3	4:9:13:PHE:CZ	2.53	0.44
5:A:99:ILE:HG13	5:A:229:MET:HG3	2.00	0.44
6:B:36:GLU:HB2	6:B:96:ILE:HG21	2.00	0.44
6:B:140:SER:HA	6:B:143:LYS:HE2	2.00	0.44
17:M:5:SER:OG	54:5:1191:U:H5''	2.18	0.44
18:N:23:GLN:H	18:N:23:GLN:CD	2.25	0.44
29:d:167:LEU:O	29:d:170:LEU:HG	2.18	0.44
39:n:19:ILE:O	39:n:23:ASN:N	2.30	0.44
39:n:39:ILE:HD11	39:n:73:VAL:HG21	2.00	0.44
40:o:103:TYR:HD2	40:o:107:ARG:HG3	1.82	0.44
44:s:47:VAL:HG13	44:s:48:TYR:CD1	2.52	0.44
52:3:449:C:H42	52:3:2418:G:H1	1.66	0.44
52:3:549:A:H2'	52:3:550:A:C8	2.53	0.44
52:3:982:G:H2'	52:3:983:A:H8	1.82	0.44
52:3:1027:U:H2'	52:3:1028:C:C6	2.53	0.44
52:3:1439:U:H2'	52:3:1440:U:C6	2.53	0.44
52:3:1994:U:H2'	52:3:1995:G:C8	2.52	0.44
52:3:2357:G:H2'	52:3:2358:U:O4'	2.18	0.44
52:3:2567:C:H2'	52:3:2568:G:H8	1.82	0.44
54:5:23:G:H2'	54:5:24:C:C6	2.53	0.44
54:5:87:G:H2'	54:5:88:A:C8	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1363:U:H2'	54:5:1364:C:C6	2.53	0.44
1:0:12:ARG:NH2	52:3:501:G:OP1	2.44	0.44
21:Q:73:ARG:NH1	21:Q:79:CYS:HA	2.33	0.44
31:f:70:GLU:HA	31:f:73:GLU:HG2	2.00	0.44
34:i:46:ASP:HB3	41:p:100:LYS:HE3	2.00	0.44
37:l:24:ASN:HB2	37:l:101:THR:HG23	2.00	0.44
52:3:25:G:H2'	52:3:26:G:H8	1.83	0.44
52:3:333:A:N6	52:3:356:A:N3	2.65	0.44
52:3:947:A:O2'	52:3:948:A:O4'	2.19	0.44
52:3:1192:U:H2'	52:3:1193:U:C6	2.52	0.44
52:3:1211:U:H2'	52:3:1212:C:C6	2.52	0.44
52:3:1433:U:H2'	52:3:1434:U:C6	2.52	0.44
52:3:1451:A:H2'	52:3:1452:G:C8	2.53	0.44
52:3:2197:U:H2'	52:3:2198:G:C8	2.53	0.44
52:3:2350:C:H2'	52:3:2351:U:O4'	2.18	0.44
52:3:2850:G:H2'	52:3:2851:U:C6	2.53	0.44
54:5:306:G:H2'	54:5:307:C:C6	2.53	0.44
54:5:856:U:H2'	54:5:857:U:C6	2.53	0.44
54:5:1237:G:O6	54:5:1248:U:C2	2.70	0.44
5:A:203:ASN:OD1	5:A:218:ASN:HA	2.17	0.44
7:C:18:LEU:HD11	7:C:110:ARG:HD3	2.00	0.44
9:E:35:LEU:HA	9:E:62:PHE:HB3	2.00	0.44
10:F:2:ARG:HD2	54:5:1355:U:C6	2.52	0.44
17:M:5:SER:HA	17:M:8:VAL:HG12	2.00	0.44
22:R:37:ARG:HA	22:R:70:LYS:HD2	2.00	0.44
28:c:92:GLY:O	28:c:94:LYS:HD2	2.18	0.44
28:c:185:LYS:HD3	52:3:648:G:H22	1.82	0.44
32:g:93:LEU:HB3	32:g:127:ALA:CB	2.48	0.44
38:m:65:LYS:HE2	38:m:66:TRP:NE1	2.33	0.44
40:o:44:ARG:NH2	54:5:342:G:O5'	2.51	0.44
40:o:92:ARG:HH22	54:5:1436:C:H5'	1.80	0.44
52:3:121:U:H5''	52:3:123:G:OP2	2.18	0.44
52:3:629:G:H2'	52:3:630:C:C6	2.53	0.44
52:3:651:A:H3'	52:3:652:U:H6	1.83	0.44
52:3:778:U:H2'	52:3:779:C:C6	2.53	0.44
52:3:1187:C:H2'	52:3:1188:C:C6	2.49	0.44
52:3:1575:C:H2'	52:3:1576:G:O4'	2.18	0.44
52:3:2070:C:O2	55:7:76:C:O2'	2.34	0.44
52:3:2601:U:H2'	52:3:2602:C:C6	2.52	0.44
54:5:375:C:H2'	54:5:376:G:C8	2.52	0.44
54:5:499:U:H2'	54:5:500:G:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1154:A:H2'	54:5:1155:A:C8	2.53	0.44
54:5:1160:G:H2'	54:5:1161:G:C8	2.53	0.44
54:5:1248:U:H2'	54:5:1249:G:H8	1.83	0.44
54:5:1277:C:H3'	54:5:1278:G:C8	2.53	0.44
1:0:36:LYS:HD2	1:0:36:LYS:HA	1.79	0.43
4:9:94:ARG:HB3	4:9:312:PHE:HB2	1.99	0.43
4:9:181:GLU:HB2	4:9:196:GLU:HB3	1.99	0.43
4:9:548:SER:HA	4:9:553:GLY:HA2	1.99	0.43
10:F:110:ARG:HH11	10:F:122:GLU:HG2	1.83	0.43
18:N:9:ILE:O	18:N:13:GLN:HG3	2.17	0.43
24:T:50:GLN:HB3	54:5:1509:A:H61	1.83	0.43
26:a:9:ARG:HH21	26:a:9:ARG:HA	1.82	0.43
32:g:113:PHE:O	32:g:114:ASP:HB2	2.17	0.43
49:x:36:ILE:HG13	49:x:38:ILE:H	1.83	0.43
52:3:285:U:H6	52:3:286:A:H2	1.66	0.43
52:3:320:A:H2'	52:3:321:A:C8	2.53	0.43
52:3:1212:C:H2'	52:3:1213:U:C6	2.52	0.43
52:3:1447:A:N7	52:3:1612:U:N3	2.66	0.43
52:3:1539:U:H2'	52:3:1540:G:C8	2.53	0.43
52:3:1744:U:C2	52:3:1745:A:C8	3.06	0.43
52:3:1959:A:N6	52:3:1960:A:N1	2.65	0.43
52:3:2736:U:HO2'	52:3:2737:G:H8	1.61	0.43
53:4:58:C:H2'	53:4:59:A:H8	1.83	0.43
54:5:212:G:H2'	54:5:213:U:C6	2.52	0.43
54:5:233:C:H2'	54:5:234:G:C8	2.52	0.43
54:5:250:G:H2'	54:5:251:G:C8	2.53	0.43
54:5:279:C:H2'	54:5:280:G:H8	1.83	0.43
54:5:374:G:H2'	54:5:375:C:C6	2.53	0.43
54:5:996:U:O2	54:5:1031:A:N6	2.51	0.43
54:5:1268:G:H2'	54:5:1269:U:C6	2.52	0.43
54:5:1288:C:H2'	54:5:1289:U:H6	1.83	0.43
4:9:61:ILE:HD11	4:9:458:ILE:HD12	2.00	0.43
5:A:157:GLU:O	5:A:161:LYS:HG2	2.17	0.43
9:E:73:LYS:HD2	9:E:73:LYS:C	2.44	0.43
12:H:54:LEU:HD11	12:H:85:ILE:HG12	1.99	0.43
13:I:45:PRO:HB3	13:I:80:MET:HE2	2.00	0.43
13:I:46:LEU:HA	13:I:47:PRO:HD3	1.90	0.43
23:S:13:GLN:OE1	23:S:17:ARG:NH2	2.51	0.43
27:b:110:VAL:HG11	27:b:197:ILE:HD12	2.00	0.43
28:c:54:THR:HG22	28:c:55:LYS:N	2.33	0.43
38:m:112:GLU:OE2	50:y:41:ARG:NH2	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:p:104:LYS:O	41:p:108:ILE:HG12	2.18	0.43
52:3:822:C:H5''	52:3:823:A:H5'	2.00	0.43
52:3:1158:C:H2'	52:3:1159:C:H6	1.83	0.43
52:3:1270:C:H2'	52:3:1271:A:C8	2.53	0.43
52:3:1429:G:H2'	52:3:1430:U:O4'	2.17	0.43
52:3:1795:C:C2	52:3:1796:A:C8	3.06	0.43
52:3:2079:G:H2'	52:3:2080:C:H6	1.84	0.43
52:3:2349:G:H2'	52:3:2350:C:C6	2.53	0.43
52:3:2614:U:H2'	52:3:2615:G:H8	1.84	0.43
52:3:2671:G:H2'	52:3:2672:G:O4'	2.19	0.43
52:3:2695:U:H2'	52:3:2696:G:O4'	2.18	0.43
52:3:2769:G:H2'	52:3:2770:U:C6	2.53	0.43
52:3:2787:U:C4	52:3:2789:A:C2	3.06	0.43
52:3:2812:U:O2'	52:3:2814:A:N7	2.42	0.43
52:3:2865:U:H2'	52:3:2866:A:C8	2.52	0.43
54:5:1072:G:H2'	54:5:1073:A:C8	2.54	0.43
54:5:1099:G:C6	54:5:1100:C:C4	3.06	0.43
54:5:1133:A:N6	54:5:1153:G:H1'	2.33	0.43
55:7:66:C:C2	55:7:67:C:C5	3.06	0.43
3:2:27:CYS:SG	3:2:28:LYS:N	2.91	0.43
5:A:73:LYS:HE2	5:A:73:LYS:HB2	1.80	0.43
9:E:126:GLU:OE2	21:Q:40:TYR:N	2.51	0.43
25:W:112:PHE:O	25:W:115:VAL:HG12	2.18	0.43
26:a:79:ILE:HG23	26:a:101:TYR:HD2	1.83	0.43
30:e:58:ASN:OD1	30:e:59:ASN:N	2.52	0.43
31:f:2:LYS:HE2	31:f:29:PHE:CA	2.38	0.43
31:f:77:LEU:HB2	31:f:140:VAL:HG12	2.00	0.43
52:3:175:A:H2'	52:3:176:U:C6	2.52	0.43
52:3:226:A:C2	52:3:237:A:H5'	2.53	0.43
52:3:440:C:H1'	52:3:442:G:C6	2.53	0.43
52:3:512:G:N2	52:3:515:A:O4'	2.51	0.43
52:3:1201:A:H2'	52:3:1202:A:H8	1.82	0.43
52:3:1432:C:H2'	52:3:1433:U:C6	2.54	0.43
52:3:2152:C:N3	52:3:2154:A:H1'	2.34	0.43
52:3:2182:C:H2'	52:3:2183:U:C6	2.53	0.43
52:3:2460:C:N4	52:3:2512:U:H3	2.16	0.43
52:3:2516:G:H2'	52:3:2517:A:H8	1.80	0.43
54:5:218:U:H2'	54:5:219:A:C8	2.54	0.43
54:5:356:G:H2'	54:5:357:G:H8	1.83	0.43
54:5:1044:G:N2	54:5:1049:G:O6	2.51	0.43
54:5:1263:A:H2'	54:5:1264:G:H5'	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:2:3:VAL:HG23	3:2:36:GLN:HB2	2.00	0.43
4:9:120:TRP:NE1	4:9:157:VAL:HG21	2.33	0.43
28:c:4:LEU:HB2	28:c:20:LEU:HD11	2.01	0.43
31:f:114:LYS:H	31:f:128:LEU:HD11	1.82	0.43
32:g:85:GLY:HA3	32:g:92:THR:HG21	1.99	0.43
33:h:51:ILE:HG21	33:h:67:LEU:HD13	1.99	0.43
35:j:103:ALA:HB1	35:j:105:GLU:OE1	2.18	0.43
39:n:79:ASP:HA	39:n:82:VAL:HG12	2.01	0.43
52:3:91:G:H2'	52:3:92:U:C6	2.53	0.43
52:3:142:A:O2'	52:3:143:A:O4'	2.22	0.43
52:3:277:C:H2'	52:3:278:U:O4'	2.19	0.43
52:3:452:U:H3	52:3:2415:A:N6	2.16	0.43
52:3:701:A:H2'	52:3:702:U:C6	2.54	0.43
52:3:1286:G:H2'	52:3:1286:G:N3	2.34	0.43
52:3:1319:C:H2'	52:3:1320:C:C6	2.52	0.43
52:3:2118:U:C6	52:3:2125:U:H5'	2.53	0.43
52:3:2235:A:H2'	52:3:2236:G:C8	2.53	0.43
52:3:2539:A:O2'	52:3:2666:C:O2'	2.32	0.43
52:3:2545:U:H2'	52:3:2546:U:C6	2.54	0.43
54:5:776:C:H2'	54:5:777:A:O4'	2.19	0.43
54:5:844:U:H2'	54:5:845:C:C6	2.53	0.43
55:7:30:G:C5	55:7:43:G:N2	2.86	0.43
55:8:30:G:C5	55:8:43:G:N2	2.86	0.43
4:9:416:ALA:O	4:9:420:LYS:HG2	2.17	0.43
7:C:3:TYR:HE1	7:C:114:ARG:HD3	1.83	0.43
15:K:4:ILE:H	15:K:4:ILE:HD12	1.82	0.43
19:O:71:GLY:O	19:O:75:LYS:NZ	2.35	0.43
20:P:2:LYS:NZ	54:5:187:A:H5'	2.33	0.43
20:P:74:ARG:HD3	54:5:231:U:H5'	2.01	0.43
22:R:38:SER:O	22:R:71:LEU:N	2.52	0.43
25:W:109:LYS:O	25:W:113:VAL:HG22	2.18	0.43
27:b:62:LEU:HD11	27:b:66:GLN:HB2	1.99	0.43
29:d:56:GLU:HA	29:d:59:LEU:HG	2.00	0.43
45:t:45:HIS:CD2	45:t:62:LYS:HA	2.54	0.43
45:t:102:ARG:HG3	45:t:111:LEU:HD23	2.01	0.43
52:3:23:A:H2'	52:3:24:U:C6	2.53	0.43
52:3:714:G:H2'	52:3:715:G:H8	1.83	0.43
52:3:1047:A:H1'	52:3:1048:A:C8	2.53	0.43
52:3:1154:U:H2'	52:3:1155:G:H8	1.83	0.43
52:3:1288:C:H2'	52:3:1289:G:C8	2.53	0.43
52:3:1594:G:H2'	52:3:1595:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2299:U:O4	52:3:2349:G:O6	2.37	0.43
52:3:2330:A:C4	52:3:2331:G:C8	3.07	0.43
52:3:2844:U:H2'	52:3:2845:U:H6	1.83	0.43
52:3:2885:U:H2'	52:3:2886:A:C8	2.54	0.43
54:5:934:G:O6	54:5:1318:C:N4	2.51	0.43
54:5:1146:A:O2'	54:5:1147:U:O4'	2.28	0.43
4:9:292:GLU:OE2	4:9:396:LEU:HB2	2.18	0.43
4:9:630:THR:HB	52:3:1130:A:C2	2.53	0.43
5:A:159:LEU:O	5:A:164:GLY:N	2.52	0.43
8:D:73:LEU:HD23	8:D:73:LEU:H	1.82	0.43
8:D:103:TYR:HD1	8:D:196:MET:HE2	1.83	0.43
8:D:166:ILE:O	8:D:170:ILE:HG12	2.18	0.43
10:F:19:ASN:ND2	10:F:22:VAL:HG23	2.33	0.43
10:F:115:MET:O	10:F:119:ILE:HG22	2.18	0.43
11:G:93:PRO:HA	11:G:96:ARG:HH11	1.84	0.43
37:l:64:MET:HB3	37:l:106:VAL:HG22	2.01	0.43
52:3:78:C:H2'	52:3:79:U:H6	1.84	0.43
52:3:428:U:H2'	52:3:429:U:C6	2.53	0.43
52:3:575:C:H2'	52:3:576:A:C8	2.54	0.43
52:3:758:C:H2'	52:3:759:U:H6	1.84	0.43
52:3:899:A:H2'	52:3:900:G:C8	2.52	0.43
52:3:1292:A:C6	52:3:1293:U:C4	3.07	0.43
52:3:2156:G:H2'	52:3:2157:A:C8	2.50	0.43
52:3:2506:C:O2'	52:3:2507:C:OP1	2.32	0.43
52:3:2718:C:H2'	52:3:2719:A:C8	2.53	0.43
52:3:2870:U:H4'	52:3:2871:G:H4'	1.99	0.43
54:5:69:G:H1'	54:5:157:A:C2	2.54	0.43
54:5:154:G:H2'	54:5:155:C:C6	2.54	0.43
54:5:1082:U:N3	54:5:1086:U:O4	2.51	0.43
54:5:1383:A:H2'	54:5:1384:A:C8	2.53	0.43
4:9:613:PHE:HB3	4:9:637:GLN:HE22	1.83	0.43
10:F:148:LYS:HD2	10:F:151:ALA:HB3	2.01	0.43
15:K:120:VAL:O	15:K:122:LYS:N	2.52	0.43
24:T:39:GLY:O	24:T:42:LEU:HG	2.18	0.43
26:a:188:GLU:OE1	26:a:281:ASN:HA	2.19	0.43
31:f:103:THR:HA	52:3:166:A:C8	2.54	0.43
36:k:22:ARG:NH1	52:3:1280:G:OP2	2.44	0.43
52:3:47:G:C5'	52:3:48:G:H5'	2.48	0.43
52:3:2460:C:H2'	52:3:2461:A:O4'	2.18	0.43
54:5:10:G:H2'	54:5:11:A:H8	1.84	0.43
54:5:601:U:H2'	54:5:602:G:C8	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:1114:A:H2'	54:5:1115:G:O4'	2.19	0.43
4:9:175:ILE:O	4:9:182:LYS:HG2	2.19	0.43
4:9:571:VAL:O	4:9:571:VAL:HG12	2.18	0.43
6:B:37:ASP:HA	6:B:40:ILE:HD12	2.01	0.43
7:C:98:ASP:OD1	7:C:99:ASN:N	2.52	0.43
9:E:2:GLN:O	9:E:89:ASN:ND2	2.52	0.43
11:G:88:LYS:HE2	11:G:142:TRP:HH2	1.82	0.43
11:G:126:LYS:HG3	11:G:127:VAL:N	2.34	0.43
19:O:63:VAL:HG23	19:O:66:LEU:HD12	2.00	0.43
22:R:16:LEU:O	22:R:20:ILE:HG23	2.18	0.43
30:e:19:ASN:HB3	30:e:21:GLN:HE22	1.83	0.43
36:k:72:PHE:CZ	52:3:2414:U:H1'	2.54	0.43
48:w:91:LEU:O	48:w:95:LYS:HG2	2.19	0.43
52:3:192:U:H2'	52:3:193:G:O4'	2.18	0.43
52:3:338:G:H2'	52:3:339:U:C6	2.53	0.43
52:3:2159:U:H2'	52:3:2160:U:H6	1.83	0.43
52:3:2270:U:H2'	52:3:2271:C:H6	1.83	0.43
52:3:2868:G:N1	52:3:2869:U:C4	2.87	0.43
54:5:356:G:H2'	54:5:357:G:C8	2.54	0.43
54:5:500:G:H2'	54:5:501:A:C8	2.54	0.43
54:5:859:A:H2'	54:5:860:C:C6	2.54	0.43
54:5:985:C:H2'	54:5:986:U:C6	2.53	0.43
54:5:1379:C:H42	54:5:1472:G:H1	1.67	0.43
55:8:66:C:C2	55:8:67:C:C5	3.06	0.43
4:9:480:PHE:HD1	4:9:599:GLU:HA	1.84	0.43
4:9:627:ILE:O	4:9:627:ILE:HG13	2.17	0.43
5:A:23:LEU:HD11	5:A:58:LEU:HD12	2.01	0.43
9:E:42:LEU:HD13	9:E:56:HIS:CE1	2.54	0.43
31:f:55:GLN:O	31:f:59:GLU:HG3	2.19	0.43
46:u:60:TYR:CZ	46:u:92:LYS:HD3	2.53	0.43
52:3:93:A:H5'	52:3:94:A:C4	2.53	0.43
52:3:393:C:H2'	52:3:394:C:O4'	2.19	0.43
52:3:764:G:H5'	52:3:765:A:H5''	2.01	0.43
52:3:1028:C:H2'	52:3:1029:A:C8	2.53	0.43
52:3:1115:G:H2'	52:3:1116:U:C6	2.54	0.43
52:3:1293:U:H3'	52:3:1294:G:C8	2.54	0.43
52:3:1868:A:H2'	52:3:1869:G:C8	2.54	0.43
52:3:2006:C:H2'	52:3:2007:U:H6	1.83	0.43
52:3:2100:G:H2'	52:3:2101:A:H8	1.84	0.43
52:3:2223:C:H2'	52:3:2224:A:C8	2.54	0.43
52:3:2698:U:OP1	52:3:2876:G:N2	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2709:C:O5'	52:3:2710:G:H5''	2.19	0.43
53:4:12:U:OP2	53:4:68:C:O2'	2.36	0.43
54:5:608:G:H1	54:5:628:A:H2	1.64	0.43
55:7:68:G:H2'	55:7:69:A:C8	2.54	0.43
4:9:330:SER:HA	4:9:369:ALA:HB1	2.00	0.43
4:9:507:VAL:C	4:9:508:LYS:HD3	2.44	0.43
9:E:92:ARG:HH22	21:Q:85:HIS:HA	1.84	0.43
10:F:59:THR:O	10:F:62:GLU:HG3	2.18	0.43
13:I:58:ILE:HA	13:I:68:ARG:HG2	2.01	0.43
19:O:13:ILE:N	19:O:31:GLY:O	2.51	0.43
29:d:140:GLU:O	29:d:141:ILE:HD13	2.19	0.43
52:3:129:U:H2'	52:3:130:C:H6	1.83	0.43
52:3:756:A:H2'	52:3:757:A:H8	1.84	0.43
52:3:897:A:H62	52:3:953:G:H21	1.67	0.43
52:3:1112:A:H2'	52:3:1113:U:H5'	2.00	0.43
52:3:1530:G:H2'	52:3:1531:C:C6	2.54	0.43
52:3:1928:G:H2'	52:3:1929:G:C8	2.54	0.43
52:3:2103:C:H2'	52:3:2104:A:C8	2.52	0.43
52:3:2208:U:H2'	52:3:2209:U:C6	2.54	0.43
54:5:46:U:H2'	54:5:47:G:C8	2.53	0.43
54:5:265:U:H2'	54:5:266:A:C8	2.54	0.43
54:5:1000:A:O2'	54:5:1001:A:H8	2.01	0.43
54:5:1106:U:H2'	54:5:1107:U:C6	2.54	0.43
54:5:1195:G:H2'	54:5:1196:G:C8	2.54	0.43
4:9:646:LYS:HD2	4:9:647:GLU:HG3	2.01	0.42
12:H:83:LEU:HA	12:H:86:VAL:HG22	2.00	0.42
13:I:45:PRO:HB2	13:I:78:ARG:HD3	2.01	0.42
32:g:42:LYS:NZ	33:h:110:VAL:HA	2.33	0.42
34:i:11:GLN:OE1	52:3:573:A:H5''	2.19	0.42
42:q:41:LEU:HD12	42:q:97:PHE:CZ	2.54	0.42
45:t:58:GLN:CG	45:t:59:SER:H	2.32	0.42
50:y:47:MET:SD	50:y:52:ARG:HG2	2.59	0.42
51:z:23:LYS:HZ3	51:z:25:VAL:HG22	1.84	0.42
52:3:9:G:H2'	52:3:10:U:C6	2.54	0.42
52:3:462:C:H2'	52:3:463:U:C6	2.55	0.42
52:3:465:A:OP2	52:3:465:A:H8	2.02	0.42
52:3:598:G:C6	52:3:599:U:C4	3.07	0.42
52:3:912:A:H2'	52:3:913:U:C6	2.54	0.42
52:3:1219:U:H2'	52:3:1220:A:O4'	2.18	0.42
52:3:1510:A:H2'	52:3:1511:C:H6	1.84	0.42
52:3:2224:A:H2'	52:3:2225:G:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2301:C:H2'	52:3:2302:C:H6	1.84	0.42
52:3:2336:A:H2'	52:3:2337:U:H6	1.80	0.42
52:3:2569:A:H2'	52:3:2570:U:O4'	2.19	0.42
52:3:2801:U:H2'	52:3:2802:C:C5	2.53	0.42
54:5:946:G:H1	54:5:1205:C:N4	2.17	0.42
4:9:334:LYS:HE3	4:9:334:LYS:HB3	1.81	0.42
4:9:459:LEU:O	4:9:463:MET:HG2	2.19	0.42
5:A:71:TYR:CE1	9:E:164:GLY:HA2	2.54	0.42
6:B:35:ILE:O	6:B:39:LYS:HG3	2.19	0.42
7:C:11:SER:HB3	7:C:23:LYS:HD3	2.02	0.42
8:D:111:VAL:O	8:D:115:ILE:HG12	2.19	0.42
9:E:47:TYR:OH	21:Q:94:ARG:O	2.23	0.42
11:G:43:ALA:HB1	11:G:122:VAL:HG22	2.00	0.42
20:P:40:VAL:C	20:P:41:ARG:HD2	2.44	0.42
29:d:48:LYS:HB2	29:d:48:LYS:HE2	1.87	0.42
33:h:123:MET:HE2	33:h:123:MET:HB3	1.83	0.42
43:r:34:ASN:ND2	50:y:36:LYS:HD3	2.33	0.42
44:s:56:ASN:HB2	44:s:82:VAL:HG22	2.01	0.42
52:3:69:U:C2	52:3:70:G:C8	3.08	0.42
52:3:386:U:H2'	52:3:387:U:C6	2.54	0.42
52:3:550:A:H1'	52:3:614:C:H1'	2.01	0.42
52:3:1371:G:N3	52:3:1371:G:H2'	2.35	0.42
52:3:1762:A:H2'	52:3:1763:G:H5'	2.01	0.42
52:3:2530:U:H2'	52:3:2531:C:H5'	2.01	0.42
54:5:615:G:H2'	54:5:616:C:O4'	2.18	0.42
54:5:681:U:H2'	54:5:682:G:C8	2.54	0.42
54:5:935:U:H2'	54:5:936:G:C8	2.55	0.42
54:5:943:C:H2'	54:5:944:A:H8	1.84	0.42
4:9:257:LEU:HD11	4:9:273:ALA:HB3	2.01	0.42
4:9:480:PHE:HZ	4:9:646:LYS:HB2	1.84	0.42
6:B:93:LYS:HB2	6:B:102:LEU:HD11	2.00	0.42
10:F:143:MET:HE3	10:F:147:ASN:HD21	1.84	0.42
17:M:40:CYS:O	17:M:44:PHE:N	2.39	0.42
20:P:71:ALA:HA	20:P:74:ARG:HH22	1.84	0.42
22:R:12:ASP:CG	22:R:37:ARG:HE	2.27	0.42
25:W:106:GLU:HA	25:W:109:LYS:HE3	2.01	0.42
26:a:71:PHE:HD1	26:a:149:ASN:HD21	1.67	0.42
29:d:109:PRO:HD3	49:x:46:TYR:CE2	2.54	0.42
36:k:77:TRP:CE2	36:k:130:LYS:HE3	2.54	0.42
37:l:87:LYS:NZ	52:3:991:G:OP1	2.42	0.42
38:m:15:VAL:O	38:m:19:ARG:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:u:55:ARG:HD2	46:u:55:ARG:HA	1.80	0.42
48:w:22:LEU:HB3	48:w:51:LEU:HD21	2.00	0.42
50:y:37:LYS:NZ	50:y:38:LEU:O	2.47	0.42
52:3:184:A:O4'	52:3:471:A:H1'	2.20	0.42
52:3:340:U:H2'	52:3:341:G:O4'	2.18	0.42
52:3:598:G:C6	52:3:610:G:N1	2.87	0.42
52:3:1309:G:H2'	52:3:1310:U:C6	2.53	0.42
52:3:1363:C:H2'	52:3:1364:A:C8	2.54	0.42
52:3:1475:C:H2'	52:3:1476:C:C6	2.55	0.42
52:3:1557:G:H3'	52:3:1571:G:N2	2.34	0.42
52:3:2855:A:H2'	52:3:2856:G:O4'	2.18	0.42
54:5:422:A:H2'	54:5:423:U:C6	2.54	0.42
54:5:643:U:H2'	54:5:644:U:H6	1.84	0.42
54:5:939:G:O6	54:5:1311:G:H8	2.02	0.42
54:5:980:C:H42	54:5:1196:G:H1	1.68	0.42
4:9:203:PHE:HA	4:9:206:GLN:OE1	2.19	0.42
4:9:223:ASP:HB3	25:W:68:LEU:HD13	2.01	0.42
5:A:27:ARG:NH2	5:A:252:GLU:HB2	2.34	0.42
5:A:237:ALA:HB1	5:A:242:MET:HG3	2.02	0.42
8:D:160:ILE:HG23	8:D:167:ARG:HH22	1.83	0.42
36:k:20:LEU:CD1	36:k:32:SER:H	2.30	0.42
52:3:427:A:N3	52:3:427:A:H2'	2.34	0.42
52:3:677:U:H3	52:3:683:G:H1	1.67	0.42
52:3:2472:G:H2'	52:3:2473:C:H6	1.84	0.42
52:3:2592:U:H2'	52:3:2593:U:H2'	2.00	0.42
53:4:106:A:H2'	53:4:107:G:H8	1.84	0.42
54:5:57:U:H2'	54:5:58:G:C8	2.55	0.42
54:5:268:C:H2'	54:5:269:A:H8	1.85	0.42
54:5:287:U:H2'	54:5:288:A:C8	2.54	0.42
54:5:918:A:H2	54:5:1370:C:N3	2.17	0.42
54:5:1214:A:H62	54:5:1273:A:H62	1.67	0.42
54:5:1267:G:H2'	54:5:1268:G:O4'	2.18	0.42
4:9:328:VAL:N	4:9:371:ASP:O	2.45	0.42
4:9:343:ARG:HE	4:9:396:LEU:HD11	1.85	0.42
4:9:531:PRO:HD3	4:9:568:PHE:CE1	2.55	0.42
5:A:112:TRP:HZ3	5:A:184:GLU:HB3	1.84	0.42
5:A:122:THR:HA	5:A:125:ILE:HG12	2.02	0.42
6:B:177:PRO:HB2	6:B:180:THR:OG1	2.19	0.42
9:E:30:THR:OG1	9:E:31:ASN:N	2.53	0.42
11:G:49:VAL:HG11	11:G:57:PHE:CE1	2.54	0.42
13:I:35:VAL:HG23	13:I:42:ILE:HD13	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:K:120:VAL:O	15:K:121:GLU:C	2.62	0.42
15:K:126:GLN:HE21	54:5:501:A:P	2.43	0.42
18:N:26:VAL:O	18:N:30:THR:HG23	2.20	0.42
28:c:108:HIS:CE1	52:3:652:U:H4'	2.54	0.42
29:d:121:SER:HA	52:3:2311:G:H4'	2.00	0.42
34:i:15:ARG:NH1	34:i:15:ARG:HA	2.34	0.42
46:u:21:VAL:HG13	46:u:21:VAL:O	2.20	0.42
48:w:67:GLU:HG2	48:w:68:GLU:N	2.34	0.42
52:3:15:A:O2'	52:3:17:G:N7	2.36	0.42
52:3:190:G:H2'	52:3:191:G:C8	2.53	0.42
52:3:228:A:H2'	52:3:229:C:C6	2.53	0.42
52:3:481:C:H2'	52:3:482:G:C8	2.54	0.42
52:3:841:C:H2'	52:3:842:U:H5''	2.01	0.42
52:3:1226:G:H2'	52:3:1227:C:H6	1.84	0.42
52:3:1995:G:H2'	52:3:1996:A:C8	2.53	0.42
52:3:2011:G:C2	52:3:2012:A:H1'	2.53	0.42
52:3:2301:C:H2'	52:3:2302:C:C6	2.55	0.42
52:3:2852:G:O2'	52:3:2871:G:N2	2.52	0.42
52:3:2872:A:H2'	52:3:2873:G:C8	2.55	0.42
54:5:136:U:C2	54:5:157:A:N6	2.85	0.42
54:5:204:C:H2'	54:5:205:U:C6	2.54	0.42
54:5:403:A:H2'	54:5:404:A:C8	2.54	0.42
54:5:675:U:H2'	54:5:676:U:H6	1.83	0.42
54:5:762:G:N2	54:5:809:G:O2'	2.48	0.42
54:5:825:A:H62	54:5:852:G:N2	2.16	0.42
54:5:886:A:O2'	54:5:1390:G:O2'	2.38	0.42
54:5:1042:G:H2'	54:5:1043:U:C6	2.54	0.42
54:5:1482:A:H2'	54:5:1483:C:C6	2.55	0.42
4:9:94:ARG:NH2	4:9:433:PRO:O	2.51	0.42
4:9:575:GLU:O	4:9:578:PHE:HB2	2.19	0.42
5:A:30:VAL:HG11	5:A:55:HIS:HA	2.02	0.42
7:C:117:VAL:HG22	7:C:122:VAL:HG11	2.01	0.42
8:D:108:ALA:HB3	8:D:114:ALA:HB2	2.01	0.42
9:E:80:LYS:HE2	9:E:80:LYS:HB2	1.87	0.42
13:I:29:LYS:HD2	13:I:29:LYS:HA	1.74	0.42
18:N:33:ILE:O	18:N:37:THR:HG23	2.20	0.42
28:c:80:ARG:HH22	52:3:506:A:P	2.42	0.42
29:d:158:THR:HG23	29:d:160:THR:H	1.85	0.42
32:g:49:SER:CB	32:g:85:GLY:HA2	2.32	0.42
50:y:53:VAL:HG23	50:y:54:LYS:HG3	2.00	0.42
52:3:1104:A:H4'	52:3:1105:A:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1523:C:H2'	52:3:1524:C:C6	2.54	0.42
52:3:1941:C:H2'	52:3:1942:G:C8	2.55	0.42
54:5:359:A:H2'	54:5:360:A:C8	2.55	0.42
54:5:474:G:C2	54:5:475:U:C4	3.07	0.42
54:5:770:G:H2'	54:5:771:G:C8	2.53	0.42
54:5:1139:A:C6	54:5:1149:G:C6	3.07	0.42
54:5:1284:A:H2'	54:5:1285:G:H8	1.83	0.42
54:5:1378:C:H1'	54:5:1474:A:H61	1.84	0.42
3:2:17:ILE:HD11	3:2:26:ILE:HD11	2.01	0.42
14:J:94:ALA:HA	14:J:98:LEU:HB3	2.01	0.42
21:Q:73:ARG:HH11	21:Q:79:CYS:HA	1.85	0.42
23:S:56:ARG:HD2	54:5:197:A:OP1	2.20	0.42
31:f:69:LYS:HD3	31:f:134:THR:HG23	2.01	0.42
38:m:22:VAL:HA	38:m:25:VAL:HG12	2.02	0.42
38:m:82:LEU:HD12	38:m:86:VAL:HB	2.00	0.42
52:3:299:A:H2'	52:3:300:G:H8	1.85	0.42
52:3:307:C:H2'	52:3:308:A:H8	1.85	0.42
52:3:674:G:H2'	52:3:675:U:H6	1.83	0.42
52:3:719:G:O2'	52:3:823:A:N7	2.52	0.42
52:3:1005:G:H2'	52:3:1006:U:H6	1.84	0.42
52:3:1436:C:H2'	52:3:1437:A:C8	2.55	0.42
52:3:1507:G:O6	52:3:1537:A:N6	2.53	0.42
52:3:2214:A:H2'	52:3:2215:C:C6	2.54	0.42
52:3:2291:U:O5'	52:3:2397:G:O2'	2.35	0.42
52:3:2319:A:OP1	52:3:2321:C:N4	2.52	0.42
53:4:76:A:N6	53:4:89:A:C5	2.87	0.42
54:5:233:C:H2'	54:5:234:G:H8	1.85	0.42
54:5:245:U:H2'	54:5:246:A:C5	2.55	0.42
4:9:508:LYS:HE2	4:9:565:ASP:HB2	2.02	0.42
18:N:59:LYS:O	18:N:62:ARG:HG2	2.20	0.42
19:O:21:LYS:HB3	54:5:96:G:H5''	2.01	0.42
22:R:70:LYS:HB2	22:R:73:GLU:HG3	2.02	0.42
31:f:17:ASP:OD1	31:f:17:ASP:N	2.45	0.42
32:g:18:LEU:HD11	32:g:24:PHE:CD2	2.55	0.42
39:n:76:ASP:OD1	39:n:76:ASP:N	2.52	0.42
49:x:44:PRO:O	49:x:47:ILE:HG22	2.19	0.42
52:3:611:A:N7	52:3:2025:C:H5'	2.35	0.42
52:3:697:U:H2'	52:3:698:A:C8	2.55	0.42
52:3:1539:U:H2'	52:3:1540:G:H8	1.85	0.42
52:3:2092:U:H2'	52:3:2093:U:C6	2.55	0.42
52:3:2141:A:H61	52:3:2164:G:H1'	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2602:C:N4	52:3:2603:G:O6	2.52	0.42
53:4:56:A:H2'	53:4:57:G:H8	1.85	0.42
54:5:104:A:H4'	54:5:105:A:C8	2.55	0.42
54:5:266:A:H2'	54:5:267:C:C6	2.55	0.42
54:5:737:U:H2'	54:5:738:A:H8	1.83	0.42
54:5:1362:G:H2'	54:5:1363:U:C6	2.55	0.42
54:5:1410:A:H2'	54:5:1411:A:C8	2.53	0.42
4:9:435:PHE:CE2	4:9:448:ILE:HD11	2.54	0.42
5:A:201:LEU:HD11	5:A:228:LEU:HD11	2.02	0.42
11:G:90:ILE:HG21	11:G:137:ILE:HD11	2.02	0.42
15:K:64:LYS:NZ	54:5:519:G:OP2	2.52	0.42
18:N:8:ILE:O	18:N:11:SER:OG	2.29	0.42
18:N:20:GLY:HA3	54:5:747:C:O2	2.19	0.42
26:a:127:PRO:HB3	26:a:140:PHE:HB3	2.01	0.42
26:a:193:LEU:HD21	52:3:2230:A:H5''	2.01	0.42
31:f:47:ARG:HA	31:f:47:ARG:HD2	1.95	0.42
32:g:85:GLY:CA	32:g:92:THR:HG21	2.50	0.42
33:h:100:LYS:HA	33:h:103:GLU:HG2	2.02	0.42
42:q:75:SER:OG	52:3:597:C:OP2	2.34	0.42
45:t:99:LYS:HE3	45:t:100:LYS:HG3	2.02	0.42
52:3:323:A:H2'	52:3:324:C:H6	1.85	0.42
52:3:333:A:N1	52:3:356:A:C4	2.88	0.42
52:3:2205:U:O3'	52:3:2206:A:H2'	2.20	0.42
52:3:2802:C:H42	52:3:2808:A:H1'	1.84	0.42
54:5:42:G:H2'	54:5:43:G:H8	1.84	0.42
54:5:199:A:N6	54:5:217:U:H4'	2.35	0.42
54:5:655:G:H2'	54:5:656:U:C6	2.55	0.42
54:5:674:U:H3	54:5:710:G:N2	2.18	0.42
55:8:68:G:H2'	55:8:69:A:C8	2.54	0.42
4:9:493:LYS:HB3	4:9:495:ILE:HD11	2.02	0.42
4:9:541:GLY:O	4:9:545:ALA:N	2.53	0.42
6:B:153:LYS:HB3	6:B:204:TRP:HB2	2.02	0.42
11:G:107:VAL:HG11	11:G:140:TYR:HB3	2.01	0.42
26:a:84:LYS:HA	26:a:84:LYS:HD3	1.72	0.42
26:a:125:GLU:HG2	26:a:137:PRO:HG3	2.01	0.42
27:b:138:GLY:HA3	52:3:2587:U:H4'	2.01	0.42
30:e:159:PRO:HB2	30:e:175:LYS:HG3	2.02	0.42
32:g:116:ARG:HA	32:g:116:ARG:HD2	1.77	0.42
36:k:64:LYS:HE3	52:3:2402:C:H5''	2.01	0.42
42:q:81:LYS:HB3	42:q:81:LYS:HE2	1.94	0.42
43:r:1:MET:N	43:r:110:ASN:OD1	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:83:G:H2'	52:3:84:G:O4'	2.20	0.42
52:3:299:A:H2'	52:3:300:G:C8	2.55	0.42
52:3:1001:C:H1'	52:3:2281:A:H2	1.84	0.42
52:3:1248:A:N1	52:3:1262:G:C6	2.88	0.42
52:3:1587:U:O2'	52:3:1588:A:OP1	2.31	0.42
52:3:1667:G:O6	52:3:1669:A:N6	2.52	0.42
52:3:2032:G:H2'	52:3:2033:G:H8	1.84	0.42
52:3:2050:G:H2'	52:3:2051:G:C8	2.55	0.42
52:3:2204:C:H2'	52:3:2205:U:C6	2.54	0.42
53:4:22:G:N1	53:4:57:G:O6	2.53	0.42
54:5:35:C:N4	54:5:36:G:O6	2.53	0.42
54:5:279:C:H2'	54:5:280:G:C8	2.55	0.42
54:5:508:A:O2'	54:5:540:U:O2'	2.34	0.42
54:5:723:C:H2'	54:5:724:G:C8	2.55	0.42
54:5:1115:G:O2'	54:5:1116:U:H6	2.02	0.42
54:5:1273:A:C8	54:5:1275:U:H1'	2.55	0.42
54:5:1347:U:H2'	54:5:1348:G:O4'	2.20	0.42
3:2:14:CYS:SG	3:2:25:VAL:HB	2.60	0.41
11:G:11:HIS:HE1	54:5:870:A:H2	1.67	0.41
12:H:106:THR:HG22	12:H:107:THR:N	2.28	0.41
29:d:107:ALA:HB2	29:d:139:PRO:HD3	2.01	0.41
38:m:62:GLN:OE1	38:m:65:LYS:NZ	2.49	0.41
45:t:76:LEU:HB3	45:t:89:ILE:HD11	2.01	0.41
45:t:80:LYS:C	45:t:82:LYS:H	2.28	0.41
46:u:50:ILE:HD12	46:u:50:ILE:HA	1.93	0.41
52:3:410:G:H1'	52:3:411:U:OP2	2.20	0.41
52:3:510:G:OP2	52:3:510:G:H8	2.02	0.41
52:3:1213:U:H2'	52:3:1214:U:C6	2.55	0.41
52:3:1966:G:H2'	52:3:1967:U:C6	2.55	0.41
52:3:2059:G:H2'	52:3:2060:G:C8	2.55	0.41
52:3:2832:G:H2'	52:3:2833:A:H8	1.85	0.41
54:5:336:U:H2'	54:5:337:C:C6	2.55	0.41
54:5:398:G:H2'	54:5:399:C:O4'	2.20	0.41
54:5:426:U:O2	54:5:428:A:N7	2.54	0.41
54:5:705:A:H2'	54:5:706:U:C6	2.55	0.41
54:5:931:C:H2'	54:5:932:A:H8	1.85	0.41
54:5:1194:A:H2'	54:5:1195:G:C8	2.54	0.41
54:5:1367:G:H2'	54:5:1368:U:C6	2.55	0.41
54:5:1446:A:H2'	54:5:1447:U:C6	2.54	0.41
54:5:1447:U:H2'	54:5:1448:A:C8	2.55	0.41
5:A:95:LEU:HD21	5:A:226:CYS:SG	2.60	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:119:ASN:OD1	5:A:122:THR:OG1	2.26	0.41
9:E:157:TRP:NE1	9:E:159:VAL:HG12	2.35	0.41
10:F:24:ARG:HA	10:F:24:ARG:HD3	1.87	0.41
11:G:80:ARG:HD3	11:G:80:ARG:HA	1.78	0.41
19:O:60:THR:O	19:O:63:VAL:HG12	2.20	0.41
19:O:63:VAL:HA	19:O:66:LEU:HD12	2.02	0.41
27:b:3:ILE:HG23	27:b:209:THR:HB	2.02	0.41
27:b:39:VAL:HG12	27:b:50:THR:HG23	2.01	0.41
31:f:118:ARG:NH2	31:f:120:GLY:O	2.52	0.41
38:m:36:LYS:HD2	38:m:36:LYS:HA	1.89	0.41
43:r:9:ARG:HG3	43:r:80:PRO:HD2	2.02	0.41
45:t:1:MET:N	52:3:85:U:H5''	2.35	0.41
48:w:44:ILE:HD11	52:3:63:U:OP2	2.19	0.41
52:3:568:G:H2'	52:3:569:U:C6	2.55	0.41
52:3:628:A:H2'	52:3:629:G:H8	1.84	0.41
52:3:1016:A:P	52:3:1016:A:H8	2.44	0.41
52:3:1074:A:N6	52:3:1075:G:O6	2.53	0.41
52:3:1131:A:H2'	52:3:1132:C:O4'	2.20	0.41
52:3:1247:C:H2'	52:3:1248:A:C8	2.55	0.41
52:3:1447:A:O2'	52:3:1449:G:N7	2.50	0.41
52:3:2116:U:H5''	52:3:2117:G:OP1	2.21	0.41
52:3:2126:A:H2	52:3:2176:G:H21	1.66	0.41
52:3:2343:A:H2'	52:3:2344:A:H2'	2.01	0.41
52:3:2464:C:C4	52:3:2465:U:C5	3.08	0.41
52:3:2845:U:N3	52:3:2846:A:N7	2.68	0.41
53:4:69:C:H1'	53:4:96:G:H22	1.84	0.41
53:4:71:A:C6	53:4:94:A:C4	3.09	0.41
54:5:679:U:N3	54:5:680:G:N7	2.68	0.41
54:5:1115:G:O6	54:5:1125:C:N4	2.54	0.41
54:5:1167:C:O2	56:5:1601:SCM:O4	2.38	0.41
54:5:1370:C:H5'	54:5:1376:G:N2	2.34	0.41
54:5:1424:C:H2'	54:5:1425:A:O4'	2.19	0.41
54:5:1481:U:O2'	54:5:1482:A:H5'	2.20	0.41
4:9:205:ASP:OD1	4:9:205:ASP:N	2.52	0.41
4:9:325:PHE:CD1	4:9:374:ALA:HB2	2.55	0.41
4:9:513:PRO:HA	4:9:559:ILE:HG23	2.02	0.41
7:C:73:ARG:HD2	7:C:73:ARG:C	2.45	0.41
7:C:145:LYS:O	7:C:147:LYS:N	2.53	0.41
9:E:106:GLN:HG2	54:5:838:A:H4'	2.02	0.41
14:J:114:CYS:SG	14:J:115:LYS:N	2.93	0.41
15:K:69:ARG:HA	15:K:75:GLU:HG2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:K:122:LYS:O	15:K:124:ARG:N	2.54	0.41
27:b:148:GLN:CD	27:b:150:GLY:H	2.28	0.41
28:c:89:ILE:HG22	28:c:91:PHE:H	1.85	0.41
29:d:10:LYS:HD2	29:d:10:LYS:HA	1.92	0.41
31:f:94:THR:HG22	31:f:98:ILE:HG12	2.01	0.41
36:k:81:ASN:ND2	52:3:663:A:N7	2.68	0.41
46:u:60:TYR:OH	52:3:2340:U:OP1	2.37	0.41
52:3:626:A:H2'	52:3:627:U:C6	2.55	0.41
52:3:828:A:C2	52:3:2079:G:H4'	2.55	0.41
52:3:1077:G:C5	52:3:1149:G:N1	2.88	0.41
52:3:1343:C:H2'	52:3:1344:U:C6	2.55	0.41
52:3:2109:A:N6	52:3:2195:U:O4	2.54	0.41
52:3:2268:C:H2'	52:3:2269:C:C6	2.55	0.41
54:5:144:U:H2'	54:5:145:G:C8	2.56	0.41
54:5:1011:A:C2	54:5:1193:U:H1'	2.55	0.41
54:5:1456:U:O2'	54:5:1457:G:H5'	2.19	0.41
5:A:85:VAL:HG11	5:A:178:VAL:HG13	2.01	0.41
5:A:120:PHE:HB2	5:A:172:LEU:HD21	2.01	0.41
6:B:17:ASN:ND2	6:B:21:ARG:HH21	2.18	0.41
6:B:21:ARG:O	6:B:59:GLU:HA	2.21	0.41
27:b:19:THR:HG22	27:b:20:ASN:H	1.85	0.41
34:i:96:LEU:HD23	34:i:96:LEU:HA	1.86	0.41
39:n:3:THR:C	39:n:5:THR:H	2.29	0.41
46:u:79:GLY:HA2	46:u:100:HIS:CD2	2.55	0.41
52:3:218:G:H2'	52:3:219:G:C8	2.55	0.41
52:3:676:U:H2'	52:3:677:U:H6	1.85	0.41
52:3:718:U:H2'	52:3:719:G:C8	2.55	0.41
52:3:812:G:H2'	52:3:813:G:H8	1.85	0.41
52:3:1258:C:H2'	52:3:1259:A:O4'	2.21	0.41
52:3:1471:A:H2'	52:3:1472:C:O4'	2.20	0.41
52:3:1731:G:OP2	52:3:1732:A:O2'	2.24	0.41
52:3:2207:A:H62	52:3:2232:G:H21	1.68	0.41
52:3:2693:U:H2'	52:3:2694:A:H8	1.84	0.41
52:3:2854:A:H2'	52:3:2855:A:C8	2.55	0.41
54:5:216:G:H2'	54:5:217:U:C6	2.55	0.41
54:5:289:U:H2'	54:5:290:G:H8	1.85	0.41
54:5:1285:G:H2'	54:5:1286:G:C8	2.54	0.41
54:5:1329:G:H2'	54:5:1330:A:C8	2.55	0.41
54:5:1398:G:H2'	54:5:1399:U:C6	2.55	0.41
4:9:59:ARG:HE	4:9:63:ILE:HB	1.86	0.41
4:9:151:ILE:HG13	4:9:152:GLN:N	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:340:LYS:HE2	4:9:347:LYS:HE2	2.02	0.41
6:B:35:ILE:HA	6:B:38:GLU:CD	2.45	0.41
9:E:107:LEU:HD22	21:Q:46:ILE:HD12	2.02	0.41
10:F:106:PHE:CD2	10:F:133:ALA:HA	2.56	0.41
13:I:46:LEU:H	13:I:46:LEU:HD12	1.84	0.41
15:K:27:ASN:OD1	15:K:36:THR:OG1	2.32	0.41
22:R:41:PHE:HB2	22:R:44:PHE:CE2	2.56	0.41
23:S:29:LYS:HD2	54:5:1413:G:OP1	2.20	0.41
26:a:7:ILE:HD13	26:a:7:ILE:HA	1.93	0.41
26:a:70:ASP:O	26:a:73:ARG:HG2	2.21	0.41
27:b:55:ASP:OD1	40:o:3:LYS:NZ	2.41	0.41
28:c:103:LEU:HD23	28:c:108:HIS:HB2	2.02	0.41
32:g:24:PHE:HB3	32:g:84:VAL:HG13	2.03	0.41
34:i:77:TRP:HB2	34:i:90:VAL:HG23	2.02	0.41
34:i:113:PRO:HB3	52:3:1043:C:O3'	2.20	0.41
36:k:113:LYS:HB2	36:k:130:LYS:HE2	2.03	0.41
41:p:39:ILE:HD12	42:q:73:HIS:HD2	1.85	0.41
46:u:21:VAL:HG22	46:u:24:THR:HG22	2.03	0.41
46:u:85:LYS:HB3	46:u:90:GLN:HB3	2.03	0.41
52:3:134:U:C2	52:3:135:A:C8	3.08	0.41
52:3:154:U:H2'	52:3:155:A:C8	2.55	0.41
52:3:341:G:H22	52:3:344:A:P	2.43	0.41
52:3:370:C:H2'	52:3:371:C:C6	2.55	0.41
52:3:521:C:H2'	52:3:522:C:H6	1.84	0.41
52:3:828:A:H2	52:3:2079:G:H4'	1.85	0.41
52:3:1625:G:H2'	52:3:1626:C:C6	2.55	0.41
52:3:1738:G:N1	52:3:1739:G:C6	2.88	0.41
52:3:1949:C:OP2	52:3:1950:U:O2'	2.21	0.41
52:3:2106:G:H1	52:3:2198:G:H1	1.68	0.41
52:3:2416:U:H2'	52:3:2417:G:H8	1.85	0.41
54:5:250:G:H2'	54:5:251:G:H8	1.84	0.41
54:5:435:U:O2'	54:5:437:U:O4	2.25	0.41
54:5:443:G:H2'	54:5:444:G:O4'	2.20	0.41
54:5:460:A:H2'	54:5:461:G:N7	2.35	0.41
54:5:805:C:H2'	54:5:806:A:H8	1.81	0.41
54:5:937:G:N2	54:5:1315:U:O2	2.47	0.41
1:0:7:PRO:HA	52:3:721:G:H21	1.85	0.41
4:9:304:ASP:HB3	4:9:306:PRO:HD2	2.03	0.41
6:B:58:ILE:HG22	6:B:60:ARG:HG3	2.03	0.41
23:S:70:SER:HA	23:S:73:VAL:HG12	2.03	0.41
28:c:40:VAL:HG22	28:c:101:LEU:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:f:2:LYS:HD3	31:f:28:HIS:HB2	2.03	0.41
33:h:92:ILE:HD13	33:h:134:GLU:HG2	2.01	0.41
34:i:47:PHE:H	41:p:63:ARG:HD3	1.85	0.41
35:j:93:PRO:HG3	35:j:114:ILE:HG13	2.02	0.41
43:r:77:ASN:HB3	52:3:26:G:H1'	2.03	0.41
45:t:35:ILE:HD13	45:t:35:ILE:HA	1.94	0.41
52:3:727:C:H2'	52:3:728:A:H8	1.86	0.41
52:3:772:C:H2'	52:3:773:G:H8	1.85	0.41
52:3:1141:U:H2'	52:3:1142:G:H8	1.84	0.41
52:3:1213:U:H2'	52:3:1214:U:H6	1.86	0.41
52:3:1262:G:H2'	52:3:1263:G:C8	2.52	0.41
52:3:1384:C:H2'	52:3:1385:U:H6	1.86	0.41
52:3:1838:A:N6	52:3:1982:G:O6	2.53	0.41
52:3:1881:C:H2'	52:3:1882:G:O4'	2.20	0.41
52:3:2892:U:H2'	52:3:2893:C:C6	2.55	0.41
54:5:82:C:H2'	54:5:83:U:C6	2.56	0.41
54:5:608:G:C2	54:5:609:G:C8	3.08	0.41
54:5:902:A:H2'	54:5:903:A:H8	1.85	0.41
54:5:1359:C:H2'	54:5:1360:G:H8	1.84	0.41
54:5:1380:G:H1'	54:5:1494:A:H4'	2.02	0.41
55:8:30:G:C6	55:8:43:G:C2	3.08	0.41
4:9:551:LEU:HD11	4:9:595:PRO:HD2	2.02	0.41
6:B:187:TYR:OH	6:B:202:LYS:HE2	2.20	0.41
9:E:5:ILE:HB	9:E:60:TRP:HB2	2.03	0.41
9:E:24:LYS:HE3	9:E:24:LYS:HB3	1.89	0.41
10:F:27:ASN:HB3	54:5:1349:A:O2'	2.21	0.41
18:N:60:ARG:O	18:N:64:LEU:HD23	2.21	0.41
26:a:19:VAL:HG12	26:a:20:ILE:N	2.36	0.41
29:d:29:PRO:HA	29:d:160:THR:HG21	2.02	0.41
30:e:110:LEU:HB2	30:e:112:TYR:HD1	1.86	0.41
33:h:123:MET:SD	52:3:1115:G:N2	2.90	0.41
40:o:34:ALA:HB3	40:o:87:SER:OG	2.21	0.41
42:q:9:SER:HB2	52:3:1195:A:H1'	2.01	0.41
45:t:16:LYS:HE2	52:3:363:G:H1	1.85	0.41
45:t:44:ARG:NH2	52:3:516:A:OP2	2.54	0.41
52:3:341:G:H22	52:3:343:A:H3'	1.86	0.41
52:3:445:C:H2'	52:3:446:A:C8	2.55	0.41
52:3:614:C:H2'	52:3:615:G:H8	1.86	0.41
52:3:670:G:H2'	52:3:671:C:H6	1.86	0.41
52:3:746:G:C6	52:3:756:A:C6	3.08	0.41
52:3:788:G:H2'	52:3:789:A:C8	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:1311:G:H1'	52:3:1357:U:O2	2.20	0.41
52:3:1520:A:H2'	52:3:1521:A:C8	2.56	0.41
52:3:1597:U:H2'	52:3:1598:U:H6	1.86	0.41
52:3:1873:A:H62	52:3:1882:G:H21	1.68	0.41
52:3:2623:U:H2'	52:3:2624:C:H6	1.85	0.41
52:3:2688:C:H2'	52:3:2689:C:C6	2.56	0.41
52:3:2699:C:H2'	52:3:2700:C:C6	2.54	0.41
54:5:573:G:H4'	54:5:574:C:H5''	2.01	0.41
54:5:577:G:H5'	54:5:725:A:H1'	2.03	0.41
54:5:603:U:O4	54:5:630:G:O6	2.38	0.41
54:5:612:G:H2'	54:5:613:C:C6	2.56	0.41
54:5:633:U:H2'	54:5:634:U:C6	2.56	0.41
54:5:1133:A:H61	54:5:1153:G:H1'	1.84	0.41
54:5:1191:U:H2'	54:5:1192:C:C6	2.56	0.41
4:9:29:ARG:CD	4:9:264:ASN:HD21	2.33	0.41
5:A:181:PRO:HG2	5:A:206:THR:OG1	2.20	0.41
6:B:19:ILE:HB	17:M:51:GLY:O	2.21	0.41
6:B:140:SER:O	6:B:144:VAL:HG22	2.19	0.41
8:D:208:VAL:O	8:D:212:ARG:HB2	2.20	0.41
9:E:17:GLN:O	9:E:21:VAL:HG12	2.21	0.41
10:F:77:ARG:HD3	54:5:1356:U:O2	2.21	0.41
28:c:6:LEU:HD23	28:c:7:ILE:N	2.36	0.41
29:d:109:PRO:HD3	49:x:46:TYR:HE2	1.85	0.41
31:f:2:LYS:CD	31:f:28:HIS:HB2	2.51	0.41
31:f:6:LYS:HE2	31:f:35:LEU:N	2.30	0.41
31:f:19:VAL:CG2	31:f:42:LYS:HE3	2.51	0.41
32:g:80:LEU:H	32:g:80:LEU:HD12	1.85	0.41
36:k:54:GLY:HA3	52:3:861:U:H1'	2.03	0.41
37:l:31:GLU:N	37:l:107:ALA:HB2	2.36	0.41
39:n:29:VAL:HG11	39:n:46:PHE:CZ	2.56	0.41
47:v:21:SER:HA	55:8:76:C:N3	2.36	0.41
52:3:38:G:C6	52:3:39:C:C4	3.09	0.41
52:3:161:U:H2'	52:3:162:G:O4'	2.21	0.41
52:3:397:G:H2'	52:3:398:C:C6	2.55	0.41
52:3:831:U:H2'	52:3:832:C:H6	1.83	0.41
52:3:871:G:H2'	52:3:872:C:O4'	2.20	0.41
52:3:1871:U:H4'	52:3:2417:G:H22	1.85	0.41
52:3:2791:U:H2'	52:3:2792:C:C6	2.55	0.41
54:5:134:G:H1'	54:5:1422:A:H1'	2.02	0.41
54:5:242:A:C5	54:5:277:G:N2	2.89	0.41
54:5:725:A:H2'	54:5:726:A:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:993:C:H2'	54:5:994:C:O4'	2.21	0.41
54:5:1134:C:H3'	54:5:1134:C:O2	2.21	0.41
54:5:1212:C:H5''	54:5:1213:A:C8	2.56	0.41
54:5:1328:C:H2'	54:5:1329:G:H8	1.85	0.41
4:9:12:ASN:OD1	4:9:78:ASN:HB3	2.20	0.41
4:9:202:GLN:O	4:9:206:GLN:NE2	2.51	0.41
4:9:307:PHE:CD2	4:9:333:LEU:HB2	2.55	0.41
4:9:580:ILE:O	4:9:584:LEU:HG	2.20	0.41
4:9:605:GLU:HG2	4:9:668:GLN:HE22	1.86	0.41
5:A:111:ARG:NH2	5:A:183:TYR:O	2.44	0.41
6:B:60:ARG:HG2	6:B:65:VAL:HG23	2.02	0.41
6:B:111:SER:HB2	6:B:114:LEU:HG	2.03	0.41
6:B:213:LYS:HD2	6:B:213:LYS:HA	1.84	0.41
6:B:214:GLY:HA3	54:5:1104:C:H5'	2.03	0.41
7:C:78:VAL:HG21	7:C:89:LEU:HD12	2.03	0.41
8:D:163:GLY:HA3	54:5:10:G:H4'	2.03	0.41
9:E:137:ALA:HB2	54:5:834:G:H21	1.86	0.41
15:K:97:GLY:O	54:5:550:U:H4'	2.21	0.41
22:R:19:VAL:HG11	22:R:44:PHE:CD1	2.56	0.41
24:T:27:ARG:HD3	24:T:27:ARG:HA	1.90	0.41
24:T:50:GLN:O	24:T:54:ARG:HG3	2.21	0.41
27:b:122:ALA:N	27:b:166:SER:HB3	2.36	0.41
28:c:54:THR:HB	28:c:57:GLU:HG3	2.03	0.41
29:d:74:ILE:HD12	55:7:57:C:H1'	2.03	0.41
29:d:133:LYS:HZ3	52:3:2313:U:HO2'	1.59	0.41
30:e:163:LYS:NZ	52:3:2665:A:O2'	2.54	0.41
31:f:35:LEU:HD23	31:f:36:ALA:N	2.35	0.41
31:f:51:LEU:O	31:f:55:GLN:HG2	2.21	0.41
31:f:118:ARG:HH12	31:f:122:GLY:N	2.19	0.41
36:k:85:ILE:HA	52:3:637:U:H5	1.85	0.41
38:m:19:ARG:HA	38:m:22:VAL:HG12	2.01	0.41
39:n:39:ILE:HD11	39:n:73:VAL:HG11	2.03	0.41
40:o:35:ILE:HD13	40:o:35:ILE:HA	1.92	0.41
41:p:61:ILE:HD12	41:p:75:TYR:OH	2.21	0.41
42:q:6:VAL:HG12	42:q:11:GLN:HG2	2.02	0.41
43:r:119:LYS:HD2	43:r:119:LYS:HA	1.85	0.41
44:s:10:PRO:HD3	48:w:31:PHE:CD1	2.56	0.41
45:t:50:GLN:HE21	52:3:520:C:P	2.44	0.41
46:u:33:LYS:HG3	46:u:55:ARG:HH22	1.86	0.41
47:v:22:LYS:O	52:3:204:U:H5''	2.21	0.41
48:w:55:LEU:O	48:w:59:THR:HG23	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:173:C:H2'	52:3:174:A:C8	2.55	0.41
52:3:513:A:HO2'	52:3:514:A:P	2.43	0.41
52:3:616:G:H2'	52:3:617:C:H6	1.86	0.41
52:3:687:G:N3	52:3:687:G:H2'	2.36	0.41
52:3:1003:U:H2'	52:3:1004:U:C6	2.56	0.41
52:3:1158:C:H2'	52:3:1159:C:C6	2.56	0.41
52:3:1260:U:H2'	52:3:1261:U:H6	1.85	0.41
52:3:1383:G:H2'	52:3:1384:C:C6	2.55	0.41
52:3:1445:U:H2'	52:3:1446:G:O4'	2.21	0.41
52:3:1848:U:C2	52:3:1849:G:C8	3.09	0.41
52:3:1850:C:H2'	52:3:1851:U:C6	2.56	0.41
52:3:1967:U:H2'	52:3:1968:C:C6	2.56	0.41
52:3:2005:G:H2'	52:3:2006:C:C6	2.55	0.41
52:3:2054:C:H2'	52:3:2055:A:H8	1.83	0.41
52:3:2177:G:H1	55:8:20:G:N2	2.14	0.41
52:3:2200:U:C2	52:3:2201:G:C8	3.09	0.41
52:3:2278:G:H2'	52:3:2279:G:C8	2.56	0.41
52:3:2388:C:H2'	52:3:2389:A:H8	1.86	0.41
52:3:2614:U:H2'	52:3:2615:G:C8	2.56	0.41
52:3:2844:U:H2'	52:3:2845:U:C6	2.55	0.41
52:3:2885:U:H2'	52:3:2886:A:H8	1.84	0.41
53:4:56:A:N3	53:4:57:G:C8	2.89	0.41
54:5:613:C:H2'	54:5:614:U:C6	2.56	0.41
54:5:689:U:H2'	54:5:691:A:OP2	2.21	0.41
54:5:791:A:H2'	54:5:792:C:C6	2.55	0.41
54:5:1178:C:H2'	54:5:1179:A:C8	2.56	0.41
54:5:1294:U:H2'	54:5:1295:U:C6	2.56	0.41
54:5:1458:A:H5''	54:5:1459:U:C5	2.56	0.41
54:5:1488:A:H2'	54:5:1489:C:H6	1.85	0.41
55:7:30:G:C6	55:7:43:G:C2	3.09	0.41
55:7:54:G:C6	55:7:55:U:C4	3.09	0.41
55:7:71:A:O2'	55:7:72:C:OP1	2.27	0.41
55:8:67:C:H2'	55:8:68:G:C8	2.50	0.41
7:C:148:THR:O	7:C:151:ILE:HG12	2.22	0.41
8:D:152:LYS:HG3	8:D:179:TYR:HB2	2.03	0.41
12:H:116:LYS:HA	12:H:123:ALA:HB2	2.03	0.41
13:I:30:LYS:O	13:I:34:VAL:HG22	2.21	0.41
15:K:100:VAL:HG23	54:5:521:A:N6	2.36	0.41
19:O:44:ILE:HD12	19:O:70:THR:HG21	2.02	0.41
26:a:31:ASN:OD1	26:a:88:TYR:OH	2.22	0.41
26:a:151:GLU:HG2	26:a:157:GLY:C	2.46	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:b:57:VAL:HG12	27:b:58:GLU:N	2.36	0.41
28:c:24:LEU:HA	28:c:113:HIS:CE1	2.56	0.41
29:d:108:LEU:HD23	29:d:108:LEU:HA	1.81	0.41
36:k:37:LYS:HD2	36:k:37:LYS:O	2.20	0.41
38:m:51:LEU:O	38:m:59:ASN:ND2	2.53	0.41
45:t:79:GLN:HA	45:t:83:GLN:O	2.21	0.41
52:3:80:U:H2'	52:3:81:C:C6	2.55	0.41
52:3:377:U:H2'	52:3:378:G:C8	2.56	0.41
52:3:509:G:C6	52:3:510:G:C6	3.09	0.41
52:3:1336:A:H62	52:3:1640:G:N2	2.18	0.41
52:3:1341:U:H2'	52:3:1341:U:O2	2.20	0.41
52:3:1427:C:H2'	52:3:1428:U:C6	2.56	0.41
52:3:1583:G:H2'	52:3:1584:U:C6	2.56	0.41
52:3:2255:A:H2'	52:3:2256:C:C6	2.55	0.41
52:3:2795:C:H2'	52:3:2796:C:C6	2.56	0.41
54:5:147:A:H2'	54:5:148:A:O4'	2.21	0.41
54:5:365:U:H3	54:5:388:G:H1	1.68	0.41
54:5:687:G:H2'	54:5:688:G:C8	2.57	0.41
54:5:1327:G:H2'	54:5:1328:C:C6	2.56	0.41
55:8:54:G:C6	55:8:55:U:C4	3.09	0.41
4:9:23:LYS:HB3	4:9:23:LYS:HE3	1.87	0.40
4:9:98:VAL:HB	4:9:327:ARG:HB2	2.01	0.40
5:A:127:ILE:HD12	5:A:167:LYS:HA	2.03	0.40
7:C:186:GLU:HG3	7:C:187:LEU:HG	2.03	0.40
16:L:75:LEU:HA	16:L:78:LYS:HG2	2.02	0.40
19:O:53:LEU:HD23	19:O:53:LEU:HA	1.93	0.40
23:S:18:ASN:ND2	23:S:22:LYS:HE3	2.37	0.40
24:T:30:GLN:HA	24:T:33:GLU:OE2	2.21	0.40
35:j:31:ARG:HD2	52:3:2003:C:OP1	2.21	0.40
37:l:13:HIS:CE1	52:3:947:A:C2	3.09	0.40
42:q:5:VAL:HG12	42:q:38:VAL:HG23	2.02	0.40
46:u:60:TYR:HB2	46:u:94:ARG:HG2	2.02	0.40
47:v:34:GLN:NE2	52:3:2236:G:H22	2.14	0.40
52:3:529:G:H2'	52:3:530:G:C8	2.56	0.40
52:3:830:A:H2'	52:3:831:U:C6	2.56	0.40
52:3:1192:U:H2'	52:3:1193:U:H6	1.87	0.40
52:3:1475:C:H2'	52:3:1476:C:H6	1.85	0.40
52:3:1850:C:H2'	52:3:1851:U:H6	1.86	0.40
52:3:2471:U:H2'	52:3:2472:G:C8	2.56	0.40
52:3:2712:C:C2	52:3:2713:A:C8	3.09	0.40
52:3:2846:A:H2'	52:3:2847:C:C6	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:3:2899:C:H2'	52:3:2900:U:C5	2.56	0.40
53:4:74:G:H2'	53:4:75:U:C6	2.57	0.40
54:5:336:U:H2'	54:5:337:C:H6	1.85	0.40
54:5:511:A:H61	54:5:536:U:H3	1.69	0.40
54:5:720:U:H5'	54:5:721:G:H5''	2.03	0.40
54:5:763:A:H3'	54:5:764:A:H8	1.85	0.40
54:5:782:G:H2'	54:5:783:G:H8	1.86	0.40
54:5:859:A:H5'	54:5:1069:U:O4	2.22	0.40
54:5:1280:A:N6	54:5:1305:G:H1'	2.36	0.40
54:5:1325:U:H2'	54:5:1326:C:C6	2.56	0.40
54:5:1354:G:H2'	54:5:1355:U:C6	2.56	0.40
4:9:17:ALA:CB	4:9:105:VAL:HG12	2.50	0.40
4:9:454:LEU:O	4:9:458:ILE:HG12	2.21	0.40
10:F:19:ASN:ND2	10:F:21:LEU:HB2	2.36	0.40
13:I:99:PRO:HB2	13:I:102:VAL:HG22	2.04	0.40
14:J:116:PRO:HG2	24:T:35:HIS:HB2	2.03	0.40
16:L:90:ARG:CZ	16:L:95:LEU:HB3	2.51	0.40
22:R:17:LYS:HE2	22:R:17:LYS:HB2	1.91	0.40
26:a:151:GLU:HG3	26:a:197:ARG:O	2.21	0.40
29:d:108:LEU:N	29:d:109:PRO:HD2	2.36	0.40
31:f:4:ILE:HD11	31:f:39:LEU:CD1	2.51	0.40
33:h:37:LYS:HA	33:h:37:LYS:HD2	1.86	0.40
34:i:122:ILE:HD12	34:i:122:ILE:HA	1.99	0.40
37:l:64:MET:HE1	37:l:66:ILE:HD11	2.03	0.40
39:n:80:LYS:HE3	39:n:80:LYS:HB3	1.94	0.40
47:v:44:LYS:HD3	47:v:44:LYS:HA	1.88	0.40
48:w:37:GLU:O	48:w:38:LEU:HB3	2.22	0.40
52:3:557:G:H2'	52:3:558:C:C6	2.57	0.40
52:3:670:G:H2'	52:3:671:C:C6	2.55	0.40
52:3:757:A:H2'	52:3:758:C:C6	2.57	0.40
52:3:883:A:H61	52:3:967:U:H3	1.68	0.40
52:3:914:G:N2	52:3:938:A:H2	2.18	0.40
52:3:1343:C:H2'	52:3:1344:U:H6	1.86	0.40
52:3:1454:G:OP2	52:3:1455:A:O2'	2.34	0.40
52:3:1954:C:H2'	52:3:1955:G:H8	1.85	0.40
52:3:1964:C:C2	52:3:1965:C:C5	3.09	0.40
52:3:2185:C:H2'	52:3:2186:C:C6	2.55	0.40
52:3:2493:G:H2'	52:3:2494:C:O4'	2.21	0.40
52:3:2730:G:H2'	52:3:2731:U:O4'	2.21	0.40
53:4:11:A:O2'	53:4:13:G:H5''	2.22	0.40
54:5:8:G:C5	54:5:294:A:N1	2.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:5:335:C:H2'	54:5:336:U:C6	2.56	0.40
54:5:454:U:H2'	54:5:455:U:C6	2.56	0.40
54:5:457:A:H2'	54:5:458:G:H8	1.87	0.40
54:5:673:A:H2'	54:5:674:U:C6	2.56	0.40
54:5:762:G:C6	54:5:809:G:C4	3.09	0.40
54:5:1089:C:H2'	54:5:1090:G:H8	1.85	0.40
54:5:1361:G:N3	54:5:1361:G:C2'	2.83	0.40
54:5:1362:G:H5''	56:5:1601:SCM:H9	2.01	0.40
54:5:1401:A:H2'	54:5:1402:U:H6	1.86	0.40
4:9:191:GLU:HG2	4:9:267:ILE:H	1.86	0.40
4:9:339:VAL:HG12	4:9:389:ASP:CG	2.47	0.40
4:9:354:VAL:HA	4:9:363:GLU:HA	2.03	0.40
9:E:73:LYS:HA	9:E:85:GLU:OE1	2.22	0.40
14:J:86:LYS:O	14:J:90:ILE:HG13	2.22	0.40
14:J:119:ARG:HA	24:T:34:TYR:HB2	2.04	0.40
19:O:15:ALA:O	19:O:26:TYR:HB2	2.20	0.40
22:R:86:ASN:CG	55:7:42:C:O2'	2.64	0.40
26:a:251:ARG:NH1	26:a:255:ARG:HH22	2.18	0.40
29:d:49:PHE:O	29:d:50:LEU:HB3	2.20	0.40
35:j:64:ARG:HB2	35:j:83:ALA:N	2.36	0.40
35:j:81:ASP:OD1	35:j:81:ASP:N	2.54	0.40
36:k:18:LYS:NZ	52:3:1223:C:OP2	2.49	0.40
37:l:63:LYS:HB3	37:l:63:LYS:HE3	1.85	0.40
39:n:110:ARG:HG3	39:n:116:PHE:CE1	2.56	0.40
42:q:81:LYS:HA	52:3:849:C:OP1	2.22	0.40
48:w:44:ILE:HA	48:w:47:THR:HG22	2.03	0.40
50:y:16:ARG:NH2	52:3:1294:G:OP1	2.28	0.40
52:3:21:U:H2'	52:3:22:U:C6	2.56	0.40
52:3:280:A:H2'	52:3:281:U:C6	2.56	0.40
52:3:695:G:H2'	52:3:696:U:C6	2.56	0.40
52:3:901:C:O2'	52:3:944:U:O4	2.33	0.40
52:3:1046:A:N3	52:3:1188:C:H1'	2.37	0.40
52:3:1298:A:C6	52:3:2020:A:C5	3.10	0.40
52:3:1381:A:C2	52:3:1406:A:C6	3.09	0.40
52:3:2321:C:H2'	52:3:2322:G:H8	1.83	0.40
52:3:2378:G:H2'	52:3:2379:G:C8	2.56	0.40
54:5:53:U:H2'	54:5:54:A:C8	2.56	0.40
54:5:283:U:H2'	54:5:284:A:C8	2.57	0.40
54:5:835:G:H2'	54:5:836:C:C6	2.56	0.40
54:5:1408:A:N6	54:5:1442:A:O2'	2.53	0.40
54:5:1445:G:O2'	54:5:1446:A:H5'	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:8:59:A:O2'	55:8:61:U:OP2	2.28	0.40
4:9:17:ALA:O	4:9:23:LYS:HD3	2.21	0.40
4:9:484:PHE:HB3	4:9:595:PRO:HB3	2.03	0.40
12:H:98:LYS:HD2	12:H:98:LYS:HA	1.76	0.40
21:Q:93:ALA:HB1	21:Q:98:LEU:HB2	2.04	0.40
22:R:23:ASN:O	22:R:26:GLU:HG3	2.21	0.40
29:d:107:ALA:CB	29:d:139:PRO:HD3	2.52	0.40
29:d:136:ILE:HG22	29:d:141:ILE:HG21	2.02	0.40
31:f:131:PHE:H	31:f:134:THR:HB	1.86	0.40
41:p:100:LYS:HD3	41:p:100:LYS:HA	1.88	0.40
42:q:58:VAL:HG13	42:q:95:VAL:HG21	2.03	0.40
52:3:646:A:C6	52:3:653:G:C6	3.10	0.40
52:3:846:U:O2'	52:3:847:C:H5''	2.21	0.40
52:3:891:G:H2'	52:3:892:G:C8	2.57	0.40
52:3:1334:U:O2	52:3:1656:A:N6	2.44	0.40
52:3:1754:U:H2'	52:3:1755:A:C8	2.57	0.40
52:3:1885:G:H2'	52:3:1886:C:C6	2.56	0.40
52:3:1942:G:H2'	52:3:1969:C:N4	2.36	0.40
52:3:2152:C:O2'	52:3:2153:U:O4'	2.39	0.40
52:3:2191:G:H2'	52:3:2192:U:C6	2.57	0.40
52:3:2319:A:H5'	52:3:2320:U:H5	1.87	0.40
52:3:2404:G:H2'	52:3:2405:G:H8	1.87	0.40
52:3:2737:G:H2'	52:3:2738:U:C6	2.57	0.40
52:3:2850:G:H2'	52:3:2851:U:H6	1.86	0.40
52:3:2868:G:C6	52:3:2869:U:C4	3.10	0.40
54:5:242:A:H2	54:5:278:A:C5	2.39	0.40
54:5:350:G:N2	54:5:384:G:O2'	2.46	0.40
55:7:29:C:O2	55:7:30:G:C8	2.74	0.40
4:9:270:LEU:O	4:9:274:VAL:HG13	2.21	0.40
4:9:346:LYS:HD3	4:9:347:LYS:N	2.35	0.40
4:9:502:GLY:HA3	4:9:572:ASP:HB3	2.02	0.40
4:9:509:ILE:HG13	4:9:562:THR:O	2.22	0.40
11:G:63:LYS:HA	11:G:63:LYS:HD3	1.69	0.40
18:N:21:SER:O	18:N:25:GLN:HG3	2.22	0.40
18:N:33:ILE:HD13	18:N:53:LEU:HD12	2.03	0.40
19:O:52:TRP:HA	19:O:55:LYS:HE3	2.04	0.40
22:R:10:PHE:CD2	54:5:1292:A:H5''	2.57	0.40
22:R:34:TRP:CD1	22:R:57:PHE:HZ	2.39	0.40
30:e:6:ASN:H	30:e:68:HIS:HE1	1.70	0.40
33:h:21:PRO:O	33:h:23:PRO:HD3	2.22	0.40
36:k:9:VAL:HA	36:k:10:PRO:HD3	1.99	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:o:36:LYS:HE3	40:o:45:ILE:HD12	2.02	0.40
52:3:422:A:H2'	52:3:422:A:N3	2.37	0.40
52:3:571:A:H2'	52:3:572:G:O4'	2.22	0.40
52:3:640:U:O2	52:3:658:G:O6	2.39	0.40
52:3:723:U:H2'	52:3:724:A:C8	2.56	0.40
52:3:727:C:H2'	52:3:728:A:C8	2.57	0.40
52:3:1091:G:H4'	52:3:1121:A:H8	1.84	0.40
52:3:1507:G:H1'	52:3:1508:G:OP2	2.22	0.40
52:3:1577:A:H2'	52:3:1578:A:C8	2.56	0.40
52:3:2355:C:N3	52:3:2379:G:N2	2.69	0.40
52:3:2572:A:H2	52:3:2655:U:H4'	1.86	0.40
52:3:2899:C:H2'	52:3:2900:U:H5	1.87	0.40
54:5:95:C:H2'	54:5:96:G:O4'	2.21	0.40
54:5:177:G:H22	54:5:188:U:HO2'	1.63	0.40
54:5:237:A:H2'	54:5:238:U:C6	2.56	0.40
54:5:1289:U:H2'	54:5:1290:G:O4'	2.20	0.40
54:5:1431:A:H2'	54:5:1432:A:C8	2.57	0.40
55:8:38:G:H3'	55:8:39:A:H8	1.86	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	45/48 (94%)	44 (98%)	1 (2%)	0	100	100
2	1	57/59 (97%)	55 (96%)	2 (4%)	0	100	100
3	2	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
4	9	680/688 (99%)	622 (92%)	58 (8%)	0	100	100
5	A	238/294 (81%)	219 (92%)	19 (8%)	0	100	100
6	B	213/273 (78%)	201 (94%)	12 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	C	201/205 (98%)	196 (98%)	5 (2%)	0	100	100
8	D	151/219 (69%)	147 (97%)	4 (3%)	0	100	100
9	E	165/215 (77%)	140 (85%)	25 (15%)	0	100	100
10	F	152/155 (98%)	146 (96%)	6 (4%)	0	100	100
11	G	139/142 (98%)	123 (88%)	14 (10%)	2 (1%)	9	39
12	H	126/132 (96%)	111 (88%)	15 (12%)	0	100	100
13	I	99/108 (92%)	94 (95%)	5 (5%)	0	100	100
14	J	112/121 (93%)	109 (97%)	3 (3%)	0	100	100
15	K	134/139 (96%)	121 (90%)	10 (8%)	3 (2%)	5	28
16	L	116/124 (94%)	109 (94%)	7 (6%)	0	100	100
17	M	58/61 (95%)	52 (90%)	6 (10%)	0	100	100
18	N	81/86 (94%)	78 (96%)	3 (4%)	0	100	100
19	O	78/94 (83%)	71 (91%)	7 (9%)	0	100	100
20	P	81/85 (95%)	76 (94%)	5 (6%)	0	100	100
21	Q	63/104 (61%)	57 (90%)	6 (10%)	0	100	100
22	R	82/87 (94%)	75 (92%)	7 (8%)	0	100	100
23	S	75/87 (86%)	75 (100%)	0	0	100	100
24	T	51/60 (85%)	50 (98%)	1 (2%)	0	100	100
25	W	67/122 (55%)	63 (94%)	4 (6%)	0	100	100
26	a	283/287 (99%)	260 (92%)	23 (8%)	0	100	100
27	b	227/287 (79%)	213 (94%)	14 (6%)	0	100	100
28	c	208/212 (98%)	202 (97%)	6 (3%)	0	100	100
29	d	173/180 (96%)	160 (92%)	13 (8%)	0	100	100
30	e	174/184 (95%)	162 (93%)	12 (7%)	0	100	100
31	f	143/149 (96%)	132 (92%)	11 (8%)	0	100	100
32	g	124/161 (77%)	111 (90%)	11 (9%)	2 (2%)	7	37
33	h	126/137 (92%)	120 (95%)	6 (5%)	0	100	100
34	i	142/146 (97%)	134 (94%)	8 (6%)	0	100	100
35	j	120/122 (98%)	113 (94%)	7 (6%)	0	100	100
36	k	146/151 (97%)	136 (93%)	10 (7%)	0	100	100
37	l	134/139 (96%)	126 (94%)	8 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	m	117/124 (94%)	114 (97%)	3 (3%)	0	100	100
39	n	108/116 (93%)	101 (94%)	7 (6%)	0	100	100
40	o	113/119 (95%)	108 (96%)	5 (4%)	0	100	100
41	p	112/127 (88%)	108 (96%)	4 (4%)	0	100	100
42	q	97/100 (97%)	85 (88%)	12 (12%)	0	100	100
43	r	137/159 (86%)	129 (94%)	8 (6%)	0	100	100
44	s	90/237 (38%)	86 (96%)	4 (4%)	0	100	100
45	t	109/111 (98%)	101 (93%)	8 (7%)	0	100	100
46	u	84/104 (81%)	78 (93%)	6 (7%)	0	100	100
47	v	61/65 (94%)	58 (95%)	3 (5%)	0	100	100
48	w	96/111 (86%)	88 (92%)	8 (8%)	0	100	100
49	x	42/97 (43%)	38 (90%)	4 (10%)	0	100	100
50	y	54/57 (95%)	47 (87%)	7 (13%)	0	100	100
51	z	48/53 (91%)	45 (94%)	3 (6%)	0	100	100
All	All	6567/7480 (88%)	6123 (93%)	437 (7%)	7 (0%)	49	83

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
15	K	122	LYS
15	K	123	ARG
11	G	108	LEU
15	K	121	GLU
32	g	45	PHE
11	G	109	ASN
32	g	34	ALA

5.3.2 Protein sidechains ⓘ

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	40/41 (98%)	40 (100%)	0	100	100
2	1	51/51 (100%)	51 (100%)	0	100	100
3	2	35/35 (100%)	35 (100%)	0	100	100
4	9	579/584 (99%)	579 (100%)	0	100	100
5	A	212/262 (81%)	212 (100%)	0	100	100
6	B	180/232 (78%)	180 (100%)	0	100	100
7	C	181/183 (99%)	181 (100%)	0	100	100
8	D	123/178 (69%)	123 (100%)	0	100	100
9	E	150/196 (76%)	150 (100%)	0	100	100
10	F	131/132 (99%)	131 (100%)	0	100	100
11	G	123/124 (99%)	119 (97%)	4 (3%)	33	55
12	H	111/115 (96%)	111 (100%)	0	100	100
13	I	95/99 (96%)	95 (100%)	0	100	100
14	J	91/97 (94%)	91 (100%)	0	100	100
15	K	117/120 (98%)	115 (98%)	2 (2%)	53	68
16	L	100/105 (95%)	100 (100%)	0	100	100
17	M	47/48 (98%)	47 (100%)	0	100	100
18	N	76/78 (97%)	76 (100%)	0	100	100
19	O	69/82 (84%)	69 (100%)	0	100	100
20	P	73/75 (97%)	73 (100%)	0	100	100
21	Q	56/94 (60%)	56 (100%)	0	100	100
22	R	74/77 (96%)	74 (100%)	0	100	100
23	S	70/77 (91%)	70 (100%)	0	100	100
24	T	49/56 (88%)	49 (100%)	0	100	100
25	W	58/98 (59%)	58 (100%)	0	100	100
26	a	241/243 (99%)	241 (100%)	0	100	100
27	b	186/233 (80%)	186 (100%)	0	100	100
28	c	182/184 (99%)	181 (100%)	1 (0%)	81	82
29	d	150/154 (97%)	150 (100%)	0	100	100
30	e	153/159 (96%)	153 (100%)	0	100	100
31	f	131/134 (98%)	131 (100%)	0	100	100
32	g	101/129 (78%)	94 (93%)	7 (7%)	14	37

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
33	h	102/110 (93%)	102 (100%)	0	100	100
34	i	126/128 (98%)	126 (100%)	0	100	100
35	j	103/103 (100%)	103 (100%)	0	100	100
36	k	123/126 (98%)	123 (100%)	0	100	100
37	l	113/115 (98%)	113 (100%)	0	100	100
38	m	105/109 (96%)	105 (100%)	0	100	100
39	n	96/99 (97%)	96 (100%)	0	100	100
40	o	101/105 (96%)	101 (100%)	0	100	100
41	p	100/108 (93%)	100 (100%)	0	100	100
42	q	90/91 (99%)	90 (100%)	0	100	100
43	r	116/132 (88%)	116 (100%)	0	100	100
44	s	82/208 (39%)	82 (100%)	0	100	100
45	t	96/96 (100%)	96 (100%)	0	100	100
46	u	69/85 (81%)	69 (100%)	0	100	100
47	v	58/60 (97%)	58 (100%)	0	100	100
48	w	87/98 (89%)	87 (100%)	0	100	100
49	x	41/86 (48%)	41 (100%)	0	100	100
50	y	48/49 (98%)	45 (94%)	3 (6%)	16	38
51	z	47/50 (94%)	47 (100%)	0	100	100
All	All	5738/6433 (89%)	5721 (100%)	17 (0%)	84	84

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	G	107	VAL
11	G	108	LEU
11	G	109	ASN
11	G	111	LEU
15	K	121	GLU
15	K	122	LYS
28	c	76	GLN
32	g	26	ILE
32	g	29	TYR
32	g	31	SER
32	g	32	MET

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Mol	Chain	Res	Type
32	g	46	LYS
32	g	87	ASN
32	g	89	ILE
50	y	47	MET
50	y	51	LEU
50	y	52	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (74) such sidechains are listed below:

Mol	Chain	Res	Type
3	2	36	GLN
4	9	12	ASN
4	9	55	GLN
4	9	152	GLN
4	9	264	ASN
4	9	357	HIS
4	9	506	HIS
4	9	569	HIS
5	A	53	ASN
5	A	186	ASN
5	A	205	ASN
6	B	8	ASN
6	B	29	GLN
8	D	138	HIS
8	D	186	ASN
8	D	202	GLN
9	E	4	ASN
9	E	79	ASN
9	E	150	GLN
10	F	147	ASN
12	H	4	GLN
12	H	77	GLN
15	K	25	HIS
16	L	91	HIS
19	O	40	ASN
20	P	25	GLN
21	Q	48	GLN
21	Q	80	GLN
23	S	24	GLN
26	a	62	ASN
26	a	149	ASN
26	a	159	GLN

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Mol	Chain	Res	Type
26	a	208	HIS
26	a	262	HIS
27	b	95	GLN
28	c	68	GLN
28	c	113	HIS
28	c	156	ASN
29	d	7	HIS
29	d	9	GLN
29	d	55	ASN
29	d	58	HIS
31	f	28	HIS
31	f	100	GLN
32	g	47	ASN
32	g	87	ASN
33	h	47	GLN
33	h	106	GLN
34	i	61	ASN
34	i	80	HIS
34	i	126	HIS
35	j	9	ASN
35	j	18	GLN
36	k	5	GLN
36	k	39	GLN
36	k	102	GLN
37	l	40	ASN
39	n	23	ASN
39	n	49	ASN
39	n	99	HIS
40	o	32	ASN
41	p	40	GLN
41	p	65	ASN
41	p	80	ASN
42	q	15	HIS
43	r	112	ASN
44	s	20	GLN
45	t	50	GLN
45	t	58	GLN
46	u	31	HIS
46	u	84	GLN
47	v	34	GLN
48	w	90	HIS
49	x	31	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
52	3	2875/2907 (98%)	724 (25%)	27 (0%)
53	4	103/108 (95%)	31 (30%)	2 (1%)
54	5	1490/1520 (98%)	358 (24%)	6 (0%)
55	7	75/76 (98%)	26 (34%)	2 (2%)
55	8	75/76 (98%)	26 (34%)	2 (2%)
All	All	4618/4687 (98%)	1165 (25%)	39 (0%)

All (1165) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
52	3	14	U
52	3	29	G
52	3	37	G
52	3	41	C
52	3	44	A
52	3	48	G
52	3	53	G
52	3	64	U
52	3	65	A
52	3	73	A
52	3	77	G
52	3	86	A
52	3	87	G
52	3	88	G
52	3	91	G
52	3	94	A
52	3	95	G
52	3	98	C
52	3	101	C
52	3	102	A
52	3	103	G
52	3	106	C
52	3	108	G
52	3	115	U
52	3	119	A
52	3	121	U
52	3	126	C
52	3	127	A
52	3	136	G
52	3	141	A
52	3	142	A

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Mol	Chain	Res	Type
52	3	148	U
52	3	163	A
52	3	165	U
52	3	169	U
52	3	185	U
52	3	186	A
52	3	200	A
52	3	201	A
52	3	203	A
52	3	204	U
52	3	208	A
52	3	209	G
52	3	211	A
52	3	219	G
52	3	220	A
52	3	226	A
52	3	227	A
52	3	230	G
52	3	231	A
52	3	232	A
52	3	234	G
52	3	237	A
52	3	251	G
52	3	252	G
52	3	254	G
52	3	255	A
52	3	256	G
52	3	259	A
52	3	261	A
52	3	265	G
52	3	270	G
52	3	276	A
52	3	282	C
52	3	283	A
52	3	284	U
52	3	285	U
52	3	286	A
52	3	287	G
52	3	288	A
52	3	290	A
52	3	295	U
52	3	296	U

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Mol	Chain	Res	Type
52	3	297	G
52	3	299	A
52	3	305	U
52	3	307	C
52	3	310	U
52	3	312	U
52	3	314	G
52	3	315	A
52	3	325	G
52	3	328	A
52	3	329	G
52	3	336	C
52	3	345	A
52	3	351	G
52	3	356	A
52	3	357	A
52	3	358	A
52	3	363	G
52	3	364	A
52	3	366	A
52	3	369	C
52	3	383	U
52	3	392	A
52	3	399	G
52	3	400	A
52	3	402	A
52	3	403	U
52	3	404	C
52	3	408	G
52	3	409	A
52	3	410	G
52	3	411	U
52	3	419	A
52	3	422	A
52	3	423	C
52	3	424	G
52	3	425	U
52	3	426	U
52	3	432	G
52	3	434	G
52	3	437	A
52	3	438	A

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Mol	Chain	Res	Type
52	3	439	U
52	3	441	U
52	3	442	G
52	3	447	G
52	3	448	A
52	3	450	C
52	3	460	G
52	3	465	A
52	3	466	A
52	3	484	U
52	3	485	A
52	3	487	C
52	3	501	G
52	3	509	G
52	3	514	A
52	3	515	A
52	3	516	A
52	3	517	G
52	3	519	A
52	3	525	A
52	3	526	G
52	3	538	A
52	3	540	A
52	3	543	U
52	3	544	U
52	3	556	U
52	3	562	C
52	3	563	A
52	3	565	C
52	3	566	G
52	3	567	U
52	3	577	C
52	3	580	U
52	3	581	A
52	3	583	U
52	3	584	G
52	3	595	U
52	3	596	G
52	3	605	A
52	3	607	U
52	3	608	A
52	3	610	G

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Mol	Chain	Res	Type
52	3	619	A
52	3	620	G
52	3	637	U
52	3	638	A
52	3	641	U
52	3	649	A
52	3	650	G
52	3	652	U
52	3	656	G
52	3	657	A
52	3	673	A
52	3	679	A
52	3	681	A
52	3	682	A
52	3	683	G
52	3	688	U
52	3	689	U
52	3	691	G
52	3	693	U
52	3	701	A
52	3	705	A
52	3	706	C
52	3	711	A
52	3	712	A
52	3	720	A
52	3	721	G
52	3	722	C
52	3	752	C
52	3	761	G
52	3	765	A
52	3	781	U
52	3	783	G
52	3	787	C
52	3	792	G
52	3	794	G
52	3	797	U
52	3	798	G
52	3	800	C
52	3	810	G
52	3	811	G
52	3	812	G
52	3	817	A

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Mol	Chain	Res	Type
52	3	818	A
52	3	819	U
52	3	820	U
52	3	824	A
52	3	827	G
52	3	835	U
52	3	836	G
52	3	840	G
52	3	842	U
52	3	847	C
52	3	854	A
52	3	862	U
52	3	863	U
52	3	868	C
52	3	880	C
52	3	882	C
52	3	895	G
52	3	902	U
52	3	906	G
52	3	910	G
52	3	917	G
52	3	920	G
52	3	932	U
52	3	933	A
52	3	934	C
52	3	937	A
52	3	938	A
52	3	944	U
52	3	947	A
52	3	948	A
52	3	949	C
52	3	952	U
52	3	953	G
52	3	966	U
52	3	968	U
52	3	971	U
52	3	973	U
52	3	975	G
52	3	977	A
52	3	981	A
52	3	982	G
52	3	989	G

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Mol	Chain	Res	Type
52	3	993	A
52	3	994	U
52	3	995	A
52	3	997	G
52	3	1010	G
52	3	1011	A
52	3	1016	A
52	3	1018	G
52	3	1019	A
52	3	1021	C
52	3	1023	C
52	3	1024	A
52	3	1032	A
52	3	1041	C
52	3	1045	A
52	3	1048	A
52	3	1049	U
52	3	1052	A
52	3	1057	G
52	3	1061	A
52	3	1066	G
52	3	1068	U
52	3	1081	A
52	3	1082	A
52	3	1085	A
52	3	1090	G
52	3	1092	A
52	3	1095	U
52	3	1096	U
52	3	1097	G
52	3	1098	G
52	3	1102	A
52	3	1104	A
52	3	1105	A
52	3	1106	G
52	3	1107	C
52	3	1113	U
52	3	1114	C
52	3	1118	U
52	3	1123	A
52	3	1124	G
52	3	1132	C

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Mol	Chain	Res	Type
52	3	1138	A
52	3	1140	U
52	3	1147	G
52	3	1151	U
52	3	1154	U
52	3	1164	A
52	3	1168	A
52	3	1169	A
52	3	1170	C
52	3	1171	G
52	3	1177	A
52	3	1178	A
52	3	1182	U
52	3	1186	A
52	3	1190	A
52	3	1192	U
52	3	1204	A
52	3	1207	U
52	3	1208	A
52	3	1209	U
52	3	1210	A
52	3	1217	G
52	3	1221	G
52	3	1234	U
52	3	1236	G
52	3	1240	U
52	3	1250	A
52	3	1251	G
52	3	1253	G
52	3	1257	G
52	3	1268	U
52	3	1269	C
52	3	1279	U
52	3	1281	A
52	3	1283	A
52	3	1284	A
52	3	1285	U
52	3	1286	G
52	3	1295	A
52	3	1299	A
52	3	1302	C
52	3	1306	G

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Mol	Chain	Res	Type
52	3	1317	C
52	3	1324	A
52	3	1328	A
52	3	1329	U
52	3	1332	A
52	3	1342	C
52	3	1351	G
52	3	1353	G
52	3	1357	U
52	3	1359	C
52	3	1360	U
52	3	1361	U
52	3	1374	U
52	3	1380	U
52	3	1382	A
52	3	1393	A
52	3	1396	A
52	3	1406	A
52	3	1407	U
52	3	1412	A
52	3	1420	A
52	3	1423	A
52	3	1426	C
52	3	1430	U
52	3	1431	A
52	3	1434	U
52	3	1441	A
52	3	1444	C
52	3	1445	U
52	3	1447	A
52	3	1448	U
52	3	1456	C
52	3	1463	G
52	3	1466	U
52	3	1479	A
52	3	1480	A
52	3	1481	U
52	3	1483	G
52	3	1485	A
52	3	1486	U
52	3	1487	U
52	3	1493	A

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Mol	Chain	Res	Type
52	3	1507	G
52	3	1508	G
52	3	1510	A
52	3	1515	A
52	3	1523	C
52	3	1528	G
52	3	1534	A
52	3	1541	A
52	3	1542	G
52	3	1545	A
52	3	1548	A
52	3	1549	U
52	3	1550	G
52	3	1558	A
52	3	1559	A
52	3	1571	G
52	3	1574	G
52	3	1581	U
52	3	1582	G
52	3	1584	U
52	3	1585	A
52	3	1587	U
52	3	1588	A
52	3	1589	A
52	3	1592	A
52	3	1594	G
52	3	1603	A
52	3	1605	A
52	3	1612	U
52	3	1618	U
52	3	1619	A
52	3	1641	A
52	3	1642	G
52	3	1643	A
52	3	1644	A
52	3	1645	C
52	3	1650	A
52	3	1651	C
52	3	1652	A
52	3	1656	A
52	3	1668	G
52	3	1671	C

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Mol	Chain	Res	Type
52	3	1676	G
52	3	1677	G
52	3	1679	U
52	3	1680	A
52	3	1681	G
52	3	1682	C
52	3	1683	G
52	3	1685	G
52	3	1688	A
52	3	1694	A
52	3	1695	G
52	3	1698	A
52	3	1708	G
52	3	1711	A
52	3	1713	U
52	3	1714	U
52	3	1727	U
52	3	1730	C
52	3	1747	G
52	3	1752	A
52	3	1761	C
52	3	1764	U
52	3	1765	G
52	3	1766	A
52	3	1769	A
52	3	1770	A
52	3	1771	C
52	3	1780	A
52	3	1784	U
52	3	1786	U
52	3	1787	A
52	3	1788	A
52	3	1789	C
52	3	1791	A
52	3	1794	A
52	3	1797	C
52	3	1804	A
52	3	1807	C
52	3	1808	C
52	3	1809	A
52	3	1821	G
52	3	1822	A

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Mol	Chain	Res	Type
52	3	1823	U
52	3	1826	A
52	3	1828	A
52	3	1834	U
52	3	1836	A
52	3	1842	G
52	3	1865	A
52	3	1866	G
52	3	1869	G
52	3	1873	A
52	3	1879	A
52	3	1889	U
52	3	1890	U
52	3	1891	A
52	3	1904	G
52	3	1906	G
52	3	1907	A
52	3	1908	A
52	3	1910	G
52	3	1913	G
52	3	1917	G
52	3	1919	A
52	3	1920	A
52	3	1921	C
52	3	1922	U
52	3	1923	A
52	3	1924	U
52	3	1930	U
52	3	1935	A
52	3	1936	G
52	3	1937	G
52	3	1943	A
52	3	1944	A
52	3	1945	A
52	3	1951	A
52	3	1952	G
52	3	1959	A
52	3	1960	A
52	3	1962	U
52	3	1971	G
52	3	1972	C
52	3	1977	A

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Mol	Chain	Res	Type
52	3	1978	U
52	3	1979	G
52	3	1982	G
52	3	1989	U
52	3	1999	G
52	3	2000	U
52	3	2004	G
52	3	2009	U
52	3	2010	A
52	3	2027	G
52	3	2028	G
52	3	2030	A
52	3	2038	A
52	3	2039	G
52	3	2040	A
52	3	2041	C
52	3	2042	A
52	3	2050	G
52	3	2055	A
52	3	2059	G
52	3	2062	C
52	3	2063	G
52	3	2067	A
52	3	2068	G
52	3	2069	A
52	3	2070	C
52	3	2071	C
52	3	2073	C
52	3	2075	U
52	3	2076	G
52	3	2084	A
52	3	2100	G
52	3	2107	A
52	3	2110	U
52	3	2111	U
52	3	2112	A
52	3	2114	C
52	3	2115	A
52	3	2116	U
52	3	2117	G
52	3	2119	A
52	3	2122	G

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Mol	Chain	Res	Type
52	3	2123	A
52	3	2124	A
52	3	2125	U
52	3	2126	A
52	3	2132	G
52	3	2133	A
52	3	2138	U
52	3	2140	G
52	3	2141	A
52	3	2144	C
52	3	2145	A
52	3	2152	C
52	3	2153	U
52	3	2154	A
52	3	2156	G
52	3	2157	A
52	3	2163	U
52	3	2164	G
52	3	2165	A
52	3	2166	U
52	3	2170	A
52	3	2178	A
52	3	2180	U
52	3	2181	A
52	3	2183	U
52	3	2184	A
52	3	2186	C
52	3	2187	C
52	3	2193	U
52	3	2195	U
52	3	2197	U
52	3	2198	G
52	3	2200	U
52	3	2202	U
52	3	2206	A
52	3	2212	U
52	3	2219	U
52	3	2221	U
52	3	2222	C
52	3	2227	U
52	3	2231	A
52	3	2233	A

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Mol	Chain	Res	Type
52	3	2247	G
52	3	2258	G
52	3	2274	A
52	3	2276	A
52	3	2281	A
52	3	2287	G
52	3	2290	G
52	3	2291	U
52	3	2294	A
52	3	2295	A
52	3	2305	C
52	3	2312	G
52	3	2313	U
52	3	2316	G
52	3	2320	U
52	3	2322	G
52	3	2324	A
52	3	2327	U
52	3	2328	A
52	3	2330	A
52	3	2333	G
52	3	2334	U
52	3	2335	A
52	3	2341	G
52	3	2342	U
52	3	2345	G
52	3	2352	U
52	3	2355	C
52	3	2358	U
52	3	2362	A
52	3	2365	U
52	3	2391	G
52	3	2393	C
52	3	2410	C
52	3	2411	C
52	3	2414	U
52	3	2423	G
52	3	2424	C
52	3	2430	C
52	3	2431	U
52	3	2433	A
52	3	2436	G

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Mol	Chain	Res	Type
52	3	2438	A
52	3	2440	A
52	3	2448	C
52	3	2449	U
52	3	2455	G
52	3	2456	A
52	3	2459	A
52	3	2477	A
52	3	2478	G
52	3	2483	C
52	3	2484	A
52	3	2486	A
52	3	2489	G
52	3	2494	C
52	3	2495	A
52	3	2498	G
52	3	2499	U
52	3	2505	A
52	3	2506	C
52	3	2507	C
52	3	2509	C
52	3	2510	G
52	3	2511	A
52	3	2512	U
52	3	2521	A
52	3	2526	A
52	3	2528	C
52	3	2539	A
52	3	2557	G
52	3	2570	U
52	3	2574	A
52	3	2575	G
52	3	2580	A
52	3	2581	C
52	3	2584	G
52	3	2585	A
52	3	2586	G
52	3	2587	U
52	3	2602	C
52	3	2605	G
52	3	2606	A
52	3	2607	G

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Mol	Chain	Res	Type
52	3	2610	A
52	3	2611	G
52	3	2617	U
52	3	2621	U
52	3	2623	U
52	3	2629	G
52	3	2631	G
52	3	2637	A
52	3	2638	G
52	3	2642	G
52	3	2646	G
52	3	2649	G
52	3	2653	G
52	3	2654	U
52	3	2655	U
52	3	2668	A
52	3	2669	G
52	3	2681	G
52	3	2687	A
52	3	2689	C
52	3	2697	C
52	3	2706	U
52	3	2722	G
52	3	2732	A
52	3	2734	C
52	3	2737	G
52	3	2741	A
52	3	2747	U
52	3	2752	G
52	3	2756	A
52	3	2760	C
52	3	2765	A
52	3	2769	G
52	3	2774	A
52	3	2786	A
52	3	2787	U
52	3	2788	U
52	3	2799	U
52	3	2801	U
52	3	2806	A
52	3	2807	G
52	3	2808	A

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Mol	Chain	Res	Type
52	3	2810	A
52	3	2811	G
52	3	2813	A
52	3	2815	G
52	3	2824	A
52	3	2828	C
52	3	2837	U
52	3	2838	G
52	3	2839	A
52	3	2843	G
52	3	2853	U
52	3	2854	A
52	3	2862	U
52	3	2871	G
52	3	2876	G
52	3	2883	A
52	3	2884	C
52	3	2887	A
52	3	2890	G
52	3	2897	G
52	3	2899	C
53	4	10	C
53	4	11	A
53	4	12	U
53	4	13	G
53	4	14	U
53	4	22	G
53	4	23	A
53	4	28	C
53	4	34	U
53	4	38	U
53	4	39	U
53	4	40	U
53	4	41	C
53	4	42	G
53	4	47	C
53	4	49	G
53	4	54	U
53	4	55	A
53	4	60	C
53	4	64	G
53	4	65	G

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Mol	Chain	Res	Type
53	4	66	A
53	4	76	A
53	4	77	G
53	4	80	G
53	4	85	A
53	4	88	G
53	4	89	A
53	4	99	A
53	4	100	G
53	4	108	C
54	5	7	U
54	5	8	G
54	5	9	A
54	5	10	G
54	5	32	U
54	5	33	A
54	5	38	U
54	5	48	C
54	5	49	C
54	5	52	A
54	5	55	C
54	5	61	A
54	5	67	U
54	5	75	A
54	5	77	U
54	5	78	A
54	5	85	U
54	5	86	A
54	5	93	A
54	5	98	G
54	5	100	G
54	5	101	A
54	5	105	A
54	5	106	C
54	5	107	A
54	5	114	C
54	5	115	A
54	5	116	A
54	5	117	U
54	5	128	A
54	5	129	U
54	5	135	A

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Mol	Chain	Res	Type
54	5	149	G
54	5	153	A
54	5	156	U
54	5	157	A
54	5	169	G
54	5	171	A
54	5	174	U
54	5	175	U
54	5	186	A
54	5	187	A
54	5	189	C
54	5	197	A
54	5	199	A
54	5	220	U
54	5	222	U
54	5	223	G
54	5	241	C
54	5	243	G
54	5	246	A
54	5	247	G
54	5	258	A
54	5	260	C
54	5	262	G
54	5	263	C
54	5	274	A
54	5	275	A
54	5	276	U
54	5	277	G
54	5	278	A
54	5	285	G
54	5	286	C
54	5	301	G
54	5	302	A
54	5	316	G
54	5	324	C
54	5	326	C
54	5	328	G
54	5	341	C
54	5	343	G
54	5	348	C
54	5	349	A
54	5	350	G

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Mol	Chain	Res	Type
54	5	351	C
54	5	363	U
54	5	364	U
54	5	365	U
54	5	367	A
54	5	368	C
54	5	380	G
54	5	388	G
54	5	393	A
54	5	394	U
54	5	400	G
54	5	402	G
54	5	407	A
54	5	408	U
54	5	409	G
54	5	417	U
54	5	418	U
54	5	419	A
54	5	420	A
54	5	421	G
54	5	425	G
54	5	426	U
54	5	445	A
54	5	448	A
54	5	449	A
54	5	450	U
54	5	453	C
54	5	461	G
54	5	462	G
54	5	468	G
54	5	476	U
54	5	477	U
54	5	478	G
54	5	482	G
54	5	483	U
54	5	488	U
54	5	489	U
54	5	493	A
54	5	494	A
54	5	497	A
54	5	498	G
54	5	500	G

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Mol	Chain	Res	Type
54	5	503	G
54	5	509	C
54	5	510	U
54	5	515	G
54	5	516	C
54	5	519	G
54	5	523	U
54	5	525	G
54	5	530	A
54	5	531	A
54	5	533	A
54	5	542	G
54	5	545	A
54	5	548	G
54	5	549	U
54	5	551	A
54	5	557	A
54	5	558	U
54	5	559	U
54	5	560	U
54	5	564	G
54	5	570	A
54	5	571	A
54	5	574	C
54	5	575	A
54	5	579	G
54	5	586	G
54	5	594	A
54	5	595	G
54	5	616	C
54	5	626	G
54	5	629	U
54	5	630	G
54	5	637	A
54	5	639	A
54	5	646	A
54	5	647	U
54	5	653	G
54	5	656	U
54	5	661	G
54	5	662	G
54	5	678	A

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Mol	Chain	Res	Type
54	5	683	G
54	5	699	A
54	5	700	G
54	5	701	A
54	5	704	U
54	5	712	A
54	5	715	A
54	5	716	C
54	5	718	A
54	5	719	G
54	5	720	U
54	5	721	G
54	5	731	A
54	5	745	U
54	5	750	A
54	5	752	G
54	5	763	A
54	5	774	A
54	5	777	A
54	5	790	U
54	5	811	A
54	5	812	A
54	5	814	C
54	5	815	G
54	5	817	U
54	5	818	A
54	5	822	A
54	5	824	U
54	5	825	A
54	5	826	G
54	5	838	A
54	5	839	U
54	5	849	A
54	5	856	U
54	5	870	A
54	5	878	U
54	5	883	A
54	5	885	U
54	5	888	A
54	5	892	G
54	5	895	A
54	5	896	G

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Mol	Chain	Res	Type
54	5	908	A
54	5	910	C
54	5	911	G
54	5	917	G
54	5	919	C
54	5	921	G
54	5	922	G
54	5	929	C
54	5	930	A
54	5	933	A
54	5	953	A
54	5	955	U
54	5	961	G
54	5	963	U
54	5	964	A
54	5	965	C
54	5	966	A
54	5	970	A
54	5	971	A
54	5	972	A
54	5	975	C
54	5	976	U
54	5	977	U
54	5	984	A
54	5	987	U
54	5	988	G
54	5	989	A
54	5	995	U
54	5	998	G
54	5	1002	A
54	5	1003	G
54	5	1005	U
54	5	1006	A
54	5	1012	A
54	5	1014	A
54	5	1016	A
54	5	1018	U
54	5	1029	C
54	5	1036	C
54	5	1040	U
54	5	1041	G
54	5	1044	G

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Mol	Chain	Res	Type
54	5	1045	C
54	5	1046	A
54	5	1056	U
54	5	1058	A
54	5	1061	U
54	5	1072	G
54	5	1082	U
54	5	1085	G
54	5	1086	U
54	5	1089	C
54	5	1092	A
54	5	1096	A
54	5	1100	C
54	5	1104	C
54	5	1113	U
54	5	1114	A
54	5	1118	A
54	5	1119	C
54	5	1120	A
54	5	1121	U
54	5	1122	U
54	5	1123	G
54	5	1124	U
54	5	1125	C
54	5	1128	G
54	5	1134	C
54	5	1135	U
54	5	1136	G
54	5	1141	U
54	5	1142	G
54	5	1144	A
54	5	1158	A
54	5	1162	G
54	5	1165	G
54	5	1168	G
54	5	1171	A
54	5	1175	C
54	5	1176	A
54	5	1177	U
54	5	1188	A
54	5	1197	G
54	5	1200	G

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Mol	Chain	Res	Type
54	5	1201	C
54	5	1202	A
54	5	1206	G
54	5	1208	G
54	5	1209	C
54	5	1211	A
54	5	1213	A
54	5	1218	C
54	5	1219	C
54	5	1223	A
54	5	1231	U
54	5	1232	C
54	5	1241	G
54	5	1243	A
54	5	1245	A
54	5	1255	A
54	5	1257	C
54	5	1260	U
54	5	1261	A
54	5	1262	A
54	5	1268	G
54	5	1272	C
54	5	1273	A
54	5	1276	U
54	5	1279	G
54	5	1296	C
54	5	1297	G
54	5	1303	A
54	5	1312	G
54	5	1313	A
54	5	1314	A
54	5	1316	C
54	5	1319	U
54	5	1320	A
54	5	1321	G
54	5	1327	G
54	5	1338	A
54	5	1349	A
54	5	1353	C
54	5	1354	G
54	5	1358	U
54	5	1361	G

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Mol	Chain	Res	Type
54	5	1362	G
54	5	1367	G
54	5	1373	A
54	5	1374	C
54	5	1377	C
54	5	1390	G
54	5	1395	C
54	5	1397	G
54	5	1398	G
54	5	1404	U
54	5	1405	U
54	5	1417	U
54	5	1418	G
54	5	1421	A
54	5	1423	C
54	5	1429	G
54	5	1439	G
54	5	1446	A
54	5	1457	G
54	5	1458	A
54	5	1459	U
54	5	1466	U
54	5	1467	A
54	5	1469	G
54	5	1474	A
54	5	1478	A
54	5	1480	G
54	5	1481	U
54	5	1492	G
54	5	1495	C
54	5	1504	G
54	5	1505	G
55	7	5	C
55	7	14	C
55	7	17	U
55	7	20	G
55	7	21	U
55	7	22	A
55	7	24	A
55	7	34	U
55	7	35	G
55	7	36	A

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Mol	Chain	Res	Type
55	7	41	C
55	7	43	G
55	7	44	U
55	7	45	G
55	7	48	U
55	7	49	C
55	7	50	G
55	7	54	G
55	7	58	G
55	7	60	U
55	7	62	C
55	7	71	A
55	7	72	C
55	7	75	C
55	7	76	C
55	7	77	A
55	8	5	C
55	8	14	C
55	8	17	U
55	8	20	G
55	8	21	U
55	8	22	A
55	8	24	A
55	8	34	U
55	8	35	G
55	8	36	A
55	8	41	C
55	8	43	G
55	8	44	U
55	8	45	G
55	8	48	U
55	8	49	C
55	8	50	G
55	8	54	G
55	8	58	G
55	8	60	U
55	8	62	C
55	8	71	A
55	8	72	C
55	8	75	C
55	8	76	C
55	8	77	A

All (39) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
52	3	85	U
52	3	410	G
52	3	500	U
52	3	513	A
52	3	514	A
52	3	524	G
52	3	688	U
52	3	881	A
52	3	901	C
52	3	952	U
52	3	1048	A
52	3	1104	A
52	3	1209	U
52	3	1507	G
52	3	1583	G
52	3	1587	U
52	3	1588	A
52	3	1820	U
52	3	2070	C
52	3	2165	A
52	3	2333	G
52	3	2504	C
52	3	2506	C
52	3	2604	U
52	3	2668	A
52	3	2764	U
52	3	2823	A
53	4	54	U
53	4	59	A
54	5	60	A
54	5	532	U
54	5	894	A
54	5	988	G
54	5	1099	G
54	5	1143	C
55	7	16	G
55	7	71	A
55	8	16	G
55	8	71	A

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	$\# Z > 2$
56	SCM	5	1601	-	23,25,25	1.71	8 (34%)	27,39,39	1.57	4 (14%)

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
56	SCM	5	1601	-	-	2/4/57/57	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	5	1601	SCM	C3-C2	3.25	1.58	1.51
56	5	1601	SCM	C9-C8	3.00	1.58	1.53
56	5	1601	SCM	C3-C4	2.61	1.54	1.50
56	5	1601	SCM	C12-C7	2.41	1.57	1.52
56	5	1601	SCM	O5-C5	2.28	1.43	1.39
56	5	1601	SCM	O2B-C12	2.25	1.47	1.44
56	5	1601	SCM	C8-N8	2.07	1.51	1.47
56	5	1601	SCM	C10-N10	-2.00	1.44	1.47

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	5	1601	SCM	C1M-N10-C10	-5.37	107.29	114.23
56	5	1601	SCM	O1-C2-C3	3.63	113.68	108.62
56	5	1601	SCM	C2M-C2-C3	-2.63	108.54	113.27
56	5	1601	SCM	O2B-C6-O1	2.15	109.11	107.40

There are no chirality outliers.

All (2) torsion outliers are listed below:

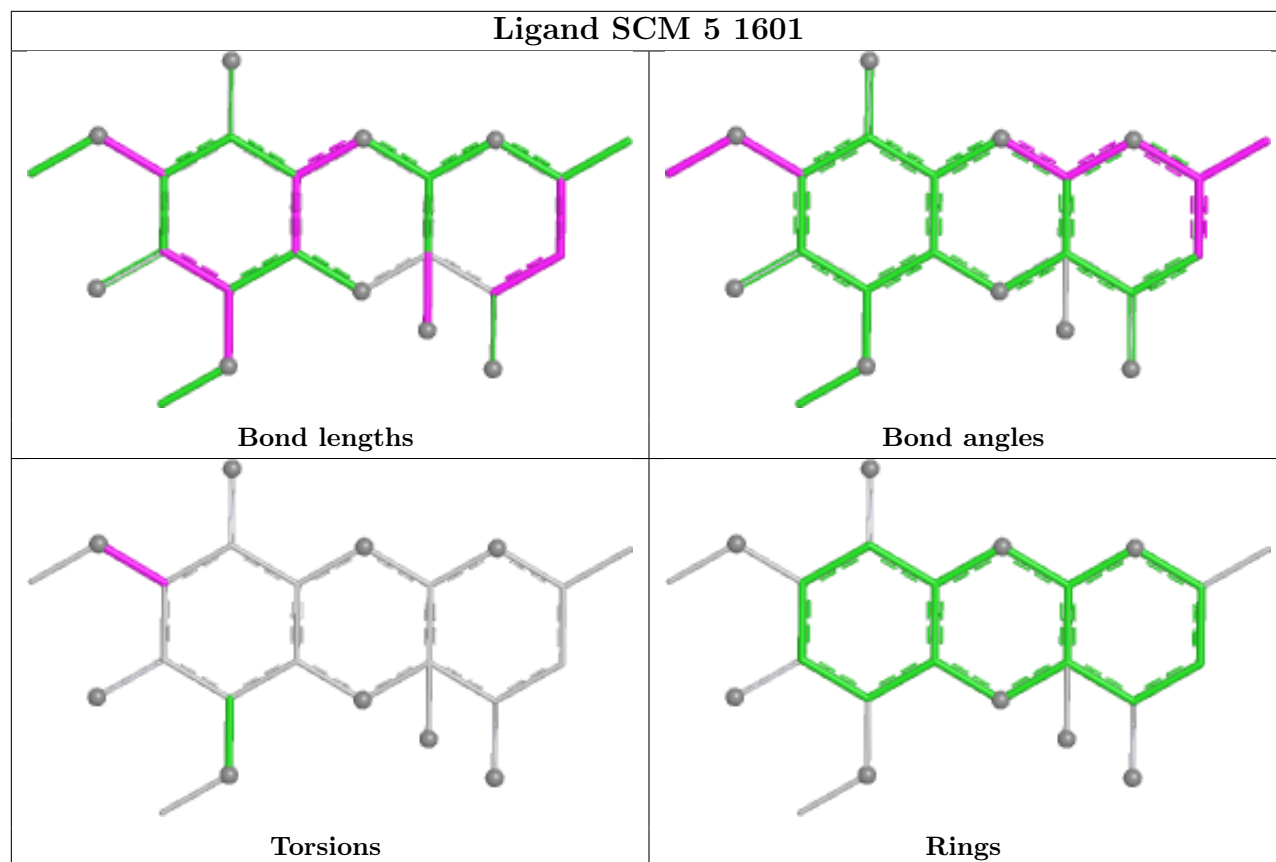
Mol	Chain	Res	Type	Atoms
56	5	1601	SCM	C9-C10-N10-C1M
56	5	1601	SCM	C11-C10-N10-C1M

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
56	5	1601	SCM	3	0

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



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

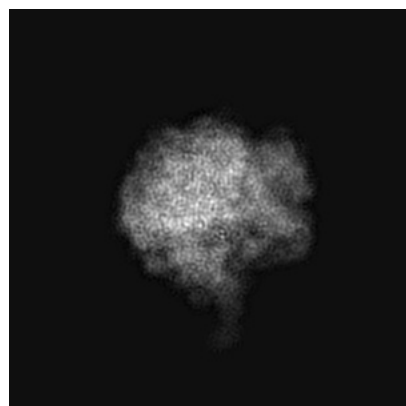
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13435. These allow visual inspection of the internal detail of the map and identification of artifacts.

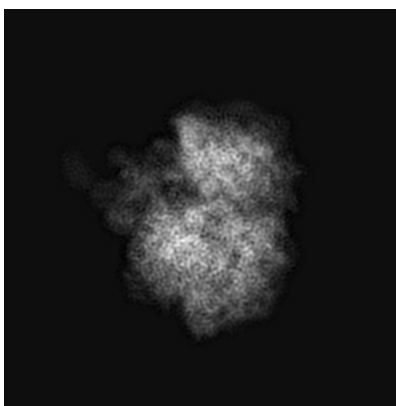
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

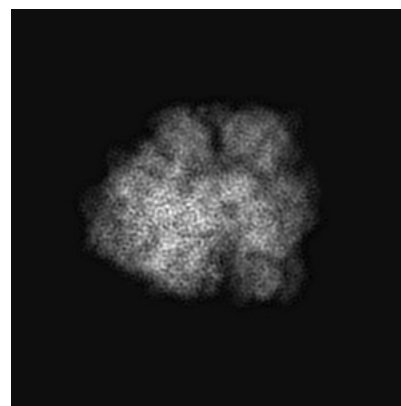
6.1.1 Primary map



X

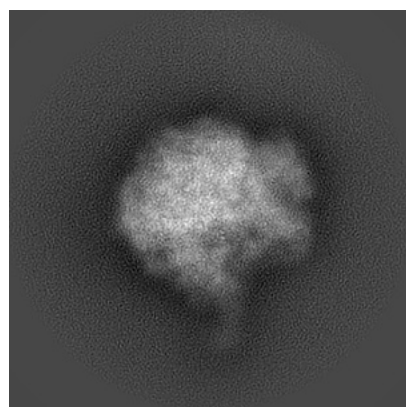


Y

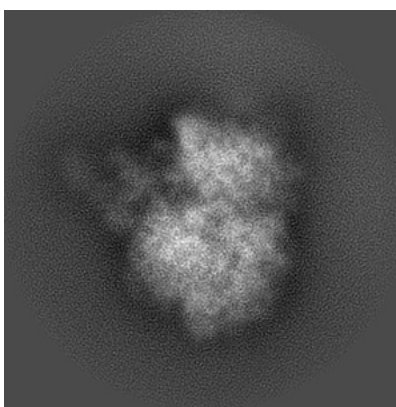


Z

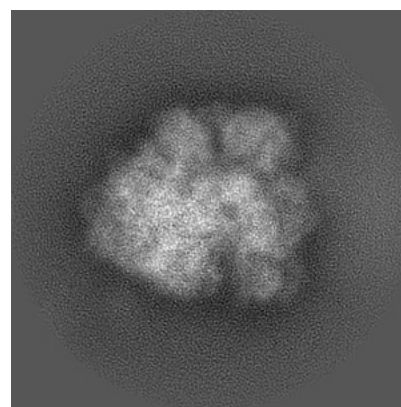
6.1.2 Raw map



X



Y

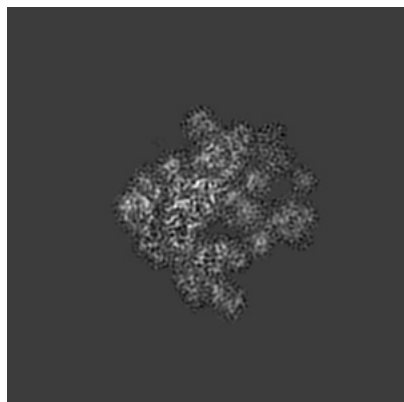


Z

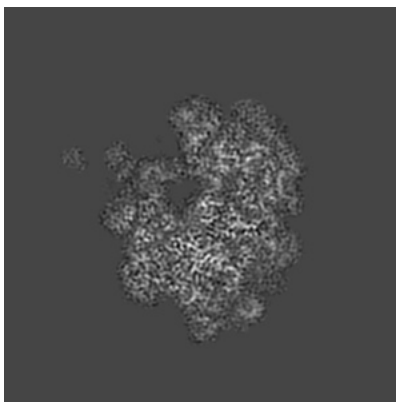
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

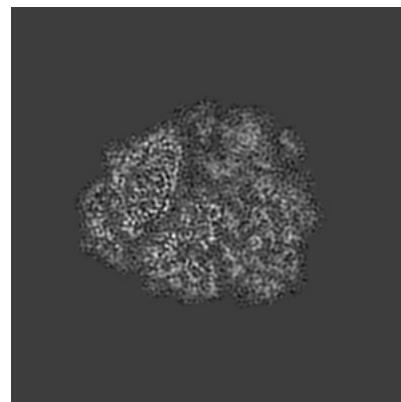
6.2.1 Primary map



X Index: 128

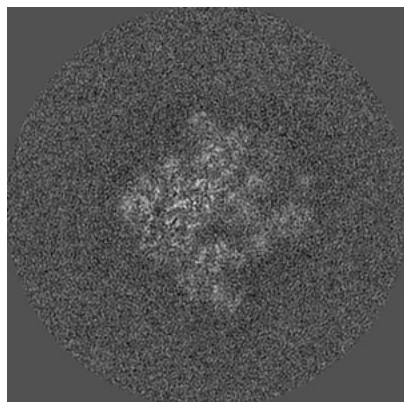


Y Index: 128

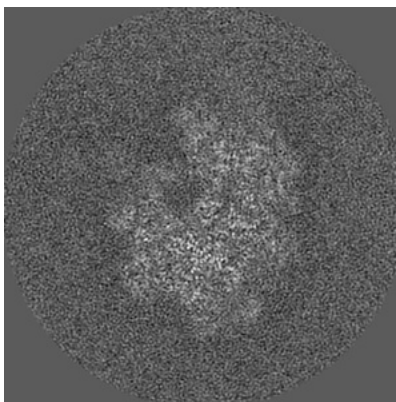


Z Index: 128

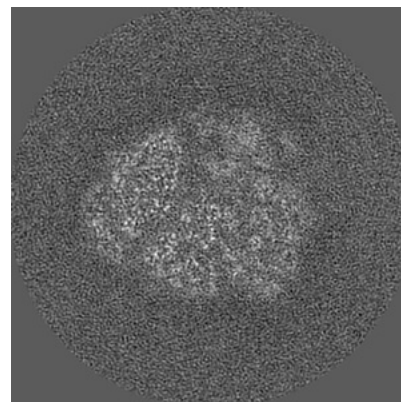
6.2.2 Raw map



X Index: 128



Y Index: 128

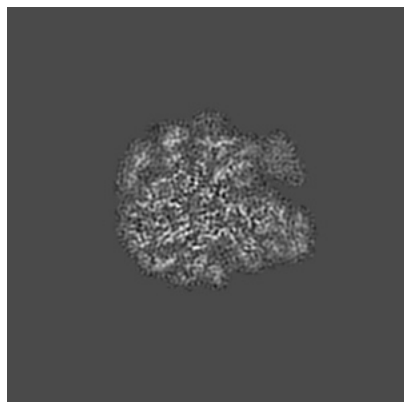


Z Index: 128

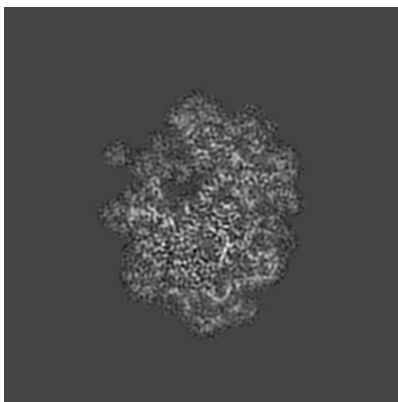
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

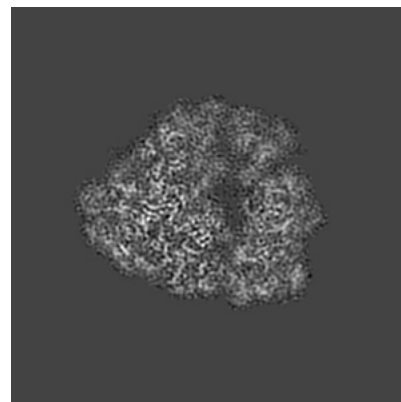
6.3.1 Primary map



X Index: 104

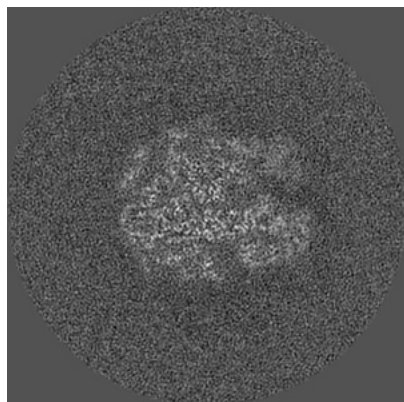


Y Index: 121

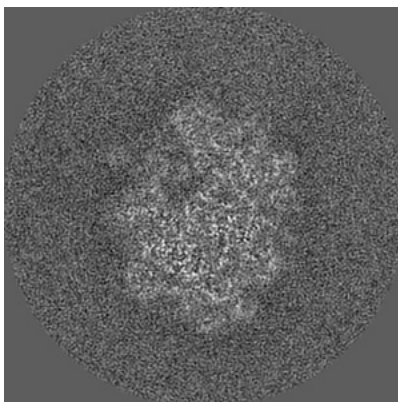


Z Index: 122

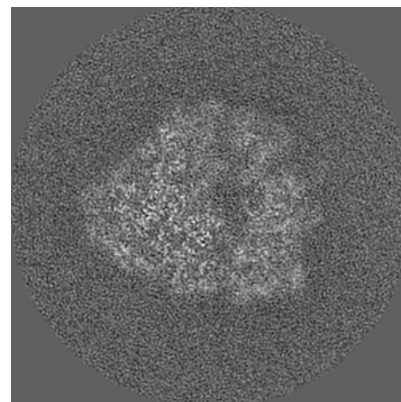
6.3.2 Raw map



X Index: 107



Y Index: 122

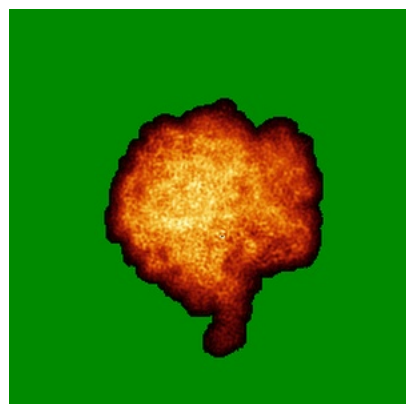


Z Index: 122

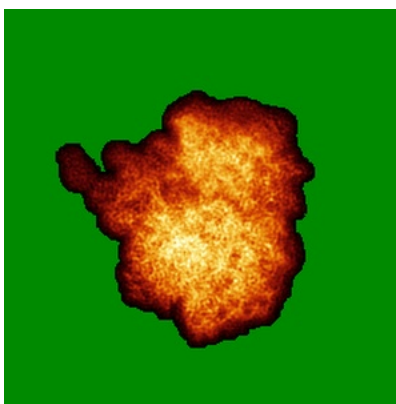
The images above show the largest variance slices of the map in three orthogonal directions.

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

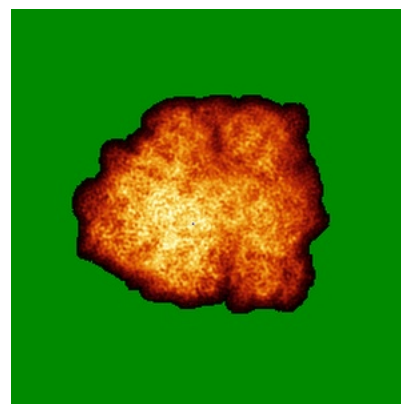
6.4.1 Primary map



X

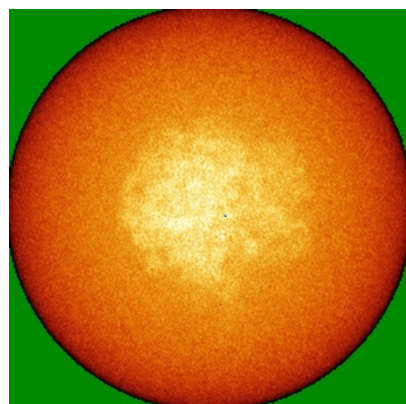


Y

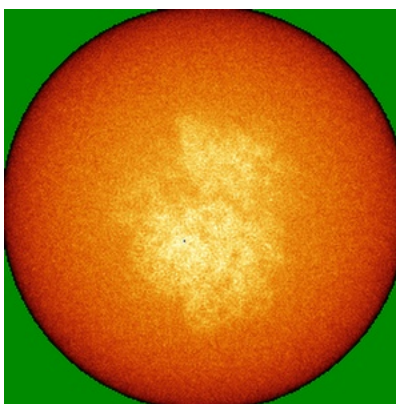


Z

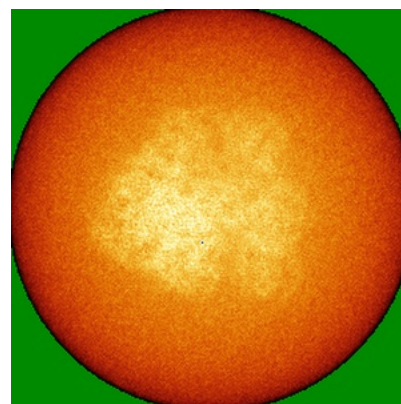
6.4.2 Raw map



X



Y

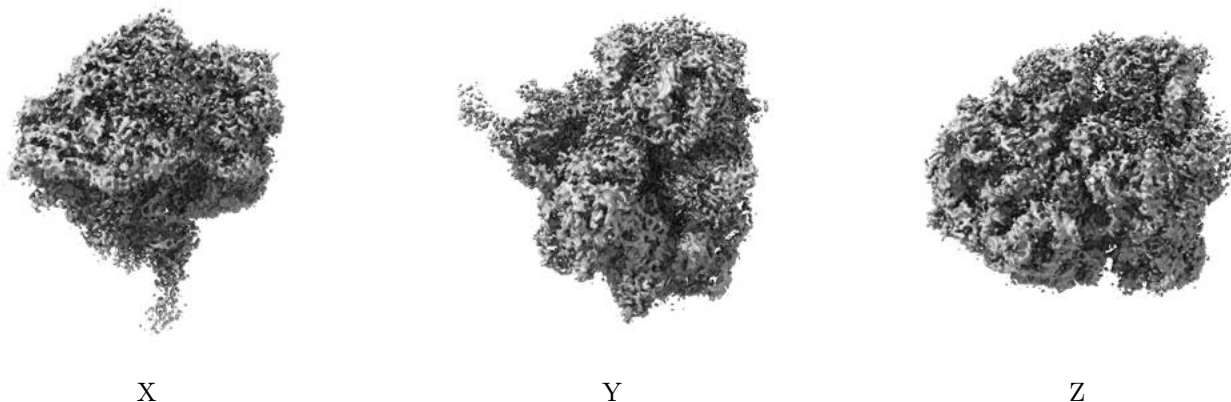


Z

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

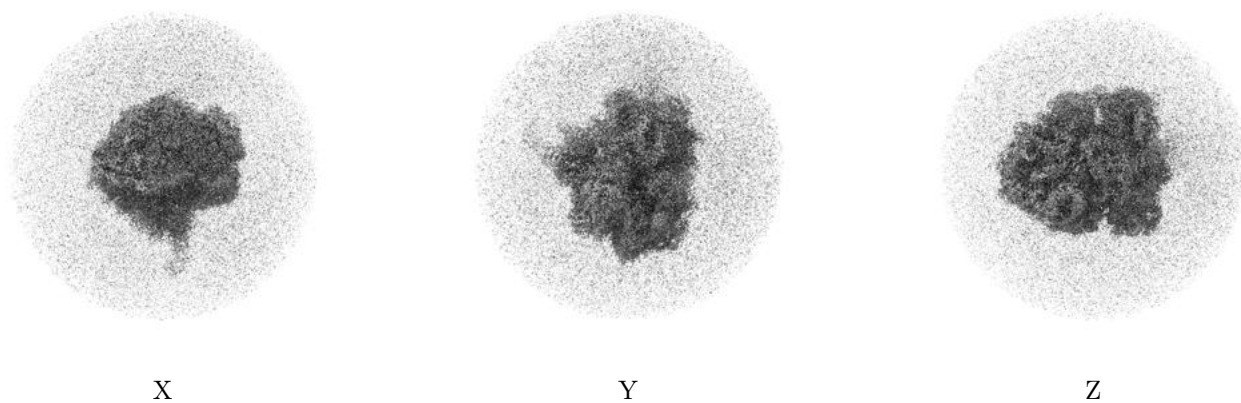
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.66. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

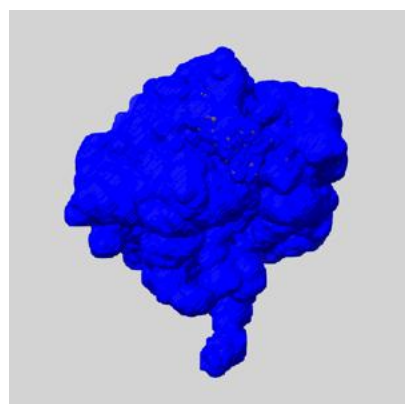
6.6 Mask visualisation [i](#)

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

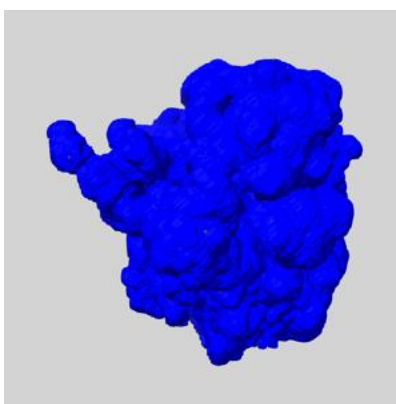
A mask typically either:

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

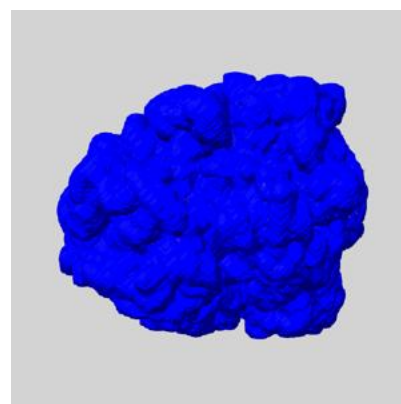
6.6.1 emd_13435_msk_1.map [i](#)



X



Y

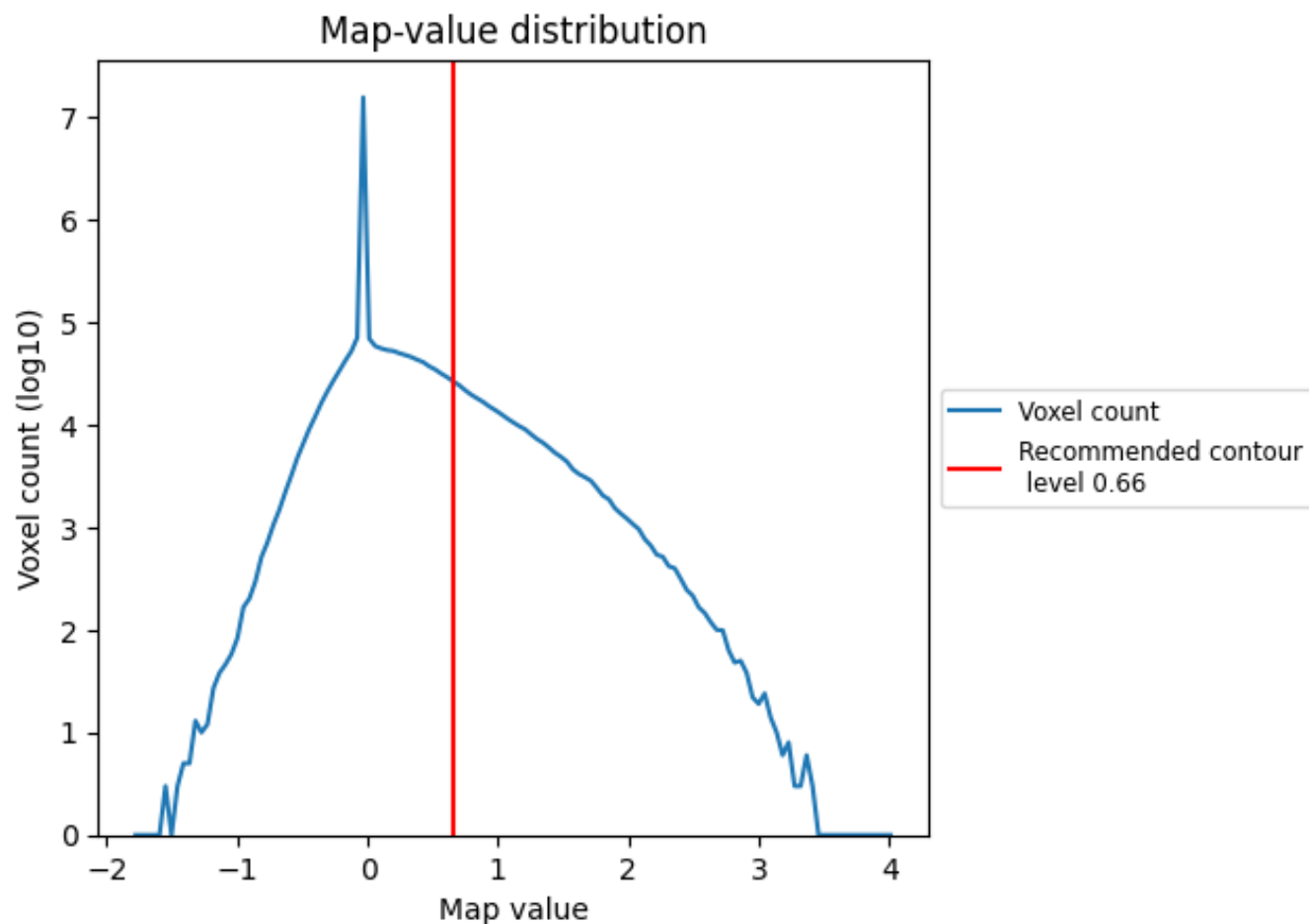


Z

7 Map analysis [i](#)

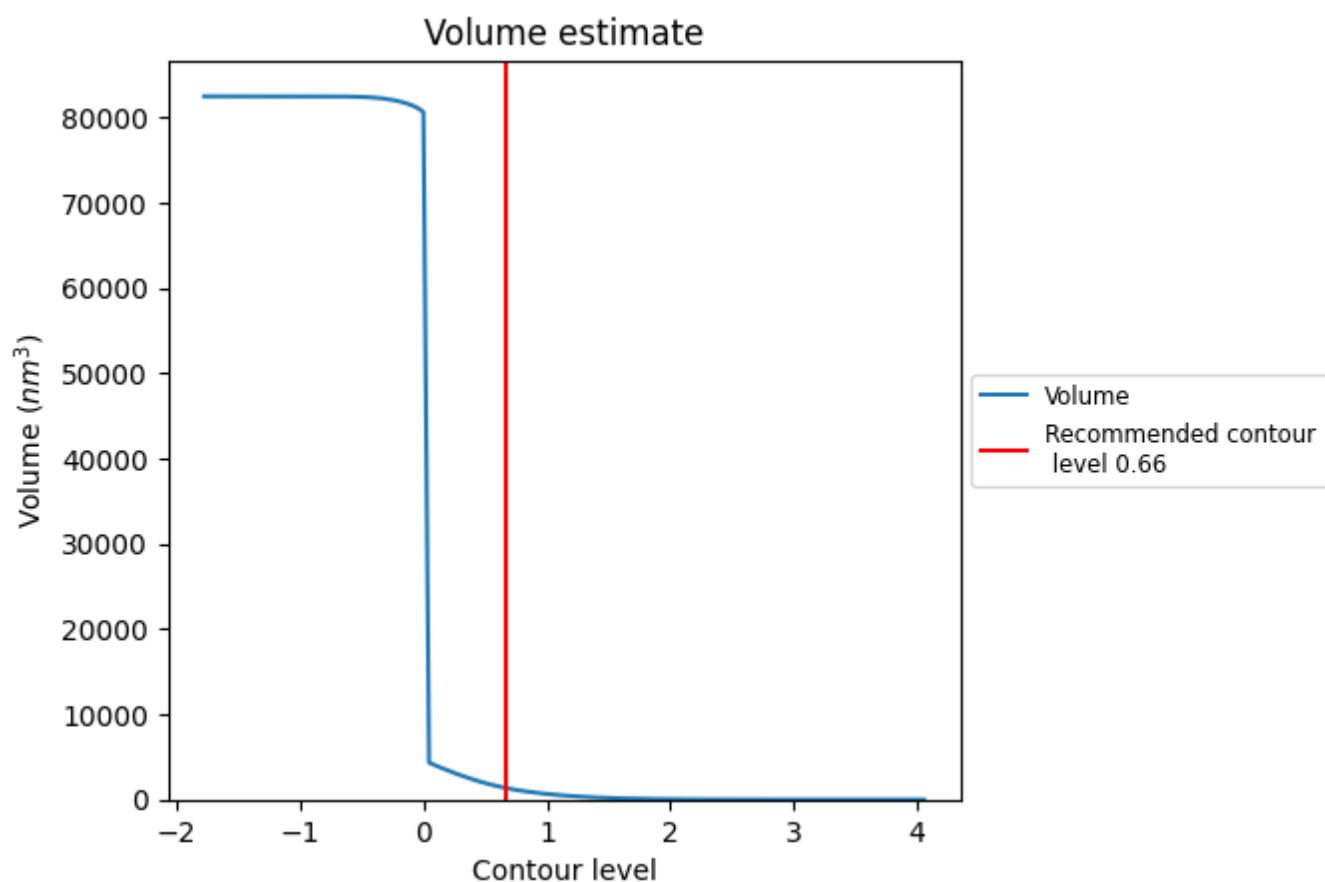
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

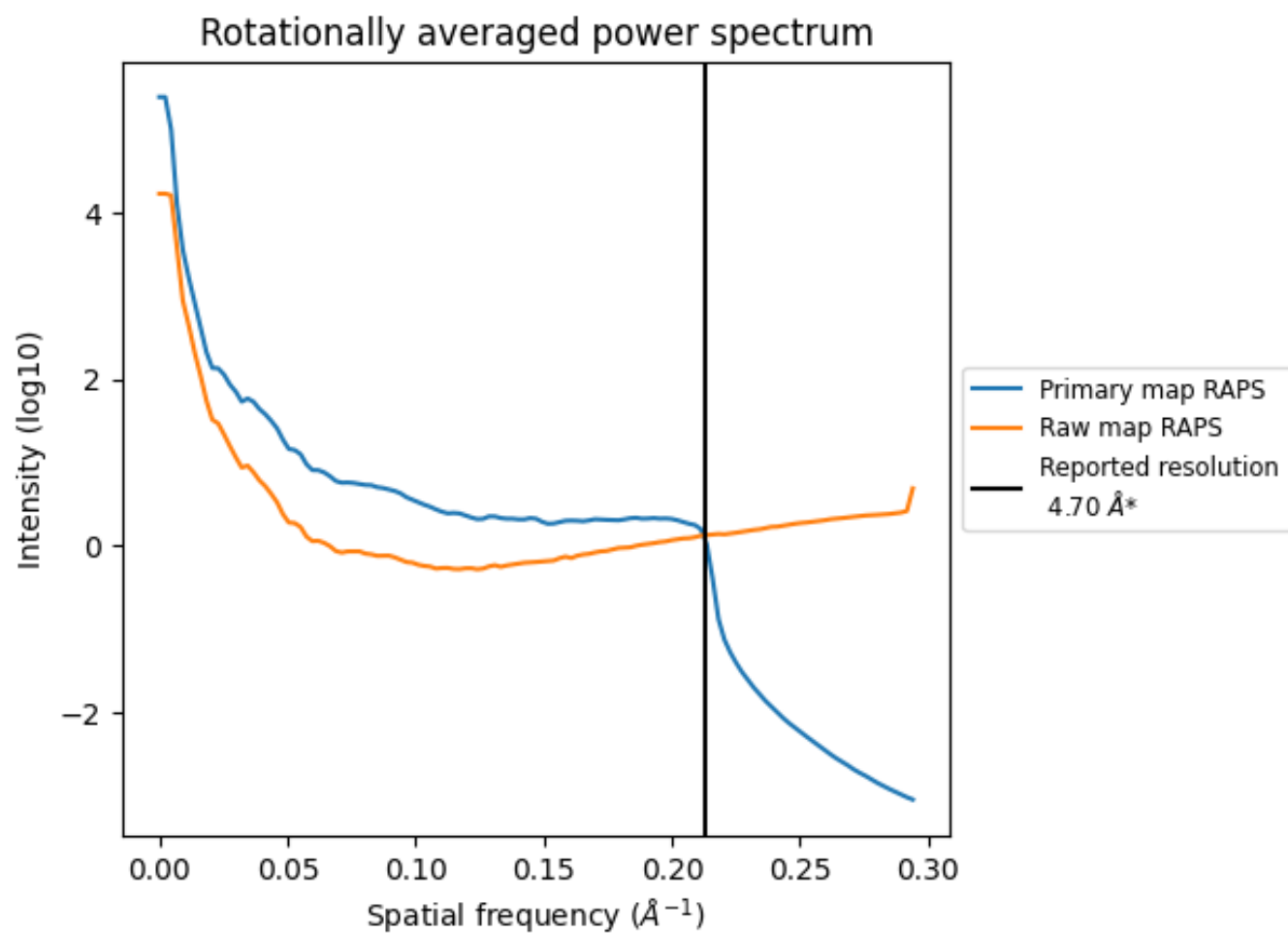
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1378 nm³; this corresponds to an approximate mass of 1245 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 ⓘ

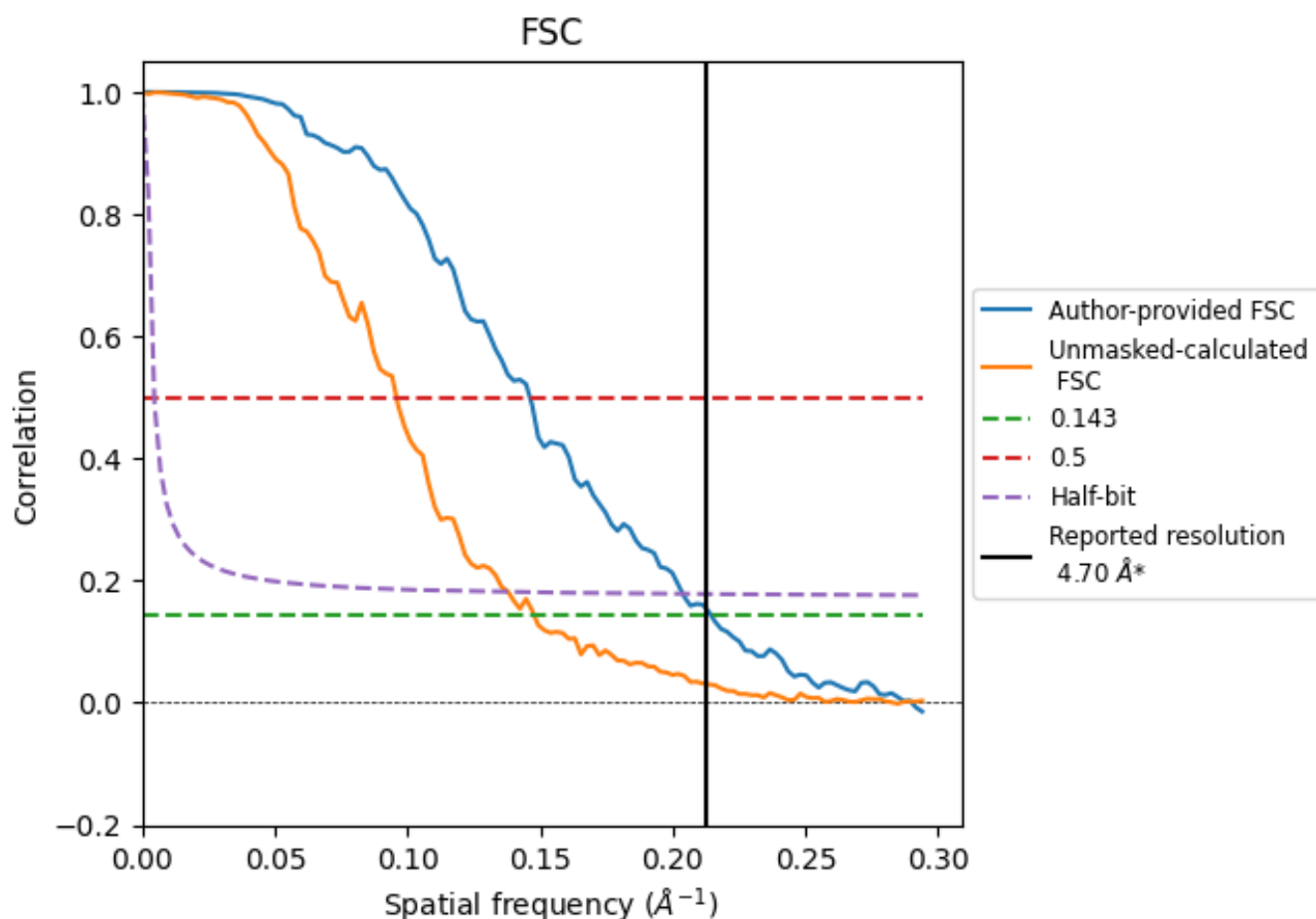


*Reported resolution corresponds to spatial frequency of 0.213 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.213 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

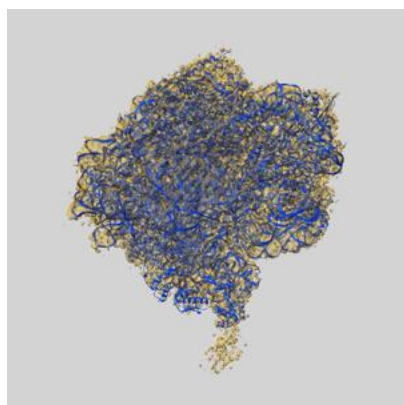
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.70	-	-
Author-provided FSC curve	4.66	6.84	4.90
Unmasked-calculated*	6.77	10.44	7.25

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.77 differs from the reported value 4.7 by more than 10 %

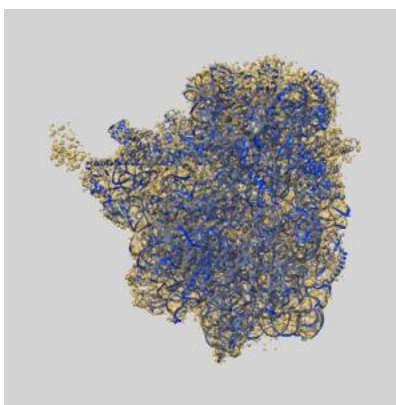
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-13435 and PDB model 7PIB. Per-residue inclusion information can be found in section [3](#) on page [15](#).

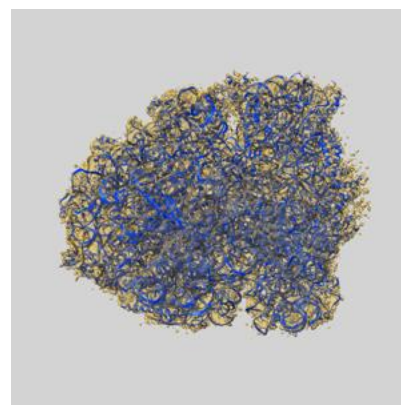
9.1 Map-model overlay [i](#)



X



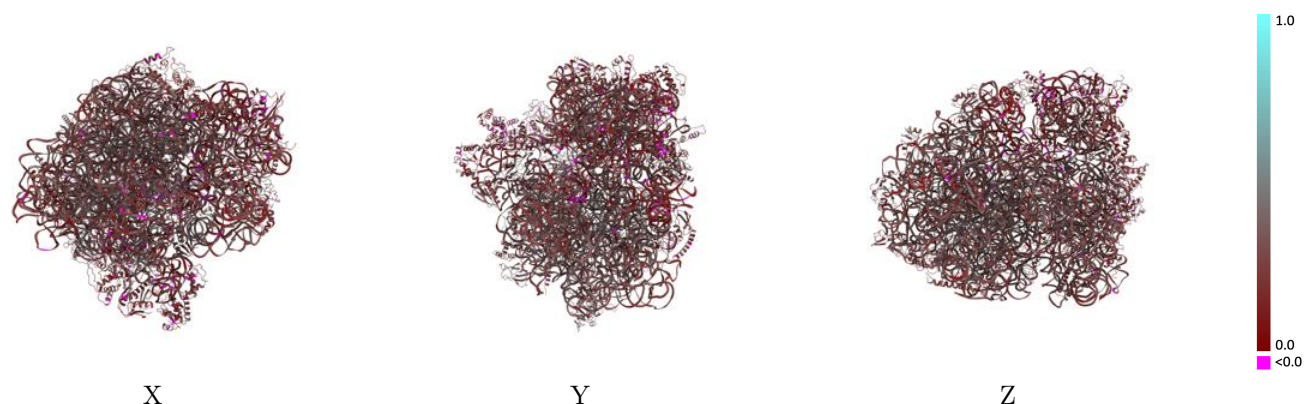
Y



Z

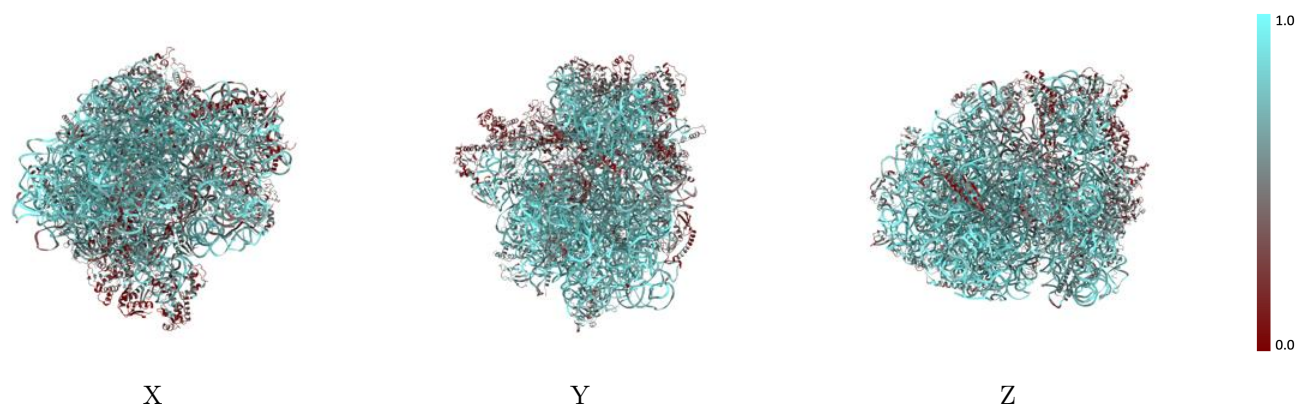
The images above show the 3D surface view of the map at the recommended contour level 0.66 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



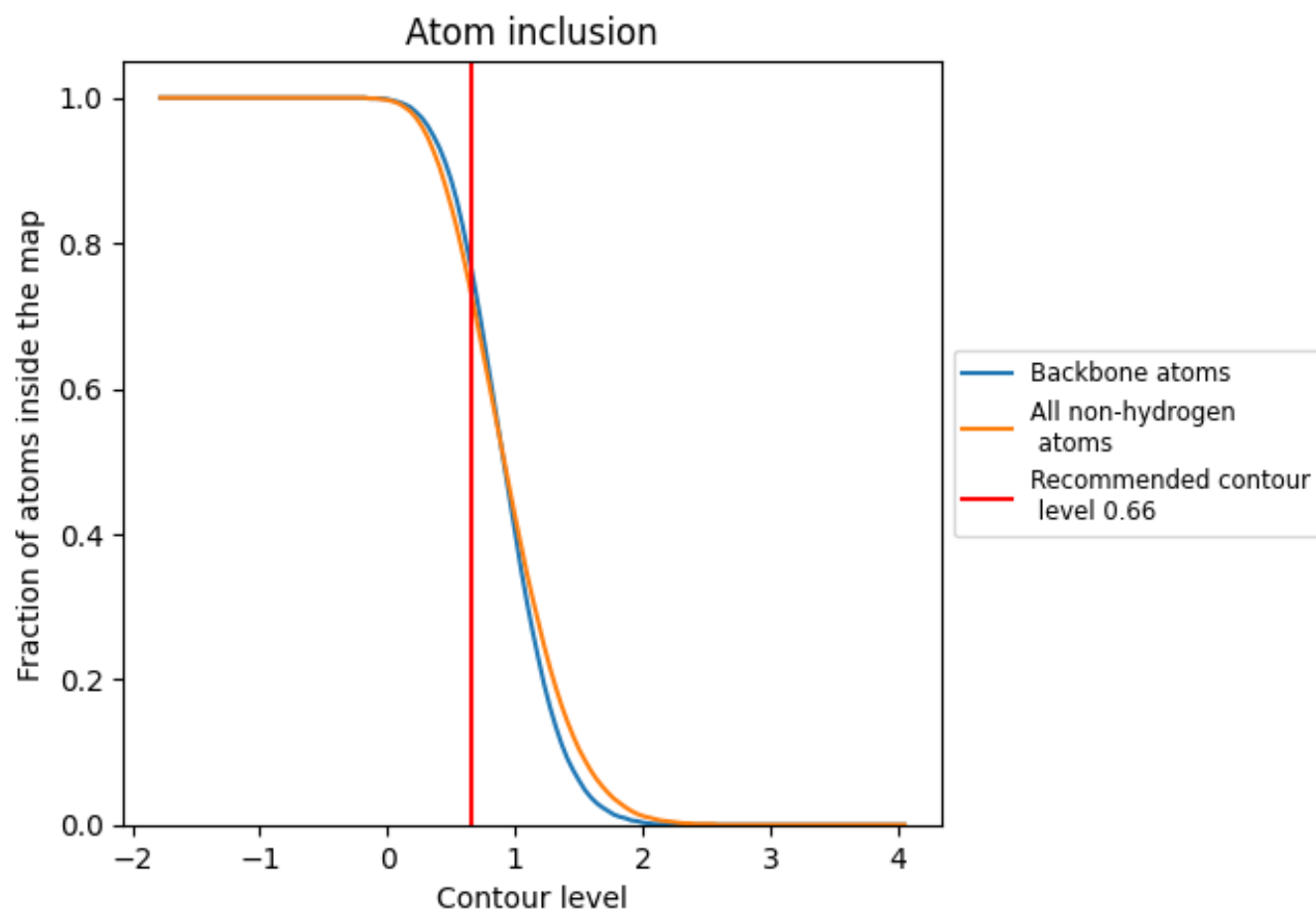
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.66).

9.4 Atom inclusion [i](#)



At the recommended contour level, 76% of all backbone atoms, 73% 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 (0.66) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7290	 0.2990
0	 0.7590	 0.3750
1	 0.6840	 0.3500
2	 0.6760	 0.3730
3	 0.8630	 0.3180
4	 0.8190	 0.2810
5	 0.8350	 0.2890
7	 0.5130	 0.0850
8	 0.6510	 0.1860
9	 0.3110	 0.2380
A	 0.4400	 0.2790
B	 0.4520	 0.2740
C	 0.4750	 0.2560
D	 0.5460	 0.3130
E	 0.4390	 0.2850
F	 0.2950	 0.2140
G	 0.5640	 0.3120
H	 0.3920	 0.2290
I	 0.4160	 0.2810
J	 0.5430	 0.3040
K	 0.6000	 0.3420
L	 0.3280	 0.2360
M	 0.6310	 0.3220
N	 0.5650	 0.2920
O	 0.6140	 0.3080
P	 0.5620	 0.3200
Q	 0.5580	 0.2790
R	 0.4340	 0.2350
S	 0.6070	 0.2650
T	 0.5220	 0.2980
W	 0.0890	 0.1830
a	 0.6820	 0.3520
b	 0.6410	 0.3530
c	 0.6000	 0.3380
d	 0.4750	 0.2760



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Chain	Atom inclusion	Q-score
e	 0.5180	 0.3160
f	 0.2330	 0.2220
g	 0.3070	 0.2330
h	 0.2710	 0.2180
i	 0.6710	 0.3440
j	 0.6130	 0.3560
k	 0.6130	 0.3390
l	 0.6520	 0.3370
m	 0.6740	 0.3290
n	 0.5570	 0.2990
o	 0.5820	 0.3270
p	 0.6900	 0.3270
q	 0.6270	 0.3590
r	 0.6510	 0.3320
s	 0.6600	 0.3580
t	 0.4530	 0.2900
u	 0.6550	 0.3440
v	 0.5980	 0.2990
w	 0.5740	 0.2760
x	 0.3440	 0.2400
y	 0.6310	 0.3190
z	 0.6470	 0.3470