



Full wwPDB EM Validation Report ⓘ

Mar 2, 2024 – 02:03 PM EST

PDB ID : 5UYQ
EMDB ID : EMD-8620
Title : 70S ribosome bound with near-cognate ternary complex base-paired to A site codon, closed 30S (Structure III-nc)
Authors : Loveland, A.B.; Demo, G.; Grigorieff, N.; Korostelev, A.A.
Deposited on : 2017-02-24
Resolution : 3.80 Å(reported)

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.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

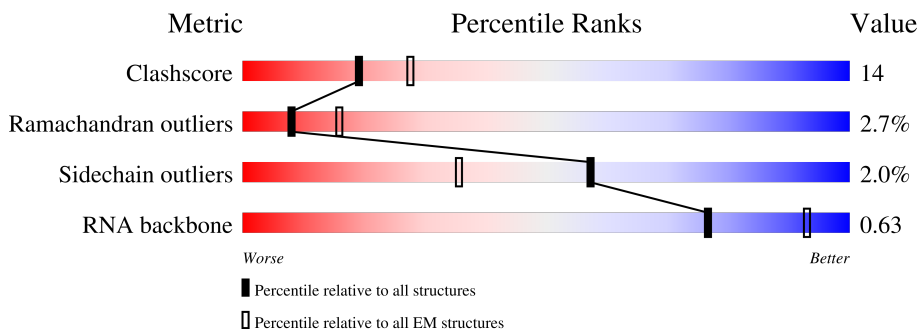
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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	04	271	
2	05	209	
3	06	201	
4	07	177	
5	08	176	
6	09	149	
7	10	131	





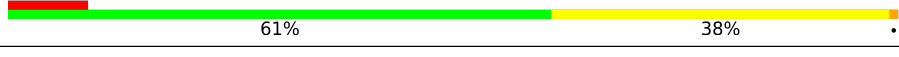



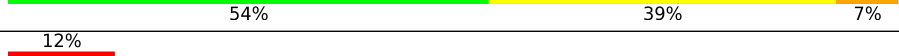
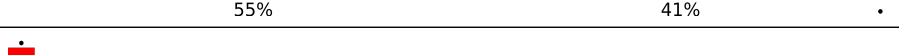
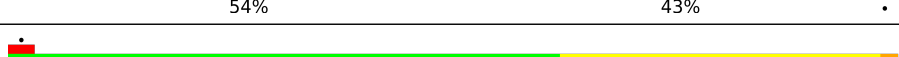
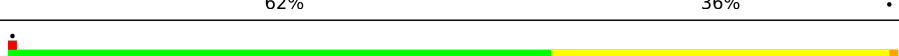


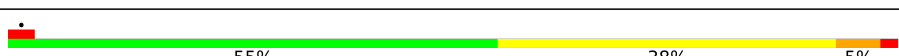



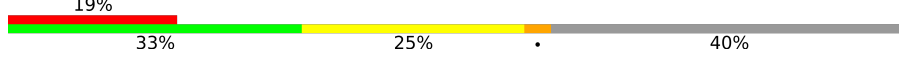




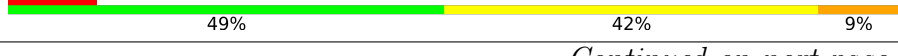

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Mol	Chain	Length	Quality of chain
8	11	141	
9	12	142	
10	13	122	
11	14	143	
12	15	136	
13	16	120	
14	17	116	
15	18	114	
16	19	117	
17	20	103	
18	21	110	
19	22	93	
20	23	102	
21	24	94	
22	25	75	
23	26	77	
24	27	63	
25	28	58	
26	29	66	
27	30	56	
28	31	50	
29	32	46	
30	33	64	
31	34	38	
32	B	218	

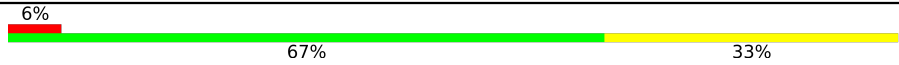


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Mol	Chain	Length	Quality of chain
33	C	206	
34	D	205	
35	E	157	
36	F	100	
37	G	151	
38	H	129	
39	I	127	
40	J	98	
41	K	116	
42	L	123	
43	M	114	
44	N	100	
45	O	88	
46	P	82	
47	Q	80	
48	R	65	
49	S	79	
50	T	85	
51	U	65	
52	03	223	
53	A	1539	
54	01	2903	
55	02	120	
56	W	77	
56	X	77	

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Mol	Chain	Length	Quality of chain
57	V	18	
58	Y	76	
59	Z	392	

2 Entry composition [i](#)

There are 63 unique types of molecules in this entry. The entry contains 153759 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 L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	04	271	2083	1288	423	365	7	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	05	209	1565	979	288	294	4	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	06	201	1552	974	283	290	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	07	177	1411	899	249	257	6	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	08	176	1323	832	243	246	2	0	0

- Molecule 6 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	09	149	1111	699	197	214	1	0	0

- Molecule 7 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	10	131	989	625	175	184	5	0	0

- Molecule 8 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	11	141	1032	651	179	196	6	0	0

- Molecule 9 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	12	142	1129	714	212	199	4	0	0

- Molecule 10 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	13	122	939	587	180	166	6	0	0

- Molecule 11 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	14	143	1045	649	206	189	1	0	0

- Molecule 12 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	15	136	1074	686	205	177	6	0	0

- Molecule 13 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	16	120	961	593	196	167	5	0	0

- Molecule 14 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	17	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 15 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	18	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 16 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	19	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 17 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	20	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 18 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	21	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 19 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	22	93	Total	C	N	O	S	0	0
			739	466	139	132	2		

- Molecule 20 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	23	102	Total	C	N	O	0	0
			780	492	146	142		

- Molecule 21 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	24	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 22 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	25	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

- Molecule 23 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	26	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 24 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	27	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- Molecule 25 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	28	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 26 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	29	66	Total	C	N	O	S	0	0
			523	323	99	95	6		

- Molecule 27 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	30	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 28 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	31	50	Total	C	N	O	0	0
			410	263	75	72		

- Molecule 29 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	32	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 30 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	33	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 31 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	34	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 32 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	B	218	Total	C	N	O	S	0	0
			1705	1081	305	312	7		

- Molecule 33 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	C	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

- Molecule 34 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	D	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 35 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	E	157	1157	719	218	214	6	0	0

- Molecule 36 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	F	100	818	515	148	149	6	0	0

- Molecule 37 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	G	151	1182	735	227	216	4	0	0

- Molecule 38 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	H	129	979	616	173	184	6	0	0

- Molecule 39 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	I	127	1022	634	206	179	3	0	0

- Molecule 40 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	J	98	787	493	150	143	1	0	0

- Molecule 41 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	K	116	870	535	173	159	3	0	0

- Molecule 42 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	L	123	955	590	196	165	4	0	0

- Molecule 43 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	M	114	884	546	178	157	3	0	0

- Molecule 44 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	N	100	805	499	164	139	3	0	0

- Molecule 45 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	O	88	714	439	144	130	1	0	0

- Molecule 46 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	P	82	649	406	128	114	1	0	0

- Molecule 47 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	Q	80	649	411	121	114	3	0	0

- Molecule 48 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	R	65	536	339	100	96	1	0	0

- Molecule 49 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	S	79	638	408	120	108	2	0	0

- Molecule 50 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	T	85	665	411	137	114	3	0	0

- Molecule 51 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	U	65	545	335	117	92	1	0	0

- Molecule 52 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	03	134	1027	645	186	194	2	0	0

- Molecule 53 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
53	A	1539	33012	14725	6052	10697	1538	0	0

- Molecule 54 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
54	01	2903	62317	27801	11468	20146	2902	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
01	747	C	U	conflict	GB 802133627

- Molecule 55 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
55	02	120	2568	1145	471	833	119	0	0

- Molecule 56 is a RNA chain called tRNAfMet.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
56	X	77	1640	732	297	535	76	0	0
56	W	77	1640	732	297	535	76	0	0

- Molecule 57 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
57	V	18	395	178	84	116	17	0	0

- Molecule 58 is a RNA chain called tRNA^{Lys}.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	N	O	P	S		
58	Y	76	1618	723	282	536	76	1	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	34	U8U	-	insertion	GB 558570689

- Molecule 59 is a protein called Elongation factor Tu 2.

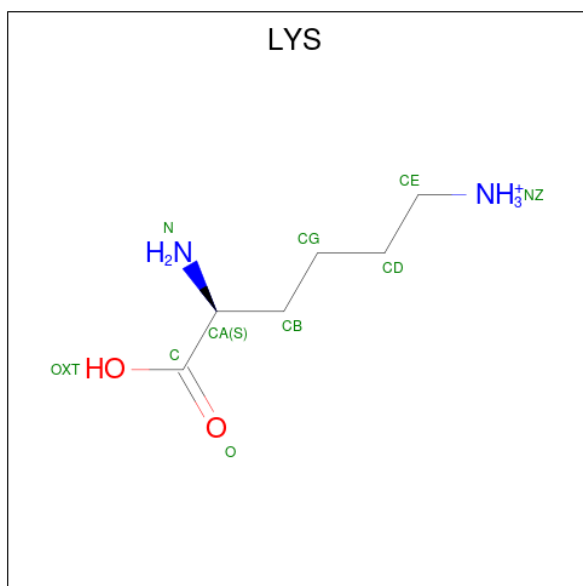
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	Z	392	3029	1915	521	580	13	0	0

- Molecule 60 is N-FORMYLMETHIONINE (three-letter code: FME) (formula: C₆H₁₁NO₃S).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
60	W	1	10	6	1	2	1	0

- Molecule 61 is LYSINE (three-letter code: LYS) (formula: $C_6H_{15}N_2O_2$).

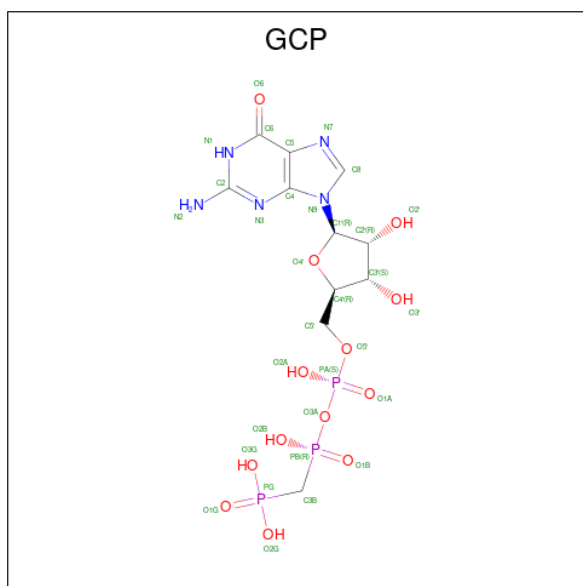


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
61	Y	1	9	6	2	1	0

- Molecule 62 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
62	Z	1	Total	Mg	0
			1	1	

- Molecule 63 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (three-letter code: GCP) (formula: $C_{11}H_{18}N_5O_{13}P_3$).

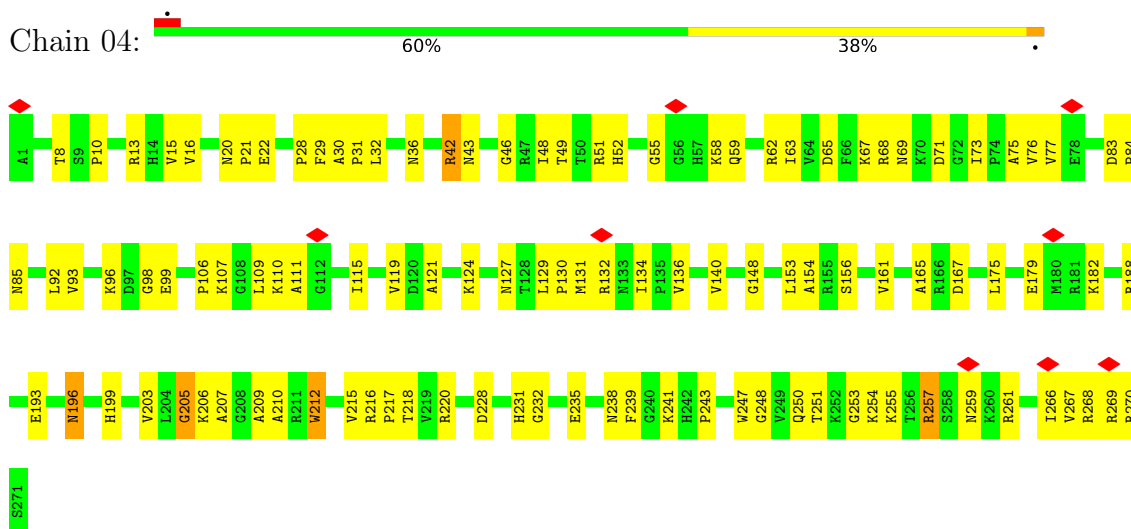


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
63	Z	1	32	11	5	13	3	0

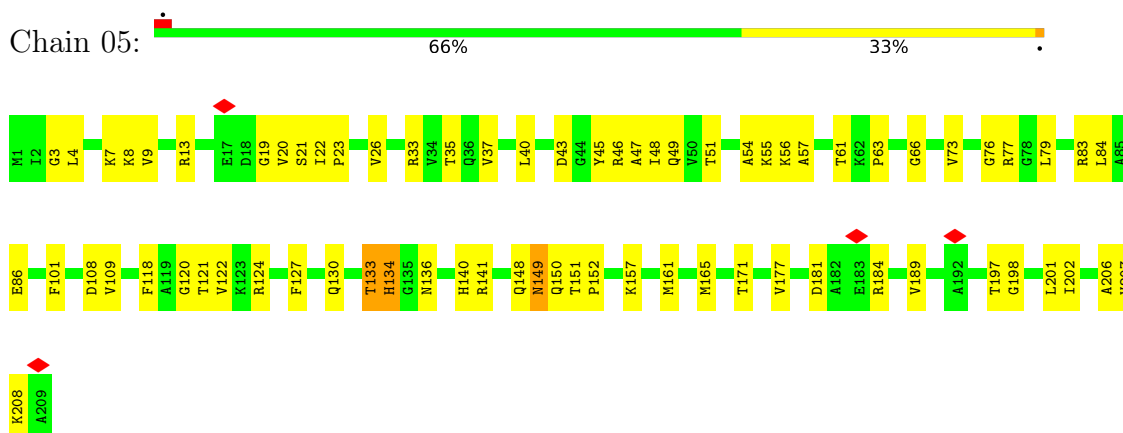
3 Residue-property plots

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

- Molecule 1: 50S ribosomal protein L2

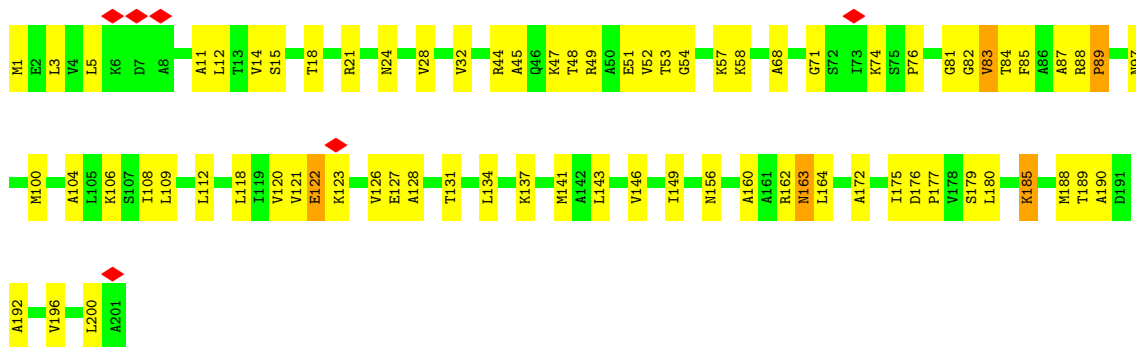


- Molecule 2: 50S ribosomal protein L3

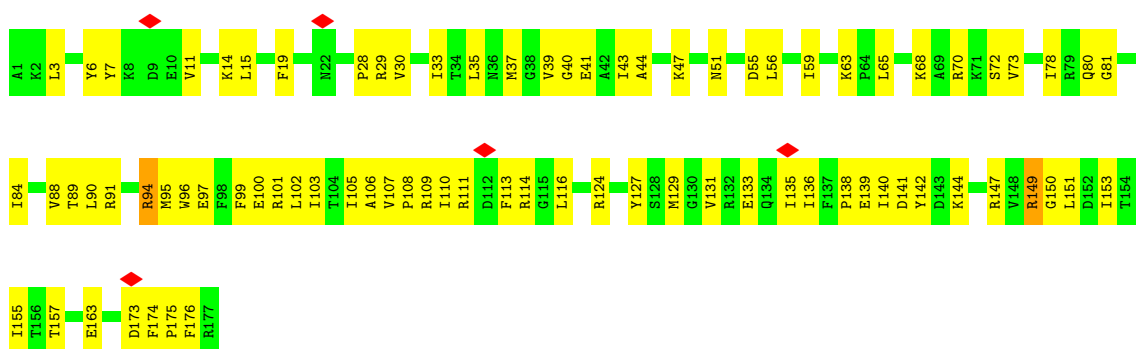


- Molecule 3: 50S ribosomal protein L4

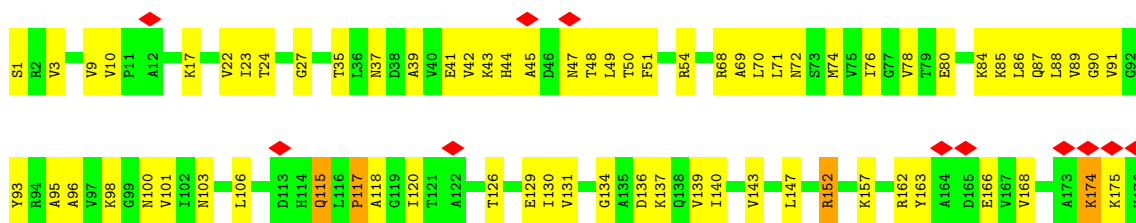




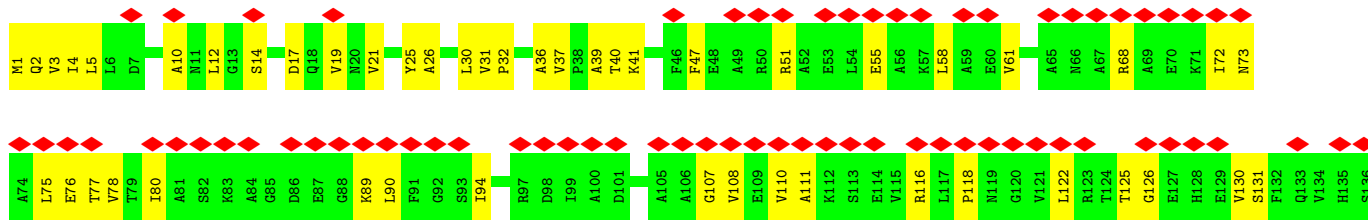
• Molecule 4: 50S ribosomal protein L5

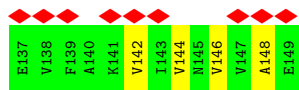


• Molecule 5: 50S ribosomal protein L6

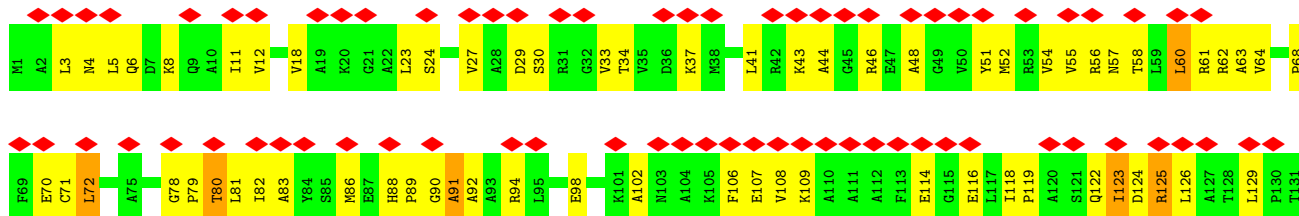


• Molecule 6: 50S ribosomal protein L9





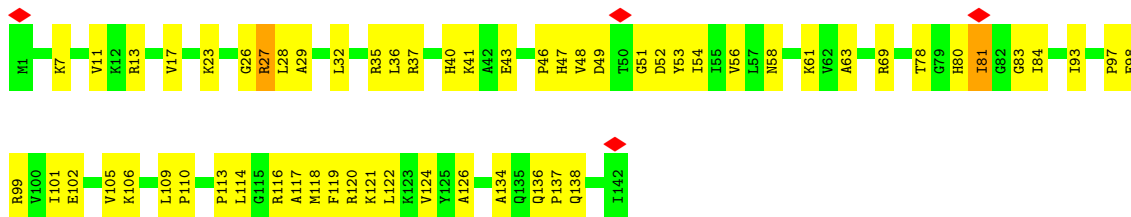
• Molecule 7: 50S ribosomal protein L10



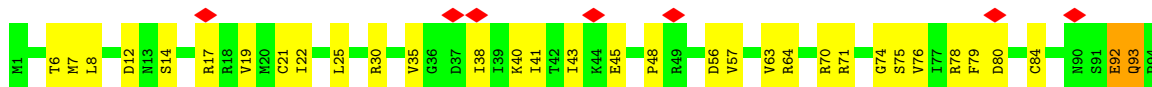
• Molecule 8: 50S ribosomal protein L11

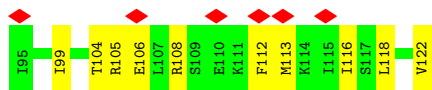


• Molecule 9: 50S ribosomal protein L13

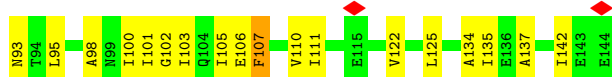


• Molecule 10: 50S ribosomal protein L14

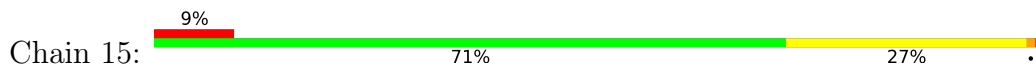




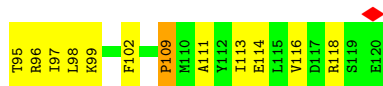
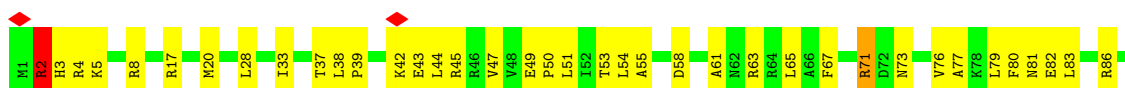
- Molecule 11: 50S ribosomal protein L15



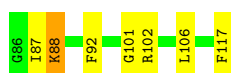
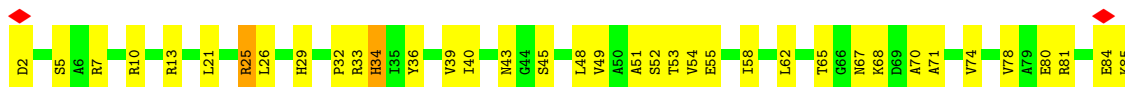
- Molecule 12: 50S ribosomal protein L16



- Molecule 13: 50S ribosomal protein L17

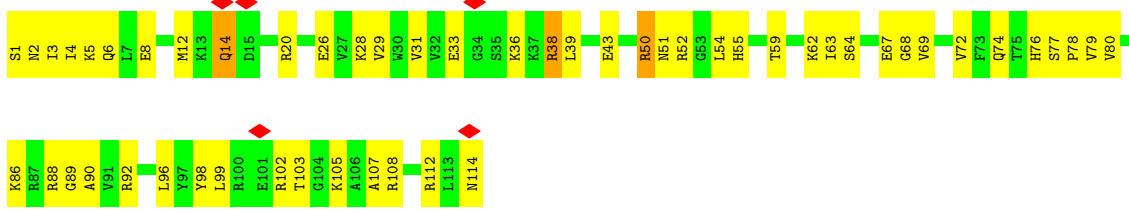


- Molecule 14: 50S ribosomal protein L18



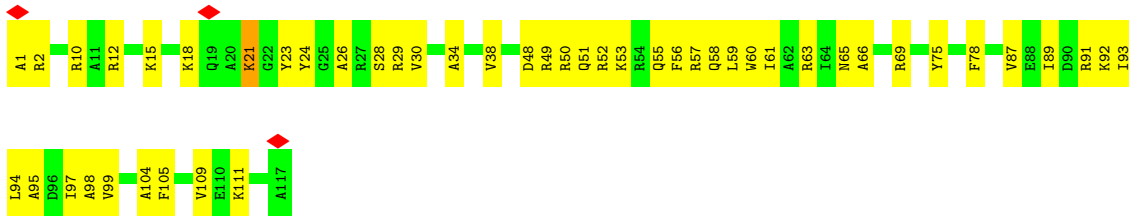
- Molecule 15: 50S ribosomal protein L19

Chain 18:  54% 44%



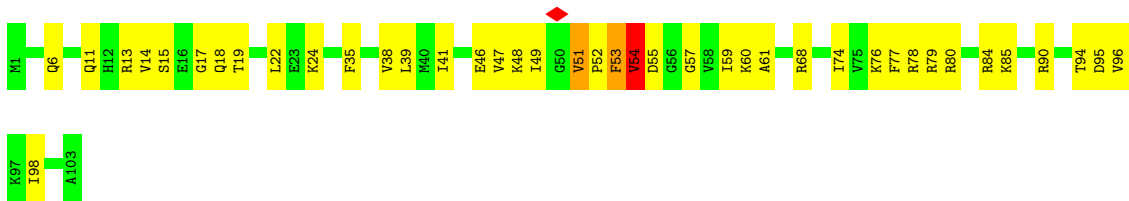
• Molecule 16: 50S ribosomal protein L20

Chain 19:  59% 40%



• Molecule 17: 50S ribosomal protein L21

Chain 20:  60% 37%



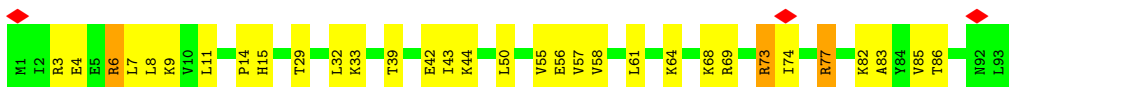
• Molecule 18: 50S ribosomal protein L22

Chain 21:  5% 58% 38%

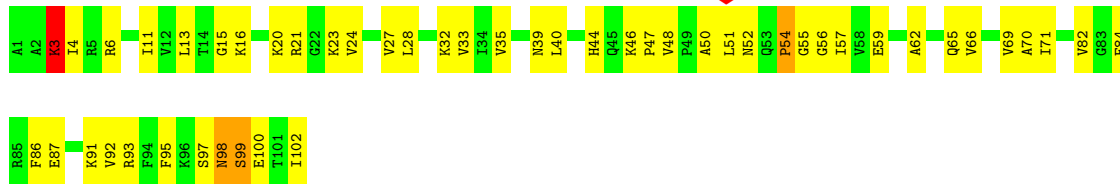


• Molecule 19: 50S ribosomal protein L23

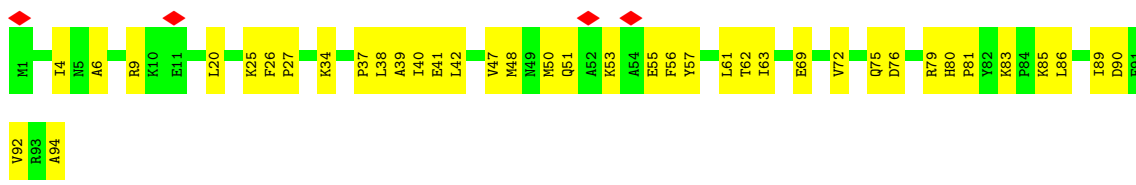
Chain 22:  66% 31%



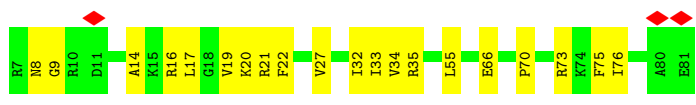
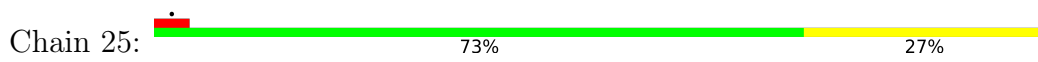
• Molecule 20: 50S ribosomal protein L24



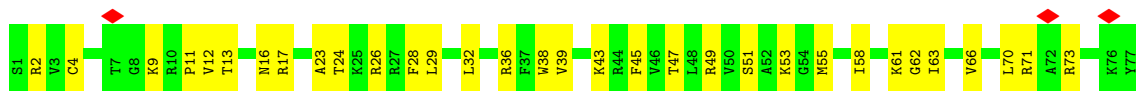
• Molecule 21: 50S ribosomal protein L25



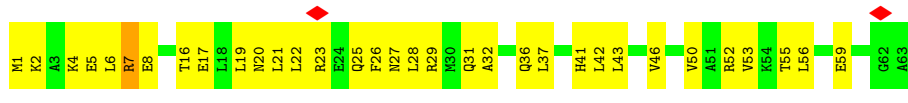
• Molecule 22: 50S ribosomal protein L27



• Molecule 23: 50S ribosomal protein L28



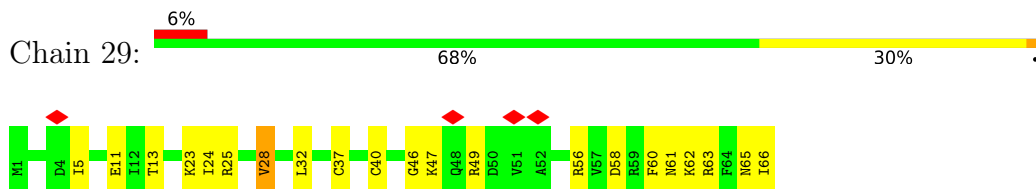
• Molecule 24: 50S ribosomal protein L29



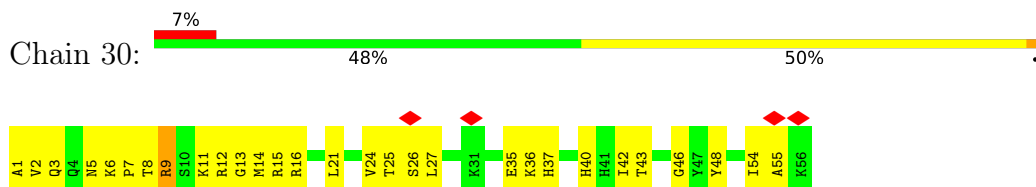
• Molecule 25: 50S ribosomal protein L30



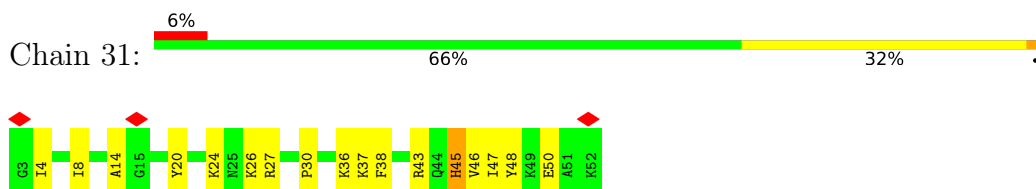
- Molecule 26: 50S ribosomal protein L31



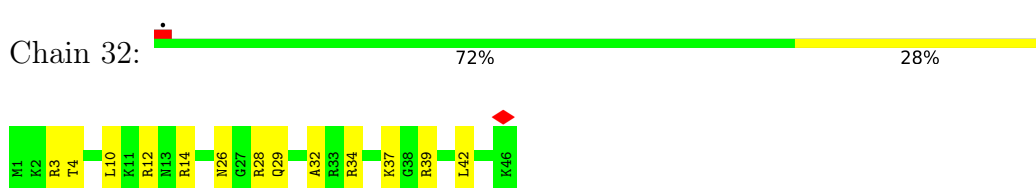
- Molecule 27: 50S ribosomal protein L32



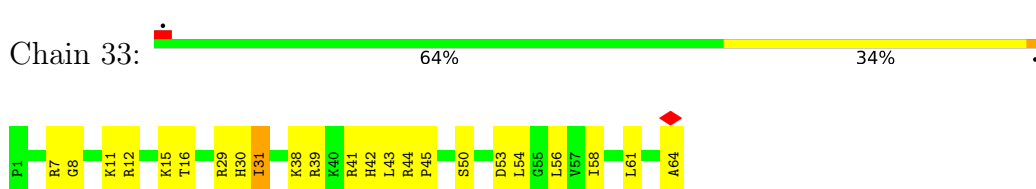
- Molecule 28: 50S ribosomal protein L33



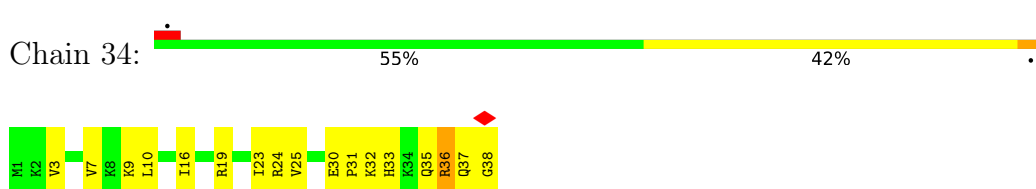
- Molecule 29: 50S ribosomal protein L34



- Molecule 30: 50S ribosomal protein L35

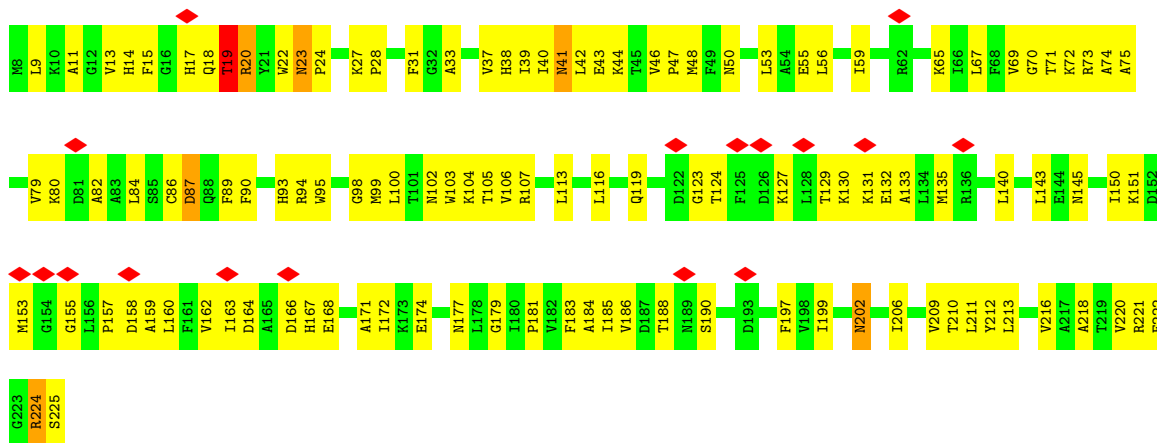


- Molecule 31: 50S ribosomal protein L36

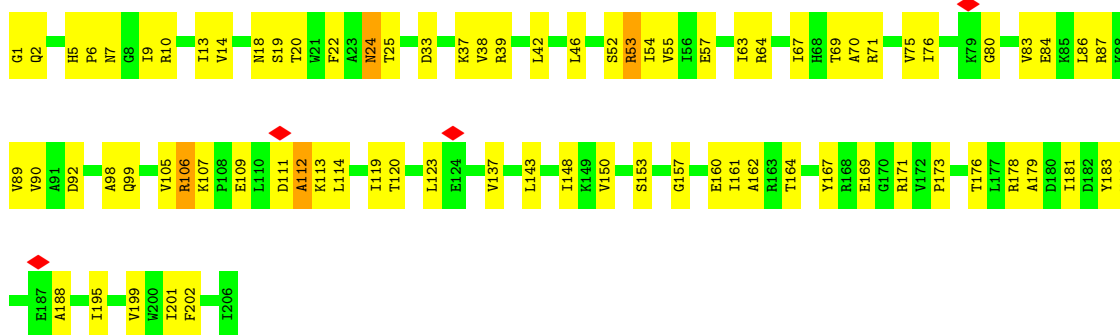


- Molecule 32: 30S ribosomal protein S2

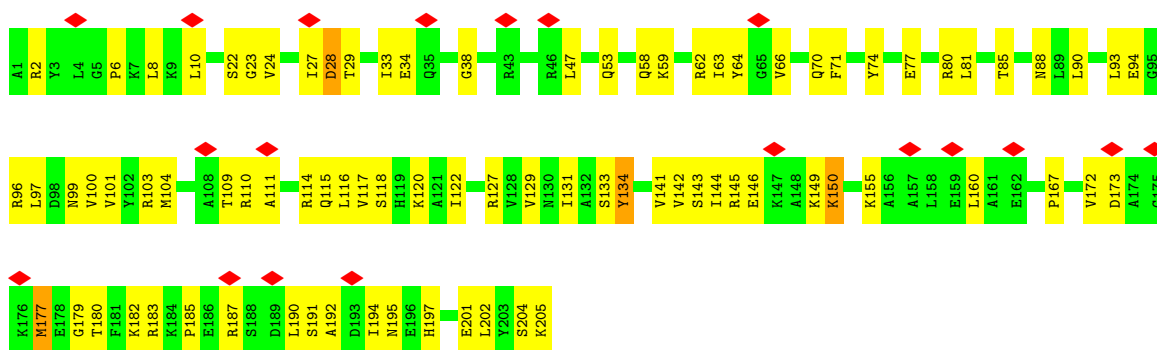




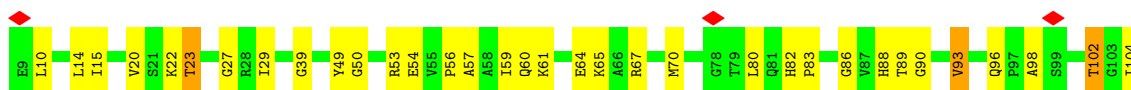
• Molecule 33: 30S ribosomal protein S3



• Molecule 34: 30S ribosomal protein S4

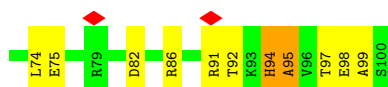
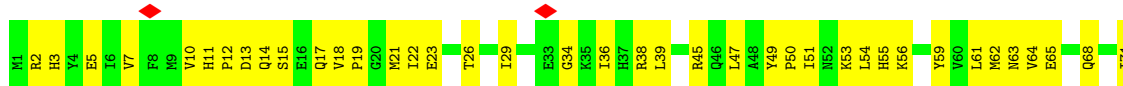


• Molecule 35: 30S ribosomal protein S5

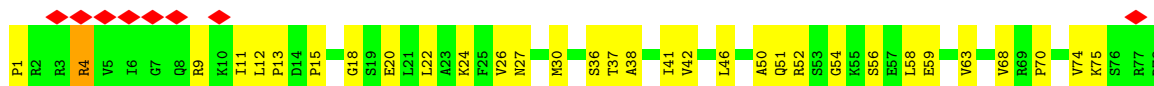




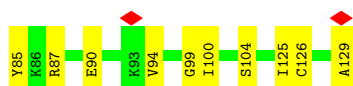
- Molecule 36: 30S ribosomal protein S6



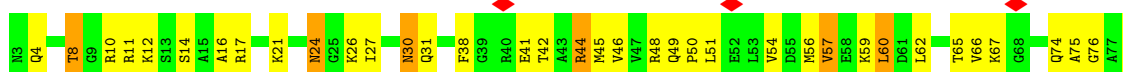
- Molecule 37: 30S ribosomal protein S7



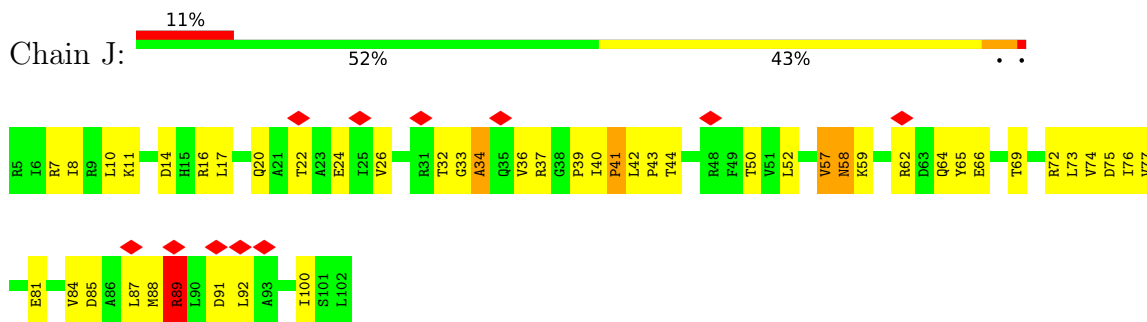
- Molecule 38: 30S ribosomal protein S8



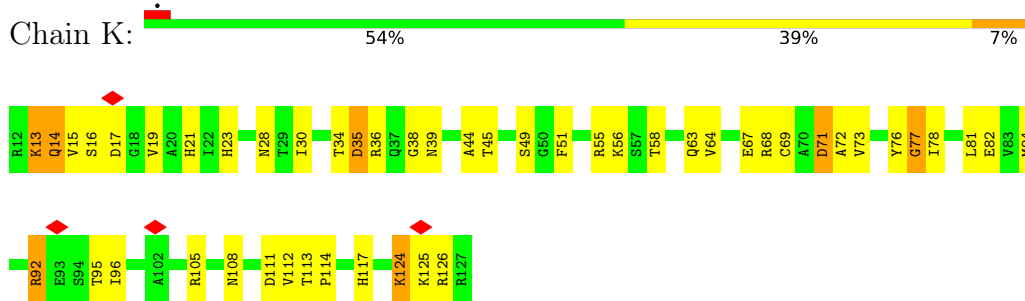
- Molecule 39: 30S ribosomal protein S9



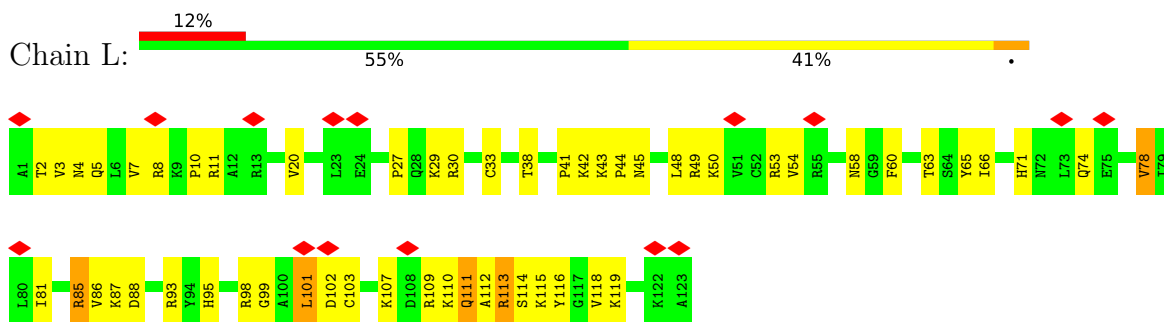
- Molecule 40: 30S ribosomal protein S10



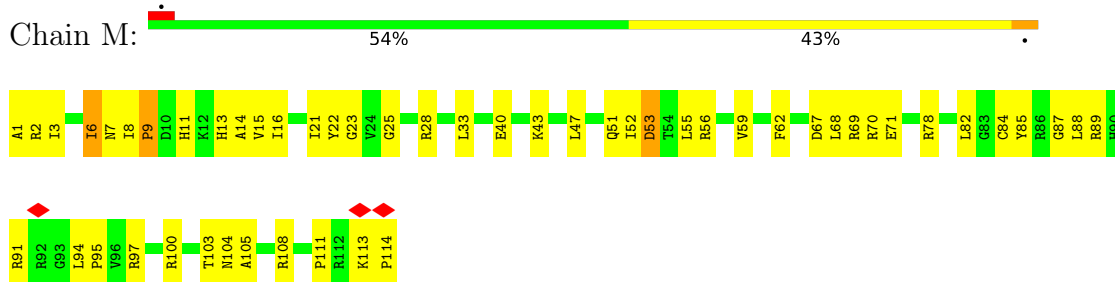
• Molecule 41: 30S ribosomal protein S11



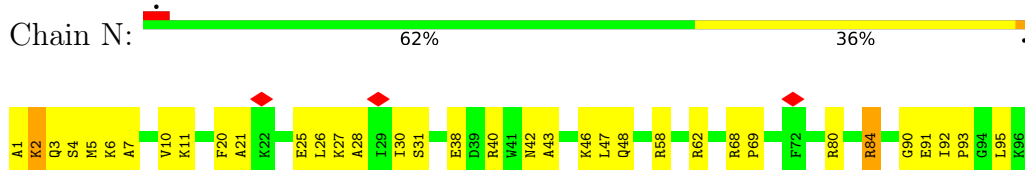
• Molecule 42: 30S ribosomal protein S12



• Molecule 43: 30S ribosomal protein S13



• Molecule 44: 30S ribosomal protein S14



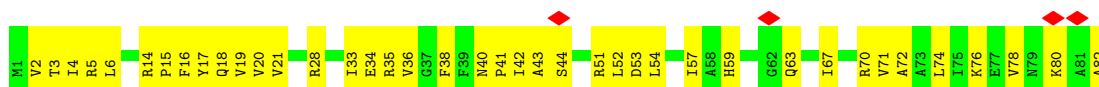
- Molecule 45: 30S ribosomal protein S15

Chain O: 



- Molecule 46: 30S ribosomal protein S16

Chain P: 



- Molecule 47: 30S ribosomal protein S17

Chain Q: 



- Molecule 48: 30S ribosomal protein S18

Chain R: 



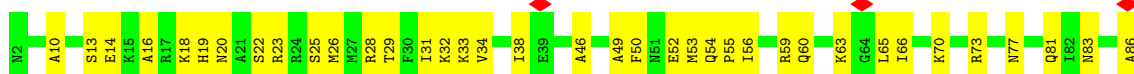
- Molecule 49: 30S ribosomal protein S19

Chain S: 

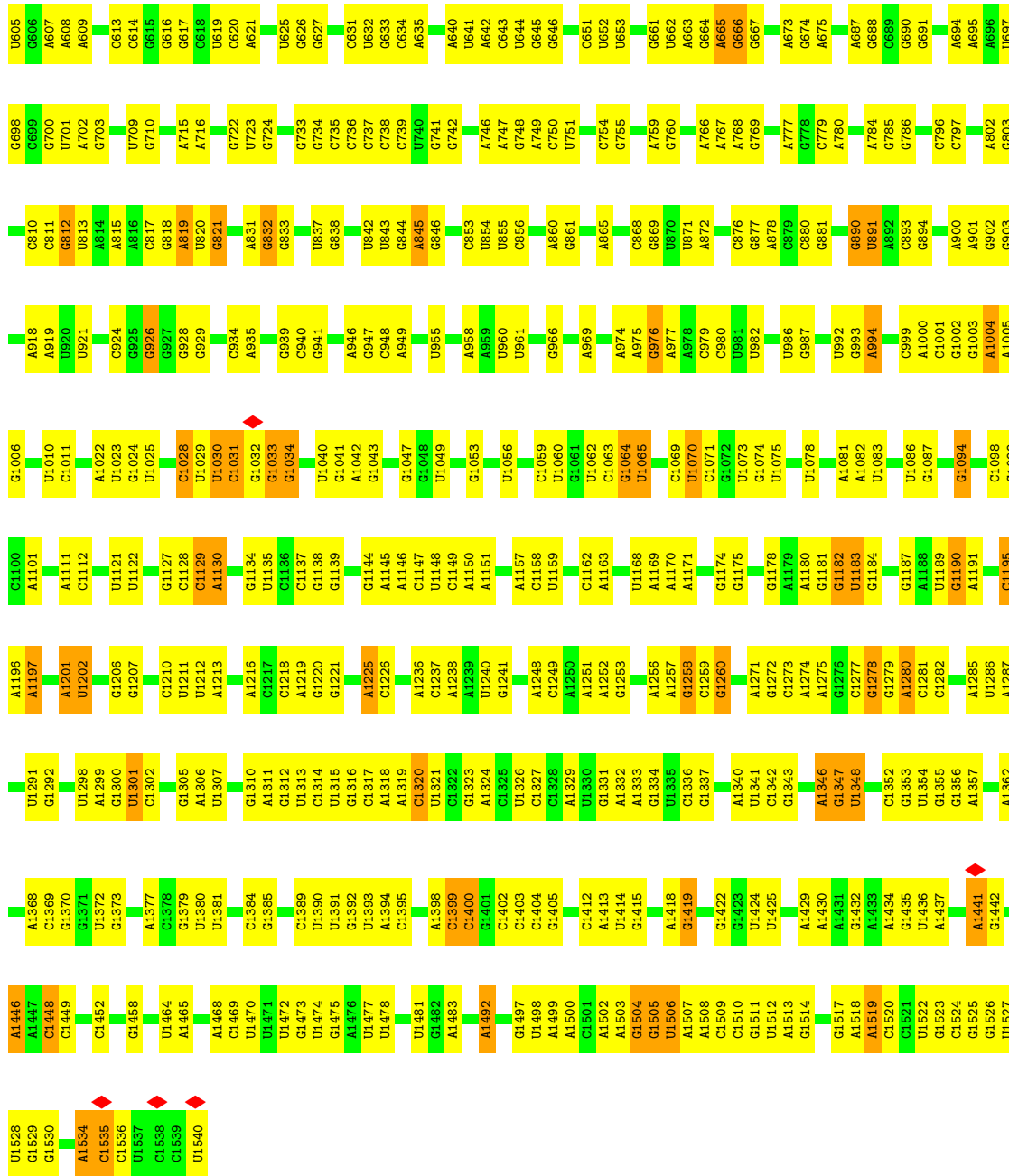


- Molecule 50: 30S ribosomal protein S20

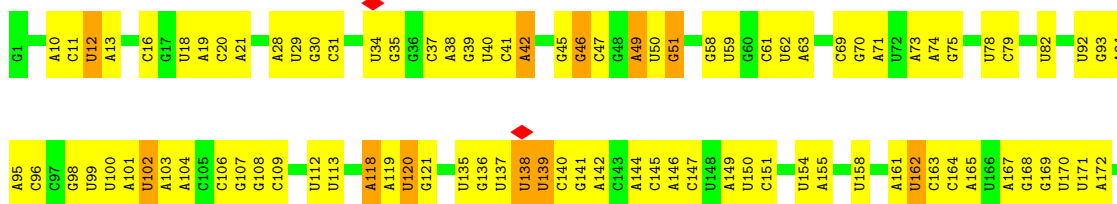
Chain T: 

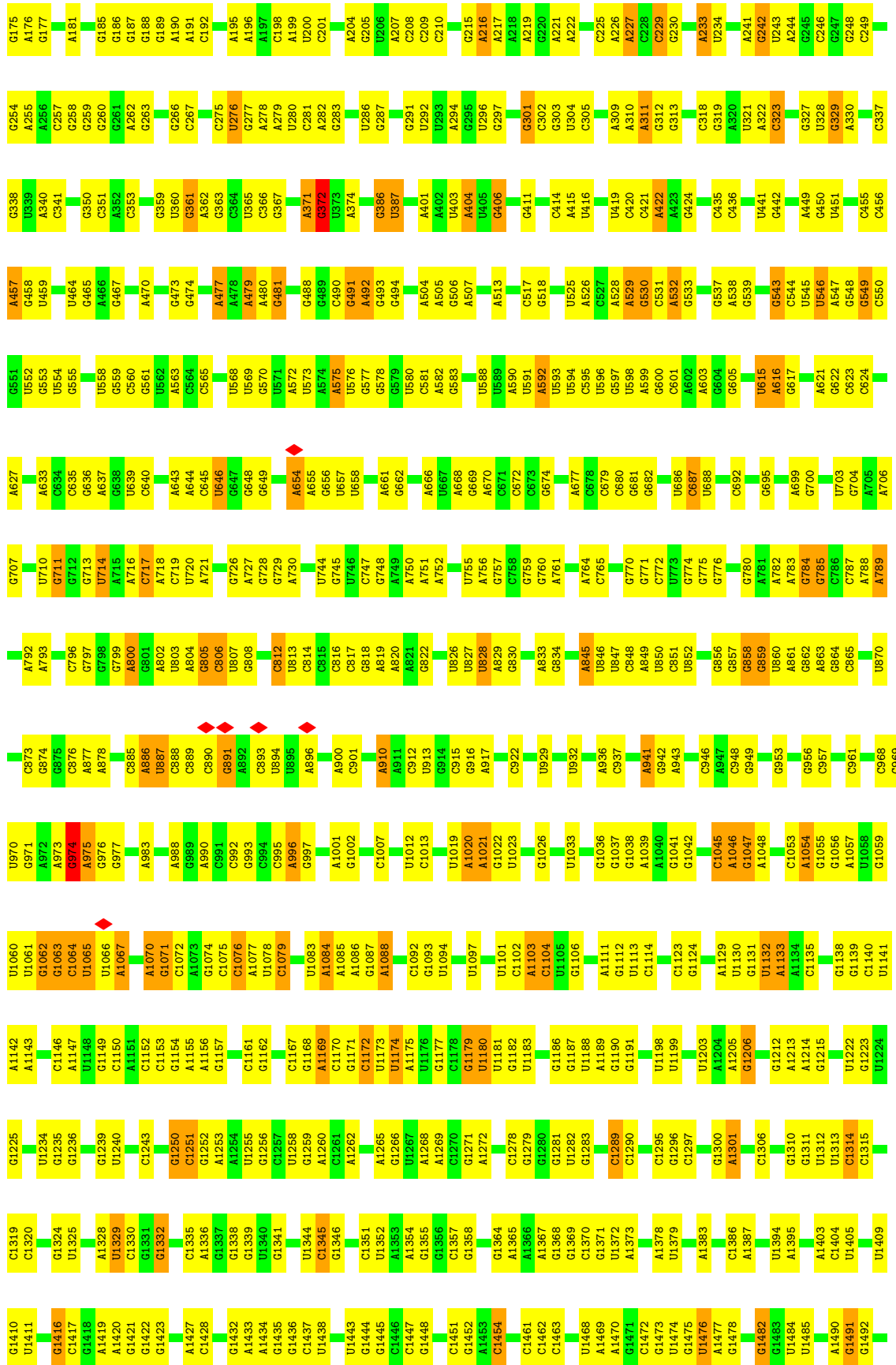


- Molecule 51: 30S ribosomal protein S21

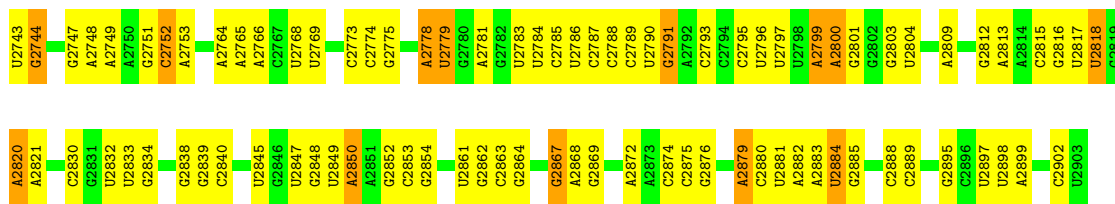


• Molecule 54: 23S ribosomal RNA

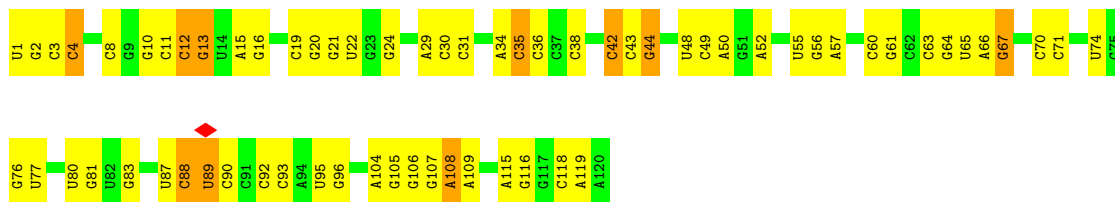




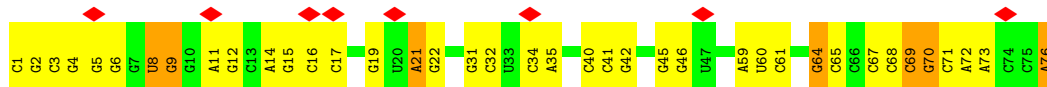
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U1578	A1579	A1580	G1581	G1587	A1589	A1591	C1592	A1593	A1594	G1595	A1596	A1603	C1606	C1607	A1608	A1609	A1610	C1611	A1616	A1626	G1627	A1634	A1635	A1636	C1638	A1641	G1642	G1645	C1646	U1647	U1648	G1651	A1652	A1653	A1654	C1655	U1657	C1658	G1659	G1660	C1661	A1662	A1663	A1664	A1665	U1667	A1668	A1669	A1670	A1671	A1672	A1673	A1674	A1675	A1676	A1677	A1678	A1679	A1680	A1681	A1682	A1689	A1690	U1693	C1694	C1695	G1696	G1697	A1698	G1699	A1700	A1701	G1702	G1703	C1704	A1705	A1706	A1707	A1708	A1709	G1710	U1714	G1715	U1716	A1717	A1722	G1723	G1724	U1725	U1726	C1727	C1728	U1729	C1730	C1731	C1732	U1736	G1737	G1738	A1744	A1745	A1746	U1747	A1748	A1749																																																																																																																																																																																																																																																																																																		
G1753	A1754	A1755	G1756	A1757	U1758	A1759	C1760	C1761	A1762	G1763	C1764	U1765	G1766	A1772	C1773	U1774	U1775	U1776	U1779	A1780	C1790	A1791	A1794	C1795	U1796	G1797	A1800	A1801	A1805	C1806	G1807	A1808	A1809	A1810	U1811	U1812	G1813	C1816	A1817	U1818	U1827	G1828	C1829	G1830	G1831	G1835	C1836	C1837	U1841	G1842	C1843	C1844	G1845	A1848	G1849	U1850	U1851	U1852	U1856	G1857	A1858	G1863	G1869	C1870	A1871	A1872	G1873	C1874	G1875	A1876	A1877	G1878	C1879	U1880	C1881	U1882	U1883	G1884	A1885	U1886	G1888	A1889	A1890	G1891	A1892	C1893	C1894	A1899	A1900	A1901	C1902	G1903	G1906	U1911	A1912	A1913	C1914	A1918	G1929	G1930	A1931	A1932	C1933	G1934	G1935	A1936	A1937	U1938	U1939	C1940	C1941	G1942	U1943	U1944	U1945	U1955	G1959	A1960	G1964	C1965	A1966	C1967	A1970	U1971	C1972	U1975	U1976	A1977	A1978	U1982	U1991	U1992	U1993	C1994	U1995	C1996	C1997	U1998	G2004	A2005	C2006	A2009	G2010	U2011	G2012	A2013	G2018	A2019																																																																																																																																																																																																																																																							
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• Molecule 55: 5S ribosomal RNA



• Molecule 56: tRNAfMet



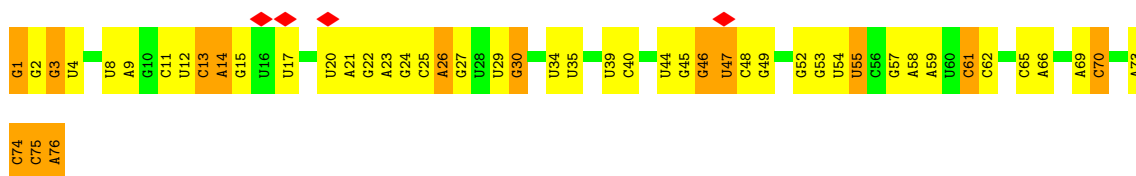
• Molecule 56: tRNAfMet



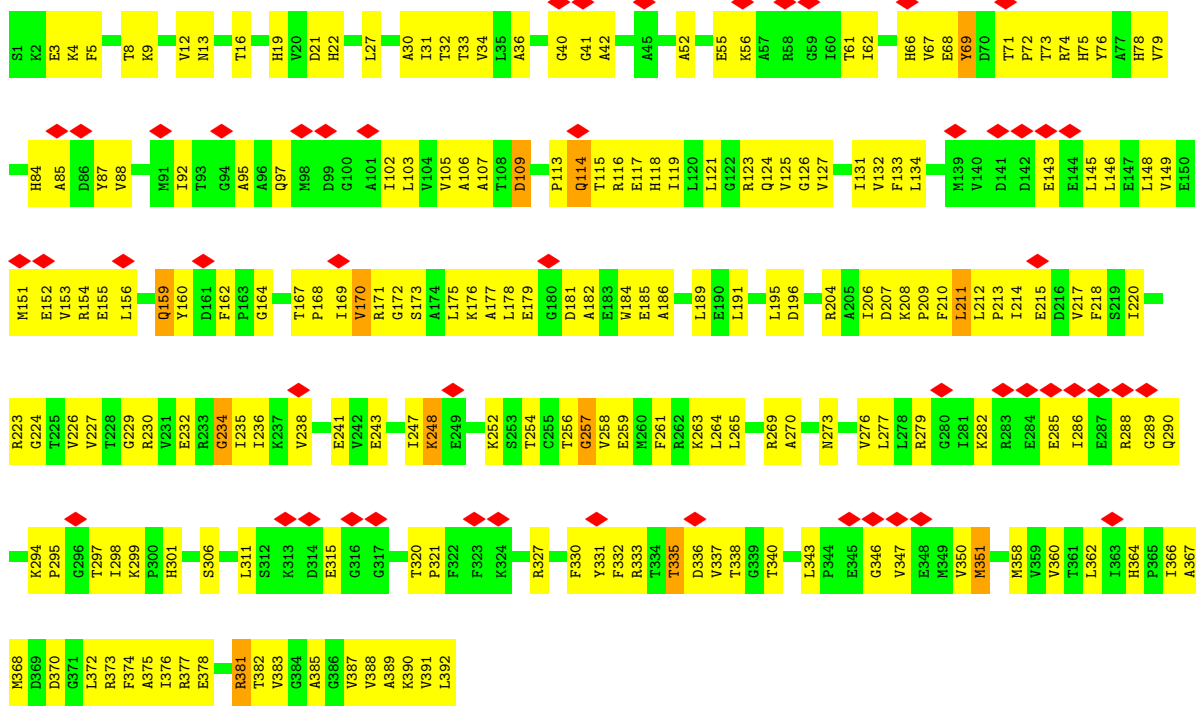
• Molecule 57: mRNA



• Molecule 58: tRNALys



• Molecule 59: Elongation factor Tu 2



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	5758	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTFFIND3 was used to determine CTF values. FREALIGN applied CTF correction.	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	1.0	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	60976	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	12.791	Depositor
Minimum map value	-6.406	Depositor
Average map value	-0.340	Depositor
Map value standard deviation	1.063	Depositor
Recommended contour level	2.85	Depositor
Map size (\AA)	393.6, 393.6, 393.6	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.82, 0.82, 0.82	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, FME, U8U, GCP

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	04	0.32	0/2122	0.59	0/2852
2	05	0.36	0/1586	0.59	0/2134
3	06	0.35	0/1571	0.57	0/2113
4	07	0.39	0/1435	0.54	0/1926
5	08	0.34	0/1343	0.59	0/1816
6	09	0.39	0/1122	0.61	0/1515
7	10	0.42	0/1002	0.66	0/1350
8	11	0.40	0/1046	0.65	0/1410
9	12	0.34	0/1152	0.55	0/1551
10	13	0.34	0/948	0.59	0/1268
11	14	0.35	0/1054	0.65	0/1403
12	15	0.38	0/1093	0.58	0/1460
13	16	0.36	0/974	0.58	0/1301
14	17	0.34	0/902	0.54	0/1209
15	18	0.35	0/929	0.58	0/1242
16	19	0.37	0/960	0.51	0/1278
17	20	0.39	0/829	0.62	0/1107
18	21	0.32	0/864	0.56	0/1156
19	22	0.34	0/745	0.57	0/994
20	23	0.38	0/788	0.59	0/1051
21	24	0.38	0/766	0.58	0/1025
22	25	0.39	0/582	0.56	0/769
23	26	0.34	0/635	0.54	0/848
24	27	0.32	0/510	0.55	0/677
25	28	0.33	0/453	0.53	0/605
26	29	0.41	0/532	0.57	0/709
27	30	0.31	0/450	0.52	0/599
28	31	0.40	0/417	0.54	0/554
29	32	0.39	0/380	0.53	0/498
30	33	0.34	0/513	0.60	0/676
31	34	0.30	0/303	0.59	0/397
32	B	0.38	0/1736	0.62	0/2338

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	C	0.35	0/1652	0.54	0/2225
34	D	0.36	0/1665	0.59	0/2227
35	E	0.36	0/1170	0.59	0/1573
36	F	0.36	0/836	0.60	0/1128
37	G	0.35	0/1196	0.55	0/1602
38	H	0.35	0/989	0.57	0/1326
39	I	0.36	0/1034	0.63	1/1375 (0.1%)
40	J	0.34	0/797	0.61	0/1077
41	K	0.36	0/886	0.59	0/1195
42	L	0.33	0/969	0.62	0/1300
43	M	0.31	0/893	0.63	0/1193
44	N	0.35	0/817	0.57	0/1088
45	O	0.35	0/722	0.57	0/964
46	P	0.37	0/659	0.60	0/884
47	Q	0.36	0/658	0.64	0/881
48	R	0.40	0/545	0.70	1/731 (0.1%)
49	S	0.39	0/653	0.55	0/877
50	T	0.34	0/671	0.48	0/888
51	U	0.41	0/551	0.64	0/728
52	03	0.40	0/1034	0.69	0/1387
53	A	0.36	0/36963	0.69	4/57662 (0.0%)
54	01	0.37	0/69796	0.68	8/108888 (0.0%)
55	02	0.36	0/2872	0.68	0/4479
56	W	0.38	0/1832	0.69	0/2855
56	X	0.44	0/1832	0.73	1/2855 (0.0%)
57	V	0.40	0/446	0.67	0/696
58	Y	0.47	1/1780 (0.1%)	0.72	0/2767
59	Z	0.38	0/3085	0.65	0/4173
All	All	0.37	1/166745 (0.0%)	0.66	15/248855 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	Y	1	G	OP3-P	-6.99	1.52	1.61

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	A	246	A	C2'-C3'-O3'	8.00	127.11	109.50
56	X	69	C	N1-C1'-C2'	6.77	122.80	114.00
53	A	1301	U	N1-C1'-C2'	6.05	121.86	114.00
54	01	2326	C	C2'-C3'-O3'	5.39	122.33	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
39	I	90	ASP	N-CA-C	5.33	125.41	111.00
53	A	413	G	N9-C1'-C2'	5.32	120.92	114.00
54	01	2867	G	N9-C1'-C2'	5.26	120.84	114.00
54	01	1818	U	N1-C1'-C2'	5.25	120.82	114.00
54	01	372	G	C1'-O4'-C4'	-5.24	105.71	109.90
53	A	246	A	C4'-C3'-C2'	5.23	107.83	102.60
54	01	301	G	N9-C1'-C2'	5.21	120.78	114.00
54	01	1730	C	N1-C1'-C2'	5.20	120.77	114.00
48	R	13	THR	N-CA-C	5.17	124.96	111.00
54	01	477	A	N9-C1'-C2'	5.02	120.53	114.00
54	01	974	G	N9-C1'-C2'	5.02	120.53	114.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	04	2083	0	2157	86	0
2	05	1565	0	1616	64	0
3	06	1552	0	1619	57	0
4	07	1411	0	1447	70	0
5	08	1323	0	1374	47	0
6	09	1111	0	1148	33	0
7	10	989	0	1025	59	0
8	11	1032	0	1088	69	0
9	12	1129	0	1162	51	0
10	13	939	0	1012	35	0
11	14	1045	0	1117	53	0
12	15	1074	0	1157	34	0
13	16	961	0	1000	44	0
14	17	892	0	923	38	0
15	18	917	0	965	54	0
16	19	947	0	1022	43	0
17	20	816	0	839	36	0
18	21	857	0	922	38	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	22	739	0	807	30	0
20	23	780	0	834	33	0
21	24	753	0	780	31	0
22	25	575	0	592	18	0
23	26	625	0	655	24	0
24	27	509	0	543	27	0
25	28	449	0	491	14	0
26	29	523	0	524	18	0
27	30	444	0	461	23	0
28	31	410	0	440	14	0
29	32	377	0	418	14	0
30	33	504	0	574	19	0
31	34	302	0	343	15	0
32	B	1705	0	1732	89	0
33	C	1625	0	1699	66	0
34	D	1643	0	1710	72	0
35	E	1157	0	1199	47	0
36	F	818	0	808	43	0
37	G	1182	0	1240	41	0
38	H	979	0	1034	36	0
39	I	1022	0	1070	62	0
40	J	787	0	828	38	0
41	K	870	0	878	48	0
42	L	955	0	1019	55	0
43	M	884	0	944	49	0
44	N	805	0	847	42	0
45	O	714	0	737	25	0
46	P	649	0	666	36	0
47	Q	649	0	691	37	0
48	R	536	0	552	25	0
49	S	638	0	665	38	0
50	T	665	0	714	34	0
51	U	545	0	579	34	0
52	03	1027	0	1092	50	0
53	A	33012	0	16618	559	0
54	01	62317	0	31346	1043	0
55	02	2568	0	1303	56	0
56	W	1640	0	836	18	0
56	X	1640	0	837	35	0
57	V	395	0	198	5	0
58	Y	1618	0	820	44	0
59	Z	3029	0	3043	171	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
60	W	10	0	10	0	0
61	Y	9	0	12	1	0
62	Z	1	0	0	0	0
63	Z	32	0	14	3	0
All	All	153759	0	104796	3661	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 (3661) 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)
54:01:45:G:H5''	54:01:46:G:H5'	1.41	1.03
58:Y:13:C:H2'	58:Y:14:A:H5''	1.39	1.00
12:15:45:GLN:HE21	54:01:2485:G:H5''	1.30	0.96
59:Z:88:VAL:HG11	59:Z:121:LEU:HD13	1.45	0.96
42:L:33:CYS:H	42:L:54:VAL:HG13	1.32	0.95
54:01:783:A:H2'	54:01:784:G:H4'	1.49	0.92
47:Q:45:VAL:HG21	47:Q:60:ILE:HD13	1.51	0.91
1:04:67:LYS:HE3	1:04:148:GLY:HA2	1.51	0.91
7:10:56:ARG:HE	7:10:83:ALA:HB2	1.36	0.91
56:X:68:C:H2'	56:X:69:C:H4'	1.51	0.91
47:Q:46:HIS:HB2	47:Q:70:LYS:HD3	1.52	0.91
52:03:220:ALA:HA	54:01:2176:A:H5'	1.52	0.90
33:C:76:ILE:HB	33:C:80:GLY:HA2	1.53	0.90
11:14:33:ARG:HD3	11:14:40:SER:HA	1.54	0.89
54:01:1103:A:H3'	54:01:1104:C:H5''	1.51	0.89
1:04:20:ASN:HD21	1:04:22:GLU:HB2	1.38	0.89
13:16:37:THR:HG22	13:16:39:PRO:HD2	1.53	0.88
54:01:886:A:H2'	54:01:887:U:H5''	1.53	0.88
58:Y:46:G:H3'	58:Y:47:U:H4'	1.55	0.88
34:D:144:ILE:HD13	34:D:177:MET:HB3	1.55	0.87
53:A:1029:U:H2'	53:A:1031:C:H1'	1.56	0.87
3:06:126:VAL:HG13	3:06:127:GLU:H	1.39	0.87
37:G:111:GLY:HA2	37:G:118:ARG:HD3	1.55	0.87
11:14:111:ILE:H	11:14:111:ILE:HD12	1.38	0.87
36:F:29:ILE:HG22	36:F:34:GLY:HA3	1.55	0.87
52:03:4:LEU:HD21	52:03:12:ARG:HH11	1.40	0.87
52:03:163:TYR:HB2	52:03:171:ILE:HD11	1.57	0.87
20:23:28:LEU:HD12	20:23:32:LYS:HB2	1.58	0.86
53:A:1259:C:H3'	53:A:1260:G:H5''	1.57	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:18:88:ARG:HG2	15:18:112:ARG:HD3	1.55	0.86
17:20:15:SER:H	17:20:18:GLN:HE21	1.19	0.86
42:L:88:ASP:HB2	53:A:523:A:N1	1.91	0.85
53:A:206:C:H2'	53:A:207:C:H5'	1.58	0.85
13:16:45:ARG:HD3	13:16:97:ILE:HD11	1.58	0.85
53:A:405:U:H3'	53:A:406:G:H5'	1.59	0.85
59:Z:282:LYS:HB2	59:Z:285:GLU:HG3	1.59	0.85
54:01:2277:G:H2'	54:01:2278:A:H5''	1.55	0.85
51:U:16:ARG:HH21	51:U:19:LYS:HE2	1.41	0.85
4:07:114:ARG:HH11	43:M:70:ARG:HH11	1.22	0.85
16:19:65:ASN:HD21	16:19:69:ARG:HE	1.21	0.85
34:D:120:LYS:HE3	53:A:439:U:H5''	1.60	0.84
43:M:6:ILE:HD12	43:M:7:ASN:H	1.41	0.84
46:P:20:VAL:HG22	46:P:21:VAL:H	1.41	0.84
9:12:27:ARG:HH22	54:01:1142:A:H4'	1.41	0.84
40:J:40:ILE:HB	40:J:73:LEU:HB2	1.58	0.83
53:A:769:G:H4'	53:A:1513:A:H4'	1.58	0.83
59:Z:154:ARG:HH12	59:Z:167:THR:H	1.26	0.83
20:23:33:VAL:HG13	20:23:66:VAL:HG22	1.61	0.83
59:Z:321:PRO:HB3	59:Z:351:MET:HA	1.60	0.83
36:F:98:GLU:HG3	36:F:99:ALA:H	1.44	0.82
47:Q:12:VAL:HB	47:Q:21:VAL:HG13	1.59	0.82
35:E:80:LEU:HD13	35:E:122:VAL:HG11	1.61	0.82
32:B:75:ALA:HB1	32:B:163:ILE:HD13	1.62	0.82
3:06:128:ALA:HA	3:06:156:ASN:HD22	1.45	0.82
7:10:30:SER:HB3	7:10:109:LYS:HD2	1.61	0.82
23:26:24:THR:HG21	54:01:2081:U:H4'	1.62	0.82
58:Y:73:A:H2'	58:Y:74:C:H4'	1.60	0.82
19:22:61:LEU:HB3	54:01:1341:G:H5'	1.61	0.81
53:A:1475:G:H4'	54:01:1689:A:H4'	1.61	0.81
18:21:82:MET:HB2	18:21:98:LYS:HB2	1.61	0.81
54:01:1664:A:H61	54:01:1996:C:H42	1.29	0.81
8:11:33:ASN:ND2	8:11:35:MET:HB3	1.96	0.81
19:22:8:LEU:HD13	24:27:21:LEU:HB3	1.61	0.80
52:03:40:GLU:HB2	52:03:217:THR:HB	1.60	0.80
39:I:83:THR:HG21	39:I:102:PHE:HB3	1.64	0.80
54:01:1053:C:H2'	54:01:1054:A:H5''	1.61	0.80
36:F:29:ILE:HD13	36:F:64:VAL:HG11	1.62	0.80
8:11:96:LYS:HD3	8:11:138:VAL:HG21	1.64	0.80
13:16:8:ARG:HD2	13:16:43:GLU:HB2	1.64	0.80
54:01:2553:G:H3'	54:01:2554:U:H5''	1.63	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:12:49:ASP:HB2	9:12:114:LEU:HD11	1.64	0.80
40:J:14:ASP:HB3	40:J:17:LEU:HB3	1.63	0.79
46:P:6:LEU:HD22	46:P:17:TYR:HB3	1.64	0.79
44:N:92:ILE:H	44:N:92:ILE:HD12	1.46	0.79
12:15:74:THR:HG22	12:15:89:VAL:HA	1.63	0.79
36:F:86:ARG:HD3	53:A:673:A:H4'	1.63	0.79
8:11:33:ASN:HB2	8:11:64:ARG:HH12	1.47	0.79
44:N:2:LYS:HD2	53:A:1049:U:H2'	1.65	0.79
51:U:25:ALA:HA	51:U:28:LEU:HB3	1.65	0.79
12:15:12:MET:HA	54:01:910:A:H62	1.47	0.79
43:M:25:GLY:H	53:A:1329:A:H5''	1.47	0.79
18:21:69:LEU:HG	18:21:107:VAL:HG22	1.65	0.79
51:U:24:LYS:HG2	51:U:25:ALA:H	1.47	0.79
59:Z:238:VAL:HG22	59:Z:257:GLY:H	1.47	0.79
14:17:33:ARG:HB2	55:02:52:A:H62	1.46	0.78
11:14:62:PRO:HB2	30:33:29:ARG:HH11	1.48	0.78
53:A:50:A:H4'	53:A:51:A:H5'	1.65	0.78
33:C:109:GLU:HB2	33:C:143:LEU:HD13	1.64	0.78
54:01:886:A:C2'	54:01:887:U:H5''	2.13	0.78
3:06:146:VAL:HG12	3:06:185:LYS:HB2	1.65	0.77
41:K:44:ALA:HB3	41:K:69:CYS:HB2	1.65	0.77
43:M:15:VAL:HG23	43:M:16:ILE:HD12	1.65	0.77
54:01:119:A:H4'	54:01:120:U:H5'	1.66	0.77
1:04:153:LEU:HD13	1:04:175:LEU:HD21	1.66	0.77
4:07:138:PRO:HB2	26:29:32:LEU:HD21	1.67	0.77
54:01:2324:U:H3'	54:01:2325:G:H5''	1.65	0.77
6:09:125:THR:HG21	6:09:148:ALA:HB2	1.67	0.77
24:27:2:LYS:HE2	54:01:102:U:H1'	1.67	0.77
54:01:2131:U:H5'	54:01:2132:U:H5'	1.67	0.77
59:Z:248:LYS:HE3	59:Z:290:GLN:HE22	1.49	0.77
3:06:71:GLY:H	54:01:674:G:H5''	1.49	0.77
6:09:90:LEU:HD23	6:09:94:ILE:HD11	1.66	0.77
40:J:66:GLU:HG2	44:N:98:ALA:HB2	1.65	0.77
53:A:412:A:O2'	53:A:413:G:H4'	1.85	0.77
5:08:17:LYS:HB2	5:08:24:THR:HB	1.67	0.77
59:Z:21:ASP:H	63:Z:402:GCP:H3B1	1.48	0.77
59:Z:254:THR:HB	59:Z:279:ARG:HG3	1.67	0.77
34:D:2:ARG:HG2	34:D:114:ARG:HE	1.48	0.76
54:01:1092:C:H2'	54:01:1093:G:H5'	1.66	0.76
4:07:114:ARG:HH21	26:29:47:LYS:HA	1.49	0.76
40:J:43:PRO:HA	53:A:1151:A:H5'	1.68	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:10:27:VAL:HG13	7:10:83:ALA:HB3	1.67	0.76
59:Z:297:THR:HG23	59:Z:298:ILE:HG13	1.67	0.76
33:C:150:VAL:HG12	33:C:199:VAL:HG23	1.67	0.76
58:Y:13:C:C2'	58:Y:14:A:H5''	2.14	0.76
15:18:31:VAL:HB	15:18:38:ARG:HB3	1.67	0.76
55:02:65:U:H3'	55:02:108:A:H61	1.51	0.76
59:Z:170:VAL:HG21	59:Z:191:LEU:HB2	1.66	0.76
40:J:57:VAL:HG22	40:J:58:ASN:H	1.50	0.76
55:02:30:C:H1'	55:02:57:A:H61	1.48	0.76
7:10:55:VAL:HA	54:01:1084:A:H5''	1.67	0.76
43:M:7:ASN:HB2	43:M:21:ILE:HD11	1.68	0.76
5:08:163:TYR:HB2	5:08:166:GLU:HB2	1.66	0.75
34:D:187:ARG:HH12	34:D:192:ALA:HA	1.52	0.75
58:Y:29:U:H2'	58:Y:30:G:H5''	1.69	0.75
4:07:3:LEU:HA	4:07:6:TYR:HB3	1.69	0.75
37:G:68:VAL:HG21	37:G:103:ILE:HD11	1.69	0.75
3:06:149:ILE:HG23	3:06:188:MET:HA	1.67	0.75
14:17:48:LEU:HD13	14:17:87:ILE:HG13	1.67	0.75
47:Q:18:LYS:HD2	53:A:255:G:H4'	1.67	0.75
54:01:633:A:H1'	54:01:2403:C:H4'	1.69	0.75
59:Z:107:ALA:HB2	59:Z:134:LEU:HB3	1.68	0.74
15:18:3:ILE:H	15:18:3:ILE:HD12	1.52	0.74
50:T:26:MET:HB3	53:A:1458:G:H5'	1.68	0.74
2:05:151:THR:HB	2:05:152:PRO:HD3	1.70	0.74
14:17:7:ARG:HA	14:17:10:ARG:HE	1.53	0.74
19:22:9:LYS:HA	24:27:29:ARG:HH22	1.51	0.74
35:E:104:ILE:HD11	35:E:114:LEU:HD23	1.70	0.74
38:H:10:LEU:HA	38:H:13:ILE:HD12	1.70	0.74
46:P:5:ARG:HD2	53:A:376:G:H5''	1.69	0.74
53:A:327:A:O2'	53:A:328:C:H4'	1.87	0.74
54:01:302:C:H2'	54:01:303:G:H8	1.51	0.74
59:Z:5:PHE:HB2	59:Z:263:LYS:HB3	1.70	0.74
32:B:18:GLN:O	32:B:19:THR:HG22	1.87	0.74
11:14:122:VAL:HB	11:14:142:ILE:HG23	1.71	0.73
13:16:44:LEU:HD23	13:16:113:ILE:HD13	1.69	0.73
4:07:124:ARG:HE	54:01:2316:G:H4'	1.52	0.73
44:N:25:GLU:HA	44:N:28:ALA:HB3	1.70	0.73
54:01:2682:A:H61	54:01:2728:U:H1'	1.53	0.73
8:11:33:ASN:HD21	8:11:35:MET:HB3	1.50	0.73
12:15:75:GLU:HG2	54:01:957:C:H5'	1.69	0.73
33:C:52:SER:HA	33:C:113:LYS:HB3	1.71	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:03:217:THR:HG21	54:01:2125:G:H4'	1.71	0.73
54:01:279:A:H61	54:01:361:G:H1'	1.54	0.73
37:G:56:SER:HB3	37:G:59:GLU:HG2	1.71	0.73
54:01:704:G:H2'	54:01:726:G:H22	1.54	0.73
52:03:201:PRO:HG2	52:03:204:ALA:HB2	1.68	0.73
26:29:11:GLU:HA	26:29:25:ARG:HA	1.71	0.73
49:S:35:ARG:HH21	49:S:52:ASN:HA	1.54	0.73
54:01:275:C:H2'	54:01:276:U:H4'	1.70	0.72
59:Z:95:ALA:HB3	59:Z:125:VAL:HG21	1.70	0.72
2:05:55:LYS:HE2	2:05:77:ARG:HA	1.69	0.72
53:A:702:A:H5'	54:01:1848:A:H4'	1.70	0.72
59:Z:214:ILE:HD12	59:Z:290:GLN:HB2	1.69	0.72
42:L:45:ASN:HD22	53:A:528:C:H41	1.38	0.72
34:D:187:ARG:HD2	34:D:190:LEU:HD11	1.69	0.72
58:Y:74:C:H3'	58:Y:75:C:H5''	1.71	0.72
23:26:16:ASN:HB3	23:26:24:THR:HB	1.72	0.72
35:E:86:GLY:O	35:E:138:ALA:HB1	1.90	0.72
54:01:528:A:C2	54:01:2042:A:H2'	2.25	0.72
10:13:105:ARG:NH2	10:13:122:VAL:HA	2.04	0.72
34:D:94:GLU:HG2	34:D:185:PRO:HG2	1.72	0.72
37:G:24:LYS:HA	37:G:27:ASN:HD22	1.55	0.72
39:I:51:LEU:HD22	39:I:56:MET:HB2	1.70	0.72
49:S:62:THR:HG22	49:S:63:ASP:H	1.54	0.72
22:25:55:LEU:HD12	22:25:76:ILE:HD12	1.71	0.71
50:T:70:LYS:HG3	50:T:73:ARG:HH22	1.55	0.71
54:01:2277:G:C2'	54:01:2278:A:H5''	2.19	0.71
7:10:24:SER:HB2	7:10:116:GLU:HG3	1.73	0.71
10:13:21:CYS:HA	10:13:41:ILE:HG22	1.73	0.71
53:A:202:G:H21	53:A:466:A:H61	1.38	0.71
46:P:2:VAL:HG11	53:A:229:U:H4'	1.71	0.71
53:A:1218:C:H2'	53:A:1219:A:C8	2.26	0.71
2:05:133:THR:HG23	2:05:134:HIS:H	1.56	0.71
7:10:41:LEU:HD13	54:01:1083:U:H4'	1.71	0.71
14:17:68:LYS:HA	14:17:102:ARG:HG2	1.73	0.71
46:P:20:VAL:HG22	46:P:21:VAL:N	2.04	0.71
59:Z:32:THR:HG22	59:Z:42:ALA:HB1	1.72	0.71
40:J:57:VAL:O	40:J:58:ASN:HB2	1.90	0.71
54:01:2800:A:H3'	54:01:2801:G:H5'	1.73	0.71
10:13:104:THR:HG22	10:13:106:GLU:H	1.54	0.71
54:01:1807:G:H2'	54:01:1808:A:H5'	1.72	0.71
8:11:112:LYS:HD2	8:11:128:ILE:HD11	1.73	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:26:17:ARG:HH11	23:26:23:ALA:HB2	1.56	0.71
39:I:118:ARG:HH22	39:I:122:ARG:HE	1.39	0.71
46:P:33:ILE:H	46:P:33:ILE:HD12	1.55	0.71
52:03:21:TYR:HB2	52:03:224:VAL:HG12	1.72	0.70
54:01:435:C:H2'	54:01:436:C:H5'	1.72	0.70
2:05:19:GLY:HA2	15:18:78:PRO:HD2	1.73	0.70
20:23:48:VAL:HG22	20:23:50:ALA:H	1.56	0.70
58:Y:74:C:H3'	58:Y:75:C:C5'	2.20	0.70
2:05:148:GLN:HB2	2:05:152:PRO:HG2	1.71	0.70
33:C:105:VAL:HG22	33:C:107:LYS:H	1.55	0.70
18:21:11:ARG:H	18:21:11:ARG:HD2	1.57	0.70
40:J:8:ILE:HG12	40:J:100:ILE:HG22	1.73	0.70
17:20:35:PHE:HB2	17:20:59:ILE:HB	1.73	0.70
34:D:81:LEU:HD12	34:D:88:ASN:HB3	1.72	0.70
54:01:2898:U:H2'	54:01:2899:A:H8	1.57	0.70
19:22:14:PRO:HA	19:22:32:LEU:HA	1.72	0.70
33:C:137:VAL:HG13	33:C:148:ILE:HG23	1.74	0.70
48:R:41:SER:HB3	48:R:51:GLN:HE21	1.55	0.70
15:18:38:ARG:HH11	53:A:345:C:H4'	1.57	0.70
49:S:35:ARG:NH2	49:S:52:ASN:HA	2.07	0.70
8:11:90:GLY:HA2	54:01:1063:G:H21	1.56	0.69
27:30:37:HIS:HB3	27:30:43:THR:HG22	1.74	0.69
54:01:807:U:H2'	54:01:808:G:C8	2.27	0.69
3:06:18:THR:HA	3:06:106:LYS:HE3	1.74	0.69
54:01:528:A:N1	54:01:2042:A:H2'	2.06	0.69
1:04:75:ALA:HB3	1:04:115:ILE:HG13	1.74	0.69
4:07:133:GLU:HB3	4:07:135:ILE:HG12	1.74	0.69
32:B:221:ARG:HA	32:B:224:ARG:HH11	1.57	0.69
40:J:76:ILE:HD12	40:J:87:LEU:HD11	1.73	0.69
10:13:76:VAL:HG12	15:18:72:VAL:HG22	1.75	0.69
11:14:29:LYS:HD3	11:14:30:THR:HG23	1.74	0.69
5:08:96:ALA:HB3	5:08:103:ASN:HB3	1.73	0.69
53:A:1144:G:H21	53:A:1146:A:H62	1.40	0.69
1:04:48:ILE:HD11	1:04:51:ARG:HA	1.74	0.69
18:21:4:ILE:HG22	18:21:106:VAL:HG22	1.74	0.69
23:26:70:LEU:HD23	23:26:73:ARG:HH21	1.57	0.69
49:S:28:LYS:HB3	49:S:29:PRO:HD2	1.73	0.69
52:03:26:ALA:HB1	52:03:214:ILE:HD13	1.75	0.69
9:12:27:ARG:NH2	54:01:1142:A:H4'	2.07	0.69
54:01:2065:C:H5''	54:01:2252:G:H1'	1.74	0.69
17:20:49:ILE:HD12	17:20:52:PRO:HA	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:831:A:H2'	53:A:832:G:H5''	1.73	0.69
15:18:52:ARG:HH22	54:01:2720:U:H5''	1.57	0.68
32:B:70:GLY:HA3	32:B:79:VAL:HG21	1.75	0.68
8:11:74:PRO:HG2	8:11:77:VAL:HG22	1.75	0.68
54:01:886:A:C3'	54:01:887:U:H5''	2.24	0.68
59:Z:377:ARG:HA	59:Z:383:VAL:HG22	1.75	0.68
33:C:111:ASP:HB2	33:C:114:LEU:HD12	1.75	0.68
55:02:3:C:H2'	55:02:4:C:H5''	1.75	0.68
56:W:21:A:H61	56:W:46:G:H2'	1.58	0.68
1:04:182:LYS:HE3	1:04:267:VAL:HG22	1.74	0.68
23:26:11:PRO:HB3	23:26:29:LEU:HD23	1.74	0.68
49:S:5:LYS:HG3	49:S:6:LYS:HG2	1.76	0.68
54:01:886:A:H3'	54:01:887:U:C5'	2.24	0.68
54:01:1773:A:H2	54:01:1977:A:H61	1.42	0.68
42:L:113:ARG:H	42:L:113:ARG:HD2	1.59	0.68
42:L:109:ARG:HG3	42:L:118:VAL:HG21	1.76	0.68
53:A:65:A:H5'	53:A:200:G:H5'	1.74	0.68
11:14:20:GLY:HA2	11:14:28:GLY:HA2	1.76	0.68
34:D:131:ILE:HG23	53:A:403:C:H5'	1.74	0.67
45:O:2:LEU:HD21	45:O:10:ILE:HD12	1.76	0.67
53:A:1195:C:H2'	53:A:1197:A:H5'	1.75	0.67
13:16:79:LEU:HD23	13:16:83:LEU:HD12	1.74	0.67
17:20:14:VAL:HG21	17:20:98:ILE:HG13	1.75	0.67
17:20:68:ARG:HH11	17:20:90:ARG:HD3	1.58	0.67
33:C:106:ARG:H	33:C:106:ARG:HD2	1.59	0.67
42:L:49:ARG:HB3	42:L:65:TYR:HE1	1.58	0.67
52:03:23:ILE:H	52:03:23:ILE:HD12	1.60	0.67
54:01:2628:C:H3'	54:01:2629:U:H5'	1.75	0.67
59:Z:235:ILE:HG22	59:Z:269:ARG:HA	1.75	0.67
1:04:253:GLY:O	54:01:1844:C:H5'	1.94	0.67
12:15:45:GLN:NE2	54:01:2485:G:H5''	2.08	0.67
18:21:79:GLY:H	18:21:101:SER:HA	1.59	0.67
32:B:19:THR:HG23	32:B:20:ARG:N	2.10	0.67
39:I:11:ARG:HD3	39:I:76:GLY:HA3	1.76	0.67
54:01:2296:U:H5''	54:01:2297:A:OP1	1.93	0.67
33:C:179:ALA:HB1	33:C:202:PHE:HE1	1.58	0.67
53:A:96:U:H2'	53:A:97:G:H8	1.58	0.67
42:L:11:ARG:HD2	53:A:562:U:H1'	1.76	0.67
5:08:42:VAL:HG23	5:08:49:LEU:HD21	1.76	0.67
52:03:11:ILE:HG23	52:03:33:LEU:HD13	1.76	0.67
53:A:235:C:H2'	53:A:236:A:C8	2.30	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:890:C:H2'	54:01:891:G:H5'	1.75	0.67
4:07:35:LEU:HB3	4:07:88:VAL:HB	1.77	0.67
33:C:181:ILE:HG12	33:C:202:PHE:HA	1.77	0.67
2:05:33:ARG:HH21	2:05:73:VAL:HB	1.58	0.67
20:23:3:LYS:HA	20:23:84:PHE:HZ	1.60	0.67
1:04:77:VAL:HG21	1:04:109:LEU:HD11	1.77	0.67
7:10:82:ILE:HG22	7:10:83:ALA:H	1.60	0.67
23:26:55:MET:SD	54:01:2091:C:H4'	2.34	0.67
51:U:25:ALA:HB1	51:U:29:ALA:HB2	1.75	0.67
54:01:2566:A:H4'	54:01:2567:G:H5''	1.75	0.67
3:06:177:PRO:HA	3:06:180:LEU:HD12	1.77	0.66
32:B:162:VAL:HB	32:B:184:ALA:HB2	1.78	0.66
34:D:195:ASN:ND2	34:D:197:HIS:HB3	2.09	0.66
41:K:124:LYS:HB2	51:U:34:ARG:HD3	1.78	0.66
52:03:5:THR:HG22	52:03:6:LYS:H	1.58	0.66
53:A:59:A:H5''	53:A:387:U:H5''	1.76	0.66
54:01:668:A:H2'	54:01:670:A:H62	1.59	0.66
54:01:1054:A:H2'	54:01:1055:G:C8	2.30	0.66
56:X:9:G:H1'	56:X:45:G:H2'	1.77	0.66
4:07:56:LEU:HD13	4:07:88:VAL:HG23	1.76	0.66
18:21:97:LEU:H	18:21:97:LEU:HD23	1.60	0.66
58:Y:76:A:H5''	59:Z:220:ILE:HD11	1.76	0.66
7:10:18:VAL:HB	7:10:70:GLU:HG3	1.77	0.66
10:13:40:LYS:HE3	10:13:57:VAL:HG12	1.76	0.66
13:16:2:ARG:HA	13:16:5:LYS:HD2	1.75	0.66
17:20:15:SER:H	17:20:18:GLN:NE2	1.92	0.66
18:21:73:LYS:HB2	18:21:106:VAL:HB	1.76	0.66
32:B:174:GLU:HA	32:B:177:ASN:HD22	1.59	0.66
32:B:71:THR:HG22	32:B:72:LYS:H	1.60	0.66
33:C:53:ARG:HH21	33:C:55:VAL:HG22	1.60	0.66
34:D:182:LYS:HG2	34:D:183:ARG:H	1.61	0.66
1:04:257:ARG:HH21	1:04:266:ILE:HD12	1.59	0.66
8:11:79:LEU:HD22	8:11:83:ALA:HB2	1.77	0.66
1:04:119:VAL:HG12	1:04:130:PRO:HD2	1.78	0.66
24:27:6:LEU:HD13	24:27:56:LEU:HD22	1.78	0.66
54:01:2508:G:H1	54:01:2580:U:H3	1.42	0.66
13:16:98:LEU:O	13:16:111:ALA:HB1	1.96	0.66
52:03:15:VAL:HG13	52:03:222:VAL:HG13	1.77	0.66
7:10:58:THR:HA	7:10:63:ALA:HB3	1.76	0.66
9:12:7:LYS:HG2	54:01:538:A:H4'	1.77	0.66
38:H:28:SER:HB3	38:H:56:PRO:HB2	1.76	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:49:U:O2'	53:A:50:A:H2'	1.96	0.66
54:01:1300:G:H4'	54:01:1301:A:H5''	1.77	0.66
54:01:2108:A:H2'	54:01:2109:U:H5'	1.78	0.66
8:11:13:ALA:HB3	8:11:16:MET:HG2	1.78	0.65
32:B:116:LEU:HD22	32:B:140:LEU:HD12	1.78	0.65
39:I:12:LYS:HA	39:I:109:GLN:HE22	1.59	0.65
39:I:98:ARG:HG3	39:I:103:VAL:HG21	1.76	0.65
40:J:7:ARG:HD3	40:J:75:ASP:OD1	1.95	0.65
44:N:68:ARG:HD2	53:A:1202:U:H1'	1.78	0.65
53:A:212:G:H2'	53:A:213:G:H8	1.61	0.65
30:33:38:LYS:HG3	30:33:41:ARG:HH11	1.62	0.65
53:A:1130:A:H61	53:A:1144:G:H1'	1.60	0.65
19:22:73:ARG:HH12	54:01:456:C:H2'	1.60	0.65
36:F:38:ARG:HD3	36:F:97:THR:HA	1.78	0.65
42:L:42:LYS:HG3	42:L:44:PRO:HD2	1.77	0.65
54:01:2421:G:H2'	56:X:76:A:H62	1.62	0.65
25:28:37:ARG:HH21	54:01:929:U:H4'	1.61	0.65
33:C:19:SER:HB2	44:N:91:GLU:O	1.97	0.65
54:01:799:G:H3'	54:01:800:A:H5''	1.77	0.65
3:06:47:LYS:HB2	3:06:51:GLU:HB2	1.78	0.65
4:07:73:VAL:HG22	4:07:78:ILE:HD11	1.76	0.65
15:18:4:ILE:O	15:18:8:GLU:HG3	1.97	0.65
19:22:44:LYS:HG3	19:22:55:VAL:HG11	1.78	0.65
34:D:100:VAL:O	34:D:104:MET:HG2	1.97	0.65
38:H:80:PRO:HG2	53:A:878:A:H5''	1.78	0.65
52:03:217:THR:HG22	52:03:218:MET:HG3	1.79	0.65
54:01:799:G:C3'	54:01:800:A:H5''	2.27	0.65
54:01:575:A:H5'	54:01:2500:U:H4'	1.78	0.65
14:17:51:ALA:HB3	14:17:78:VAL:HG22	1.78	0.65
17:20:41:ILE:HB	17:20:47:VAL:HB	1.79	0.65
54:01:2898:U:H2'	54:01:2899:A:C8	2.32	0.65
13:16:96:ARG:HB2	13:16:114:GLU:OE2	1.96	0.65
33:C:39:ARG:HG3	33:C:54:ILE:HD11	1.78	0.65
41:K:87:GLY:H	41:K:113:THR:HG22	1.62	0.65
54:01:2799:A:H2'	54:01:2800:A:H5'	1.77	0.65
33:C:54:ILE:HG22	33:C:67:ILE:HA	1.79	0.65
44:N:100:TRP:HZ2	53:A:1368:A:H5''	1.61	0.65
54:01:2834:G:H2'	54:01:2879:A:H61	1.60	0.65
59:Z:241:GLU:HA	59:Z:254:THR:HA	1.79	0.65
32:B:69:VAL:HB	32:B:162:VAL:HA	1.77	0.64
5:08:157:LYS:HE2	54:01:2658:C:H5''	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:L:115:LYS:O	42:L:116:TYR:HB2	1.98	0.64
43:M:95:PRO:HA	43:M:108:ARG:HG2	1.79	0.64
53:A:112:G:H21	53:A:354:G:H5'	1.62	0.64
53:A:1273:C:H2'	53:A:1274:A:O4'	1.98	0.64
8:11:21:PRO:HB2	8:11:22:PRO:HD3	1.80	0.64
32:B:119:GLN:HA	32:B:123:GLY:HA3	1.78	0.64
50:T:29:THR:O	50:T:33:LYS:HG2	1.97	0.64
53:A:64:G:H4'	53:A:65:A:H3'	1.79	0.64
15:18:112:ARG:HE	15:18:114:ASN:HD21	1.44	0.64
25:28:37:ARG:NH2	54:01:929:U:H4'	2.13	0.64
42:L:109:ARG:HH12	53:A:537:G:H5''	1.62	0.64
54:01:1509:A:H2'	54:01:1510:G:C8	2.32	0.64
6:09:75:LEU:HB3	6:09:77:THR:HG22	1.80	0.64
53:A:422:C:H4'	53:A:423:G:N2	2.13	0.64
37:G:87:PRO:HG3	37:G:148:LYS:HA	1.79	0.64
53:A:1033:G:H2'	53:A:1034:G:H4'	1.78	0.64
54:01:2834:G:H2'	54:01:2879:A:N6	2.13	0.64
6:09:58:LEU:O	6:09:61:VAL:HG22	1.98	0.64
7:10:60:LEU:HA	7:10:64:VAL:HG21	1.80	0.64
1:04:42:ARG:HD2	1:04:42:ARG:N	2.13	0.64
10:13:30:ARG:HD3	54:01:2674:G:H4'	1.80	0.64
14:17:43:ASN:ND2	14:17:45:SER:HB3	2.13	0.64
34:D:53:GLN:HB3	34:D:202:LEU:HD12	1.79	0.64
48:R:56:ARG:O	48:R:60:ARG:HG2	1.98	0.64
54:01:2324:U:H3'	54:01:2325:G:C5'	2.27	0.64
1:04:20:ASN:ND2	1:04:22:GLU:HB2	2.10	0.64
6:09:78:VAL:HB	6:09:144:VAL:HG13	1.79	0.64
53:A:245:U:O2'	53:A:246:A:H5'	1.97	0.64
17:20:49:ILE:HB	17:20:51:VAL:O	1.98	0.64
37:G:142:ARG:HG2	56:X:42:G:H5'	1.80	0.64
41:K:30:ILE:HB	41:K:45:THR:HG22	1.80	0.64
53:A:1064:G:H1'	53:A:1190:G:H21	1.63	0.64
54:01:302:C:H2'	54:01:303:G:C8	2.32	0.64
59:Z:259:GLU:HG3	59:Z:264:LEU:HA	1.79	0.64
4:07:153:ILE:H	4:07:153:ILE:HD12	1.62	0.63
9:12:26:GLY:HA3	54:01:1140:C:H5'	1.80	0.63
12:15:60:GLN:HE21	12:15:108:VAL:HG12	1.64	0.63
32:B:130:LYS:HA	32:B:133:ALA:HB3	1.80	0.63
1:04:106:PRO:HD2	1:04:109:LEU:HD22	1.78	0.63
3:06:122:GLU:HG2	3:06:123:LYS:H	1.63	0.63
6:09:40:THR:HG22	6:09:41:LYS:H	1.62	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:U:16:ARG:HB2	51:U:19:LYS:HD3	1.79	0.63
54:01:11:C:H2'	54:01:12:U:H5''	1.78	0.63
54:01:537:G:H22	54:01:555:G:H2'	1.63	0.63
3:06:88:ARG:HD3	3:06:89:PRO:HD2	1.79	0.63
24:27:31:GLN:HG2	24:27:37:LEU:HD12	1.80	0.63
33:C:120:THR:HG23	33:C:188:ALA:HB2	1.78	0.63
43:M:13:HIS:HB2	43:M:16:ILE:HD13	1.80	0.63
52:03:7:ARG:O	52:03:10:VAL:HG12	1.97	0.63
54:01:655:A:H4'	54:01:656:G:H5'	1.78	0.63
54:01:1506:U:H2'	54:01:1507:C:C6	2.34	0.63
54:01:2183:A:H2'	54:01:2184:A:C8	2.33	0.63
59:Z:335:THR:HG22	59:Z:336:ASP:H	1.62	0.63
39:I:105:ARG:O	39:I:105:ARG:HD3	1.99	0.63
54:01:2297:A:N1	54:01:2321:U:H5	1.96	0.63
12:15:20:LEU:HD23	21:24:81:PRO:HG2	1.78	0.63
54:01:1499:C:H2'	54:01:1500:G:H8	1.62	0.63
56:X:41:C:H2'	56:X:42:G:C8	2.34	0.63
1:04:16:VAL:H	1:04:203:VAL:HG22	1.63	0.63
2:05:148:GLN:O	54:01:2052:A:H4'	1.97	0.63
9:12:17:VAL:HG13	9:12:137:PRO:HB2	1.79	0.63
43:M:14:ALA:HB3	43:M:33:LEU:HD21	1.79	0.63
50:T:10:ALA:O	50:T:14:GLU:HG2	1.99	0.63
54:01:1123:C:H2'	54:01:1124:G:H8	1.64	0.63
58:Y:1:G:H2'	58:Y:2:G:O4'	1.98	0.63
59:Z:97:GLN:HA	59:Z:230:ARG:HD3	1.79	0.63
6:09:1:MET:HG3	6:09:3:VAL:HG23	1.79	0.63
19:22:73:ARG:H	19:22:73:ARG:HD2	1.62	0.63
32:B:31:PHE:HB2	32:B:39:ILE:O	1.98	0.63
45:O:38:LEU:HD23	45:O:55:LEU:HD13	1.81	0.63
54:01:1801:A:H5''	54:01:2203:U:H2'	1.81	0.63
59:Z:343:LEU:HA	59:Z:358:MET:HB2	1.80	0.63
21:24:26:PHE:HE2	21:24:89:ILE:HG13	1.64	0.63
23:26:9:LYS:HE3	23:26:53:LYS:HB2	1.80	0.63
31:34:36:ARG:HG2	31:34:37:GLN:N	2.13	0.63
5:08:95:ALA:HB1	5:08:130:ILE:HD11	1.81	0.62
53:A:1064:G:H1'	53:A:1190:G:N2	2.14	0.62
54:01:1168:G:H2'	54:01:1169:A:H5''	1.81	0.62
54:01:2159:G:H2'	54:01:2160:C:O4'	1.99	0.62
32:B:19:THR:HG23	32:B:20:ARG:HG2	1.80	0.62
39:I:94:ARG:HA	39:I:97:LEU:HB3	1.81	0.62
41:K:14:GLN:HA	41:K:76:TYR:HA	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1045:C:H5'	54:01:1046:A:H5''	1.80	0.62
10:13:12:ASP:OD2	10:13:14:SER:HB3	1.99	0.62
37:G:36:SER:HA	39:I:42:THR:HG21	1.82	0.62
59:Z:133:PHE:HD1	59:Z:170:VAL:HG23	1.64	0.62
7:10:94:ARG:HG2	7:10:129:LEU:HD12	1.80	0.62
13:16:73:ASN:HA	13:16:76:VAL:HG12	1.82	0.62
20:23:46:LYS:HD3	20:23:47:PRO:HD2	1.81	0.62
20:23:86:PHE:HE1	20:23:91:LYS:HZ1	1.47	0.62
30:33:30:HIS:ND1	30:33:31:ILE:HG13	2.14	0.62
34:D:111:ALA:HB1	53:A:407:U:H5''	1.81	0.62
53:A:206:C:C2'	53:A:207:C:H5'	2.29	0.62
53:A:1148:U:H2'	53:A:1149:C:O4'	2.00	0.62
54:01:703:U:H2'	54:01:704:G:O4'	2.00	0.62
8:11:75:ALA:HA	8:11:78:LEU:HD12	1.81	0.62
15:18:14:GLN:NE2	15:18:14:GLN:H	1.97	0.62
18:21:65:ASP:OD2	18:21:69:LEU:HB2	1.99	0.62
39:I:54:VAL:HG11	39:I:86:LEU:HD13	1.81	0.62
42:L:33:CYS:N	42:L:54:VAL:HG13	2.09	0.62
50:T:66:ILE:HG23	50:T:70:LYS:HD3	1.80	0.62
5:08:27:GLY:HA3	5:08:78:VAL:HB	1.82	0.62
34:D:23:GLY:HA3	53:A:408:A:O3'	2.00	0.62
34:D:33:ILE:HG13	34:D:34:GLU:N	2.15	0.62
48:R:25:ILE:HA	48:R:28:LEU:HB3	1.82	0.62
40:J:17:LEU:HA	40:J:20:GLN:HE21	1.64	0.62
41:K:21:HIS:HA	41:K:84:MET:HB2	1.80	0.62
53:A:1506:U:O2'	53:A:1507:A:H5'	2.00	0.62
15:18:102:ARG:NH2	54:01:1755:A:H5'	2.15	0.62
44:N:30:ILE:HG22	44:N:43:ALA:HB2	1.82	0.62
51:U:24:LYS:HG2	51:U:25:ALA:N	2.14	0.62
54:01:2039:U:H2'	54:01:2040:G:H8	1.65	0.62
11:14:48:ARG:HH11	54:01:666:A:H4'	1.65	0.62
54:01:1077:A:H2'	54:01:1078:U:H5'	1.81	0.62
59:Z:12:VAL:HB	59:Z:76:TYR:CE1	2.35	0.62
59:Z:238:VAL:HG13	59:Z:256:THR:HA	1.80	0.62
7:10:33:VAL:HG12	7:10:34:THR:H	1.65	0.61
7:10:58:THR:HG21	7:10:82:ILE:H	1.63	0.61
14:17:10:ARG:HH21	54:01:2294:G:H5''	1.64	0.61
15:18:59:THR:HG22	15:18:72:VAL:HG12	1.82	0.61
25:28:23:LEU:HD22	25:28:28:LEU:HD12	1.82	0.61
32:B:33:ALA:HB2	32:B:39:ILE:HG13	1.81	0.61
38:H:5:PRO:HB2	38:H:32:LYS:HZ3	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:J:20:GLN:O	40:J:24:GLU:HG3	2.00	0.61
54:01:936:A:H2'	54:01:937:C:C6	2.34	0.61
54:01:2115:G:H21	54:01:2117:A:H8	1.48	0.61
54:01:2591:C:H2'	54:01:2592:G:C8	2.35	0.61
58:Y:21:A:H61	58:Y:46:G:H2'	1.65	0.61
59:Z:343:LEU:HD22	59:Z:347:VAL:HG11	1.81	0.61
16:19:94:LEU:HA	16:19:97:ILE:HD12	1.82	0.61
21:24:9:ARG:HD3	21:24:39:ALA:HB1	1.81	0.61
21:24:25:LYS:HB3	21:24:41:GLU:OE2	2.00	0.61
34:D:172:VAL:HG22	34:D:173:ASP:H	1.64	0.61
36:F:2:ARG:HE	36:F:68:GLN:NE2	1.98	0.61
54:01:362:A:H3'	54:01:363:G:H8	1.64	0.61
8:11:34:ILE:HD12	8:11:34:ILE:H	1.65	0.61
16:19:55:GLN:HA	16:19:58:GLN:HE21	1.65	0.61
34:D:149:LYS:O	34:D:150:LYS:HG3	2.00	0.61
37:G:58:LEU:HD12	37:G:59:GLU:N	2.14	0.61
54:01:1077:A:C2'	54:01:1078:U:H5'	2.29	0.61
54:01:1528:A:H2'	54:01:1529:G:O4'	1.99	0.61
50:T:59:ARG:HH11	53:A:177:G:H5'	1.65	0.61
54:01:1869:G:H3'	54:01:1870:C:C5'	2.31	0.61
51:U:32:ARG:HG3	51:U:33:ARG:HG2	1.82	0.61
53:A:1524:C:H2'	53:A:1525:G:C8	2.35	0.61
54:01:1173:U:H2'	54:01:1174:U:H4'	1.82	0.61
54:01:2039:U:H2'	54:01:2040:G:C8	2.35	0.61
36:F:12:PRO:HD3	36:F:54:LEU:HD21	1.83	0.61
38:H:100:ILE:HD12	38:H:100:ILE:O	2.00	0.61
54:01:20:C:H2'	54:01:21:A:H8	1.66	0.61
54:01:310:A:H2'	54:01:311:A:H5''	1.82	0.61
59:Z:378:GLU:HB3	59:Z:383:VAL:HG11	1.82	0.61
9:12:47:HIS:ND1	9:12:48:VAL:HG23	2.15	0.61
11:14:106:GLU:O	11:14:107:PHE:HB2	1.99	0.61
35:E:107:GLY:HA3	53:A:9:G:H5'	1.83	0.61
39:I:4:GLN:HE21	39:I:21:LYS:HD2	1.66	0.61
54:01:215:G:H4'	54:01:216:A:H4'	1.80	0.61
54:01:2122:U:H2'	54:01:2123:G:O4'	2.01	0.61
5:08:115:GLN:O	5:08:117:PRO:HD3	2.00	0.61
32:B:172:ILE:H	32:B:172:ILE:HD12	1.66	0.61
34:D:150:LYS:O	34:D:150:LYS:HD2	2.01	0.61
50:T:70:LYS:HG3	50:T:73:ARG:NH2	2.15	0.61
54:01:2790:U:H5''	54:01:2791:G:OP1	2.00	0.61
7:10:118:ILE:HB	7:10:119:PRO:HD3	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:16:49:GLU:HG3	54:01:2839:G:H4'	1.82	0.61
54:01:161:A:H3'	54:01:162:U:H5''	1.83	0.61
59:Z:167:THR:O	59:Z:169:ILE:HD12	2.00	0.61
7:10:64:VAL:O	7:10:68:PRO:HD3	2.01	0.60
27:30:42:ILE:HG22	27:30:48:TYR:HB2	1.82	0.60
30:33:61:LEU:HD12	30:33:61:LEU:O	2.01	0.60
42:L:20:VAL:HG21	53:A:553:A:H5''	1.82	0.60
54:01:189:G:H2'	54:01:205:G:H22	1.66	0.60
55:02:65:U:H3'	55:02:108:A:N6	2.16	0.60
12:15:40:ARG:HH11	12:15:93:VAL:HG11	1.66	0.60
12:15:41:LEU:HG	12:15:96:ILE:HG13	1.83	0.60
54:01:1565:C:O2'	54:01:1566:A:H2'	1.99	0.60
54:01:2147:A:H2'	54:01:2148:G:O4'	2.01	0.60
59:Z:9:LYS:HG3	59:Z:75:HIS:HB2	1.82	0.60
1:04:28:PRO:HG3	1:04:62:ARG:NH2	2.16	0.60
4:07:90:LEU:HD12	4:07:90:LEU:O	2.01	0.60
49:S:5:LYS:HG3	49:S:6:LYS:N	2.16	0.60
54:01:876:C:H2'	54:01:877:A:O4'	2.01	0.60
59:Z:256:THR:O	59:Z:277:LEU:HB3	2.00	0.60
59:Z:258:VAL:O	59:Z:265:LEU:HB2	2.01	0.60
1:04:77:VAL:HA	1:04:93:VAL:HG22	1.83	0.60
3:06:3:LEU:HD12	3:06:12:LEU:HD22	1.82	0.60
15:18:92:ARG:HD3	54:01:1753:G:H5''	1.82	0.60
54:01:1645:G:H5''	54:01:1646:C:H5'	1.83	0.60
58:Y:44:U:H2'	58:Y:45:G:O4'	2.01	0.60
2:05:120:GLY:N	54:01:1655:A:H4'	2.15	0.60
5:08:162:ARG:CZ	5:08:168:VAL:HG21	2.32	0.60
8:11:20:SER:HB3	8:11:21:PRO:HD3	1.83	0.60
12:15:41:LEU:HD22	12:15:124:LEU:HD22	1.83	0.60
28:31:47:ILE:H	28:31:47:ILE:HD12	1.67	0.60
32:B:67:LEU:HD23	32:B:89:PHE:HB2	1.83	0.60
53:A:769:G:H4'	53:A:1513:A:C4'	2.30	0.60
54:01:2888:C:H2'	54:01:2889:C:C6	2.37	0.60
16:19:75:TYR:HE2	54:01:1153:C:H5'	1.67	0.60
34:D:90:LEU:HD23	34:D:93:LEU:HD12	1.83	0.60
51:U:17:ARG:HA	51:U:20:ARG:HD3	1.84	0.60
54:01:2079:U:H2'	54:01:2080:A:H5''	1.83	0.60
9:12:110:PRO:HD3	54:01:1007:C:H4'	1.84	0.60
59:Z:247:ILE:HG22	59:Z:364:HIS:HB3	1.83	0.60
33:C:84:GLU:HA	33:C:87:ARG:HH12	1.66	0.60
45:O:23:SER:HB3	45:O:26:VAL:HG23	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1434:A:H2'	54:01:1435:G:C8	2.37	0.60
54:01:2277:G:C3'	54:01:2278:A:H5''	2.32	0.60
4:07:150:GLY:H	54:01:2305:U:H3	1.48	0.59
23:26:2:ARG:NH1	54:01:1364:G:H5''	2.17	0.59
34:D:77:GLU:O	34:D:81:LEU:HG	2.02	0.59
35:E:59:ILE:HD12	35:E:60:GLN:N	2.17	0.59
41:K:124:LYS:HG2	41:K:124:LYS:O	2.02	0.59
53:A:1252:A:H2'	53:A:1253:G:O4'	2.02	0.59
54:01:310:A:C2'	54:01:311:A:H5''	2.32	0.59
54:01:760:G:H2'	54:01:761:A:O4'	2.02	0.59
54:01:2208:C:H2'	54:01:2209:G:C8	2.37	0.59
4:07:37:MET:HG2	4:07:151:LEU:HB3	1.84	0.59
5:08:9:VAL:HA	5:08:48:THR:HA	1.84	0.59
11:14:12:SER:HA	54:01:597:G:H21	1.67	0.59
13:16:67:PHE:O	13:16:71:ARG:HD2	2.02	0.59
17:20:78:ARG:HH12	54:01:990:A:H61	1.50	0.59
18:21:42:LYS:CB	54:01:2010:G:H5''	2.33	0.59
54:01:296:U:H2'	54:01:297:G:C8	2.37	0.59
56:X:2:G:H2'	56:X:3:C:C6	2.37	0.59
4:07:140:ILE:HG22	4:07:142:TYR:H	1.67	0.59
8:11:134:SER:HB2	54:01:1088:A:N6	2.18	0.59
21:24:4:ILE:HD12	21:24:63:ILE:HG12	1.84	0.59
43:M:33:LEU:HD22	43:M:40:GLU:HA	1.84	0.59
43:M:82:LEU:HD11	49:S:64:GLU:HG2	1.82	0.59
52:03:220:ALA:CA	54:01:2176:A:H5'	2.29	0.59
53:A:1500:A:H5''	53:A:1508:A:H5''	1.84	0.59
54:01:2884:U:H2'	54:01:2885:G:C8	2.37	0.59
1:04:98:GLY:HA3	54:01:1500:G:H21	1.67	0.59
7:10:37:LYS:HD3	54:01:1085:A:H62	1.68	0.59
12:15:33:LEU:HD13	12:15:117:PHE:HB3	1.84	0.59
12:15:55:ARG:HD3	54:01:2469:A:H4'	1.84	0.59
32:B:56:LEU:HD23	32:B:59:ILE:HD11	1.85	0.59
35:E:61:LYS:HD3	35:E:65:LYS:HZ1	1.67	0.59
35:E:111:ARG:O	35:E:115:GLU:HG3	2.03	0.59
41:K:126:ARG:HB2	51:U:33:ARG:HH21	1.67	0.59
53:A:455:G:H2'	53:A:456:A:C8	2.36	0.59
53:A:484:G:H4'	53:A:485:U:H5''	1.82	0.59
2:05:46:ARG:HB2	2:05:84:LEU:HD12	1.84	0.59
38:H:4:ASP:OD2	38:H:80:PRO:HD3	2.03	0.59
54:01:20:C:H2'	54:01:21:A:C8	2.38	0.59
56:X:59:A:H2'	56:X:60:U:H5'	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:19:10:ARG:HH22	54:01:29:U:H5'	1.66	0.59
32:B:206:ILE:HA	32:B:209:VAL:HG22	1.85	0.59
54:01:492:A:H2'	54:01:493:G:O4'	2.02	0.59
59:Z:19:HIS:CD2	59:Z:114:GLN:HB2	2.36	0.59
1:04:129:LEU:HG	1:04:134:ILE:HD11	1.83	0.59
44:N:58:ARG:HH12	53:A:979:C:H2'	1.67	0.59
53:A:130:A:O2'	53:A:264:C:H5'	2.03	0.59
53:A:222:C:H2'	53:A:223:A:H8	1.66	0.59
54:01:190:A:H5''	54:01:204:A:H61	1.68	0.59
59:Z:27:LEU:O	59:Z:31:ILE:HG13	2.03	0.59
3:06:109:LEU:HA	3:06:112:LEU:HD12	1.84	0.59
54:01:1092:C:C2'	54:01:1093:G:H5'	2.32	0.59
1:04:131:MET:HA	1:04:134:ILE:HD13	1.83	0.59
18:21:42:LYS:HB2	54:01:2010:G:H5''	1.85	0.59
43:M:113:LYS:HB2	43:M:114:PRO:HD3	1.84	0.59
52:03:38:PHE:HZ	52:03:218:MET:HB2	1.66	0.59
54:01:216:A:H2'	54:01:217:A:O4'	2.03	0.59
54:01:1179:G:C3'	54:01:1180:U:H4'	2.32	0.59
54:01:2267:A:H5''	54:01:2268:A:H5'	1.84	0.59
54:01:2537:U:H2'	54:01:2538:C:C6	2.37	0.59
11:14:103:ILE:HD13	54:01:259:G:H4'	1.84	0.59
16:19:30:VAL:HG13	54:01:581:C:H5'	1.85	0.59
16:19:65:ASN:ND2	16:19:69:ARG:HE	1.97	0.59
41:K:55:ARG:HA	41:K:58:THR:HG23	1.83	0.59
42:L:38:THR:HG22	42:L:50:LYS:HG3	1.85	0.59
11:14:101:ILE:HG13	11:14:102:GLY:H	1.68	0.58
17:20:51:VAL:HB	17:20:52:PRO:HD2	1.84	0.58
47:Q:46:HIS:HB2	47:Q:70:LYS:CD	2.30	0.58
48:R:12:PHE:O	48:R:14:ALA:N	2.34	0.58
50:T:56:ILE:O	50:T:60:GLN:HG2	2.02	0.58
18:21:57:ASN:ND2	18:21:61:ASN:HD22	2.01	0.58
35:E:105:ILE:HD11	35:E:123:LEU:HD23	1.85	0.58
39:I:82:ILE:O	39:I:86:LEU:HG	2.02	0.58
47:Q:71:SER:OG	53:A:235:C:H5'	2.03	0.58
49:S:54:ARG:HB3	53:A:958:A:C2	2.38	0.58
52:03:62:ALA:HB3	52:03:160:GLN:HE21	1.67	0.58
52:03:221:GLY:N	54:01:2176:A:H4'	2.17	0.58
53:A:626:G:H2'	53:A:627:G:C8	2.38	0.58
54:01:1038:G:H2'	54:01:1039:A:C8	2.37	0.58
54:01:1181:U:H2'	54:01:1182:G:C8	2.37	0.58
54:01:1213:A:N6	54:01:1236:G:H1'	2.17	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:54:C:H2'	53:A:352:C:H41	1.68	0.58
53:A:70:U:H5''	53:A:71:A:OP1	2.03	0.58
54:01:1123:C:H2'	54:01:1124:G:C8	2.38	0.58
1:04:235:GLU:H	1:04:238:ASN:ND2	2.01	0.58
34:D:197:HIS:O	34:D:201:GLU:HG3	2.04	0.58
50:T:54:GLN:NE2	53:A:193:C:H1'	2.18	0.58
53:A:505:G:H2'	53:A:506:G:C8	2.39	0.58
18:21:57:ASN:HD22	18:21:61:ASN:HD22	1.51	0.58
21:24:6:ALA:HB1	21:24:41:GLU:O	2.04	0.58
35:E:82:HIS:HB2	35:E:83:PRO:HD2	1.86	0.58
41:K:19:VAL:HG23	41:K:35:ASP:O	2.03	0.58
54:01:594:U:H2'	54:01:595:C:C6	2.38	0.58
54:01:1179:G:C5	54:01:1180:U:H1'	2.39	0.58
34:D:115:GLN:HE22	53:A:406:G:H1'	1.68	0.58
45:O:85:GLY:O	45:O:86:LEU:HB3	2.04	0.58
9:12:136:GLN:NE2	54:01:2899:A:H5'	2.19	0.58
33:C:46:LEU:HD21	33:C:86:LEU:HD11	1.86	0.58
54:01:1335:C:H2'	54:01:1336:A:C8	2.39	0.58
54:01:1611:C:H5'	54:01:1611:C:H6	1.69	0.58
54:01:2698:U:H2'	54:01:2699:C:C6	2.39	0.58
2:05:61:THR:HB	2:05:63:PRO:HD2	1.85	0.58
4:07:91:ARG:HA	4:07:95:MET:HB3	1.85	0.58
27:30:7:PRO:HB3	27:30:11:LYS:HG2	1.85	0.58
38:H:45:ILE:HD13	38:H:60:LEU:HD13	1.85	0.58
39:I:45:MET:O	39:I:49:GLN:HG3	2.04	0.58
45:O:68:TYR:HB2	53:A:754:C:H1'	1.86	0.58
53:A:1477:U:H2'	53:A:1478:U:C6	2.38	0.58
54:01:1053:C:C2'	54:01:1054:A:H5''	2.32	0.58
54:01:1404:C:O2'	54:01:1405:U:H5'	2.04	0.58
33:C:171:ARG:HG2	33:C:173:PRO:HD3	1.85	0.58
39:I:44:ARG:H	39:I:44:ARG:HD2	1.69	0.58
54:01:138:U:H5'	54:01:139:U:OP2	2.02	0.58
54:01:1179:G:H3'	54:01:1180:U:H4'	1.86	0.58
15:18:28:LYS:HB3	15:18:39:LEU:HD11	1.86	0.58
17:20:49:ILE:HG22	17:20:54:VAL:HG13	1.85	0.58
32:B:17:HIS:CG	32:B:18:GLN:H	2.21	0.58
54:01:2479:U:C3'	54:01:2480:C:H5''	2.34	0.58
12:15:69:PRO:HA	12:15:94:ALA:HB2	1.85	0.57
17:20:22:LEU:HD12	17:20:94:THR:HB	1.86	0.57
33:C:112:ALA:HB1	33:C:184:ASN:HB2	1.85	0.57
53:A:1127:G:H22	53:A:1145:A:H2	1.52	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:248:LYS:HE3	59:Z:290:GLN:NE2	2.17	0.57
4:07:114:ARG:NH1	43:M:70:ARG:HH11	1.97	0.57
7:10:11:ILE:HD11	7:10:62:ARG:HG2	1.86	0.57
8:11:55:PRO:HB2	8:11:71:LYS:HZ2	1.69	0.57
11:14:135:ILE:HB	11:14:142:ILE:HD11	1.86	0.57
38:H:5:PRO:HB2	38:H:32:LYS:NZ	2.19	0.57
44:N:1:ALA:N	44:N:6:LYS:HE3	2.19	0.57
53:A:73:C:H2'	53:A:74:A:C8	2.39	0.57
1:04:32:LEU:HD22	1:04:63:ILE:HB	1.85	0.57
1:04:52:HIS:NE2	1:04:218:THR:HG23	2.19	0.57
32:B:100:LEU:HD11	32:B:160:LEU:HD21	1.87	0.57
54:01:2292:U:H2'	54:01:2293:G:C8	2.38	0.57
4:07:114:ARG:HH11	43:M:70:ARG:NH1	1.99	0.57
4:07:129:MET:HA	54:01:2304:G:H4'	1.85	0.57
8:11:92:PRO:HD2	54:01:1076:C:O2'	2.03	0.57
15:18:29:VAL:HG13	15:18:79:VAL:HG22	1.84	0.57
25:28:3:THR:HG22	25:28:38:GLU:HA	1.86	0.57
30:33:7:ARG:HH21	54:01:254:G:H22	1.52	0.57
34:D:59:LYS:O	34:D:63:ILE:HG13	2.03	0.57
44:N:48:GLN:HG2	49:S:11:ASP:OD1	2.04	0.57
49:S:9:PHE:CG	53:A:1318:A:H4'	2.39	0.57
52:03:21:TYR:HB3	52:03:25:GLU:HG3	1.86	0.57
53:A:243:A:H4'	53:A:244:U:H3'	1.85	0.57
4:07:114:ARG:HE	43:M:70:ARG:NH1	2.02	0.57
33:C:86:LEU:O	33:C:90:VAL:HG23	2.05	0.57
35:E:54:GLU:HG2	35:E:56:PRO:HD2	1.85	0.57
53:A:88:U:H2'	53:A:89:U:C6	2.39	0.57
53:A:219:U:H2'	53:A:220:G:C8	2.40	0.57
53:A:543:U:H2'	53:A:544:G:C8	2.39	0.57
54:01:2298:A:H2'	54:01:2299:U:O4'	2.04	0.57
54:01:2817:U:H3'	54:01:2818:U:H5''	1.86	0.57
58:Y:46:G:H3'	58:Y:47:U:C4'	2.30	0.57
8:11:105:LEU:HD23	8:11:108:ILE:HD11	1.86	0.57
11:14:101:ILE:O	11:14:105:ILE:HG13	2.05	0.57
17:20:61:ALA:HB1	17:20:96:VAL:HB	1.86	0.57
23:26:17:ARG:NH1	23:26:23:ALA:HB2	2.20	0.57
24:27:16:THR:HG22	24:27:20:ASN:HD21	1.69	0.57
25:28:51:SER:HA	25:28:54:VAL:HG22	1.86	0.57
36:F:47:LEU:HD12	36:F:55:HIS:HA	1.87	0.57
38:H:6:ILE:O	38:H:10:LEU:HG	2.05	0.57
44:N:20:PHE:O	44:N:21:ALA:HB3	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:73:C:H2'	53:A:74:A:H8	1.67	0.57
53:A:434:U:H2'	53:A:435:A:H8	1.70	0.57
54:01:312:G:H2'	54:01:313:G:H8	1.69	0.57
7:10:82:ILE:HG22	7:10:83:ALA:N	2.19	0.57
39:I:11:ARG:HH21	39:I:108:ARG:HH21	1.53	0.57
42:L:2:THR:HG21	42:L:5:GLN:NE2	2.20	0.57
59:Z:19:HIS:HD2	59:Z:114:GLN:HB2	1.69	0.57
15:18:105:LYS:HG2	53:A:1432:G:O5'	2.03	0.57
45:O:19:ASN:HD21	53:A:750:C:H5'	1.70	0.57
53:A:1024:G:H2'	53:A:1025:U:O4'	2.03	0.57
54:01:530:G:H4'	54:01:532:A:H62	1.69	0.57
54:01:554:U:H2'	54:01:555:G:O4'	2.05	0.57
54:01:1443:U:H2'	54:01:1444:G:C8	2.40	0.57
54:01:1512:C:H2'	54:01:1513:U:C6	2.40	0.57
54:01:2638:G:H1'	54:01:2778:A:H61	1.68	0.57
1:04:231:HIS:HA	1:04:241:LYS:HD2	1.85	0.57
15:18:99:LEU:O	15:18:99:LEU:HD23	2.04	0.57
51:U:51:ALA:HA	51:U:54:ARG:NH1	2.20	0.57
54:01:2646:C:H2'	54:01:2647:U:O4'	2.04	0.57
59:Z:381:ARG:H	59:Z:381:ARG:HD2	1.69	0.57
7:10:56:ARG:NE	7:10:83:ALA:HB2	2.15	0.57
11:14:93:ASN:C	11:14:95:LEU:H	2.07	0.57
15:18:90:ALA:HB2	15:18:112:ARG:HA	1.87	0.57
22:25:16:ARG:HG2	54:01:2271:G:H5''	1.87	0.57
36:F:7:VAL:HG22	36:F:61:LEU:HD13	1.87	0.57
37:G:9:ARG:HH21	53:A:1346:A:H2'	1.69	0.57
49:S:39:ILE:HG23	49:S:43:MET:SD	2.45	0.57
53:A:501:C:H2'	53:A:502:A:C8	2.40	0.57
53:A:722:G:H1	53:A:733:G:H1	1.52	0.57
54:01:558:U:H2'	54:01:559:G:C8	2.40	0.57
2:05:66:GLY:HA3	54:01:2787:C:H5'	1.87	0.56
17:20:49:ILE:HG22	17:20:54:VAL:N	2.20	0.56
32:B:98:GLY:O	32:B:102:ASN:HB3	2.04	0.56
50:T:59:ARG:O	50:T:63:LYS:HG2	2.05	0.56
52:03:6:LYS:HG3	52:03:7:ARG:H	1.70	0.56
53:A:1429:A:H2'	53:A:1430:A:C8	2.40	0.56
54:01:639:U:H2'	54:01:640:C:C6	2.40	0.56
54:01:710:U:H2'	54:01:711:G:C8	2.40	0.56
55:02:12:C:H1'	55:02:15:A:C2	2.41	0.56
56:X:71:C:H2'	56:X:72:A:C8	2.39	0.56
33:C:13:ILE:HG22	33:C:14:VAL:HG23	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:J:22:THR:O	40:J:26:VAL:HG23	2.05	0.56
53:A:458:U:H2'	53:A:459:A:H8	1.70	0.56
53:A:1064:G:N2	53:A:1190:G:H1'	2.20	0.56
54:01:1041:G:H2'	54:01:1042:G:H8	1.70	0.56
54:01:1409:U:H2'	54:01:1410:G:C8	2.40	0.56
54:01:2033:A:H1'	54:01:2035:G:OP2	2.05	0.56
1:04:154:ALA:HB2	1:04:161:VAL:HG23	1.87	0.56
3:06:126:VAL:HG13	3:06:127:GLU:N	2.17	0.56
5:08:84:LYS:HG3	5:08:140:ILE:HB	1.86	0.56
9:12:98:GLU:HB3	9:12:124:VAL:HG23	1.87	0.56
11:14:18:ARG:NH1	11:14:21:ARG:HG3	2.21	0.56
12:15:7:THR:HG22	54:01:870:U:H4'	1.87	0.56
13:16:51:LEU:HD21	13:16:79:LEU:HD11	1.86	0.56
18:21:24:ILE:HD11	18:21:74:ILE:HD13	1.86	0.56
19:22:58:VAL:HG22	19:22:85:VAL:HG12	1.87	0.56
38:H:17:GLN:HE21	38:H:71:VAL:H	1.53	0.56
41:K:125:LYS:HG3	41:K:126:ARG:HG2	1.86	0.56
42:L:119:LYS:HA	53:A:36:C:H5''	1.87	0.56
53:A:56:U:H2'	53:A:57:G:C8	2.41	0.56
53:A:738:C:H2'	53:A:739:C:C6	2.40	0.56
53:A:831:A:C2'	53:A:832:G:H5''	2.36	0.56
53:A:1064:G:H21	53:A:1190:G:H1'	1.71	0.56
54:01:241:A:H4'	54:01:242:G:H5'	1.87	0.56
54:01:704:G:H2'	54:01:726:G:N2	2.19	0.56
54:01:973:A:H5'	54:01:1188:U:H1'	1.87	0.56
54:01:2215:C:H2'	54:01:2216:G:H8	1.69	0.56
54:01:2415:G:H2'	54:01:2416:C:C6	2.39	0.56
54:01:2629:U:O2'	54:01:2630:G:H5''	2.04	0.56
5:08:101:VAL:HA	5:08:115:GLN:HA	1.88	0.56
7:10:3:LEU:HD11	7:10:6:GLN:HG2	1.87	0.56
29:32:3:ARG:HD3	29:32:4:THR:H	1.70	0.56
36:F:98:GLU:CG	36:F:99:ALA:H	2.17	0.56
40:J:44:THR:HG23	40:J:69:THR:O	2.04	0.56
48:R:33:THR:HG22	48:R:37:LYS:HB2	1.86	0.56
53:A:449:G:H2'	53:A:450:G:C8	2.40	0.56
53:A:1201:A:H1'	53:A:1202:U:OP2	2.04	0.56
54:01:2799:A:C2'	54:01:2800:A:H5'	2.35	0.56
56:X:41:C:H2'	56:X:42:G:H8	1.68	0.56
59:Z:88:VAL:HG12	59:Z:92:ILE:HD13	1.88	0.56
18:21:20:VAL:HG21	18:21:43:ALA:HB3	1.88	0.56
39:I:122:ARG:NH1	53:A:1343:G:H1'	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:K:55:ARG:HH22	56:X:40:C:H5''	1.70	0.56
49:S:5:LYS:HG3	49:S:6:LYS:H	1.70	0.56
54:01:195:A:H2'	54:01:198:C:N4	2.19	0.56
54:01:873:C:H2'	54:01:874:G:H8	1.71	0.56
54:01:2329:U:H2'	54:01:2330:G:C8	2.41	0.56
5:08:88:LEU:HD23	5:08:106:LEU:HD21	1.86	0.56
21:24:20:LEU:HD21	21:24:41:GLU:HG3	1.87	0.56
23:26:13:THR:HG21	54:01:188:G:H5'	1.88	0.56
35:E:20:VAL:HA	53:A:16:A:H4'	1.88	0.56
40:J:52:LEU:HD21	40:J:59:LYS:HD3	1.87	0.56
53:A:514:C:H2'	53:A:515:G:H8	1.71	0.56
53:A:664:G:H2'	53:A:666:G:OP1	2.05	0.56
54:01:548:G:H2'	54:01:549:G:C4'	2.36	0.56
54:01:1186:G:H2'	54:01:1187:G:O4'	2.06	0.56
54:01:2065:C:H2'	54:01:2066:C:C6	2.41	0.56
19:22:57:VAL:HG12	19:22:86:THR:OG1	2.06	0.56
32:B:46:VAL:O	32:B:50:ASN:HB2	2.05	0.56
32:B:212:TYR:O	32:B:216:VAL:HG23	2.06	0.56
35:E:56:PRO:O	35:E:60:GLN:HG2	2.05	0.56
54:01:851:C:H2'	54:01:852:U:C6	2.41	0.56
54:01:917:A:H5''	54:01:2268:A:H61	1.71	0.56
54:01:1482:G:H1'	54:01:1509:A:C2	2.41	0.56
54:01:1932:A:H2'	54:01:1933:G:O4'	2.06	0.56
17:20:49:ILE:HG22	17:20:54:VAL:H	1.71	0.56
23:26:61:LYS:HE3	54:01:372:G:OP2	2.04	0.56
34:D:97:LEU:HD13	34:D:134:TYR:HD2	1.70	0.56
40:J:57:VAL:HG22	40:J:58:ASN:N	2.20	0.56
53:A:1219:A:H2'	53:A:1220:G:C8	2.41	0.56
54:01:2103:C:H2'	54:01:2104:C:C6	2.39	0.56
4:07:114:ARG:NH2	26:29:47:LYS:HA	2.20	0.56
12:15:42:THR:OG1	12:15:45:GLN:HG3	2.05	0.56
15:18:29:VAL:CG1	15:18:79:VAL:HG22	2.35	0.56
34:D:85:THR:H	35:E:102:THR:HG21	1.71	0.56
38:H:52:GLY:HA3	38:H:56:PRO:HA	1.88	0.56
39:I:46:VAL:HG21	39:I:75:ALA:HB1	1.88	0.56
53:A:514:C:H2'	53:A:515:G:C8	2.41	0.56
1:04:136:VAL:HG13	1:04:165:ALA:HA	1.88	0.56
3:06:97:ASN:HB2	3:06:100:MET:HG3	1.87	0.56
11:14:42:SER:HB2	54:01:672:C:H5	1.70	0.56
19:22:32:LEU:HD12	19:22:83:ALA:HB3	1.88	0.56
40:J:8:ILE:HB	40:J:74:VAL:HB	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1354:U:H2'	53:A:1355:G:C8	2.40	0.56
53:A:1429:A:H2'	53:A:1430:A:H8	1.70	0.56
54:01:833:A:H2'	54:01:834:G:C8	2.41	0.56
54:01:1213:A:H61	54:01:1236:G:H1'	1.71	0.56
59:Z:4:LYS:HA	59:Z:264:LEU:HB2	1.88	0.56
1:04:257:ARG:HH12	1:04:259:ASN:HB2	1.70	0.55
21:24:20:LEU:HD21	21:24:41:GLU:CG	2.35	0.55
39:I:66:VAL:HG22	39:I:67:LYS:N	2.21	0.55
53:A:634:C:H2'	53:A:635:A:H8	1.72	0.55
53:A:1298:U:H4'	53:A:1299:A:O4'	2.05	0.55
54:01:106:C:H2'	54:01:107:G:H8	1.70	0.55
59:Z:160:TYR:OH	59:Z:315:GLU:HB3	2.05	0.55
35:E:22:LYS:HB3	35:E:29:ILE:HG23	1.88	0.55
43:M:6:ILE:HD12	43:M:7:ASN:N	2.18	0.55
43:M:51:GLN:O	43:M:55:LEU:HD13	2.06	0.55
53:A:34:C:H2'	53:A:35:G:C8	2.42	0.55
53:A:1513:A:H2'	53:A:1514:G:C8	2.41	0.55
54:01:1169:A:H2'	54:01:1170:C:O4'	2.06	0.55
55:02:19:C:H2'	55:02:20:G:C8	2.40	0.55
29:32:34:ARG:HD3	54:01:467:G:OP2	2.06	0.55
53:A:1170:A:H2'	53:A:1171:A:O4'	2.05	0.55
54:01:106:C:H2'	54:01:107:G:C8	2.42	0.55
54:01:1386:C:H2'	54:01:1387:A:H8	1.71	0.55
54:01:1863:G:H4'	54:01:2411:A:H4'	1.88	0.55
34:D:172:VAL:HG22	34:D:173:ASP:N	2.22	0.55
44:N:5:MET:HE3	44:N:62:ARG:HH22	1.72	0.55
53:A:1301:U:O2	53:A:1301:U:H2'	2.06	0.55
59:Z:175:LEU:O	59:Z:179:GLU:HG2	2.06	0.55
8:11:7:TYR:HA	8:11:58:ILE:O	2.07	0.55
12:15:41:LEU:HA	12:15:45:GLN:OE1	2.05	0.55
29:32:37:LYS:O	54:01:458:G:H2'	2.07	0.55
53:A:40:C:H2'	53:A:41:G:H8	1.70	0.55
53:A:142:G:H2'	53:A:143:A:O4'	2.06	0.55
34:D:127:ARG:HH21	53:A:619:U:H4'	1.71	0.55
40:J:32:THR:HG23	40:J:33:GLY:H	1.72	0.55
45:O:28:VAL:HG13	45:O:62:ARG:HG3	1.87	0.55
47:Q:26:ARG:HG3	47:Q:39:ARG:HB2	1.88	0.55
53:A:1399:C:H1'	53:A:1400:C:OP2	2.07	0.55
53:A:1412:C:H2'	53:A:1413:A:C8	2.41	0.55
54:01:2479:U:H3'	54:01:2480:C:H5''	1.88	0.55
55:02:29:A:H2'	55:02:30:C:C6	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:36:ALA:O	59:Z:40:GLY:HA2	2.07	0.55
11:14:67:THR:HG21	54:01:244:A:H5''	1.88	0.55
19:22:39:THR:O	19:22:43:ILE:HG13	2.06	0.55
24:27:46:VAL:O	24:27:50:VAL:HG23	2.07	0.55
30:33:53:ASP:OD2	54:01:2359:C:H4'	2.07	0.55
31:34:9:LYS:HD3	31:34:16:ILE:HG12	1.88	0.55
36:F:12:PRO:CD	36:F:54:LEU:HD21	2.37	0.55
54:01:814:C:H1'	54:01:1225:G:H21	1.72	0.55
54:01:1061:U:OP2	54:01:1070:A:H1'	2.06	0.55
58:Y:9:A:H2	58:Y:23:A:H62	1.55	0.55
4:07:37:MET:HE3	4:07:151:LEU:HB3	1.89	0.55
6:09:2:GLN:O	6:09:39:ALA:HB3	2.07	0.55
8:11:6:ALA:HB1	8:11:30:GLN:HG2	1.87	0.55
11:14:19:LEU:HD12	11:14:27:LEU:HD13	1.88	0.55
37:G:4:ARG:HD2	37:G:4:ARG:N	2.22	0.55
53:A:212:G:H2'	53:A:213:G:C8	2.42	0.55
53:A:986:U:H2'	53:A:987:G:O4'	2.07	0.55
53:A:1162:C:H2'	53:A:1163:A:H8	1.72	0.55
53:A:1354:U:H2'	53:A:1355:G:H8	1.72	0.55
54:01:135:U:H2'	54:01:136:G:H8	1.71	0.55
54:01:1982:U:H6	54:01:1982:U:H5'	1.72	0.55
58:Y:25:C:H2'	58:Y:26:A:H4'	1.87	0.55
8:11:102:ARG:HG3	8:11:125:THR:HG21	1.89	0.55
16:19:87:VAL:HG12	16:19:89:ILE:HG13	1.87	0.55
24:27:17:GLU:HB2	24:27:53:VAL:HG11	1.89	0.55
40:J:52:LEU:HB2	44:N:80:ARG:HD2	1.87	0.55
54:01:61:C:H2'	54:01:62:U:H5'	1.88	0.55
54:01:2108:A:C2'	54:01:2109:U:H5'	2.36	0.55
12:15:64:TRP:HB2	12:15:104:GLU:HB2	1.88	0.55
16:19:49:ARG:HG2	16:19:52:ARG:NH2	2.22	0.55
35:E:164:LEU:HD12	35:E:165:GLY:N	2.22	0.55
43:M:1:ALA:C	43:M:2:ARG:HD3	2.28	0.55
50:T:70:LYS:HA	50:T:73:ARG:NH1	2.21	0.55
52:03:205:LYS:HE2	52:03:205:LYS:HA	1.88	0.55
53:A:189:A:H2'	53:A:190:A:O4'	2.06	0.55
54:01:1477:A:H2'	54:01:1478:G:O4'	2.08	0.55
54:01:2215:C:H2'	54:01:2216:G:C8	2.42	0.55
54:01:2329:U:H2'	54:01:2330:G:H8	1.72	0.55
32:B:222:GLU:OE2	32:B:225:SER:HB2	2.07	0.54
40:J:41:PRO:HG3	53:A:1150:A:N3	2.22	0.54
53:A:448:A:H3'	53:A:449:G:C8	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1448:C:H3'	53:A:1448:C:OP2	2.06	0.54
54:01:1198:U:H2'	54:01:1199:U:C6	2.41	0.54
54:01:2423:U:O2'	54:01:2425:A:H2'	2.07	0.54
54:01:2724:U:H2'	54:01:2725:A:C8	2.42	0.54
55:02:104:A:H2'	55:02:105:G:O4'	2.08	0.54
57:V:17:U:H2'	57:V:18:G:C8	2.42	0.54
6:09:12:LEU:HD22	6:09:19:VAL:HG11	1.88	0.54
9:12:23:LYS:HE2	9:12:23:LYS:HA	1.90	0.54
34:D:120:LYS:HD3	34:D:145:ARG:HH12	1.72	0.54
51:U:25:ALA:HB1	51:U:29:ALA:CB	2.37	0.54
53:A:82:G:H2'	53:A:83:C:O4'	2.07	0.54
54:01:2066:C:O2'	54:01:2067:G:H5'	2.06	0.54
59:Z:217:VAL:HG11	59:Z:286:ILE:HG23	1.89	0.54
5:08:1:SER:HB2	54:01:2749:A:H5''	1.89	0.54
8:11:27:LEU:HB3	8:11:32:VAL:HB	1.88	0.54
10:13:76:VAL:HG12	15:18:72:VAL:CG2	2.37	0.54
34:D:131:ILE:HG22	34:D:133:SER:H	1.72	0.54
46:P:78:VAL:HA	46:P:82:ALA:OXT	2.06	0.54
47:Q:19:SER:HB3	47:Q:70:LYS:NZ	2.22	0.54
51:U:20:ARG:H	51:U:20:ARG:HD2	1.72	0.54
53:A:35:G:H2'	53:A:36:C:C6	2.42	0.54
53:A:77:A:H2'	53:A:78:A:C8	2.43	0.54
53:A:634:C:H2'	53:A:635:A:C8	2.42	0.54
54:01:457:A:N1	54:01:470:A:H5''	2.22	0.54
54:01:621:A:H2'	54:01:622:G:H5'	1.88	0.54
54:01:1295:C:H2'	54:01:1296:G:H8	1.72	0.54
54:01:1874:C:H2'	54:01:1875:G:O4'	2.08	0.54
59:Z:186:ALA:HA	59:Z:189:LEU:HD12	1.88	0.54
4:07:3:LEU:HA	4:07:6:TYR:CB	2.36	0.54
8:11:12:VAL:HG12	8:11:13:ALA:H	1.72	0.54
8:11:113:ALA:HA	8:11:124:MET:SD	2.48	0.54
12:15:35:ALA:HB2	12:15:102:LEU:HD11	1.90	0.54
33:C:10:ARG:HA	33:C:13:ILE:HD13	1.88	0.54
36:F:36:ILE:HG12	36:F:39:LEU:HB2	1.89	0.54
44:N:1:ALA:O	44:N:5:MET:HB2	2.07	0.54
47:Q:58:VAL:CG2	47:Q:74:LEU:HD13	2.36	0.54
50:T:28:ARG:O	50:T:32:LYS:HG2	2.07	0.54
53:A:219:U:H2'	53:A:220:G:H8	1.73	0.54
53:A:880:C:H2'	53:A:881:G:H8	1.71	0.54
3:06:112:LEU:HB3	3:06:118:LEU:HB2	1.90	0.54
20:23:71:ILE:HD13	20:23:82:VAL:HG22	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:B:183:PHE:HD1	32:B:197:PHE:HB2	1.72	0.54
34:D:33:ILE:HG13	34:D:34:GLU:H	1.71	0.54
35:E:93:VAL:HG11	35:E:139:THR:HG22	1.90	0.54
35:E:110:MET:HG3	35:E:139:THR:HG21	1.90	0.54
44:N:26:LEU:HD22	44:N:47:LEU:HD13	1.88	0.54
46:P:20:VAL:CG2	46:P:21:VAL:H	2.16	0.54
52:O3:46:VAL:HG13	52:O3:211:LYS:O	2.08	0.54
54:O1:1019:U:H2'	54:O1:1020:A:C8	2.42	0.54
54:O1:1138:G:H2'	54:O1:1139:G:O4'	2.07	0.54
54:O1:1748:C:H2'	54:O1:1749:A:H8	1.72	0.54
56:X:8:U:H2'	56:X:46:G:H21	1.71	0.54
59:Z:154:ARG:HH12	59:Z:167:THR:N	2.03	0.54
1:O4:255:LYS:HG2	54:O1:1844:C:H5''	1.89	0.54
7:10:81:LEU:HD23	7:10:81:LEU:O	2.08	0.54
11:14:4:ASN:O	54:O1:1243:C:H1'	2.08	0.54
11:14:65:GLY:C	54:O1:2415:G:H4'	2.27	0.54
54:O1:792:A:H3'	54:O1:793:A:H5'	1.88	0.54
54:O1:2350:C:H2'	54:O1:2351:G:O4'	2.08	0.54
54:O1:2788:C:H2'	54:O1:2789:C:C6	2.42	0.54
59:Z:66:HIS:CE1	59:Z:79:VAL:HG22	2.42	0.54
5:O8:10:VAL:HG12	5:O8:47:ASN:O	2.07	0.54
10:13:48:PRO:HA	53:A:1422:G:OP1	2.08	0.54
13:16:55:ALA:HA	13:16:80:PHE:CE1	2.43	0.54
20:23:87:GLU:HB2	20:23:92:VAL:HG21	1.90	0.54
34:D:71:PHE:HA	34:D:74:TYR:HD2	1.72	0.54
34:D:142:VAL:HG22	34:D:143:SER:H	1.72	0.54
38:H:46:GLU:O	38:H:61:THR:HB	2.08	0.54
43:M:53:ASP:HA	43:M:56:ARG:HH11	1.72	0.54
54:O1:118:A:H5'	54:O1:119:A:H8	1.72	0.54
54:O1:2394:C:H42	56:X:76:A:H1'	1.72	0.54
55:O2:66:A:N1	55:O2:107:G:H2'	2.23	0.54
58:Y:76:A:O2'	61:Y:101:LYS:O	2.25	0.54
59:Z:124:GLN:HE22	59:Z:373:ARG:HG2	1.73	0.54
2:O5:109:VAL:O	2:O5:171:THR:HG23	2.08	0.54
4:O7:140:ILE:HD12	4:O7:140:ILE:N	2.22	0.54
18:21:41:LYS:HD2	54:O1:2009:A:H5''	1.90	0.54
36:F:64:VAL:HG22	36:F:65:GLU:N	2.23	0.54
53:A:946:A:H2'	53:A:947:G:C8	2.42	0.54
53:A:1062:U:H2'	53:A:1063:C:C6	2.43	0.54
54:O1:41:C:H2'	54:O1:42:A:O4'	2.08	0.54
54:O1:225:C:H2'	54:O1:226:A:O4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1716:U:H2'	54:01:1717:A:H8	1.72	0.54
54:01:2803:G:H2'	54:01:2804:U:C6	2.42	0.54
56:X:64:G:H2'	56:X:65:C:C6	2.43	0.54
29:32:4:THR:HG21	54:01:789:A:H5'	1.90	0.54
41:K:35:ASP:OD2	41:K:39:ASN:HB2	2.07	0.54
45:O:73:ASP:OD2	45:O:75:ALA:HB3	2.08	0.54
46:P:54:LEU:HD11	46:P:78:VAL:HG11	1.90	0.54
51:U:29:ALA:HA	51:U:32:ARG:HD3	1.90	0.54
54:01:103:A:H2'	54:01:104:A:O4'	2.08	0.54
54:01:593:U:H2'	54:01:594:U:C6	2.43	0.54
2:05:136:ASN:HA	54:01:2580:U:H5'	1.90	0.54
5:08:72:ASN:O	5:08:76:ILE:HG12	2.08	0.54
10:13:76:VAL:H	15:18:72:VAL:HG22	1.73	0.54
32:B:15:PHE:O	32:B:40:ILE:N	2.41	0.54
38:H:28:SER:HB2	38:H:58:LEU:HB2	1.90	0.54
52:03:40:GLU:OE2	52:03:178:VAL:HG11	2.08	0.54
54:01:1036:G:H2'	54:01:1037:G:H8	1.72	0.54
54:01:1306:C:H41	54:01:1606:C:H2'	1.73	0.54
54:01:1344:U:H3'	54:01:1345:C:H5'	1.88	0.54
54:01:1469:A:H2'	54:01:1470:A:C8	2.43	0.54
4:07:94:ARG:HD3	4:07:94:ARG:H	1.73	0.53
7:10:33:VAL:HG12	7:10:34:THR:N	2.23	0.53
15:18:112:ARG:NE	15:18:114:ASN:HD21	2.06	0.53
18:21:6:LYS:HG3	54:01:494:G:H4'	1.89	0.53
26:29:61:ASN:HD21	49:S:41:PRO:HG2	1.73	0.53
53:A:422:C:H4'	53:A:423:G:C2	2.42	0.53
53:A:434:U:H2'	53:A:435:A:C8	2.42	0.53
53:A:1182:G:H5'	53:A:1183:U:OP1	2.09	0.53
54:01:549:G:H2'	54:01:550:C:C6	2.42	0.53
54:01:720:U:H2'	54:01:721:A:C8	2.43	0.53
54:01:992:C:H2'	54:01:993:G:C8	2.43	0.53
2:05:23:PRO:HB3	54:01:2682:A:C2	2.44	0.53
5:08:118:ALA:HB3	5:08:120:ILE:HG12	1.90	0.53
8:11:135:MET:HE1	54:01:1062:G:H21	1.72	0.53
16:19:18:LYS:HA	16:19:21:LYS:HZ3	1.72	0.53
51:U:24:LYS:C	51:U:26:GLY:H	2.10	0.53
53:A:96:U:H2'	53:A:97:G:C8	2.41	0.53
53:A:994:A:C8	53:A:1216:A:H4'	2.44	0.53
53:A:1236:A:H2'	53:A:1237:C:C6	2.43	0.53
54:01:858:G:H5'	54:01:859:G:OP2	2.08	0.53
56:X:35:A:H61	57:V:14:A:H61	1.55	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:148:LEU:O	59:Z:152:GLU:HG3	2.08	0.53
59:Z:223:ARG:HA	59:Z:223:ARG:HH21	1.73	0.53
5:08:87:GLN:HG3	5:08:89:VAL:HG23	1.90	0.53
18:21:11:ARG:H	18:21:11:ARG:CD	2.21	0.53
21:24:72:VAL:HA	21:24:94:ALA:H	1.73	0.53
31:34:19:ARG:HB2	31:34:24:ARG:HD2	1.90	0.53
36:F:2:ARG:HH11	36:F:92:THR:HG21	1.74	0.53
41:K:112:VAL:HA	48:R:72:ARG:NH1	2.23	0.53
54:01:374:A:H4'	54:01:422:A:H2	1.73	0.53
54:01:704:G:H1'	54:01:727:A:H61	1.72	0.53
54:01:1965:C:H5''	54:01:1966:A:H2'	1.90	0.53
54:01:2292:U:H2'	54:01:2293:G:H8	1.72	0.53
54:01:2847:U:H2'	54:01:2848:G:O4'	2.08	0.53
8:11:60:VAL:HG12	8:11:61:TYR:H	1.72	0.53
10:13:113:MET:O	10:13:116:ILE:HG13	2.09	0.53
12:15:6:ARG:O	12:15:6:ARG:HD3	2.08	0.53
13:16:33:ILE:HG13	13:16:114:GLU:HB3	1.90	0.53
15:18:105:LYS:O	15:18:108:ARG:HG2	2.08	0.53
18:21:51:LEU:O	18:21:55:ILE:HG13	2.09	0.53
32:B:86:CYS:O	32:B:87:ASP:HB3	2.09	0.53
32:B:174:GLU:HA	32:B:177:ASN:ND2	2.23	0.53
35:E:137:ARG:NH1	53:A:1078:U:H4'	2.24	0.53
53:A:123:U:H2'	53:A:124:C:C6	2.43	0.53
56:W:50:U:H2'	56:W:51:C:C6	2.43	0.53
58:Y:54:U:H2'	58:Y:55:U:H5'	1.90	0.53
58:Y:69:A:O2'	58:Y:70:C:O5'	2.25	0.53
59:Z:126:GLY:HA2	59:Z:373:ARG:NH2	2.23	0.53
1:04:16:VAL:H	1:04:203:VAL:CG2	2.21	0.53
23:26:70:LEU:HD23	23:26:73:ARG:NH2	2.22	0.53
32:B:9:LEU:HD12	32:B:42:LEU:HD22	1.91	0.53
33:C:137:VAL:HG21	33:C:167:TYR:HD2	1.74	0.53
36:F:5:GLU:HA	36:F:63:ASN:HA	1.89	0.53
40:J:81:GLU:HA	40:J:84:VAL:HG12	1.90	0.53
53:A:210:C:H4'	53:A:211:G:C2	2.43	0.53
53:A:337:G:H2'	53:A:338:A:C8	2.44	0.53
54:01:481:G:N1	54:01:507:A:H1'	2.23	0.53
54:01:582:A:H2'	54:01:583:G:C8	2.44	0.53
54:01:1484:U:H2'	54:01:1485:U:C6	2.43	0.53
54:01:1709:U:H2'	54:01:1710:G:C8	2.43	0.53
54:01:1940:U:H4'	54:01:1941:C:O5'	2.09	0.53
54:01:2023:C:H2'	54:01:2024:G:H8	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2638:G:H1'	54:01:2778:A:N6	2.24	0.53
59:Z:301:HIS:HB2	59:Z:368:MET:HB2	1.90	0.53
2:05:13:ARG:HD2	2:05:21:SER:OG	2.08	0.53
7:10:29:ASP:H	7:10:56:ARG:NH2	2.06	0.53
8:11:90:GLY:C	8:11:91:LYS:HD3	2.29	0.53
11:14:18:ARG:HH12	11:14:21:ARG:HG3	1.73	0.53
32:B:46:VAL:HB	32:B:47:PRO:HD3	1.90	0.53
32:B:159:ALA:HB2	32:B:181:PRO:HG2	1.90	0.53
38:H:49:LYS:HB2	38:H:59:GLU:HG2	1.91	0.53
46:P:54:LEU:HA	46:P:57:ILE:HD12	1.90	0.53
47:Q:22:VAL:HG21	47:Q:60:ILE:HD11	1.89	0.53
54:01:359:G:H2'	54:01:360:U:O4'	2.08	0.53
54:01:386:G:H3'	54:01:387:U:H5'	1.90	0.53
54:01:687:C:H5'	54:01:687:C:H6	1.74	0.53
56:W:23:C:H2'	56:W:24:U:C6	2.44	0.53
59:Z:16:THR:HG23	59:Z:78:HIS:HE1	1.73	0.53
59:Z:103:LEU:HD21	59:Z:119:ILE:HD11	1.90	0.53
11:14:101:ILE:HG13	11:14:102:GLY:N	2.24	0.53
16:19:93:ILE:O	16:19:97:ILE:HG13	2.08	0.53
33:C:6:PRO:HD2	33:C:183:TYR:CE2	2.44	0.53
34:D:202:LEU:O	34:D:205:LYS:HG2	2.09	0.53
43:M:85:TYR:O	43:M:89:ARG:HG2	2.08	0.53
46:P:2:VAL:CG1	53:A:229:U:H4'	2.38	0.53
53:A:1272:G:H2'	53:A:1273:C:O4'	2.09	0.53
54:01:1765:U:H2'	54:01:1766:G:C8	2.44	0.53
54:01:1765:U:H2'	54:01:1766:G:H8	1.74	0.53
54:01:2554:U:H2'	54:01:2555:U:C6	2.42	0.53
2:05:8:LYS:HB2	2:05:201:LEU:HD11	1.91	0.53
16:19:1:ALA:HB1	54:01:1199:U:O2	2.08	0.53
44:N:26:LEU:HD23	44:N:26:LEU:O	2.09	0.53
49:S:5:LYS:HA	53:A:1313:U:OP2	2.08	0.53
52:03:46:VAL:HG22	52:03:212:VAL:HA	1.89	0.53
53:A:1305:G:H22	53:A:1331:G:H2'	1.72	0.53
54:01:291:G:O2'	54:01:292:U:H5'	2.08	0.53
54:01:718:A:H2'	54:01:719:C:O4'	2.09	0.53
54:01:2704:C:H2'	54:01:2705:A:O4'	2.09	0.53
58:Y:14:A:H2'	58:Y:15:G:O4'	2.08	0.53
59:Z:103:LEU:HG	59:Z:105:VAL:HG23	1.89	0.53
3:06:45:ALA:HA	3:06:87:ALA:HB3	1.90	0.53
6:09:94:ILE:HD13	6:09:122:LEU:O	2.09	0.53
19:22:69:ARG:HG2	19:22:74:ILE:HA	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:29:13:THR:HA	26:29:23:LYS:HA	1.90	0.53
34:D:99:ASN:HA	34:D:110:ARG:NH1	2.23	0.53
39:I:24:ASN:HB3	39:I:26:LYS:HE3	1.90	0.53
47:Q:16:MET:HG3	47:Q:19:SER:OG	2.08	0.53
54:01:46:G:H2'	54:01:47:C:C6	2.44	0.53
54:01:1182:G:H2'	54:01:1183:U:O4'	2.09	0.53
54:01:2328:A:H2'	54:01:2329:U:C6	2.44	0.53
59:Z:85:ALA:O	59:Z:88:VAL:HG23	2.09	0.53
4:07:7:TYR:OH	4:07:29:ARG:HB3	2.09	0.53
16:19:98:ALA:HB2	16:19:105:PHE:CE1	2.43	0.53
36:F:64:VAL:HG22	36:F:65:GLU:H	1.73	0.53
42:L:110:LYS:HB2	53:A:538:G:H5''	1.91	0.53
49:S:34:SER:O	49:S:70:LEU:HD12	2.09	0.53
52:03:193:LEU:HA	52:03:196:LEU:HD23	1.91	0.53
53:A:443:C:H2'	53:A:444:G:H8	1.73	0.53
53:A:831:A:C3'	53:A:832:G:H5''	2.39	0.53
54:01:189:G:H2'	54:01:205:G:N2	2.24	0.53
54:01:2423:U:H5'	54:01:2424:C:C5'	2.38	0.53
54:01:2469:A:H2'	54:01:2470:G:O4'	2.09	0.53
2:05:184:ARG:CZ	15:18:6:GLN:HE21	2.22	0.52
6:09:118:PRO:HG2	6:09:130:VAL:HA	1.91	0.52
7:10:57:ASN:OD1	7:10:63:ALA:HB2	2.09	0.52
11:14:63:LYS:HA	30:33:12:ARG:HG2	1.92	0.52
28:31:14:ALA:HB2	28:31:46:VAL:HG11	1.90	0.52
32:B:166:ASP:OD2	32:B:190:SER:HA	2.09	0.52
37:G:15:PRO:HA	39:I:45:MET:SD	2.49	0.52
38:H:30:LYS:HD2	53:A:591:U:OP2	2.09	0.52
42:L:58:ASN:OD1	42:L:60:PHE:HB2	2.09	0.52
44:N:42:ASN:HB3	44:N:46:LYS:NZ	2.24	0.52
49:S:35:ARG:HD2	53:A:1221:G:OP1	2.09	0.52
53:A:428:G:H4'	53:A:429:U:O5'	2.09	0.52
53:A:1069:C:H2'	53:A:1070:U:H5''	1.90	0.52
54:01:1437:C:H2'	54:01:1438:U:C6	2.44	0.52
54:01:1726:C:H2'	54:01:1727:C:C6	2.44	0.52
54:01:2515:C:H2'	54:01:2516:A:H8	1.74	0.52
54:01:2628:C:O2'	54:01:2781:A:H2'	2.09	0.52
54:01:2800:A:C2	54:01:2895:G:H1'	2.44	0.52
59:Z:102:ILE:N	59:Z:102:ILE:HD12	2.24	0.52
59:Z:106:ALA:HB3	59:Z:109:ASP:HB2	1.90	0.52
1:04:42:ARG:HB3	1:04:46:GLY:HA2	1.91	0.52
3:06:21:ARG:HD2	3:06:106:LYS:HE2	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:17:71:ALA:HB2	14:17:102:ARG:HB3	1.91	0.52
37:G:4:ARG:HD2	37:G:4:ARG:H	1.74	0.52
37:G:37:THR:O	37:G:41:ILE:HG13	2.10	0.52
47:Q:58:VAL:HG23	47:Q:74:LEU:HD13	1.91	0.52
51:U:64:ALA:C	51:U:66:ARG:H	2.12	0.52
54:01:118:A:H5'	54:01:119:A:C8	2.44	0.52
54:01:598:U:H2'	54:01:599:A:C8	2.44	0.52
59:Z:33:THR:O	59:Z:36:ALA:HB3	2.10	0.52
8:11:55:PRO:HB2	8:11:71:LYS:NZ	2.24	0.52
9:12:105:VAL:HG21	9:12:122:LEU:HD22	1.91	0.52
19:22:73:ARG:HD2	19:22:73:ARG:N	2.24	0.52
41:K:117:HIS:HB2	53:A:675:A:N3	2.24	0.52
44:N:2:LYS:HD2	53:A:1049:U:C2'	2.39	0.52
46:P:20:VAL:HG23	46:P:35:ARG:CB	2.38	0.52
52:03:193:LEU:HA	52:03:196:LEU:CD2	2.40	0.52
53:A:408:A:H2'	53:A:409:U:C6	2.44	0.52
53:A:437:U:H2'	53:A:438:U:O4'	2.09	0.52
54:01:164:C:H2'	54:01:165:A:H5'	1.91	0.52
54:01:1468:U:H2'	54:01:1522:A:N6	2.25	0.52
54:01:2743:U:H2'	54:01:2744:G:H5''	1.92	0.52
55:02:88:C:H5''	55:02:89:U:OP1	2.09	0.52
2:05:108:ASP:OD2	2:05:206:ALA:HA	2.09	0.52
7:10:52:MET:HA	7:10:86:MET:HB2	1.91	0.52
18:21:7:HIS:HD2	18:21:103:ILE:HD12	1.73	0.52
18:21:58:ALA:HA	18:21:62:ASP:OD2	2.09	0.52
31:34:19:ARG:HD2	31:34:24:ARG:HD2	1.90	0.52
32:B:42:LEU:HD12	32:B:43:GLU:N	2.24	0.52
32:B:99:MET:HA	32:B:106:VAL:HG21	1.90	0.52
34:D:142:VAL:HG22	34:D:143:SER:N	2.23	0.52
40:J:44:THR:HG23	40:J:69:THR:C	2.30	0.52
53:A:59:A:H3'	53:A:331:G:H22	1.74	0.52
53:A:643:C:H2'	53:A:644:U:C6	2.44	0.52
53:A:1064:G:H4'	53:A:1065:U:OP1	2.08	0.52
54:01:787:C:H5''	54:01:788:A:H5'	1.92	0.52
54:01:1386:C:H2'	54:01:1387:A:C8	2.43	0.52
54:01:2286:G:H4'	54:01:2287:A:O4'	2.09	0.52
55:02:38:C:H42	55:02:44:G:H1	1.58	0.52
59:Z:123:ARG:HE	59:Z:160:TYR:HB3	1.75	0.52
59:Z:320:THR:HB	59:Z:321:PRO:HD2	1.92	0.52
7:10:43:LYS:O	7:10:46:ARG:HG2	2.10	0.52
9:12:78:THR:HG22	54:01:2641:G:H5''	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:23:97:SER:O	20:23:98:ASN:HB3	2.10	0.52
37:G:110:ARG:HH22	37:G:121:ASN:HB3	1.74	0.52
39:I:118:ARG:HH22	39:I:122:ARG:NE	2.04	0.52
50:T:49:ALA:HA	50:T:52:GLU:HB3	1.91	0.52
53:A:1306:A:H2'	53:A:1307:U:O4'	2.09	0.52
4:07:139:GLU:HG3	26:29:28:VAL:HG22	1.91	0.52
9:12:29:ALA:HA	9:12:32:LEU:HD12	1.92	0.52
14:17:51:ALA:HB3	14:17:78:VAL:CG2	2.40	0.52
22:25:19:VAL:HG13	22:25:34:VAL:HG22	1.92	0.52
33:C:53:ARG:O	33:C:53:ARG:HD3	2.10	0.52
36:F:3:HIS:O	36:F:92:THR:HA	2.09	0.52
39:I:105:ARG:NH1	39:I:107:ALA:HA	2.25	0.52
45:O:45:HIS:O	45:O:47:LYS:N	2.43	0.52
46:P:20:VAL:HG23	46:P:35:ARG:HB3	1.90	0.52
46:P:54:LEU:HD23	46:P:57:ILE:HD12	1.91	0.52
50:T:83:ASN:HA	50:T:86:ALA:HB3	1.92	0.52
53:A:1291:U:H2'	53:A:1292:G:C8	2.45	0.52
54:01:275:C:H3'	54:01:276:U:H5''	1.92	0.52
54:01:414:C:H5''	54:01:1879:C:O2'	2.09	0.52
54:01:488:G:N2	54:01:491:G:H5''	2.25	0.52
54:01:812:C:H5''	54:01:1250:G:HO2'	1.74	0.52
54:01:1591:A:H2'	54:01:1592:C:C6	2.44	0.52
54:01:1889:A:H2'	54:01:1890:A:C8	2.45	0.52
54:01:2479:U:H2'	54:01:2480:C:H5''	1.92	0.52
54:01:2502:G:H5'	54:01:2503:A:H5''	1.91	0.52
1:04:43:ASN:ND2	54:01:1806:C:H1'	2.25	0.52
1:04:121:ALA:HB1	1:04:127:ASN:HD22	1.74	0.52
12:15:35:ALA:HA	12:15:128:THR:HG22	1.92	0.52
21:24:80:HIS:HB3	21:24:83:LYS:O	2.10	0.52
32:B:69:VAL:HG21	32:B:162:VAL:HG22	1.90	0.52
42:L:44:PRO:HG2	42:L:45:ASN:OD1	2.09	0.52
52:03:4:LEU:HD12	52:03:4:LEU:O	2.09	0.52
53:A:505:G:H2'	53:A:506:G:H8	1.74	0.52
53:A:579:A:H2'	53:A:580:C:C6	2.44	0.52
54:01:1689:A:H2'	54:01:1690:A:C8	2.45	0.52
54:01:1880:U:H2'	54:01:1881:C:C6	2.44	0.52
54:01:2243:U:H2'	54:01:2244:U:C6	2.45	0.52
24:27:7:ARG:HD3	24:27:7:ARG:N	2.25	0.52
31:34:3:VAL:HG21	54:01:2539:C:H5'	1.91	0.52
35:E:14:LEU:HD13	35:E:59:ILE:HG22	1.92	0.52
35:E:86:GLY:N	35:E:93:VAL:O	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:E:149:PRO:HA	35:E:152:VAL:HG22	1.92	0.52
40:J:88:MET:C	40:J:89:ARG:HD3	2.30	0.52
41:K:86:LYS:HB2	41:K:112:VAL:HG23	1.90	0.52
41:K:105:ARG:HH21	51:U:11:PHE:HE1	1.57	0.52
53:A:1028:C:H2'	53:A:1029:U:O4'	2.09	0.52
54:01:296:U:H2'	54:01:297:G:H8	1.74	0.52
54:01:1759:A:C2	54:01:2697:G:H1'	2.45	0.52
58:Y:8:U:H2'	58:Y:13:C:H41	1.74	0.52
59:Z:204:ARG:HB3	59:Z:270:ALA:HB3	1.90	0.52
59:Z:227:VAL:HG12	59:Z:276:VAL:O	2.10	0.52
8:11:80:LYS:NZ	8:11:80:LYS:HB3	2.25	0.52
15:18:103:THR:HA	15:18:107:ALA:HB2	1.92	0.52
17:20:38:VAL:O	17:20:53:PHE:HA	2.09	0.52
27:30:8:THR:HG23	27:30:11:LYS:H	1.75	0.52
45:O:23:SER:HB3	45:O:26:VAL:CG2	2.39	0.52
53:A:1277:C:H2'	53:A:1278:G:H5''	1.91	0.52
54:01:750:A:H2'	54:01:751:A:H5''	1.92	0.52
54:01:1103:A:H3'	54:01:1104:C:C5'	2.32	0.52
54:01:1542:U:H2'	54:01:1543:G:O4'	2.10	0.52
54:01:1682:G:C4	54:01:1757:A:H1'	2.45	0.52
54:01:1697:G:H4'	54:01:1978:A:H5''	1.92	0.52
55:02:19:C:H2'	55:02:20:G:H8	1.74	0.52
55:02:92:C:H2'	55:02:93:C:C6	2.45	0.52
3:06:149:ILE:HG21	3:06:188:MET:HG2	1.92	0.52
17:20:24:LYS:HA	17:20:94:THR:OG1	2.10	0.52
24:27:52:ARG:O	24:27:56:LEU:HG	2.10	0.52
36:F:2:ARG:HE	36:F:68:GLN:HE21	1.56	0.52
44:N:20:PHE:O	44:N:21:ALA:CB	2.58	0.52
52:03:20:GLN:HB2	52:03:225:ASP:OD2	2.09	0.52
53:A:837:U:H2'	53:A:838:G:C8	2.45	0.52
53:A:1030:U:H3'	53:A:1031:C:H5'	1.92	0.52
54:01:1702:G:H2'	54:01:1703:G:H5''	1.92	0.52
54:01:2233:U:H2'	54:01:2234:G:C8	2.44	0.52
59:Z:132:VAL:HG21	59:Z:153:VAL:CG1	2.40	0.52
1:04:209:ALA:HA	1:04:212:TRP:CE2	2.45	0.51
5:08:86:LEU:HG	5:08:163:TYR:HA	1.92	0.51
9:12:35:ARG:HG2	9:12:40:HIS:CD2	2.45	0.51
15:18:5:LYS:HA	15:18:8:GLU:OE1	2.11	0.51
15:18:33:GLU:HB2	15:18:36:LYS:HB2	1.91	0.51
34:D:117:VAL:HG13	34:D:122:ILE:HG13	1.93	0.51
54:01:1827:U:O2'	54:01:1828:G:H5'	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1830:C:H2'	54:01:1831:G:H8	1.74	0.51
54:01:1872:A:H2'	54:01:1873:G:O4'	2.10	0.51
54:01:2514:U:H2'	54:01:2515:C:C6	2.46	0.51
59:Z:71:THR:HG22	59:Z:72:PRO:HD2	1.90	0.51
59:Z:181:ASP:O	59:Z:185:GLU:HG3	2.11	0.51
59:Z:377:ARG:HA	59:Z:383:VAL:H	1.75	0.51
3:06:192:ALA:O	3:06:196:VAL:HG23	2.10	0.51
7:10:56:ARG:O	54:01:1106:G:H4'	2.11	0.51
14:17:2:ASP:HB3	14:17:5:SER:OG	2.10	0.51
14:17:80:GLU:O	14:17:84:GLU:HG3	2.10	0.51
20:23:23:LYS:O	20:23:35:VAL:HG13	2.10	0.51
21:24:9:ARG:HE	21:24:27:PRO:HB3	1.75	0.51
21:24:76:ASP:HB3	21:24:90:ASP:OD2	2.10	0.51
32:B:129:THR:O	32:B:133:ALA:N	2.42	0.51
33:C:84:GLU:HA	33:C:87:ARG:NH1	2.24	0.51
40:J:91:ASP:O	40:J:92:LEU:HB2	2.10	0.51
50:T:14:GLU:O	50:T:18:LYS:HG2	2.10	0.51
54:01:1476:U:H2'	54:01:1477:A:C8	2.46	0.51
54:01:1775:U:H2'	54:01:1776:G:O4'	2.10	0.51
54:01:1900:A:H1'	54:01:1970:A:H2'	1.91	0.51
54:01:2881:U:H2'	54:01:2882:A:C8	2.46	0.51
56:X:1:C:N4	56:X:72:A:H61	2.08	0.51
2:05:47:ALA:HA	2:05:84:LEU:HG	1.91	0.51
9:12:47:HIS:HD1	9:12:48:VAL:HG23	1.75	0.51
11:14:19:LEU:HA	11:14:27:LEU:HD13	1.93	0.51
22:25:33:ILE:H	22:25:33:ILE:HD12	1.76	0.51
27:30:12:ARG:HG2	27:30:15:ARG:HH12	1.76	0.51
30:33:7:ARG:NH2	54:01:254:G:H22	2.08	0.51
32:B:19:THR:HA	32:B:37:VAL:HG23	1.91	0.51
32:B:55:GLU:O	32:B:59:ILE:HG12	2.10	0.51
32:B:132:GLU:O	32:B:135:MET:HB3	2.10	0.51
32:B:186:VAL:HB	32:B:190:SER:HB2	1.92	0.51
33:C:71:ARG:O	33:C:75:VAL:HG23	2.11	0.51
41:K:13:LYS:O	41:K:14:GLN:HB3	2.10	0.51
42:L:107:LYS:NZ	42:L:107:LYS:HB3	2.25	0.51
53:A:591:U:H2'	53:A:592:G:H8	1.75	0.51
54:01:848:C:H2'	54:01:849:A:C8	2.45	0.51
55:02:87:U:H5''	55:02:88:C:OP2	2.11	0.51
9:12:37:ARG:HH21	9:12:118:MET:HE3	1.76	0.51
16:19:111:LYS:HE3	17:20:48:LYS:HD2	1.92	0.51
17:20:79:ARG:HH22	54:01:572:A:H5'	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:23:13:LEU:HD11	20:23:70:ALA:HB2	1.91	0.51
31:34:25:VAL:HB	31:34:35:GLN:HG3	1.91	0.51
33:C:5:HIS:HE1	33:C:7:ASN:HB3	1.76	0.51
53:A:1356:G:H2'	53:A:1357:A:C8	2.45	0.51
54:01:1180:U:H2'	54:01:1181:U:C6	2.45	0.51
55:02:95:U:H2'	55:02:96:G:C8	2.45	0.51
59:Z:5:PHE:HD1	59:Z:263:LYS:HD3	1.76	0.51
59:Z:126:GLY:HA2	59:Z:373:ARG:HH21	1.75	0.51
59:Z:299:LYS:HD2	59:Z:301:HIS:CE1	2.45	0.51
3:06:163:ASN:HB2	54:01:322:A:OP2	2.10	0.51
6:09:5:LEU:HD13	6:09:17:ASP:O	2.11	0.51
8:11:73:PRO:HG2	8:11:78:LEU:HD21	1.91	0.51
11:14:95:LEU:HB2	11:14:101:ILE:HD13	1.91	0.51
17:20:68:ARG:HE	17:20:90:ARG:HE	1.58	0.51
22:25:32:ILE:HD12	22:25:32:ILE:N	2.25	0.51
33:C:6:PRO:HD2	33:C:183:TYR:CD2	2.46	0.51
39:I:122:ARG:HD2	53:A:1343:G:O2'	2.10	0.51
39:I:129:ARG:HH21	56:W:33:U:H3'	1.76	0.51
40:J:65:TYR:HB3	44:N:95:LEU:HD11	1.92	0.51
48:R:33:THR:CG2	48:R:37:LYS:HB2	2.39	0.51
50:T:28:ARG:HH12	53:A:1437:A:H5''	1.74	0.51
50:T:34:VAL:O	50:T:38:ILE:HG13	2.10	0.51
52:03:14:LYS:HE2	52:03:33:LEU:HB3	1.93	0.51
53:A:16:A:O2'	53:A:17:U:H5'	2.10	0.51
53:A:453:G:H2'	53:A:454:G:C8	2.46	0.51
54:01:886:A:C3'	54:01:887:U:C5'	2.84	0.51
54:01:2088:A:H2'	54:01:2089:C:C6	2.46	0.51
56:X:4:G:H2'	56:X:5:G:C8	2.45	0.51
59:Z:248:LYS:HG2	59:Z:290:GLN:NE2	2.25	0.51
7:10:27:VAL:CG1	7:10:83:ALA:HB3	2.39	0.51
10:13:17:ARG:HD2	10:13:45:GLU:OE2	2.10	0.51
11:14:111:ILE:H	11:14:111:ILE:CD1	2.14	0.51
30:33:8:GLY:HA2	30:33:11:LYS:HE2	1.93	0.51
33:C:5:HIS:CE1	33:C:7:ASN:HB3	2.45	0.51
35:E:148:SER:HB2	35:E:149:PRO:HD2	1.92	0.51
44:N:2:LYS:O	44:N:5:MET:N	2.40	0.51
45:O:20:ASP:OD1	53:A:751:U:H5'	2.10	0.51
54:01:948:C:H2'	54:01:949:G:C8	2.45	0.51
54:01:1635:A:H2'	54:01:1636:U:O4'	2.11	0.51
54:01:2282:G:H21	54:01:2390:U:H3	1.57	0.51
55:02:106:G:H2'	55:02:107:G:O4'	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:248:LYS:HG2	59:Z:290:GLN:HE22	1.75	0.51
3:06:68:ALA:HA	54:01:1255:U:C5	2.45	0.51
4:07:3:LEU:HD11	4:07:96:TRP:O	2.10	0.51
4:07:68:LYS:HD2	4:07:81:GLY:O	2.11	0.51
8:11:75:ALA:HB3	8:11:131:THR:HG21	1.93	0.51
9:12:58:ASN:HD22	9:12:61:LYS:HG3	1.76	0.51
9:12:116:ARG:O	9:12:120:ARG:HG3	2.11	0.51
37:G:13:PRO:HA	37:G:20:GLU:HG2	1.93	0.51
45:O:54:GLY:O	45:O:58:MET:HG2	2.11	0.51
53:A:580:C:H2'	53:A:581:G:O4'	2.11	0.51
54:01:1020:A:H1'	54:01:1021:A:OP2	2.11	0.51
54:01:2570:G:H2'	54:01:2571:U:O4'	2.11	0.51
1:04:129:LEU:N	1:04:129:LEU:HD23	2.26	0.51
9:12:17:VAL:HG22	9:12:138:GLN:O	2.11	0.51
32:B:216:VAL:O	32:B:220:VAL:HG23	2.11	0.51
33:C:161:ILE:H	33:C:161:ILE:HD12	1.76	0.51
36:F:50:PRO:HD3	48:R:73:HIS:HB3	1.92	0.51
38:H:17:GLN:NE2	38:H:69:ALA:HB1	2.25	0.51
38:H:49:LYS:O	38:H:58:LEU:HD12	2.11	0.51
53:A:156:C:H2'	53:A:157:U:O4'	2.11	0.51
53:A:210:C:H4'	53:A:211:G:N2	2.26	0.51
53:A:767:A:H2'	53:A:768:A:O4'	2.11	0.51
54:01:1045:C:H5'	54:01:1046:A:C5'	2.41	0.51
56:W:21:A:N6	56:W:46:G:H2'	2.25	0.51
58:Y:76:A:H5''	59:Z:220:ILE:CD1	2.41	0.51
1:04:30:ALA:HB3	1:04:31:PRO:HD3	1.93	0.51
8:11:33:ASN:HB2	8:11:64:ARG:NH1	2.21	0.51
11:14:82:LEU:HD22	11:14:110:VAL:HG11	1.93	0.51
13:16:38:LEU:HB3	13:16:39:PRO:HD3	1.93	0.51
14:17:33:ARG:O	14:17:34:HIS:CB	2.59	0.51
18:21:10:ALA:HB1	18:21:46:LEU:HD21	1.92	0.51
21:24:75:GLN:HB2	21:24:92:VAL:HG23	1.92	0.51
35:E:108:GLY:O	35:E:109:ALA:HB3	2.10	0.51
37:G:136:LYS:O	37:G:140:VAL:HG23	2.10	0.51
43:M:22:TYR:CE2	43:M:69:ARG:HG3	2.46	0.51
53:A:451:A:H4'	53:A:452:A:O4'	2.11	0.51
54:01:441:U:O2'	54:01:442:G:H5'	2.11	0.51
54:01:1179:G:H2'	54:01:1180:U:H4'	1.93	0.51
54:01:1659:G:H2'	54:01:1660:G:O4'	2.11	0.51
54:01:1775:U:C2'	54:01:1776:G:H5'	2.40	0.51
54:01:1893:C:H2'	54:01:1894:C:H5'	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2343:U:H2'	54:01:2344:U:C6	2.46	0.51
54:01:2623:G:H2'	54:01:2624:G:H8	1.76	0.51
59:Z:156:LEU:HA	59:Z:159:GLN:HB2	1.93	0.51
30:33:56:LEU:HD11	54:01:834:G:H5'	1.92	0.51
32:B:41:ASN:HD21	32:B:43:GLU:HB2	1.76	0.51
39:I:57:VAL:HB	39:I:59:LYS:HD2	1.93	0.51
53:A:673:A:H2'	53:A:674:G:C8	2.45	0.51
53:A:1210:C:H2'	53:A:1211:U:O4'	2.11	0.51
53:A:1285:A:H4'	53:A:1286:U:H5''	1.92	0.51
54:01:704:G:H1'	54:01:727:A:N6	2.26	0.51
54:01:1167:C:H2'	54:01:1168:G:C8	2.45	0.51
54:01:1190:G:H2'	54:01:1191:G:H8	1.74	0.51
54:01:1222:U:H2'	54:01:1223:G:C8	2.46	0.51
54:01:1748:C:H2'	54:01:1749:A:C8	2.45	0.51
54:01:1882:U:H2'	54:01:1883:U:C6	2.46	0.51
56:W:1:C:H2'	56:W:2:G:H8	1.75	0.51
58:Y:29:U:C2'	58:Y:30:G:H5''	2.37	0.51
58:Y:65:C:H2'	58:Y:66:A:H8	1.76	0.51
59:Z:151:MET:O	59:Z:155:GLU:HG3	2.11	0.51
4:07:39:VAL:HG13	4:07:40:GLY:N	2.27	0.50
16:19:57:ARG:HA	16:19:60:TRP:CE3	2.46	0.50
17:20:6:GLN:HG3	17:20:39:LEU:HD11	1.92	0.50
23:26:53:LYS:HB3	23:26:53:LYS:NZ	2.26	0.50
37:G:104:VAL:O	37:G:108:ARG:HG2	2.12	0.50
44:N:5:MET:HE1	53:A:982:U:H5''	1.93	0.50
50:T:54:GLN:N	50:T:55:PRO:HD2	2.26	0.50
53:A:352:C:H4'	53:A:354:G:OP1	2.11	0.50
54:01:817:C:H2'	54:01:818:G:O4'	2.12	0.50
54:01:1810:A:H2'	54:01:1811:G:O4'	2.11	0.50
54:01:2317:A:H2'	54:01:2318:G:O4'	2.11	0.50
59:Z:347:VAL:CG1	59:Z:350:VAL:HG23	2.40	0.50
5:08:22:VAL:HG22	5:08:35:THR:HG23	1.93	0.50
15:18:1:SER:N	15:18:4:ILE:HD12	2.26	0.50
18:21:57:ASN:O	18:21:61:ASN:HB2	2.11	0.50
33:C:1:GLY:HA2	53:A:1060:U:C5	2.46	0.50
52:03:214:ILE:HG23	52:03:224:VAL:HG21	1.93	0.50
53:A:56:U:H2'	53:A:57:G:H8	1.76	0.50
53:A:235:C:H2'	53:A:236:A:H8	1.73	0.50
53:A:453:G:H2'	53:A:454:G:H8	1.76	0.50
53:A:540:G:H2'	53:A:541:G:C8	2.47	0.50
53:A:709:U:H2'	53:A:710:G:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:715:A:H2'	53:A:716:A:C8	2.46	0.50
54:01:679:C:H2'	54:01:680:C:C6	2.46	0.50
54:01:1772:A:H2'	54:01:1773:A:H4'	1.93	0.50
54:01:2224:G:H4'	54:01:2226:C:C2	2.46	0.50
54:01:2246:G:H2'	54:01:2247:A:C8	2.47	0.50
54:01:2875:C:H2'	54:01:2876:G:C8	2.46	0.50
55:02:3:C:C2'	55:02:4:C:H5''	2.40	0.50
59:Z:211:LEU:HD13	59:Z:212:LEU:N	2.26	0.50
8:11:105:LEU:HD12	8:11:129:GLU:HG2	1.94	0.50
32:B:162:VAL:HG12	32:B:164:ASP:H	1.76	0.50
33:C:64:ARG:HA	33:C:99:GLN:O	2.12	0.50
41:K:63:GLN:O	41:K:67:GLU:HG3	2.11	0.50
45:O:55:LEU:O	45:O:59:VAL:HG23	2.10	0.50
50:T:70:LYS:HA	50:T:73:ARG:HH12	1.76	0.50
53:A:921:U:H5''	53:A:1082:A:H5'	1.93	0.50
54:01:171:U:H2'	54:01:172:A:C8	2.47	0.50
54:01:1169:A:H61	54:01:1180:U:H3	1.58	0.50
54:01:1319:C:O2'	54:01:1320:C:H5'	2.11	0.50
54:01:1447:C:H2'	54:01:1448:G:C8	2.46	0.50
54:01:2098:U:H2'	54:01:2099:U:O4'	2.11	0.50
54:01:2489:U:H2'	54:01:2490:G:O4'	2.10	0.50
1:04:10:PRO:HA	1:04:13:ARG:HB2	1.92	0.50
16:19:57:ARG:NH1	16:19:61:ILE:HD11	2.27	0.50
35:E:39:GLY:HA3	35:E:116:VAL:HB	1.93	0.50
39:I:105:ARG:HD3	39:I:105:ARG:C	2.32	0.50
47:Q:45:VAL:HG22	47:Q:72:TRP:HB2	1.93	0.50
53:A:75:G:H2'	53:A:76:G:C8	2.47	0.50
53:A:418:C:H2'	53:A:419:C:C6	2.47	0.50
53:A:518:C:H4'	53:A:519:C:H5''	1.92	0.50
53:A:976:G:H2'	53:A:1362:A:C2	2.46	0.50
54:01:580:U:H2'	54:01:581:C:C6	2.45	0.50
56:X:8:U:H2'	56:X:46:G:N2	2.26	0.50
59:Z:123:ARG:HG2	59:Z:123:ARG:HH11	1.77	0.50
2:05:40:LEU:H	2:05:40:LEU:HD12	1.76	0.50
13:16:3:HIS:O	13:16:4:ARG:HB3	2.12	0.50
14:17:33:ARG:HB2	55:02:52:A:N6	2.23	0.50
23:26:71:ARG:HH11	23:26:71:ARG:HG3	1.77	0.50
32:B:167:HIS:HB3	32:B:168:GLU:OE1	2.11	0.50
48:R:17:VAL:O	48:R:18:GLN:HB2	2.12	0.50
53:A:556:C:H2'	53:A:557:G:O4'	2.12	0.50
53:A:640:A:H2'	53:A:641:U:O4'	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:525:U:O2'	54:01:526:A:H5'	2.12	0.50
59:Z:218:PHE:HB2	59:Z:226:VAL:HB	1.93	0.50
59:Z:241:GLU:O	59:Z:295:PRO:HD3	2.10	0.50
3:06:176:ASP:OD1	3:06:179:SER:HB2	2.12	0.50
6:09:3:VAL:HG13	6:09:37:VAL:O	2.11	0.50
7:10:48:ALA:HB3	7:10:51:TYR:OH	2.11	0.50
11:14:77:ILE:N	11:14:77:ILE:HD12	2.26	0.50
32:B:11:ALA:HB3	32:B:211:LEU:HD22	1.92	0.50
39:I:119:LYS:O	39:I:120:ALA:HB3	2.12	0.50
47:Q:57:VAL:HB	47:Q:78:VAL:O	2.12	0.50
49:S:68:HIS:HB3	49:S:72:GLU:HG3	1.93	0.50
53:A:113:G:H1'	53:A:354:G:H5''	1.93	0.50
54:01:517:C:H2'	54:01:518:G:O4'	2.12	0.50
54:01:828:U:H2'	54:01:829:A:C8	2.46	0.50
59:Z:311:LEU:HD12	59:Z:382:THR:O	2.12	0.50
59:Z:327:ARG:CZ	59:Z:338:THR:HG21	2.41	0.50
1:04:209:ALA:HA	1:04:212:TRP:NE1	2.27	0.50
2:05:77:ARG:HH21	2:05:77:ARG:HG3	1.76	0.50
2:05:79:LEU:O	54:01:2635:A:H5''	2.12	0.50
4:07:141:ASP:HB2	4:07:144:LYS:HG2	1.94	0.50
7:10:8:LYS:O	7:10:12:VAL:HG23	2.11	0.50
15:18:38:ARG:NH1	53:A:345:C:H4'	2.25	0.50
39:I:90:ASP:O	39:I:92:SER:N	2.44	0.50
53:A:880:C:H2'	53:A:881:G:C8	2.47	0.50
54:01:226:A:H2'	54:01:227:A:O4'	2.12	0.50
54:01:1129:A:H1'	54:01:2516:A:H1'	1.93	0.50
54:01:1451:C:H4'	54:01:1452:G:C4	2.46	0.50
54:01:2266:A:H4'	54:01:2267:A:N3	2.27	0.50
54:01:2423:U:H5'	54:01:2424:C:H5'	1.94	0.50
54:01:2691:C:H2'	54:01:2692:G:H8	1.76	0.50
8:11:10:LEU:CG	8:11:11:GLN:H	2.25	0.50
12:15:86:LYS:HD3	54:01:2277:G:H5'	1.94	0.50
15:18:26:GLU:HB2	15:18:86:LYS:HE2	1.93	0.50
21:24:53:LYS:HB3	21:24:55:GLU:OE1	2.12	0.50
44:N:62:ARG:HA	44:N:69:PRO:HA	1.94	0.50
45:O:13:GLU:HG2	45:O:83:ARG:HH21	1.77	0.50
52:03:200:LYS:NZ	52:03:204:ALA:HB3	2.27	0.50
53:A:67:C:H2'	53:A:68:G:C8	2.47	0.50
53:A:1033:G:H3'	53:A:1034:G:H5''	1.94	0.50
53:A:1157:A:N6	53:A:1178:G:H1'	2.27	0.50
54:01:100:U:H4'	54:01:101:A:O4'	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:414:C:H2'	54:01:415:A:C8	2.47	0.50
54:01:764:A:O2'	54:01:765:C:H5'	2.11	0.50
54:01:1723:G:H2'	54:01:1724:G:O4'	2.12	0.50
55:02:63:C:H2'	55:02:64:G:C8	2.46	0.50
59:Z:206:ILE:HA	59:Z:234:GLY:HA2	1.94	0.50
3:06:3:LEU:HB2	3:06:12:LEU:HB3	1.93	0.50
16:19:49:ARG:HA	16:19:52:ARG:HH21	1.77	0.50
39:I:66:VAL:HG22	39:I:67:LYS:H	1.75	0.50
41:K:88:PRO:HG2	41:K:89:GLY:H	1.77	0.50
43:M:6:ILE:CD1	43:M:7:ASN:H	2.18	0.50
52:03:21:TYR:O	52:03:225:ASP:N	2.35	0.50
54:01:1036:G:H2'	54:01:1037:G:C8	2.46	0.50
54:01:1072:C:H42	54:01:1092:C:N4	2.10	0.50
54:01:1678:A:H2'	54:01:1679:A:O4'	2.12	0.50
54:01:2427:C:H5''	54:01:2429:G:H5'	1.93	0.50
59:Z:209:PRO:HB3	59:Z:294:LYS:HE3	1.93	0.50
1:04:55:GLY:H	54:01:692:C:P	2.34	0.49
1:04:206:LYS:HD3	54:01:729:G:OP2	2.12	0.49
5:08:120:ILE:HD12	5:08:134:GLY:HA3	1.94	0.49
6:09:47:PHE:HA	6:09:51:ARG:HB2	1.93	0.49
7:10:43:LYS:HD2	7:10:98:GLU:HG2	1.92	0.49
12:15:74:THR:HG22	12:15:89:VAL:CA	2.38	0.49
15:18:29:VAL:HG13	15:18:79:VAL:O	2.12	0.49
18:21:64:ALA:O	18:21:65:ASP:HB2	2.11	0.49
27:30:27:LEU:HD21	27:30:36:LYS:HB3	1.93	0.49
34:D:99:ASN:HA	34:D:110:ARG:HH11	1.76	0.49
35:E:131:ASN:HB3	35:E:134:ASN:HD22	1.78	0.49
36:F:63:ASN:HD21	36:F:95:ALA:HB1	1.75	0.49
38:H:9:MET:O	38:H:13:ILE:HG13	2.12	0.49
41:K:71:ASP:O	41:K:72:ALA:HB3	2.12	0.49
46:P:28:ARG:HH12	53:A:390:U:H4'	1.76	0.49
50:T:28:ARG:HA	50:T:31:ILE:HD12	1.94	0.49
53:A:1379:G:O2'	53:A:1380:U:H5'	2.12	0.49
53:A:1441:A:H2'	53:A:1442:G:H5'	1.94	0.49
54:01:970:U:H2'	54:01:971:G:C8	2.46	0.49
54:01:1409:U:H2'	54:01:1410:G:H8	1.76	0.49
59:Z:9:LYS:HG3	59:Z:75:HIS:N	2.27	0.49
59:Z:374:PHE:CE2	59:Z:376:ILE:HD11	2.47	0.49
1:04:124:LYS:HB2	1:04:127:ASN:OD1	2.12	0.49
10:13:22:ILE:HD11	10:13:40:LYS:HG3	1.95	0.49
33:C:89:VAL:HA	33:C:92:ASP:OD2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:155:LYS:HA	34:D:155:LYS:HE2	1.94	0.49
39:I:26:LYS:C	39:I:27:ILE:HD12	2.32	0.49
53:A:597:G:H2'	53:A:598:U:H5'	1.93	0.49
53:A:865:A:H5'	53:A:1078:U:O4	2.11	0.49
53:A:1206:G:H2'	53:A:1207:G:O4'	2.12	0.49
54:01:171:U:H2'	54:01:172:A:H8	1.77	0.49
54:01:745:G:O2'	54:01:748:G:H1'	2.11	0.49
54:01:1041:G:H2'	54:01:1042:G:C8	2.47	0.49
54:01:1056:G:H4'	54:01:1086:A:C8	2.47	0.49
54:01:1443:U:H2'	54:01:1444:G:H8	1.77	0.49
54:01:2391:G:H2'	54:01:2424:C:H41	1.76	0.49
1:04:247:TRP:CD2	54:01:1805:A:H5''	2.47	0.49
2:05:43:ASP:HB3	2:05:45:TYR:CE1	2.48	0.49
5:08:43:LYS:HB2	5:08:50:THR:OG1	2.12	0.49
20:23:40:LEU:HB3	20:23:59:GLU:OE2	2.11	0.49
32:B:218:ALA:O	32:B:221:ARG:HB3	2.11	0.49
41:K:86:LYS:NZ	41:K:114:PRO:HD3	2.27	0.49
42:L:66:ILE:HD13	42:L:71:HIS:CD2	2.47	0.49
52:03:40:GLU:O	52:03:178:VAL:HG22	2.12	0.49
53:A:76:G:H2'	53:A:77:A:O4'	2.12	0.49
53:A:779:C:H2'	53:A:780:A:O4'	2.13	0.49
53:A:1402:C:H2'	53:A:1403:C:O4'	2.11	0.49
54:01:215:G:C4'	54:01:216:A:H4'	2.42	0.49
54:01:560:C:H2'	54:01:561:G:O4'	2.13	0.49
54:01:1205:A:H5''	54:01:1206:G:C8	2.47	0.49
54:01:1354:A:H2'	54:01:1355:G:O4'	2.11	0.49
54:01:2545:G:H2'	54:01:2546:U:O4'	2.12	0.49
55:02:66:A:H5''	55:02:67:G:OP1	2.11	0.49
1:04:13:ARG:NH2	54:01:1693:U:H1'	2.27	0.49
1:04:257:ARG:HH12	1:04:259:ASN:HD22	1.60	0.49
5:08:37:ASN:ND2	5:08:39:ALA:HB3	2.26	0.49
6:09:51:ARG:HG2	6:09:55:GLU:HG3	1.93	0.49
34:D:97:LEU:HB2	34:D:134:TYR:HB3	1.94	0.49
35:E:131:ASN:HD22	35:E:134:ASN:ND2	2.10	0.49
44:N:58:ARG:HA	53:A:980:C:O2	2.13	0.49
53:A:211:G:H2'	53:A:212:G:O4'	2.12	0.49
53:A:338:A:H2'	53:A:339:C:O4'	2.13	0.49
53:A:1336:C:H4'	53:A:1337:G:O4'	2.12	0.49
53:A:1432:G:H1'	53:A:1468:A:N6	2.27	0.49
54:01:28:A:H1'	54:01:513:A:C2	2.47	0.49
54:01:1709:U:H2'	54:01:1710:G:H8	1.76	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:373:ARG:HA	59:Z:387:VAL:HA	1.94	0.49
33:C:69:THR:O	33:C:105:VAL:HG12	2.13	0.49
34:D:22:SER:H	34:D:109:THR:HG22	1.76	0.49
34:D:146:GLU:CD	34:D:146:GLU:H	2.16	0.49
43:M:1:ALA:O	43:M:2:ARG:HD3	2.12	0.49
44:N:40:ARG:CZ	49:S:6:LYS:HG3	2.43	0.49
51:U:51:ALA:HA	51:U:54:ARG:HH12	1.78	0.49
53:A:571:U:H2'	53:A:572:A:H5''	1.95	0.49
53:A:1169:A:H2'	53:A:1170:A:C8	2.48	0.49
54:01:286:U:H2'	54:01:287:G:C8	2.48	0.49
54:01:889:C:H2'	54:01:890:C:O4'	2.13	0.49
54:01:1054:A:H2'	54:01:1055:G:H8	1.77	0.49
4:07:84:ILE:HG13	4:07:84:ILE:O	2.13	0.49
9:12:26:GLY:HA3	54:01:1140:C:C5'	2.42	0.49
11:14:57:LEU:HD13	11:14:60:ARG:HH12	1.77	0.49
13:16:114:GLU:HG3	13:16:118:ARG:HD2	1.94	0.49
14:17:33:ARG:O	14:17:34:HIS:HB2	2.11	0.49
16:19:48:ASP:HA	16:19:51:GLN:HB2	1.93	0.49
20:23:95:PHE:O	20:23:99:SER:HA	2.11	0.49
34:D:97:LEU:HD22	34:D:134:TYR:HB3	1.93	0.49
37:G:30:MET:HB3	37:G:38:ALA:HB2	1.94	0.49
49:S:65:MET:HG3	49:S:73:PHE:CZ	2.48	0.49
53:A:181:A:N6	53:A:194:C:H2'	2.28	0.49
53:A:802:A:H2'	53:A:803:G:O4'	2.13	0.49
53:A:1004:A:H3'	53:A:1024:G:H22	1.76	0.49
53:A:1259:C:C3'	53:A:1260:G:H5''	2.33	0.49
54:01:207:A:H2'	54:01:208:C:O4'	2.12	0.49
54:01:1636:U:H2'	54:01:1637:A:C8	2.47	0.49
54:01:2191:A:H2'	54:01:2192:U:O4'	2.12	0.49
54:01:2888:C:H2'	54:01:2889:C:H6	1.77	0.49
54:01:2897:U:H2'	54:01:2898:U:C6	2.47	0.49
1:04:32:LEU:HA	1:04:63:ILE:HD12	1.93	0.49
3:06:15:SER:HB2	3:06:18:THR:HB	1.94	0.49
3:06:104:ALA:O	3:06:108:ILE:HG13	2.12	0.49
3:06:185:LYS:HD2	3:06:185:LYS:N	2.27	0.49
18:21:6:LYS:O	54:01:494:G:H4'	2.12	0.49
36:F:53:LYS:HE2	53:A:710:G:H5''	1.95	0.49
53:A:1144:G:N2	53:A:1146:A:H62	2.08	0.49
54:01:146:A:H2'	54:01:147:C:C6	2.48	0.49
54:01:552:U:H2'	54:01:553:G:C8	2.48	0.49
54:01:2037:A:H2'	54:01:2038:G:C8	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2170:A:H2'	54:01:2171:A:H4'	1.94	0.49
55:02:30:C:H2'	55:02:31:C:O4'	2.12	0.49
55:02:118:C:H2'	55:02:119:A:C8	2.47	0.49
58:Y:9:A:H2	58:Y:23:A:N6	2.11	0.49
1:04:156:SER:HB2	54:01:1818:U:H5'	1.94	0.49
5:08:3:VAL:HG12	5:08:68:ARG:HD2	1.94	0.49
9:12:7:LYS:O	9:12:11:VAL:HG23	2.11	0.49
17:20:80:ARG:H	54:01:565:C:P	2.36	0.49
29:32:34:ARG:NE	29:32:39:ARG:HD2	2.27	0.49
33:C:2:GLN:HB2	53:A:1190:G:O2'	2.12	0.49
39:I:21:LYS:O	39:I:60:LEU:HA	2.13	0.49
42:L:85:ARG:O	42:L:85:ARG:HD3	2.13	0.49
43:M:14:ALA:CB	43:M:33:LEU:HD21	2.43	0.49
48:R:15:GLU:HG3	53:A:845:A:H5''	1.95	0.49
53:A:1032:G:H3'	53:A:1032:G:N3	2.28	0.49
54:01:2105:U:H2'	54:01:2106:U:O4'	2.12	0.49
54:01:2779:U:H5'	54:01:2779:U:H6	1.77	0.49
58:Y:39:U:H2'	58:Y:40:C:C6	2.47	0.49
3:06:189:THR:HB	3:06:192:ALA:HB2	1.93	0.49
4:07:11:VAL:HA	4:07:14:LYS:HB2	1.95	0.49
5:08:70:LEU:O	5:08:74:MET:HG3	2.12	0.49
11:14:85:VAL:O	11:14:86:GLU:HB2	2.12	0.49
20:23:95:PHE:HD2	20:23:100:GLU:HB2	1.78	0.49
22:25:73:ARG:HH12	54:01:2333:A:P	2.36	0.49
43:M:55:LEU:O	43:M:59:VAL:HG22	2.13	0.49
44:N:1:ALA:H2	44:N:6:LYS:HE3	1.78	0.49
47:Q:35:LYS:HD3	47:Q:36:PHE:N	2.28	0.49
53:A:443:C:H2'	53:A:444:G:C8	2.47	0.49
53:A:1005:A:H2'	53:A:1006:G:O4'	2.12	0.49
54:01:669:G:H2'	54:01:669:G:N3	2.28	0.49
54:01:1214:A:H2'	54:01:1215:G:O4'	2.13	0.49
54:01:1266:G:N2	54:01:2012:G:H2'	2.27	0.49
54:01:1324:G:H3'	54:01:1325:U:H4'	1.94	0.49
54:01:1727:C:H2'	54:01:1728:C:O4'	2.11	0.49
54:01:2358:A:H2'	54:01:2359:C:O4'	2.13	0.49
54:01:2547:A:H2'	54:01:2548:U:C6	2.48	0.49
55:02:89:U:H5'	55:02:90:C:C6	2.48	0.49
56:W:25:C:H2'	56:W:26:G:O4'	2.13	0.49
3:06:118:LEU:HD11	3:06:188:MET:SD	2.53	0.49
6:09:94:ILE:N	6:09:94:ILE:HD12	2.28	0.49
8:11:89:SER:HB2	8:11:92:PRO:HG3	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:16:45:ARG:HG2	13:16:95:THR:HG21	1.95	0.49
32:B:9:LEU:O	32:B:9:LEU:HD23	2.12	0.49
33:C:9:ILE:HD13	44:N:97:LYS:HD3	1.95	0.49
40:J:50:THR:HG23	40:J:64:GLN:HE21	1.78	0.49
44:N:58:ARG:NH1	53:A:979:C:H2'	2.27	0.49
49:S:48:ILE:O	49:S:48:ILE:HD12	2.13	0.49
53:A:40:C:H2'	53:A:41:G:C8	2.47	0.49
53:A:999:C:H2'	53:A:1000:A:C8	2.48	0.49
53:A:1469:C:H2'	53:A:1470:U:O4'	2.13	0.49
54:01:45:G:C5'	54:01:46:G:H5'	2.28	0.49
54:01:616:A:H2'	54:01:617:G:O4'	2.13	0.49
54:01:1062:G:OP1	54:01:1070:A:H5''	2.13	0.49
54:01:1499:C:H2'	54:01:1500:G:C8	2.45	0.49
59:Z:92:ILE:HD11	59:Z:121:LEU:HD22	1.94	0.49
1:04:250:GLN:HB3	1:04:254:LYS:HE3	1.94	0.48
3:06:71:GLY:N	54:01:674:G:H5''	2.22	0.48
8:11:60:VAL:HG12	8:11:61:TYR:N	2.28	0.48
16:19:95:ALA:O	16:19:99:VAL:HG23	2.13	0.48
28:31:36:LYS:HA	28:31:47:ILE:HA	1.95	0.48
31:34:7:VAL:HB	31:34:35:GLN:HE21	1.77	0.48
35:E:61:LYS:HD3	35:E:65:LYS:NZ	2.28	0.48
37:G:68:VAL:HA	37:G:137:ARG:HD3	1.95	0.48
39:I:10:ARG:HA	39:I:14:SER:O	2.13	0.48
50:T:26:MET:HB3	53:A:1458:G:C5'	2.38	0.48
53:A:54:C:H2'	53:A:352:C:N4	2.28	0.48
54:01:548:G:C4	54:01:549:G:H1'	2.47	0.48
54:01:1076:C:H2'	54:01:1077:A:O4'	2.13	0.48
54:01:1258:U:H2'	54:01:1259:G:C8	2.48	0.48
54:01:1310:G:H3'	54:01:1311:G:C8	2.48	0.48
54:01:1539:U:H2'	54:01:1540:G:H8	1.78	0.48
54:01:1702:G:H2'	54:01:1703:G:O4'	2.13	0.48
16:19:59:LEU:HG	16:19:63:ARG:HH12	1.78	0.48
18:21:63:GLY:O	18:21:64:ALA:HB2	2.12	0.48
27:30:11:LYS:HD2	27:30:14:MET:HE3	1.94	0.48
32:B:27:LYS:N	32:B:28:PRO:CD	2.77	0.48
32:B:75:ALA:O	32:B:79:VAL:HG23	2.13	0.48
35:E:159:SER:HB2	35:E:162:GLU:HB2	1.94	0.48
36:F:15:SER:HA	36:F:18:VAL:HG23	1.94	0.48
38:H:10:LEU:HD22	38:H:74:ILE:HD11	1.94	0.48
39:I:126:PHE:HB3	53:A:1342:C:O3'	2.13	0.48
45:O:50:HIS:ND1	53:A:667:G:H4'	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:P:19:VAL:HG12	46:P:38:PHE:HA	1.96	0.48
46:P:33:ILE:HD12	46:P:33:ILE:N	2.25	0.48
47:Q:12:VAL:HG22	47:Q:23:ALA:HB2	1.95	0.48
49:S:35:ARG:HD3	49:S:71:GLY:HA2	1.94	0.48
50:T:59:ARG:NH1	53:A:177:G:H5'	2.28	0.48
53:A:458:U:H2'	53:A:459:A:C8	2.48	0.48
53:A:766:A:H2'	53:A:767:A:O4'	2.12	0.48
54:01:873:C:H2'	54:01:874:G:C8	2.47	0.48
54:01:1367:A:H2'	54:01:1368:G:H5'	1.94	0.48
54:01:1637:A:H5'	54:01:1760:C:O2'	2.12	0.48
59:Z:248:LYS:CE	59:Z:290:GLN:HE22	2.22	0.48
5:08:98:LYS:NZ	5:08:103:ASN:HB2	2.29	0.48
7:10:88:HIS:N	7:10:89:PRO:HD2	2.28	0.48
9:12:28:LEU:O	9:12:32:LEU:HG	2.13	0.48
22:25:21:ARG:HG3	22:25:27:VAL:HG11	1.95	0.48
33:C:199:VAL:HG22	33:C:201:ILE:HD11	1.95	0.48
33:C:201:ILE:HD12	33:C:201:ILE:N	2.28	0.48
34:D:96:ARG:HH21	34:D:114:ARG:HH12	1.60	0.48
37:G:12:LEU:HD12	37:G:13:PRO:HD2	1.95	0.48
39:I:8:THR:HG21	39:I:10:ARG:NH2	2.28	0.48
50:T:19:HIS:O	50:T:23:ARG:HG2	2.12	0.48
51:U:9:GLU:HB2	51:U:10:PRO:HD3	1.95	0.48
53:A:1001:C:H2'	53:A:1002:G:C8	2.49	0.48
53:A:1094:G:H2'	53:A:1094:G:N3	2.29	0.48
54:01:170:U:H2'	54:01:171:U:C6	2.48	0.48
54:01:687:C:H2'	54:01:688:U:O4'	2.12	0.48
54:01:1295:C:H2'	54:01:1296:G:C8	2.48	0.48
54:01:1427:A:H4'	54:01:1428:C:O4'	2.12	0.48
54:01:1435:G:H2'	54:01:1436:G:C8	2.49	0.48
58:Y:57:G:H2'	58:Y:58:A:H5'	1.95	0.48
9:12:58:ASN:HA	9:12:126:ALA:O	2.14	0.48
17:20:60:LYS:HB2	17:20:60:LYS:NZ	2.29	0.48
24:27:42:LEU:O	24:27:46:VAL:HG23	2.13	0.48
24:27:43:LEU:HD23	24:27:43:LEU:O	2.14	0.48
33:C:87:ARG:HG3	33:C:98:ALA:O	2.12	0.48
43:M:33:LEU:CD2	43:M:40:GLU:HA	2.42	0.48
53:A:382:A:H2'	53:A:383:A:C8	2.48	0.48
53:A:626:G:H2'	53:A:627:G:H8	1.78	0.48
53:A:1030:U:H3'	53:A:1031:C:C5'	2.43	0.48
54:01:545:U:H2'	54:01:546:U:O4'	2.12	0.48
54:01:1900:A:O4'	54:01:1970:A:H5''	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:04:52:HIS:HE2	1:04:218:THR:HG23	1.77	0.48
2:05:33:ARG:O	2:05:51:THR:HG22	2.12	0.48
13:16:99:LYS:HE2	27:30:40:HIS:O	2.14	0.48
20:23:71:ILE:CD1	20:23:82:VAL:HG22	2.44	0.48
38:H:17:GLN:NE2	38:H:71:VAL:H	2.10	0.48
38:H:29:SER:O	38:H:33:VAL:HG23	2.14	0.48
41:K:23:HIS:HB3	41:K:30:ILE:HG13	1.95	0.48
41:K:82:GLU:HG3	41:K:108:ASN:OD1	2.12	0.48
41:K:112:VAL:HG12	48:R:72:ARG:NH1	2.28	0.48
48:R:50:TYR:O	48:R:54:LEU:HD13	2.13	0.48
49:S:35:ARG:HH22	49:S:76:THR:HG22	1.78	0.48
53:A:350:G:H2'	53:A:351:G:C8	2.48	0.48
53:A:1256:A:H1'	53:A:1258:G:C4	2.48	0.48
53:A:1389:C:H2'	53:A:1390:U:C6	2.48	0.48
53:A:1464:U:H2'	53:A:1465:A:C8	2.48	0.48
54:01:558:U:H2'	54:01:559:G:H8	1.78	0.48
54:01:833:A:H2'	54:01:834:G:H8	1.79	0.48
54:01:848:C:H2'	54:01:849:A:H8	1.79	0.48
54:01:1491:G:H2'	54:01:1492:G:H8	1.78	0.48
54:01:2086:U:H2'	54:01:2087:G:C8	2.48	0.48
54:01:2131:U:OP1	54:01:2134:A:H5'	2.13	0.48
55:02:63:C:H2'	55:02:64:G:H8	1.78	0.48
58:Y:54:U:C3'	58:Y:55:U:H5'	2.43	0.48
6:09:4:ILE:O	6:09:36:ALA:HB1	2.14	0.48
7:10:78:GLY:N	7:10:79:PRO:HD2	2.28	0.48
10:13:30:ARG:CD	54:01:2674:G:H4'	2.43	0.48
10:13:105:ARG:CZ	10:13:122:VAL:HA	2.43	0.48
27:30:3:GLN:OE1	27:30:6:LYS:HA	2.14	0.48
27:30:24:VAL:HG22	27:30:26:SER:H	1.79	0.48
32:B:19:THR:H	32:B:37:VAL:HG23	1.77	0.48
37:G:59:GLU:O	37:G:63:VAL:HG23	2.13	0.48
43:M:56:ARG:HA	43:M:59:VAL:HG22	1.96	0.48
43:M:69:ARG:HG2	43:M:69:ARG:HH11	1.79	0.48
53:A:560:A:H5'	53:A:566:G:N2	2.28	0.48
53:A:1472:U:H2'	53:A:1473:G:C8	2.48	0.48
54:01:457:A:H61	54:01:470:A:H3'	1.79	0.48
54:01:594:U:H2'	54:01:595:C:H6	1.79	0.48
54:01:601:C:O2'	54:01:605:G:H5''	2.14	0.48
54:01:699:A:H2'	54:01:700:G:O4'	2.14	0.48
54:01:1503:A:H2'	54:01:1504:A:O4'	2.13	0.48
54:01:1609:A:H1'	54:01:1616:A:Cl'	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1812:U:H2'	54:01:1813:G:C8	2.47	0.48
54:01:1856:U:H2'	54:01:1857:G:O4'	2.13	0.48
54:01:2114:A:C6	54:01:2115:G:H1'	2.48	0.48
4:07:90:LEU:HD13	4:07:95:MET:HA	1.96	0.48
5:08:76:ILE:HA	5:08:80:GLU:OE1	2.12	0.48
6:09:110:VAL:HG22	6:09:111:ALA:N	2.29	0.48
12:15:108:VAL:HB	12:15:112:LEU:HD23	1.94	0.48
17:20:14:VAL:CG2	17:20:98:ILE:HG13	2.42	0.48
43:M:105:ALA:HA	53:A:948:C:OP1	2.13	0.48
52:03:59:VAL:O	52:03:164:ARG:HG3	2.14	0.48
53:A:222:C:H2'	53:A:223:A:C8	2.47	0.48
53:A:784:A:H2'	53:A:785:G:C8	2.49	0.48
54:01:233:A:H2'	54:01:234:U:O4'	2.14	0.48
54:01:340:A:H2'	54:01:341:C:O4'	2.14	0.48
54:01:975:A:H3'	54:01:976:G:H8	1.78	0.48
54:01:1001:A:H2'	54:01:1002:G:O4'	2.13	0.48
54:01:1679:A:H2'	54:01:1680:U:H6	1.78	0.48
54:01:2087:G:H2'	54:01:2088:A:C8	2.49	0.48
54:01:2412:A:H2'	54:01:2413:G:O4'	2.13	0.48
54:01:2632:A:H2'	54:01:2633:G:C8	2.48	0.48
56:X:11:A:H2'	56:X:12:G:H8	1.79	0.48
59:Z:16:THR:HG22	59:Z:102:ILE:HB	1.94	0.48
2:05:197:THR:HB	54:01:2820:A:N1	2.29	0.48
3:06:48:THR:O	3:06:52:VAL:HG23	2.13	0.48
3:06:143:LEU:HD22	3:06:146:VAL:HG11	1.94	0.48
6:09:126:GLY:H	6:09:146:VAL:HB	1.78	0.48
9:12:80:HIS:CG	9:12:81:ILE:H	2.31	0.48
20:23:93:ARG:HB3	20:23:102:ILE:HD12	1.96	0.48
26:29:58:ASP:O	26:29:62:LYS:HG3	2.14	0.48
33:C:57:GLU:O	33:C:63:ILE:HD12	2.13	0.48
35:E:61:LYS:HA	35:E:64:GLU:OE2	2.14	0.48
38:H:79:ARG:HB2	53:A:878:A:OP1	2.14	0.48
41:K:55:ARG:HH22	56:X:40:C:C5'	2.26	0.48
41:K:124:LYS:NZ	53:A:780:A:H5''	2.28	0.48
46:P:14:ARG:HD2	46:P:42:ILE:HD12	1.95	0.48
47:Q:12:VAL:HG11	47:Q:42:LYS:HE3	1.95	0.48
53:A:216:U:H2'	53:A:217:C:C6	2.47	0.48
53:A:229:U:H2'	53:A:230:G:C8	2.48	0.48
54:01:1070:A:O2'	54:01:1097:U:H5'	2.13	0.48
54:01:1716:U:H2'	54:01:1717:A:C8	2.49	0.48
54:01:2341:G:H2'	54:01:2342:C:C6	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:X:16:C:O2'	56:X:17:C:H5'	2.14	0.48
59:Z:19:HIS:HB2	59:Z:115:THR:OG1	2.13	0.48
59:Z:214:ILE:HB	59:Z:290:GLN:H	1.78	0.48
3:06:172:ALA:HA	3:06:175:ILE:HD11	1.96	0.48
5:08:85:LYS:C	5:08:86:LEU:HD12	2.35	0.48
7:10:60:LEU:HA	7:10:64:VAL:CG2	2.43	0.48
24:27:2:LYS:HD2	54:01:78:U:OP2	2.14	0.48
37:G:51:GLN:HE21	37:G:52:ARG:HG3	1.78	0.48
39:I:30:ASN:O	39:I:31:GLN:HB2	2.14	0.48
41:K:51:PHE:CE2	41:K:64:VAL:HG11	2.48	0.48
44:N:84:ARG:C	44:N:84:ARG:HD3	2.33	0.48
53:A:197:A:H4'	53:A:198:G:O5'	2.13	0.48
53:A:231:U:H2'	53:A:232:G:H8	1.77	0.48
54:01:1141:U:H4'	54:01:1142:A:O4'	2.14	0.48
54:01:1790:C:H2'	54:01:1791:A:C5	2.49	0.48
54:01:2366:A:H2'	54:01:2367:G:O4'	2.14	0.48
59:Z:327:ARG:NH2	59:Z:338:THR:HG21	2.29	0.48
2:05:121:THR:HB	2:05:127:PHE:CD2	2.49	0.48
14:17:40:ILE:HD13	55:02:8:C:O2'	2.14	0.48
14:17:52:SER:OG	14:17:54:VAL:HG12	2.13	0.48
18:21:17:VAL:HA	18:21:43:ALA:HB1	1.95	0.48
21:24:9:ARG:HG2	21:24:41:GLU:HB2	1.96	0.48
30:33:50:SER:HB3	30:33:53:ASP:OD2	2.14	0.48
36:F:12:PRO:HG3	36:F:56:LYS:O	2.14	0.48
41:K:28:ASN:HD21	41:K:56:LYS:NZ	2.11	0.48
42:L:99:GLY:N	42:L:103:CYS:O	2.47	0.48
48:R:59:LYS:HD3	53:A:734:G:O2'	2.13	0.48
49:S:14:LEU:O	49:S:18:VAL:HG23	2.14	0.48
53:A:321:A:H2	53:A:332:G:H22	1.62	0.48
54:01:1357:C:H2'	54:01:1358:G:O4'	2.14	0.48
54:01:1435:G:H2'	54:01:1436:G:H8	1.78	0.48
54:01:1548:A:H2'	54:01:1549:A:C8	2.49	0.48
54:01:1851:U:H2'	54:01:1852:U:O4'	2.13	0.48
3:06:134:LEU:HD23	3:06:164:LEU:HD22	1.96	0.47
9:12:27:ARG:HD2	9:12:27:ARG:N	2.28	0.47
11:14:86:GLU:HG2	11:14:87:GLY:N	2.29	0.47
12:15:103:TYR:HE2	12:15:124:LEU:HD11	1.79	0.47
14:17:29:HIS:HB3	14:17:36:TYR:HB2	1.95	0.47
18:21:5:ALA:HB3	18:21:54:ALA:HB2	1.95	0.47
19:22:4:GLU:HA	19:22:7:LEU:HD12	1.96	0.47
24:27:41:HIS:CD2	54:01:96:C:H4'	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:B:82:ALA:HB2	32:B:213:LEU:HD23	1.96	0.47
32:B:159:ALA:CB	32:B:181:PRO:HG2	2.44	0.47
37:G:139:ASP:O	37:G:143:MET:HG2	2.13	0.47
43:M:104:ASN:O	43:M:105:ALA:HB3	2.14	0.47
53:A:1432:G:H1'	53:A:1468:A:H62	1.78	0.47
54:01:304:U:H2'	54:01:305:C:C6	2.49	0.47
54:01:329:G:O4'	54:01:477:A:H1'	2.13	0.47
54:01:548:G:H2'	54:01:549:G:H4'	1.96	0.47
54:01:1074:G:H2'	54:01:1075:C:H5''	1.96	0.47
54:01:1289:C:H2'	54:01:1290:C:C6	2.49	0.47
54:01:2123:G:H2'	54:01:2124:G:O4'	2.14	0.47
59:Z:67:VAL:HG22	59:Z:78:HIS:CD2	2.49	0.47
3:06:24:ASN:O	3:06:28:VAL:HG23	2.15	0.47
4:07:30:VAL:HA	4:07:157:THR:HA	1.96	0.47
4:07:99:PHE:O	4:07:103:ILE:HG12	2.15	0.47
4:07:114:ARG:HD3	26:29:47:LYS:HG2	1.96	0.47
5:08:100:ASN:O	5:08:115:GLN:HG2	2.14	0.47
8:11:110:GLN:HG3	8:11:121:ILE:HD13	1.96	0.47
8:11:126:ARG:HA	8:11:129:GLU:HB2	1.96	0.47
9:12:81:ILE:HG12	54:01:2514:U:H5''	1.96	0.47
16:19:91:ARG:HH11	54:01:997:G:H5''	1.79	0.47
35:E:133:ILE:O	35:E:137:ARG:HG2	2.13	0.47
53:A:665:A:O4'	53:A:733:G:H1'	2.14	0.47
54:01:82:U:H3	54:01:104:A:H61	1.62	0.47
54:01:1023:U:H4'	54:01:1123:C:OP1	2.15	0.47
54:01:1074:G:H2'	54:01:1075:C:C4'	2.45	0.47
54:01:1168:G:H2'	54:01:1169:A:O4'	2.14	0.47
54:01:1857:G:H1'	54:01:1885:A:N6	2.29	0.47
54:01:1930:G:H1'	54:01:1931:U:H5	1.78	0.47
54:01:2287:A:O2'	54:01:2288:A:H2'	2.14	0.47
54:01:2327:A:H2'	54:01:2328:A:C8	2.49	0.47
56:X:68:C:C2'	56:X:69:C:H4'	2.35	0.47
3:06:83:VAL:O	3:06:85:PHE:N	2.46	0.47
27:30:5:ASN:HB2	54:01:2022:U:O4	2.14	0.47
32:B:23:ASN:N	32:B:188:THR:O	2.45	0.47
33:C:38:VAL:O	33:C:42:LEU:HD13	2.15	0.47
34:D:96:ARG:NH1	34:D:133:SER:HA	2.29	0.47
43:M:23:GLY:HA2	43:M:68:LEU:HD22	1.95	0.47
47:Q:64:ARG:HD2	53:A:264:C:H4'	1.95	0.47
51:U:11:PHE:CG	51:U:12:ASP:N	2.82	0.47
53:A:1340:A:H2'	53:A:1341:U:O4'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:262:A:H2'	54:01:263:G:O4'	2.14	0.47
54:01:575:A:H2'	54:01:576:U:C6	2.49	0.47
54:01:1869:G:H3'	54:01:1870:C:H5''	1.96	0.47
54:01:2345:G:N3	54:01:2381:A:H2'	2.29	0.47
54:01:2504:U:C2'	54:01:2505:G:H5'	2.43	0.47
55:02:3:C:C3'	55:02:4:C:H5''	2.44	0.47
1:04:62:ARG:HH11	1:04:62:ARG:HG3	1.79	0.47
2:05:13:ARG:HG2	15:18:55:HIS:CE1	2.49	0.47
7:10:124:ASP:HB3	7:10:126:LEU:HG	1.96	0.47
9:12:134:ALA:HB1	54:01:2898:U:O2	2.14	0.47
10:13:92:GLU:O	10:13:93:GLN:C	2.53	0.47
11:14:19:LEU:HD21	11:14:31:GLY:O	2.15	0.47
15:18:8:GLU:HA	15:18:54:LEU:HD22	1.96	0.47
30:33:54:LEU:O	30:33:58:ILE:HG13	2.13	0.47
48:R:54:LEU:O	48:R:58:ILE:HG12	2.14	0.47
53:A:488:C:H2'	53:A:489:C:C6	2.49	0.47
53:A:645:G:H2'	53:A:646:G:H8	1.80	0.47
54:01:12:U:H2'	54:01:13:A:H5'	1.95	0.47
54:01:176:A:O2'	54:01:177:G:H5'	2.15	0.47
54:01:996:A:H2'	54:01:997:G:C8	2.50	0.47
54:01:1083:U:H2'	54:01:1085:A:OP2	2.15	0.47
54:01:1507:C:H2'	54:01:1508:A:O4'	2.14	0.47
54:01:1851:U:O2'	56:X:71:C:H4'	2.14	0.47
54:01:2443:C:H2'	54:01:2444:G:C8	2.49	0.47
58:Y:61:C:O2'	58:Y:62:C:H5'	2.14	0.47
59:Z:125:VAL:HG13	59:Z:127:VAL:HG23	1.96	0.47
4:07:102:LEU:O	4:07:106:ALA:HB3	2.14	0.47
35:E:14:LEU:HD22	35:E:59:ILE:HG21	1.95	0.47
44:N:2:LYS:HB2	44:N:5:MET:HG2	1.97	0.47
49:S:35:ARG:HA	49:S:70:LEU:HB2	1.94	0.47
50:T:55:PRO:O	50:T:59:ARG:HB2	2.15	0.47
53:A:460:A:H2'	53:A:461:A:C8	2.50	0.47
54:01:1433:A:H2'	54:01:1434:A:O4'	2.14	0.47
54:01:2040:G:H2'	54:01:2041:U:O4'	2.15	0.47
59:Z:131:ILE:HG23	59:Z:168:PRO:HG2	1.96	0.47
2:05:8:LYS:HB2	2:05:201:LEU:CD1	2.45	0.47
7:10:34:THR:HG22	54:01:1085:A:N6	2.30	0.47
33:C:137:VAL:HG13	33:C:148:ILE:CG2	2.43	0.47
47:Q:65:PRO:HG2	53:A:234:C:H4'	1.96	0.47
52:03:42:VAL:HB	52:03:175:ILE:HG13	1.96	0.47
53:A:158:G:N2	53:A:164:G:H1'	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:160:A:H2'	53:A:161:A:O4'	2.14	0.47
53:A:246:A:N3	53:A:247:G:H1'	2.30	0.47
53:A:1278:G:OP1	53:A:1279:G:H5'	2.14	0.47
54:01:1830:C:H2'	54:01:1831:G:C8	2.49	0.47
54:01:1877:A:H2'	54:01:1878:G:O4'	2.14	0.47
54:01:2194:U:H2'	54:01:2195:U:C6	2.50	0.47
56:W:43:A:H2'	56:W:44:A:C8	2.49	0.47
59:Z:30:ALA:HB2	59:Z:178:LEU:HB2	1.96	0.47
59:Z:84:HIS:HB2	59:Z:87:TYR:CD2	2.50	0.47
2:05:79:LEU:HB2	54:01:2635:A:H5'	1.96	0.47
5:08:41:GLU:HG3	5:08:54:ARG:HA	1.95	0.47
7:10:41:LEU:CD1	54:01:1083:U:H4'	2.41	0.47
7:10:56:ARG:HB2	54:01:1084:A:H1'	1.96	0.47
7:10:91:ALA:O	7:10:92:ALA:HB3	2.14	0.47
9:12:99:ARG:HG3	9:12:99:ARG:HH11	1.80	0.47
9:12:102:GLU:HG3	9:12:119:PHE:HZ	1.79	0.47
13:16:51:LEU:HD21	13:16:79:LEU:CD1	2.45	0.47
14:17:10:ARG:HD2	54:01:2294:G:OP1	2.15	0.47
14:17:81:ARG:O	14:17:85:LYS:HG2	2.15	0.47
16:19:105:PHE:O	16:19:109:VAL:HG23	2.14	0.47
20:23:39:ASN:HB3	20:23:62:ALA:HB3	1.95	0.47
22:25:66:GLU:HB2	22:25:75:PHE:HB2	1.95	0.47
22:25:70:PRO:HB3	55:02:12:C:C4	2.50	0.47
25:28:11:SER:HB3	54:01:988:A:P	2.53	0.47
28:31:20:TYR:OH	54:01:2348:U:H5'	2.15	0.47
33:C:153:SER:HB3	33:C:164:THR:HG22	1.96	0.47
33:C:162:ALA:HB2	53:A:1056:U:H4'	1.94	0.47
34:D:24:VAL:HB	53:A:409:U:H4'	1.96	0.47
35:E:22:LYS:HB3	35:E:29:ILE:CG2	2.44	0.47
36:F:39:LEU:HA	36:F:62:MET:HA	1.96	0.47
36:F:47:LEU:HD13	36:F:51:ILE:HD12	1.96	0.47
39:I:60:LEU:HD12	39:I:60:LEU:O	2.15	0.47
39:I:74:GLN:O	39:I:78:ILE:HG13	2.14	0.47
40:J:8:ILE:HD11	40:J:87:LEU:HD13	1.96	0.47
42:L:27:PRO:HD2	53:A:363:A:C5	2.50	0.47
46:P:40:ASN:HB3	46:P:43:ALA:HB2	1.97	0.47
47:Q:10:ARG:HH11	47:Q:55:GLY:HA2	1.79	0.47
53:A:399:G:H2'	53:A:400:C:C6	2.50	0.47
54:01:657:U:H2'	54:01:658:U:C6	2.50	0.47
54:01:1101:U:H2'	54:01:1102:C:H6	1.80	0.47
54:01:1149:G:H2'	54:01:1150:C:C6	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1234:U:H2'	54:01:1235:G:O4'	2.15	0.47
54:01:1283:G:H1'	54:01:1329:U:O2	2.14	0.47
54:01:1937:A:H62	54:01:1940:U:H5	1.61	0.47
54:01:2114:A:C2	54:01:2166:U:H2'	2.49	0.47
54:01:2130:U:H4'	54:01:2134:A:H4'	1.97	0.47
54:01:2584:U:H2'	54:01:2585:U:C6	2.50	0.47
54:01:2637:U:H2'	54:01:2638:G:O4'	2.14	0.47
59:Z:247:ILE:CG2	59:Z:364:HIS:HB3	2.44	0.47
59:Z:306:SER:HA	59:Z:389:ALA:H	1.80	0.47
59:Z:337:VAL:HG13	59:Z:364:HIS:HB2	1.97	0.47
1:04:15:VAL:HG22	1:04:205:GLY:HA3	1.95	0.47
2:05:161:MET:CE	54:01:2050:C:H1'	2.45	0.47
3:06:45:ALA:HB3	54:01:38:A:H4'	1.96	0.47
6:09:58:LEU:O	6:09:58:LEU:HD23	2.15	0.47
10:13:38:ILE:HD11	10:13:112:PHE:HZ	1.79	0.47
23:26:12:VAL:HG23	23:26:28:PHE:HB2	1.97	0.47
28:31:43:ARG:NH2	54:01:643:A:H1'	2.30	0.47
29:32:12:ARG:HG3	29:32:12:ARG:HH21	1.80	0.47
29:32:34:ARG:HB3	29:32:42:LEU:HD12	1.97	0.47
35:E:50:GLY:HA2	35:E:65:LYS:NZ	2.30	0.47
36:F:22:ILE:O	36:F:26:THR:HG22	2.14	0.47
41:K:92:ARG:HH21	51:U:19:LYS:HB3	1.79	0.47
53:A:300:A:H1'	53:A:565:U:O2	2.15	0.47
53:A:620:C:H2'	53:A:621:A:O4'	2.15	0.47
54:01:1647:U:P	54:01:1647:U:H3'	2.54	0.47
54:01:2293:G:H2'	54:01:2294:G:H8	1.79	0.47
54:01:2421:G:H2'	56:X:76:A:N6	2.29	0.47
59:Z:34:VAL:HG12	59:Z:189:LEU:HD21	1.97	0.47
59:Z:214:ILE:HB	59:Z:290:GLN:N	2.30	0.47
10:13:63:VAL:HG23	10:13:64:ARG:H	1.79	0.47
14:17:25:ARG:H	14:17:25:ARG:HD3	1.80	0.47
15:18:112:ARG:HB3	15:18:114:ASN:ND2	2.30	0.47
19:22:68:LYS:HG3	19:22:77:ARG:NH2	2.29	0.47
20:23:97:SER:O	20:23:98:ASN:CB	2.63	0.47
26:29:37:CYS:HG	26:29:40:CYS:HG	1.61	0.47
35:E:88:HIS:HB3	35:E:138:ALA:HB2	1.97	0.47
38:H:94:VAL:HB	38:H:99:GLY:O	2.15	0.47
54:01:69:C:H2'	54:01:70:G:C8	2.50	0.47
54:01:279:A:N6	54:01:361:G:H1'	2.26	0.47
54:01:318:C:H2'	54:01:319:G:H8	1.80	0.47
54:01:473:G:O2'	54:01:474:G:H5'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:576:U:H2'	54:01:577:G:H8	1.79	0.47
54:01:893:C:H2'	54:01:894:U:O4'	2.15	0.47
54:01:2641:G:H2'	54:01:2642:G:H8	1.79	0.47
54:01:2694:G:H2'	54:01:2695:U:O4'	2.15	0.47
58:Y:55:U:H5	58:Y:57:G:H3'	1.79	0.47
1:04:154:ALA:CB	1:04:161:VAL:HG23	2.45	0.47
2:05:4:LEU:HD13	2:05:101:PHE:CZ	2.50	0.47
2:05:49:GLN:NE2	2:05:79:LEU:HD13	2.30	0.47
8:11:12:VAL:HG22	54:01:1061:U:C2	2.50	0.47
15:18:90:ALA:HB2	15:18:112:ARG:HG2	1.97	0.47
16:19:23:TYR:HB2	16:19:28:SER:HB3	1.96	0.47
19:22:50:LEU:HD23	24:27:26:PHE:CZ	2.50	0.47
20:23:91:LYS:HB2	20:23:91:LYS:NZ	2.30	0.47
23:26:32:LEU:HB3	23:26:49:ARG:HE	1.80	0.47
26:29:46:GLY:HA2	26:29:49:ARG:HH21	1.80	0.47
32:B:67:LEU:HD11	32:B:157:PRO:HG3	1.97	0.47
38:H:10:LEU:HD22	38:H:74:ILE:CD1	2.45	0.47
38:H:77:VAL:HG23	38:H:126:CYS:HA	1.96	0.47
39:I:16:ALA:HA	39:I:66:VAL:HG23	1.95	0.47
42:L:8:ARG:O	42:L:10:PRO:HD3	2.14	0.47
44:N:2:LYS:O	44:N:4:SER:N	2.48	0.47
46:P:71:VAL:HA	46:P:74:LEU:HG	1.97	0.47
53:A:555:U:H2'	53:A:556:C:C6	2.50	0.47
53:A:868:C:H2'	53:A:869:G:O4'	2.15	0.47
53:A:1315:U:H2'	53:A:1316:G:O4'	2.15	0.47
53:A:1513:A:H2'	53:A:1514:G:H8	1.79	0.47
54:01:435:C:C2'	54:01:436:C:H5'	2.41	0.47
54:01:859:G:N2	54:01:916:G:H2'	2.30	0.47
54:01:2850:A:C2	54:01:2869:G:H4'	2.49	0.47
55:02:1:U:H2'	55:02:2:G:C8	2.50	0.47
56:W:5:G:H2'	56:W:6:G:H8	1.80	0.47
1:04:58:LYS:HD2	54:01:1568:G:H4'	1.97	0.46
3:06:109:LEU:HG	3:06:112:LEU:HD12	1.97	0.46
10:13:71:ARG:HB2	10:13:75:SER:HB2	1.97	0.46
10:13:80:ASP:HB2	15:18:67:GLU:HB2	1.97	0.46
11:14:111:ILE:HG12	54:01:636:G:C2	2.50	0.46
16:19:23:TYR:O	54:01:18:U:H5''	2.16	0.46
16:19:48:ASP:HA	16:19:51:GLN:CG	2.45	0.46
22:25:33:ILE:HD12	22:25:33:ILE:N	2.30	0.46
23:26:4:CYS:HB2	23:26:51:SER:HB3	1.97	0.46
27:30:24:VAL:HG13	27:30:25:THR:N	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:E:15:ILE:HD12	35:E:15:ILE:N	2.28	0.46
41:K:108:ASN:HB2	51:U:4:LYS:HE2	1.97	0.46
51:U:38:GLU:HB2	53:A:1526:G:OP2	2.15	0.46
53:A:876:C:H2'	53:A:877:G:H8	1.80	0.46
54:01:1594:U:H2'	54:01:1595:C:C6	2.49	0.46
54:01:2345:G:H5'	54:01:2347:C:H5'	1.97	0.46
1:04:62:ARG:HD2	1:04:83:ASP:OD1	2.16	0.46
2:05:33:ARG:NH2	2:05:73:VAL:HB	2.26	0.46
2:05:33:ARG:HB3	2:05:73:VAL:HG11	1.97	0.46
2:05:46:ARG:HG3	2:05:84:LEU:HB2	1.96	0.46
4:07:39:VAL:HG13	4:07:40:GLY:H	1.78	0.46
4:07:43:ILE:HD12	4:07:44:ALA:N	2.30	0.46
4:07:65:LEU:HD22	55:02:42:C:C5	2.50	0.46
7:10:44:ALA:HB2	7:10:52:MET:SD	2.55	0.46
7:10:72:LEU:HD12	7:10:72:LEU:H	1.80	0.46
16:19:78:PHE:HE1	16:19:109:VAL:HA	1.80	0.46
25:28:52:PHE:CD2	55:02:83:G:H4'	2.50	0.46
39:I:109:GLN:O	53:A:1347:G:H5''	2.15	0.46
42:L:81:ILE:HG23	42:L:95:HIS:O	2.16	0.46
47:Q:11:VAL:CG1	47:Q:20:ILE:HD11	2.46	0.46
51:U:16:ARG:NH2	51:U:19:LYS:HE2	2.21	0.46
52:03:5:THR:O	52:03:9:ARG:HG3	2.16	0.46
52:03:221:GLY:CA	54:01:2176:A:H4'	2.45	0.46
53:A:160:A:H1'	53:A:344:A:C8	2.50	0.46
53:A:665:A:C1'	53:A:733:G:H1'	2.45	0.46
53:A:893:C:H2'	53:A:894:G:C8	2.51	0.46
54:01:175:G:H2'	54:01:176:A:C8	2.51	0.46
54:01:191:A:H2'	54:01:192:C:C6	2.50	0.46
54:01:481:G:H2'	54:01:507:A:N1	2.30	0.46
54:01:2084:C:H2'	54:01:2085:U:O4'	2.15	0.46
54:01:2601:C:H2'	54:01:2603:G:C8	2.50	0.46
54:01:2649:C:H2'	54:01:2650:U:C6	2.51	0.46
59:Z:55:GLU:HG2	59:Z:62:ILE:HG12	1.96	0.46
5:08:88:LEU:HD12	5:08:88:LEU:N	2.29	0.46
11:14:19:LEU:HD11	11:14:31:GLY:C	2.35	0.46
22:25:22:PHE:CD2	54:01:922:C:H1'	2.50	0.46
27:30:46:GLY:HA3	27:30:54:ILE:HG21	1.98	0.46
43:M:100:ARG:HD3	43:M:103:THR:HB	1.97	0.46
45:O:71:ARG:NH2	53:A:754:C:H5'	2.30	0.46
53:A:483:C:H2'	53:A:484:G:C8	2.50	0.46
53:A:1128:C:O2'	53:A:1129:C:H5'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:318:C:H2'	54:01:319:G:C8	2.51	0.46
54:01:716:A:H2'	54:01:717:C:C4'	2.45	0.46
54:01:1251:C:O2'	54:01:1252:G:H3'	2.16	0.46
55:02:118:C:H2'	55:02:119:A:H8	1.80	0.46
1:04:210:ALA:HB1	1:04:215:VAL:HB	1.97	0.46
10:13:25:LEU:HD22	54:01:2562:U:H4'	1.98	0.46
25:28:35:VAL:CG2	25:28:37:ARG:HH12	2.29	0.46
25:28:40:THR:O	25:28:44:ARG:HG2	2.16	0.46
32:B:37:VAL:HG22	32:B:38:HIS:N	2.31	0.46
32:B:72:LYS:O	32:B:74:ALA:N	2.49	0.46
39:I:49:GLN:N	39:I:50:PRO:HD2	2.31	0.46
41:K:49:SER:OG	41:K:68:ARG:HD3	2.15	0.46
41:K:73:VAL:O	41:K:77:GLY:N	2.48	0.46
53:A:613:C:H2'	53:A:614:C:C6	2.51	0.46
54:01:1169:A:N6	54:01:1180:U:H3	2.13	0.46
54:01:2004:G:H2'	54:01:2005:A:O4'	2.14	0.46
54:01:2156:G:C2'	54:01:2157:G:H5'	2.46	0.46
1:04:96:LYS:O	1:04:96:LYS:HD3	2.15	0.46
4:07:55:ASP:O	4:07:59:ILE:HG13	2.15	0.46
29:32:10:LEU:HD23	54:01:770:G:H5''	1.98	0.46
32:B:185:ILE:HG22	32:B:199:ILE:HB	1.98	0.46
34:D:144:ILE:HD12	34:D:144:ILE:N	2.31	0.46
34:D:194:ILE:HG13	34:D:194:ILE:O	2.15	0.46
37:G:12:LEU:HD11	39:I:49:GLN:HE22	1.81	0.46
50:T:77:ASN:O	50:T:81:GLN:HG2	2.15	0.46
52:03:195:ALA:HA	52:03:198:LYS:NZ	2.30	0.46
53:A:419:C:H5''	53:A:513:C:H4'	1.98	0.46
53:A:1280:A:O2'	53:A:1281:C:H5'	2.16	0.46
53:A:1424:U:H2'	53:A:1425:U:O4'	2.15	0.46
54:01:543:G:H2'	54:01:544:C:O4'	2.16	0.46
54:01:975:A:H3'	54:01:976:G:C8	2.50	0.46
54:01:1132:U:H2'	54:01:1133:A:C8	2.50	0.46
54:01:1508:A:H2'	54:01:1509:A:O4'	2.16	0.46
54:01:2391:G:H2'	54:01:2424:C:N4	2.31	0.46
54:01:2538:C:H2'	54:01:2539:C:C6	2.51	0.46
54:01:2795:C:H2'	54:01:2796:U:O4'	2.15	0.46
59:Z:12:VAL:HB	59:Z:76:TYR:CD1	2.49	0.46
1:04:76:VAL:O	1:04:93:VAL:HG13	2.14	0.46
8:11:79:LEU:HD12	8:11:137:LEU:HD13	1.98	0.46
10:13:63:VAL:HG23	10:13:64:ARG:N	2.31	0.46
11:14:76:GLU:HB2	11:14:111:ILE:HD13	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:17:32:PRO:HD2	55:02:29:A:OP2	2.14	0.46
27:30:12:ARG:O	27:30:16:ARG:HG2	2.16	0.46
33:C:20:THR:O	33:C:57:GLU:HA	2.16	0.46
47:Q:44:HIS:ND1	47:Q:69:THR:HG21	2.30	0.46
49:S:35:ARG:HH12	49:S:76:THR:HG23	1.80	0.46
52:03:67:HIS:HB3	52:03:180:PHE:HZ	1.79	0.46
53:A:810:C:H2'	53:A:811:C:O4'	2.16	0.46
53:A:1314:C:H2'	53:A:1315:U:C6	2.51	0.46
54:01:108:G:H2'	54:01:109:C:O4'	2.15	0.46
54:01:310:A:O2'	54:01:311:A:H2'	2.16	0.46
54:01:646:U:O4	54:01:2368:C:H1'	2.15	0.46
54:01:1077:A:H2'	54:01:1078:U:C5'	2.44	0.46
54:01:1498:C:H2'	54:01:1499:C:C6	2.50	0.46
1:04:76:VAL:C	1:04:93:VAL:HG13	2.36	0.46
13:16:17:ARG:O	13:16:20:MET:HG3	2.15	0.46
14:17:13:ARG:HD3	54:01:2334:U:O3'	2.15	0.46
14:17:81:ARG:HA	14:17:84:GLU:OE1	2.16	0.46
17:20:54:VAL:HG23	17:20:55:ASP:H	1.80	0.46
20:23:11:ILE:HB	20:23:21:ARG:HG2	1.98	0.46
24:27:55:THR:O	24:27:59:GLU:HG3	2.15	0.46
51:U:55:HIS:O	51:U:59:LEU:HD13	2.16	0.46
53:A:18:C:H2'	53:A:19:A:O4'	2.15	0.46
53:A:570:G:H5'	53:A:820:U:O4'	2.15	0.46
53:A:928:G:H2'	53:A:929:G:H8	1.80	0.46
54:01:150:U:H2'	54:01:151:C:C6	2.51	0.46
54:01:814:C:H1'	54:01:1225:G:N2	2.30	0.46
54:01:900:A:H2'	54:01:901:C:H5'	1.97	0.46
59:Z:84:HIS:HB2	59:Z:87:TYR:HD2	1.81	0.46
59:Z:377:ARG:CA	59:Z:383:VAL:HG22	2.45	0.46
5:08:143:VAL:O	5:08:147:LEU:HG	2.15	0.46
15:18:63:ILE:HA	15:18:68:GLY:HA2	1.98	0.46
33:C:69:THR:HG21	33:C:75:VAL:HG21	1.97	0.46
47:Q:19:SER:HB3	47:Q:70:LYS:HZ1	1.79	0.46
49:S:44:ILE:HG23	49:S:62:THR:HA	1.98	0.46
53:A:301:G:H2'	53:A:302:G:H8	1.79	0.46
53:A:974:A:H5'	53:A:976:G:OP1	2.16	0.46
54:01:532:A:H2'	54:01:532:A:N3	2.31	0.46
54:01:1278:C:H2'	54:01:1279:G:H8	1.81	0.46
54:01:2011:U:H2'	54:01:2012:G:O4'	2.16	0.46
54:01:2151:U:H2'	54:01:2152:G:C8	2.50	0.46
54:01:2504:U:H2'	54:01:2505:G:H5'	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:Y:8:U:H2'	58:Y:13:C:N4	2.30	0.46
3:06:18:THR:HG22	3:06:200:LEU:HD23	1.98	0.46
5:08:93:TYR:CD1	5:08:106:LEU:HA	2.51	0.46
8:11:9:LYS:HD2	8:11:9:LYS:N	2.31	0.46
14:17:21:LEU:HD11	54:01:2379:G:H4'	1.98	0.46
16:19:50:ARG:HG2	54:01:1156:A:C8	2.51	0.46
24:27:28:LEU:HD22	24:27:37:LEU:HD21	1.98	0.46
33:C:119:ILE:O	33:C:123:LEU:HG	2.16	0.46
36:F:18:VAL:O	36:F:22:ILE:HG13	2.15	0.46
42:L:112:ALA:HA	53:A:502:A:P	2.56	0.46
47:Q:60:ILE:CG2	47:Q:72:TRP:HB3	2.45	0.46
53:A:1271:A:H2'	53:A:1272:G:C8	2.51	0.46
54:01:590:A:H2'	54:01:591:U:O4'	2.15	0.46
54:01:1153:C:H2'	54:01:1154:G:O4'	2.16	0.46
54:01:1959:G:H2'	54:01:1960:A:O4'	2.16	0.46
58:Y:65:C:H2'	58:Y:66:A:C8	2.50	0.46
58:Y:69:A:O2'	58:Y:70:C:O4'	2.33	0.46
59:Z:206:ILE:HD12	59:Z:207:ASP:N	2.31	0.46
59:Z:211:LEU:HB3	59:Z:232:GLU:HB3	1.97	0.46
4:07:105:ILE:HG13	4:07:106:ALA:N	2.31	0.46
6:09:78:VAL:HG12	6:09:80:ILE:HG13	1.98	0.46
7:10:60:LEU:HD12	7:10:60:LEU:H	1.81	0.46
22:25:16:ARG:HG2	54:01:2271:G:C5'	2.46	0.46
31:34:24:ARG:NH2	31:34:36:ARG:HG3	2.31	0.46
32:B:53:LEU:HD23	32:B:56:LEU:HD12	1.97	0.46
32:B:95:TRP:CH2	32:B:171:ALA:HA	2.50	0.46
35:E:67:ARG:O	35:E:70:MET:HG2	2.14	0.46
38:H:5:PRO:HA	38:H:8:ASP:OD2	2.15	0.46
41:K:124:LYS:O	41:K:124:LYS:CG	2.64	0.46
53:A:193:C:H2'	53:A:194:C:C6	2.51	0.46
53:A:298:A:H2'	53:A:299:G:O4'	2.16	0.46
53:A:476:U:H2'	53:A:477:C:C6	2.51	0.46
53:A:1320:C:H2'	53:A:1321:U:O4'	2.15	0.46
54:01:568:U:H2'	54:01:570:G:OP2	2.16	0.46
54:01:804:A:H2'	54:01:806:C:C4	2.50	0.46
54:01:1656:C:H2'	54:01:1657:U:C6	2.51	0.46
54:01:1722:A:N6	54:01:1738:G:H1'	2.30	0.46
54:01:2380:C:H2'	54:01:2381:A:C8	2.51	0.46
54:01:2853:C:H2'	54:01:2854:G:C8	2.51	0.46
1:04:20:ASN:OD1	1:04:21:PRO:HD2	2.16	0.45
2:05:120:GLY:H	54:01:1655:A:H4'	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:06:143:LEU:HB3	3:06:146:VAL:HG11	1.98	0.45
7:10:80:THR:O	7:10:82:ILE:HG12	2.16	0.45
8:11:53:PRO:HB2	8:11:77:VAL:HG21	1.97	0.45
8:11:80:LYS:HD2	54:01:1063:G:H5''	1.98	0.45
12:15:38:ARG:HD3	55:02:90:C:H4'	1.97	0.45
33:C:19:SER:O	44:N:93:PRO:HG3	2.15	0.45
37:G:144:ALA:O	37:G:146:ALA:N	2.45	0.45
42:L:50:LYS:HB3	42:L:66:ILE:HD12	1.97	0.45
47:Q:39:ARG:NH1	53:A:280:C:H1'	2.31	0.45
49:S:5:LYS:HD2	49:S:6:LYS:NZ	2.31	0.45
53:A:1403:C:H1'	53:A:1500:A:N1	2.31	0.45
54:01:312:G:H2'	54:01:313:G:C8	2.51	0.45
54:01:441:U:H2'	54:01:442:G:C8	2.50	0.45
54:01:1559:U:H5''	54:01:1560:G:OP2	2.15	0.45
54:01:2371:G:O2'	54:01:2372:U:H5'	2.15	0.45
54:01:2403:C:H2'	54:01:2404:U:H6	1.81	0.45
54:01:2815:C:H2'	54:01:2816:G:H8	1.81	0.45
1:04:248:GLY:HA3	54:01:2239:G:H5'	1.97	0.45
4:07:140:ILE:HD12	4:07:140:ILE:H	1.79	0.45
5:08:137:LYS:HA	5:08:140:ILE:HG12	1.98	0.45
6:09:90:LEU:HD13	6:09:125:THR:OG1	2.16	0.45
9:12:78:THR:CG2	54:01:2641:G:H5''	2.46	0.45
14:17:67:ASN:HA	55:02:50:A:OP2	2.15	0.45
14:17:74:VAL:O	14:17:78:VAL:HG23	2.16	0.45
15:18:50:ARG:HE	15:18:52:ARG:HG2	1.81	0.45
18:21:42:LYS:HB3	54:01:2010:G:H5''	1.98	0.45
21:24:38:LEU:HG	21:24:40:ILE:HD11	1.98	0.45
24:27:16:THR:HG22	24:27:20:ASN:ND2	2.30	0.45
33:C:13:ILE:N	33:C:13:ILE:HD12	2.31	0.45
34:D:27:ILE:HD12	34:D:27:ILE:N	2.31	0.45
36:F:86:ARG:HD3	53:A:673:A:C4'	2.39	0.45
37:G:75:LYS:HE3	37:G:88:VAL:HG11	1.98	0.45
39:I:129:ARG:NH2	56:W:33:U:H3'	2.32	0.45
41:K:78:ILE:HG21	41:K:81:LEU:HD23	1.97	0.45
46:P:59:HIS:O	46:P:63:GLN:HB2	2.16	0.45
46:P:67:ILE:N	46:P:67:ILE:HD12	2.30	0.45
53:A:89:U:H2'	53:A:90:C:O4'	2.15	0.45
53:A:123:U:OP1	53:A:312:C:H5'	2.16	0.45
53:A:202:G:N2	53:A:466:A:H61	2.11	0.45
53:A:291:U:H3'	53:A:305:G:H22	1.82	0.45
53:A:393:A:O2'	53:A:394:G:H5'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:864:G:O2'	54:01:865:C:H5'	2.16	0.45
54:01:1168:G:C2'	54:01:1169:A:H5''	2.46	0.45
54:01:1372:U:H2'	54:01:1373:A:C8	2.51	0.45
54:01:1482:G:H1'	54:01:1509:A:H2	1.81	0.45
54:01:2403:C:H2'	54:01:2404:U:C6	2.51	0.45
54:01:2427:C:C5'	54:01:2429:G:H5'	2.46	0.45
54:01:2696:U:H2'	54:01:2697:G:C8	2.51	0.45
56:X:16:C:O2	56:X:60:U:H4'	2.15	0.45
59:Z:52:ALA:HB3	59:Z:55:GLU:HG3	1.98	0.45
5:08:69:ALA:HB1	54:01:2747:G:H5''	1.98	0.45
16:19:57:ARG:HH12	16:19:61:ILE:HD11	1.80	0.45
20:23:66:VAL:O	20:23:69:VAL:HG22	2.17	0.45
28:31:8:ILE:HD13	28:31:24:LYS:HB2	1.97	0.45
39:I:114:LYS:HE3	53:A:1187:G:C5'	2.46	0.45
53:A:687:A:N3	53:A:688:G:H1'	2.31	0.45
53:A:1069:C:C3'	53:A:1070:U:H5''	2.47	0.45
53:A:1333:A:H2'	53:A:1334:G:O4'	2.17	0.45
53:A:1497:G:C2'	53:A:1498:U:H5'	2.47	0.45
53:A:1508:A:H2'	53:A:1509:C:O4'	2.16	0.45
54:01:49:A:H5'	54:01:51:G:H5'	1.97	0.45
54:01:282:A:H2'	54:01:283:G:C8	2.50	0.45
54:01:805:G:H22	54:01:828:U:H5''	1.82	0.45
54:01:1281:G:H2'	54:01:1282:U:C6	2.52	0.45
54:01:1403:A:H2'	54:01:1404:C:C6	2.51	0.45
54:01:1775:U:H2'	54:01:1776:G:H5'	1.97	0.45
54:01:2848:G:O2'	54:01:2849:U:H5'	2.16	0.45
56:X:1:C:H2'	56:X:2:G:O4'	2.17	0.45
59:Z:123:ARG:HA	59:Z:162:PHE:HZ	1.81	0.45
63:Z:402:GCP:H2'	63:Z:402:GCP:H8	1.77	0.45
7:10:55:VAL:HA	54:01:1084:A:C5'	2.43	0.45
13:16:33:ILE:CG1	13:16:114:GLU:HB3	2.46	0.45
29:32:39:ARG:HA	54:01:459:U:OP1	2.17	0.45
32:B:15:PHE:HB2	32:B:39:ILE:HG23	1.97	0.45
33:C:24:ASN:HD22	33:C:25:THR:H	1.63	0.45
34:D:96:ARG:O	34:D:100:VAL:HG23	2.15	0.45
36:F:45:ARG:O	36:F:56:LYS:HA	2.16	0.45
40:J:22:THR:HG21	40:J:39:PRO:HB3	1.97	0.45
44:N:7:ALA:O	44:N:10:VAL:HG12	2.17	0.45
46:P:53:ASP:O	46:P:57:ILE:HG13	2.16	0.45
46:P:70:ARG:O	46:P:74:LEU:HG	2.17	0.45
48:R:52:ARG:HB3	48:R:56:ARG:HH12	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:29:U:O2'	53:A:30:U:H5'	2.17	0.45
53:A:548:G:H2'	53:A:549:C:C6	2.52	0.45
53:A:651:C:H2'	53:A:652:U:C6	2.51	0.45
53:A:741:G:H2'	53:A:742:G:C8	2.51	0.45
53:A:1004:A:H3'	53:A:1024:G:N2	2.31	0.45
54:01:1332:G:N7	54:01:1609:A:H2'	2.32	0.45
54:01:1518:C:H2'	54:01:1519:G:C8	2.52	0.45
54:01:1885:A:H2'	54:01:1886:U:O4'	2.16	0.45
54:01:2023:C:H2'	54:01:2024:G:C8	2.51	0.45
58:Y:1:G:H5'	59:Z:288:ARG:NE	2.32	0.45
1:04:119:VAL:HG12	1:04:130:PRO:CD	2.46	0.45
2:05:150:GLN:HB2	54:01:2572:A:N7	2.32	0.45
2:05:202:ILE:N	2:05:202:ILE:HD12	2.32	0.45
4:07:15:LEU:HD13	4:07:28:PRO:HD2	1.98	0.45
4:07:19:PHE:HZ	4:07:163:GLU:HG3	1.81	0.45
9:12:13:ARG:HA	9:12:52:ASP:OD1	2.16	0.45
13:16:118:ARG:NH1	27:30:55:ALA:HB3	2.32	0.45
15:18:62:LYS:NZ	15:18:64:SER:HB3	2.32	0.45
25:28:41:PRO:HA	25:28:44:ARG:HB2	1.98	0.45
28:31:46:VAL:HG12	28:31:47:ILE:N	2.32	0.45
32:B:44:LYS:O	32:B:48:MET:HG2	2.16	0.45
33:C:18:ASN:N	44:N:90:GLY:O	2.47	0.45
33:C:143:LEU:HD23	33:C:143:LEU:O	2.15	0.45
39:I:4:GLN:NE2	39:I:21:LYS:HD2	2.30	0.45
45:O:26:VAL:O	45:O:30:LEU:HD13	2.17	0.45
47:Q:37:ILE:HG22	47:Q:38:LYS:H	1.82	0.45
50:T:20:ASN:HD22	50:T:65:LEU:HD13	1.81	0.45
53:A:71:A:H61	53:A:99:C:H1'	1.82	0.45
53:A:107:G:H2'	53:A:108:G:H8	1.81	0.45
53:A:149:A:H1'	53:A:1446:A:C2	2.52	0.45
53:A:335:C:H2'	53:A:336:A:C8	2.52	0.45
54:01:154:U:H2'	54:01:155:A:C8	2.52	0.45
54:01:259:G:H2'	54:01:260:G:H8	1.82	0.45
54:01:491:G:N3	54:01:491:G:H2'	2.30	0.45
54:01:2644:G:H3'	54:01:2645:G:H21	1.82	0.45
59:Z:124:GLN:OE1	59:Z:385:ALA:HB1	2.16	0.45
2:05:54:ALA:HA	2:05:76:GLY:HA2	1.98	0.45
4:07:63:LYS:HB2	26:29:5:ILE:O	2.16	0.45
10:13:43:ILE:HD12	10:13:56:ASP:HB2	1.98	0.45
11:14:86:GLU:HG2	11:14:87:GLY:H	1.80	0.45
13:16:47:VAL:C	13:16:50:PRO:HD2	2.37	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:18:26:GLU:HA	15:18:43:GLU:HA	1.99	0.45
20:23:50:ALA:O	20:23:52:ASN:N	2.50	0.45
25:28:16:LEU:HB2	25:28:19:HIS:CD2	2.51	0.45
32:B:65:LYS:HB3	32:B:89:PHE:HE2	1.80	0.45
32:B:102:ASN:O	32:B:106:VAL:HG23	2.16	0.45
33:C:157:GLY:H	33:C:195:ILE:HD11	1.82	0.45
47:Q:60:ILE:HG21	47:Q:72:TRP:HB3	1.98	0.45
51:U:17:ARG:HA	51:U:20:ARG:CD	2.46	0.45
52:03:170:ILE:HD12	52:03:170:ILE:N	2.31	0.45
53:A:955:U:H3	53:A:1225:A:H61	1.65	0.45
54:01:1190:G:H2'	54:01:1191:G:C8	2.50	0.45
54:01:1239:G:H2'	54:01:1240:U:O4'	2.17	0.45
54:01:1532:A:H2	54:01:1539:U:H3	1.63	0.45
59:Z:30:ALA:O	59:Z:34:VAL:HG23	2.16	0.45
1:04:99:GLU:OE1	54:01:1491:G:H4'	2.16	0.45
1:04:216:ARG:HG2	1:04:217:PRO:HD2	1.99	0.45
4:07:131:VAL:HG11	4:07:136:ILE:HD11	1.99	0.45
5:08:85:LYS:HG2	5:08:131:VAL:HG22	1.98	0.45
6:09:73:ASN:HB2	6:09:108:VAL:N	2.32	0.45
8:11:56:VAL:HG22	8:11:57:VAL:N	2.32	0.45
8:11:84:GLY:HA2	8:11:86:LYS:NZ	2.32	0.45
8:11:130:GLY:O	54:01:1079:C:H1'	2.16	0.45
11:14:86:GLU:O	11:14:88:GLY:N	2.46	0.45
16:19:34:ALA:O	16:19:38:VAL:HG23	2.17	0.45
18:21:29:VAL:CG2	18:21:69:LEU:HB3	2.46	0.45
20:23:13:LEU:HD21	20:23:70:ALA:HB3	1.99	0.45
21:24:80:HIS:N	21:24:85:LYS:O	2.50	0.45
34:D:59:LYS:HB2	34:D:59:LYS:NZ	2.32	0.45
53:A:187:G:H2'	53:A:189:A:OP2	2.17	0.45
53:A:1086:U:H2'	53:A:1087:G:H8	1.82	0.45
53:A:1318:A:H2'	53:A:1319:A:H5'	1.99	0.45
54:01:37:C:H4'	54:01:451:U:OP1	2.17	0.45
54:01:807:U:H2'	54:01:808:G:H8	1.80	0.45
54:01:2074:U:H2'	54:01:2075:U:C6	2.52	0.45
54:01:2110:G:H5'	54:01:2118:U:H2'	1.98	0.45
54:01:2834:G:O6	54:01:2879:A:H2'	2.17	0.45
1:04:71:ASP:O	1:04:73:ILE:HG13	2.17	0.45
1:04:243:PRO:C	1:04:251:THR:HG22	2.36	0.45
2:05:20:VAL:HG12	2:05:22:ILE:HG23	1.99	0.45
4:07:100:GLU:OE2	26:29:24:ILE:HG22	2.16	0.45
8:11:75:ALA:HA	8:11:78:LEU:HB2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:11:100:ILE:N	8:11:100:ILE:HD12	2.31	0.45
16:19:29:ARG:NH1	27:30:9:ARG:HH11	2.14	0.45
16:19:63:ARG:O	16:19:66:ALA:HB3	2.17	0.45
18:21:24:ILE:HD11	18:21:74:ILE:CD1	2.47	0.45
24:27:25:GLN:HG3	24:27:29:ARG:NH1	2.32	0.45
30:33:15:LYS:HE3	30:33:64:ALA:OXT	2.17	0.45
32:B:162:VAL:HB	32:B:184:ALA:CB	2.47	0.45
42:L:3:VAL:O	42:L:7:VAL:HG23	2.17	0.45
42:L:29:LYS:HD3	53:A:363:A:OP1	2.17	0.45
46:P:15:PRO:O	46:P:42:ILE:HD11	2.16	0.45
53:A:812:G:OP1	53:A:903:G:H1'	2.17	0.45
54:01:371:A:H61	54:01:401:A:H3'	1.80	0.45
54:01:644:A:H2'	54:01:645:C:H5''	1.99	0.45
54:01:713:G:H2'	54:01:714:U:C6	2.51	0.45
54:01:2853:C:H2'	54:01:2854:G:H8	1.82	0.45
55:02:55:U:O2'	55:02:56:G:H5'	2.17	0.45
1:04:179:GLU:HG3	1:04:269:ARG:HA	1.99	0.45
5:08:42:VAL:C	5:08:43:LYS:HD3	2.38	0.45
11:14:61:LEU:O	30:33:12:ARG:HD3	2.17	0.45
13:16:53:THR:OG1	54:01:2840:C:H5''	2.15	0.45
13:16:96:ARG:HG3	13:16:116:VAL:HG22	1.98	0.45
14:17:53:THR:HB	14:17:65:THR:CG2	2.47	0.45
16:19:59:LEU:HG	16:19:63:ARG:NH1	2.32	0.45
18:21:23:LEU:HD21	27:30:21:LEU:O	2.17	0.45
21:24:26:PHE:CZ	21:24:42:LEU:HD11	2.51	0.45
32:B:202:ASN:HD22	32:B:202:ASN:HA	1.58	0.45
53:A:700:G:O2'	53:A:701:U:H5''	2.16	0.45
53:A:1512:U:H2'	53:A:1513:A:C8	2.52	0.45
54:01:1071:G:OP1	54:01:1071:G:H3'	2.16	0.45
54:01:1338:G:H2'	54:01:1339:G:C8	2.52	0.45
54:01:1844:C:H2'	54:01:1845:G:H8	1.82	0.45
54:01:2022:U:O2'	54:01:2617:U:H5'	2.15	0.45
54:01:2852:G:H2'	54:01:2853:C:O4'	2.17	0.45
56:X:11:A:H2'	56:X:12:G:C8	2.52	0.45
59:Z:149:VAL:O	59:Z:153:VAL:HG23	2.17	0.45
3:06:123:LYS:HA	3:06:189:THR:HG23	1.97	0.45
20:23:27:VAL:HG23	20:23:33:VAL:HA	1.99	0.45
28:31:37:LYS:HB2	28:31:48:TYR:CD2	2.52	0.45
32:B:102:ASN:O	32:B:105:THR:HG22	2.17	0.45
32:B:103:TRP:CH2	32:B:155:GLY:HA2	2.52	0.45
33:C:161:ILE:HD12	33:C:161:ILE:N	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:182:LYS:NZ	34:D:182:LYS:HB2	2.32	0.45
51:U:39:LYS:O	51:U:43:GLU:HG2	2.16	0.45
53:A:70:U:H4'	53:A:71:A:O5'	2.17	0.45
53:A:591:U:H2'	53:A:592:G:C8	2.51	0.45
53:A:1174:G:O2'	53:A:1175:G:H5'	2.17	0.45
53:A:1248:A:H2'	53:A:1249:C:C6	2.51	0.45
53:A:1347:G:HO2'	53:A:1348:U:H6	1.63	0.45
53:A:1419:G:H1	53:A:1481:U:H3	1.64	0.45
54:01:1312:U:H4'	54:01:1313:U:O5'	2.17	0.45
54:01:1911:U:H2'	54:01:1918:A:N1	2.32	0.45
54:01:2293:G:H2'	54:01:2294:G:C8	2.51	0.45
54:01:2861:U:H2'	54:01:2862:G:H8	1.82	0.45
57:V:20:G:H1	58:Y:35:U:H3	1.64	0.45
4:07:111:ARG:HD3	43:M:6:ILE:HG23	1.98	0.44
6:09:31:VAL:N	6:09:32:PRO:HD2	2.32	0.44
11:14:56:PRO:O	11:14:60:ARG:HG3	2.17	0.44
16:19:12:ARG:O	16:19:15:LYS:HG2	2.17	0.44
21:24:56:PHE:CE1	21:24:61:LEU:HD21	2.53	0.44
23:26:36:ARG:HA	23:26:47:THR:HA	1.98	0.44
24:27:31:GLN:HG3	24:27:36:GLN:HB2	1.99	0.44
26:29:61:ASN:O	26:29:65:ASN:HA	2.17	0.44
34:D:64:TYR:CE2	34:D:93:LEU:HB3	2.51	0.44
41:K:28:ASN:HB2	53:A:690:G:OP2	2.17	0.44
43:M:47:LEU:CD2	43:M:51:GLN:HB2	2.48	0.44
46:P:33:ILE:H	46:P:33:ILE:CD1	2.28	0.44
53:A:21:G:H2'	53:A:22:G:C8	2.51	0.44
53:A:429:U:H4'	53:A:430:A:O5'	2.17	0.44
53:A:748:G:H2'	53:A:749:A:C8	2.52	0.44
53:A:1258:G:H2'	53:A:1259:C:C6	2.52	0.44
54:01:615:U:H5''	54:01:616:A:OP2	2.17	0.44
54:01:861:A:H2'	54:01:862:G:O4'	2.17	0.44
54:01:1570:A:H2'	54:01:1571:A:C8	2.51	0.44
54:01:2301:C:H2'	54:01:2302:U:C6	2.52	0.44
54:01:2636:C:O2'	54:01:2637:U:H5'	2.17	0.44
5:08:126:THR:HB	5:08:129:GLU:HB3	1.99	0.44
5:08:162:ARG:NH1	5:08:168:VAL:HG21	2.32	0.44
7:10:37:LYS:CG	7:10:41:LEU:HD12	2.47	0.44
11:14:29:LYS:HD3	11:14:29:LYS:O	2.17	0.44
14:17:39:VAL:HG12	14:17:48:LEU:HD12	1.98	0.44
15:18:102:ARG:HH21	54:01:1755:A:H5'	1.82	0.44
16:19:24:TYR:H	54:01:533:G:P	2.40	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:19:93:ILE:HD12	17:20:13:ARG:HB2	1.99	0.44
26:29:60:PHE:HA	26:29:63:ARG:HD2	2.00	0.44
33:C:80:GLY:O	33:C:84:GLU:HG3	2.17	0.44
34:D:77:GLU:HA	34:D:80:ARG:HD3	1.98	0.44
38:H:45:ILE:HG21	38:H:60:LEU:HD22	1.99	0.44
39:I:78:ILE:O	39:I:82:ILE:HG13	2.17	0.44
42:L:114:SER:HB3	53:A:35:G:H21	1.82	0.44
45:O:86:LEU:O	45:O:87:ARG:HB2	2.18	0.44
53:A:105:G:H2'	53:A:106:C:C6	2.52	0.44
53:A:220:G:O2'	53:A:221:C:H5'	2.16	0.44
53:A:871:U:H5''	53:A:872:A:OP2	2.18	0.44
54:01:168:G:H2'	54:01:169:G:C8	2.53	0.44
54:01:570:G:H2'	54:01:2030:A:N7	2.31	0.44
54:01:1297:C:OP1	54:01:2710:C:H4'	2.17	0.44
54:01:2196:C:O2'	54:01:2197:U:H5'	2.16	0.44
54:01:2489:U:H1'	54:01:2518:A:H61	1.82	0.44
54:01:2512:C:H2'	54:01:2513:A:O4'	2.16	0.44
54:01:2645:G:H4'	54:01:2732:G:H1'	1.98	0.44
54:01:2817:U:C3'	54:01:2818:U:H5''	2.47	0.44
55:02:21:G:H2'	55:02:22:U:O4'	2.18	0.44
59:Z:159:GLN:HE21	59:Z:159:GLN:HB3	1.58	0.44
3:06:1:MET:O	3:06:14:VAL:HG22	2.18	0.44
4:07:94:ARG:HA	4:07:97:GLU:HB3	1.99	0.44
4:07:127:TYR:HD2	4:07:155:ILE:HD12	1.82	0.44
11:14:14:LYS:O	11:14:15:ALA:HB3	2.16	0.44
24:27:19:LEU:HA	24:27:22:LEU:HB2	1.98	0.44
32:B:33:ALA:HB2	32:B:39:ILE:CG1	2.47	0.44
34:D:66:VAL:HG13	34:D:70:GLN:NE2	2.32	0.44
37:G:101:ARG:CZ	53:A:939:G:H4'	2.47	0.44
38:H:77:VAL:HG12	38:H:84:ILE:HD12	1.99	0.44
39:I:51:LEU:HA	39:I:54:VAL:HG23	1.98	0.44
53:A:142:G:C2	53:A:143:A:H1'	2.52	0.44
53:A:314:C:O2'	53:A:315:A:H5'	2.18	0.44
53:A:321:A:O2'	53:A:322:C:H5'	2.16	0.44
53:A:513:C:H2'	53:A:514:C:C6	2.52	0.44
53:A:768:A:H2'	53:A:769:G:O4'	2.18	0.44
54:01:226:A:H5''	54:01:257:C:O2'	2.18	0.44
54:01:1746:A:H2'	54:01:1747:U:C6	2.52	0.44
54:01:2556:C:H2'	54:01:2557:G:O4'	2.17	0.44
58:Y:14:A:C2	58:Y:22:G:H1'	2.52	0.44
59:Z:340:THR:O	59:Z:360:VAL:HG13	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:05:118:PHE:CE2	54:01:1655:A:H1'	2.52	0.44
4:07:70:ARG:HB3	54:01:2312:U:OP1	2.18	0.44
4:07:147:ARG:HB3	4:07:149:ARG:HE	1.81	0.44
6:09:32:PRO:HA	23:26:38:TRP:CD1	2.52	0.44
20:23:24:VAL:HG22	20:23:35:VAL:HG22	1.99	0.44
29:32:14:ARG:HD2	54:01:771:G:OP1	2.17	0.44
32:B:163:ILE:HD11	32:B:209:VAL:HG12	1.99	0.44
34:D:120:LYS:HD3	34:D:145:ARG:NH1	2.33	0.44
39:I:41:GLU:O	39:I:44:ARG:HB3	2.18	0.44
46:P:19:VAL:HG13	46:P:36:VAL:O	2.17	0.44
49:S:31:ARG:NE	49:S:31:ARG:HA	2.32	0.44
52:03:62:ALA:HB3	52:03:160:GLN:NE2	2.31	0.44
53:A:477:C:H2'	53:A:478:A:C8	2.52	0.44
53:A:853:C:H2'	53:A:854:U:O4'	2.18	0.44
54:01:1265:A:H61	54:01:2013:A:H5''	1.82	0.44
54:01:1370:C:H2'	54:01:1371:G:C8	2.53	0.44
54:01:1541:C:H2'	54:01:1542:U:C6	2.52	0.44
54:01:2158:A:H4'	54:01:2159:G:O4'	2.17	0.44
55:02:95:U:H2'	55:02:96:G:H8	1.82	0.44
59:Z:133:PHE:CD1	59:Z:170:VAL:HG23	2.48	0.44
59:Z:306:SER:HB3	59:Z:388:VAL:HA	1.99	0.44
59:Z:331:TYR:HB2	59:Z:375:ALA:HB3	1.97	0.44
2:05:23:PRO:HG3	54:01:2728:U:O2'	2.18	0.44
2:05:124:ARG:HA	2:05:165:MET:SD	2.57	0.44
4:07:47:LYS:HB2	4:07:47:LYS:NZ	2.32	0.44
6:09:68:ARG:O	6:09:72:ILE:HG13	2.17	0.44
7:10:60:LEU:HB2	54:01:1047:G:O6	2.17	0.44
9:12:117:ALA:HA	9:12:120:ARG:HH21	1.81	0.44
10:13:48:PRO:HG3	53:A:1422:G:H5'	1.98	0.44
13:16:63:ARG:HD3	54:01:1454:C:O4'	2.17	0.44
13:16:76:VAL:HA	13:16:79:LEU:HB2	1.99	0.44
19:22:50:LEU:HD12	19:22:50:LEU:N	2.32	0.44
20:23:16:LYS:N	54:01:309:A:H4'	2.32	0.44
28:31:4:ILE:HB	54:01:2284:A:OP1	2.18	0.44
28:31:8:ILE:HD12	28:31:50:GLU:HG2	2.00	0.44
37:G:50:ALA:O	37:G:54:GLY:N	2.49	0.44
38:H:31:LEU:HD13	53:A:643:C:H5'	1.99	0.44
39:I:48:ARG:HA	39:I:51:LEU:HD12	1.99	0.44
53:A:1218:C:H2'	53:A:1219:A:H8	1.77	0.44
53:A:1504:G:OP1	53:A:1507:A:H4'	2.17	0.44
54:01:112:U:H2'	54:01:113:U:H5'	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:488:G:H22	54:01:491:G:H5''	1.82	0.44
54:01:745:G:HO2'	54:01:748:G:H1'	1.82	0.44
54:01:849:A:H2'	54:01:850:U:C6	2.53	0.44
54:01:1524:G:H2'	54:01:1525:A:C8	2.53	0.44
54:01:2153:C:H2'	54:01:2154:A:C8	2.52	0.44
54:01:2732:G:O2'	54:01:2733:A:H5'	2.18	0.44
54:01:2815:C:H2'	54:01:2816:G:C8	2.52	0.44
55:02:70:C:H2'	55:02:71:C:H6	1.83	0.44
59:Z:154:ARG:NH1	59:Z:167:THR:H	2.06	0.44
1:04:259:ASN:C	1:04:261:ARG:H	2.21	0.44
1:04:270:ARG:HB3	1:04:270:ARG:NH1	2.32	0.44
2:05:207:VAL:HG13	2:05:208:LYS:HG3	2.00	0.44
7:10:114:GLU:HA	7:10:123:ILE:HA	2.00	0.44
8:11:21:PRO:CB	8:11:22:PRO:HD3	2.47	0.44
10:13:19:VAL:HB	10:13:41:ILE:HD13	1.99	0.44
12:15:72:PRO:HD3	12:15:92:TRP:CZ3	2.53	0.44
13:16:77:ALA:O	13:16:81:ASN:HB2	2.18	0.44
14:17:71:ALA:HB1	14:17:106:LEU:HB2	1.99	0.44
19:22:56:GLU:HB3	19:22:86:THR:OG1	2.18	0.44
32:B:206:ILE:O	32:B:210:THR:HG23	2.17	0.44
34:D:8:LEU:HD23	53:A:429:U:H5'	2.00	0.44
35:E:53:ARG:HH22	53:A:1071:C:H5''	1.82	0.44
48:R:11:ARG:HH21	48:R:11:ARG:HG2	1.83	0.44
48:R:13:THR:HA	48:R:16:GLY:C	2.37	0.44
53:A:37:U:H2'	53:A:38:G:H8	1.82	0.44
53:A:358:U:H4'	59:Z:224:GLY:HA2	2.00	0.44
53:A:452:A:H2'	53:A:453:G:O4'	2.18	0.44
53:A:1271:A:H2'	53:A:1272:G:H8	1.83	0.44
54:01:1179:G:C2'	54:01:1180:U:H4'	2.47	0.44
54:01:1266:G:H22	54:01:2012:G:H2'	1.83	0.44
54:01:2691:C:H2'	54:01:2692:G:C8	2.52	0.44
54:01:2863:C:H2'	54:01:2864:G:C8	2.53	0.44
56:X:59:A:C2'	56:X:60:U:H5'	2.46	0.44
59:Z:73:THR:HG22	59:Z:74:ARG:HG3	1.98	0.44
59:Z:107:ALA:HA	59:Z:134:LEU:HD22	1.99	0.44
1:04:207:ALA:HB1	54:01:1790:C:H4'	2.00	0.44
8:11:13:ALA:HB3	8:11:16:MET:CG	2.48	0.44
14:17:39:VAL:HB	14:17:49:VAL:H	1.82	0.44
14:17:58:ILE:O	14:17:62:LEU:HG	2.17	0.44
15:18:96:LEU:HD22	15:18:98:TYR:HE1	1.83	0.44
21:24:37:PRO:HG2	55:02:74:U:H1'	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:25:22:PHE:HD2	54:01:922:C:HI1'	1.82	0.44
34:D:101:VAL:HG11	34:D:116:LEU:HD23	2.00	0.44
41:K:19:VAL:HB	41:K:34:THR:OG1	2.18	0.44
42:L:101:LEU:N	42:L:101:LEU:HD12	2.33	0.44
46:P:17:TYR:CE2	46:P:41:PRO:HG3	2.52	0.44
53:A:432:A:H2'	53:A:433:G:O4'	2.17	0.44
53:A:855:U:H2'	53:A:856:C:C6	2.52	0.44
53:A:1033:G:H2'	53:A:1034:G:C4'	2.46	0.44
54:01:654:A:H3'	54:01:654:A:N3	2.33	0.44
54:01:668:A:H2'	54:01:670:A:N6	2.31	0.44
54:01:1064:C:C3'	54:01:1065:U:H5''	2.48	0.44
54:01:1338:G:H2'	54:01:1339:G:H8	1.83	0.44
54:01:1416:G:H2'	54:01:1417:C:C6	2.53	0.44
54:01:1563:U:H2'	54:01:1564:C:C6	2.53	0.44
54:01:1672:A:C2	54:01:2582:G:H5'	2.52	0.44
54:01:1837:C:H2'	54:01:1899:A:H61	1.82	0.44
54:01:2353:G:H2'	54:01:2354:C:O4'	2.17	0.44
54:01:2479:U:C2'	54:01:2480:C:H5''	2.47	0.44
59:Z:213:PRO:HD2	59:Z:230:ARG:O	2.18	0.44
59:Z:332:PHE:O	59:Z:333:ARG:HB2	2.18	0.44
2:05:37:VAL:HG22	2:05:48:ILE:HG22	2.00	0.44
2:05:177:VAL:HA	2:05:189:VAL:HG12	1.98	0.44
4:07:33:ILE:HB	4:07:90:LEU:HD11	2.00	0.44
6:09:116:ARG:HB2	6:09:131:SER:O	2.18	0.44
8:11:56:VAL:HG22	8:11:57:VAL:H	1.83	0.44
8:11:81:LYS:HD2	8:11:82:ALA:N	2.33	0.44
12:15:60:GLN:NE2	12:15:108:VAL:HG12	2.32	0.44
14:17:55:GLU:HG2	55:02:116:G:H5'	1.99	0.44
20:23:44:HIS:NE2	20:23:57:ILE:HG12	2.32	0.44
21:24:48:MET:HA	21:24:51:GLN:HG2	2.00	0.44
21:24:50:MET:HE3	21:24:50:MET:O	2.18	0.44
42:L:45:ASN:HD22	53:A:528:C:N4	2.11	0.44
48:R:41:SER:HB3	48:R:51:GLN:NE2	2.30	0.44
53:A:1003:G:H21	53:A:1005:A:H5'	1.83	0.44
53:A:1434:A:H2'	53:A:1435:G:O4'	2.18	0.44
53:A:1464:U:H2'	53:A:1465:A:H8	1.82	0.44
54:01:78:U:H2'	54:01:79:C:C6	2.53	0.44
54:01:168:G:H2'	54:01:169:G:H8	1.83	0.44
54:01:677:A:O2'	54:01:2071:A:H5'	2.18	0.44
54:01:1188:U:O2'	54:01:1189:A:H5'	2.18	0.44
54:01:1722:A:H61	54:01:1738:G:HI1'	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2310:C:H2'	54:01:2311:A:H5''	1.99	0.44
55:02:34:A:H2'	55:02:44:G:O6	2.17	0.44
59:Z:114:GLN:O	59:Z:118:HIS:N	2.43	0.44
59:Z:164:GLY:HA2	59:Z:167:THR:OG1	2.18	0.44
4:07:109:ARG:HH12	43:M:2:ARG:HG2	1.82	0.44
9:12:109:LEU:HD22	9:12:118:MET:SD	2.58	0.44
13:16:47:VAL:O	13:16:50:PRO:HD2	2.18	0.44
13:16:82:GLU:O	13:16:86:ARG:HB2	2.18	0.44
19:22:11:LEU:HB2	24:27:26:PHE:HE1	1.82	0.44
32:B:93:HIS:HB3	32:B:94:ARG:H	1.65	0.44
37:G:42:VAL:O	37:G:46:LEU:HD13	2.17	0.44
41:K:124:LYS:HD3	41:K:124:LYS:H	1.82	0.44
42:L:33:CYS:HA	42:L:54:VAL:HG22	1.99	0.44
42:L:66:ILE:HG21	42:L:71:HIS:CD2	2.53	0.44
53:A:575:G:O2'	53:A:821:G:H5'	2.17	0.44
53:A:1392:G:H2'	53:A:1393:U:C6	2.53	0.44
53:A:1414:U:H2'	53:A:1415:G:H8	1.83	0.44
54:01:728:G:H3'	54:01:729:G:H5'	1.99	0.44
54:01:755:U:H2'	54:01:756:A:H8	1.83	0.44
54:01:1067:A:H2'	54:01:1067:A:N3	2.33	0.44
54:01:1512:C:H2'	54:01:1513:U:H6	1.81	0.44
54:01:1849:G:H2'	54:01:1850:G:H8	1.83	0.44
54:01:2153:C:H2'	54:01:2154:A:H8	1.83	0.44
54:01:2881:U:H2'	54:01:2882:A:H8	1.81	0.44
59:Z:116:ARG:HH11	59:Z:116:ARG:HG3	1.83	0.44
2:05:9:VAL:O	2:05:26:VAL:HB	2.18	0.43
8:11:131:THR:HG23	54:01:1059:G:H21	1.82	0.43
9:12:41:LYS:HG2	9:12:43:GLU:OE1	2.17	0.43
10:13:122:VAL:OXT	10:13:122:VAL:HG12	2.17	0.43
24:27:32:ALA:HA	24:27:37:LEU:HD13	2.00	0.43
31:34:31:PRO:HB3	54:01:2527:C:H5''	2.01	0.43
32:B:80:LYS:O	32:B:84:LEU:HG	2.18	0.43
32:B:93:HIS:NE2	32:B:145:ASN:HB2	2.33	0.43
41:K:17:ASP:OD2	41:K:36:ARG:HB2	2.18	0.43
53:A:604:G:H2'	53:A:605:U:O4'	2.18	0.43
53:A:746:A:H2'	53:A:747:A:C8	2.53	0.43
53:A:1352:C:H2'	53:A:1353:G:C8	2.53	0.43
54:01:576:U:H2'	54:01:577:G:C8	2.53	0.43
54:01:820:A:C2	54:01:943:A:H4'	2.53	0.43
54:01:942:G:H2'	54:01:943:A:O4'	2.18	0.43
54:01:1171:G:H2'	54:01:1172:C:H4'	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1368:G:H2'	54:01:1369:G:H8	1.82	0.43
54:01:1679:A:H2'	54:01:1680:U:C6	2.52	0.43
54:01:2415:G:H2'	54:01:2416:C:H6	1.82	0.43
54:01:2623:G:H2'	54:01:2624:G:C8	2.53	0.43
55:02:88:C:OP1	55:02:88:C:H3'	2.18	0.43
55:02:115:A:H2'	55:02:116:G:C8	2.53	0.43
58:Y:73:A:H3'	58:Y:74:C:H5''	1.99	0.43
59:Z:146:LEU:HD13	59:Z:171:ARG:HH11	1.83	0.43
1:04:220:ARG:HD3	54:01:1827:U:C5	2.53	0.43
3:06:54:GLY:H	3:06:74:LYS:HE2	1.82	0.43
8:11:92:PRO:HA	8:11:136:GLY:HA3	2.00	0.43
11:14:78:ARG:HB2	11:14:81:ASP:OD1	2.18	0.43
13:16:102:PHE:CD1	13:16:109:PRO:HA	2.53	0.43
21:24:9:ARG:HB3	21:24:9:ARG:NH1	2.33	0.43
32:B:13:VAL:HG13	32:B:15:PHE:CE1	2.53	0.43
32:B:103:TRP:CH2	32:B:107:ARG:HD3	2.54	0.43
33:C:137:VAL:HA	33:C:148:ILE:HD13	1.99	0.43
36:F:17:GLN:O	36:F:21:MET:HG3	2.17	0.43
39:I:56:MET:HG3	39:I:60:LEU:HD11	2.00	0.43
42:L:11:ARG:HD2	53:A:562:U:C1'	2.47	0.43
42:L:48:LEU:HB2	53:A:520:A:OP1	2.18	0.43
42:L:109:ARG:CG	42:L:118:VAL:HG21	2.46	0.43
43:M:15:VAL:HG23	43:M:16:ILE:CD1	2.43	0.43
44:N:97:LYS:HE2	53:A:1189:U:H5'	2.00	0.43
46:P:18:GLN:HB3	46:P:35:ARG:HH21	1.82	0.43
46:P:51:ARG:C	46:P:52:LEU:HD12	2.38	0.43
47:Q:28:VAL:HG22	47:Q:29:LYS:N	2.32	0.43
50:T:46:ALA:O	50:T:50:PHE:N	2.51	0.43
53:A:1010:U:H2'	53:A:1011:C:C6	2.53	0.43
54:01:365:U:H2'	54:01:366:C:C6	2.53	0.43
54:01:403:U:O3'	54:01:404:A:H4'	2.18	0.43
54:01:419:U:H2'	54:01:420:C:C6	2.53	0.43
54:01:802:A:H2'	54:01:803:U:O4'	2.18	0.43
54:01:970:U:H2'	54:01:971:G:H8	1.83	0.43
54:01:2238:G:N3	54:01:2238:G:H2'	2.32	0.43
54:01:2554:U:H2'	54:01:2555:U:C5	2.53	0.43
54:01:2768:U:H2'	54:01:2769:U:O4'	2.16	0.43
56:X:15:G:N2	56:X:21:A:H1'	2.32	0.43
1:04:84:PRO:HG3	54:01:1567:G:H3'	1.99	0.43
1:04:110:LYS:HG2	1:04:111:ALA:N	2.33	0.43
7:10:64:VAL:O	7:10:64:VAL:HG12	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:30:35:GLU:HB2	27:30:43:THR:HG21	2.00	0.43
38:H:10:LEU:HD12	38:H:76:ARG:HB2	1.99	0.43
43:M:67:ASP:O	43:M:71:GLU:HB2	2.18	0.43
47:Q:8:GLN:O	47:Q:24:ILE:HG23	2.19	0.43
53:A:121:U:H2'	53:A:122:G:H5'	1.99	0.43
53:A:301:G:H2'	53:A:302:G:C8	2.53	0.43
53:A:674:G:H2'	53:A:675:A:C8	2.53	0.43
53:A:736:C:H2'	53:A:737:C:C6	2.54	0.43
53:A:1477:U:H2'	53:A:1478:U:H6	1.81	0.43
54:01:1468:U:H2'	54:01:1522:A:H61	1.82	0.43
54:01:2766:A:H2'	54:01:2766:A:N3	2.32	0.43
55:02:3:C:H3'	55:02:4:C:H5''	1.99	0.43
11:14:3:LEU:HD23	54:01:1203:U:H5'	1.99	0.43
11:14:51:GLU:OE1	11:14:56:PRO:HA	2.17	0.43
17:20:77:PHE:HD1	17:20:84:ARG:HB3	1.84	0.43
21:24:76:ASP:H	21:24:90:ASP:HB2	1.82	0.43
24:27:31:GLN:CG	24:27:36:GLN:HB2	2.48	0.43
30:33:38:LYS:HG2	30:33:42:HIS:CD2	2.53	0.43
34:D:6:PRO:HG3	53:A:430:A:H4'	1.99	0.43
36:F:14:GLN:O	36:F:18:VAL:HG23	2.18	0.43
39:I:38:PHE:HA	39:I:41:GLU:OE1	2.19	0.43
42:L:33:CYS:HA	42:L:54:VAL:HA	1.99	0.43
49:S:7:GLY:H	49:S:8:PRO:HD3	1.83	0.43
53:A:205:A:H2'	53:A:206:C:O4'	2.18	0.43
53:A:893:C:H2'	53:A:894:G:H8	1.82	0.43
54:01:154:U:H2'	54:01:155:A:H8	1.84	0.43
54:01:186:G:H2'	54:01:187:G:H8	1.82	0.43
54:01:596:U:H2'	54:01:597:G:H8	1.81	0.43
54:01:1878:G:O2'	54:01:1879:C:H5'	2.18	0.43
54:01:2291:U:H2'	54:01:2292:U:C6	2.53	0.43
56:X:3:C:H6	56:X:3:C:O5'	2.01	0.43
59:Z:32:THR:CG2	59:Z:42:ALA:HB1	2.46	0.43
59:Z:204:ARG:NH1	59:Z:269:ARG:HH22	2.16	0.43
59:Z:347:VAL:HG11	59:Z:350:VAL:HG23	2.00	0.43
4:07:142:TYR:CD2	43:M:8:ILE:HG21	2.54	0.43
8:11:57:VAL:O	8:11:68:PHE:HA	2.18	0.43
13:16:54:LEU:HG	13:16:80:PHE:HZ	1.83	0.43
15:18:12:MET:HG3	15:18:76:HIS:NE2	2.34	0.43
27:30:13:GLY:HA3	54:01:16:C:C5'	2.49	0.43
32:B:113:LEU:HD22	32:B:143:LEU:HB3	2.00	0.43
32:B:162:VAL:HG11	32:B:172:ILE:HD11	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:143:SER:C	34:D:144:ILE:HD12	2.39	0.43
35:E:156:ARG:HG3	38:H:43:GLY:O	2.19	0.43
42:L:85:ARG:HB3	42:L:93:ARG:HA	2.00	0.43
44:N:27:LYS:O	44:N:31:SER:HB2	2.18	0.43
53:A:20:U:H2'	53:A:21:G:O4'	2.18	0.43
53:A:50:A:C4'	53:A:51:A:H5'	2.40	0.43
53:A:521:G:O2'	53:A:522:C:H5'	2.19	0.43
54:01:58:G:O2'	54:01:59:U:H5'	2.19	0.43
54:01:190:A:H5''	54:01:204:A:N6	2.33	0.43
54:01:455:C:O2	54:01:473:G:H5'	2.19	0.43
54:01:1335:C:H2'	54:01:1336:A:H8	1.83	0.43
54:01:1394:U:H4'	54:01:1603:A:H4'	2.01	0.43
54:01:2141:G:N2	54:01:2151:U:H1'	2.34	0.43
54:01:2236:U:H2'	54:01:2237:G:O4'	2.19	0.43
54:01:2641:G:H2'	54:01:2642:G:C8	2.53	0.43
55:02:76:G:O2'	55:02:77:U:H5'	2.19	0.43
1:04:134:ILE:N	1:04:134:ILE:HD12	2.34	0.43
2:05:56:LYS:NZ	54:01:2830:C:H5''	2.34	0.43
2:05:122:VAL:HG21	2:05:141:ARG:HB3	1.99	0.43
15:18:77:SER:O	15:18:80:VAL:HG22	2.19	0.43
17:20:49:ILE:O	17:20:49:ILE:HG13	2.19	0.43
17:20:76:LYS:HB2	17:20:85:LYS:HB3	2.00	0.43
20:23:84:PHE:CE1	20:23:93:ARG:HG2	2.52	0.43
22:25:33:ILE:HG22	22:25:34:VAL:HG23	2.00	0.43
34:D:120:LYS:O	34:D:145:ARG:HD3	2.19	0.43
36:F:49:TYR:HB3	48:R:73:HIS:CD2	2.53	0.43
37:G:36:SER:HA	39:I:42:THR:CG2	2.47	0.43
37:G:115:MET:HB2	53:A:1240:U:OP1	2.18	0.43
38:H:87:ARG:HB3	38:H:90:GLU:HB3	2.00	0.43
39:I:101:GLY:O	39:I:103:VAL:HG22	2.18	0.43
40:J:59:LYS:HD2	40:J:62:ARG:NH2	2.34	0.43
49:S:69:LYS:HE3	53:A:1319:A:H5''	2.01	0.43
53:A:918:A:H2'	53:A:919:A:C8	2.53	0.43
53:A:1134:G:H2'	53:A:1135:U:O4'	2.18	0.43
54:01:186:G:H2'	54:01:187:G:C8	2.54	0.43
54:01:257:C:H2'	54:01:258:G:O4'	2.19	0.43
54:01:716:A:H3'	54:01:717:C:H5''	1.99	0.43
54:01:1056:G:H4'	54:01:1086:A:H8	1.82	0.43
54:01:1373:A:H5'	54:01:2212:A:H1'	1.99	0.43
59:Z:333:ARG:HE	59:Z:372:LEU:HD11	1.84	0.43
5:08:152:ARG:HD3	5:08:152:ARG:N	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:08:174:LYS:HD2	5:08:175:LYS:HG3	2.01	0.43
7:10:54:VAL:HG22	7:10:54:VAL:O	2.19	0.43
13:16:4:ARG:HD2	54:01:2874:C:OP1	2.18	0.43
14:17:53:THR:HB	14:17:65:THR:HG22	2.00	0.43
14:17:92:PHE:HB2	14:17:117:PHE:CD2	2.53	0.43
16:19:104:ALA:HA	17:20:46:GLU:HG3	2.00	0.43
20:23:4:ILE:HD12	20:23:4:ILE:N	2.32	0.43
24:27:5:GLU:HA	24:27:8:GLU:OE1	2.18	0.43
30:33:39:ARG:O	30:33:43:LEU:HG	2.19	0.43
35:E:23:THR:H	35:E:29:ILE:HG22	1.84	0.43
39:I:12:LYS:HA	39:I:109:GLN:NE2	2.30	0.43
39:I:14:SER:OG	39:I:74:GLN:HA	2.19	0.43
41:K:15:VAL:HG22	41:K:16:SER:H	1.83	0.43
41:K:125:LYS:HD2	53:A:797:C:OP1	2.18	0.43
42:L:41:PRO:HG3	42:L:49:ARG:HG2	2.00	0.43
42:L:78:VAL:O	42:L:102:ASP:HB2	2.19	0.43
42:L:115:LYS:O	42:L:116:TYR:CB	2.66	0.43
45:O:87:ARG:HD3	45:O:88:ARG:H	1.83	0.43
46:P:16:PHE:CZ	53:A:625:U:H4'	2.54	0.43
47:Q:64:ARG:HA	47:Q:65:PRO:HD3	1.88	0.43
49:S:31:ARG:HH21	49:S:56:HIS:CD2	2.36	0.43
52:03:177:LYS:O	52:03:179:ASP:N	2.52	0.43
53:A:502:A:O2'	53:A:503:C:H5'	2.19	0.43
53:A:1497:G:H2'	53:A:1498:U:H5'	2.01	0.43
54:01:538:A:H2'	54:01:539:G:O4'	2.19	0.43
54:01:1704:C:H2'	54:01:1705:A:C8	2.54	0.43
54:01:1775:U:H2'	54:01:1776:G:C5'	2.49	0.43
54:01:1975:G:H2'	54:01:1976:U:O4'	2.19	0.43
56:X:21:A:N6	56:X:46:G:H2'	2.34	0.43
59:Z:132:VAL:HG21	59:Z:153:VAL:HG13	1.99	0.43
59:Z:331:TYR:HE2	59:Z:377:ARG:HD3	1.83	0.43
4:07:110:ILE:HB	4:07:113:PHE:HB2	2.00	0.43
5:08:90:GLY:HA3	5:08:93:TYR:CD2	2.53	0.43
6:09:21:VAL:HB	6:09:25:TYR:HD2	1.83	0.43
8:11:91:LYS:N	8:11:92:PRO:HD3	2.34	0.43
15:18:59:THR:HG22	15:18:72:VAL:HA	2.01	0.43
15:18:59:THR:CG2	15:18:72:VAL:HG12	2.48	0.43
16:19:57:ARG:HG2	16:19:57:ARG:HH11	1.84	0.43
21:24:42:LEU:HD13	21:24:47:VAL:HG21	2.00	0.43
29:32:3:ARG:HD3	29:32:4:THR:N	2.33	0.43
37:G:11:ILE:HD11	37:G:20:GLU:HB3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:I:62:LEU:HD12	39:I:62:LEU:N	2.33	0.43
43:M:23:GLY:O	53:A:1329:A:H4'	2.18	0.43
53:A:146:G:O2'	53:A:147:G:H5'	2.19	0.43
53:A:1369:C:H2'	53:A:1370:G:C8	2.54	0.43
53:A:1384:C:H2'	53:A:1385:G:C8	2.54	0.43
53:A:1510:C:H2'	53:A:1511:G:C8	2.53	0.43
54:01:404:A:H1'	54:01:406:G:C4	2.54	0.43
54:01:912:C:O2'	54:01:913:U:H5'	2.18	0.43
54:01:968:C:H2'	54:01:969:G:C8	2.53	0.43
54:01:1059:G:H1	54:01:1079:C:H42	1.66	0.43
54:01:1168:G:H2'	54:01:1169:A:C5'	2.47	0.43
54:01:2783:U:H2'	54:01:2784:U:C6	2.53	0.43
58:Y:1:G:OP3	58:Y:1:G:H3'	2.19	0.43
59:Z:294:LYS:O	59:Z:297:THR:HG22	2.18	0.43
2:05:151:THR:HB	54:01:2571:U:O2'	2.19	0.43
4:07:107:VAL:HB	4:07:108:PRO:HD3	2.00	0.43
7:10:23:LEU:HD13	7:10:119:PRO:HD2	2.01	0.43
16:19:52:ARG:O	16:19:56:PHE:HB2	2.19	0.43
24:27:23:ARG:HA	24:27:27:ASN:OD1	2.19	0.43
29:32:34:ARG:HA	29:32:34:ARG:HD2	1.88	0.43
35:E:104:ILE:HG23	35:E:104:ILE:O	2.19	0.43
53:A:31:G:N2	53:A:47:C:H5''	2.34	0.43
53:A:192:A:H2'	53:A:193:C:C6	2.54	0.43
53:A:193:C:H2'	53:A:194:C:H6	1.83	0.43
53:A:440:C:H2'	53:A:441:A:C8	2.54	0.43
53:A:485:U:H5'	53:A:486:U:OP2	2.19	0.43
53:A:1404:C:H2'	53:A:1405:G:C8	2.53	0.43
58:Y:54:U:C2'	58:Y:55:U:H5'	2.49	0.43
1:04:16:VAL:HB	1:04:203:VAL:HG22	2.01	0.43
1:04:110:LYS:HG2	1:04:111:ALA:H	1.82	0.43
3:06:162:ARG:HH11	54:01:321:U:H1'	1.84	0.43
9:12:37:ARG:NH1	9:12:46:PRO:HA	2.33	0.43
13:16:79:LEU:CD2	13:16:83:LEU:HD12	2.44	0.43
20:23:46:LYS:CD	20:23:47:PRO:HD2	2.47	0.43
24:27:1:MET:HA	24:27:4:LYS:HB3	2.00	0.43
32:B:159:ALA:O	32:B:160:LEU:HD12	2.19	0.43
34:D:129:VAL:HA	53:A:619:U:O2	2.18	0.43
40:J:85:ASP:O	40:J:88:MET:HB2	2.19	0.43
42:L:81:ILE:HD12	42:L:81:ILE:N	2.33	0.43
49:S:10:ILE:HA	49:S:37:SER:HB2	2.01	0.43
50:T:25:SER:O	50:T:29:THR:HG23	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:U:36:PHE:C	51:U:38:GLU:H	2.21	0.43
53:A:54:C:H41	53:A:352:C:H2'	1.83	0.43
53:A:227:G:H2'	53:A:228:A:O4'	2.18	0.43
53:A:543:U:H2'	53:A:544:G:H8	1.82	0.43
53:A:926:G:H22	57:V:15:A:H3'	1.84	0.43
54:01:40:U:H2'	54:01:41:C:C6	2.53	0.43
54:01:350:G:H2'	54:01:351:C:O4'	2.18	0.43
54:01:648:G:H2'	54:01:649:G:H8	1.83	0.43
54:01:813:U:H2'	54:01:814:C:C6	2.53	0.43
54:01:2357:G:H2'	54:01:2359:C:H5	1.84	0.43
54:01:2515:C:H2'	54:01:2516:A:C8	2.53	0.43
1:04:29:PHE:HB2	1:04:92:LEU:HD22	2.01	0.42
3:06:76:PRO:HB3	3:06:82:GLY:O	2.19	0.42
4:07:39:VAL:HG22	4:07:41:GLU:H	1.84	0.42
4:07:51:ASN:CB	4:07:149:ARG:HH12	2.32	0.42
8:11:54:ILE:HA	8:11:55:PRO:HD3	1.87	0.42
9:12:106:LYS:HB2	9:12:106:LYS:NZ	2.33	0.42
11:14:23:ILE:HD12	11:14:23:ILE:N	2.33	0.42
11:14:103:ILE:HD13	54:01:259:G:C4'	2.49	0.42
14:17:70:ALA:O	14:17:74:VAL:HG23	2.19	0.42
15:18:2:ASN:OD1	54:01:2876:G:H4'	2.19	0.42
15:18:38:ARG:HH21	15:18:38:ARG:HG2	1.84	0.42
17:20:49:ILE:CG2	17:20:54:VAL:HG13	2.49	0.42
22:25:16:ARG:HA	54:01:2271:G:OP1	2.18	0.42
27:30:14:MET:SD	54:01:2045:C:H5''	2.58	0.42
37:G:144:ALA:C	37:G:146:ALA:H	2.23	0.42
43:M:3:ILE:HG12	43:M:7:ASN:OD1	2.19	0.42
52:03:170:ILE:HG12	54:01:2177:C:O2'	2.19	0.42
53:A:1063:C:H3'	53:A:1064:G:H2'	2.01	0.42
54:01:167:A:H2'	54:01:168:G:O4'	2.18	0.42
54:01:2394:C:N4	56:X:76:A:H1'	2.34	0.42
54:01:2568:U:H2'	54:01:2569:G:O4'	2.18	0.42
56:W:66:C:H2'	56:W:67:C:C6	2.54	0.42
59:Z:19:HIS:HB3	59:Z:22:HIS:CE1	2.53	0.42
59:Z:125:VAL:CG1	59:Z:127:VAL:HG23	2.49	0.42
59:Z:182:ALA:HA	59:Z:185:GLU:OE1	2.18	0.42
59:Z:289:GLY:HA3	59:Z:335:THR:OG1	2.18	0.42
2:05:7:LYS:HE2	2:05:198:GLY:HA2	2.01	0.42
4:07:72:SER:HB2	4:07:80:GLN:N	2.34	0.42
7:10:98:GLU:O	7:10:102:ALA:N	2.51	0.42
8:11:78:LEU:HA	8:11:81:LYS:HE3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:11:125:THR:O	8:11:129:GLU:HG3	2.19	0.42
9:12:114:LEU:HA	9:12:117:ALA:HB3	2.00	0.42
12:15:38:ARG:CD	55:02:90:C:H4'	2.48	0.42
33:C:33:ASP:O	33:C:37:LYS:HG2	2.19	0.42
34:D:160:LEU:O	34:D:160:LEU:HD23	2.19	0.42
36:F:71:ILE:O	36:F:75:GLU:HG3	2.19	0.42
37:G:123:LEU:O	37:G:126:ALA:HB3	2.18	0.42
41:K:30:ILE:HG13	41:K:30:ILE:O	2.19	0.42
47:Q:21:VAL:HG21	47:Q:42:LYS:HE2	2.01	0.42
53:A:258:G:H2'	53:A:259:G:O4'	2.19	0.42
53:A:940:C:H2'	53:A:941:G:C8	2.54	0.42
53:A:1082:A:H2'	53:A:1083:U:O4'	2.19	0.42
54:01:845:A:H3'	54:01:845:A:N3	2.34	0.42
54:01:862:G:H2'	54:01:863:A:O4'	2.20	0.42
54:01:1794:A:H2'	54:01:1795:C:C6	2.53	0.42
54:01:2722:G:H2'	54:01:2723:C:C6	2.53	0.42
54:01:2838:G:H2'	54:01:2839:G:O4'	2.20	0.42
56:X:4:G:H2'	56:X:5:G:H8	1.84	0.42
59:Z:113:PRO:O	59:Z:117:GLU:HG3	2.19	0.42
59:Z:243:GLU:HG3	59:Z:252:LYS:HD2	2.01	0.42
7:10:118:ILE:HD13	7:10:118:ILE:HA	1.94	0.42
9:12:56:VAL:HB	9:12:124:VAL:HG12	2.00	0.42
15:18:89:GLY:C	15:18:112:ARG:HG3	2.39	0.42
41:K:15:VAL:HG22	41:K:16:SER:N	2.34	0.42
41:K:95:THR:HG23	41:K:96:ILE:HG23	2.00	0.42
49:S:35:ARG:HD3	49:S:71:GLY:CA	2.49	0.42
53:A:1157:A:H4'	53:A:1158:C:O5'	2.18	0.42
53:A:1326:U:H2'	53:A:1327:C:C6	2.55	0.42
53:A:1472:U:H2'	53:A:1473:G:H8	1.84	0.42
54:01:39:G:H2'	54:01:40:U:C6	2.54	0.42
54:01:144:A:H2'	54:01:145:C:C6	2.54	0.42
54:01:198:C:O2'	54:01:199:A:H5'	2.19	0.42
54:01:784:G:O2'	54:01:785:G:H5''	2.19	0.42
54:01:1168:G:C3'	54:01:1169:A:H5''	2.48	0.42
54:01:1311:G:H21	54:01:1603:A:H62	1.66	0.42
54:01:1662:U:H2'	54:01:1663:G:C8	2.54	0.42
54:01:2321:U:H5''	54:01:2322:A:OP2	2.18	0.42
54:01:2577:A:H5''	54:01:2578:G:H5'	2.01	0.42
54:01:2601:C:H2'	54:01:2603:G:H8	1.83	0.42
54:01:2609:U:H5'	54:01:2610:C:OP2	2.19	0.42
59:Z:330:PHE:HD2	59:Z:362:LEU:HD21	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:11:72:THR:CG2	8:11:73:PRO:HD2	2.50	0.42
9:12:113:PRO:HG3	54:01:529:A:OP2	2.20	0.42
11:14:95:LEU:HA	11:14:98:ALA:HB3	1.99	0.42
16:19:91:ARG:NH1	54:01:997:G:H5''	2.34	0.42
21:24:20:LEU:HD21	21:24:41:GLU:HG2	2.01	0.42
21:24:50:MET:HE1	21:24:53:LYS:HD2	2.01	0.42
26:29:56:ARG:HD3	43:M:78:ARG:HD2	2.01	0.42
28:31:4:ILE:HG21	28:31:27:ARG:HH21	1.84	0.42
32:B:93:HIS:CD2	32:B:145:ASN:HB2	2.55	0.42
33:C:179:ALA:HB1	33:C:202:PHE:CE1	2.45	0.42
34:D:172:VAL:HG23	34:D:179:GLY:HA2	2.01	0.42
35:E:137:ARG:HH11	35:E:137:ARG:HG3	1.85	0.42
39:I:17:ARG:HH21	53:A:1147:C:H1'	1.84	0.42
39:I:89:TYR:HB2	39:I:93:LEU:HD11	2.02	0.42
41:K:30:ILE:CB	41:K:45:THR:HG22	2.49	0.42
43:M:47:LEU:HD22	43:M:52:ILE:HG12	2.01	0.42
51:U:24:LYS:C	51:U:26:GLY:N	2.70	0.42
53:A:244:U:H4'	53:A:245:U:H5''	2.02	0.42
54:01:1351:C:H2'	54:01:1352:U:C6	2.54	0.42
54:01:1368:G:H2'	54:01:1369:G:C8	2.54	0.42
54:01:1422:G:H2'	54:01:1423:G:C8	2.54	0.42
54:01:2705:A:H2'	54:01:2706:A:O4'	2.19	0.42
54:01:2743:U:C3'	54:01:2744:G:H5''	2.49	0.42
54:01:2752:C:H2'	54:01:2753:A:O4'	2.20	0.42
56:W:44:A:H2'	56:W:45:G:O4'	2.20	0.42
56:W:47:U:H3'	56:W:48:C:C5'	2.49	0.42
59:Z:210:PHE:CZ	59:Z:236:ILE:HG12	2.55	0.42
1:04:196:ASN:ND2	1:04:199:HIS:HB2	2.35	0.42
5:08:152:ARG:HD3	5:08:152:ARG:H	1.84	0.42
10:13:79:PHE:CD1	15:18:69:VAL:HG22	2.55	0.42
16:19:26:ALA:HB2	27:30:9:ARG:HH12	1.84	0.42
32:B:129:THR:HG22	32:B:131:LYS:H	1.83	0.42
38:H:85:TYR:CG	53:A:598:U:H4'	2.54	0.42
40:J:14:ASP:OD1	40:J:16:ARG:HG2	2.19	0.42
42:L:65:TYR:CD2	42:L:86:VAL:HG11	2.54	0.42
43:M:87:GLY:O	43:M:91:ARG:HG3	2.20	0.42
49:S:35:ARG:NH2	49:S:76:THR:HG22	2.35	0.42
52:03:42:VAL:O	52:03:175:ILE:HG12	2.18	0.42
53:A:662:U:H2'	53:A:663:A:C8	2.55	0.42
53:A:928:G:H2'	53:A:929:G:C8	2.55	0.42
54:01:158:U:H1'	54:01:169:G:N2	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:185:G:H2'	54:01:186:G:O4'	2.19	0.42
54:01:977:G:H4'	54:01:1155:A:H5'	2.02	0.42
54:01:1259:G:H2'	54:01:1260:A:C8	2.54	0.42
54:01:1314:C:H2'	54:01:1315:C:C6	2.53	0.42
54:01:1564:C:H2'	54:01:1565:C:C6	2.55	0.42
54:01:1657:U:H2'	54:01:1658:C:C6	2.54	0.42
54:01:1681:G:N3	54:01:1762:A:H2'	2.34	0.42
54:01:2066:C:H2'	54:01:2067:G:H8	1.85	0.42
54:01:2190:G:H2'	54:01:2191:A:C8	2.53	0.42
55:02:35:C:H2'	55:02:36:C:O4'	2.20	0.42
58:Y:3:G:O2'	58:Y:4:U:H5''	2.19	0.42
58:Y:52:G:O2'	58:Y:53:G:H5'	2.19	0.42
3:06:52:VAL:HG21	3:06:81:GLY:O	2.19	0.42
3:06:121:VAL:O	3:06:190:ALA:N	2.51	0.42
6:09:73:ASN:ND2	6:09:107:GLY:HA3	2.34	0.42
7:10:118:ILE:H	7:10:119:PRO:HD2	1.85	0.42
8:11:79:LEU:O	8:11:83:ALA:HB3	2.19	0.42
19:22:6:ARG:HD2	19:22:42:GLU:OE2	2.19	0.42
19:22:64:LYS:N	19:22:64:LYS:HD2	2.34	0.42
23:26:58:ILE:HG23	23:26:63:ILE:HD13	2.02	0.42
31:34:32:LYS:HZ2	54:01:2478:A:H5'	1.85	0.42
36:F:18:VAL:N	36:F:19:PRO:CD	2.83	0.42
42:L:11:ARG:CD	53:A:562:U:H1'	2.48	0.42
42:L:53:ARG:HA	42:L:63:THR:HA	2.02	0.42
43:M:88:LEU:HD13	43:M:91:ARG:HH21	1.85	0.42
44:N:30:ILE:CG2	44:N:43:ALA:HB2	2.48	0.42
53:A:78:A:H2'	53:A:79:G:O4'	2.20	0.42
53:A:332:G:O2'	53:A:333:U:H5'	2.20	0.42
53:A:381:C:H2'	53:A:382:A:O4'	2.19	0.42
53:A:420:U:HO2'	53:A:421:U:H6	1.67	0.42
53:A:616:G:H2'	53:A:617:G:C8	2.54	0.42
53:A:946:A:H2'	53:A:947:G:H8	1.82	0.42
53:A:1534:A:H2'	53:A:1535:C:C5	2.55	0.42
54:01:30:G:H2'	54:01:31:C:C6	2.54	0.42
54:01:799:G:C5'	54:01:800:A:H5''	2.49	0.42
54:01:1181:U:H2'	54:01:1182:G:H8	1.80	0.42
54:01:1744:A:H3'	54:01:1745:A:C8	2.55	0.42
54:01:2404:U:H2'	54:01:2405:G:O4'	2.20	0.42
54:01:2558:C:H2'	54:01:2559:C:O4'	2.19	0.42
54:01:2687:U:H2'	54:01:2688:G:O4'	2.19	0.42
54:01:2773:C:H2'	54:01:2774:C:C6	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:W:69:C:H2'	56:W:70:G:H8	1.85	0.42
59:Z:145:LEU:O	59:Z:149:VAL:HG23	2.19	0.42
1:04:228:ASP:CG	54:01:780:G:H1	2.23	0.42
6:09:51:ARG:HB3	6:09:55:GLU:HB2	2.01	0.42
9:12:101:ILE:O	9:12:105:VAL:HG23	2.18	0.42
13:16:58:ASP:OD1	13:16:63:ARG:HD2	2.19	0.42
14:17:26:LEU:HD23	14:17:92:PHE:HD1	1.84	0.42
17:20:19:THR:CG2	17:20:95:ASP:HB3	2.50	0.42
18:21:80:PRO:HD3	18:21:102:HIS:CE1	2.54	0.42
19:22:29:THR:OG1	19:22:86:THR:HG22	2.20	0.42
32:B:80:LYS:HG3	32:B:90:PHE:CE2	2.53	0.42
36:F:15:SER:HA	36:F:18:VAL:CG2	2.50	0.42
40:J:33:GLY:O	40:J:34:ALA:O	2.37	0.42
40:J:76:ILE:CD1	40:J:87:LEU:HD21	2.49	0.42
45:O:32:THR:OG1	45:O:84:LEU:HD21	2.18	0.42
52:03:192:LEU:O	52:03:195:ALA:HB3	2.20	0.42
53:A:631:C:H5''	53:A:632:U:O4'	2.20	0.42
53:A:690:G:H2'	53:A:691:G:O4'	2.20	0.42
53:A:901:A:H8	53:A:901:A:O5'	2.03	0.42
53:A:1256:A:H1'	53:A:1258:G:C5	2.53	0.42
53:A:1259:C:H3'	53:A:1260:G:C5'	2.40	0.42
53:A:1310:G:H2'	53:A:1311:A:C8	2.55	0.42
53:A:1436:U:H2'	53:A:1437:A:C8	2.54	0.42
54:01:135:U:H2'	54:01:136:G:C8	2.53	0.42
54:01:591:U:H2'	54:01:592:A:C8	2.54	0.42
54:01:887:U:OP1	54:01:887:U:H3'	2.19	0.42
54:01:1113:U:H2'	54:01:1114:C:C6	2.54	0.42
54:01:1892:C:H2'	54:01:1893:C:C6	2.54	0.42
54:01:2087:G:H2'	54:01:2088:A:H8	1.84	0.42
55:02:48:U:H2'	55:02:49:C:C6	2.55	0.42
56:W:23:C:H2'	56:W:24:U:H6	1.84	0.42
59:Z:215:GLU:HB2	59:Z:229:GLY:HA2	2.01	0.42
1:04:69:ASN:HA	1:04:188:ARG:HH12	1.83	0.42
2:05:136:ASN:ND2	2:05:140:HIS:ND1	2.68	0.42
4:07:19:PHE:CZ	4:07:163:GLU:HG3	2.55	0.42
10:13:63:VAL:HG22	10:13:84:CYS:HA	2.02	0.42
13:16:102:PHE:HD1	13:16:109:PRO:HA	1.85	0.42
22:25:70:PRO:HA	55:02:12:C:C2	2.54	0.42
32:B:104:LYS:CE	53:A:1073:U:H4'	2.50	0.42
34:D:10:LEU:HD13	34:D:62:ARG:HD2	2.00	0.42
34:D:205:LYS:HB3	53:A:8:A:C5	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:E:57:ALA:O	35:E:61:LYS:HB2	2.20	0.42
35:E:86:GLY:HA3	35:E:93:VAL:HB	2.01	0.42
36:F:3:HIS:CD2	36:F:94:HIS:HA	2.55	0.42
42:L:114:SER:CB	53:A:35:G:H21	2.33	0.42
47:Q:13:SER:O	47:Q:20:ILE:HG13	2.19	0.42
48:R:32:ILE:O	48:R:32:ILE:HD12	2.20	0.42
50:T:22:SER:O	50:T:26:MET:HG2	2.20	0.42
50:T:34:VAL:HG21	50:T:53:MET:SD	2.59	0.42
53:A:295:C:H2'	53:A:296:U:O4'	2.19	0.42
53:A:1022:A:H2'	53:A:1023:U:H5'	2.01	0.42
53:A:1074:G:H2'	53:A:1075:U:O4'	2.19	0.42
54:01:968:C:H2'	54:01:969:G:H8	1.85	0.42
54:01:1387:A:H5'	54:01:1469:A:H1'	2.00	0.42
54:01:1664:A:N3	54:01:1664:A:H2'	2.34	0.42
54:01:1779:U:OP1	54:01:1780:A:H5'	2.20	0.42
54:01:2245:U:H5''	54:01:2246:G:H5'	2.01	0.42
1:04:257:ARG:NH1	1:04:259:ASN:HD22	2.18	0.42
2:05:35:THR:N	2:05:49:GLN:O	2.50	0.42
2:05:140:HIS:HB2	54:01:1657:U:OP1	2.19	0.42
4:07:139:GLU:HA	26:29:28:VAL:HG22	2.02	0.42
19:22:3:ARG:O	19:22:7:LEU:HG	2.20	0.42
20:23:15:GLY:HA2	54:01:309:A:O2'	2.19	0.42
23:26:16:ASN:HB2	23:26:26:ARG:HD2	2.02	0.42
25:28:29:ARG:NE	54:01:1183:U:H5''	2.35	0.42
27:30:2:VAL:HG21	54:01:2057:G:O2'	2.19	0.42
35:E:160:VAL:O	35:E:163:ILE:HG13	2.20	0.42
39:I:114:LYS:HE3	53:A:1187:G:H5'	2.02	0.42
40:J:66:GLU:O	44:N:95:LEU:HD12	2.20	0.42
42:L:29:LYS:HD3	42:L:30:ARG:H	1.84	0.42
52:03:211:LYS:HD3	52:03:212:VAL:N	2.35	0.42
54:01:1161:C:H2'	54:01:1162:G:C8	2.55	0.42
54:01:1609:A:H1'	54:01:1616:A:H1'	2.02	0.42
54:01:1744:A:H3'	54:01:1745:A:H8	1.84	0.42
54:01:2070:A:H2'	54:01:2071:A:O4'	2.19	0.42
54:01:2257:U:O2'	54:01:2258:C:H5'	2.19	0.42
54:01:2266:A:H4'	54:01:2267:A:C2	2.55	0.42
54:01:2774:C:H2'	54:01:2775:G:O4'	2.19	0.42
55:02:13:G:N7	55:02:70:C:H4'	2.35	0.42
58:Y:29:U:H2'	58:Y:30:G:C5'	2.46	0.42
59:Z:74:ARG:HB2	59:Z:196:ASP:OD1	2.19	0.42
2:05:47:ALA:HB2	2:05:83:ARG:HA	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:05:152:PRO:HD3	54:01:2571:U:O2'	2.20	0.42
9:12:47:HIS:CE1	9:12:48:VAL:HG23	2.55	0.42
12:15:12:MET:HG2	12:15:72:PRO:HD2	2.02	0.42
25:28:3:THR:HA	25:28:39:ASP:H	1.85	0.42
26:29:66:ILE:HD13	44:N:38:GLU:HG2	2.02	0.42
30:33:7:ARG:HG2	54:01:246:C:N4	2.35	0.42
34:D:115:GLN:HA	34:D:118:SER:HB3	2.02	0.42
36:F:7:VAL:HG11	48:R:64:LEU:HD11	2.02	0.42
43:M:84:CYS:O	43:M:88:LEU:N	2.51	0.42
45:O:19:ASN:ND2	53:A:750:C:H5'	2.33	0.42
52:03:181:ASP:HB2	52:03:184:LYS:HG2	2.01	0.42
53:A:694:A:H2'	53:A:695:A:O4'	2.20	0.42
53:A:1519:A:H3'	53:A:1520:C:O4'	2.20	0.42
54:01:93:G:H2'	54:01:94:A:C8	2.55	0.42
54:01:94:A:H2'	54:01:95:A:O4'	2.19	0.42
54:01:621:A:C2'	54:01:622:G:H5'	2.50	0.42
54:01:661:A:H2'	54:01:662:G:C8	2.55	0.42
54:01:1038:G:H2'	54:01:1039:A:H8	1.84	0.42
54:01:1638:C:H5''	54:01:2710:C:O2'	2.20	0.42
54:01:2114:A:N3	54:01:2114:A:H2'	2.35	0.42
54:01:2691:C:H5'	54:01:2872:A:O4'	2.19	0.42
54:01:2812:G:H2'	54:01:2813:A:O4'	2.19	0.42
58:Y:29:U:C3'	58:Y:30:G:H5''	2.49	0.42
1:04:8:THR:HG21	54:01:727:A:H2	1.85	0.41
1:04:239:PHE:HB3	54:01:1903:G:OP1	2.20	0.41
6:09:76:GLU:HB3	6:09:142:VAL:HG22	2.02	0.41
9:12:52:ASP:O	9:12:54:ILE:HG13	2.20	0.41
13:16:2:ARG:HG2	54:01:1653:G:H3'	2.02	0.41
18:21:15:GLN:O	18:21:19:LEU:HD13	2.20	0.41
18:21:17:VAL:HG12	18:21:76:VAL:HG21	2.01	0.41
19:22:61:LEU:HB3	54:01:1341:G:C5'	2.41	0.41
33:C:178:ARG:HE	53:A:1112:C:H1'	1.85	0.41
37:G:51:GLN:NE2	37:G:52:ARG:HG3	2.36	0.41
40:J:10:LEU:CD1	40:J:72:ARG:HB2	2.50	0.41
45:O:30:LEU:O	45:O:34:GLN:HG2	2.19	0.41
45:O:78:THR:O	45:O:82:GLU:HG3	2.20	0.41
46:P:3:THR:OG1	46:P:4:ILE:N	2.53	0.41
52:03:15:VAL:HG21	52:03:222:VAL:HG22	2.01	0.41
53:A:541:G:H2'	53:A:542:G:C8	2.55	0.41
53:A:674:G:H2'	53:A:675:A:H8	1.85	0.41
53:A:994:A:N1	53:A:1047:G:H4'	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1372:U:H2'	53:A:1373:G:O4'	2.20	0.41
54:01:337:C:H2'	54:01:338:G:O4'	2.20	0.41
54:01:415:A:H2'	54:01:416:U:C6	2.55	0.41
54:01:1060:U:H4'	54:01:1061:U:C5'	2.49	0.41
59:Z:61:THR:HB	63:Z:402:GCP:O3G	2.20	0.41
59:Z:172:GLY:HA2	59:Z:184:TRP:HE3	1.85	0.41
59:Z:390:LYS:HG2	59:Z:391:VAL:N	2.35	0.41
4:07:91:ARG:HG2	55:02:43:C:O2'	2.20	0.41
7:10:3:LEU:CD1	7:10:5:LEU:HB2	2.50	0.41
8:11:75:ALA:HB3	8:11:131:THR:CG2	2.50	0.41
9:12:63:ALA:HA	9:12:69:ARG:HH22	1.85	0.41
21:24:51:GLN:HB2	21:24:57:TYR:OH	2.20	0.41
32:B:67:LEU:CD1	32:B:157:PRO:HG3	2.51	0.41
36:F:29:ILE:HG21	36:F:64:VAL:HG21	2.02	0.41
40:J:17:LEU:HD23	40:J:17:LEU:C	2.41	0.41
43:M:8:ILE:N	43:M:9:PRO:HD3	2.35	0.41
43:M:28:ARG:HG2	43:M:62:PHE:CE2	2.55	0.41
51:U:50:SER:HA	51:U:53:LYS:HE3	2.02	0.41
53:A:583:A:H2'	53:A:584:G:H5'	2.01	0.41
53:A:750:C:H2'	53:A:751:U:C6	2.55	0.41
53:A:1042:A:H2'	53:A:1043:G:C8	2.54	0.41
53:A:1162:C:H2'	53:A:1163:A:C8	2.53	0.41
53:A:1251:A:H2'	53:A:1252:A:C8	2.55	0.41
54:01:772:C:H5'	54:01:1355:G:O2'	2.20	0.41
54:01:851:C:H2'	54:01:852:U:H6	1.85	0.41
54:01:974:G:H1'	54:01:975:A:C8	2.55	0.41
54:01:1064:C:C2'	54:01:1065:U:H5''	2.50	0.41
54:01:1152:C:H2'	54:01:1153:C:H6	1.85	0.41
54:01:1473:G:O2'	54:01:1474:U:H5'	2.20	0.41
54:01:1725:U:H2'	54:01:1726:C:C6	2.56	0.41
54:01:2208:C:H2'	54:01:2209:G:H8	1.84	0.41
54:01:2785:C:H2'	54:01:2786:U:C6	2.55	0.41
59:Z:347:VAL:HG13	59:Z:350:VAL:HG23	2.01	0.41
7:10:61:ARG:HB2	54:01:1047:G:N7	2.35	0.41
13:16:49:GLU:HB2	13:16:50:PRO:HD3	2.02	0.41
16:19:111:LYS:CE	17:20:48:LYS:HD2	2.50	0.41
20:23:11:ILE:HG13	20:23:20:LYS:O	2.20	0.41
36:F:18:VAL:HB	36:F:19:PRO:HD3	2.02	0.41
36:F:19:PRO:O	36:F:23:GLU:HG3	2.20	0.41
36:F:47:LEU:HD23	36:F:59:TYR:OH	2.20	0.41
39:I:115:VAL:HG21	40:J:62:ARG:HD2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:Q:74:LEU:HD21	47:Q:77:VAL:HG22	2.02	0.41
53:A:134:G:H2'	53:A:135:C:O4'	2.20	0.41
53:A:921:U:H5''	53:A:1082:A:C5'	2.50	0.41
53:A:921:U:H5'	53:A:1081:A:O2'	2.19	0.41
53:A:1040:U:H2'	53:A:1041:G:C8	2.55	0.41
54:01:121:G:H4'	54:01:149:A:H5'	2.03	0.41
54:01:279:A:H2'	54:01:280:U:O4'	2.19	0.41
54:01:596:U:H2'	54:01:597:G:C8	2.55	0.41
54:01:796:C:H2'	54:01:797:G:H8	1.84	0.41
54:01:805:G:H5'	54:01:806:C:C5	2.55	0.41
54:01:1525:A:H2'	54:01:1526:C:O4'	2.21	0.41
54:01:1796:U:H2'	54:01:1797:G:H8	1.85	0.41
54:01:2589:A:H2'	54:01:2590:A:C8	2.56	0.41
58:Y:21:A:H61	58:Y:46:G:C2'	2.30	0.41
59:Z:177:ALA:HA	59:Z:185:GLU:HG2	2.02	0.41
1:04:59:GLN:HA	54:01:1568:G:H5'	2.03	0.41
1:04:65:ASP:OD2	1:04:68:ARG:HD2	2.19	0.41
2:05:8:LYS:O	2:05:198:GLY:N	2.49	0.41
3:06:5:LEU:HG	3:06:120:VAL:O	2.20	0.41
3:06:121:VAL:HG22	3:06:188:MET:O	2.21	0.41
11:14:95:LEU:HD22	11:14:100:ILE:HD11	2.01	0.41
12:15:31:PHE:CZ	12:15:110:GLU:HA	2.56	0.41
16:19:92:LYS:O	16:19:92:LYS:HD3	2.20	0.41
31:34:30:GLU:HG3	31:34:32:LYS:H	1.85	0.41
32:B:124:THR:HG22	32:B:127:LYS:HB2	2.03	0.41
34:D:38:GLY:O	53:A:426:U:H4'	2.20	0.41
34:D:141:VAL:HG12	34:D:180:THR:HG23	2.02	0.41
38:H:8:ASP:O	38:H:12:ARG:HG3	2.20	0.41
39:I:125:GLN:HE22	53:A:1342:C:H1'	1.85	0.41
42:L:4:ASN:HB2	53:A:880:C:OP2	2.20	0.41
46:P:72:ALA:O	46:P:76:LYS:HG2	2.21	0.41
50:T:50:PHE:HA	50:T:53:MET:HG2	2.02	0.41
53:A:608:A:H2'	53:A:609:A:O4'	2.20	0.41
53:A:1492:A:H2	57:V:20:G:H21	1.68	0.41
53:A:1522:U:H2'	53:A:1523:G:H8	1.84	0.41
54:01:1761:C:H2'	54:01:1762:A:O4'	2.20	0.41
59:Z:378:GLU:H	59:Z:383:VAL:HG13	1.84	0.41
5:08:23:ILE:HD11	5:08:42:VAL:HG21	2.00	0.41
5:08:51:PHE:HE1	5:08:71:LEU:HD22	1.85	0.41
9:12:36:LEU:O	9:12:51:GLY:HA3	2.21	0.41
10:13:76:VAL:HG13	10:13:78:ARG:HG3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:17:88:LYS:HD2	14:17:88:LYS:O	2.21	0.41
18:21:77:ASP:OD2	18:21:102:HIS:HB2	2.20	0.41
33:C:137:VAL:CG1	33:C:169:GLU:HB2	2.51	0.41
42:L:2:THR:HG21	42:L:5:GLN:HE21	1.86	0.41
44:N:42:ASN:HB3	44:N:46:LYS:HZ3	1.85	0.41
45:O:13:GLU:HG2	45:O:83:ARG:NH2	2.36	0.41
47:Q:26:ARG:HG2	47:Q:39:ARG:O	2.20	0.41
47:Q:48:GLU:O	47:Q:49:ASN:C	2.59	0.41
47:Q:74:LEU:HD21	47:Q:77:VAL:CG2	2.51	0.41
48:R:52:ARG:NE	53:A:664:G:H5'	2.36	0.41
49:S:71:GLY:HA3	53:A:1320:C:C2	2.55	0.41
53:A:237:G:H2'	53:A:238:A:C8	2.56	0.41
53:A:328:C:H5'	53:A:329:A:H5'	2.03	0.41
53:A:363:A:H2'	53:A:364:A:O4'	2.20	0.41
53:A:1059:C:H2'	53:A:1060:U:C6	2.56	0.41
53:A:1332:A:H2'	53:A:1333:A:C8	2.54	0.41
53:A:1391:U:H2'	53:A:1392:G:C8	2.55	0.41
54:01:92:U:H2'	54:01:93:G:H5'	2.03	0.41
54:01:209:C:H2'	54:01:210:C:C6	2.55	0.41
54:01:464:U:H2'	54:01:465:G:O4'	2.21	0.41
54:01:581:C:H2'	54:01:582:A:C8	2.54	0.41
54:01:600:G:H2'	54:01:601:C:O4'	2.21	0.41
54:01:680:C:H2'	54:01:681:G:C8	2.56	0.41
54:01:759:G:H2'	54:01:760:G:H8	1.85	0.41
54:01:1048:A:N1	54:01:1112:G:H1'	2.36	0.41
54:01:1410:G:H2'	54:01:1411:U:O4'	2.21	0.41
54:01:1578:U:H2'	54:01:1579:A:H8	1.84	0.41
54:01:1641:A:H2'	54:01:1642:G:O4'	2.20	0.41
54:01:1841:U:H2'	54:01:1842:G:C8	2.56	0.41
54:01:2104:C:H2'	54:01:2105:U:C6	2.55	0.41
54:01:2156:G:H2'	54:01:2157:G:O4'	2.20	0.41
54:01:2443:C:H2'	54:01:2444:G:H8	1.85	0.41
55:02:10:G:H2'	55:02:11:C:O4'	2.20	0.41
56:X:31:G:H2'	56:X:32:C:O4'	2.21	0.41
59:Z:76:TYR:CZ	59:Z:195:LEU:HG	2.56	0.41
59:Z:370:ASP:HB3	59:Z:391:VAL:HB	2.02	0.41
1:04:107:LYS:N	1:04:193:GLU:O	2.54	0.41
8:11:48:ILE:CD1	8:11:54:ILE:HG13	2.50	0.41
9:12:37:ARG:HH21	9:12:118:MET:CE	2.33	0.41
17:20:17:GLY:H	17:20:98:ILE:HB	1.85	0.41
23:26:39:VAL:O	23:26:43:LYS:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:34:32:LYS:NZ	54:01:2478:A:H5'	2.35	0.41
33:C:160:GLU:HB2	33:C:161:ILE:HD12	2.03	0.41
35:E:83:PRO:HB3	35:E:96:GLN:HG2	2.02	0.41
37:G:74:VAL:HA	37:G:87:PRO:HA	2.02	0.41
43:M:88:LEU:CD1	43:M:91:ARG:HH21	2.33	0.41
50:T:53:MET:HA	50:T:56:ILE:HG22	2.03	0.41
53:A:234:C:H2'	53:A:235:C:C6	2.55	0.41
53:A:832:G:H2'	53:A:833:G:O4'	2.21	0.41
53:A:1473:G:H2'	53:A:1474:U:O4'	2.20	0.41
54:01:18:U:H2'	54:01:19:A:C8	2.56	0.41
54:01:1655:A:H2'	54:01:1656:C:O4'	2.20	0.41
54:01:1702:G:C3'	54:01:1703:G:H5''	2.50	0.41
54:01:2156:G:H2'	54:01:2157:G:H5'	2.02	0.41
59:Z:381:ARG:HG3	59:Z:381:ARG:HH11	1.85	0.41
2:05:149:ASN:HB3	54:01:2572:A:P	2.61	0.41
8:11:100:ILE:HD12	8:11:100:ILE:H	1.85	0.41
10:13:7:MET:C	10:13:8:LEU:HD12	2.41	0.41
12:15:34:LYS:HE2	12:15:129:THR:CG2	2.51	0.41
13:16:39:PRO:HG2	54:01:1651:G:H4'	2.03	0.41
14:17:33:ARG:O	14:17:34:HIS:CG	2.74	0.41
32:B:153:MET:HG2	32:B:155:GLY:O	2.20	0.41
41:K:111:ASP:OD1	41:K:113:THR:HG23	2.21	0.41
45:O:71:ARG:HH21	53:A:754:C:H5'	1.86	0.41
51:U:13:VAL:HG22	51:U:14:ALA:N	2.36	0.41
53:A:237:G:H2'	53:A:238:A:H8	1.85	0.41
53:A:785:G:O2'	53:A:786:G:H5'	2.21	0.41
53:A:948:C:H2'	53:A:949:A:C8	2.56	0.41
53:A:1004:A:H2'	53:A:1005:A:C8	2.55	0.41
53:A:1323:G:H2'	53:A:1324:A:C8	2.55	0.41
53:A:1512:U:H2'	53:A:1513:A:H8	1.86	0.41
54:01:229:C:H2'	54:01:230:G:O4'	2.21	0.41
54:01:580:U:OP1	54:01:2018:G:H4'	2.21	0.41
54:01:1060:U:H4'	54:01:1061:U:H5'	2.03	0.41
54:01:1064:C:H3'	54:01:1065:U:H5''	2.01	0.41
54:01:1146:C:H2'	54:01:1147:A:H8	1.85	0.41
54:01:1300:G:H4'	54:01:1301:A:C5'	2.47	0.41
54:01:1345:C:H2'	54:01:1346:G:H8	1.85	0.41
54:01:1714:U:H3'	54:01:1715:G:C5'	2.50	0.41
54:01:1858:A:H1'	54:01:1885:A:C2	2.55	0.41
55:02:60:C:H2'	55:02:61:G:C8	2.55	0.41
56:W:37:A:H2'	56:W:38:A:O4'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:52:ALA:O	59:Z:56:LYS:HG2	2.21	0.41
59:Z:366:ILE:HG13	59:Z:367:ALA:H	1.86	0.41
2:05:77:ARG:HG3	2:05:77:ARG:NH2	2.34	0.41
4:07:43:ILE:HG21	4:07:78:ILE:HG22	2.02	0.41
4:07:116:LEU:CD1	4:07:175:PRO:HD2	2.51	0.41
8:11:61:TYR:N	8:11:65:SER:O	2.52	0.41
11:14:98:ALA:O	11:14:100:ILE:HG23	2.20	0.41
16:19:24:TYR:HE2	54:01:2020:A:H4'	1.86	0.41
17:20:74:ILE:N	17:20:74:ILE:HD12	2.35	0.41
20:23:54:PRO:HG2	20:23:55:GLY:H	1.86	0.41
21:24:62:THR:HB	21:24:69:GLU:HG3	2.02	0.41
28:31:26:LYS:HD2	28:31:30:PRO:HA	2.03	0.41
28:31:38:PHE:HB2	28:31:45:HIS:CE1	2.56	0.41
34:D:58:GLN:HE22	34:D:62:ARG:NH2	2.19	0.41
34:D:150:LYS:HA	34:D:155:LYS:HE3	2.02	0.41
38:H:104:SER:HB2	38:H:125:ILE:HD11	2.03	0.41
39:I:17:ARG:HB2	39:I:65:THR:OG1	2.21	0.41
39:I:66:VAL:HG13	39:I:74:GLN:NE2	2.36	0.41
48:R:12:PHE:CG	48:R:13:THR:N	2.83	0.41
49:S:10:ILE:HG21	49:S:40:PHE:CE2	2.56	0.41
49:S:32:THR:HG22	49:S:49:ALA:O	2.20	0.41
50:T:13:SER:HA	50:T:16:ALA:HB3	2.02	0.41
52:03:27:ILE:HB	52:03:182:ALA:HB1	2.02	0.41
53:A:113:G:H2'	53:A:114:U:C6	2.56	0.41
53:A:114:U:O2'	53:A:115:G:H5'	2.20	0.41
53:A:238:A:C2'	53:A:239:U:H5'	2.50	0.41
53:A:1069:C:C2'	53:A:1070:U:H5''	2.51	0.41
53:A:1146:A:H2'	53:A:1146:A:N3	2.36	0.41
54:01:635:C:O2'	54:01:639:U:H5''	2.21	0.41
54:01:857:G:H2'	54:01:858:G:C1'	2.51	0.41
54:01:1152:C:H2'	54:01:1153:C:C6	2.56	0.41
54:01:1358:G:H2'	54:01:1372:U:O4	2.21	0.41
54:01:1935:G:H1'	54:01:1964:G:N2	2.35	0.41
59:Z:16:THR:H	59:Z:78:HIS:CE1	2.39	0.41
59:Z:97:GLN:OE1	59:Z:230:ARG:HB3	2.20	0.41
59:Z:306:SER:HB2	59:Z:387:VAL:O	2.21	0.41
1:04:140:VAL:O	1:04:161:VAL:N	2.45	0.41
3:06:28:VAL:O	3:06:32:VAL:HG12	2.20	0.41
3:06:58:LYS:HG2	3:06:71:GLY:HA2	2.03	0.41
3:06:126:VAL:HG22	3:06:127:GLU:N	2.36	0.41
9:12:53:TYR:CE1	9:12:121:LYS:HG2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:12:84:ILE:HG23	9:12:84:ILE:O	2.21	0.41
9:12:93:ILE:O	9:12:97:PRO:HD3	2.20	0.41
10:13:70:ARG:NH2	10:13:74:GLY:HA2	2.36	0.41
10:13:99:ILE:HD12	10:13:118:LEU:HB2	2.02	0.41
11:14:42:SER:HB2	54:01:672:C:C5	2.54	0.41
12:15:4:PRO:HG2	12:15:70:ASP:HA	2.02	0.41
17:20:68:ARG:NE	17:20:90:ARG:HE	2.18	0.41
19:22:29:THR:HG23	19:22:85:VAL:C	2.41	0.41
19:22:61:LEU:HD11	19:22:82:LYS:HB3	2.03	0.41
23:26:36:ARG:HD2	23:26:45:PHE:HB3	2.02	0.41
34:D:103:ARG:HH12	34:D:110:ARG:HH22	1.68	0.41
35:E:27:GLY:HA2	53:A:1398:A:N6	2.36	0.41
37:G:99:ALA:HA	37:G:102:TRP:CE3	2.56	0.41
40:J:36:VAL:HG22	40:J:37:ARG:N	2.36	0.41
41:K:87:GLY:N	41:K:113:THR:HG22	2.32	0.41
41:K:124:LYS:HZ3	53:A:780:A:H5'	1.85	0.41
42:L:43:LYS:HE3	42:L:43:LYS:HB3	1.93	0.41
47:Q:11:VAL:HG11	47:Q:20:ILE:HD11	2.03	0.41
48:R:26:ALA:HA	48:R:29:LYS:NZ	2.36	0.41
49:S:2:ARG:HA	53:A:1312:G:N7	2.36	0.41
50:T:50:PHE:C	50:T:52:GLU:H	2.24	0.41
51:U:36:PHE:O	51:U:38:GLU:N	2.53	0.41
53:A:54:C:N4	53:A:352:C:H2'	2.35	0.41
53:A:137:U:H2'	53:A:138:G:H8	1.86	0.41
53:A:149:A:H2'	53:A:150:U:C6	2.56	0.41
53:A:208:U:H2'	53:A:210:C:H1'	2.03	0.41
53:A:288:A:O2'	53:A:289:G:H4'	2.21	0.41
53:A:759:A:H2'	53:A:760:G:O4'	2.21	0.41
53:A:812:G:H4'	53:A:813:U:O4'	2.21	0.41
53:A:860:A:H2'	53:A:861:G:O4'	2.21	0.41
53:A:1098:C:H2'	53:A:1099:G:H8	1.86	0.41
54:01:136:G:H2'	54:01:137:U:O4'	2.19	0.41
54:01:449:A:H2'	54:01:450:G:O4'	2.21	0.41
54:01:623:C:H2'	54:01:624:C:C6	2.56	0.41
54:01:1268:A:H2'	54:01:1269:A:O4'	2.21	0.41
54:01:1491:G:H2'	54:01:1492:G:C8	2.55	0.41
54:01:1700:A:H2	54:01:1766:G:H4'	1.86	0.41
54:01:1736:U:H2'	54:01:1737:G:O4'	2.20	0.41
54:01:1841:U:H2'	54:01:1842:G:H8	1.86	0.41
54:01:1936:A:H2	54:01:1943:U:H3	1.69	0.41
54:01:2108:A:H2'	54:01:2109:U:C5'	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2588:G:H2'	54:01:2589:A:H5'	2.01	0.41
54:01:2643:G:H2'	54:01:2644:G:C8	2.56	0.41
56:W:48:C:OP2	56:W:59:A:H5'	2.21	0.41
59:Z:173:SER:OG	59:Z:176:LYS:HG2	2.20	0.41
59:Z:343:LEU:HD22	59:Z:347:VAL:CG1	2.49	0.41
3:06:44:ARG:HG3	3:06:87:ALA:HB1	2.03	0.41
4:07:101:ARG:HD2	4:07:139:GLU:OE2	2.21	0.41
6:09:89:LYS:NZ	36:F:82:ASP:HB2	2.36	0.41
7:10:125:ARG:HD3	7:10:125:ARG:N	2.36	0.41
8:11:34:ILE:HA	8:11:37:PHE:HB3	2.02	0.41
10:13:70:ARG:HH11	10:13:70:ARG:HG2	1.86	0.41
10:13:71:ARG:HH11	10:13:71:ARG:HG3	1.86	0.41
18:21:11:ARG:HD2	18:21:11:ARG:N	2.30	0.41
28:31:47:ILE:HD12	28:31:47:ILE:N	2.33	0.41
29:32:29:GLN:O	29:32:32:ALA:HB3	2.21	0.41
31:34:10:LEU:HD12	31:34:33:HIS:CD2	2.55	0.41
31:34:23:ILE:HB	31:34:38:GLY:OXT	2.21	0.41
37:G:22:LEU:O	37:G:26:VAL:HG23	2.21	0.41
46:P:28:ARG:NH1	53:A:390:U:H4'	2.36	0.41
51:U:64:ALA:O	51:U:65:ARG:HB3	2.21	0.41
53:A:171:A:H2'	53:A:172:A:C8	2.56	0.41
53:A:427:U:H4'	53:A:541:G:H5''	2.02	0.41
53:A:697:U:H2'	53:A:698:G:O4'	2.21	0.41
53:A:1502:A:H8	53:A:1505:G:H22	1.67	0.41
53:A:1527:U:H2'	53:A:1528:U:C6	2.56	0.41
54:01:323:C:H2'	54:01:1205:A:H61	1.85	0.41
54:01:720:U:H2'	54:01:721:A:H8	1.86	0.41
54:01:816:C:H2'	54:01:817:C:C6	2.56	0.41
54:01:1432:G:H2'	54:01:1433:A:C8	2.56	0.41
55:02:80:U:H2'	55:02:81:G:H8	1.86	0.41
56:X:3:C:H42	56:X:70:G:H1	1.69	0.41
56:X:67:C:H2'	56:X:68:C:C6	2.56	0.41
1:04:43:ASN:HB3	1:04:49:THR:HG21	2.02	0.40
1:04:267:VAL:HG12	1:04:268:ARG:HG2	2.02	0.40
2:05:61:THR:CB	2:05:63:PRO:HD2	2.50	0.40
5:08:91:VAL:HG13	5:08:91:VAL:O	2.21	0.40
7:10:118:ILE:HB	7:10:119:PRO:CD	2.51	0.40
8:11:71:LYS:HB3	8:11:115:ASP:OD1	2.20	0.40
8:11:85:ILE:HD12	8:11:137:LEU:HD22	2.03	0.40
11:14:134:ALA:O	11:14:137:ALA:HB3	2.21	0.40
19:22:50:LEU:HD12	19:22:50:LEU:H	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:32:26:ASN:OD1	54:01:682:G:H5'	2.20	0.40
33:C:176:THR:HG22	33:C:178:ARG:HG2	2.02	0.40
34:D:201:GLU:HA	34:D:204:SER:OG	2.20	0.40
36:F:10:VAL:HG12	36:F:11:HIS:N	2.37	0.40
42:L:33:CYS:CB	42:L:54:VAL:HG22	2.51	0.40
53:A:29:U:H4'	53:A:295:C:O3'	2.21	0.40
53:A:571:U:H4'	53:A:819:A:C6	2.56	0.40
53:A:582:C:H2'	53:A:583:A:C8	2.57	0.40
53:A:709:U:H2'	53:A:710:G:H8	1.83	0.40
53:A:1256:A:O2'	53:A:1257:A:H5''	2.21	0.40
53:A:1405:G:H21	53:A:1518:A:H8	1.70	0.40
53:A:1418:A:H3'	53:A:1419:G:C5'	2.51	0.40
54:01:277:G:HO2'	54:01:361:G:H1	1.69	0.40
54:01:327:G:H2'	54:01:328:U:O4'	2.21	0.40
54:01:856:G:H2'	54:01:857:G:C8	2.57	0.40
54:01:1462:C:H2'	54:01:1463:C:C6	2.56	0.40
54:01:1669:A:H2'	54:01:1670:C:H5'	2.03	0.40
54:01:2093:G:N7	54:01:2225:A:H2'	2.36	0.40
54:01:2526:G:H2'	54:01:2527:C:C6	2.55	0.40
55:02:70:C:H2'	55:02:71:C:C6	2.55	0.40
58:Y:11:C:H2'	58:Y:12:U:C6	2.56	0.40
59:Z:68:GLU:HB2	59:Z:261:PHE:CE2	2.57	0.40
59:Z:121:LEU:O	59:Z:125:VAL:HB	2.20	0.40
59:Z:391:VAL:C	59:Z:392:LEU:HD12	2.41	0.40
3:06:88:ARG:HA	3:06:89:PRO:HD2	1.80	0.40
3:06:131:THR:HG22	3:06:160:ALA:O	2.21	0.40
3:06:137:LYS:O	3:06:141:MET:HG3	2.21	0.40
5:08:136:ASP:OD2	5:08:139:VAL:HG23	2.22	0.40
7:10:81:LEU:O	7:10:82:ILE:HD13	2.21	0.40
11:14:93:ASN:C	11:14:95:LEU:N	2.74	0.40
12:15:42:THR:HA	12:15:93:VAL:HA	2.03	0.40
12:15:76:LYS:HE3	54:01:956:G:H5''	2.03	0.40
15:18:20:ARG:HH21	15:18:112:ARG:CZ	2.34	0.40
19:22:15:HIS:HB2	19:22:33:LYS:HG3	2.02	0.40
22:25:20:LYS:HE2	54:01:2355:G:O2'	2.21	0.40
25:28:24:LEU:HD23	25:28:24:LEU:O	2.20	0.40
33:C:69:THR:OG1	33:C:70:ALA:N	2.54	0.40
35:E:22:LYS:HG3	53:A:1081:A:H5'	2.04	0.40
37:G:128:GLU:HG2	37:G:130:LYS:HG2	2.02	0.40
42:L:98:ARG:HD2	42:L:103:CYS:SG	2.62	0.40
44:N:11:LYS:HB2	44:N:11:LYS:NZ	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:P:5:ARG:HA	46:P:71:VAL:HG21	2.03	0.40
53:A:188:C:H2'	53:A:189:A:O4'	2.21	0.40
53:A:431:A:H2'	53:A:432:A:C8	2.56	0.40
53:A:1069:C:H3'	53:A:1070:U:H5''	2.02	0.40
53:A:1121:U:H2'	53:A:1122:U:C6	2.55	0.40
54:01:275:C:H3'	54:01:276:U:C5'	2.49	0.40
54:01:513:A:H2	54:01:582:A:H4'	1.86	0.40
54:01:569:U:H2'	54:01:570:G:O4'	2.21	0.40
54:01:570:G:H2'	54:01:2030:A:C8	2.56	0.40
54:01:717:C:H2'	54:01:718:A:O4'	2.20	0.40
54:01:755:U:H2'	54:01:756:A:C8	2.55	0.40
54:01:863:A:H2'	54:01:864:G:C8	2.57	0.40
54:01:1417:C:H4'	54:01:1587:G:H21	1.86	0.40
54:01:2076:U:H5''	54:01:2238:G:H22	1.86	0.40
54:01:2271:G:H2'	54:01:2272:U:O4'	2.21	0.40
58:Y:26:A:N7	58:Y:27:G:H1'	2.36	0.40
59:Z:69:TYR:O	59:Z:76:TYR:HB2	2.21	0.40
59:Z:103:LEU:HD23	59:Z:132:VAL:HG22	2.03	0.40
59:Z:160:TYR:OH	59:Z:311:LEU:HD22	2.20	0.40
4:07:94:ARG:HD3	4:07:94:ARG:N	2.35	0.40
7:10:34:THR:CB	54:01:1057:A:H1'	2.52	0.40
9:12:37:ARG:HH22	9:12:114:LEU:HD23	1.86	0.40
10:13:6:THR:HG23	54:01:1666:G:O3'	2.21	0.40
13:16:38:LEU:HG	13:16:42:LYS:HE2	2.02	0.40
13:16:61:ALA:O	13:16:65:LEU:HD13	2.21	0.40
15:18:51:ASN:O	54:01:2845:U:H5''	2.21	0.40
18:21:20:VAL:HG11	18:21:44:ALA:HA	2.03	0.40
19:22:50:LEU:H	19:22:50:LEU:CD1	2.34	0.40
21:24:79:ARG:HA	21:24:86:LEU:HD23	2.03	0.40
22:25:17:LEU:HB3	22:25:35:ARG:O	2.21	0.40
23:26:62:GLY:O	23:26:66:VAL:HG23	2.21	0.40
27:30:1:ALA:N	54:01:2614:A:O4'	2.49	0.40
30:33:7:ARG:HH21	54:01:254:G:N2	2.19	0.40
31:34:36:ARG:CG	31:34:37:GLN:N	2.81	0.40
33:C:22:PHE:HE2	40:J:11:LYS:HG3	1.86	0.40
42:L:71:HIS:CB	42:L:98:ARG:HH12	2.34	0.40
42:L:111:GLN:O	42:L:112:ALA:HB3	2.21	0.40
46:P:71:VAL:HA	46:P:74:LEU:HD12	2.02	0.40
51:U:51:ALA:HA	51:U:54:ARG:CZ	2.51	0.40
52:03:65:LEU:HB3	52:03:66:PRO:HD2	2.03	0.40
53:A:193:C:O2'	53:A:194:C:H5'	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:890:G:O2'	53:A:891:U:H6	2.04	0.40
53:A:1251:A:O2'	53:A:1370:G:H5'	2.21	0.40
53:A:1306:A:N6	53:A:1331:G:H1'	2.37	0.40
53:A:1448:C:H2'	53:A:1449:C:C6	2.57	0.40
54:01:744:U:H2'	54:01:745:G:O4'	2.22	0.40
54:01:1074:G:H2'	54:01:1075:C:O4'	2.21	0.40
54:01:1328:A:H2'	54:01:1330:C:C5	2.56	0.40
54:01:1444:G:H2'	54:01:1445:G:H8	1.86	0.40
54:01:1472:C:H2'	54:01:1473:G:C8	2.56	0.40
54:01:1595:C:H2'	54:01:1596:A:H8	1.86	0.40
54:01:2096:C:H2'	54:01:2097:A:H8	1.86	0.40
54:01:2322:A:H2'	54:01:2323:G:O4'	2.21	0.40
1:04:48:ILE:HG23	1:04:48:ILE:O	2.22	0.40
2:05:3:GLY:C	2:05:4:LEU:HD12	2.41	0.40
2:05:13:ARG:HH12	15:18:74:GLN:HB3	1.86	0.40
2:05:157:LYS:HG3	9:12:80:HIS:CD2	2.56	0.40
2:05:184:ARG:NE	15:18:6:GLN:HE21	2.19	0.40
4:07:89:THR:HG21	4:07:91:ARG:HH11	1.87	0.40
6:09:26:ALA:HB2	6:09:30:LEU:HD12	2.03	0.40
8:11:33:ASN:HD22	8:11:36:GLU:HG2	1.85	0.40
8:11:71:LYS:NZ	8:11:71:LYS:HB2	2.36	0.40
13:16:5:LYS:HG2	54:01:2721:A:H2	1.86	0.40
21:24:48:MET:SD	21:24:86:LEU:HG	2.61	0.40
30:33:44:ARG:N	30:33:45:PRO:HD2	2.36	0.40
32:B:22:TRP:O	32:B:24:PRO:HD3	2.21	0.40
32:B:153:MET:HE3	32:B:157:PRO:HD3	2.03	0.40
32:B:158:ASP:O	32:B:181:PRO:HD2	2.22	0.40
33:C:75:VAL:O	33:C:83:VAL:HG23	2.21	0.40
37:G:1:PRO:HD3	53:A:1377:A:N3	2.36	0.40
37:G:70:PRO:HD3	37:G:102:TRP:HZ3	1.86	0.40
38:H:73:SER:H	38:H:129:ALA:HB3	1.86	0.40
48:R:59:LYS:HD3	53:A:735:C:H5'	2.03	0.40
53:A:160:A:H1'	53:A:344:A:C5	2.57	0.40
53:A:279:A:H5'	53:A:281:G:H5'	2.03	0.40
53:A:924:C:H5'	53:A:1399:C:OP2	2.20	0.40
53:A:1316:G:N2	53:A:1318:A:H3'	2.36	0.40
54:01:98:G:O2'	54:01:99:U:H5'	2.22	0.40
54:01:200:U:H2'	54:01:201:C:O4'	2.21	0.40
54:01:826:U:OP1	54:01:2428:G:H3'	2.22	0.40
54:01:1103:A:N3	54:01:1103:A:H2'	2.36	0.40
54:01:1179:G:H3'	54:01:1180:U:C4'	2.49	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1887:C:H2'	54:01:1888:G:O4'	2.22	0.40
54:01:1994:C:O2'	54:01:1995:U:H5'	2.21	0.40
54:01:1998:A:H2'	54:01:1999:C:C6	2.57	0.40
54:01:2417:C:H2'	54:01:2418:A:C8	2.57	0.40
56:W:6:G:O2'	56:W:7:G:H5'	2.21	0.40
3:06:76:PRO:HA	3:06:82:GLY:H	1.86	0.40
3:06:162:ARG:NH1	54:01:321:U:H1'	2.37	0.40
11:14:125:LEU:HD12	11:14:125:LEU:N	2.36	0.40
13:16:28:LEU:HD22	13:16:44:LEU:HD21	2.04	0.40
18:21:86:MET:HA	18:21:87:PRO:HD3	1.94	0.40
19:22:9:LYS:NZ	54:01:71:A:H1'	2.36	0.40
43:M:11:HIS:HA	43:M:43:LYS:HD3	2.03	0.40
43:M:94:LEU:HB3	43:M:95:PRO:HD2	2.03	0.40
53:A:49:U:HO2'	53:A:50:A:H2'	1.83	0.40
53:A:403:C:O2'	53:A:404:G:H5'	2.22	0.40
53:A:900:A:H2'	53:A:901:A:C8	2.56	0.40
53:A:1180:A:H2'	53:A:1181:G:H5'	2.03	0.40
53:A:1483:A:H2	54:01:1959:G:HO2'	1.70	0.40
54:01:149:A:H2'	54:01:150:U:C6	2.57	0.40
54:01:479:A:H4'	54:01:480:A:OP1	2.22	0.40
54:01:706:A:H2'	54:01:707:G:O4'	2.22	0.40
54:01:941:A:H2'	54:01:942:G:O4'	2.22	0.40
54:01:2861:U:H2'	54:01:2862:G:C8	2.56	0.40
59:Z:299:LYS:HD2	59:Z:301:HIS:ND1	2.36	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	04	269/271 (99%)	236 (88%)	31 (12%)	2 (1%)	22 60

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	05	207/209 (99%)	174 (84%)	28 (14%)	5 (2%)	6	37
3	06	199/201 (99%)	167 (84%)	26 (13%)	6 (3%)	4	33
4	07	175/177 (99%)	156 (89%)	15 (9%)	4 (2%)	6	38
5	08	174/176 (99%)	155 (89%)	15 (9%)	4 (2%)	6	38
6	09	147/149 (99%)	124 (84%)	21 (14%)	2 (1%)	11	46
7	10	129/131 (98%)	90 (70%)	29 (22%)	10 (8%)	1	15
8	11	139/141 (99%)	111 (80%)	20 (14%)	8 (6%)	1	21
9	12	140/142 (99%)	123 (88%)	16 (11%)	1 (1%)	22	60
10	13	120/122 (98%)	94 (78%)	22 (18%)	4 (3%)	4	32
11	14	141/143 (99%)	112 (79%)	23 (16%)	6 (4%)	2	26
12	15	134/136 (98%)	107 (80%)	23 (17%)	4 (3%)	4	33
13	16	118/120 (98%)	100 (85%)	15 (13%)	3 (2%)	5	36
14	17	114/116 (98%)	104 (91%)	8 (7%)	2 (2%)	8	42
15	18	112/114 (98%)	92 (82%)	20 (18%)	0	100	100
16	19	115/117 (98%)	101 (88%)	13 (11%)	1 (1%)	17	54
17	20	101/103 (98%)	87 (86%)	10 (10%)	4 (4%)	3	28
18	21	108/110 (98%)	88 (82%)	19 (18%)	1 (1%)	17	54
19	22	91/93 (98%)	78 (86%)	12 (13%)	1 (1%)	14	51
20	23	100/102 (98%)	83 (83%)	10 (10%)	7 (7%)	1	17
21	24	92/94 (98%)	83 (90%)	9 (10%)	0	100	100
22	25	73/75 (97%)	61 (84%)	9 (12%)	3 (4%)	3	27
23	26	75/77 (97%)	67 (89%)	8 (11%)	0	100	100
24	27	61/63 (97%)	56 (92%)	5 (8%)	0	100	100
25	28	56/58 (97%)	50 (89%)	6 (11%)	0	100	100
26	29	64/66 (97%)	49 (77%)	14 (22%)	1 (2%)	9	44
27	30	54/56 (96%)	46 (85%)	8 (15%)	0	100	100
28	31	48/50 (96%)	47 (98%)	1 (2%)	0	100	100
29	32	44/46 (96%)	39 (89%)	5 (11%)	0	100	100
30	33	62/64 (97%)	52 (84%)	8 (13%)	2 (3%)	4	32
31	34	36/38 (95%)	29 (81%)	7 (19%)	0	100	100
32	B	216/218 (99%)	173 (80%)	35 (16%)	8 (4%)	3	29

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
33	C	204/206 (99%)	182 (89%)	21 (10%)	1 (0%)	29	66
34	D	203/205 (99%)	163 (80%)	34 (17%)	6 (3%)	4	33
35	E	155/157 (99%)	125 (81%)	21 (14%)	9 (6%)	1	21
36	F	98/100 (98%)	81 (83%)	14 (14%)	3 (3%)	4	33
37	G	149/151 (99%)	124 (83%)	23 (15%)	2 (1%)	12	48
38	H	127/129 (98%)	112 (88%)	13 (10%)	2 (2%)	9	44
39	I	125/127 (98%)	93 (74%)	23 (18%)	9 (7%)	1	17
40	J	96/98 (98%)	76 (79%)	13 (14%)	7 (7%)	1	16
41	K	114/116 (98%)	93 (82%)	15 (13%)	6 (5%)	2	23
42	L	121/123 (98%)	92 (76%)	25 (21%)	4 (3%)	4	32
43	M	112/114 (98%)	92 (82%)	17 (15%)	3 (3%)	5	35
44	N	98/100 (98%)	79 (81%)	17 (17%)	2 (2%)	7	41
45	O	86/88 (98%)	71 (83%)	13 (15%)	2 (2%)	6	38
46	P	80/82 (98%)	63 (79%)	15 (19%)	2 (2%)	5	36
47	Q	78/80 (98%)	62 (80%)	13 (17%)	3 (4%)	3	29
48	R	63/65 (97%)	45 (71%)	13 (21%)	5 (8%)	1	14
49	S	77/79 (98%)	63 (82%)	13 (17%)	1 (1%)	12	48
50	T	83/85 (98%)	79 (95%)	4 (5%)	0	100	100
51	U	63/65 (97%)	44 (70%)	16 (25%)	3 (5%)	2	24
52	03	130/223 (58%)	106 (82%)	18 (14%)	6 (5%)	2	24
59	Z	390/392 (100%)	331 (85%)	51 (13%)	8 (2%)	7	40
All	All	6366/6563 (97%)	5310 (83%)	883 (14%)	173 (3%)	8	35

All (173) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	05	134	HIS
3	06	84	THR
3	06	89	PRO
4	07	173	ASP
5	08	174	LYS
7	10	80	THR
7	10	108	VAL
8	11	13	ALA
10	13	35	VAL

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Mol	Chain	Res	Type
10	13	92	GLU
14	17	34	HIS
17	20	54	VAL
19	22	77	ARG
20	23	6	ARG
20	23	51	LEU
20	23	56	GLY
20	23	98	ASN
30	33	16	THR
30	33	31	ILE
32	B	19	THR
32	B	73	ARG
32	B	87	ASP
34	D	191	SER
35	E	122	VAL
36	F	91	ARG
36	F	94	HIS
37	G	4	ARG
39	I	90	ASP
39	I	91	GLU
40	J	34	ALA
41	K	13	LYS
45	O	46	LYS
47	Q	49	ASN
48	R	13	THR
48	R	17	VAL
48	R	19	GLU
48	R	46	THR
51	U	8	ASN
52	03	6	LYS
52	03	176	GLY
52	03	178	VAL
52	03	181	ASP
1	04	232	GLY
4	07	149	ARG
5	08	45	ALA
8	11	24	GLY
10	13	108	ARG
11	14	65	GLY
11	14	87	GLY
11	14	107	PHE
12	15	59	ARG

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Mol	Chain	Res	Type
13	16	2	ARG
17	20	57	GLY
18	21	59	GLU
20	23	99	SER
22	25	9	GLY
22	25	14	ALA
32	B	14	HIS
32	B	151	LYS
32	B	179	GLY
33	C	112	ALA
34	D	28	ASP
34	D	47	LEU
35	E	93	VAL
35	E	121	ASN
36	F	95	ALA
38	H	47	ASP
38	H	51	GLU
39	I	8	THR
39	I	24	ASN
39	I	57	VAL
39	I	125	GLN
40	J	57	VAL
40	J	58	ASN
40	J	89	ARG
44	N	2	LYS
44	N	3	GLN
45	O	86	LEU
47	Q	17	GLU
47	Q	69	THR
49	S	76	THR
59	Z	3	GLU
59	Z	41	GLY
2	05	86	GLU
6	09	10	ALA
7	10	60	LEU
7	10	72	LEU
7	10	91	ALA
7	10	106	PHE
7	10	107	GLU
8	11	6	ALA
8	11	31	GLY
11	14	34	GLY

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Mol	Chain	Res	Type
13	16	71	ARG
20	23	3	LYS
26	29	28	VAL
32	B	20	ARG
35	E	98	ALA
37	G	18	GLY
39	I	100	ALA
39	I	102	PHE
39	I	124	PRO
41	K	77	GLY
41	K	92	ARG
42	L	101	LEU
42	L	111	GLN
43	M	97	ARG
46	P	44	SER
46	P	80	LYS
48	R	18	GLN
51	U	62	GLU
1	04	205	GLY
2	05	57	ALA
2	05	181	ASP
3	06	11	ALA
3	06	122	GLU
4	07	176	PHE
6	09	14	SER
7	10	71	CYS
8	11	11	GLN
8	11	92	PRO
12	15	4	PRO
17	20	53	PHE
22	25	8	ASN
34	D	29	THR
35	E	90	GLY
35	E	102	THR
41	K	14	GLN
42	L	87	LYS
51	U	37	TYR
59	Z	234	GLY
59	Z	346	GLY
2	05	149	ASN
3	06	53	THR
4	07	174	PHE

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Mol	Chain	Res	Type
5	08	44	HIS
10	13	93	GLN
11	14	29	LYS
12	15	6	ARG
14	17	101	GLY
17	20	51	VAL
34	D	134	TYR
35	E	23	THR
35	E	89	THR
40	J	42	LEU
41	K	38	GLY
43	M	111	PRO
52	03	188	ASN
52	03	220	ALA
59	Z	8	THR
59	Z	13	ASN
59	Z	248	LYS
59	Z	257	GLY
13	16	109	PRO
16	19	21	LYS
35	E	49	TYR
40	J	41	PRO
43	M	9	PRO
3	06	83	VAL
8	11	4	VAL
20	23	54	PRO
32	B	150	ILE
34	D	167	PRO
40	J	77	VAL
42	L	78	VAL
5	08	117	PRO
12	15	69	PRO
7	10	90	GLY
7	10	123	ILE
8	11	21	PRO
9	12	83	GLY
11	14	85	VAL
41	K	88	PRO

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	04	216/216 (100%)	208 (96%)	8 (4%)	34	62
2	05	164/164 (100%)	162 (99%)	2 (1%)	71	84
3	06	165/165 (100%)	161 (98%)	4 (2%)	49	71
4	07	148/148 (100%)	147 (99%)	1 (1%)	84	91
5	08	137/137 (100%)	135 (98%)	2 (2%)	65	81
6	09	114/114 (100%)	114 (100%)	0	100	100
7	10	100/100 (100%)	97 (97%)	3 (3%)	41	66
8	11	109/109 (100%)	105 (96%)	4 (4%)	34	62
9	12	116/116 (100%)	114 (98%)	2 (2%)	60	78
10	13	103/103 (100%)	103 (100%)	0	100	100
11	14	102/102 (100%)	100 (98%)	2 (2%)	55	75
12	15	109/109 (100%)	108 (99%)	1 (1%)	78	88
13	16	100/100 (100%)	99 (99%)	1 (1%)	76	86
14	17	86/86 (100%)	84 (98%)	2 (2%)	50	72
15	18	99/99 (100%)	96 (97%)	3 (3%)	41	66
16	19	89/89 (100%)	87 (98%)	2 (2%)	52	72
17	20	84/84 (100%)	82 (98%)	2 (2%)	49	71
18	21	93/93 (100%)	89 (96%)	4 (4%)	29	58
19	22	80/80 (100%)	78 (98%)	2 (2%)	47	70
20	23	83/83 (100%)	81 (98%)	2 (2%)	49	71
21	24	78/78 (100%)	77 (99%)	1 (1%)	69	82
22	25	57/57 (100%)	57 (100%)	0	100	100
23	26	67/67 (100%)	67 (100%)	0	100	100
24	27	55/55 (100%)	54 (98%)	1 (2%)	59	77
25	28	48/48 (100%)	48 (100%)	0	100	100
26	29	59/59 (100%)	59 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
27	30	47/47 (100%)	46 (98%)	1 (2%)	53	74
28	31	45/45 (100%)	44 (98%)	1 (2%)	52	72
29	32	38/38 (100%)	37 (97%)	1 (3%)	46	69
30	33	51/51 (100%)	51 (100%)	0	100	100
31	34	34/34 (100%)	33 (97%)	1 (3%)	42	67
32	B	180/180 (100%)	175 (97%)	5 (3%)	43	68
33	C	170/170 (100%)	167 (98%)	3 (2%)	59	77
34	D	172/172 (100%)	169 (98%)	3 (2%)	60	78
35	E	119/119 (100%)	118 (99%)	1 (1%)	81	89
36	F	87/87 (100%)	85 (98%)	2 (2%)	50	72
37	G	124/124 (100%)	123 (99%)	1 (1%)	81	89
38	H	104/104 (100%)	101 (97%)	3 (3%)	42	67
39	I	105/105 (100%)	102 (97%)	3 (3%)	42	67
40	J	86/86 (100%)	85 (99%)	1 (1%)	71	84
41	K	89/89 (100%)	86 (97%)	3 (3%)	37	64
42	L	103/103 (100%)	100 (97%)	3 (3%)	42	67
43	M	92/92 (100%)	90 (98%)	2 (2%)	52	72
44	N	83/83 (100%)	82 (99%)	1 (1%)	71	84
45	O	76/76 (100%)	75 (99%)	1 (1%)	69	82
46	P	65/65 (100%)	64 (98%)	1 (2%)	65	81
47	Q	74/74 (100%)	72 (97%)	2 (3%)	44	69
48	R	56/56 (100%)	55 (98%)	1 (2%)	59	77
49	S	70/70 (100%)	70 (100%)	0	100	100
50	T	65/65 (100%)	65 (100%)	0	100	100
51	U	55/55 (100%)	53 (96%)	2 (4%)	35	63
52	03	110/174 (63%)	107 (97%)	3 (3%)	44	69
59	Z	324/325 (100%)	312 (96%)	12 (4%)	34	62
All	All	5285/5350 (99%)	5179 (98%)	106 (2%)	57	75

All (106) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	04	36	ASN

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Mol	Chain	Res	Type
1	04	42	ARG
1	04	85	ASN
1	04	132	ARG
1	04	167	ASP
1	04	196	ASN
1	04	212	TRP
1	04	257	ARG
2	05	130	GLN
2	05	133	THR
3	06	49	ARG
3	06	57	LYS
3	06	163	ASN
3	06	185	LYS
4	07	94	ARG
5	08	115	GLN
5	08	152	ARG
7	10	4	ASN
7	10	122	GLN
7	10	125	ARG
8	11	10	LEU
8	11	18	ASN
8	11	35	MET
8	11	81	LYS
9	12	27	ARG
9	12	81	ILE
11	14	29	LYS
11	14	92	LEU
12	15	6	ARG
13	16	2	ARG
14	17	25	ARG
14	17	88	LYS
15	18	14	GLN
15	18	38	ARG
15	18	50	ARG
16	19	2	ARG
16	19	53	LYS
17	20	11	GLN
17	20	54	VAL
18	21	11	ARG
18	21	46	LEU
18	21	57	ASN
18	21	97	LEU

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Mol	Chain	Res	Type
19	22	6	ARG
19	22	73	ARG
20	23	3	LYS
20	23	65	GLN
21	24	34	LYS
24	27	7	ARG
27	30	9	ARG
28	31	45	HIS
29	32	28	ARG
31	34	36	ARG
32	B	19	THR
32	B	23	ASN
32	B	41	ASN
32	B	202	ASN
32	B	224	ARG
33	C	24	ASN
33	C	53	ARG
33	C	106	ARG
34	D	28	ASP
34	D	150	LYS
34	D	177	MET
35	E	10	LEU
36	F	13	ASP
36	F	74	LEU
37	G	85	GLN
38	H	2	MET
38	H	26	MET
38	H	66	GLN
39	I	30	ASN
39	I	44	ARG
39	I	60	LEU
40	J	89	ARG
41	K	35	ASP
41	K	71	ASP
41	K	124	LYS
42	L	74	GLN
42	L	85	ARG
42	L	113	ARG
43	M	6	ILE
43	M	53	ASP
44	N	84	ARG
45	O	76	ARG

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Mol	Chain	Res	Type
46	P	34	GLU
47	Q	26	ARG
47	Q	69	THR
48	R	11	ARG
51	U	20	ARG
51	U	61	ARG
52	03	5	THR
52	03	189	LEU
52	03	196	LEU
59	Z	69	TYR
59	Z	109	ASP
59	Z	114	GLN
59	Z	143	GLU
59	Z	159	GLN
59	Z	170	VAL
59	Z	208	LYS
59	Z	211	LEU
59	Z	273	ASN
59	Z	335	THR
59	Z	351	MET
59	Z	381	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (111) such sidechains are listed below:

Mol	Chain	Res	Type
1	04	20	ASN
1	04	36	ASN
1	04	85	ASN
1	04	133	ASN
1	04	196	ASN
1	04	238	ASN
1	04	259	ASN
2	05	36	GLN
2	05	148	GLN
2	05	164	GLN
2	05	167	ASN
3	06	92	HIS
3	06	97	ASN
3	06	156	ASN
5	08	37	ASN
5	08	110	HIS
5	08	115	GLN

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Mol	Chain	Res	Type
5	08	138	GLN
6	09	43	ASN
8	11	18	ASN
8	11	33	ASN
9	12	58	ASN
9	12	128	ASN
10	13	3	GLN
10	13	90	ASN
11	14	38	GLN
12	15	60	GLN
13	16	18	GLN
13	16	23	ASN
13	16	62	ASN
14	17	19	GLN
14	17	29	HIS
14	17	38	GLN
15	18	6	GLN
15	18	14	GLN
15	18	55	HIS
15	18	65	ASN
15	18	114	ASN
16	19	36	GLN
16	19	55	GLN
16	19	58	GLN
16	19	65	ASN
16	19	80	ASN
17	20	18	GLN
18	21	7	HIS
18	21	57	ASN
19	22	59	ASN
20	23	53	GLN
20	23	68	ASN
24	27	20	ASN
26	29	61	ASN
28	31	25	ASN
31	34	35	GLN
32	B	17	HIS
32	B	23	ASN
32	B	35	ASN
32	B	41	ASN
32	B	177	ASN
32	B	202	ASN

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Mol	Chain	Res	Type
33	C	18	ASN
33	C	24	ASN
34	D	58	GLN
34	D	70	GLN
34	D	88	ASN
34	D	115	GLN
34	D	125	ASN
34	D	195	ASN
34	D	197	HIS
35	E	81	GLN
35	E	134	ASN
35	E	145	ASN
36	F	3	HIS
36	F	55	HIS
36	F	58	HIS
36	F	63	ASN
36	F	68	GLN
37	G	27	ASN
37	G	51	GLN
38	H	15	ASN
38	H	17	GLN
38	H	20	ASN
39	I	30	ASN
39	I	74	GLN
39	I	109	GLN
39	I	125	GLN
40	J	20	GLN
40	J	64	GLN
41	K	28	ASN
42	L	4	ASN
42	L	45	ASN
42	L	95	HIS
44	N	34	ASN
44	N	65	GLN
45	O	19	ASN
46	P	26	ASN
48	R	51	GLN
49	S	55	GLN
50	T	19	HIS
50	T	20	ASN
50	T	54	GLN
52	03	160	GLN

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Mol	Chain	Res	Type
52	03	188	ASN
59	Z	19	HIS
59	Z	22	HIS
59	Z	78	HIS
59	Z	97	GLN
59	Z	124	GLN
59	Z	159	GLN
59	Z	273	ASN
59	Z	290	GLN
59	Z	329	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
53	A	1538/1539 (99%)	170 (11%)	11 (0%)
54	01	2902/2903 (99%)	397 (13%)	17 (0%)
55	02	119/120 (99%)	12 (10%)	1 (0%)
56	W	76/77 (98%)	7 (9%)	0
56	X	76/77 (98%)	13 (17%)	0
57	V	17/18 (94%)	1 (5%)	0
58	Y	74/76 (97%)	19 (25%)	0
All	All	4802/4810 (99%)	619 (12%)	29 (0%)

All (619) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
53	A	7	A
53	A	9	G
53	A	22	G
53	A	32	A
53	A	39	G
53	A	48	C
53	A	51	A
53	A	54	C
53	A	71	A
53	A	85	U
53	A	87	C
53	A	94	G
53	A	122	G
53	A	173	U
53	A	183	C

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Mol	Chain	Res	Type
53	A	184	G
53	A	197	A
53	A	209	U
53	A	210	C
53	A	211	G
53	A	212	G
53	A	247	G
53	A	266	G
53	A	267	C
53	A	281	G
53	A	289	G
53	A	306	A
53	A	345	C
53	A	352	C
53	A	367	U
53	A	369	G
53	A	372	C
53	A	392	C
53	A	398	U
53	A	406	G
53	A	411	A
53	A	412	A
53	A	413	G
53	A	421	U
53	A	422	C
53	A	429	U
53	A	441	A
53	A	467	U
53	A	479	U
53	A	484	G
53	A	485	U
53	A	486	U
53	A	497	G
53	A	532	A
53	A	533	A
53	A	547	A
53	A	548	G
53	A	561	U
53	A	564	C
53	A	572	A
53	A	573	A
53	A	575	G

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Mol	Chain	Res	Type
53	A	576	C
53	A	577	G
53	A	607	A
53	A	633	G
53	A	642	A
53	A	653	U
53	A	661	G
53	A	665	A
53	A	666	G
53	A	703	G
53	A	723	U
53	A	724	G
53	A	755	G
53	A	777	A
53	A	796	C
53	A	812	G
53	A	815	A
53	A	817	C
53	A	818	G
53	A	819	A
53	A	821	G
53	A	832	G
53	A	842	U
53	A	843	U
53	A	844	G
53	A	845	A
53	A	846	G
53	A	890	G
53	A	891	U
53	A	902	G
53	A	926	G
53	A	934	C
53	A	935	A
53	A	960	U
53	A	961	U
53	A	966	G
53	A	969	A
53	A	975	A
53	A	976	G
53	A	977	A
53	A	992	U
53	A	993	G

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Mol	Chain	Res	Type
53	A	994	A
53	A	1004	A
53	A	1028	C
53	A	1030	U
53	A	1031	C
53	A	1033	G
53	A	1034	G
53	A	1053	G
53	A	1065	U
53	A	1070	U
53	A	1094	G
53	A	1101	A
53	A	1111	A
53	A	1129	C
53	A	1130	A
53	A	1137	C
53	A	1138	G
53	A	1139	G
53	A	1159	U
53	A	1168	U
53	A	1183	U
53	A	1184	G
53	A	1191	A
53	A	1195	C
53	A	1196	A
53	A	1197	A
53	A	1201	A
53	A	1202	U
53	A	1212	U
53	A	1213	A
53	A	1225	A
53	A	1226	C
53	A	1238	A
53	A	1241	G
53	A	1258	G
53	A	1260	G
53	A	1275	A
53	A	1278	G
53	A	1280	A
53	A	1282	C
53	A	1287	A
53	A	1300	G

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Mol	Chain	Res	Type
53	A	1302	C
53	A	1317	C
53	A	1320	C
53	A	1346	A
53	A	1347	G
53	A	1348	U
53	A	1381	U
53	A	1394	A
53	A	1395	C
53	A	1400	C
53	A	1419	G
53	A	1441	A
53	A	1446	A
53	A	1448	C
53	A	1452	C
53	A	1492	A
53	A	1499	A
53	A	1503	A
53	A	1504	G
53	A	1505	G
53	A	1506	U
53	A	1517	G
53	A	1519	A
53	A	1529	G
53	A	1530	G
53	A	1534	A
53	A	1535	C
53	A	1536	C
53	A	1540	U
54	01	10	A
54	01	12	U
54	01	34	U
54	01	35	G
54	01	42	A
54	01	46	G
54	01	49	A
54	01	50	U
54	01	51	G
54	01	63	A
54	01	73	A
54	01	74	A
54	01	75	G

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Mol	Chain	Res	Type
54	01	102	U
54	01	118	A
54	01	120	U
54	01	138	U
54	01	139	U
54	01	140	C
54	01	141	G
54	01	142	A
54	01	162	U
54	01	163	C
54	01	181	A
54	01	196	A
54	01	216	A
54	01	219	A
54	01	221	A
54	01	222	A
54	01	229	C
54	01	233	A
54	01	242	G
54	01	243	U
54	01	248	G
54	01	249	C
54	01	255	A
54	01	266	G
54	01	267	C
54	01	276	U
54	01	278	A
54	01	281	C
54	01	294	A
54	01	301	G
54	01	311	A
54	01	323	C
54	01	329	G
54	01	330	A
54	01	353	C
54	01	361	G
54	01	367	G
54	01	371	A
54	01	372	G
54	01	386	G
54	01	387	U
54	01	404	A

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Mol	Chain	Res	Type
54	01	406	G
54	01	411	G
54	01	422	A
54	01	424	G
54	01	457	A
54	01	479	A
54	01	481	G
54	01	491	G
54	01	492	A
54	01	504	A
54	01	505	A
54	01	506	G
54	01	529	A
54	01	530	G
54	01	531	C
54	01	532	A
54	01	543	G
54	01	546	U
54	01	547	A
54	01	549	G
54	01	563	A
54	01	573	U
54	01	575	A
54	01	578	G
54	01	588	U
54	01	592	A
54	01	603	A
54	01	615	U
54	01	616	A
54	01	627	A
54	01	637	A
54	01	646	U
54	01	654	A
54	01	686	U
54	01	687	C
54	01	695	G
54	01	711	G
54	01	714	U
54	01	717	C
54	01	730	A
54	01	747	C
54	01	752	A

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Mol	Chain	Res	Type
54	01	757	G
54	01	775	G
54	01	776	G
54	01	782	A
54	01	784	G
54	01	785	G
54	01	789	A
54	01	800	A
54	01	805	G
54	01	806	C
54	01	812	C
54	01	819	A
54	01	822	G
54	01	827	U
54	01	828	U
54	01	830	G
54	01	845	A
54	01	846	U
54	01	847	U
54	01	858	G
54	01	859	G
54	01	860	U
54	01	878	A
54	01	885	C
54	01	886	A
54	01	887	U
54	01	888	C
54	01	891	G
54	01	896	A
54	01	910	A
54	01	915	C
54	01	932	U
54	01	941	A
54	01	946	C
54	01	953	G
54	01	961	C
54	01	974	G
54	01	975	A
54	01	983	A
54	01	995	C
54	01	996	A
54	01	1012	U

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Mol	Chain	Res	Type
54	01	1013	C
54	01	1021	A
54	01	1022	G
54	01	1026	G
54	01	1033	U
54	01	1045	C
54	01	1046	A
54	01	1047	G
54	01	1054	A
54	01	1062	G
54	01	1063	G
54	01	1064	C
54	01	1065	U
54	01	1066	U
54	01	1067	A
54	01	1070	A
54	01	1071	G
54	01	1076	C
54	01	1079	C
54	01	1084	A
54	01	1087	G
54	01	1088	A
54	01	1094	U
54	01	1103	A
54	01	1104	C
54	01	1111	A
54	01	1131	G
54	01	1132	U
54	01	1133	A
54	01	1135	C
54	01	1143	A
54	01	1157	G
54	01	1169	A
54	01	1172	C
54	01	1174	U
54	01	1175	A
54	01	1177	G
54	01	1179	G
54	01	1180	U
54	01	1206	G
54	01	1212	G
54	01	1250	G

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Mol	Chain	Res	Type
54	01	1251	C
54	01	1253	A
54	01	1256	G
54	01	1262	A
54	01	1271	G
54	01	1272	A
54	01	1289	C
54	01	1301	A
54	01	1314	C
54	01	1329	U
54	01	1332	G
54	01	1345	C
54	01	1365	A
54	01	1378	A
54	01	1379	U
54	01	1383	A
54	01	1395	A
54	01	1416	G
54	01	1419	A
54	01	1420	A
54	01	1421	G
54	01	1454	C
54	01	1461	C
54	01	1476	U
54	01	1482	G
54	01	1490	A
54	01	1491	G
54	01	1498	C
54	01	1515	A
54	01	1524	G
54	01	1533	C
54	01	1535	A
54	01	1536	C
54	01	1537	G
54	01	1555	G
54	01	1560	G
54	01	1569	A
54	01	1578	U
54	01	1581	G
54	01	1607	C
54	01	1608	A
54	01	1611	C

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Mol	Chain	Res	Type
54	01	1616	A
54	01	1627	G
54	01	1634	A
54	01	1647	U
54	01	1648	U
54	01	1660	G
54	01	1669	A
54	01	1674	G
54	01	1695	G
54	01	1699	G
54	01	1703	G
54	01	1715	G
54	01	1729	U
54	01	1730	C
54	01	1732	C
54	01	1738	G
54	01	1758	U
54	01	1764	C
54	01	1773	A
54	01	1780	A
54	01	1800	C
54	01	1801	A
54	01	1808	A
54	01	1816	C
54	01	1835	G
54	01	1871	A
54	01	1901	A
54	01	1906	G
54	01	1913	A
54	01	1914	C
54	01	1929	G
54	01	1930	G
54	01	1931	U
54	01	1937	A
54	01	1938	A
54	01	1941	C
54	01	1944	U
54	01	1955	U
54	01	1967	C
54	01	1970	A
54	01	1972	G
54	01	1982	U

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Mol	Chain	Res	Type
54	01	1991	U
54	01	1992	G
54	01	1993	U
54	01	1997	C
54	01	2006	C
54	01	2022	U
54	01	2023	C
54	01	2030	A
54	01	2031	A
54	01	2043	C
54	01	2052	A
54	01	2055	C
54	01	2056	G
54	01	2060	A
54	01	2061	G
54	01	2062	A
54	01	2063	C
54	01	2069	G
54	01	2072	C
54	01	2080	A
54	01	2096	C
54	01	2108	A
54	01	2110	G
54	01	2111	U
54	01	2112	G
54	01	2113	U
54	01	2118	U
54	01	2119	A
54	01	2124	G
54	01	2125	G
54	01	2127	G
54	01	2131	U
54	01	2132	U
54	01	2133	G
54	01	2134	A
54	01	2145	C
54	01	2147	A
54	01	2162	G
54	01	2171	A
54	01	2172	U
54	01	2173	A
54	01	2182	U

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Mol	Chain	Res	Type
54	01	2189	U
54	01	2198	A
54	01	2204	G
54	01	2211	A
54	01	2212	A
54	01	2213	U
54	01	2225	A
54	01	2239	G
54	01	2250	G
54	01	2278	A
54	01	2283	C
54	01	2287	A
54	01	2305	U
54	01	2309	A
54	01	2325	G
54	01	2327	A
54	01	2334	U
54	01	2335	A
54	01	2347	C
54	01	2350	C
54	01	2354	C
54	01	2383	G
54	01	2385	C
54	01	2392	A
54	01	2402	U
54	01	2406	A
54	01	2423	U
54	01	2424	C
54	01	2427	C
54	01	2429	G
54	01	2430	A
54	01	2434	A
54	01	2435	A
54	01	2441	U
54	01	2448	A
54	01	2476	A
54	01	2480	C
54	01	2498	C
54	01	2502	G
54	01	2503	A
54	01	2504	U
54	01	2505	G

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Mol	Chain	Res	Type
54	01	2518	A
54	01	2535	G
54	01	2547	A
54	01	2554	U
54	01	2566	A
54	01	2567	G
54	01	2572	A
54	01	2602	A
54	01	2603	G
54	01	2609	U
54	01	2613	U
54	01	2623	G
54	01	2629	U
54	01	2636	C
54	01	2646	C
54	01	2655	G
54	01	2656	U
54	01	2689	U
54	01	2690	U
54	01	2691	C
54	01	2714	G
54	01	2744	G
54	01	2748	A
54	01	2751	G
54	01	2752	C
54	01	2764	A
54	01	2765	A
54	01	2778	A
54	01	2779	U
54	01	2791	G
54	01	2793	C
54	01	2797	U
54	01	2799	A
54	01	2800	A
54	01	2809	A
54	01	2818	U
54	01	2820	A
54	01	2821	A
54	01	2832	U
54	01	2833	U
54	01	2850	A
54	01	2867	G

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Mol	Chain	Res	Type
54	01	2868	A
54	01	2879	A
54	01	2880	C
54	01	2883	A
54	01	2884	U
54	01	2902	C
55	02	4	C
55	02	12	C
55	02	13	G
55	02	16	G
55	02	24	G
55	02	35	C
55	02	42	C
55	02	44	G
55	02	67	G
55	02	89	U
55	02	108	A
55	02	109	A
56	X	6	G
56	X	8	U
56	X	9	G
56	X	14	A
56	X	19	G
56	X	21	A
56	X	22	G
56	X	34	C
56	X	61	C
56	X	64	G
56	X	70	G
56	X	73	A
56	X	76	A
57	V	11	U
56	W	9	G
56	W	19	G
56	W	20	U
56	W	47	U
56	W	48	C
56	W	61	C
56	W	76	A
58	Y	3	G
58	Y	13	C
58	Y	14	A

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Mol	Chain	Res	Type
58	Y	17	U
58	Y	20	U
58	Y	24	G
58	Y	26	A
58	Y	30	G
58	Y	46	G
58	Y	47	U
58	Y	48	C
58	Y	49	G
58	Y	55	U
58	Y	59	A
58	Y	61	C
58	Y	70	C
58	Y	74	C
58	Y	75	C
58	Y	76	A

All (29) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	A	70	U
53	A	246	A
53	A	890	G
53	A	1064	G
53	A	1129	C
53	A	1182	G
53	A	1190	G
53	A	1201	A
53	A	1347	G
53	A	1399	C
53	A	1504	G
54	01	227	A
54	01	242	G
54	01	372	G
54	01	421	C
54	01	490	C
54	01	774	G
54	01	859	G
54	01	1020	A
54	01	1130	U
54	01	1475	G
54	01	1490	A

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Mol	Chain	Res	Type
54	01	1626	A
54	01	1930	G
54	01	1940	U
54	01	2326	C
54	01	2391	G
54	01	2655	G
55	02	88	C

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

1 non-standard protein/DNA/RNA residue 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
58	U8U	Y	34	58,57	19,24,25	1.29	3 (15%)	23,34,37	0.95	2 (8%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
58	U8U	Y	34	58,57	-	0/9/28/29	0/2/2/2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	Y	34	U8U	C6-N1	3.84	1.44	1.38
58	Y	34	U8U	C4-C5	2.43	1.50	1.45
58	Y	34	U8U	C2-N3	2.05	1.42	1.37

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
58	Y	34	U8U	C2'-C1'-N1	2.27	119.64	113.22
58	Y	34	U8U	C5-C6-N1	2.04	125.64	122.91

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 1 is monoatomic - leaving 3 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
63	GCP	Z	402	62	27,34,34	2.01	7 (25%)	34,54,54	4.05	18 (52%)
60	FME	W	101	-	8,9,10	0.71	0	7,9,11	1.27	1 (14%)
61	LYS	Y	101	58	7,8,9	0.64	0	3,8,10	0.30	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
63	GCP	Z	402	62	-	9/15/38/38	0/3/3/3
60	FME	W	101	-	-	3/7/9/11	-
61	LYS	Y	101	58	-	0/6/7/9	-

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
63	Z	402	GCP	PB-O3A	-5.09	1.52	1.58
63	Z	402	GCP	O4'-C1'	4.60	1.47	1.41
63	Z	402	GCP	C6-N1	3.33	1.38	1.33
63	Z	402	GCP	C2'-C1'	2.72	1.57	1.53
63	Z	402	GCP	PB-O2B	-2.47	1.50	1.56
63	Z	402	GCP	C5-C6	2.42	1.45	1.41
63	Z	402	GCP	C2-N1	2.33	1.39	1.35

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
63	Z	402	GCP	C1'-N9-C4	14.33	151.82	126.64
63	Z	402	GCP	C5-C6-N1	-8.76	111.46	123.43
63	Z	402	GCP	C2-N1-C6	7.07	127.17	115.93
63	Z	402	GCP	O1G-PG-C3B	-7.00	96.17	111.24
63	Z	402	GCP	O4'-C1'-C2'	-5.29	99.19	106.93
63	Z	402	GCP	C2-N3-C4	-4.48	110.24	115.36
63	Z	402	GCP	O5'-PA-O1A	-4.04	93.27	109.07
63	Z	402	GCP	C4-C5-C6	-3.68	117.28	120.80
63	Z	402	GCP	O2B-PB-O1B	3.53	121.84	110.07
63	Z	402	GCP	PB-O3A-PA	3.35	143.18	132.56
63	Z	402	GCP	C4-C5-N7	3.34	112.88	109.40
63	Z	402	GCP	O3'-C3'-C4'	-3.25	101.66	111.05
63	Z	402	GCP	O3G-PG-O1G	2.95	120.18	112.39
63	Z	402	GCP	N3-C2-N1	-2.58	123.78	127.22
63	Z	402	GCP	O2G-PG-C3B	2.57	112.62	106.40
63	Z	402	GCP	O4'-C4'-C5'	2.45	117.42	109.37
60	W	101	FME	O-C-CA	-2.32	118.69	124.78
63	Z	402	GCP	O2A-PA-O1A	2.21	123.18	112.24
63	Z	402	GCP	O1B-PB-C3B	2.09	114.59	109.07

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
60	W	101	FME	O1-CN-N-CA
60	W	101	FME	O-C-CA-CB
63	Z	402	GCP	PB-C3B-PG-O1G
63	Z	402	GCP	PB-C3B-PG-O2G
63	Z	402	GCP	PG-C3B-PB-O1B
63	Z	402	GCP	C5'-O5'-PA-O3A

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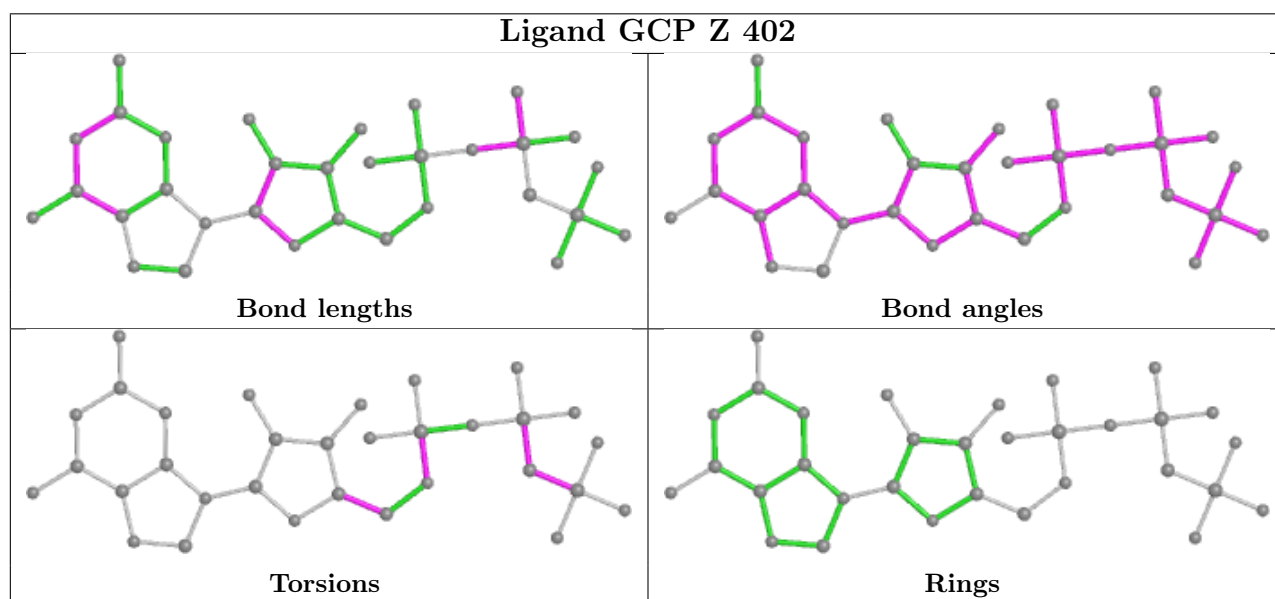
Mol	Chain	Res	Type	Atoms
63	Z	402	GCP	O4'-C4'-C5'-O5'
60	W	101	FME	C-CA-CB-CG
63	Z	402	GCP	C5'-O5'-PA-O1A
63	Z	402	GCP	C5'-O5'-PA-O2A
63	Z	402	GCP	PB-C3B-PG-O3G
63	Z	402	GCP	C3'-C4'-C5'-O5'

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
63	Z	402	GCP	3	0
61	Y	101	LYS	1	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.

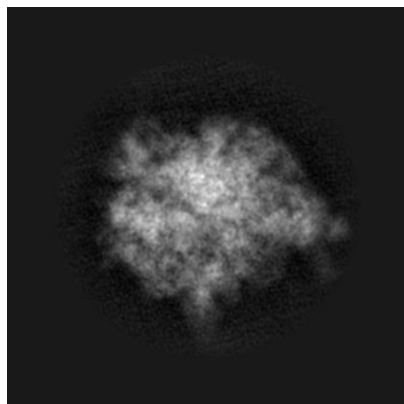
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8620. These allow visual inspection of the internal detail of the map and identification of artifacts.

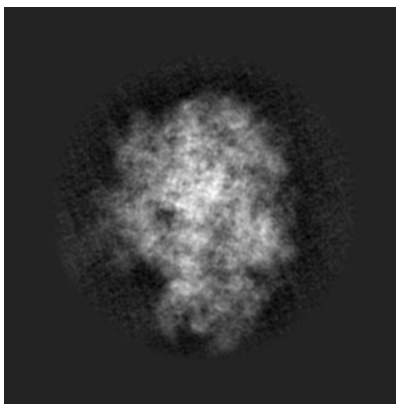
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

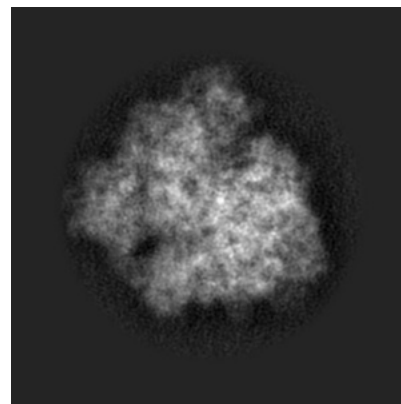
6.1.1 Primary map



X

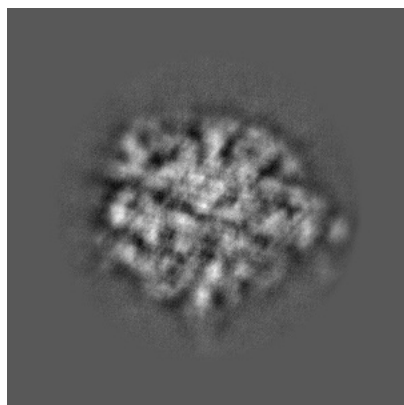


Y

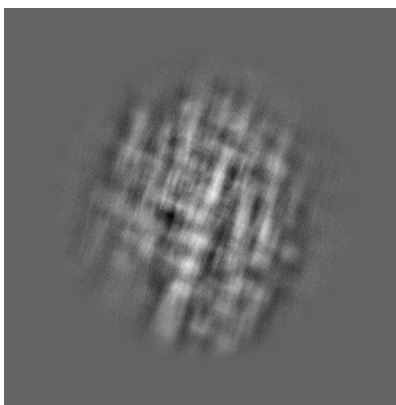


Z

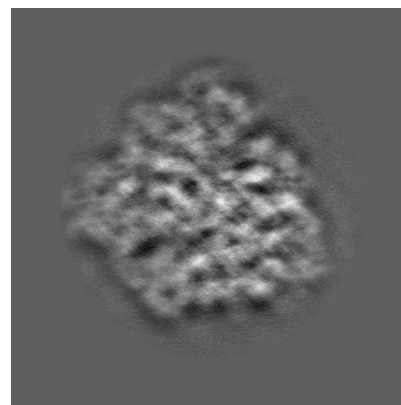
6.1.2 Raw map



X



Y

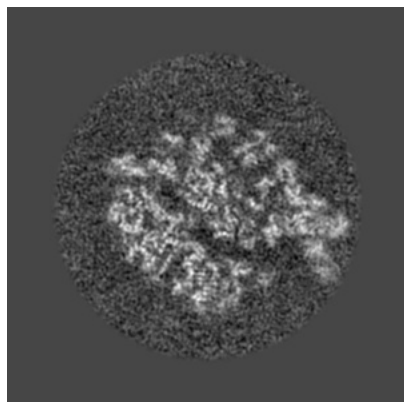


Z

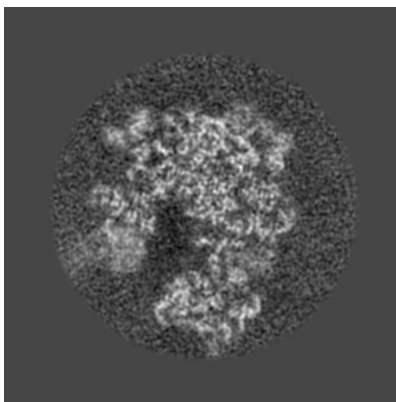
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

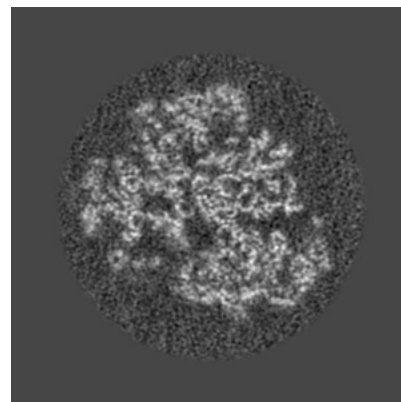
6.2.1 Primary map



X Index: 240

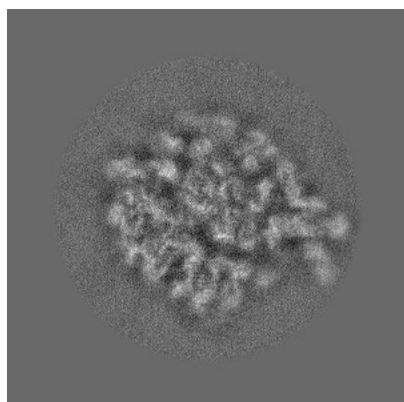


Y Index: 240

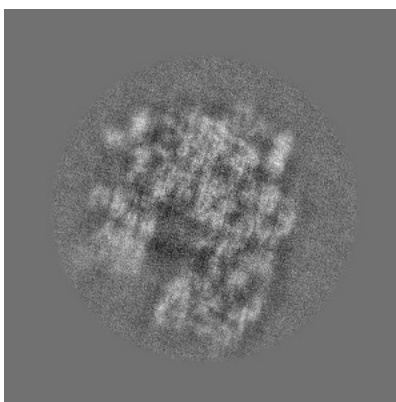


Z Index: 240

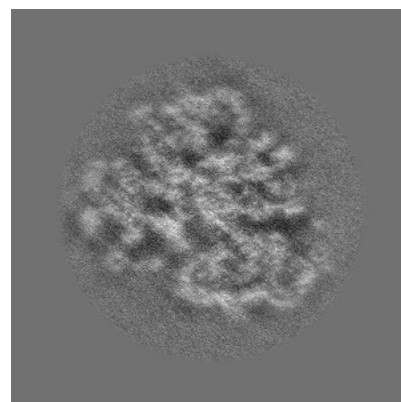
6.2.2 Raw map



X Index: 240



Y Index: 240

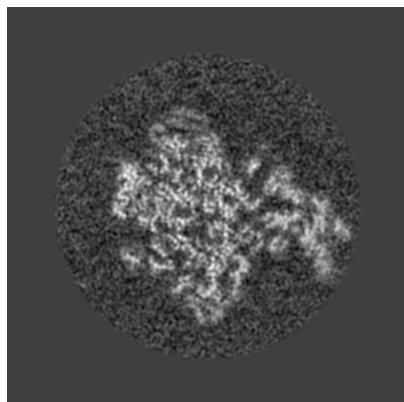


Z Index: 240

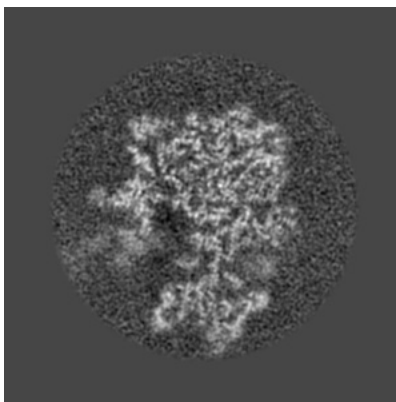
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

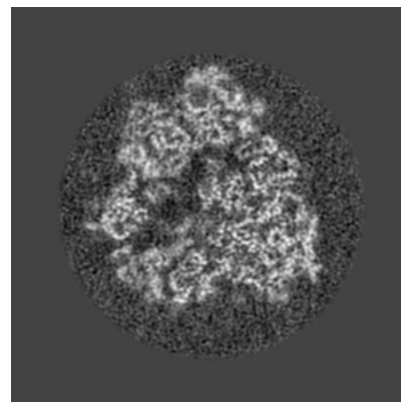
6.3.1 Primary map



X Index: 251

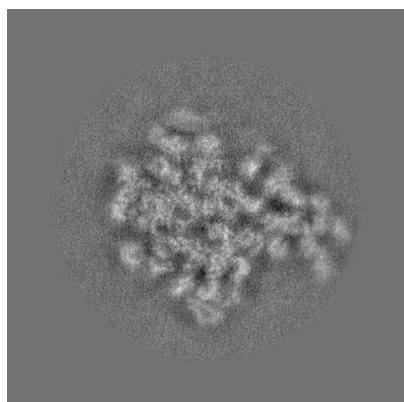


Y Index: 249

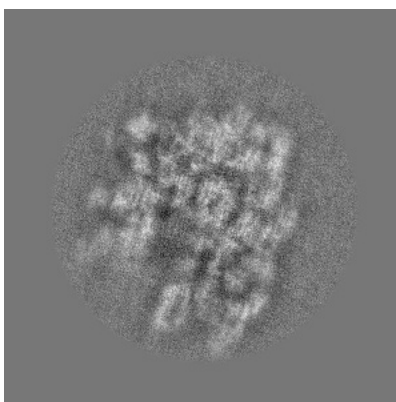


Z Index: 220

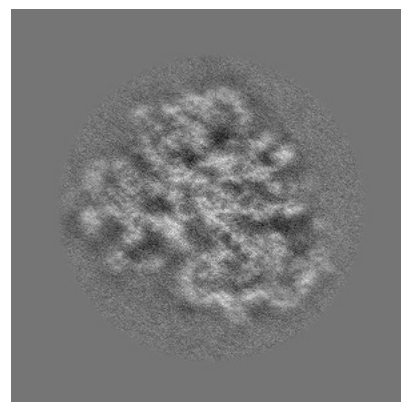
6.3.2 Raw map



X Index: 251



Y Index: 245

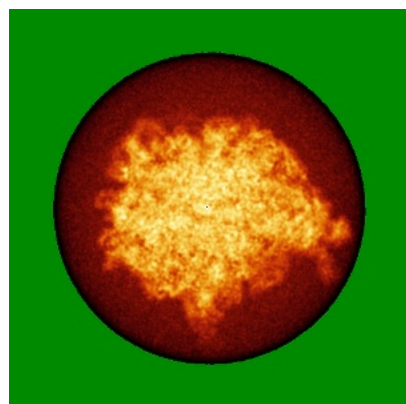


Z Index: 241

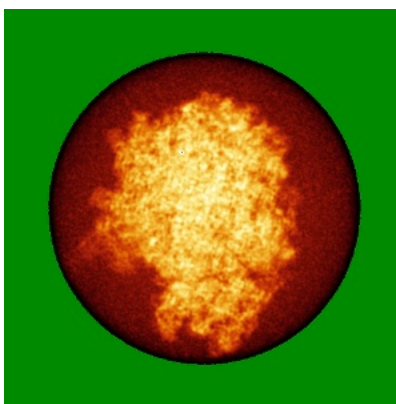
The images above show the largest variance slices of the map in three orthogonal directions.

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

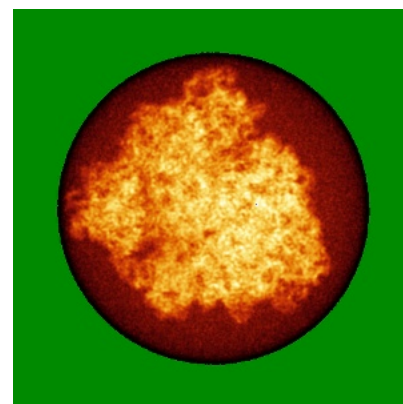
6.4.1 Primary map



X

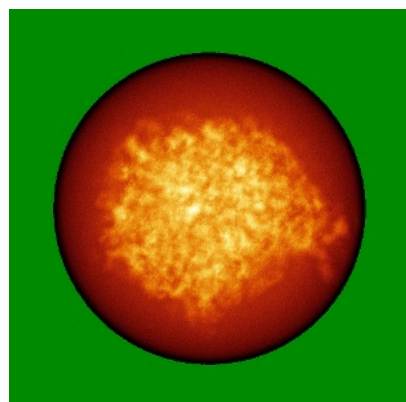


Y

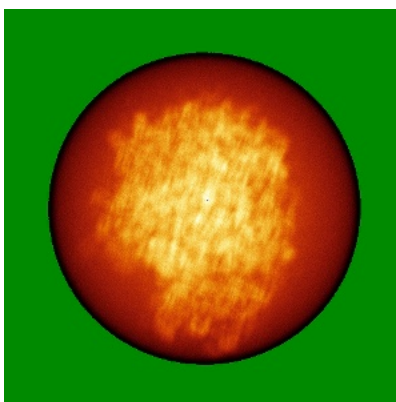


Z

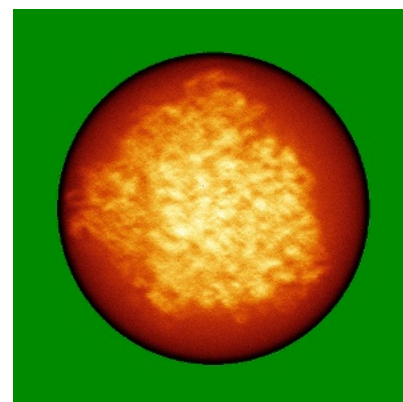
6.4.2 Raw map



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.

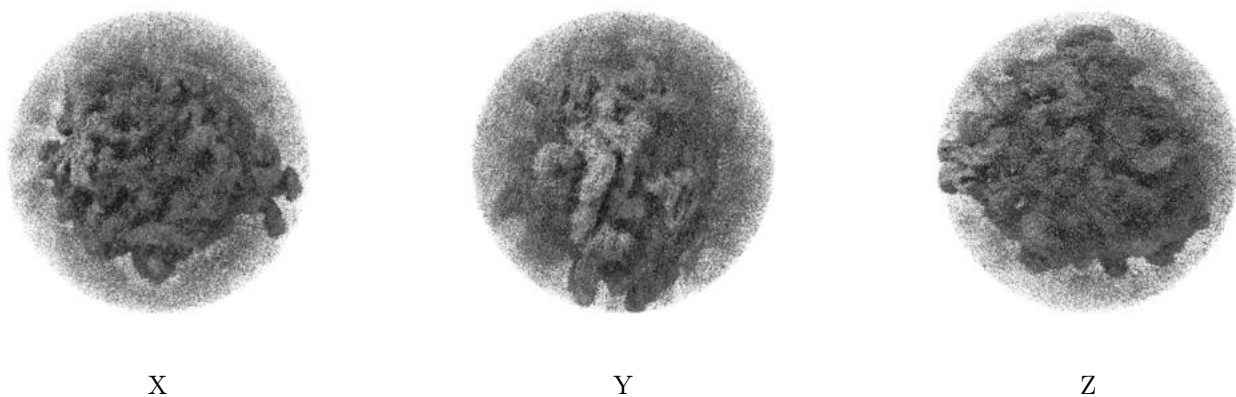
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.85. 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.

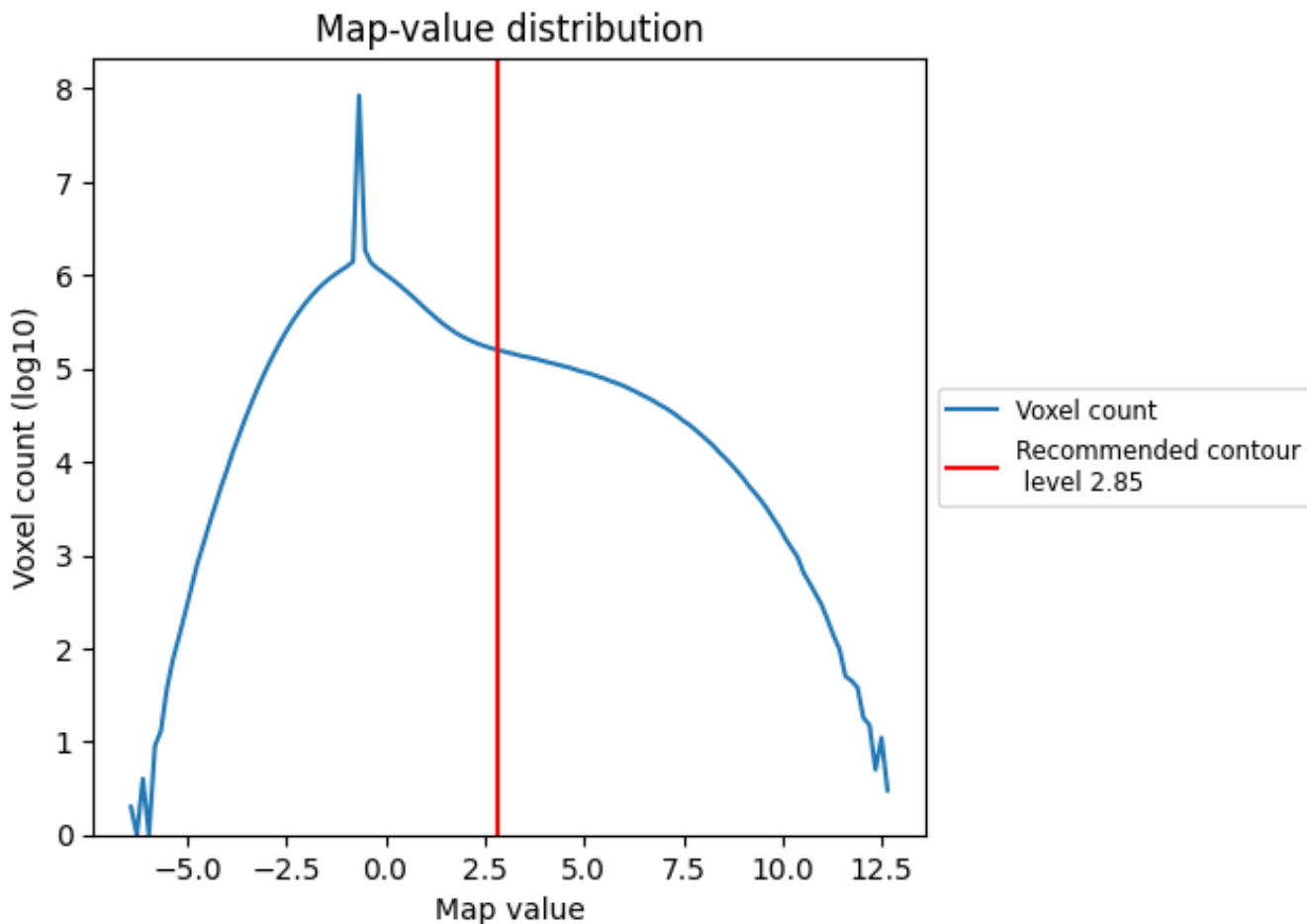
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

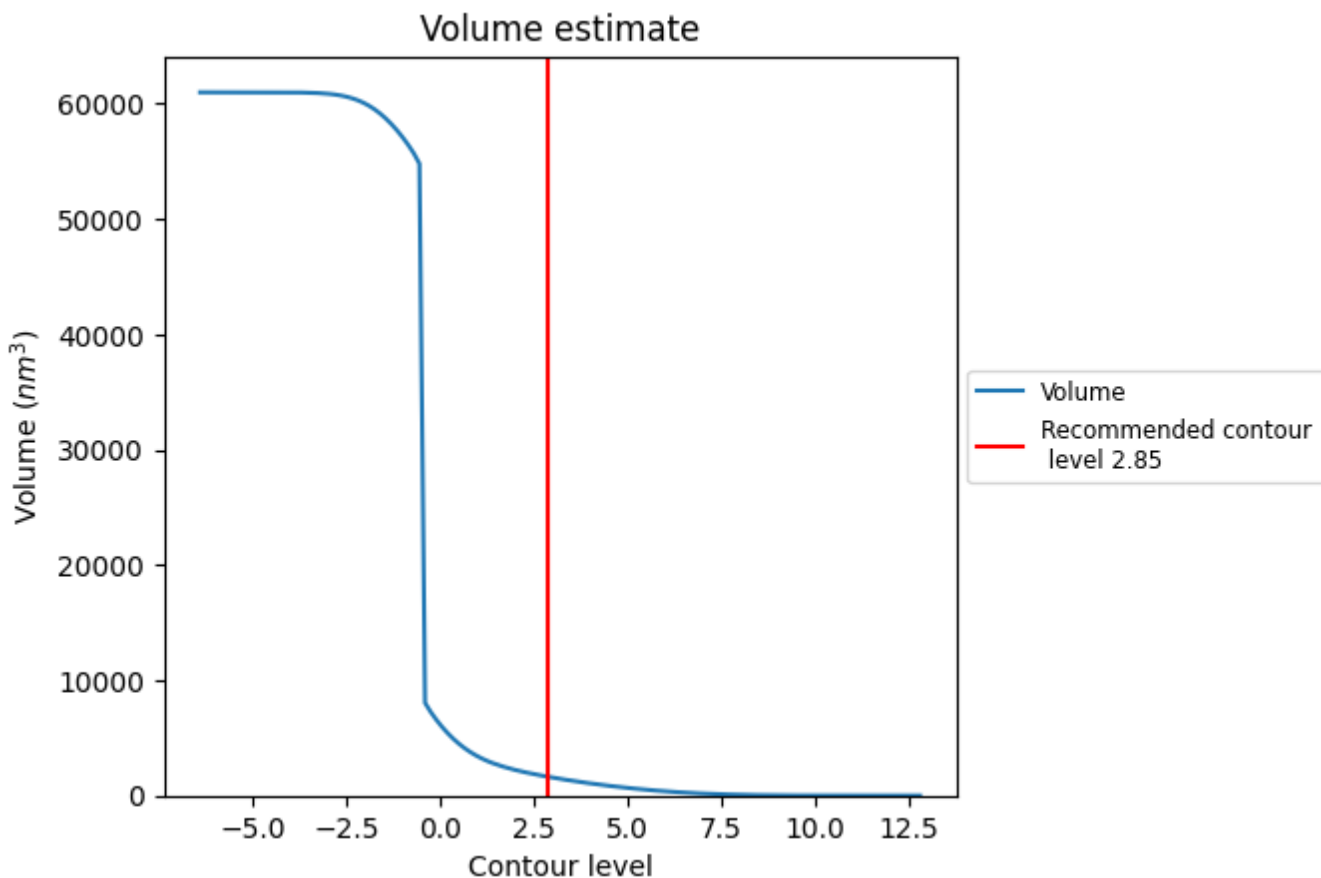
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

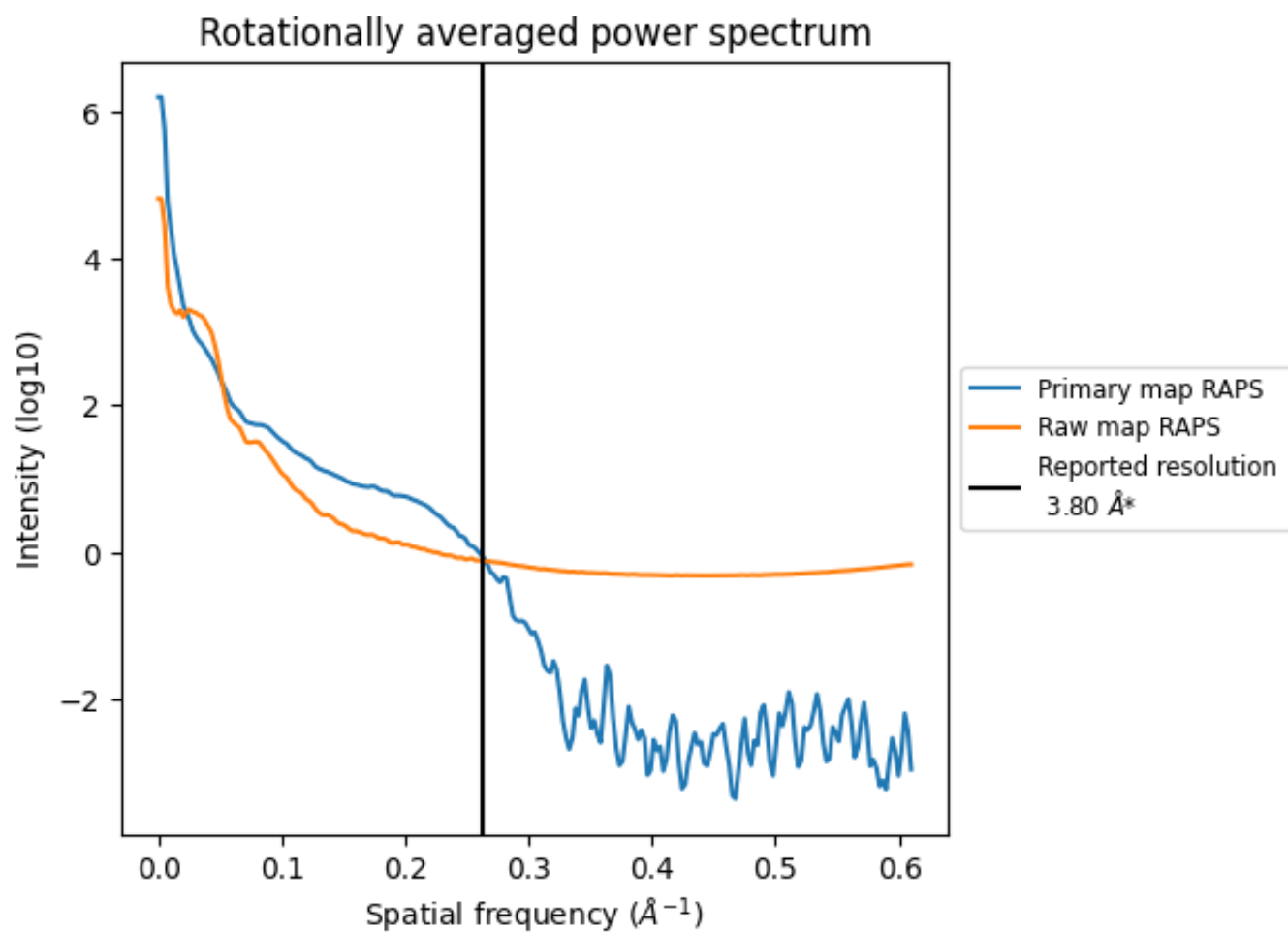
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1643 nm³; this corresponds to an approximate mass of 1484 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

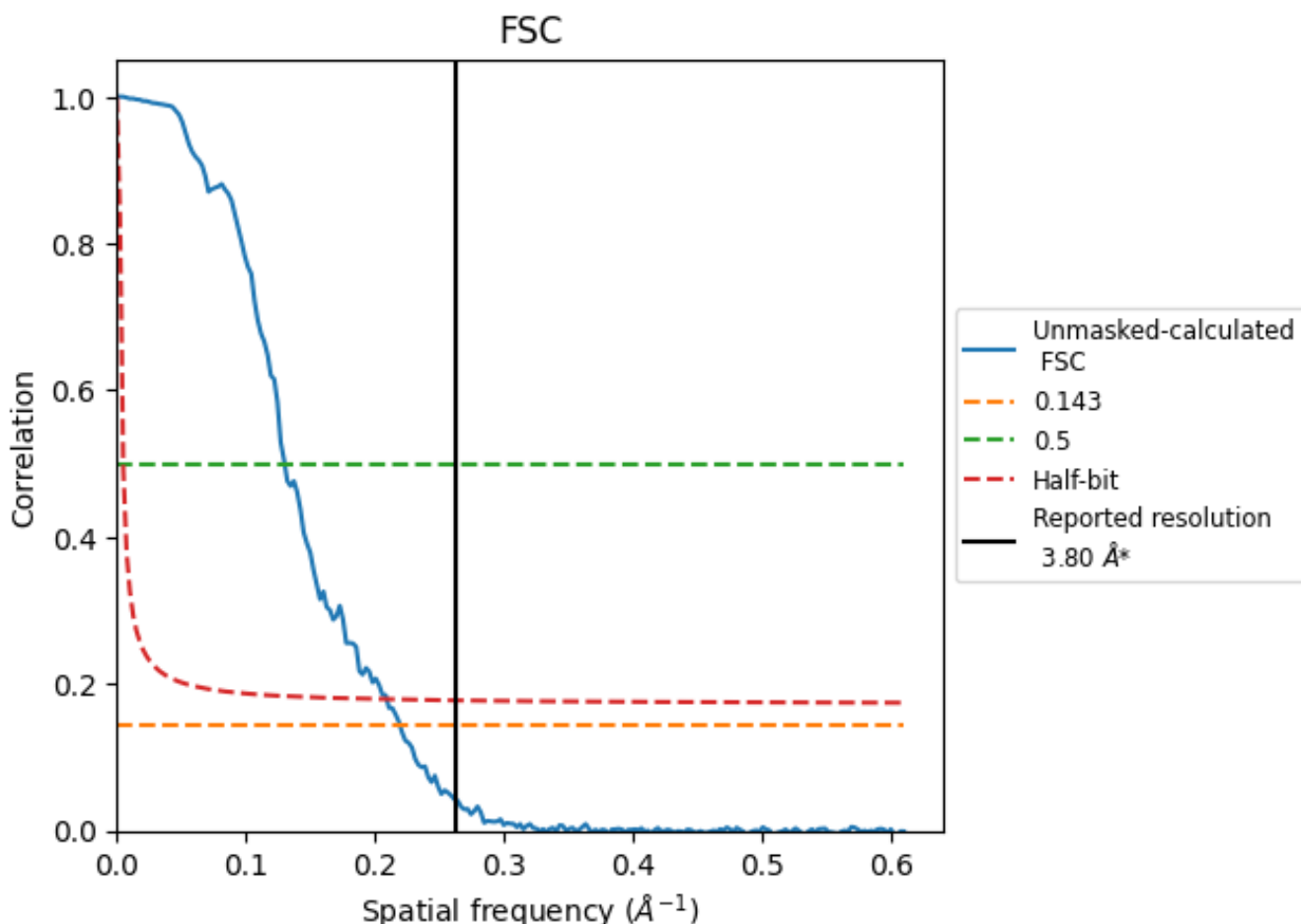


*Reported resolution corresponds to spatial frequency of 0.263 Å⁻¹

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 0.263 Å⁻¹

8.2 Resolution estimates [i](#)

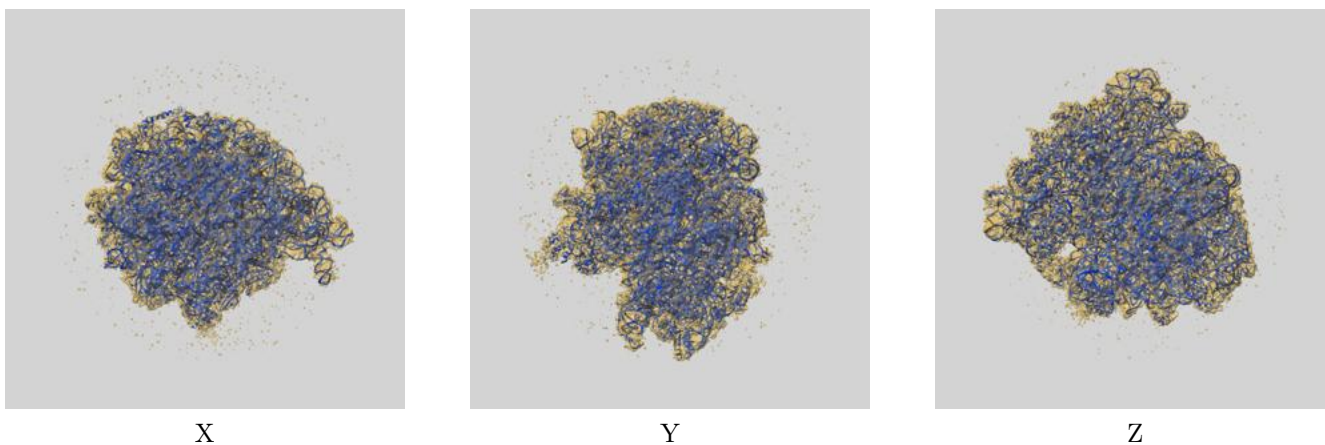
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.56	7.69	4.78

*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 4.56 differs from the reported value 3.8 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-8620 and PDB model 5UYQ. Per-residue inclusion information can be found in section 3 on page 17.

9.1 Map-model overlay [i](#)



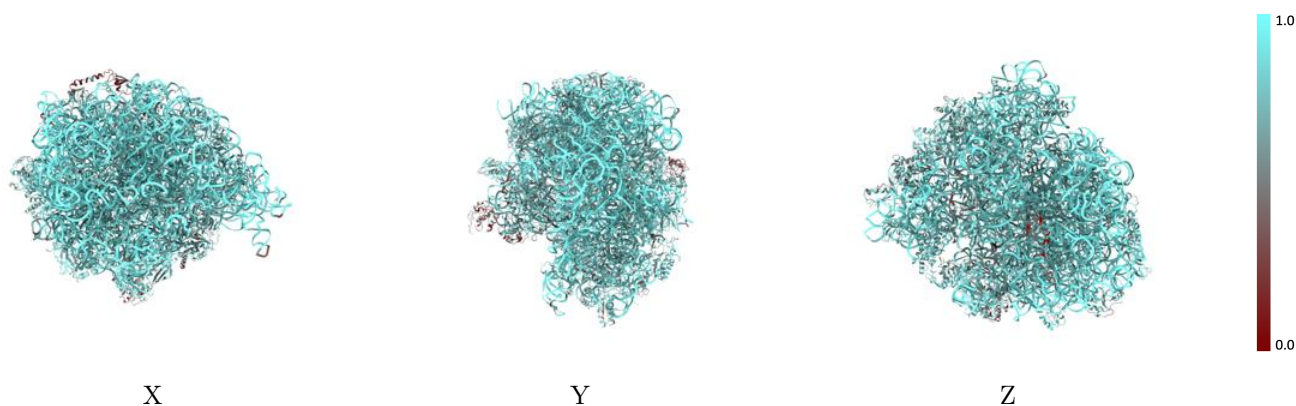
The images above show the 3D surface view of the map at the recommended contour level 2.85 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



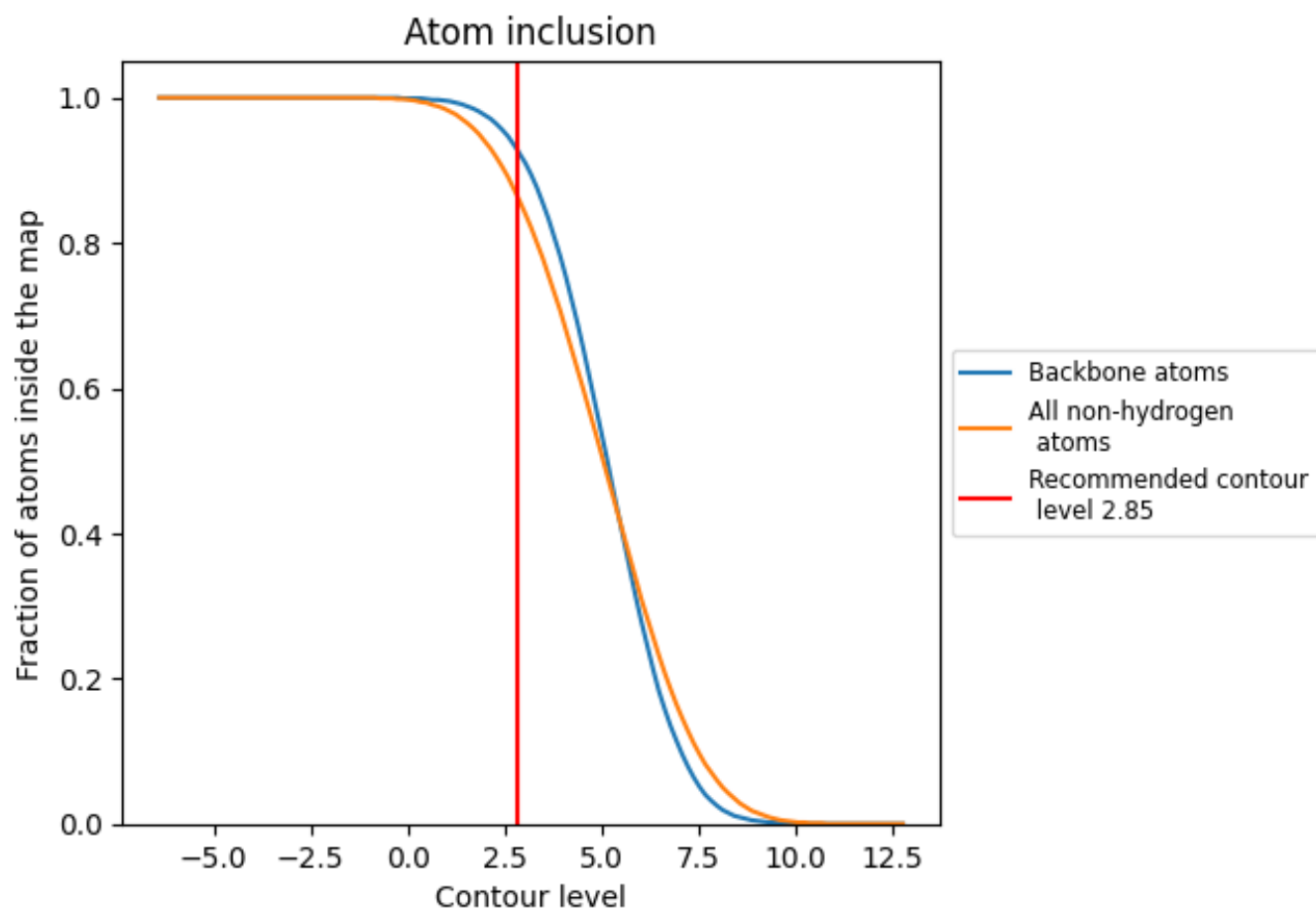
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.85).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 86% 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 (2.85) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8630	 0.3510
01	 0.9390	 0.3650
02	 0.9390	 0.3420
03	 0.5720	 0.2270
04	 0.7880	 0.3960
05	 0.7480	 0.3970
06	 0.7510	 0.3560
07	 0.7620	 0.3230
08	 0.7760	 0.3490
09	 0.3810	 0.2820
10	 0.3960	 0.2190
11	 0.4750	 0.2300
12	 0.7540	 0.3650
13	 0.6560	 0.3860
14	 0.7830	 0.3670
15	 0.6830	 0.3780
16	 0.8080	 0.3710
17	 0.7990	 0.3370
18	 0.7170	 0.3750
19	 0.8050	 0.3640
20	 0.7750	 0.3860
21	 0.7460	 0.3710
22	 0.7790	 0.3610
23	 0.7920	 0.3470
24	 0.7670	 0.3550
25	 0.7570	 0.4010
26	 0.7540	 0.3720
27	 0.8010	 0.3120
28	 0.7600	 0.3810
29	 0.7790	 0.3040
30	 0.7970	 0.3740
31	 0.7210	 0.3340
32	 0.7970	 0.3730
33	 0.8250	 0.4000
34	 0.7940	 0.3930



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Chain	Atom inclusion	Q-score
A	 0.9340	 0.3520
B	 0.6920	 0.3210
C	 0.7320	 0.3580
D	 0.6910	 0.2980
E	 0.7510	 0.3560
F	 0.7630	 0.3650
G	 0.7080	 0.3150
H	 0.7720	 0.3720
I	 0.7840	 0.3360
J	 0.6710	 0.3120
K	 0.7810	 0.3530
L	 0.6920	 0.3640
M	 0.7690	 0.3270
N	 0.7760	 0.3410
O	 0.7780	 0.3530
P	 0.7930	 0.3310
Q	 0.7430	 0.3420
R	 0.8020	 0.3570
S	 0.8170	 0.3490
T	 0.7720	 0.3090
U	 0.6060	 0.3210
V	 0.7390	 0.3100
W	 0.8730	 0.3330
X	 0.6650	 0.2080
Y	 0.7930	 0.2760
Z	 0.6840	 0.2940