



Full wwPDB EM Validation Report ⓘ

Jun 25, 2026 – 05:53 pm BST

PDB ID : 9QQP / pdb_00009qqp
EMDB ID : EMD-53310
Title : Mouse Ribosome rotated-2 PRE state
Authors : Santo, P.E.; Astier, A.; Plisson-Chastang, C.
Deposited on : 2025-04-01
Resolution : 2.80 Å(reported)
Based on initial model : 7LS1

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

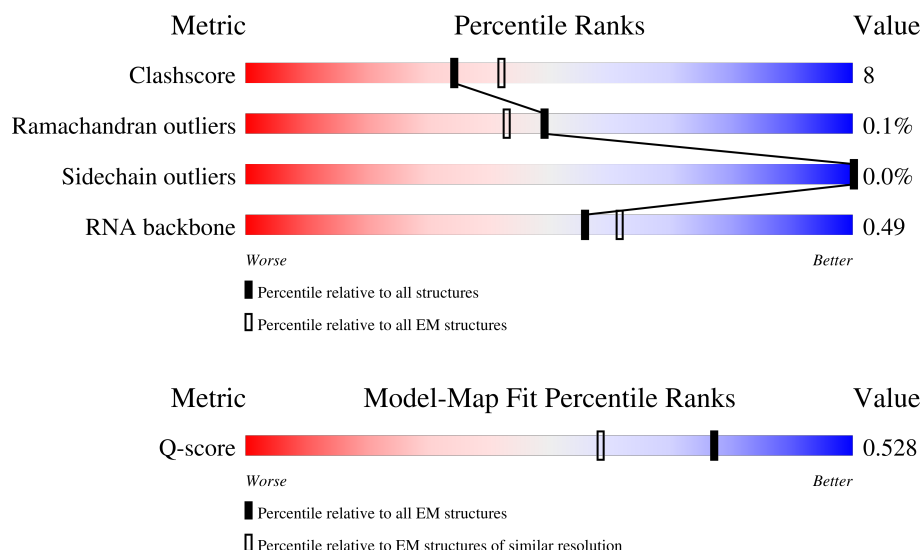
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.80 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	11806 (2.30 - 3.30)

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	A1	270	8% 62% 20% 18%
2	A2	3615	22% 56% 36% 5%
3	A3	152	22% 61% 30% 9%

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Mol	Chain	Length	Quality of chain
4	B1	266	
5	B2	121	
6	B3	145	
7	Bv	76	
8	Bx	10	
9	By	22	
10	C1	192	
11	C2	156	
12	C3	119	
13	D1	214	
14	D2	257	
15	D3	83	
16	E1	178	
17	E2	403	
18	E3	143	
19	F1	211	
20	F2	419	
21	F3	115	
22	G1	217	
23	G2	297	
24	G3	69	
25	H1	204	
26	H2	296	
27	H3	56	
28	I2	203	

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Mol	Chain	Length	Quality of chain
29	I3	317	
30	J2	184	
31	J3	293	
32	K2	188	
33	K3	249	
34	L2	196	
35	L3	194	
36	M2	176	
37	M3	132	
38	N2	160	
39	N3	151	
40	O2	128	
41	O3	151	
42	P2	140	
43	P3	130	
44	Q2	157	
45	Q3	133	
46	R2	156	
47	R3	125	
48	S2	145	
49	S3	84	
50	T2	136	
51	T3	133	
52	U2	148	
53	V2	160	

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Mol	Chain	Length	Quality of chain
54	W2	115	
55	X2	125	
56	Y2	135	
57	Z2	110	
58	a2	117	
59	b2	123	
60	c2	105	
61	d2	97	
62	e2	70	
63	f2	51	
64	g2	128	
65	h2	25	
66	i2	106	
67	j2	92	
68	k2	137	
69	m2	1635	
70	n2	73	
71	o2	295	
72	p2	264	
73	q2	243	
74	r2	257	
75	s2	204	
76	t2	194	
77	u2	208	
78	v2	165	

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Mol	Chain	Length	Quality of chain
79	w2	158	17% 65% 22% 13%
80	x2	145	25% 63% 24% 12%
81	y2	146	30% 62% 33% 5%
82	z2	135	53% 64% 29% 7%

2 Entry composition

There are 85 unique types of molecules in this entry. The entry contains 206901 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 Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A1	222	Total	C	N	O	S	0	0
			1843	1185	353	297	8		

- Molecule 2 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A2	3512	Total	C	N	O	P	0	0
			75341	33588	13744	24498	3511		

- Molecule 3 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A3	139	Total	C	N	O	S	0	0
			1154	725	233	195	1		

- Molecule 4 is a protein called Large ribosomal subunit protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B1	217	Total	C	N	O	S	1	0
			1764	1127	340	293	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	B2	119	Total	C	N	O	P	0	0
			2538	1132	454	834	118		

- Molecule 6 is a protein called 40S ribosomal protein S19 (eS19).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	B3	140	Total	C	N	O	S	0	0
			1091	686	210	192	3		

- Molecule 7 is a RNA chain called transfer RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Bv	66	Total	C	N	O	P	0	0
			1412	629	255	462	66		

- Molecule 8 is a RNA chain called messenger RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Bx	10	Total	C	N	O	P	0	0
			200	90	20	80	10		

- Molecule 9 is a protein called Nascent protein chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	By	22	Total	C	N	O	0	0
			110	66	22	22		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
10	C1	190	Total	C	N	O	S	0	0
			1519	956	284	273	6		

- Molecule 11 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	C2	156	Total	C	N	O	P	0	0
			3315	1481	585	1094	155		

- Molecule 12 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	C3	97	Total	C	N	O	S	0	0
			769	483	144	138	4		

- Molecule 13 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	D1	204	Total	C	N	O	S	0	0
			1656	1052	319	272	13		

- Molecule 14 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D2	245	Total	C	N	O	S	0	0
			1876	1177	383	310	6		

- Molecule 15 is a protein called 40S ribosomal protein S21 (eS21).

Mol	Chain	Residues	Atoms					AltConf	Trace
15	D3	83	Total	C	N	O	S	0	0
			589	369	111	104	5		

- Molecule 16 is a protein called Large ribosomal subunit protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	E1	174	Total	C	N	O	S	0	0
			1397	880	260	251	6		

- Molecule 17 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	E2	402	Total	C	N	O	S	0	0
			3238	2060	609	555	14		

- Molecule 18 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	E3	139	Total	C	N	O	S	0	0
			1080	682	214	181	3		

- Molecule 19 is a protein called Large ribosomal subunit protein eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	F1	203	Total	C	N	O	S	0	0
			1643	1029	339	271	4		

- Molecule 20 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	F2	352	Total	C	N	O	S	0	0
			2823	1776	566	466	15		

- Molecule 21 is a protein called Small ribosomal subunit protein eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	F3	97	Total	C	N	O	S	0	0
			774	481	160	128	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F3	102	PRO	ARG	conflict	UNP P62855

- Molecule 22 is a protein called Large ribosomal subunit protein eL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	G1	139	Total	C	N	O	S	0	0
			1143	732	221	183	7		

- Molecule 23 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	G2	293	Total	C	N	O	S	0	0
			2389	1509	441	425	14		

- Molecule 24 is a protein called Small ribosomal subunit protein eS28.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	G3	56	Total	C	N	O	S	0	0
			435	267	85	81	2		

- Molecule 25 is a protein called Large ribosomal subunit protein eL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	H1	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 26 is a protein called Large ribosomal subunit protein eL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	H2	218	Total	C	N	O	S	0	0
			1766	1130	337	295	4		

- Molecule 27 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	H3	51	Total	C	N	O	S	0	0
			427	269	87	66	5		

- Molecule 28 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	I2	198	Total	C	N	O	S	0	0
			1618	1043	316	253	6		

- Molecule 29 is a protein called Small ribosomal subunit protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	I3	234	Total	C	N	O	S	0	0
			1800	1135	318	337	10		

- Molecule 30 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	J2	153	Total	C	N	O	S	0	0
			1242	777	241	215	9		

- Molecule 31 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	J3	217	Total	C	N	O	S	0	0
			1590	1039	276	266	9		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J3	61	MET	ILE	conflict	UNP P25444

- Molecule 32 is a protein called Large ribosomal subunit protein eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	K2	186	Total	C	N	O	S	0	0
			1511	946	313	248	4		

- Molecule 33 is a protein called Small ribosomal subunit protein eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	K3	211	Total	C	N	O	S	0	0
			1708	1073	342	286	7		

- Molecule 34 is a protein called Large ribosomal subunit protein eL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	L2	169	Total	C	N	O	S	0	0
			1408	873	304	222	9		

- Molecule 35 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	L3	179	Total	C	N	O	S	0	0
			1495	953	299	241	2		

- Molecule 36 is a protein called Large ribosomal subunit protein eL20.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	M2	175	Total	C	N	O	S	0	0
			1450	924	283	233	10		

- Molecule 37 is a protein called Small ribosomal subunit protein eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	M3	84	Total	C	N	O	S	0	0
			525	332	97	91	5		

- Molecule 38 is a protein called Large ribosomal subunit protein eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	N2	159	Total	C	N	O	S	0	0
			1299	824	252	217	6		

- Molecule 39 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	N3	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 40 is a protein called Large ribosomal subunit protein eL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	O2	101	Total	C	N	O	S	0	0
			825	529	144	150	2		

- Molecule 41 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	O3	135	Total	C	N	O	S	0	0
			1003	615	198	184	6		

- Molecule 42 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	P2	129	Total	C	N	O	S	0	0
			969	613	182	169	5		

- Molecule 43 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	P3	129	Total	C	N	O	S	0	0
			1027	655	192	174	6		

- Molecule 44 is a protein called Large ribosomal subunit protein eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Q2	62	Total	C	N	O	S	0	0
			519	332	101	83	3		

- Molecule 45 is a protein called Small ribosomal subunit protein eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Q3	121	Total	C	N	O	S	0	0
			981	620	192	164	5		

- Molecule 46 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	R2	118	Total	C	N	O	S	0	0
			967	618	181	167	1		

- Molecule 47 is a protein called Small ribosomal subunit protein eS25.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	R3	73	Total	C	N	O	S	0	0
			585	374	108	102	1		

- Molecule 48 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	S2	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 49 is a protein called Small ribosomal subunit protein eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	S3	79	Total	C	N	O	S	0	0
			618	386	115	110	7		

- Molecule 50 is a protein called Large ribosomal subunit protein eL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	T2	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 51 is a protein called Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	T3	44	Total	C	N	O	S	0	0
			355	218	81	55	1		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T3	55	PRO	ASN	conflict	UNP P62862
T3	56	ASN	VAL	conflict	UNP P62862
T3	57	ALA	VAL	conflict	UNP P62862

- Molecule 52 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	U2	147	Total	C	N	O	S	0	0
			1164	736	239	185	4		

- Molecule 53 is a protein called Large ribosomal subunit protein eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	V2	117	Total	C	N	O	S	0	0
			945	596	198	146	5		

- Molecule 54 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	W2	94	Total	C	N	O	S	0	0
			732	465	130	131	6		

- Molecule 55 is a protein called Large ribosomal subunit protein eL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	X2	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 56 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	Y2	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

- Molecule 57 is a protein called Large ribosomal subunit protein eL33.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	Z2	109	Total	C	N	O	S	0	0
			876	555	174	143	4		

- Molecule 58 is a protein called Large ribosomal subunit protein eL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	a2	107	Total	C	N	O	S	0	0
			854	535	176	137	6		

- Molecule 59 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	b2	120	Total	C	N	O	S	0	0
			1001	634	201	165	1		

- Molecule 60 is a protein called Large ribosomal subunit protein eL36.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	c2	102	Total	C	N	O	S	0	0
			832	521	177	129	5		

- Molecule 61 is a protein called Large ribosomal subunit protein eL37.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	d2	86	Total	C	N	O	S	0	0
			705	434	155	111	5		

- Molecule 62 is a protein called Large ribosomal subunit protein eL38.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	e2	69	Total	C	N	O	S	0	0
			568	365	103	99	1		

- Molecule 63 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	f2	50	Total	C	N	O	S	0	0
			444	281	98	64	1		

- Molecule 64 is a protein called Ubiquitin-ribosomal protein eL40 fusion protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	g2	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 65 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	h2	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 66 is a protein called Large ribosomal subunit protein eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	i2	103	Total	C	N	O	S	0	0
			842	528	172	136	6		

- Molecule 67 is a protein called Large ribosomal subunit protein eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	j2	89	Total	C	N	O	S	0	0
			694	436	133	118	7		

- Molecule 68 is a protein called Large ribosomal subunit protein eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	k2	125	Total	C	N	O	S	0	0
			1001	621	207	168	5		

- Molecule 69 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	m2	1625	Total	C	N	O	P	0	0
			34736	15523	6240	11348	1625		

- Molecule 70 is a RNA chain called transfer RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	n2	73	Total	C	N	O	P	0	0
			1562	698	291	501	72		

- Molecule 71 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	o2	215	Total	C	N	O	S	0	0
			1704	1083	298	315	8		

- Molecule 72 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	p2	212	Total	C	N	O	S	0	0
			1722	1093	308	307	14		

- Molecule 73 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	q2	213	Total	C	N	O	S	0	0
			1655	1056	301	291	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
q2	195	THR	SER	conflict	UNP P62908

- Molecule 74 is a protein called 40S ribosomal protein S4, X isoform (eS4).

Mol	Chain	Residues	Atoms					AltConf	Trace
74	r2	257	Total	C	N	O	S	0	0
			2031	1298	381	344	8		

- Molecule 75 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	s2	185	Total	C	N	O	S	0	0
			1468	919	277	265	7		

- Molecule 76 is a protein called Small ribosomal subunit protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	t2	174	Total	C	N	O	S	0	0
			1322	857	246	218	1		

- Molecule 77 is a protein called Small ribosomal subunit protein eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	u2	179	Total	C	N	O	S	0	0
			1397	879	274	239	5		

- Molecule 78 is a protein called Small ribosomal subunit protein eS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	v2	83	Total	C	N	O	S	0	0
			705	462	122	115	6		

- Molecule 79 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	w2	138	Total	C	N	O	S	0	0
			1134	722	214	192	6		

- Molecule 80 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	x2	127	Total	C	N	O	S	0	0
			1045	663	198	177	7		

- Molecule 81 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	y2	139	Total	C	N	O	S	0	0
			1109	704	210	192	3		

- Molecule 82 is a protein called Small ribosomal subunit protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	z2	125	Total	C	N	O	S	0	0
			1011	634	187	186	4		

- Molecule 83 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
83	A2	83	Total	Mg	0
			83	83	
83	E3	1	Total	Mg	0
			1	1	
83	H1	1	Total	Mg	0
			1	1	
83	J2	1	Total	Mg	0
			1	1	
83	O3	1	Total	Mg	0
			1	1	
83	P2	1	Total	Mg	0
			1	1	
83	d2	1	Total	Mg	0
			1	1	
83	m2	34	Total	Mg	0
			34	34	

- Molecule 84 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
84	F3	1	Total	Zn	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
84	H3	1	Total 1	Zn 1	0
84	d2	1	Total 1	Zn 1	0
84	g2	1	Total 1	Zn 1	0
84	i2	1	Total 1	Zn 1	0
84	j2	1	Total 1	Zn 1	0

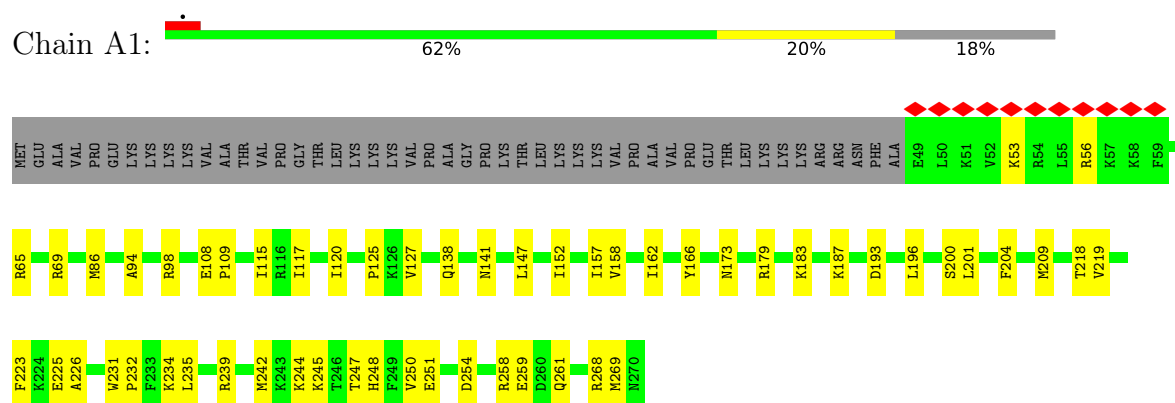
- Molecule 85 is water.

Mol	Chain	Residues	Atoms		AltConf
85	B1	1	Total 1	O 1	0

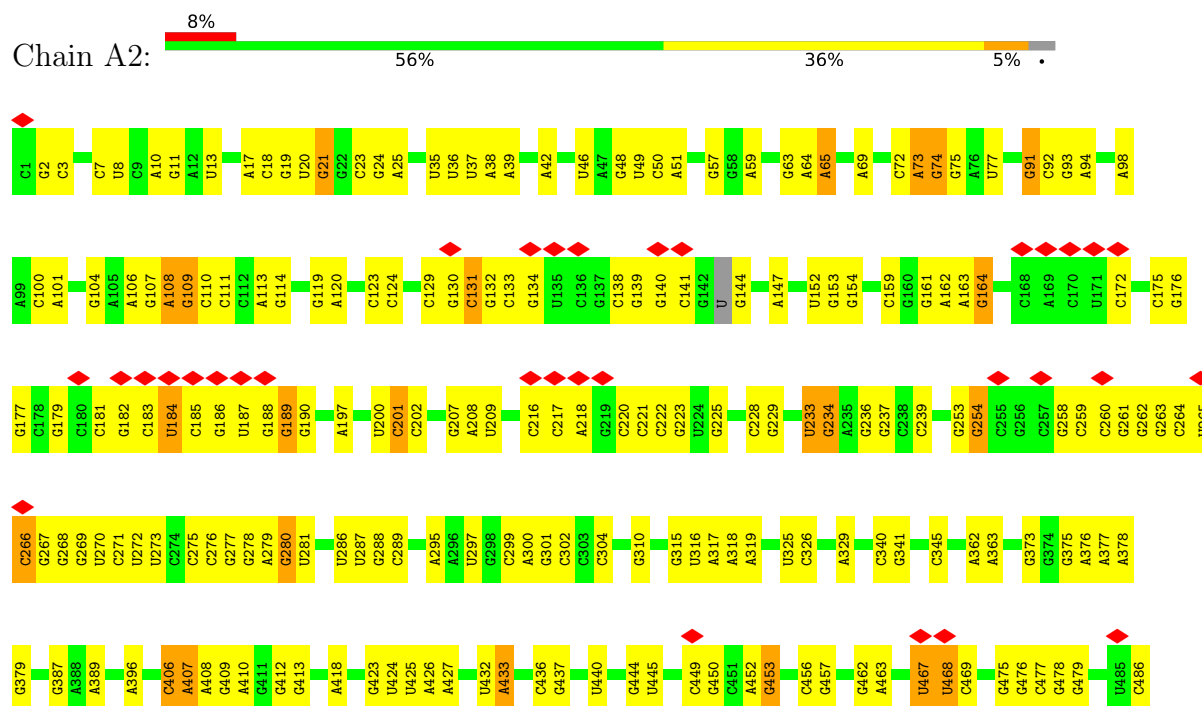
3 Residue-property plots

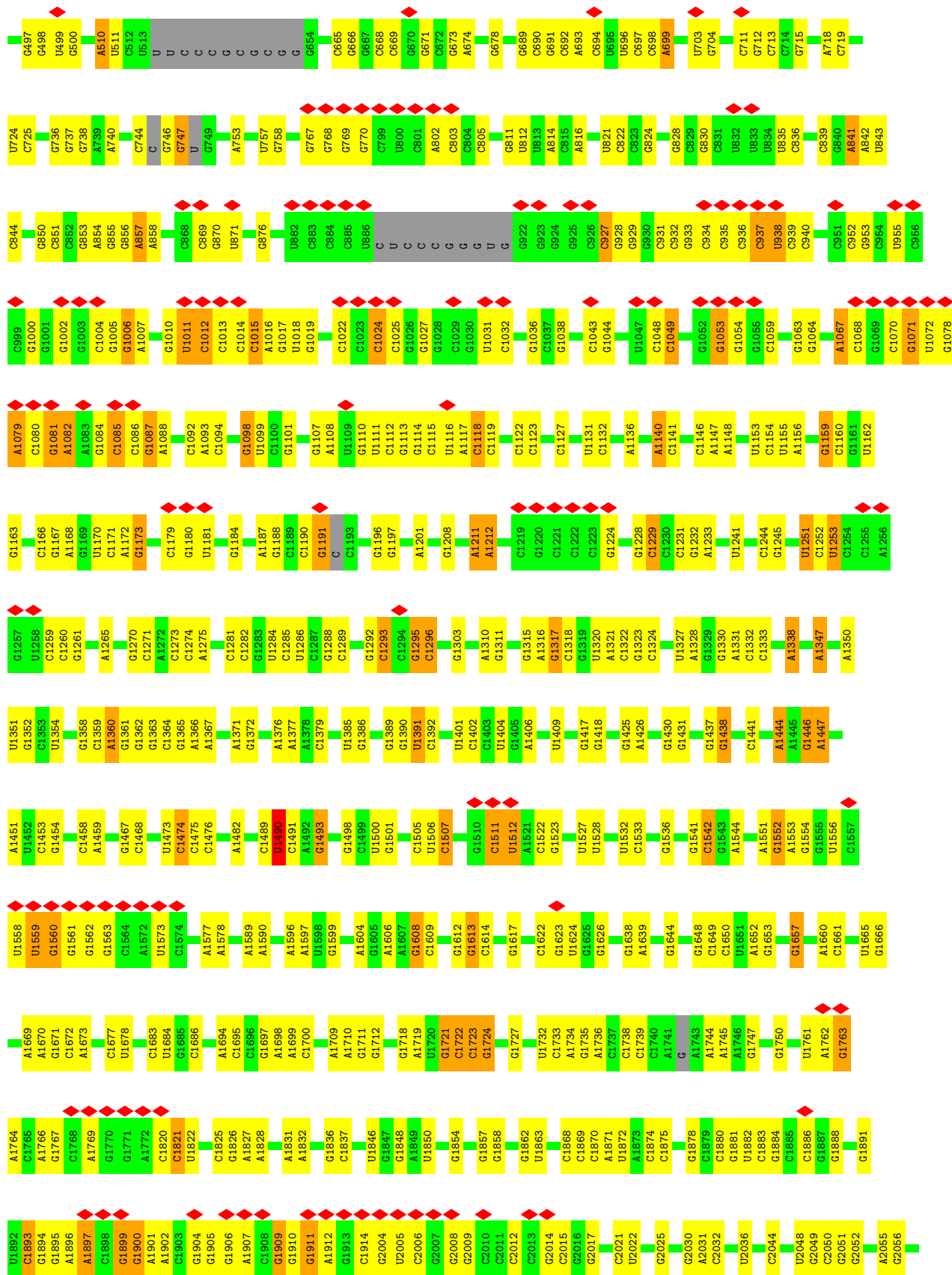
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: Large ribosomal subunit protein uL30

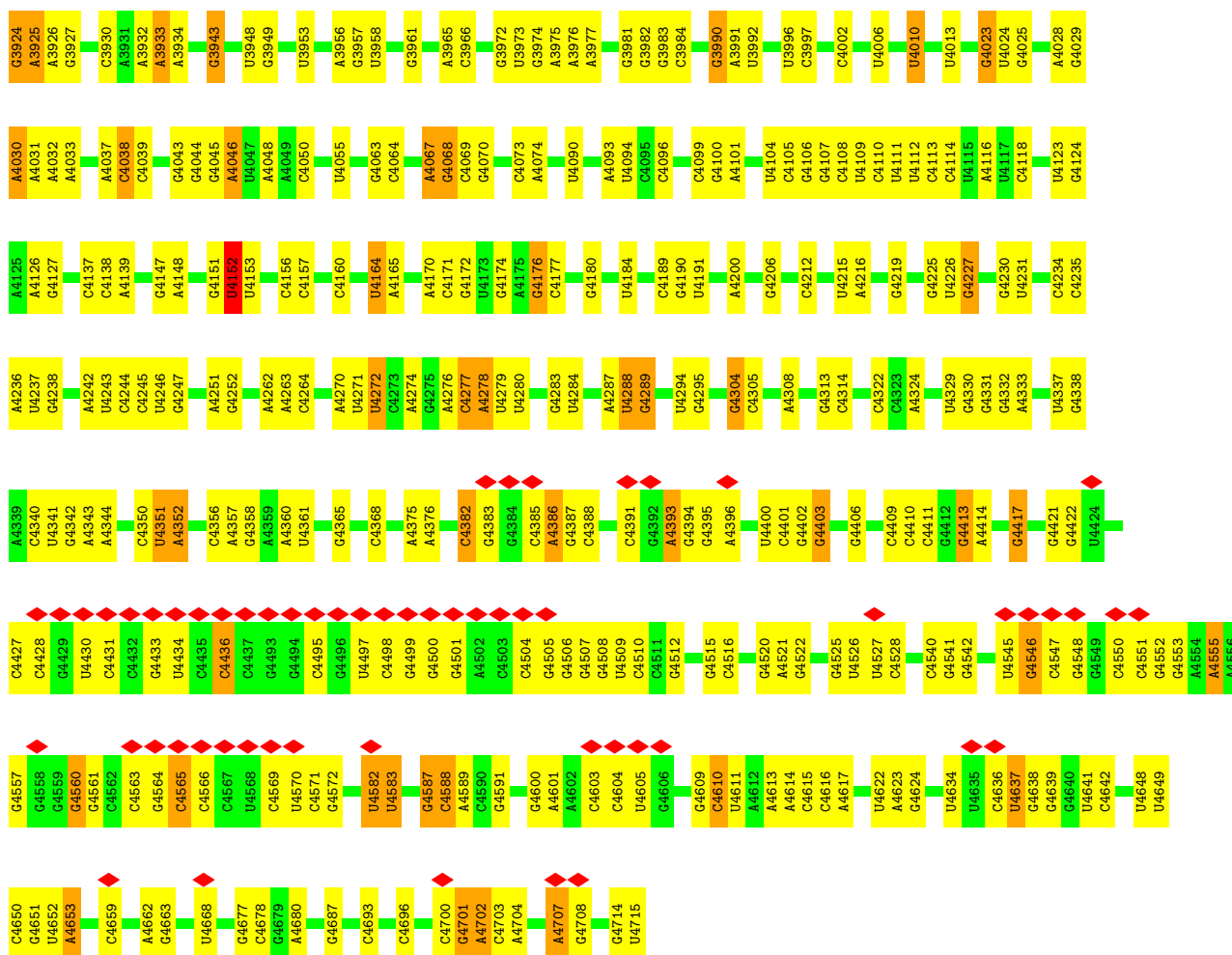


- Molecule 2: 28S ribosomal RNA

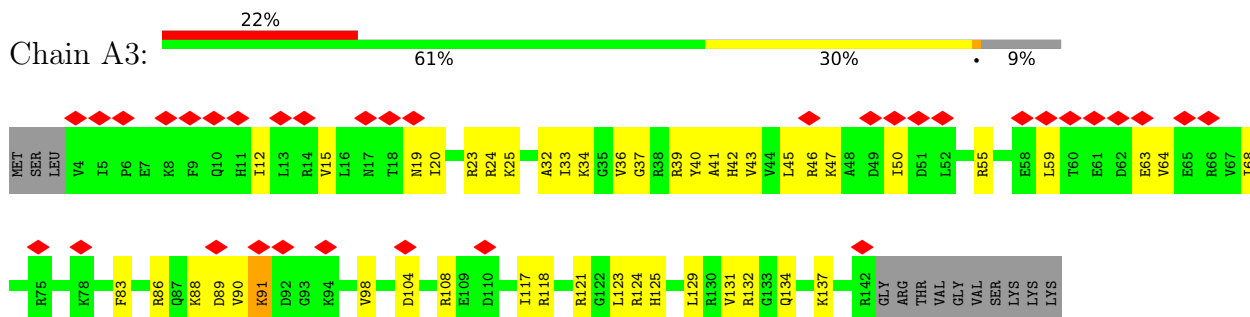




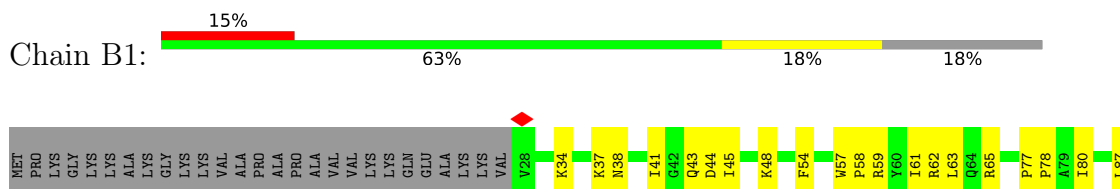


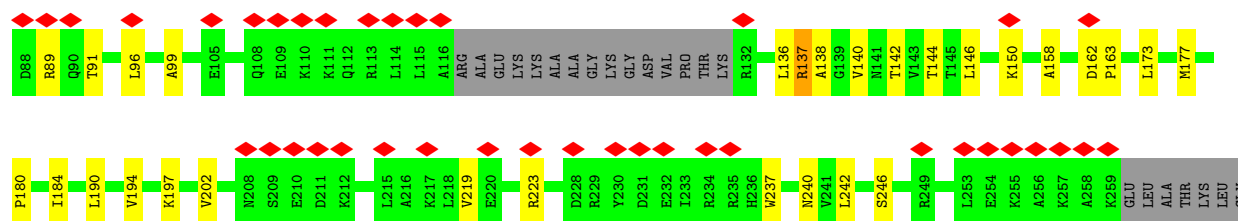


• Molecule 3: Small ribosomal subunit protein uS13



• Molecule 4: Large ribosomal subunit protein eL8





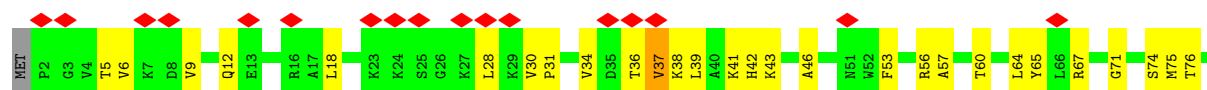
- Molecule 5: 5S ribosomal RNA

Chain B2: 69% 26% ..



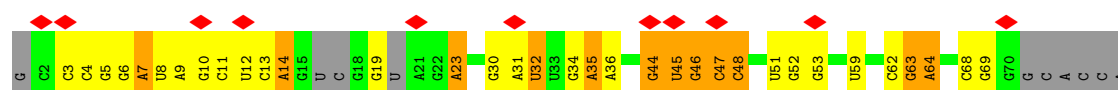
- Molecule 6: 40S ribosomal protein S19 (eS19)

Chain B3: 28% 64% 32% ..



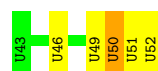
- Molecule 7: transfer RNA

Chain Bv: 14% 42% 29% 16% 13%



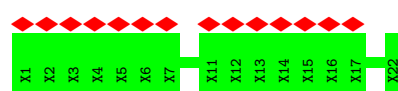
- Molecule 8: messenger RNA

Chain Bx: 50% 40% 10%

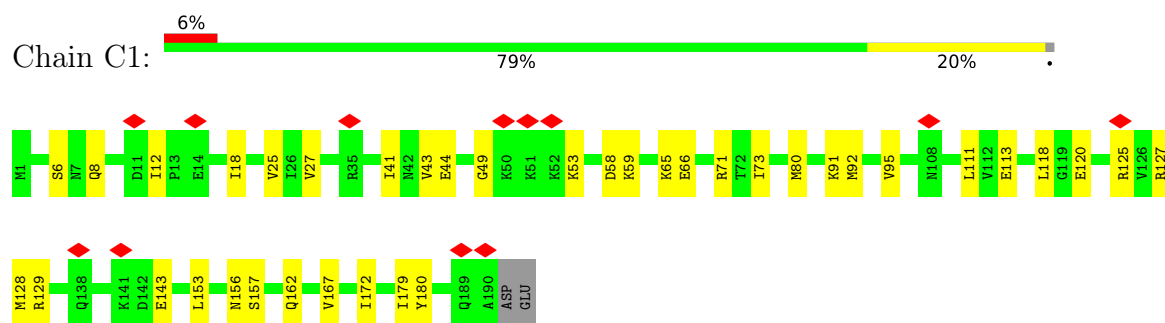


- Molecule 9: Nascent protein chain

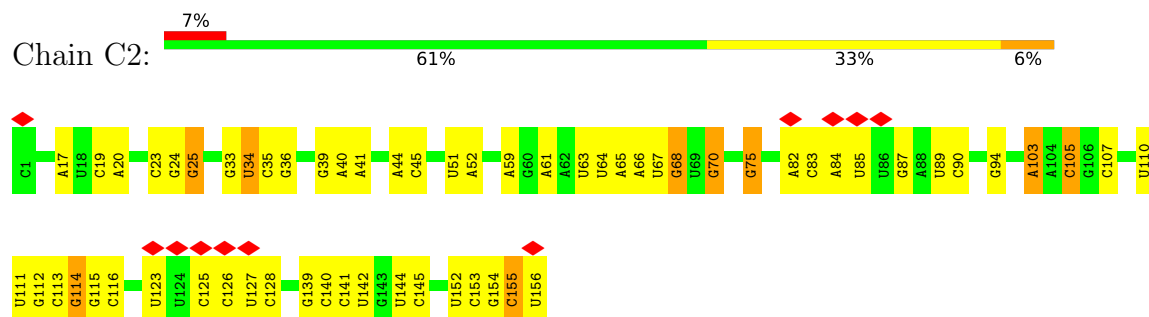
Chain By: 64% 100%



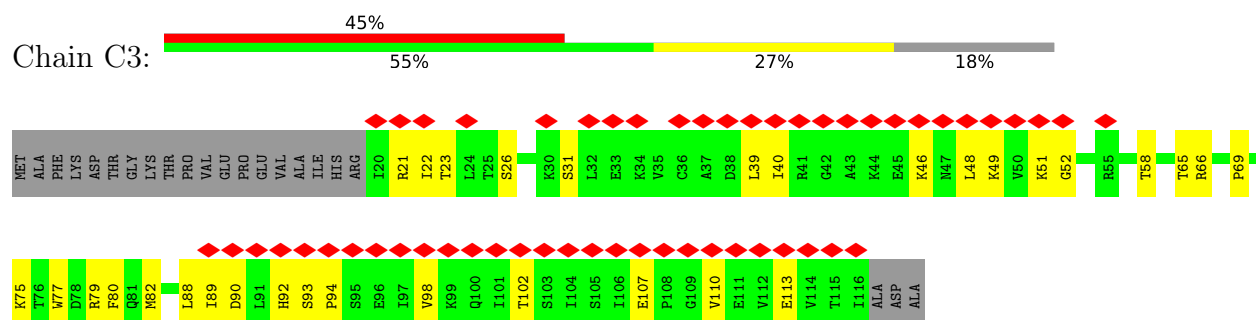
- Molecule 10: Large ribosomal subunit protein uL6



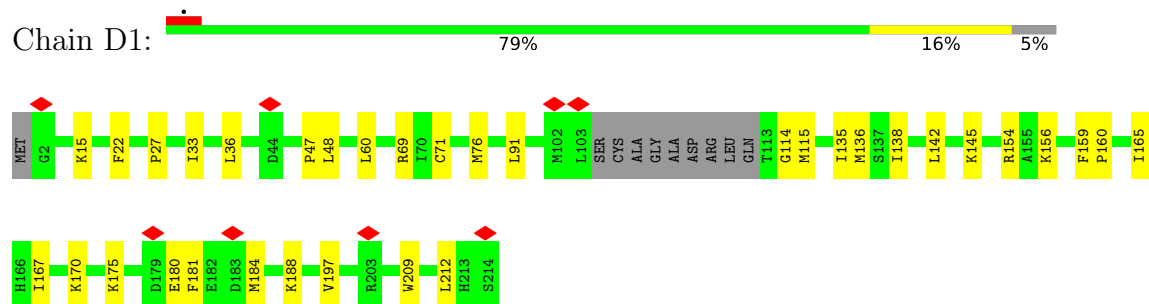
- Molecule 11: 5.8S ribosomal RNA



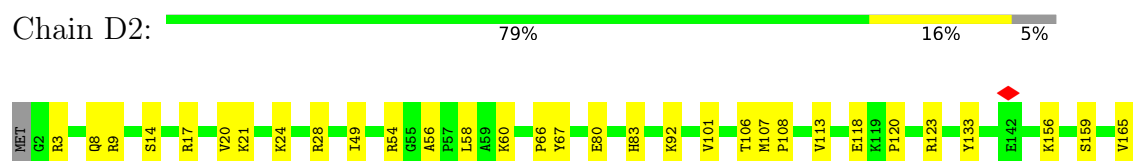
- Molecule 12: Small ribosomal subunit protein uS10

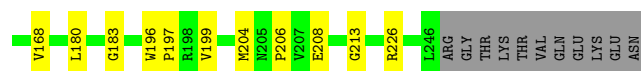


- Molecule 13: Large ribosomal subunit protein uL16

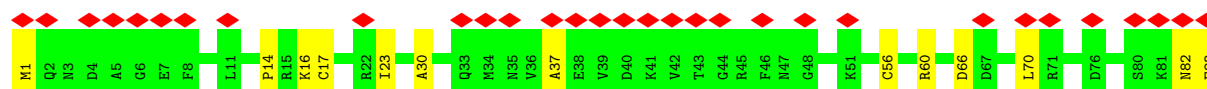
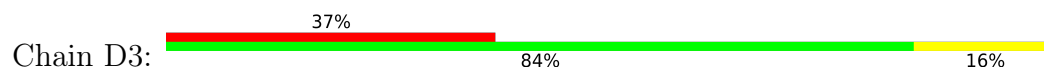


- Molecule 14: Large ribosomal subunit protein uL2

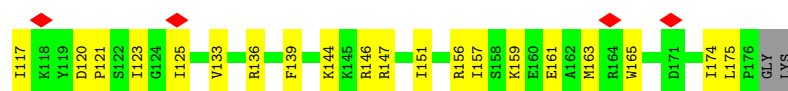
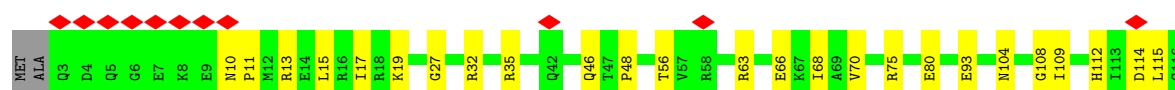
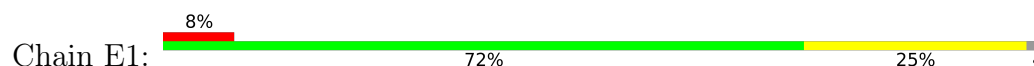




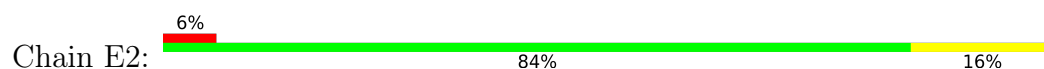
- Molecule 15: 40S ribosomal protein S21 (eS21)



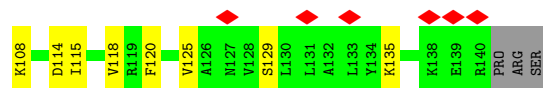
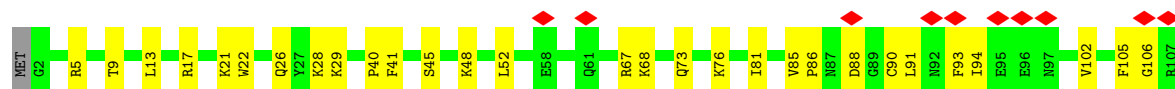
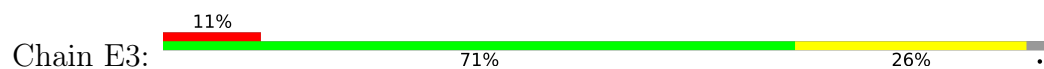
- Molecule 16: Large ribosomal subunit protein uL5



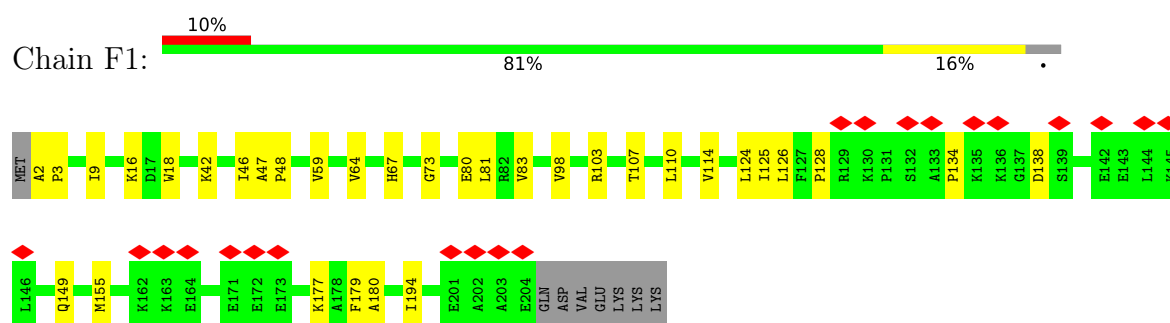
- Molecule 17: Large ribosomal subunit protein uL3



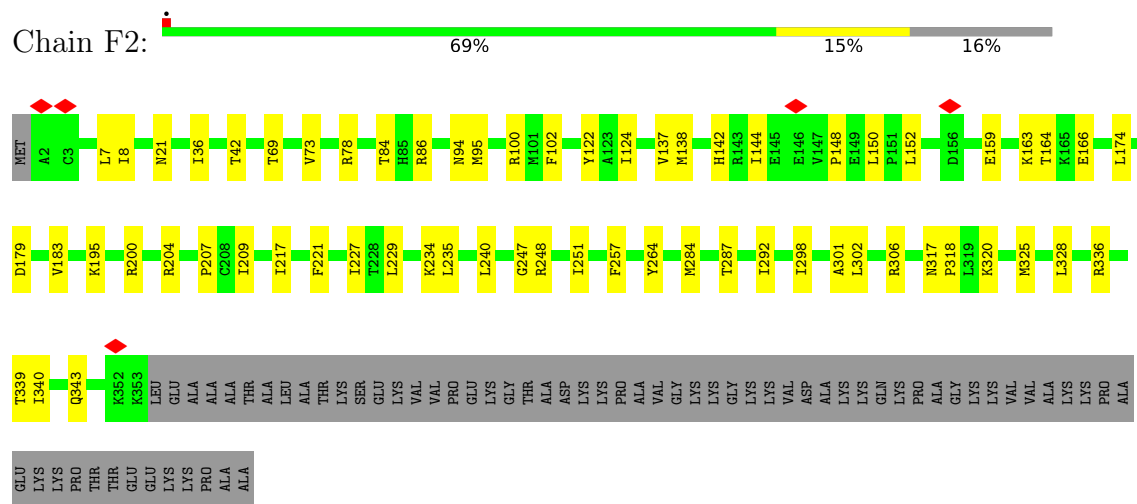
- Molecule 18: Small ribosomal subunit protein uS12



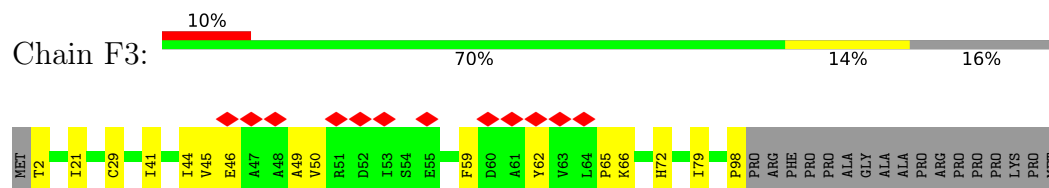
- Molecule 19: Large ribosomal subunit protein eL13



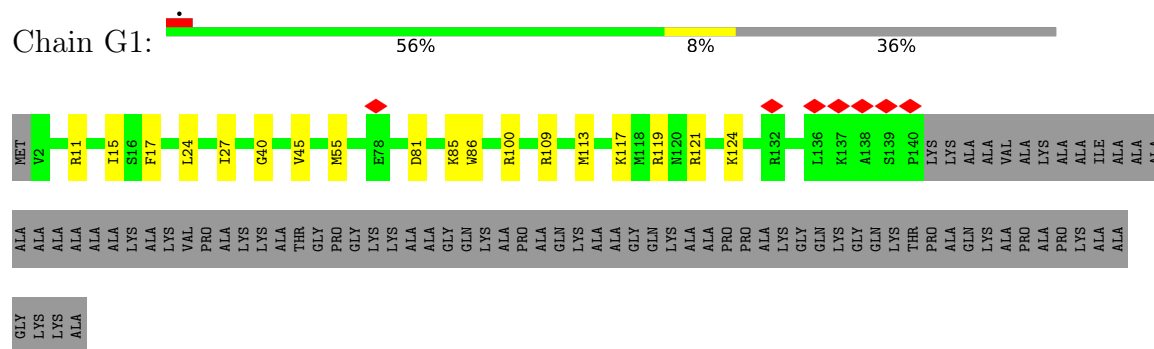
- Molecule 20: Large ribosomal subunit protein uL4



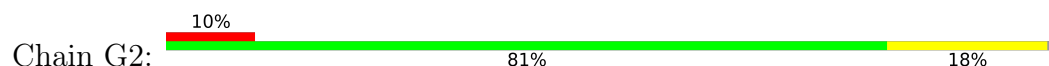
- Molecule 21: Small ribosomal subunit protein eS26

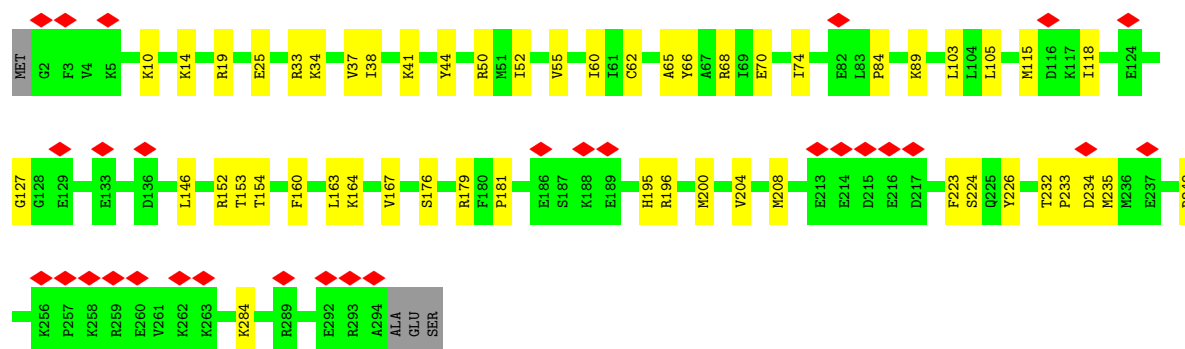


- Molecule 22: Large ribosomal subunit protein eL14

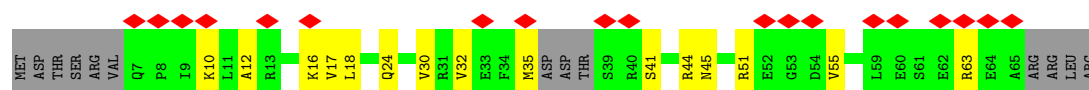


- Molecule 23: Large ribosomal subunit protein uL18

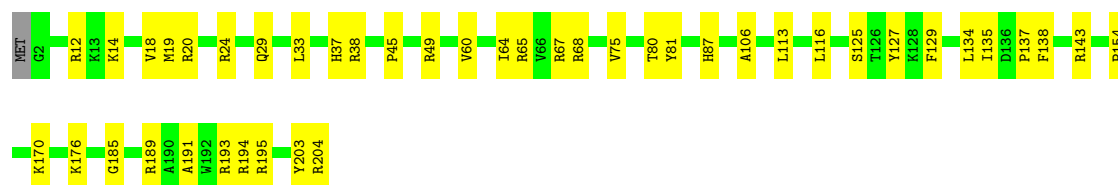
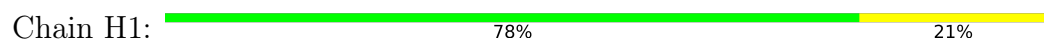




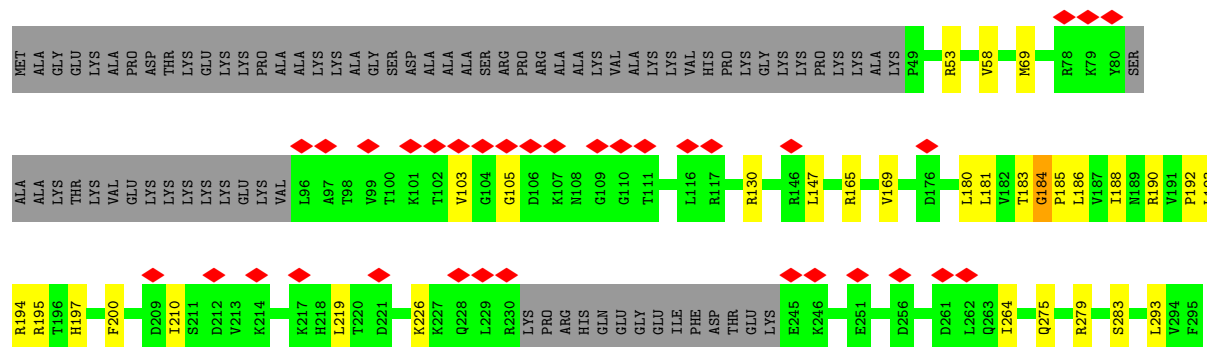
- Molecule 24: Small ribosomal subunit protein eS28



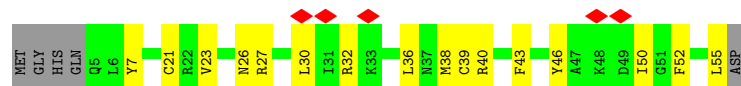
- Molecule 25: Large ribosomal subunit protein eL15

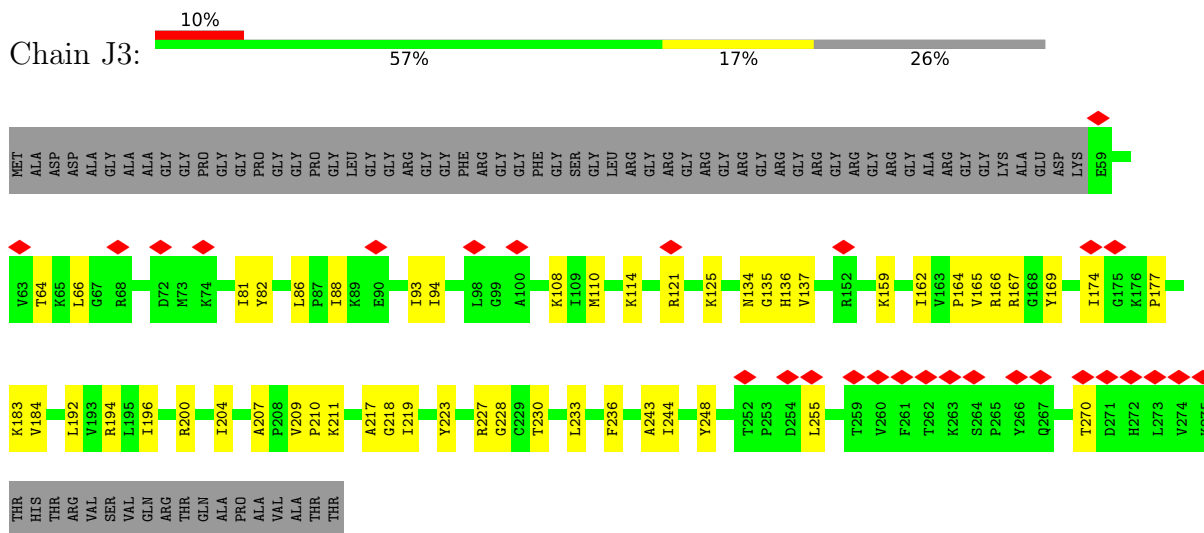


- Molecule 26: Large ribosomal subunit protein eL6

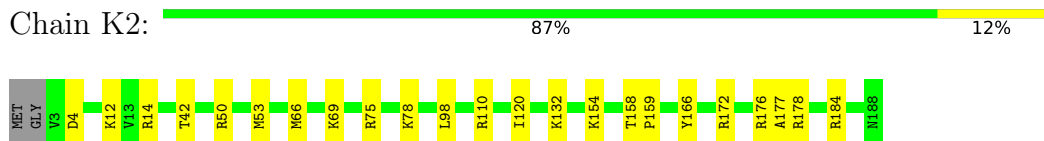


- Molecule 27: Small ribosomal subunit protein uS14

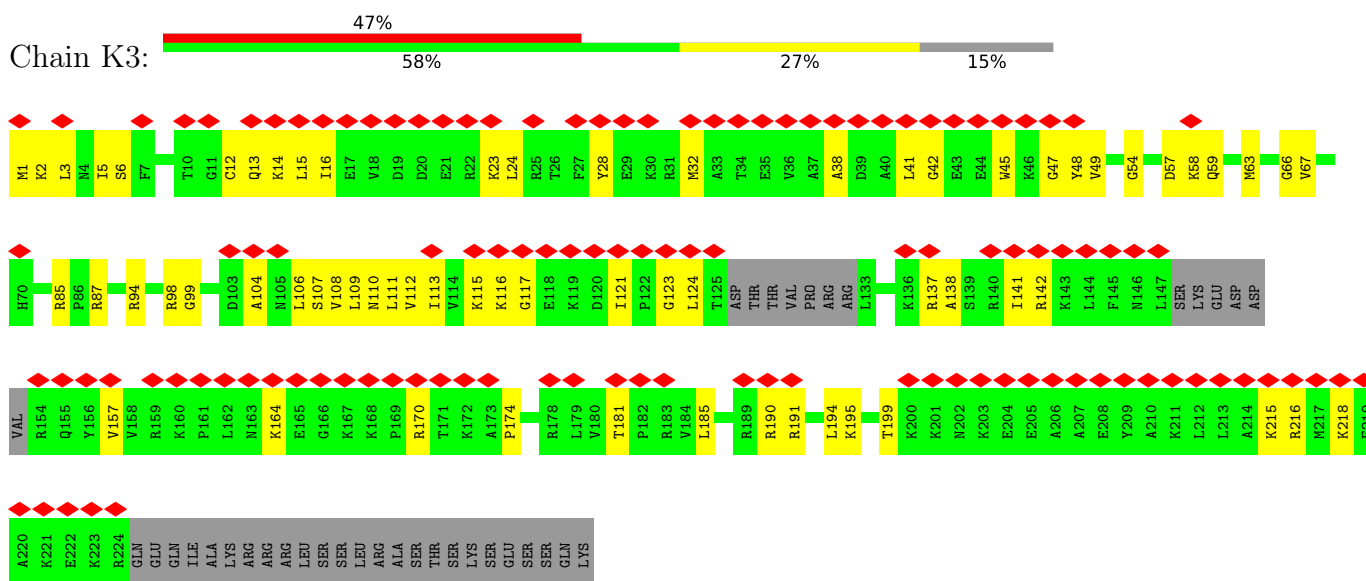




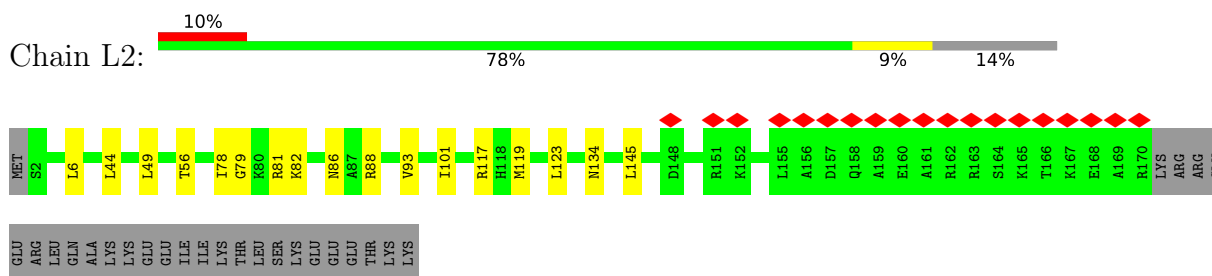
- Molecule 32: Large ribosomal subunit protein eL18



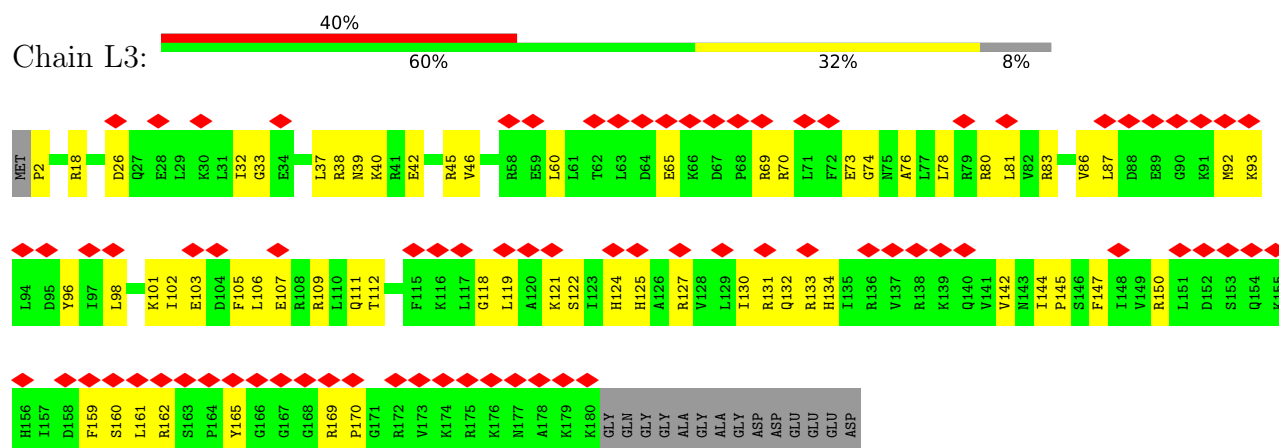
- Molecule 33: Small ribosomal subunit protein eS6



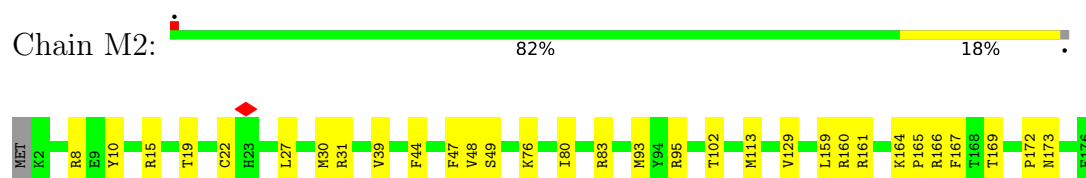
- Molecule 34: Large ribosomal subunit protein eL19



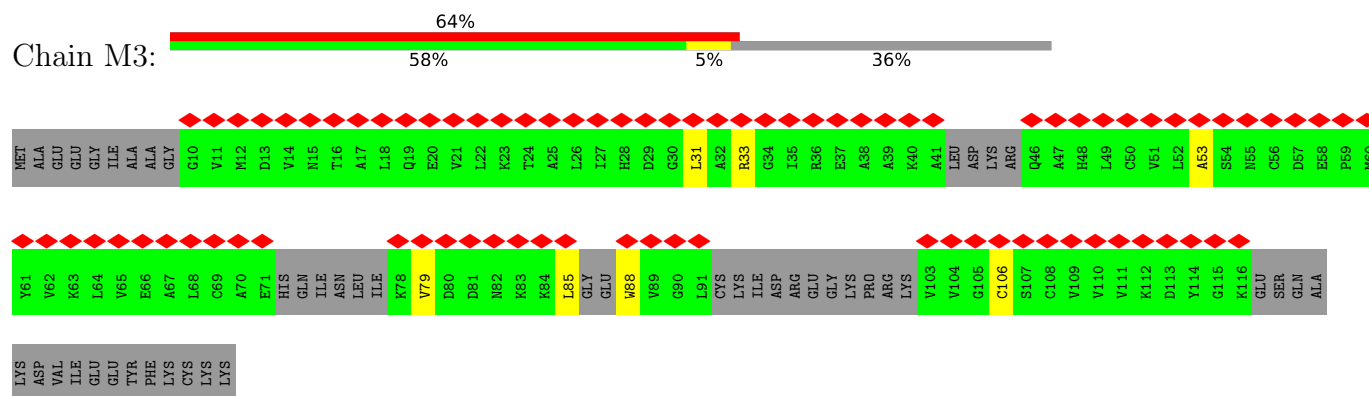
- Molecule 35: Small ribosomal subunit protein uS4



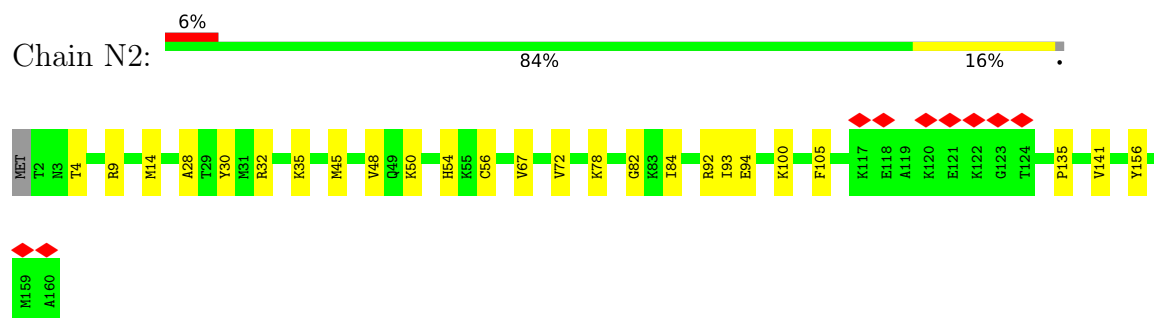
- Molecule 36: Large ribosomal subunit protein eL20



- Molecule 37: Small ribosomal subunit protein eS12

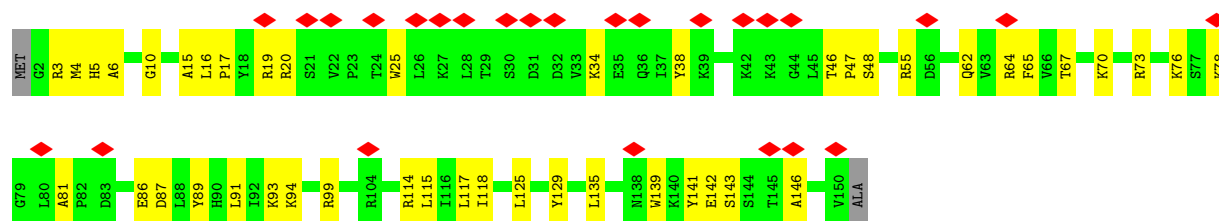


- Molecule 38: Large ribosomal subunit protein eL21

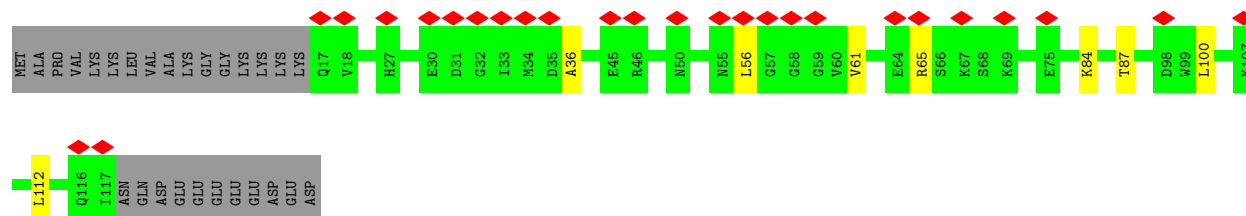
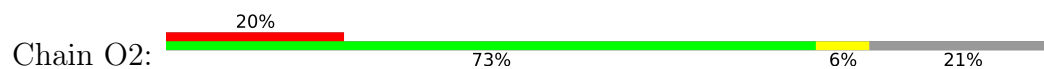


- Molecule 39: Small ribosomal subunit protein uS15

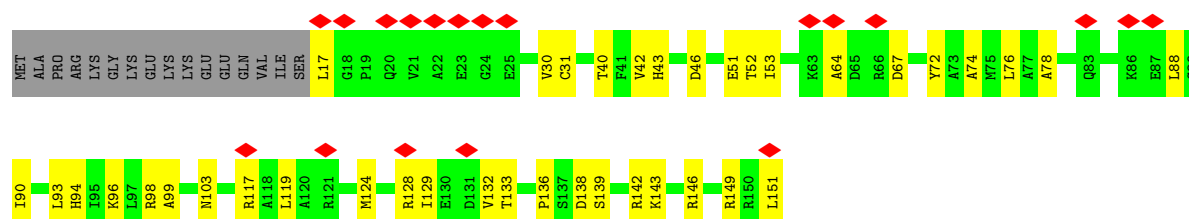




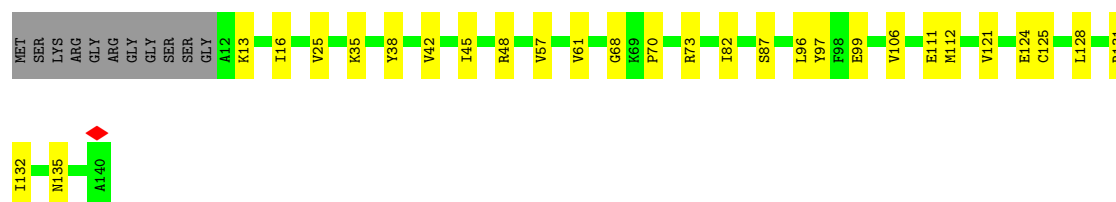
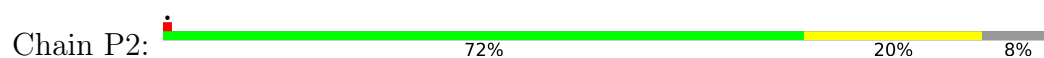
- Molecule 40: Large ribosomal subunit protein eL22



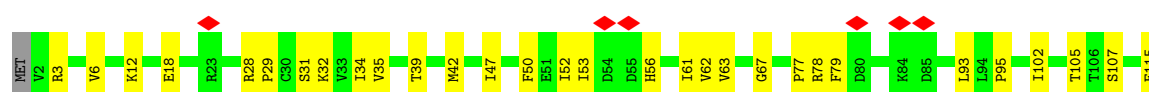
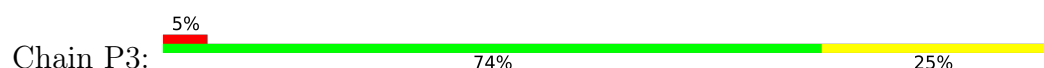
- Molecule 41: Small ribosomal subunit protein uS11



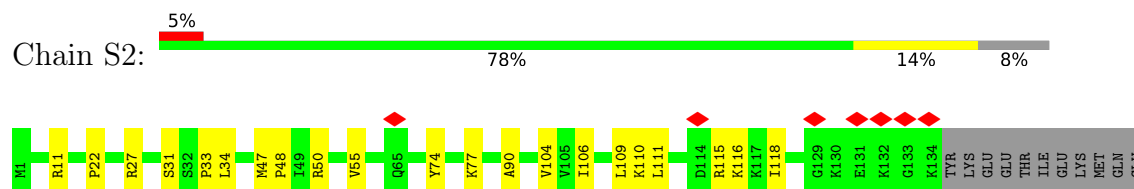
- Molecule 42: Large ribosomal subunit protein uL14



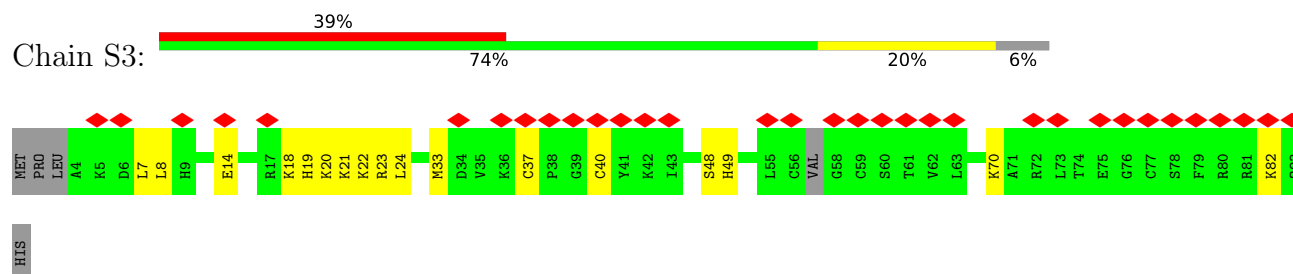
- Molecule 43: Small ribosomal subunit protein uS8



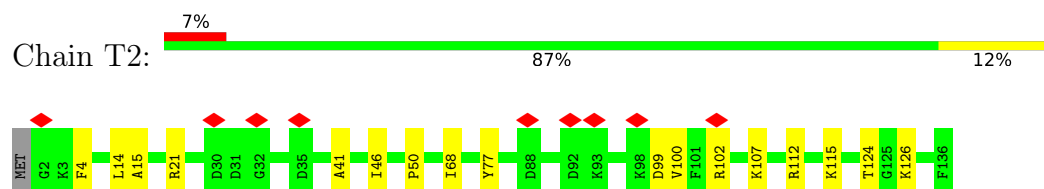
- Molecule 48: Large ribosomal subunit protein uL24



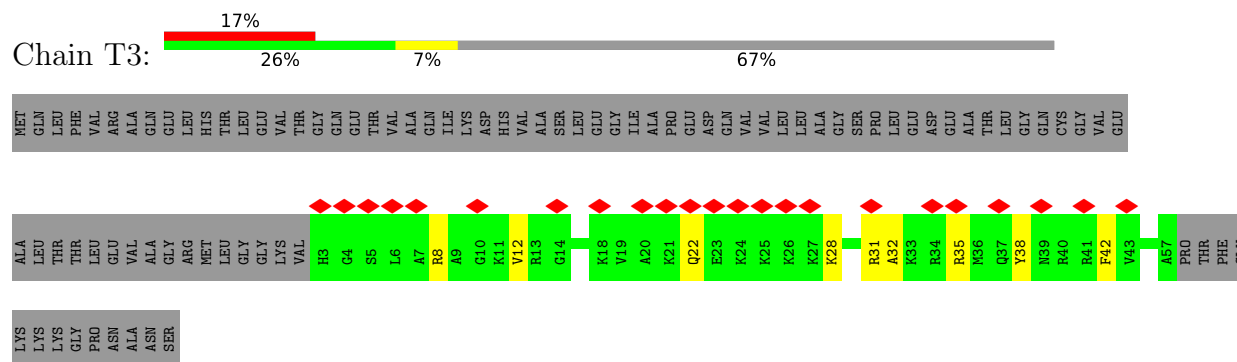
- Molecule 49: Small ribosomal subunit protein eS27



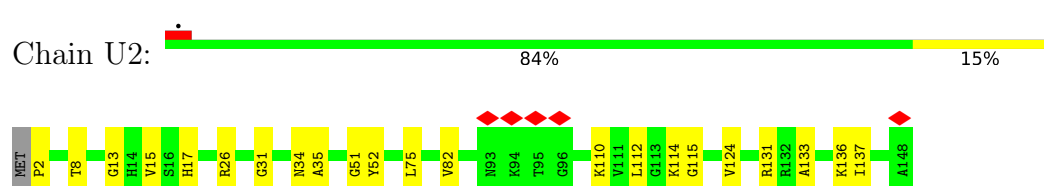
- Molecule 50: Large ribosomal subunit protein eL27



- Molecule 51: Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein

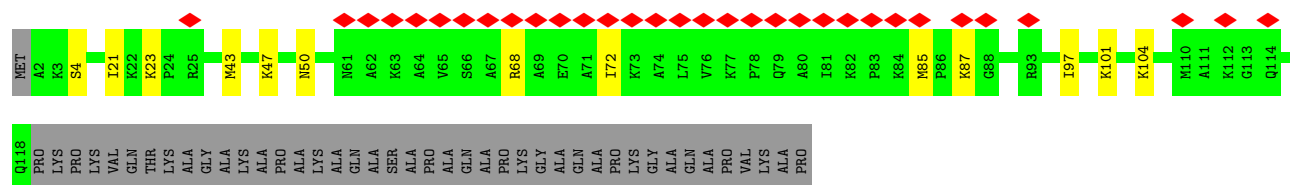


- Molecule 52: Large ribosomal subunit protein uL15



- Molecule 53: Large ribosomal subunit protein eL29

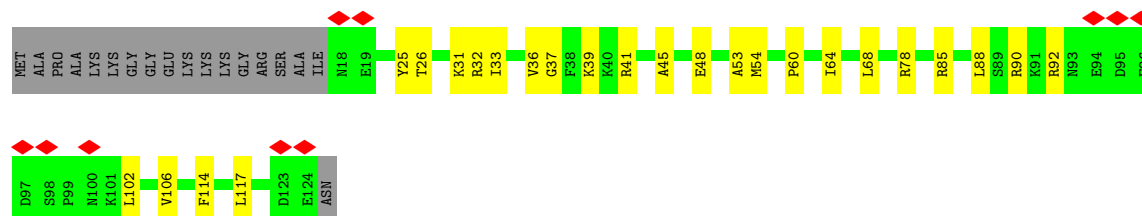




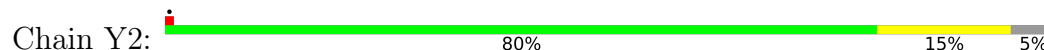
- Molecule 54: Large ribosomal subunit protein eL30



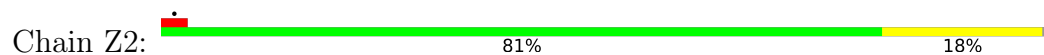
- Molecule 55: Large ribosomal subunit protein eL31



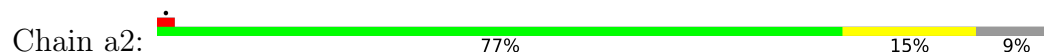
- Molecule 56: Large ribosomal subunit protein eL32



- Molecule 57: Large ribosomal subunit protein eL33

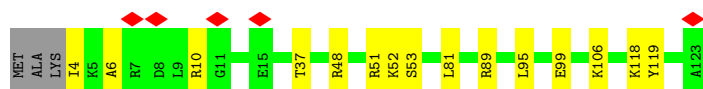


- Molecule 58: Large ribosomal subunit protein eL34



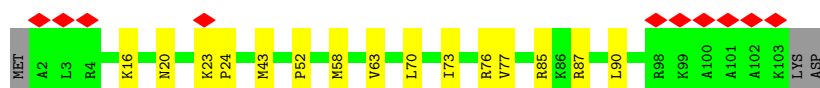
- Molecule 59: Large ribosomal subunit protein uL29

Chain b2: 



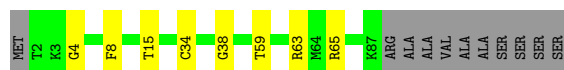
- Molecule 60: Large ribosomal subunit protein eL36

Chain c2: 



- Molecule 61: Large ribosomal subunit protein eL37

Chain d2: 



- Molecule 62: Large ribosomal subunit protein eL38

Chain e2: 



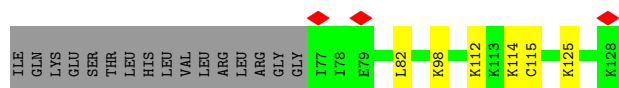
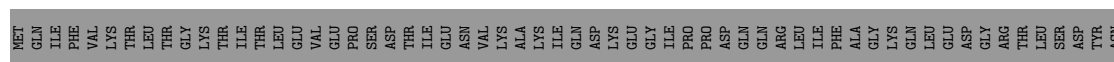
- Molecule 63: Large ribosomal subunit protein eL39

Chain f2: 



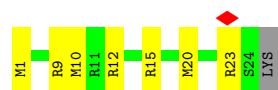
- Molecule 64: Ubiquitin-ribosomal protein eL40 fusion protein

Chain g2: 

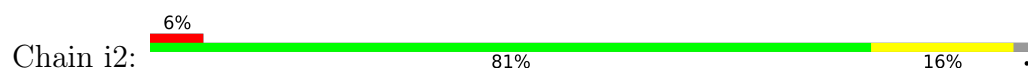


- Molecule 65: 60S ribosomal protein L41

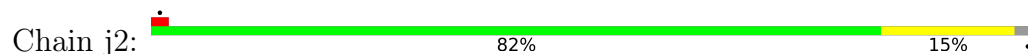
Chain h2: 



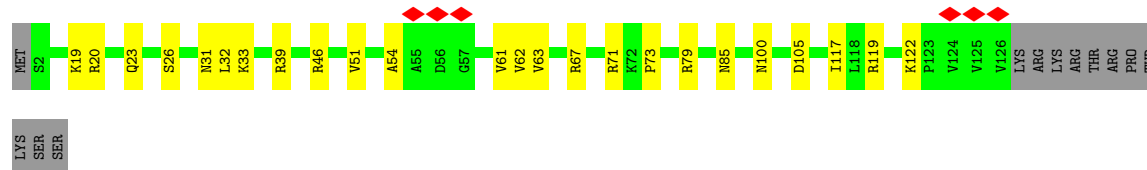
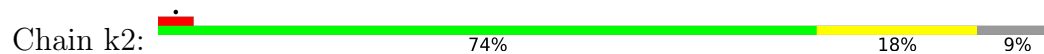
- Molecule 66: Large ribosomal subunit protein eL42



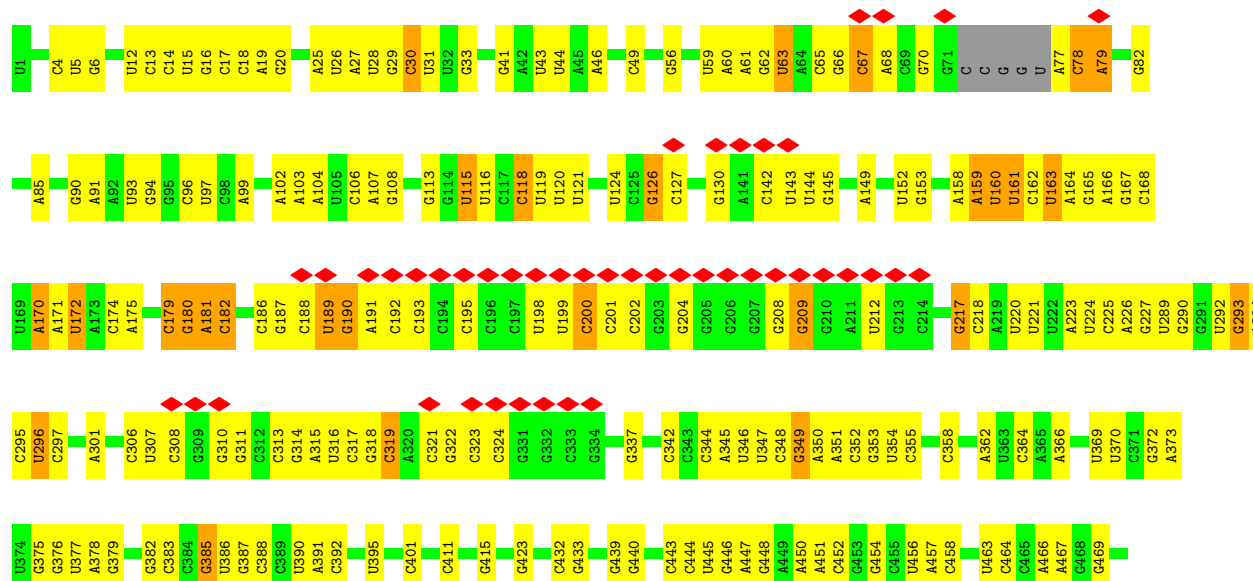
- Molecule 67: Large ribosomal subunit protein eL43

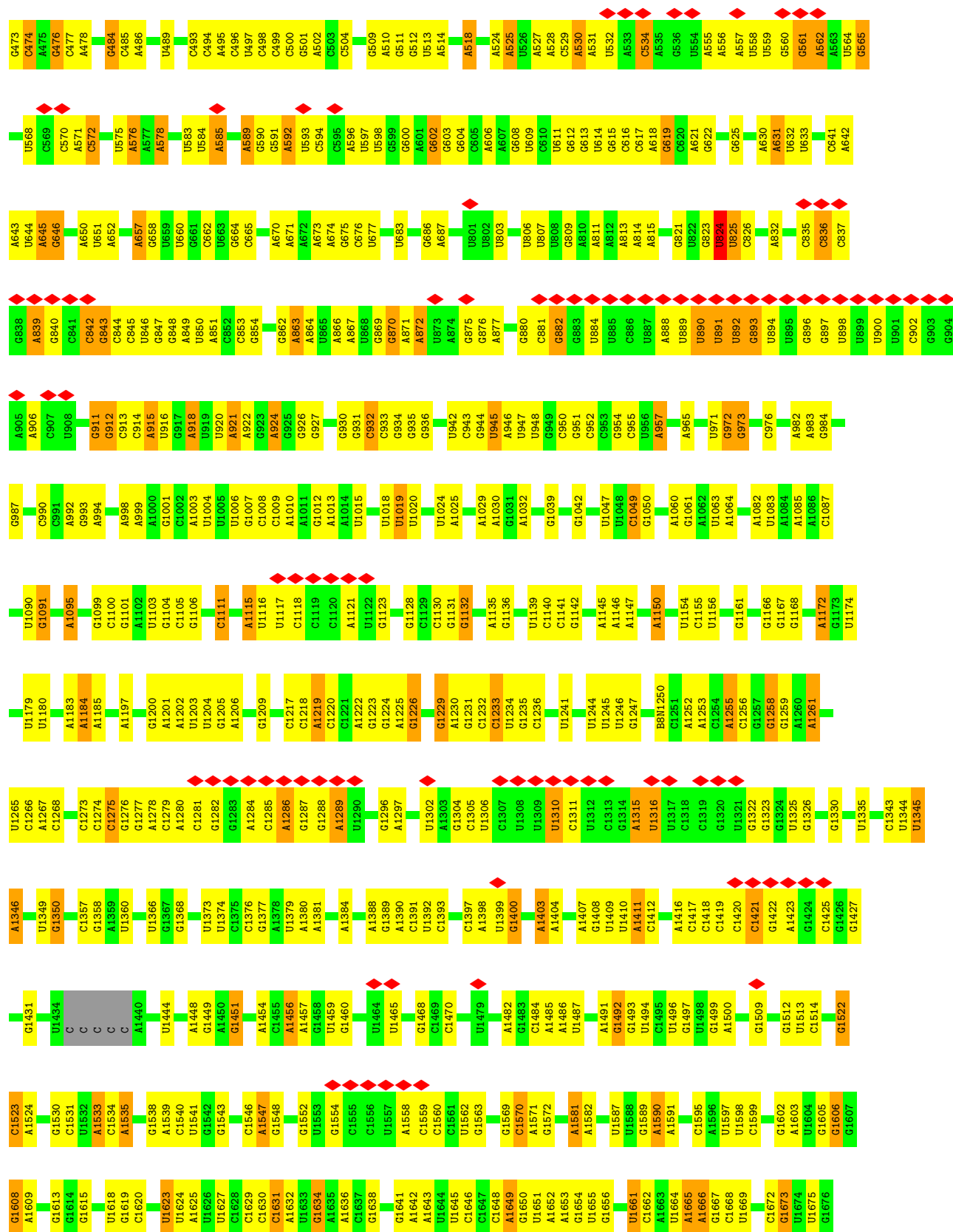


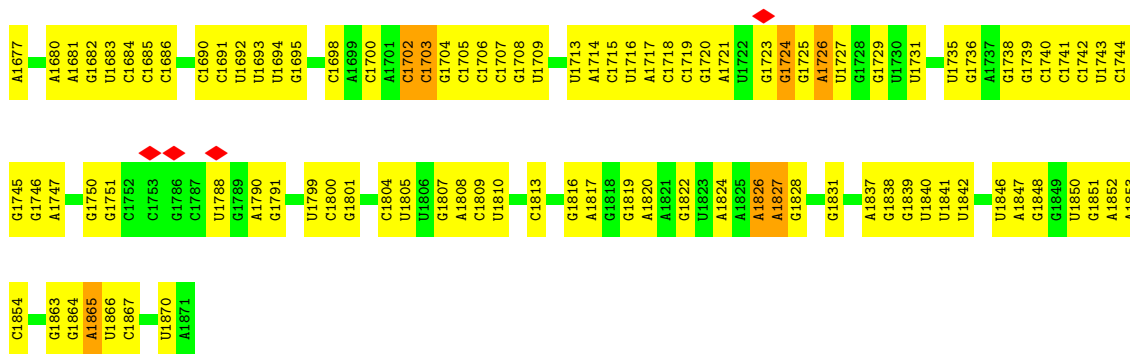
- Molecule 68: Large ribosomal subunit protein eL28



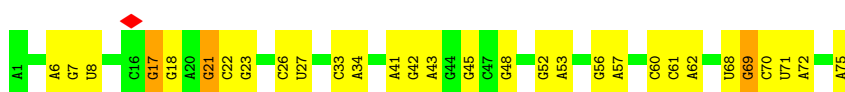
- Molecule 69: 18S ribosomal RNA



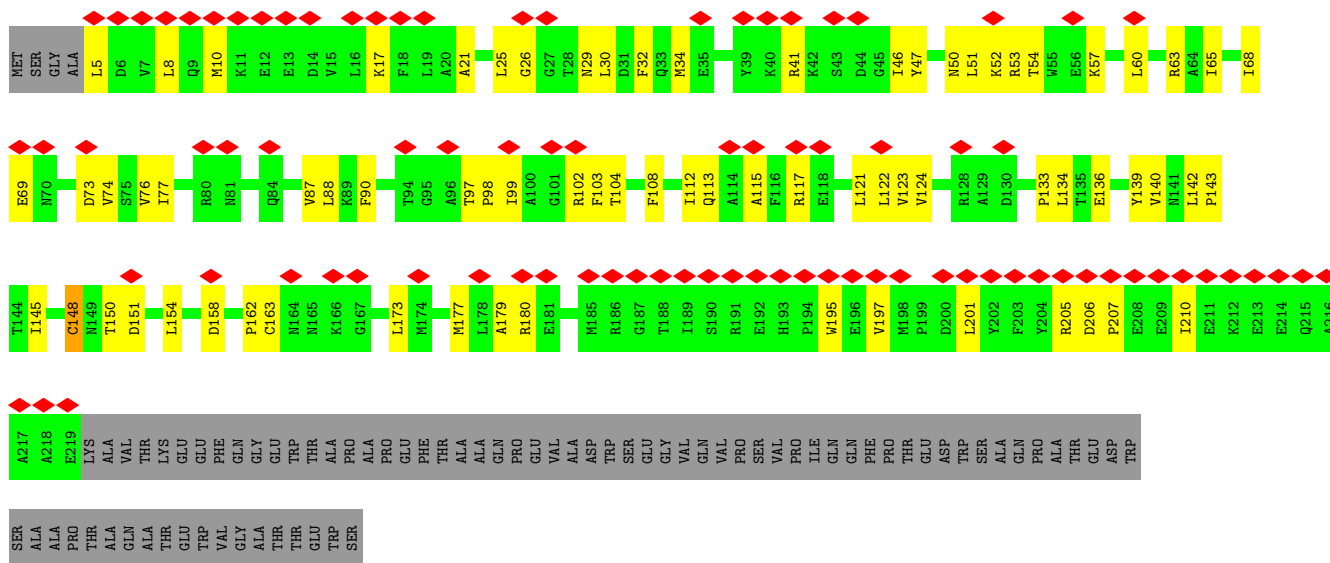




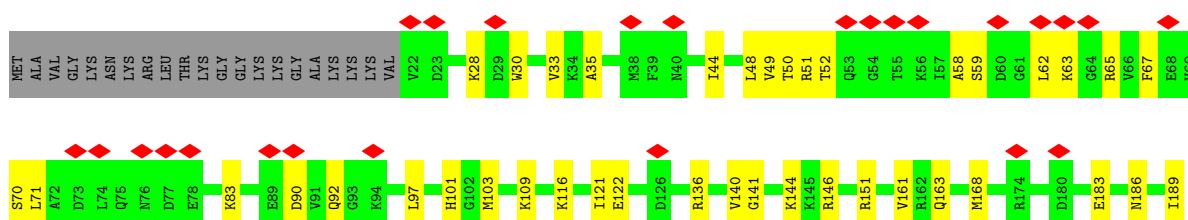
• Molecule 70: transfer RNA

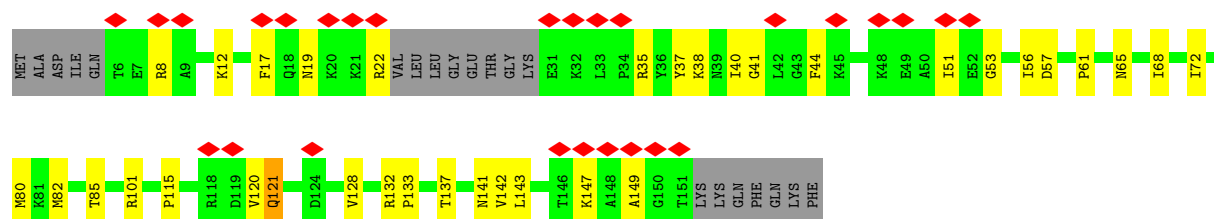


• Molecule 71: Small ribosomal subunit protein uS2

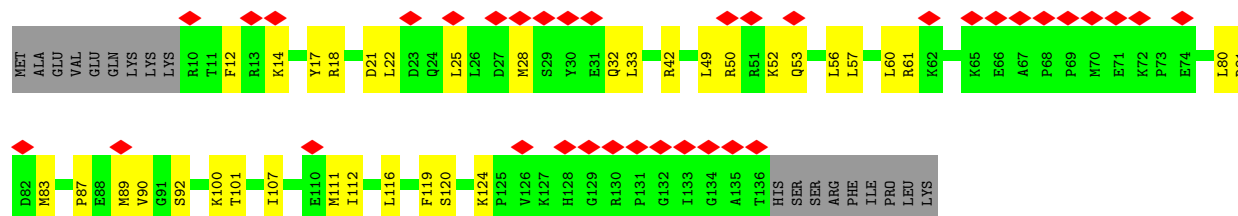


• Molecule 72: 40S ribosomal protein S3a

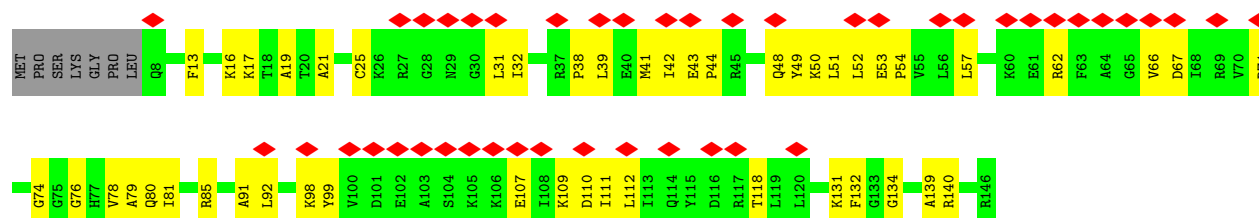




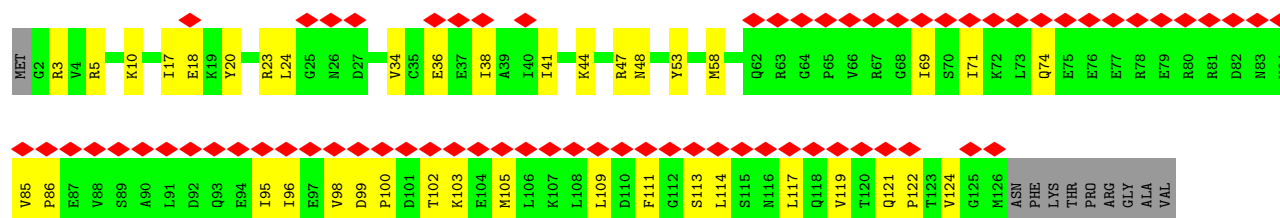
- Molecule 80: Small ribosomal subunit protein uS19



- Molecule 81: Small ribosomal subunit protein uS9



- Molecule 82: Small ribosomal subunit protein eS17



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	226576	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2900	Depositor
Magnification	100000	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.102	Depositor
Minimum map value	-0.017	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.0198	Depositor
Map size ($\text{\AA}$)	315.12, 315.12, 315.12	wwPDB
Map dimensions	312, 312, 312	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.01, 1.01, 1.01	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: OMG, UR3, OMC, PSU, B8N, B8T, 2MG, A2M, MG, 4AC, 1MA, OMU, ZN, 5MC

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	A1	0.18	0/1877	0.32	0/2502
2	A2	0.20	0/82439	0.29	0/128559
3	A3	0.18	0/1172	0.45	0/1570
4	B1	0.16	0/1799	0.31	0/2424
5	B2	0.18	0/2836	0.25	0/4421
6	B3	0.16	0/1109	0.40	0/1484
7	Bv	0.13	0/1576	0.30	0/2451
8	Bx	0.18	0/219	0.35	0/336
10	C1	0.17	0/1537	0.34	0/2065
11	C2	0.18	0/3675	0.26	0/5725
12	C3	0.14	0/778	0.33	0/1045
13	D1	0.17	0/1694	0.34	0/2261
14	D2	0.20	0/1914	0.36	0/2567
15	D3	0.16	0/596	0.36	0/800
16	E1	0.17	0/1420	0.40	0/1899
17	E2	0.20	0/3305	0.41	0/4422
18	E3	0.16	0/1097	0.39	0/1464
19	F1	0.17	0/1674	0.36	0/2241
20	F2	0.19	0/2877	0.37	0/3860
21	F3	0.19	0/786	0.42	0/1053
22	G1	0.16	0/1165	0.31	0/1558
23	G2	0.16	0/2435	0.35	0/3260
24	G3	0.15	0/436	0.29	0/582
25	H1	0.20	0/1746	0.36	0/2338
26	H2	0.15	0/1799	0.33	0/2413
27	H3	0.19	0/437	0.46	0/580
28	I2	0.19	0/1648	0.37	0/2203
29	I3	0.17	0/1827	0.44	0/2467
30	J2	0.20	0/1268	0.39	0/1700
31	J3	0.19	0/1626	0.43	0/2211
32	K2	0.18	0/1535	0.38	0/2048
33	K3	0.14	0/1728	0.37	0/2295

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
34	L2	0.15	0/1424	0.31	0/1884
35	L3	0.17	0/1520	0.47	0/2030
36	M2	0.20	0/1490	0.38	0/2000
37	M3	0.14	0/527	0.39	0/718
38	N2	0.16	0/1327	0.31	0/1771
39	N3	0.17	0/1226	0.44	0/1649
40	O2	0.12	0/839	0.29	0/1126
41	O3	0.18	0/1016	0.42	0/1363
42	P2	0.19	0/983	0.39	0/1319
43	P3	0.21	0/1044	0.41	0/1398
44	Q2	0.18	0/532	0.36	0/708
45	Q3	0.15	0/997	0.43	0/1325
46	R2	0.16	0/984	0.33	0/1323
47	R3	0.15	0/591	0.43	0/794
48	S2	0.17	0/1132	0.34	0/1504
49	S3	0.16	0/629	0.37	0/841
50	T2	0.16	0/1130	0.31	0/1507
51	T3	0.10	0/358	0.31	0/467
52	U2	0.19	0/1193	0.35	0/1593
53	V2	0.15	0/963	0.32	0/1275
54	W2	0.14	0/742	0.34	0/996
55	X2	0.18	0/903	0.33	0/1216
56	Y2	0.18	0/1071	0.31	0/1429
57	Z2	0.20	0/895	0.33	0/1198
58	a2	0.19	0/864	0.36	0/1152
59	b2	0.14	0/1009	0.37	0/1332
60	c2	0.14	0/843	0.37	0/1115
61	d2	0.18	0/720	0.37	0/952
62	e2	0.16	0/574	0.34	0/760
63	f2	0.19	0/454	0.32	0/599
64	g2	0.14	0/435	0.31	0/575
65	h2	0.19	0/231	0.53	0/294
66	i2	0.18	0/855	0.37	0/1128
67	j2	0.19	0/704	0.35	0/935
68	k2	0.19	0/1016	0.35	0/1363
69	m2	0.19	0/38048	0.29	0/59291
70	n2	0.12	0/1746	0.20	0/2717
71	o2	0.19	0/1741	0.45	0/2366
72	p2	0.17	0/1749	0.40	0/2340
73	q2	0.16	0/1681	0.38	0/2261
74	r2	0.16	0/2072	0.39	0/2793
75	s2	0.15	0/1489	0.41	0/1999
76	t2	0.15	0/1341	0.41	0/1803

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
77	u2	0.17	0/1424	0.37	0/1918
78	v2	0.23	0/725	0.56	0/974
79	w2	0.19	0/1154	0.46	0/1543
80	x2	0.19	0/1065	0.46	0/1423
81	y2	0.18	0/1126	0.47	0/1506
82	z2	0.15	0/1023	0.41	1/1373 (0.1%)
All	All	0.19	0/219635	0.32	1/322750 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
17	E2	0	1
26	H2	0	1
60	c2	0	1
71	o2	0	1
All	All	0	4

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
82	z2	95	ILE	N-CA-C	-5.18	107.30	111.91

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
17	E2	258	HIS	Peptide
26	H2	184	GLY	Peptide
60	c2	63	VAL	Peptide
71	o2	148	CYS	Peptide

5.2 Too-close contacts

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A1	1843	0	1975	43	0
2	A2	75341	0	38149	861	0
3	A3	1154	0	1210	44	0
4	B1	1764	0	1892	34	0
5	B2	2538	0	1286	24	0
6	B3	1091	0	1130	43	0
7	Bv	1412	0	716	17	0
8	Bx	200	0	101	2	0
9	By	110	0	31	0	0
10	C1	1519	0	1603	25	0
11	C2	3315	0	1685	32	0
12	C3	769	0	837	23	0
13	D1	1656	0	1706	24	0
14	D2	1876	0	1970	34	0
15	D3	589	0	566	12	0
16	E1	1397	0	1425	33	0
17	E2	3238	0	3380	51	0
18	E3	1080	0	1147	29	0
19	F1	1643	0	1750	31	0
20	F2	2823	0	2996	48	0
21	F3	774	0	821	13	0
22	G1	1143	0	1219	13	0
23	G2	2389	0	2420	40	0
24	G3	435	0	461	11	0
25	H1	1701	0	1749	36	0
26	H2	1766	0	1902	21	0
27	H3	427	0	426	21	0
28	I2	1618	0	1775	33	0
29	I3	1800	0	1770	67	0
30	J2	1242	0	1274	35	0
31	J3	1590	0	1606	44	0
32	K2	1511	0	1636	17	0
33	K3	1708	0	1864	54	0
34	L2	1408	0	1550	17	0
35	L3	1495	0	1615	54	0
36	M2	1450	0	1488	24	0
37	M3	525	0	439	5	0
38	N2	1299	0	1368	25	0
39	N3	1202	0	1289	35	0
40	O2	825	0	850	4	0
41	O3	1003	0	1028	27	0
42	P2	969	0	1031	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
43	P3	1027	0	1067	29	0
44	Q2	519	0	533	9	0
45	Q3	981	0	1039	42	0
46	R2	967	0	1040	18	0
47	R3	585	0	640	16	0
48	S2	1115	0	1205	21	0
49	S3	618	0	634	13	0
50	T2	1107	0	1182	11	0
51	T3	355	0	391	9	0
52	U2	1164	0	1213	20	0
53	V2	945	0	1037	9	0
54	W2	732	0	769	9	0
55	X2	888	0	930	20	0
56	Y2	1053	0	1147	14	0
57	Z2	876	0	912	14	0
58	a2	854	0	945	16	0
59	b2	1001	0	1138	11	0
60	c2	832	0	917	10	0
61	d2	705	0	737	6	0
62	e2	568	0	635	11	0
63	f2	444	0	483	7	0
64	g2	429	0	465	5	0
65	h2	230	0	276	8	0
66	i2	842	0	912	12	0
67	j2	694	0	738	13	0
68	k2	1001	0	1066	17	0
69	m2	34736	0	17544	516	0
70	n2	1562	0	797	17	0
71	o2	1704	0	1702	58	0
72	p2	1722	0	1794	35	0
73	q2	1655	0	1750	31	0
74	r2	2031	0	2138	65	0
75	s2	1468	0	1519	29	0
76	t2	1322	0	1365	45	0
77	u2	1397	0	1378	31	0
78	v2	705	0	722	28	0
79	w2	1134	0	1197	29	0
80	x2	1045	0	1095	25	0
81	y2	1109	0	1174	43	0
82	z2	1011	0	1063	32	0
83	A2	83	0	0	0	0
83	E3	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
83	H1	1	0	0	0	0
83	J2	1	0	0	0	0
83	O3	1	0	0	0	0
83	P2	1	0	0	0	0
83	d2	1	0	0	0	0
83	m2	34	0	0	0	0
84	F3	1	0	0	0	0
84	H3	1	0	0	0	0
84	d2	1	0	0	0	0
84	g2	1	0	0	0	0
84	i2	1	0	0	0	0
84	j2	1	0	0	0	0
85	B1	1	0	0	0	0
All	All	206901	0	152425	2900	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 8.

All (2900) 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)
2:A2:3348:A:H62	2:A2:3479:G:N2	1.39	1.18
2:A2:3348:A:N6	2:A2:3479:G:H21	1.43	1.16
81:y2:43:GLU:HG3	81:y2:44:PRO:HD3	1.40	1.01
2:A2:740:A:H62	2:A2:828:G:H21	1.05	0.98
69:m2:153:G:H1	69:m2:165:G:H22	1.14	0.93
69:m2:1398:A:H2	69:m2:1451:G:H1	1.17	0.92
19:F1:64:VAL:HA	19:F1:67:HIS:HD2	1.33	0.91
29:I3:240:CYS:H	29:I3:249:CYS:HB2	1.36	0.90
33:K3:13:GLN:HG3	69:m2:153:G:H21	1.38	0.88
74:r2:136:ILE:HD12	74:r2:148:ARG:HD3	1.56	0.85
81:y2:19:ALA:HA	81:y2:74:GLY:HA3	1.57	0.84
68:k2:63:VAL:HG12	68:k2:79:ARG:HG2	1.60	0.84
20:F2:84:THR:HG22	20:F2:86:ARG:H	1.43	0.83
81:y2:25:CYS:HB2	81:y2:91:ALA:HB1	1.60	0.83
74:r2:141:THR:HG22	74:r2:143:ASP:H	1.44	0.83
2:A2:697:C:H4'	68:k2:85:ASN:HD22	1.44	0.82
2:A2:740:A:H62	2:A2:828:G:N2	1.76	0.82
41:O3:103:ASN:HB2	41:O3:142:ARG:HB2	1.61	0.82
14:D2:54:ARG:HH11	14:D2:58:LEU:HD21	1.45	0.82
69:m2:1620:C:H4'	80:x2:50:ARG:HH12	1.45	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:o2:17:LYS:HB3	71:o2:173:LEU:HD11	1.63	0.81
74:r2:87:MET:HB2	74:r2:100:ARG:HE	1.46	0.81
15:D3:1:MET:HE1	31:J3:255:LEU:HD12	1.62	0.80
31:J3:227:ARG:HG3	31:J3:228:GLY:H	1.47	0.80
23:G2:181:PRO:HD2	23:G2:195:HIS:HD1	1.45	0.79
75:s2:122:ARG:HH21	75:s2:146:ARG:HD2	1.47	0.79
3:A3:88:LYS:HG2	80:x2:18:ARG:HD2	1.65	0.79
81:y2:16:LYS:HG3	81:y2:17:LYS:H	1.48	0.79
71:o2:112:ILE:HG22	71:o2:113:GLN:HG3	1.63	0.78
78:v2:14:LEU:HD11	78:v2:34:GLU:HG3	1.65	0.77
78:v2:71:LEU:HD23	78:v2:73:ASN:H	1.47	0.77
69:m2:1230:A:H2'	69:m2:1231:G:C8	2.19	0.77
35:L3:109:ARG:HH21	35:L3:145:PRO:HB2	1.50	0.76
2:A2:1354:U:H3	2:A2:1431:G:H1	1.33	0.76
6:B3:41:LYS:HD3	6:B3:43:LYS:HE3	1.66	0.76
69:m2:1538:G:H2'	69:m2:1539:A:H8	1.50	0.76
6:B3:41:LYS:HE3	6:B3:81:GLY:HA3	1.68	0.75
77:u2:190:LEU:HD23	77:u2:195:LEU:HA	1.69	0.75
33:K3:14:LYS:HZ2	33:K3:16:ILE:HD11	1.52	0.74
35:L3:18:ARG:HH22	69:m2:4:C:H1'	1.49	0.74
2:A2:740:A:N6	2:A2:828:G:H21	1.82	0.74
19:F1:64:VAL:HA	19:F1:67:HIS:CD2	2.20	0.74
61:d2:34:CYS:HB3	61:d2:38:GLY:H	1.53	0.74
39:N3:15:ALA:HB2	49:S3:20:LYS:HG3	1.70	0.74
11:C2:83:C:H42	48:S2:50:ARG:HH22	1.35	0.74
69:m2:853:C:H5''	69:m2:854:G:H5'	1.68	0.74
33:K3:32:MET:HE1	33:K3:54:GLY:HA2	1.70	0.73
81:y2:44:PRO:HD2	81:y2:81:ILE:HD11	1.71	0.73
69:m2:293:G:H8	79:w2:41:GLY:HA3	1.53	0.73
74:r2:170:ILE:HG12	74:r2:171:ASN:HD22	1.54	0.73
2:A2:3524:G:H22	2:A2:3556:G:H1'	1.52	0.73
30:J2:119:VAL:HG12	30:J2:146:ILE:HG12	1.71	0.73
74:r2:137:PRO:HG2	74:r2:149:TYR:HA	1.70	0.72
6:B3:104:LEU:HD11	6:B3:121:ARG:HD2	1.70	0.72
77:u2:190:LEU:HD21	77:u2:198:TYR:HD2	1.54	0.72
3:A3:132:ARG:HB2	3:A3:134:GLN:HE22	1.55	0.72
39:N3:129:TYR:HB3	39:N3:135:LEU:HD13	1.72	0.72
66:i2:44:LYS:HE3	66:i2:52:THR:HB	1.71	0.72
45:Q3:10:ARG:HG2	45:Q3:11:LYS:H	1.53	0.72
69:m2:1681:A:H2'	75:s2:60:ARG:HD3	1.71	0.72
30:J2:148:MET:HE2	30:J2:150:LEU:HD11	1.70	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:163:U:H2'	69:m2:164:A:H8	1.54	0.72
31:J3:81:ILE:HG21	31:J3:88:ILE:HD11	1.72	0.71
73:q2:138:VAL:HG13	73:q2:182:LEU:HD21	1.72	0.71
2:A2:3336:U:H5''	14:D2:54:ARG:HH21	1.54	0.71
16:E1:120:ASP:HB3	16:E1:123:ILE:HG12	1.71	0.71
27:H3:27:ARG:HD2	69:m2:1265:U:H4'	1.72	0.71
48:S2:106:ILE:HG21	48:S2:109:LEU:HD23	1.71	0.71
20:F2:152:LEU:HD13	20:F2:174:LEU:HD23	1.71	0.71
41:O3:52:THR:HG21	69:m2:954:G:H21	1.55	0.71
69:m2:1552:G:H3'	69:m2:1581:A:H61	1.55	0.71
69:m2:1230:A:H2'	69:m2:1231:G:H8	1.54	0.71
2:A2:2106:OMC:HM22	20:F2:95:MET:HG3	1.72	0.71
60:c2:23:LYS:HD2	60:c2:24:PRO:HD2	1.73	0.71
65:h2:10:MET:HE1	69:m2:1172:A:H5'	1.72	0.71
2:A2:2279:U:H3	2:A2:2284:A:H2	1.38	0.71
29:I3:256:ILE:HD13	29:I3:289:LEU:HD21	1.73	0.71
30:J2:94:MET:HE1	30:J2:146:ILE:HG22	1.73	0.70
2:A2:444:G:H1	2:A2:1117:A:N6	1.88	0.70
2:A2:2090:C:H2'	2:A2:2091:G:H8	1.56	0.70
19:F1:107:THR:HG22	60:c2:20:ASN:HB3	1.74	0.70
39:N3:16:LEU:HD12	39:N3:17:PRO:HD2	1.72	0.70
71:o2:76:VAL:HG23	71:o2:87:VAL:HG13	1.72	0.70
2:A2:1011:U:H3'	2:A2:1012:C:H5''	1.72	0.70
2:A2:3430:A:H2'	2:A2:3431:A:C8	2.27	0.70
6:B3:41:LYS:HB3	6:B3:95:GLY:HA2	1.74	0.70
12:C3:40:ILE:HD11	12:C3:89:ILE:HG21	1.72	0.70
33:K3:215:LYS:HG3	33:K3:218:LYS:HE3	1.73	0.70
71:o2:34:MET:HE2	71:o2:154:LEU:HD21	1.74	0.70
76:t2:160:LYS:HD2	76:t2:163:GLN:HG2	1.73	0.70
35:L3:32:ILE:HA	35:L3:37:LEU:HD12	1.73	0.70
35:L3:101:LYS:HE2	35:L3:103:GLU:HB2	1.75	0.69
45:Q3:15:ASN:HD21	45:Q3:18:LEU:HD13	1.57	0.69
25:H1:20:ARG:HH22	60:c2:52:PRO:HG3	1.57	0.69
6:B3:28:LEU:HD21	6:B3:53:PHE:HD2	1.55	0.69
25:H1:64:ILE:HD11	25:H1:106:ALA:HB2	1.71	0.69
29:I3:87:LEU:HB2	29:I3:101:PHE:HB2	1.75	0.69
29:I3:174:VAL:HB	29:I3:188:HIS:HB2	1.73	0.69
69:m2:641:C:H2'	69:m2:642:A:H8	1.56	0.69
2:A2:2500:A:H2'	2:A2:2501:A:C8	2.28	0.69
6:B3:64:LEU:HD21	6:B3:121:ARG:HE	1.58	0.69
33:K3:23:LYS:HZ2	33:K3:41:LEU:HB2	1.57	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:K3:94:ARG:HG2	69:m2:456:U:H5''	1.74	0.69
38:N2:48:VAL:HG21	38:N2:94:GLU:HG2	1.73	0.69
71:o2:97:THR:HG21	71:o2:117:ARG:HE	1.57	0.69
2:A2:1360:A:H2	2:A2:2568:A:H8	1.41	0.69
6:B3:60:THR:HG23	6:B3:121:ARG:HH22	1.58	0.69
69:m2:190:G:H21	69:m2:192:C:H42	1.38	0.69
79:w2:147:LYS:HG2	79:w2:149:ALA:H	1.58	0.69
30:J2:112:LEU:HD13	30:J2:150:LEU:HD23	1.75	0.69
69:m2:107:A:H2'	69:m2:108:G:C8	2.27	0.69
74:r2:44:LEU:HD11	74:r2:72:ILE:HD11	1.73	0.69
2:A2:98:A:H5'	25:H1:195:ARG:HD2	1.75	0.69
69:m2:1538:G:H2'	69:m2:1539:A:C8	2.27	0.69
2:A2:2102:A:H61	56:Y2:24:GLN:HE21	1.38	0.68
18:E3:9:THR:HG22	69:m2:683:U:H4'	1.75	0.68
29:I3:72:SER:HB2	29:I3:75:GLY:HA2	1.74	0.68
2:A2:3379:A:H2'	2:A2:3380:A2M:H8	1.73	0.68
2:A2:4707:A:H4'	2:A2:4708:G:H5''	1.73	0.68
35:L3:111:GLN:HE21	35:L3:145:PRO:HB3	1.58	0.68
2:A2:1744:A:H2'	2:A2:1745:A:C8	2.27	0.68
69:m2:27:A2M:HM'1	69:m2:485:C:H1'	1.76	0.68
69:m2:1205:G:H2'	69:m2:1206:A:C8	2.29	0.68
2:A2:1146:C:H2'	2:A2:1147:A:H8	1.56	0.68
2:A2:2651:G:H5''	34:L2:134:ASN:ND2	2.07	0.68
2:A2:3593:C:H1'	25:H1:125:SER:HB3	1.75	0.68
69:m2:529:C:H2'	69:m2:530:A:H8	1.58	0.68
69:m2:1410:U:H2'	69:m2:1411:A:C8	2.29	0.68
2:A2:2630:C:H2'	67:j2:7:LYS:HE2	1.76	0.68
16:E1:56:THR:HG23	16:E1:63:ARG:HA	1.76	0.68
69:m2:225:C:H2'	69:m2:226:A:C8	2.29	0.68
27:H3:32:ARG:HH22	27:H3:38:MET:HB2	1.59	0.68
69:m2:1398:A:C2	69:m2:1451:G:N1	2.57	0.68
6:B3:30:VAL:HB	6:B3:34:VAL:HG11	1.76	0.67
69:m2:641:C:H2'	69:m2:642:A:C8	2.29	0.67
2:A2:4638:G:H2'	2:A2:4639:G:C8	2.29	0.67
29:I3:168:CYS:SG	29:I3:198:VAL:HG23	2.34	0.67
69:m2:1707:C:H2'	69:m2:1708:G:C8	2.30	0.67
71:o2:52:LYS:HB2	82:z2:109:LEU:HD11	1.74	0.67
7:Bv:6:G:HO2'	7:Bv:7:A:H8	1.43	0.67
12:C3:51:LYS:HB3	12:C3:90:ASP:H	1.60	0.67
37:M3:53:ALA:HA	37:M3:79:VAL:HA	1.78	0.66
82:z2:44:LYS:HG3	82:z2:47:ARG:HH21	1.61	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:2240:U:H3	2:A2:2248:G:H1	1.43	0.66
2:A2:4555:A:H4'	17:E2:95:THR:HG22	1.77	0.66
18:E3:68:LYS:HB3	18:E3:91:LEU:HD22	1.77	0.66
69:m2:1398:A:N1	69:m2:1451:G:O6	2.28	0.66
2:A2:2302:G:H1	2:A2:2527:C:H5	1.44	0.66
69:m2:1398:A:H2	69:m2:1451:G:N1	1.93	0.66
13:D1:36:LEU:HD12	13:D1:69:ARG:HD3	1.77	0.66
36:M2:30:MET:HE1	36:M2:47:PHE:HB2	1.75	0.66
45:Q3:27:VAL:HB	45:Q3:69:THR:HB	1.76	0.66
59:b2:95:LEU:HB3	59:b2:99:GLU:HG3	1.78	0.66
2:A2:453:G:H1	2:A2:1107:G:N2	1.94	0.66
2:A2:1430:G:H1'	2:A2:2268:A:N6	2.10	0.66
39:N3:142:GLU:HG2	39:N3:143:SER:H	1.60	0.66
42:P2:82:ILE:HB	42:P2:121:VAL:HG13	1.78	0.66
56:Y2:78:LEU:HB3	68:k2:20:ARG:HD3	1.77	0.66
69:m2:369:U:H4'	69:m2:373:A:C8	2.30	0.66
10:C1:111:LEU:HD13	10:C1:127:ARG:HE	1.60	0.65
39:N3:3:ARG:HB3	39:N3:6:ALA:HB3	1.78	0.65
69:m2:881:C:H2'	69:m2:882:G:H8	1.59	0.65
4:B1:173:LEU:HD12	60:c2:43:MET:HE3	1.76	0.65
6:B3:71:GLY:H	6:B3:74:SER:HB3	1.61	0.65
74:r2:80:VAL:HG13	74:r2:81:THR:HG23	1.78	0.65
7:Bv:45:U:H2'	7:Bv:46:G:O4'	1.96	0.65
17:E2:56:ILE:HD12	17:E2:365:LEU:HD22	1.77	0.65
23:G2:196:ARG:HH12	23:G2:200:MET:HG3	1.61	0.65
33:K3:141:ILE:HD13	33:K3:157:VAL:HG22	1.78	0.65
43:P3:53:ILE:HG23	76:t2:143:ARG:HH12	1.60	0.65
70:n2:61:C:H2'	70:n2:62:A:H8	1.59	0.65
17:E2:348:ARG:HH12	17:E2:351:LEU:HG	1.61	0.65
39:N3:114:ARG:HD3	39:N3:117:LEU:HD12	1.76	0.65
76:t2:144:ILE:HG13	76:t2:154:ILE:HG12	1.79	0.65
2:A2:4603:C:H2'	2:A2:4604:C:C6	2.32	0.65
20:F2:8:ILE:HD11	20:F2:257:PHE:CZ	2.31	0.65
69:m2:16:G:H2'	69:m2:17:C:C6	2.32	0.65
2:A2:1084:G:H1'	2:A2:1909:G:H21	1.62	0.65
23:G2:62:CYS:HB3	23:G2:105:LEU:HD22	1.78	0.65
69:m2:1716:U:H2'	69:m2:1717:A:C8	2.31	0.65
2:A2:1744:A:H2'	2:A2:1745:A:H8	1.62	0.65
2:A2:3412:A:H2'	2:A2:3413:G:H5''	1.78	0.65
69:m2:153:G:H22	69:m2:165:G:N2	1.93	0.65
18:E3:67:ARG:HG3	18:E3:115:ILE:HG12	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:H2:186:LEU:HD12	26:H2:190:ARG:HA	1.79	0.65
69:m2:534:C:H42	69:m2:555:A:H61	1.43	0.65
69:m2:1590:A:H2'	69:m2:1591:A:C8	2.31	0.65
14:D2:28:ARG:HB2	14:D2:123:ARG:HB2	1.79	0.65
29:I3:64:HIS:HD2	29:I3:83:TRP:HB2	1.62	0.65
2:A2:3711:C:H2'	2:A2:3712:A:C8	2.32	0.65
76:t2:27:LEU:HD13	76:t2:45:ILE:HD11	1.79	0.65
2:A2:3775:C:H5'	4:B1:45:ILE:HD13	1.79	0.64
2:A2:4351:U:H1'	2:A2:4352:A:H5''	1.77	0.64
48:S2:74:TYR:HE2	48:S2:77:LYS:HG3	1.61	0.64
81:y2:51:LEU:HD22	81:y2:81:ILE:HG23	1.79	0.64
2:A2:139:G:H2'	2:A2:140:G:C8	2.31	0.64
5:B2:6:C:H4'	23:G2:52:ILE:HD13	1.77	0.64
29:I3:113:PHE:HD1	29:I3:120:ILE:HG22	1.63	0.64
42:P2:112:MET:HE1	42:P2:135:ASN:HB2	1.78	0.64
82:z2:100:PRO:HG3	82:z2:117:LEU:HD12	1.77	0.64
2:A2:3266:A:H2'	2:A2:3267:A:C8	2.32	0.64
2:A2:1672:C:H2'	2:A2:1673:A2M:H8	1.78	0.64
24:G3:44:ARG:HH12	24:G3:63:ARG:HB2	1.62	0.64
29:I3:240:CYS:N	29:I3:249:CYS:HB2	2.10	0.64
33:K3:41:LEU:HD11	33:K3:45:TRP:HB2	1.80	0.64
36:M2:83:ARG:HD2	38:N2:156:TYR:HB2	1.80	0.64
2:A2:4563:C:H2'	2:A2:4564:G:H8	1.62	0.64
2:A2:2451:A:H62	62:e2:35:LYS:NZ	1.96	0.64
81:y2:131:LYS:HB2	81:y2:140:ARG:HH22	1.63	0.64
69:m2:983:A:H2'	69:m2:984:G:C8	2.33	0.64
33:K3:59:GLN:HE21	69:m2:159:A:H61	1.44	0.63
16:E1:112:HIS:HD2	16:E1:117:ILE:HD11	1.62	0.63
39:N3:46:THR:HG23	39:N3:86:GLU:HG2	1.80	0.63
58:a2:82:MET:HE1	58:a2:90:ARG:HH11	1.62	0.63
2:A2:318:A:H2'	2:A2:319:A:H8	1.63	0.63
2:A2:2081:G:H5''	56:Y2:127:ALA:HB2	1.81	0.63
23:G2:223:PHE:HB3	23:G2:226:TYR:HB2	1.79	0.63
32:K2:154:LYS:HD2	32:K2:158:THR:HG21	1.81	0.63
2:A2:1259:C:H42	2:A2:1901:A:H61	1.47	0.63
2:A2:2224:C:H5	2:A2:2226:G:H1	1.46	0.63
10:C1:92:MET:HE2	10:C1:179:ILE:HG22	1.80	0.63
21:F3:65:PRO:HG3	41:O3:129:ILE:HB	1.81	0.63
70:n2:52:G:H2'	70:n2:53:A:C8	2.34	0.63
10:C1:113:GLU:HG2	10:C1:125:ARG:HG2	1.79	0.63
37:M3:85:LEU:HG	37:M3:106:CYS:HB3	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:1279:C:H2'	69:m2:1280:A:H8	1.64	0.63
70:n2:68:U:H2'	70:n2:69:G:H8	1.63	0.63
82:z2:5:ARG:HB2	82:z2:10:LYS:HE2	1.79	0.63
33:K3:32:MET:HE2	33:K3:63:MET:HE2	1.81	0.63
69:m2:1241:U:H5''	80:x2:124:LYS:HD2	1.78	0.63
75:s2:50:PRO:HG2	75:s2:90:VAL:HG22	1.81	0.63
2:A2:3894:U:H3	2:A2:3933:A:H2	1.45	0.62
18:E3:90:CYS:HA	18:E3:93:PHE:HD2	1.64	0.62
18:E3:94:ILE:HD12	18:E3:125:VAL:HG21	1.81	0.62
36:M2:80:ILE:HG12	36:M2:129:VAL:HG22	1.79	0.62
39:N3:16:LEU:HD11	39:N3:62:GLN:HG3	1.82	0.62
2:A2:1007:A:H2	2:A2:1017:G:H1	1.47	0.62
12:C3:46:LYS:HB2	12:C3:48:LEU:HD22	1.80	0.62
23:G2:103:LEU:HD11	23:G2:248:ARG:HE	1.64	0.62
42:P2:16:ILE:HD11	42:P2:124:GLU:HG2	1.80	0.62
69:m2:5:U:H2'	69:m2:6:G:H8	1.63	0.62
82:z2:98:VAL:HG11	82:z2:114:LEU:HB2	1.81	0.62
2:A2:229:G:H5''	48:S2:11:ARG:HG3	1.81	0.62
69:m2:564:U:H2'	69:m2:565:G:C8	2.35	0.62
82:z2:36:GLU:HB3	82:z2:47:ARG:HD2	1.80	0.62
1:A1:127:VAL:HG13	1:A1:158:VAL:HG12	1.81	0.62
2:A2:854:A:H1'	2:A2:1878:G:H5''	1.82	0.62
13:D1:156:LYS:HD2	13:D1:165:ILE:HD11	1.82	0.62
34:L2:119:MET:HE3	34:L2:123:LEU:HD11	1.81	0.62
4:B1:77:PRO:HG2	4:B1:80:ILE:HD12	1.81	0.62
1:A1:157:ILE:HD11	2:A2:1528:U:H5'	1.82	0.62
2:A2:2203:G:H2'	2:A2:2204:A:C8	2.34	0.62
13:D1:33:ILE:HB	13:D1:69:ARG:HH12	1.65	0.62
69:m2:930:G:H2'	69:m2:931:G:C8	2.35	0.62
76:t2:154:ILE:HB	76:t2:185:VAL:HG22	1.80	0.62
80:x2:100:LYS:HG2	80:x2:101:THR:H	1.64	0.62
19:F1:59:VAL:HG21	19:F1:73:GLY:HA3	1.83	0.61
45:Q3:7:ILE:HD11	45:Q3:47:MET:HE1	1.81	0.61
3:A3:39:ARG:HD2	6:B3:39:LEU:HD23	1.82	0.61
4:B1:180:PRO:HB3	4:B1:223:ARG:HG3	1.82	0.61
71:o2:50:ASN:HD21	71:o2:53:ARG:HH11	1.47	0.61
42:P2:112:MET:HE2	42:P2:132:ILE:HA	1.83	0.61
74:r2:185:GLY:H	74:r2:224:ASN:HB3	1.64	0.61
2:A2:3254:C:H2'	2:A2:3255:A:H8	1.65	0.61
2:A2:3776:C:H5''	2:A2:3777:A:H5''	1.82	0.61
2:A2:4703:C:H2'	2:A2:4704:A:C8	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:E2:261:ARG:HB3	28:I2:64:THR:HG21	1.82	0.61
35:L3:42:GLU:HA	35:L3:45:ARG:HG2	1.82	0.61
39:N3:20:ARG:HH21	43:P3:56:HIS:CG	2.18	0.61
66:i2:61:LYS:HE3	66:i2:87:ARG:HH12	1.64	0.61
73:q2:170:THR:HG23	73:q2:187:LYS:HB3	1.81	0.61
68:k2:119:ARG:HA	68:k2:122:LYS:HE3	1.82	0.61
2:A2:3266:A:H2'	2:A2:3267:A:H8	1.65	0.61
2:A2:3388:A:H2'	2:A2:3389:A:C8	2.36	0.61
2:A2:3890:G:H2'	2:A2:3891:A:H8	1.66	0.61
69:m2:5:U:H2'	69:m2:6:G:C8	2.35	0.61
69:m2:1397:C:H2'	69:m2:1398:A:C8	2.35	0.61
80:x2:49:LEU:HD23	80:x2:53:GLN:HG3	1.83	0.61
6:B3:37:VAL:HG12	6:B3:46:ALA:HB1	1.82	0.61
27:H3:23:VAL:HG22	78:v2:59:LYS:HD2	1.82	0.61
30:J2:29:THR:HG21	30:J2:146:ILE:HD11	1.82	0.61
69:m2:186:C:H2'	69:m2:187:G:H8	1.66	0.61
74:r2:124:CYS:HB3	74:r2:141:THR:HG23	1.81	0.61
2:A2:318:A:H2'	2:A2:319:A:C8	2.36	0.61
69:m2:96:C:H1'	69:m2:476:G:H5'	1.83	0.61
2:A2:152:U:P	25:H1:49:ARG:HH12	2.23	0.61
2:A2:1458:C:H2'	2:A2:1459:A:C8	2.36	0.61
2:A2:3392:A:H2'	2:A2:3393:A:C8	2.36	0.61
2:A2:3926:A:H2'	2:A2:3927:G:H8	1.66	0.61
18:E3:40:PRO:HG3	18:E3:81:ILE:HD11	1.82	0.61
29:I3:5:MET:HB2	29:I3:270:LEU:HD21	1.83	0.61
32:K2:172:ARG:HA	32:K2:176:ARG:HD2	1.83	0.61
74:r2:45:ILE:HG13	74:r2:61:VAL:HG11	1.82	0.61
14:D2:83:HIS:HB3	67:j2:64:VAL:HG22	1.83	0.60
45:Q3:17:LEU:HD12	45:Q3:18:LEU:HD12	1.82	0.60
65:h2:1:MET:HG3	69:m2:1708:G:H5'	1.81	0.60
69:m2:29:G:H2'	69:m2:30:C:C6	2.36	0.60
69:m2:927:G:H1	69:m2:1019:U:H3	1.48	0.60
29:I3:149:GLU:HB2	29:I3:171:ASP:HB3	1.84	0.60
2:A2:744:C:H3'	2:A2:746:G:H5''	1.83	0.60
4:B1:137[A]:ARG:HD2	4:B1:146:LEU:HD11	1.82	0.60
4:B1:180:PRO:HG3	4:B1:219:VAL:HG13	1.82	0.60
36:M2:15:ARG:HB3	36:M2:27:LEU:HD23	1.84	0.60
50:T2:14:LEU:HB3	58:a2:88:ARG:HG3	1.82	0.60
81:y2:111:ILE:HG23	81:y2:112:LEU:HD12	1.82	0.60
2:A2:265:U:H5''	2:A2:266:C:H5'	1.84	0.60
2:A2:3517:A:H2'	2:A2:3518:A:H8	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:Q2:39:ALA:HA	44:Q2:44:ARG:HH11	1.66	0.60
2:A2:4421:G:H5'	28:I2:176:ARG:HD3	1.84	0.60
35:L3:32:ILE:HG23	35:L3:37:LEU:HB2	1.84	0.60
74:r2:184:ILE:HG21	74:r2:226:PHE:HE2	1.66	0.60
2:A2:2395:G:H2'	2:A2:2396:A:C8	2.37	0.60
12:C3:21:ARG:HH21	12:C3:88:LEU:HD21	1.65	0.60
65:h2:10:MET:HE2	69:m2:1174:U:H4'	1.84	0.60
2:A2:3529:G:H2'	2:A2:3530:G:C8	2.36	0.60
2:A2:3926:A:H2'	2:A2:3927:G:C8	2.36	0.60
3:A3:55:ARG:NH1	47:R3:48:VAL:HG13	2.17	0.60
16:E1:35:ARG:HG2	16:E1:123:ILE:HA	1.82	0.60
76:t2:61:ILE:HG21	76:t2:176:VAL:HG21	1.82	0.60
2:A2:2366:A:H2'	2:A2:2367:G:C8	2.36	0.60
31:J3:166:ARG:HB2	31:J3:248:TYR:CE1	2.36	0.60
35:L3:159:PHE:HA	35:L3:162:ARG:HH21	1.66	0.60
2:A2:665:C:H2'	2:A2:666:G:H8	1.67	0.60
2:A2:1068:C:H42	2:A2:1082:A:H61	1.50	0.60
3:A3:12:ILE:HG23	3:A3:20:ILE:HG23	1.83	0.60
6:B3:5:THR:HG22	6:B3:6:VAL:H	1.65	0.60
6:B3:65:TYR:CE2	6:B3:128:GLN:HG3	2.37	0.60
18:E3:26:GLN:HA	18:E3:29:LYS:HE3	1.83	0.60
72:p2:52:THR:HG22	72:p2:58:ALA:H	1.67	0.60
69:m2:373:A:OP2	77:u2:10:LYS:HB2	2.01	0.59
69:m2:1146:A:H5'	69:m2:1357:C:H41	1.67	0.59
69:m2:1407:A:H2'	69:m2:1408:G:O4'	2.02	0.59
73:q2:136:VAL:HG22	73:q2:186:VAL:HG22	1.84	0.59
2:A2:304:C:O2'	60:c2:76:ARG:HD3	2.02	0.59
2:A2:1146:C:H2'	2:A2:1147:A:C8	2.36	0.59
2:A2:2124:U:H1'	55:X2:39:LYS:HZ3	1.67	0.59
2:A2:3784:C:H2'	2:A2:3785:G:H8	1.67	0.59
35:L3:111:GLN:HE22	35:L3:127:ARG:HA	1.67	0.59
46:R2:110:LYS:HG2	46:R2:114:LYS:HE2	1.84	0.59
73:q2:59:LEU:HD23	73:q2:66:ILE:HG21	1.84	0.59
2:A2:72:C:H5	19:F1:67:HIS:HD1	1.48	0.59
2:A2:129:C:H2'	2:A2:130:G:C8	2.37	0.59
2:A2:300:A:H2'	2:A2:301:G:H8	1.67	0.59
2:A2:2312:G:H1	2:A2:2325:U:H3	1.50	0.59
4:B1:138:ALA:HB2	4:B1:194:VAL:HG11	1.84	0.59
7:Bv:34:G:H1	8:Bx:51:U:H3	1.50	0.59
48:S2:109:LEU:HD22	48:S2:115:ARG:HH22	1.67	0.59
74:r2:222:LEU:HD23	74:r2:225:ILE:HD12	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:260:C:H2'	2:A2:261:G:H8	1.67	0.59
2:A2:2213:C:H5''	25:H1:67:ARG:HD2	1.83	0.59
2:A2:4391:C:H3'	2:A2:4393:A:H5''	1.84	0.59
69:m2:872:A:H62	69:m2:918:A:H5'	1.66	0.59
72:p2:49:VAL:HG21	72:p2:62:LEU:HD22	1.84	0.59
12:C3:79:ARG:HH12	81:y2:132:PHE:HD2	1.49	0.59
17:E2:217:ILE:HD11	17:E2:333:LEU:HD21	1.82	0.59
30:J2:36:ILE:HA	30:J2:39:MET:HE2	1.84	0.59
33:K3:2:LYS:HD2	33:K3:15:LEU:HD21	1.84	0.59
80:x2:56:LEU:HD12	80:x2:80:LEU:HD12	1.85	0.59
2:A2:1354:U:H5''	14:D2:21:LYS:HG2	1.84	0.59
2:A2:2370:U:H3	2:A2:2477:G:H1	1.51	0.59
19:F1:9:ILE:HG23	52:U2:34:ASN:ND2	2.18	0.59
33:K3:66:GLY:HA2	69:m2:1747:A:H1'	1.85	0.59
38:N2:28:ALA:HB1	38:N2:32:ARG:HH12	1.66	0.59
69:m2:944:G:H2'	69:m2:945:U:C6	2.37	0.59
2:A2:2599:A:O2'	2:A2:4283:G:H4'	2.02	0.59
2:A2:3348:A:H62	2:A2:3479:G:H21	0.68	0.59
3:A3:46:ARG:NH1	6:B3:37:VAL:HG21	2.18	0.59
13:D1:91:LEU:HD11	13:D1:135:ILE:HG12	1.85	0.59
27:H3:32:ARG:HH22	27:H3:43:PHE:HB2	1.68	0.59
35:L3:38:ARG:HA	51:T3:31:ARG:HB2	1.84	0.59
2:A2:2124:U:H1'	55:X2:39:LYS:NZ	2.17	0.59
12:C3:52:GLY:HA3	69:m2:1403:A:H4'	1.84	0.59
33:K3:195:LYS:HB3	69:m2:126:G:H5''	1.84	0.59
69:m2:153:G:H22	69:m2:165:G:H21	1.48	0.59
69:m2:1281:C:H2'	69:m2:1282:G:H8	1.68	0.59
71:o2:205:ARG:HH22	82:z2:86:PRO:HG2	1.67	0.59
17:E2:247:GLY:HA3	17:E2:250:LYS:HE3	1.84	0.59
27:H3:21:CYS:HB3	27:H3:26:ASN:H	1.68	0.59
50:T2:50:PRO:HD3	50:T2:68:ILE:HG12	1.85	0.59
2:A2:746:G:HO2'	2:A2:747:G:H8	1.51	0.59
2:A2:1695:C:H1'	2:A2:1739:C:O2	2.03	0.58
2:A2:2275:C:H5''	58:a2:33:LEU:HD22	1.85	0.58
2:A2:2500:A:H2'	2:A2:2501:A:H8	1.65	0.58
34:L2:119:MET:HE1	34:L2:145:LEU:HD12	1.84	0.58
69:m2:511:OMG:H2'	69:m2:512:G:H8	1.68	0.58
73:q2:167:TYR:CD1	73:q2:200:PRO:HG2	2.38	0.58
72:p2:163:GLN:HB3	72:p2:204:ILE:HD13	1.86	0.58
74:r2:90:ILE:HB	74:r2:99:PHE:HB2	1.85	0.58
2:A2:1475:C:H2'	2:A2:1476:C:C6	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B1:48:LYS:HE2	46:R2:42:THR:HB	1.83	0.58
2:A2:1893:C:C4	2:A2:1896:A:H4'	2.39	0.58
39:N3:46:THR:HG22	39:N3:48:SER:H	1.69	0.58
45:Q3:5:VAL:HG23	45:Q3:27:VAL:HG13	1.84	0.58
4:B1:150:LYS:HE3	4:B1:177:MET:HE3	1.84	0.58
28:I2:12:ARG:HB2	28:I2:37:ARG:HD2	1.84	0.58
39:N3:142:GLU:HG2	39:N3:143:SER:N	2.18	0.58
69:m2:102:A:H4'	69:m2:104:A:C8	2.39	0.58
75:s2:20:PHE:CE2	75:s2:94:LYS:HG3	2.39	0.58
2:A2:4505:G:H2'	2:A2:4506:G:C8	2.38	0.58
19:F1:80:GLU:HA	19:F1:83:VAL:HG12	1.84	0.58
73:q2:76:ARG:HG2	78:v2:61:GLN:HE21	1.68	0.58
74:r2:71:LYS:HE2	74:r2:93:GLU:HG3	1.86	0.58
2:A2:1626:G:H4'	23:G2:44:TYR:CD2	2.37	0.58
6:B3:122:LYS:HD2	6:B3:123:LEU:O	2.03	0.58
31:J3:196:ILE:HB	31:J3:223:TYR:HB2	1.86	0.58
43:P3:42:MET:HE1	76:t2:146:VAL:HG11	1.85	0.58
60:c2:58:MET:HE2	60:c2:90:LEU:HD22	1.84	0.58
69:m2:1409:U:H5''	81:y2:71:ARG:HH12	1.68	0.58
4:B1:162:ASP:HB2	4:B1:163:PRO:HD3	1.84	0.58
15:D3:17:CYS:HB2	15:D3:56:CYS:SG	2.43	0.58
31:J3:183:LYS:HD3	31:J3:194:ARG:HH21	1.68	0.58
49:S3:19:HIS:CD2	49:S3:21:LYS:H	2.22	0.58
16:E1:32:ARG:HD2	16:E1:35:ARG:HH21	1.68	0.58
29:I3:88:ARG:HD3	29:I3:97:THR:HG22	1.84	0.58
69:m2:1599:C:H4'	69:m2:1605:G:C6	2.39	0.58
2:A2:4045:G:O4'	2:A2:4099:5MC:HM52	2.04	0.58
22:G1:119:ARG:HH11	28:I2:196:LEU:HD12	1.67	0.58
25:H1:65:ARG:HG3	25:H1:129:PHE:CE1	2.39	0.58
27:H3:30:LEU:HG	69:m2:1258:G:C2	2.39	0.58
47:R3:67:LEU:HD22	75:s2:103:LEU:HD21	1.86	0.58
66:i2:67:VAL:HG11	66:i2:82:MET:HE3	1.85	0.58
23:G2:66:TYR:HE2	23:G2:68:ARG:HE	1.51	0.57
36:M2:19:THR:HG23	36:M2:22:CYS:H	1.69	0.57
69:m2:1409:U:H2'	69:m2:1410:U:C6	2.39	0.57
74:r2:184:ILE:HD13	74:r2:226:PHE:CE2	2.39	0.57
69:m2:121:OMU:HN3	69:m2:345:A:H61	1.51	0.57
71:o2:54:THR:HA	71:o2:162:PRO:HG2	1.86	0.57
76:t2:57:ARG:HH22	76:t2:172:THR:HB	1.69	0.57
2:A2:2465:C:H2'	2:A2:2467:G:H4'	1.86	0.57
2:A2:3912:U:H2'	2:A2:3913:C:H6	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:E3:5:ARG:HA	79:w2:101:ARG:HH12	1.67	0.57
35:L3:32:ILE:HD11	35:L3:40:LYS:HG2	1.86	0.57
35:L3:160:SER:H	35:L3:162:ARG:NH2	2.02	0.57
39:N3:19:ARG:HD2	76:t2:140:VAL:HG12	1.86	0.57
72:p2:136:ARG:HB2	72:p2:218:LEU:HD11	1.85	0.57
2:A2:3912:U:H2'	2:A2:3913:C:C6	2.38	0.57
7:Bv:51:U:H3	7:Bv:63:G:H22	1.51	0.57
73:q2:28:GLU:HG2	78:v2:65:ARG:HH22	1.69	0.57
2:A2:1006:G:H1	2:A2:1018:U:H3	1.51	0.57
2:A2:1881:G:H2'	2:A2:1882:U:C6	2.38	0.57
2:A2:3504:U:H2'	2:A2:3505:A:H8	1.70	0.57
2:A2:3565:C:H5	2:A2:4048:A:H61	1.52	0.57
32:K2:75:ARG:HA	32:K2:78:LYS:HD3	1.85	0.57
33:K3:67:VAL:HG23	33:K3:99:GLY:HA2	1.86	0.57
40:O2:100:LEU:HD23	40:O2:112:LEU:HD23	1.86	0.57
69:m2:107:A:H2'	69:m2:108:G:H8	1.70	0.57
69:m2:1390:A:H61	73:q2:161:GLY:HA3	1.68	0.57
2:A2:952:C:H2'	2:A2:953:G:H8	1.70	0.57
2:A2:1112:C:H2'	2:A2:1113:G:C8	2.40	0.57
2:A2:1317:G:H2'	2:A2:1318:C:C6	2.40	0.57
2:A2:3903:A:H5''	16:E1:108:GLY:HA3	1.86	0.57
19:F1:81:LEU:HD11	19:F1:98:VAL:HG22	1.86	0.57
31:J3:81:ILE:HG23	31:J3:86:LEU:HB2	1.87	0.57
41:O3:136:PRO:HB2	41:O3:139:SER:HB3	1.87	0.57
69:m2:1039:G:H4'	69:m2:1847:A:H4'	1.87	0.57
3:A3:36:VAL:HG13	3:A3:40:TYR:HD2	1.70	0.57
7:Bv:34:G:H2'	7:Bv:35:A:C8	2.39	0.57
29:I3:199:THR:HG22	29:I3:208:ALA:HB3	1.85	0.57
31:J3:165:VAL:HG22	31:J3:244:ILE:HG23	1.86	0.57
33:K3:121:ILE:HD12	33:K3:124:LEU:HD22	1.86	0.57
45:Q3:34:THR:HG22	45:Q3:62:THR:HG21	1.87	0.57
69:m2:529:C:H2'	69:m2:530:A:C8	2.39	0.57
69:m2:1012:G:H2'	69:m2:1013:A:C8	2.40	0.57
15:D3:14:PRO:HG2	15:D3:23:ILE:HD12	1.87	0.57
2:A2:1532:U:H4'	38:N2:100:LYS:HB2	1.86	0.57
23:G2:127:GLY:HA2	23:G2:195:HIS:HD2	1.68	0.57
62:e2:23:VAL:HG22	62:e2:36:VAL:HG22	1.86	0.57
72:p2:35:ALA:HB2	72:p2:44:ILE:HD11	1.87	0.57
2:A2:2451:A:H62	62:e2:35:LYS:HZ2	1.52	0.56
2:A2:4400:U:H5''	57:Z2:54:LYS:HE3	1.87	0.56
16:E1:27:GLY:HA2	16:E1:68:ILE:HG23	1.85	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:E3:105:PHE:HE2	18:E3:118:VAL:HG12	1.70	0.56
45:Q3:87:PRO:HG2	45:Q3:90:ARG:HB2	1.86	0.56
2:A2:3268:C:H1'	2:A2:4662:A:C8	2.39	0.56
69:m2:1799:U:H2'	69:m2:1800:C:C6	2.40	0.56
75:s2:68:ILE:HD11	75:s2:151:ILE:HD11	1.88	0.56
2:A2:433:A:C2	2:A2:3523:A:H4'	2.39	0.56
2:A2:3325:G:H21	2:A2:3328:G:N2	2.03	0.56
2:A2:3567:C:H2'	2:A2:3568:U:H6	1.70	0.56
2:A2:3975:A:C8	23:G2:153:THR:HG21	2.40	0.56
14:D2:49:ILE:HD13	14:D2:60:LYS:HE3	1.87	0.56
40:O2:56:LEU:HD12	40:O2:61:VAL:HG13	1.87	0.56
73:q2:106:ARG:HH21	73:q2:173:ARG:HB3	1.70	0.56
75:s2:19:LEU:HB3	75:s2:21:GLY:H	1.70	0.56
1:A1:138:GLN:HB3	1:A1:141:ASN:OD1	2.06	0.56
2:A2:3517:A:H2'	2:A2:3518:A:C8	2.41	0.56
29:I3:133:ASN:H	29:I3:136:GLY:HA2	1.71	0.56
51:T3:28:LYS:HD3	51:T3:32:ALA:HB1	1.86	0.56
69:m2:190:G:H5''	77:u2:145:ILE:HD12	1.88	0.56
69:m2:1103:U:H2'	69:m2:1104:G:C8	2.40	0.56
2:A2:718:A:H2'	2:A2:719:C:C6	2.41	0.56
2:A2:1562:G:H2'	2:A2:1563:G:C8	2.41	0.56
3:A3:124:ARG:HB3	3:A3:131:VAL:HG12	1.88	0.56
16:E1:144:LYS:HE2	16:E1:146:ARG:O	2.06	0.56
20:F2:148:PRO:HD2	20:F2:152:LEU:HD21	1.88	0.56
41:O3:40:THR:HG21	41:O3:74:ALA:HB2	1.87	0.56
41:O3:53:ILE:HG23	41:O3:88:LEU:HD22	1.88	0.56
69:m2:186:C:H2'	69:m2:187:G:C8	2.40	0.56
2:A2:73:A:N6	19:F1:103:ARG:HH22	2.04	0.56
2:A2:1893:C:H4'	2:A2:1894:G:H5'	1.87	0.56
22:G1:11:ARG:HB3	22:G1:27:ILE:HD12	1.87	0.56
29:I3:64:HIS:CD2	29:I3:65:PHE:H	2.23	0.56
33:K3:121:ILE:HG22	33:K3:123:GLY:H	1.71	0.56
68:k2:51:VAL:HG12	68:k2:117:ILE:HD12	1.87	0.56
2:A2:4430:U:H2'	2:A2:4431:C:H6	1.70	0.56
23:G2:65:ALA:HB2	23:G2:74:ILE:HD13	1.87	0.56
27:H3:32:ARG:NH2	27:H3:38:MET:HB2	2.20	0.56
29:I3:39:THR:HG22	29:I3:60:ARG:HG3	1.86	0.56
45:Q3:25:ILE:HD11	45:Q3:60:PHE:HE1	1.71	0.56
69:m2:842:C:H4'	69:m2:843:G:O5'	2.05	0.56
73:q2:31:GLU:HG3	73:q2:57:ASN:HD21	1.69	0.56
76:t2:91:HIS:HB3	76:t2:169:LYS:HE3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A1:193:ASP:HB2	1:A1:196:LEU:HD13	1.87	0.56
2:A2:698:C:H2'	2:A2:699:A:C8	2.40	0.56
14:D2:24:LYS:HG3	14:D2:49:ILE:HD12	1.86	0.56
25:H1:185:GLY:HA3	25:H1:194:ARG:HH12	1.68	0.56
30:J2:54:LYS:HA	30:J2:83:TRP:CD1	2.41	0.56
35:L3:65:GLU:HA	35:L3:70:ARG:HD3	1.87	0.56
39:N3:25:TRP:CD2	49:S3:82:LYS:HE2	2.41	0.56
63:f2:28:ARG:HA	63:f2:33:ASN:HD22	1.69	0.56
73:q2:20:GLU:HG2	78:v2:59:LYS:HG3	1.88	0.56
79:w2:61:PRO:HD3	79:w2:141:ASN:HD21	1.71	0.56
2:A2:1316:A:H4'	2:A2:1317:G:H5'	1.88	0.56
2:A2:1376:A:H2'	2:A2:1377:A:C8	2.41	0.56
2:A2:3933:A:O2'	2:A2:3934:A:H8	1.89	0.56
13:D1:188:LYS:HE3	13:D1:212:LEU:HG	1.88	0.56
14:D2:54:ARG:NH1	14:D2:58:LEU:HD21	2.18	0.56
32:K2:50:ARG:HA	32:K2:53:MET:HE2	1.88	0.56
42:P2:111:GLU:HG2	42:P2:131:ARG:HD2	1.88	0.56
2:A2:3890:G:H2'	2:A2:3891:A:C8	2.41	0.56
16:E1:146:ARG:HD2	16:E1:147:ARG:HG2	1.88	0.56
19:F1:9:ILE:HG23	52:U2:34:ASN:HD21	1.71	0.56
43:P3:78:ARG:HB3	43:P3:124:LYS:HB3	1.87	0.56
48:S2:109:LEU:HD22	48:S2:115:ARG:NH2	2.21	0.56
52:U2:133:ALA:O	52:U2:137:ILE:HG13	2.05	0.56
69:m2:510:A:H3'	69:m2:511:OMG:H8	1.71	0.56
69:m2:1427:G:H5''	81:y2:31:LEU:HD13	1.88	0.56
28:I2:81:TRP:HB2	28:I2:104:VAL:HG21	1.88	0.55
28:I2:168:TYR:CE2	28:I2:172:LYS:HD2	2.41	0.55
33:K3:2:LYS:HB2	33:K3:108:VAL:HG22	1.88	0.55
33:K3:199:THR:HG21	69:m2:126:G:H2'	1.87	0.55
39:N3:4:MET:SD	69:m2:926:G:H5'	2.46	0.55
49:S3:20:LYS:HA	49:S3:23:ARG:NH1	2.20	0.55
69:m2:1009:C:H2'	69:m2:1010:A:C8	2.41	0.55
69:m2:1750:G:H2'	69:m2:1751:G:C8	2.40	0.55
74:r2:18:TRP:HE3	74:r2:20:LEU:HD11	1.71	0.55
81:y2:62:ARG:HD3	81:y2:92:LEU:HD21	1.88	0.55
2:A2:1906:G:H2'	2:A2:1907:A:C8	2.42	0.55
6:B3:87:VAL:HG21	69:m2:1609:A:H5'	1.88	0.55
10:C1:8:GLN:HE22	10:C1:71:ARG:HB2	1.71	0.55
18:E3:106:GLY:HA2	69:m2:650:A:OP1	2.06	0.55
42:P2:35:LYS:HZ3	42:P2:68:GLY:HA2	1.71	0.55
69:m2:375:G:H4'	79:w2:85:THR:HG21	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:444:G:H2'	2:A2:445:U:C6	2.41	0.55
2:A2:3353:U:H5''	2:A2:3354:G:H5'	1.89	0.55
2:A2:4189:C:H2'	2:A2:4190:G:H8	1.71	0.55
3:A3:19:ASN:HD22	3:A3:33:ILE:HG13	1.72	0.55
3:A3:108:ARG:HH21	16:E1:125:ILE:HD11	1.71	0.55
21:F3:44:ILE:HD12	21:F3:65:PRO:HG2	1.87	0.55
21:F3:41:ILE:HG22	21:F3:66:LYS:HD3	1.87	0.55
23:G2:55:VAL:HG22	23:G2:60:ILE:HG12	1.87	0.55
27:H3:30:LEU:HD22	69:m2:1661:U:H4'	1.88	0.55
33:K3:85:ARG:HH12	45:Q3:118:ARG:HD2	1.70	0.55
54:W2:47:ILE:HD13	54:W2:94:LEU:HD11	1.88	0.55
2:A2:140:G:H2'	2:A2:141:C:C6	2.42	0.55
2:A2:1444:A:N7	14:D2:199:VAL:HG21	2.22	0.55
2:A2:3579:A:H2'	2:A2:3580:C:C6	2.41	0.55
2:A2:3738:C:H2'	2:A2:3739:G:C8	2.41	0.55
2:A2:3784:C:H2'	2:A2:3785:G:C8	2.42	0.55
2:A2:4030:A:O2'	2:A2:4031:A:H2'	2.06	0.55
45:Q3:11:LYS:HG2	69:m2:844:C:N4	2.21	0.55
48:S2:34:LEU:HD11	48:S2:47:MET:HB2	1.87	0.55
55:X2:64:ILE:HG23	55:X2:68:LEU:HD23	1.86	0.55
69:m2:876:G:H2'	69:m2:877:A:H8	1.72	0.55
79:w2:57:ASP:OD2	79:w2:115:PRO:HD2	2.06	0.55
82:z2:24:LEU:HD11	82:z2:58:MET:HE3	1.87	0.55
2:A2:453:G:H1	2:A2:1107:G:H22	1.53	0.55
2:A2:1475:C:H2'	2:A2:1476:C:H6	1.71	0.55
2:A2:3254:C:H2'	2:A2:3255:A:C8	2.41	0.55
2:A2:3891:A:H2'	2:A2:3892:G:C8	2.41	0.55
41:O3:31:CYS:HB2	41:O3:93:LEU:HD13	1.88	0.55
50:T2:100:VAL:HG22	50:T2:107:LYS:HA	1.87	0.55
57:Z2:36:ARG:HB2	57:Z2:80:ASN:HA	1.88	0.55
69:m2:930:G:H1	69:m2:1015:U:H3	1.53	0.55
69:m2:998:A:H2'	69:m2:999:A:C8	2.41	0.55
69:m2:1410:U:H2'	69:m2:1411:A:H8	1.71	0.55
77:u2:74:ARG:HH21	77:u2:112:TRP:HD1	1.55	0.55
2:A2:2366:A:H5'	2:A2:2443:G:H4'	1.89	0.55
2:A2:4582:U:H4'	2:A2:4583:U:OP1	2.06	0.55
11:C2:144:U:H2'	11:C2:145:C:C6	2.42	0.55
69:m2:1203:U:H2'	69:m2:1204:U:C6	2.42	0.55
2:A2:724:U:H2'	2:A2:725:C:C6	2.42	0.55
2:A2:1131:U:H2'	2:A2:1132:C:C6	2.42	0.55
25:H1:75:VAL:HG21	25:H1:80:THR:HG23	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1831:A:H2'	2:A2:1832:A:C8	2.42	0.55
2:A2:3933:A:O2'	2:A2:3934:A:C8	2.60	0.55
2:A2:4600:G:H2'	2:A2:4601:A:C8	2.42	0.55
3:A3:24:ARG:HG3	3:A3:25:LYS:H	1.72	0.55
3:A3:137:LYS:HE3	69:m2:1236:C:H41	1.71	0.55
4:B1:58:PRO:HD2	4:B1:61:ILE:HD12	1.89	0.55
41:O3:78:ALA:HB1	41:O3:119:LEU:HG	1.89	0.55
75:s2:127:ARG:HA	75:s2:136:ARG:HD2	1.89	0.55
77:u2:74:ARG:HH21	77:u2:112:TRP:CD1	2.25	0.55
2:A2:3378:G:H2'	2:A2:3379:A:H8	1.72	0.55
2:A2:3576:U:H2'	2:A2:3577:U:C6	2.42	0.55
3:A3:89:ASP:HB3	69:m2:1613:G:O3'	2.07	0.55
12:C3:48:LEU:HD12	12:C3:93:SER:HB2	1.88	0.55
43:P3:12:LYS:HE3	69:m2:1154:U:H2'	1.88	0.55
49:S3:33:MET:HE2	49:S3:48:SER:HA	1.89	0.55
69:m2:17:C:H2'	69:m2:18:C:H6	1.71	0.55
69:m2:190:G:N2	69:m2:192:C:H42	2.04	0.55
2:A2:2482:C:H2'	2:A2:2483:U:C6	2.43	0.54
2:A2:3566:C:H2'	2:A2:3567:C:C6	2.41	0.54
2:A2:3923:A:H62	2:A2:3983:G:N2	2.04	0.54
6:B3:57:ALA:HB1	6:B3:107:LEU:HD11	1.90	0.54
49:S3:49:HIS:HA	49:S3:70:LYS:HA	1.88	0.54
69:m2:28:U:H2'	69:m2:29:G:H8	1.72	0.54
81:y2:42:ILE:HD13	81:y2:51:LEU:HD21	1.88	0.54
81:y2:50:LYS:HD2	81:y2:85:ARG:NH1	2.22	0.54
2:A2:129:C:H2'	2:A2:130:G:H8	1.70	0.54
2:A2:2419:G:H4'	2:A2:2432:G:H4'	1.88	0.54
3:A3:117:ILE:HD11	80:x2:111:MET:HG3	1.89	0.54
29:I3:20:GLN:HG2	29:I3:69:VAL:H	1.73	0.54
69:m2:622:G:H2'	69:m2:622:G:N3	2.21	0.54
2:A2:4243:U:H2'	2:A2:4244:C:C6	2.42	0.54
24:G3:35:MET:HE1	24:G3:55:VAL:HG13	1.89	0.54
28:I2:61:ARG:HD2	28:I2:66:PRO:HB3	1.88	0.54
39:N3:89:TYR:CE2	39:N3:93:LYS:HE2	2.42	0.54
69:m2:385:G:H21	79:w2:133:PRO:HG2	1.72	0.54
2:A2:132:G:H2'	2:A2:133:C:O4'	2.07	0.54
2:A2:1577:A:H2'	2:A2:1578:A:H8	1.73	0.54
2:A2:2499:A:H2'	2:A2:2500:A:C8	2.43	0.54
2:A2:3320:G:H2'	2:A2:3321:G:H8	1.72	0.54
2:A2:3562:A:H2'	20:F2:69:THR:HG21	1.89	0.54
10:C1:59:LYS:HE3	10:C1:66:GLU:HG2	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:C3:21:ARG:NH2	12:C3:88:LEU:HD21	2.22	0.54
22:G1:24:LEU:HD11	22:G1:86:TRP:CG	2.42	0.54
22:G1:40:GLY:HA3	22:G1:45:VAL:HB	1.89	0.54
33:K3:106:LEU:HD22	33:K3:109:LEU:HD12	1.89	0.54
45:Q3:15:ASN:ND2	45:Q3:18:LEU:HD13	2.21	0.54
55:X2:92:ARG:HA	55:X2:102:LEU:HD23	1.89	0.54
69:m2:1456:A:H5''	82:z2:3:ARG:HH11	1.72	0.54
69:m2:1645:U:H2'	69:m2:1646:C:C6	2.43	0.54
2:A2:4563:C:H2'	2:A2:4564:G:C8	2.42	0.54
17:E2:285:TYR:OH	17:E2:334:LYS:HD2	2.08	0.54
58:a2:40:LYS:HB3	58:a2:52:ARG:NH1	2.21	0.54
69:m2:180:G:H3'	69:m2:181:A:C8	2.42	0.54
69:m2:1100:C:H2'	69:m2:1101:G:C8	2.42	0.54
76:t2:144:ILE:HD11	76:t2:152:ARG:HD3	1.88	0.54
1:A1:247:THR:HG22	1:A1:251:GLU:HG3	1.88	0.54
2:A2:325:U:H2'	2:A2:326:C:C6	2.42	0.54
2:A2:1482:A:H4'	2:A2:1498:G:N2	2.23	0.54
45:Q3:5:VAL:HB	45:Q3:35:VAL:HG21	1.89	0.54
69:m2:498:C:H2'	69:m2:499:C:C6	2.43	0.54
69:m2:1246:U:H2'	69:m2:1247:G:H8	1.71	0.54
69:m2:1750:G:H2'	69:m2:1751:G:H8	1.72	0.54
74:r2:246:LEU:O	74:r2:250:GLU:HB2	2.08	0.54
77:u2:110:ARG:HE	77:u2:121:LEU:HD23	1.73	0.54
2:A2:223:G:H4'	2:A2:225:G:N7	2.22	0.54
2:A2:1271:C:H5''	32:K2:69:LYS:HD2	1.88	0.54
12:C3:26:SER:HB2	12:C3:110:VAL:HA	1.90	0.54
29:I3:20:GLN:HB3	29:I3:69:VAL:HG12	1.89	0.54
33:K3:49:VAL:HB	33:K3:115:LYS:HG2	1.89	0.54
69:m2:947:U:H2'	69:m2:948:U:C6	2.43	0.54
73:q2:167:TYR:HD1	73:q2:200:PRO:HG2	1.72	0.54
2:A2:1087:G:H2'	2:A2:1088:A:H8	1.72	0.54
2:A2:1426:A:H5'	14:D2:183:GLY:HA2	1.90	0.54
2:A2:1553:A:H2'	2:A2:1554:G:H8	1.72	0.54
29:I3:212:LYS:HA	29:I3:235:ILE:HG22	1.89	0.54
69:m2:658:G:H5'	69:m2:664:G:N2	2.23	0.54
2:A2:93:G:H2'	2:A2:94:A:C8	2.43	0.54
2:A2:2544:A:H1'	63:f2:45:ARG:HH22	1.73	0.54
3:A3:15:VAL:HG13	3:A3:68:ILE:HD11	1.90	0.54
22:G1:100:ARG:HH21	28:I2:203:VAL:HG21	1.73	0.54
31:J3:88:ILE:HD12	31:J3:93:ILE:HD11	1.89	0.54
2:A2:436:C:H2'	2:A2:437:G:H8	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B1:99:ALA:HB1	4:B1:136:LEU:HD11	1.90	0.54
38:N2:82:GLY:HA2	53:V2:21:ILE:HD12	1.89	0.54
69:m2:318:G:H2'	69:m2:319:C:C6	2.43	0.54
69:m2:347:U:H2'	69:m2:348:C:C6	2.43	0.54
69:m2:990:C:H5''	72:p2:116:LYS:HA	1.90	0.54
2:A2:4395:G:H2'	2:A2:4396:A:C8	2.43	0.53
14:D2:133:TYR:HB3	14:D2:168:VAL:HG12	1.91	0.53
24:G3:24:GLN:HE22	75:s2:127:ARG:NH2	2.06	0.53
29:I3:230:LEU:HD13	29:I3:259:TRP:CD2	2.43	0.53
33:K3:3:LEU:HD11	33:K3:111:LEU:HD13	1.90	0.53
41:O3:43:HIS:HE1	69:m2:976:C:O2	1.90	0.53
69:m2:1103:U:H2'	69:m2:1104:G:H8	1.73	0.53
80:x2:107:ILE:HA	80:x2:111:MET:SD	2.48	0.53
2:A2:3340:G:H2'	2:A2:3341:C:C6	2.43	0.53
2:A2:4044:OMG:H2'	2:A2:4099:5MC:HM51	1.91	0.53
13:D1:48:LEU:HD11	13:D1:167:ILE:HD12	1.90	0.53
23:G2:232:THR:HG22	23:G2:234:ASP:H	1.73	0.53
48:S2:31:SER:HA	48:S2:48:PRO:HA	1.89	0.53
69:m2:1277:G:H5''	78:v2:1:MET:HE1	1.90	0.53
1:A1:209:MET:SD	20:F2:328:LEU:HD13	2.47	0.53
29:I3:106:LYS:HB2	29:I3:126:ASP:HB3	1.90	0.53
35:L3:124:HIS:HD2	69:m2:528:A:H5''	1.73	0.53
2:A2:432:U:H4'	2:A2:433:A:H5''	1.90	0.53
2:A2:1112:C:H2'	2:A2:1113:G:H8	1.72	0.53
2:A2:1390:G:O2'	2:A2:1425:G:H4'	2.07	0.53
11:C2:83:C:N4	48:S2:50:ARG:HH22	2.06	0.53
15:D3:30:ALA:O	15:D3:60:ARG:HD3	2.09	0.53
29:I3:286:CYS:SG	29:I3:289:LEU:HD23	2.49	0.53
33:K3:110:ASN:HD22	69:m2:165:G:H1'	1.74	0.53
56:Y2:77:PHE:CD2	56:Y2:88:LEU:HD11	2.43	0.53
69:m2:1724:G:N3	69:m2:1725:G:H1'	2.24	0.53
74:r2:139:LEU:HB2	74:r2:150:PRO:HG3	1.90	0.53
2:A2:73:A:H62	19:F1:103:ARG:HH22	1.56	0.53
2:A2:4395:G:H2'	2:A2:4396:A:H8	1.71	0.53
17:E2:165:HIS:HB3	17:E2:180:LEU:HD12	1.89	0.53
17:E2:263:ALA:HA	28:I2:64:THR:HG23	1.89	0.53
29:I3:169:GLY:HA3	29:I3:173:LEU:O	2.07	0.53
45:Q3:114:MET:HB3	45:Q3:122:LYS:HD2	1.89	0.53
69:m2:25:A:O2'	69:m2:26:U:H5''	2.08	0.53
69:m2:846:U:H2'	69:m2:847:G:C8	2.43	0.53
71:o2:148:CYS:SG	71:o2:163:CYS:N	2.82	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:37:U:H2'	2:A2:38:A:O4'	2.09	0.53
2:A2:475:G:H2'	2:A2:476:G:H8	1.73	0.53
2:A2:1015:C:H2'	2:A2:1016:A:C8	2.44	0.53
2:A2:2311:G:H2'	2:A2:2312:G:C8	2.43	0.53
2:A2:3976:A:H2'	2:A2:3977:A:C8	2.44	0.53
2:A2:4271:U:H2'	2:A2:4272:OMU:H6	1.91	0.53
69:m2:385:G:H4'	79:w2:132:ARG:HD2	1.91	0.53
69:m2:931:G:H2'	69:m2:932:C:O4'	2.08	0.53
73:q2:35:SER:HB2	73:q2:51:LEU:HB3	1.88	0.53
2:A2:10:A:H2'	2:A2:11:G:C8	2.43	0.53
2:A2:1115:C:H2'	2:A2:1117:A:C5	2.44	0.53
2:A2:3312:A:H2'	2:A2:3313:U:C6	2.44	0.53
2:A2:4111:U:H2'	2:A2:4112:U:C6	2.43	0.53
2:A2:4413:G:H2'	2:A2:4414:A:C8	2.44	0.53
3:A3:34:LYS:HG2	69:m2:1634:G:OP1	2.09	0.53
4:B1:59:ARG:HG2	4:B1:62:ARG:HH21	1.72	0.53
20:F2:336:ARG:HA	20:F2:339:THR:HG22	1.90	0.53
29:I3:79:LEU:HD11	29:I3:120:ILE:HD13	1.91	0.53
58:a2:40:LYS:HB3	58:a2:52:ARG:HH12	1.73	0.53
69:m2:456:U:H2'	69:m2:457:A:H8	1.72	0.53
69:m2:498:C:H2'	69:m2:499:C:H6	1.73	0.53
69:m2:1115:A:H2'	69:m2:1116:U:C6	2.43	0.53
74:r2:68:ARG:HA	74:r2:76:VAL:HG11	1.91	0.53
77:u2:12:ARG:HB3	77:u2:18:ARG:HH21	1.74	0.53
80:x2:49:LEU:CD2	80:x2:53:GLN:HG3	2.38	0.53
2:A2:181:C:H2'	2:A2:182:G:C8	2.43	0.53
2:A2:286:U:H2'	2:A2:287:U:C6	2.44	0.53
2:A2:1155:U:H2'	2:A2:1156:A:C8	2.44	0.53
13:D1:135:ILE:HG22	13:D1:136:MET:HG3	1.91	0.53
14:D2:54:ARG:HG2	14:D2:56:ALA:H	1.74	0.53
80:x2:52:LYS:HD3	80:x2:80:LEU:HD22	1.91	0.53
2:A2:131:C:H2'	2:A2:132:G:C8	2.44	0.53
2:A2:1735:G:H2'	2:A2:1736:A:C8	2.43	0.53
48:S2:55:VAL:HG22	48:S2:104:VAL:HB	1.90	0.53
76:t2:47:ALA:HB3	76:t2:63:PHE:HB2	1.91	0.53
2:A2:189:G:H2'	2:A2:190:G:H8	1.74	0.53
2:A2:1888:G:H5''	20:F2:306:ARG:NH2	2.24	0.53
25:H1:38:ARG:HH21	25:H1:60:VAL:HG12	1.74	0.53
69:m2:1219:A:H2'	69:m2:1220:C:C6	2.44	0.53
75:s2:48:TYR:HE1	81:y2:57:LEU:HD21	1.73	0.53
2:A2:3336:U:H5''	14:D2:54:ARG:NH2	2.24	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A3:64:VAL:O	3:A3:68:ILE:HG12	2.08	0.52
5:B2:110:G:H2'	5:B2:111:C:C6	2.44	0.52
14:D2:180:LEU:HD21	67:j2:22:LEU:HB3	1.91	0.52
20:F2:209:ILE:HB	20:F2:229:LEU:HD13	1.89	0.52
59:b2:48:ARG:HA	59:b2:51:ARG:HG2	1.90	0.52
69:m2:96:C:H2'	69:m2:97:U:C6	2.44	0.52
69:m2:496:C:H5''	74:r2:57:THR:OG1	2.09	0.52
69:m2:1675:U:H5''	81:y2:78:VAL:HG22	1.91	0.52
2:A2:1551:A:H2'	2:A2:1552:G:C8	2.44	0.52
2:A2:3374:A2M:H2	2:A2:3590:G:O4'	2.08	0.52
21:F3:45:VAL:HG23	21:F3:50:VAL:HG12	1.91	0.52
26:H2:210:ILE:HD12	26:H2:264:ILE:HD12	1.90	0.52
71:o2:136:GLU:HA	71:o2:139:TYR:HD2	1.74	0.52
2:A2:1024:C:H2'	2:A2:1025:C:C6	2.45	0.52
17:E2:285:TYR:HA	17:E2:363:ILE:CD1	2.40	0.52
50:T2:41:ALA:HB2	50:T2:77:TYR:HE1	1.74	0.52
55:X2:53:ALA:HA	55:X2:88:LEU:HD21	1.90	0.52
69:m2:17:C:H2'	69:m2:18:C:C6	2.45	0.52
71:o2:5:LEU:HB2	71:o2:8:LEU:HD12	1.92	0.52
79:w2:68:ILE:HD13	79:w2:143:LEU:HD11	1.91	0.52
6:B3:9:VAL:HG21	6:B3:138:VAL:HG13	1.90	0.52
6:B3:56:ARG:HD2	6:B3:79:TYR:CZ	2.45	0.52
69:m2:676:C:H2'	69:m2:677:U:C6	2.44	0.52
69:m2:1705:OMC:H2'	69:m2:1706:C:O4'	2.10	0.52
69:m2:1713:U:H2'	69:m2:1714:A:C8	2.45	0.52
71:o2:65:ILE:HG23	71:o2:74:VAL:HG21	1.91	0.52
2:A2:1196:G:H2'	2:A2:1197:G:H8	1.75	0.52
23:G2:208:MET:HB2	23:G2:233:PRO:HG3	1.91	0.52
29:I3:270:LEU:HD23	29:I3:310:TRP:CE3	2.43	0.52
33:K3:170:ARG:HG3	69:m2:67:C:H41	1.74	0.52
57:Z2:8:LYS:HB3	57:Z2:100:ARG:NH1	2.25	0.52
69:m2:524:A:N1	69:m2:645:A:H5'	2.24	0.52
69:m2:1261:A:H1'	69:m2:1266:C:N4	2.25	0.52
69:m2:1735:U:H2'	69:m2:1736:G:O4'	2.10	0.52
2:A2:4623:A:H2'	2:A2:4624:G:O4'	2.10	0.52
3:A3:125:HIS:CD2	3:A3:131:VAL:HG11	2.44	0.52
19:F1:9:ILE:HG21	52:U2:52:TYR:CE1	2.44	0.52
20:F2:138:MET:HE2	20:F2:144:ILE:HG13	1.90	0.52
26:H2:185:PRO:HG2	26:H2:188:ILE:HD12	1.90	0.52
31:J3:64:THR:HG22	31:J3:66:LEU:H	1.74	0.52
42:P2:82:ILE:HD12	42:P2:121:VAL:HG22	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:T2:124:THR:HG23	50:T2:126:LYS:HG2	1.91	0.52
69:m2:564:U:H3	69:m2:589:A:H2	1.57	0.52
69:m2:954:G:H2'	69:m2:955:C:C6	2.45	0.52
69:m2:1800:C:H2'	69:m2:1801:G:O4'	2.09	0.52
76:t2:60:ILE:HD11	76:t2:92:VAL:HG22	1.91	0.52
76:t2:83:LEU:HB3	76:t2:92:VAL:HG21	1.90	0.52
2:A2:938:U:H3	2:A2:1049:C:H42	1.57	0.52
2:A2:1360:A:C2	2:A2:2568:A:H8	2.24	0.52
2:A2:4123:U:H2'	2:A2:4124:G:H8	1.75	0.52
25:H1:116:LEU:HD22	25:H1:135:ILE:HD11	1.90	0.52
31:J3:82:TYR:HE2	31:J3:136:HIS:CD2	2.28	0.52
69:m2:116:OMU:HN3	69:m2:349:G:H1	1.56	0.52
69:m2:1286:A:H5''	69:m2:1288:G:O4'	2.10	0.52
2:A2:288:G:H2'	2:A2:289:C:C6	2.45	0.52
2:A2:1190:C:H3'	2:A2:1191:G:C8	2.44	0.52
2:A2:3263:U:H2'	2:A2:3264:A:C8	2.45	0.52
2:A2:4386:A:H2'	2:A2:4387:G:C8	2.44	0.52
5:B2:57:C:H4'	16:E1:147:ARG:HH22	1.74	0.52
64:g2:98:LYS:HB3	64:g2:115:CYS:HB2	1.90	0.52
76:t2:139:ILE:HG23	76:t2:156:VAL:HG13	1.91	0.52
2:A2:1361:G:O2'	2:A2:2567:A:H8	1.92	0.52
2:A2:1553:A:H2'	2:A2:1554:G:C8	2.45	0.52
2:A2:1881:G:H2'	2:A2:1882:U:H6	1.75	0.52
2:A2:4700:C:H4'	2:A2:4701:G:C8	2.45	0.52
6:B3:82:ARG:HD3	6:B3:90:SER:HB3	1.92	0.52
13:D1:48:LEU:HB2	13:D1:142:LEU:HD23	1.91	0.52
62:e2:35:LYS:HB3	62:e2:42:LEU:HD11	1.91	0.52
77:u2:81:VAL:HG22	77:u2:102:VAL:HG12	1.90	0.52
79:w2:44:PHE:HZ	79:w2:72:ILE:HD11	1.75	0.52
1:A1:250:VAL:HA	36:M2:39:VAL:HG22	1.91	0.52
2:A2:1417:G:H2'	2:A2:1418:G:C8	2.45	0.52
2:A2:3527:A:H2'	2:A2:3528:A:C8	2.44	0.52
2:A2:3552:C:H1'	17:E2:268:ARG:NH2	2.25	0.52
5:B2:111:C:H2'	5:B2:112:U:O4'	2.09	0.52
19:F1:48:PRO:HG2	59:b2:118:LYS:HD2	1.91	0.52
43:P3:53:ILE:H	43:P3:53:ILE:HD12	1.75	0.52
46:R2:71:LEU:HG	46:R2:76:ILE:HD11	1.92	0.52
69:m2:658:G:N2	69:m2:665:C:H5''	2.25	0.52
74:r2:151:ASP:OD2	74:r2:153:VAL:HG12	2.10	0.52
82:z2:119:VAL:HG13	82:z2:121:GLN:HE22	1.75	0.52
1:A1:108:GLU:HG3	38:N2:135:PRO:HB3	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1351:U:H2'	2:A2:1352:G:H8	1.75	0.51
2:A2:3777:A:C2	4:B1:37:LYS:HE3	2.45	0.51
2:A2:4294:U:H2'	2:A2:4295:G:H8	1.75	0.51
7:Bv:8:U:H3	7:Bv:14:A:H2	1.57	0.51
28:I2:15:LEU:HD12	28:I2:18:ARG:HD2	1.92	0.51
30:J2:60:PHE:CE2	30:J2:82:ARG:HD3	2.45	0.51
38:N2:72:VAL:HG13	38:N2:93:ILE:HD11	1.91	0.51
39:N3:5:HIS:HB3	39:N3:117:LEU:HD22	1.91	0.51
43:P3:42:MET:HE2	43:P3:50:PHE:HE1	1.74	0.51
69:m2:943:C:H2'	69:m2:944:G:C8	2.45	0.51
71:o2:108:PHE:O	71:o2:140:VAL:HG11	2.10	0.51
73:q2:59:LEU:HA	73:q2:66:ILE:HG23	1.90	0.51
74:r2:43:PRO:HB2	74:r2:45:ILE:HG22	1.92	0.51
76:t2:69:LEU:HD22	76:t2:96:ALA:HB2	1.90	0.51
82:z2:71:ILE:HB	82:z2:74:GLN:HG2	1.92	0.51
2:A2:271:C:H2'	2:A2:272:U:C6	2.46	0.51
2:A2:1648:G:H2'	2:A2:1649:C:C6	2.45	0.51
2:A2:2363:G:H2'	2:A2:2364:G:H8	1.76	0.51
2:A2:3566:C:H2'	2:A2:3567:C:H6	1.75	0.51
14:D2:14:SER:HA	14:D2:17:ARG:NH1	2.26	0.51
17:E2:171:LEU:HB3	17:E2:173:LEU:HD13	1.91	0.51
23:G2:146:LEU:HD22	23:G2:163:LEU:HD12	1.92	0.51
33:K3:5:ILE:HD11	33:K3:113:ILE:HG13	1.92	0.51
63:f2:9:ILE:HD12	63:f2:51:LEU:HD22	1.92	0.51
69:m2:15:U:H2'	69:m2:16:G:O4'	2.11	0.51
69:m2:159:A:H2	69:m2:469:G:H21	1.59	0.51
73:q2:196:GLY:C	73:q2:201:LYS:HZ1	2.18	0.51
82:z2:20:TYR:CD2	82:z2:38:ILE:HD12	2.44	0.51
1:A1:115:ILE:HG21	1:A1:269:MET:HE2	1.93	0.51
2:A2:138:C:H2'	2:A2:139:G:C8	2.46	0.51
2:A2:259:C:H2'	2:A2:260:C:C6	2.45	0.51
2:A2:830:G:N2	2:A2:836:C:H2'	2.25	0.51
2:A2:1173:G:H4'	25:H1:203:TYR:HB2	1.93	0.51
2:A2:1577:A:H2'	2:A2:1578:A:C8	2.45	0.51
2:A2:3932:A:H5''	2:A2:3933:A:H5'	1.92	0.51
19:F1:47:ALA:O	19:F1:149:GLN:HB2	2.10	0.51
33:K3:23:LYS:HG2	33:K3:41:LEU:HA	1.92	0.51
56:Y2:114:ARG:CZ	56:Y2:118:LEU:HD11	2.40	0.51
66:i2:23:VAL:HG23	66:i2:93:LEU:HD11	1.92	0.51
69:m2:1562:U:H2'	69:m2:1563:G:H8	1.73	0.51
2:A2:130:G:H3'	2:A2:131:C:H5''	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:2131:A:H2'	2:A2:2132:C:C6	2.45	0.51
6:B3:43:LYS:HB3	69:m2:1541:U:OP1	2.10	0.51
17:E2:36:ASP:HB3	17:E2:39:LYS:NZ	2.26	0.51
41:O3:42:VAL:HG23	41:O3:43:HIS:H	1.76	0.51
69:m2:1274:C:H2'	69:m2:1275:C:C6	2.44	0.51
69:m2:1652:A:H5''	81:y2:139:ALA:HB2	1.92	0.51
82:z2:18:GLU:HB2	82:z2:69:ILE:HG12	1.91	0.51
2:A2:111:C:OP1	59:b2:106:LYS:HE3	2.10	0.51
2:A2:1122:C:H2'	2:A2:1123:C:C6	2.46	0.51
2:A2:1170:U:H2'	2:A2:1171:C:C6	2.46	0.51
2:A2:1366:A:P	67:j2:4:ARG:HD3	2.50	0.51
2:A2:3304:A:H1'	2:A2:3441:A2M:N6	2.25	0.51
2:A2:3312:A:H2'	2:A2:3313:U:H6	1.74	0.51
2:A2:3346:U:H2'	2:A2:3347:G:O4'	2.09	0.51
2:A2:4176:G:N3	17:E2:252:ALA:HB1	2.25	0.51
2:A2:4613:A:H2'	2:A2:4614:A:H8	1.76	0.51
17:E2:36:ASP:HB3	17:E2:39:LYS:HZ3	1.75	0.51
69:m2:510:A:H3'	69:m2:511:OMG:C8	2.44	0.51
82:z2:5:ARG:HH11	82:z2:53:TYR:HD1	1.58	0.51
1:A1:141:ASN:HD21	1:A1:234:LYS:HD3	1.75	0.51
2:A2:329:A:H4'	25:H1:170:LYS:NZ	2.25	0.51
2:A2:3504:U:H2'	2:A2:3505:A:C8	2.45	0.51
29:I3:64:HIS:CG	29:I3:65:PHE:H	2.29	0.51
38:N2:92:ARG:HB3	38:N2:94:GLU:OE1	2.10	0.51
77:u2:98:LYS:HD2	77:u2:178:ARG:HG2	1.92	0.51
2:A2:262:G:H2'	2:A2:263:G:H8	1.75	0.51
2:A2:1894:G:H2'	2:A2:2017:G:C6	2.45	0.51
2:A2:2178:A:H2'	2:A2:2179:OMG:O4'	2.11	0.51
2:A2:4264:C:C2	10:C1:120:GLU:HB2	2.45	0.51
2:A2:4613:A:H2'	2:A2:4614:A:C8	2.46	0.51
15:D3:82:ASN:HD21	71:o2:52:LYS:HE2	1.75	0.51
43:P3:28:ARG:HB3	43:P3:29:PRO:HD3	1.93	0.51
69:m2:25:A:HO2'	69:m2:26:U:H6	1.57	0.51
69:m2:1115:A:H4'	72:p2:202:GLN:NE2	2.25	0.51
69:m2:1713:U:H2'	69:m2:1714:A:H8	1.73	0.51
77:u2:39:GLY:O	77:u2:61:ASP:HB2	2.11	0.51
78:v2:49:MET:HB3	78:v2:55:ARG:HH22	1.75	0.51
1:A1:179:ARG:HD2	1:A1:235:LEU:HD23	1.92	0.51
2:A2:1327:U:H2'	2:A2:1328:A:C8	2.46	0.51
2:A2:4356:C:H2'	2:A2:4357:A:C8	2.46	0.51
2:A2:4648:U:H2'	2:A2:4649:U:H6	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C2:67:U:H2'	11:C2:68:G:H8	1.74	0.51
44:Q2:39:ALA:HA	44:Q2:44:ARG:NH1	2.26	0.51
67:j2:25:MET:HE2	69:m2:1042:G:H5''	1.91	0.51
69:m2:152:U:H2'	69:m2:153:G:C8	2.46	0.51
80:x2:60:LEU:HD22	80:x2:92:SER:HB3	1.92	0.51
2:A2:1323:G:H2'	2:A2:1324:C:C6	2.45	0.51
13:D1:76:MET:HE2	13:D1:138:ILE:HG21	1.93	0.51
20:F2:317:ASN:HD22	20:F2:320:LYS:HE2	1.75	0.51
20:F2:339:THR:O	20:F2:343:GLN:HG3	2.11	0.51
27:H3:40:ARG:HB3	69:m2:1258:G:N2	2.26	0.51
37:M3:33:ARG:HB2	69:m2:1286:A:C8	2.45	0.51
41:O3:46:ASP:OD2	41:O3:51:GLU:HB2	2.10	0.51
69:m2:1346:A:N6	69:m2:1388:A:H5'	2.25	0.51
2:A2:444:G:H2'	2:A2:445:U:H6	1.76	0.51
2:A2:668:C:H2'	2:A2:669:C:C6	2.46	0.51
2:A2:3383:A:H2'	2:A2:3384:A:C8	2.45	0.51
6:B3:38:LYS:HE3	69:m2:1569:G:H4'	1.91	0.51
17:E2:113:GLU:HG3	17:E2:178:ALA:HB2	1.93	0.51
23:G2:181:PRO:HD2	23:G2:195:HIS:ND1	2.20	0.51
33:K3:85:ARG:HH21	33:K3:87:ARG:HH22	1.57	0.51
35:L3:169:ARG:O	35:L3:169:ARG:HG2	2.11	0.51
42:P2:25:VAL:HG22	42:P2:38:TYR:HD1	1.74	0.51
69:m2:351:A:H2'	69:m2:352:C:C6	2.46	0.51
69:m2:1421:C:H4'	69:m2:1422:G:H5'	1.93	0.51
71:o2:201:LEU:HB3	82:z2:85:VAL:HG22	1.93	0.51
81:y2:32:ILE:HD13	81:y2:39:LEU:HD22	1.93	0.51
2:A2:7:C:H2'	2:A2:8:U:C6	2.45	0.50
2:A2:77:U:H5'	25:H1:176:LYS:NZ	2.26	0.50
2:A2:162:A:H2'	2:A2:163:A:C8	2.46	0.50
2:A2:181:C:H2'	2:A2:182:G:H8	1.77	0.50
2:A2:262:G:H2'	2:A2:263:G:C8	2.46	0.50
2:A2:2092:C:H4'	68:k2:19:LYS:HB2	1.93	0.50
2:A2:3376:G:H22	2:A2:3389:A:H2	1.58	0.50
2:A2:3726:G:H21	25:H1:24:ARG:NH2	2.09	0.50
2:A2:3743:G:H2'	2:A2:3744:G:C8	2.47	0.50
2:A2:4176:G:C2	17:E2:252:ALA:HB1	2.46	0.50
2:A2:4230:G:H2'	2:A2:4231:U:C6	2.46	0.50
11:C2:19:C:H2'	11:C2:20:A:C8	2.45	0.50
17:E2:33:PRO:HA	17:E2:351:LEU:HD23	1.93	0.50
19:F1:177:LYS:HB3	19:F1:180:ALA:HB3	1.92	0.50
74:r2:123:LEU:HD22	74:r2:159:THR:HG22	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:2050:C:H2'	2:A2:2051:G:H8	1.77	0.50
2:A2:3262:U:H2'	2:A2:3263:U:C6	2.46	0.50
2:A2:3925:A:H2'	2:A2:3926:A:C8	2.47	0.50
4:B1:63:LEU:HD21	25:H1:29:GLN:HE21	1.76	0.50
16:E1:109:ILE:HG21	16:E1:115:LEU:HD11	1.93	0.50
19:F1:47:ALA:HB3	19:F1:48:PRO:HD3	1.92	0.50
20:F2:209:ILE:HD13	20:F2:251:ILE:HB	1.93	0.50
39:N3:141:TYR:HE1	39:N3:146:ALA:HB2	1.76	0.50
43:P3:115:GLU:HG2	43:P3:119:LYS:HE3	1.93	0.50
47:R3:101:SER:O	47:R3:108:ILE:HG22	2.11	0.50
69:m2:612:G:H2'	69:m2:613:G:H8	1.76	0.50
74:r2:100:ARG:NH2	74:r2:122:LYS:HA	2.27	0.50
74:r2:161:GLN:HB3	74:r2:170:ILE:O	2.11	0.50
2:A2:163:A:H2'	2:A2:164:G:H8	1.75	0.50
2:A2:4189:C:H2'	2:A2:4190:G:C8	2.46	0.50
6:B3:67:ARG:HD3	69:m2:1589:G:N7	2.26	0.50
23:G2:232:THR:HB	23:G2:235:MET:HG2	1.92	0.50
27:H3:30:LEU:HG	69:m2:1258:G:N2	2.25	0.50
46:R2:82:THR:HG21	59:b2:37:THR:HG22	1.92	0.50
69:m2:971:U:H4'	69:m2:972:G:H3'	1.92	0.50
69:m2:1376:C:H2'	69:m2:1377:G:O4'	2.12	0.50
80:x2:14:LYS:HE2	80:x2:21:ASP:HB2	1.94	0.50
81:y2:51:LEU:HD23	81:y2:51:LEU:H	1.75	0.50
2:A2:10:A:H2'	2:A2:11:G:H8	1.76	0.50
2:A2:927:C:H2'	2:A2:928:G:C8	2.47	0.50
2:A2:4190:G:H2'	2:A2:4191:U:C6	2.46	0.50
2:A2:4343:A:O3'	10:C1:71:ARG:HD3	2.11	0.50
35:L3:86:VAL:HG21	35:L3:105:PHE:HE1	1.74	0.50
35:L3:124:HIS:HA	51:T3:35:ARG:CZ	2.41	0.50
55:X2:114:PHE:HA	55:X2:117:LEU:HD12	1.94	0.50
69:m2:1459:U:H2'	69:m2:1460:G:H8	1.76	0.50
80:x2:57:LEU:O	80:x2:61:ARG:HG2	2.11	0.50
2:A2:475:G:H2'	2:A2:476:G:C8	2.47	0.50
14:D2:120:PRO:HG3	14:D2:159:SER:HB2	1.93	0.50
30:J2:125:MET:HB2	30:J2:141:SER:OG	2.11	0.50
37:M3:31:LEU:O	37:M3:31:LEU:HD23	2.11	0.50
52:U2:110:LYS:HE3	52:U2:112:LEU:HD21	1.93	0.50
77:u2:190:LEU:HD21	77:u2:198:TYR:CD2	2.42	0.50
2:A2:23:C:H2'	2:A2:24:G:O4'	2.12	0.50
2:A2:2164:U:H5	2:A2:2538:A:N1	2.08	0.50
2:A2:2167:A:H5''	34:L2:6:LEU:HD11	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C2:83:C:H42	48:S2:50:ARG:NH2	2.08	0.50
17:E2:122:TRP:CE2	17:E2:127:LYS:HE3	2.46	0.50
73:q2:64:ARG:HE	78:v2:83:LEU:HD23	1.77	0.50
2:A2:4215:U:H2'	2:A2:4216:A:H8	1.77	0.50
2:A2:4604:C:H2'	2:A2:4605:U:C6	2.46	0.50
3:A3:90:VAL:HA	80:x2:17:TYR:O	2.12	0.50
7:Bv:4:C:H2'	7:Bv:5:G:C8	2.47	0.50
23:G2:34:LYS:O	23:G2:38:ILE:HD12	2.12	0.50
68:k2:46:ARG:HH22	68:k2:67:ARG:HG3	1.77	0.50
69:m2:1099:G:H4'	71:o2:32:PHE:CD1	2.47	0.50
69:m2:1841:U:H2'	69:m2:1842:U:C6	2.47	0.50
72:p2:62:LEU:HD13	72:p2:65:ARG:NH1	2.26	0.50
74:r2:170:ILE:HG12	74:r2:171:ASN:ND2	2.23	0.50
77:u2:8:TRP:HA	77:u2:18:ARG:HD2	1.94	0.50
82:z2:34:VAL:O	82:z2:38:ILE:HG12	2.12	0.50
2:A2:233:U:H4'	2:A2:234:G:OP1	2.12	0.50
27:H3:7:TYR:CE2	78:v2:28:HIS:HD2	2.30	0.50
38:N2:56:CYS:SG	38:N2:78:LYS:HE3	2.52	0.50
66:i2:33:LEU:HA	66:i2:38:LYS:HG2	1.94	0.50
66:i2:61:LYS:CE	66:i2:87:ARG:HH12	2.24	0.50
71:o2:50:ASN:HD21	71:o2:53:ARG:NH1	2.08	0.50
1:A1:141:ASN:ND2	1:A1:234:LYS:HD3	2.27	0.50
2:A2:272:U:H2'	2:A2:273:U:C6	2.47	0.50
2:A2:1292:G:H2'	2:A2:1293:C:C6	2.47	0.50
2:A2:3991:A:H2'	2:A2:3992:U:H6	1.76	0.50
2:A2:4648:U:H2'	2:A2:4649:U:C6	2.47	0.50
12:C3:51:LYS:HE3	69:m2:1404:A:H4'	1.94	0.50
17:E2:291:TYR:HB3	17:E2:298:LEU:HD11	1.94	0.50
20:F2:159:GLU:HA	20:F2:217:ILE:HB	1.94	0.50
33:K3:57:ASP:OD2	33:K3:98:ARG:HD3	2.12	0.50
33:K3:190:ARG:HH21	33:K3:194:LEU:HD21	1.76	0.50
69:m2:1012:G:H2'	69:m2:1013:A:H8	1.77	0.50
77:u2:42:ARG:HH21	77:u2:59:ARG:HH21	1.60	0.50
77:u2:118:ALA:HB3	77:u2:149:TYR:OH	2.12	0.50
2:A2:1438:OMG:HM23	25:H1:81:TYR:HE1	1.76	0.49
2:A2:1899:G:H5'	2:A2:1900:G:H4'	1.92	0.49
2:A2:2155:G:H21	58:a2:6:THR:HG22	1.77	0.49
25:H1:75:VAL:HG11	25:H1:80:THR:HG22	1.93	0.49
28:I2:104:VAL:C	28:I2:105:LEU:HD12	2.37	0.49
34:L2:44:LEU:HD22	34:L2:49:LEU:HD22	1.93	0.49
35:L3:144:ILE:HG13	35:L3:144:ILE:O	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:P2:96:LEU:HD13	44:Q2:20:ARG:HG2	1.94	0.49
45:Q3:18:LEU:HD22	45:Q3:20:ARG:CZ	2.42	0.49
53:V2:50:ASN:ND2	53:V2:50:ASN:O	2.44	0.49
69:m2:295:C:H5'	79:w2:38:LYS:HZ3	1.77	0.49
69:m2:1738:G:H2'	69:m2:1739:G:H8	1.76	0.49
80:x2:89:MET:HG3	80:x2:107:ILE:HG21	1.94	0.49
2:A2:1273:C:H2'	2:A2:1274:C:H6	1.77	0.49
2:A2:1446:G:H5'	2:A2:1447:A:OP1	2.11	0.49
2:A2:2162:G:H22	63:f2:51:LEU:HD23	1.77	0.49
2:A2:2166:C:H2'	2:A2:2167:A:H8	1.77	0.49
2:A2:2220:C:H2'	2:A2:2221:G:O4'	2.13	0.49
11:C2:36:G:C5	59:b2:89:ARG:HD3	2.47	0.49
12:C3:31:SER:HB3	12:C3:107:GLU:HG2	1.93	0.49
13:D1:71:CYS:SG	13:D1:154:ARG:HG2	2.53	0.49
28:I2:105:LEU:HD23	28:I2:109:PRO:CG	2.42	0.49
36:M2:8:ARG:HD2	36:M2:10:TYR:OH	2.11	0.49
47:R3:68:ILE:HB	47:R3:109:TYR:HB2	1.95	0.49
69:m2:1672:C:H2'	69:m2:1673:G:C8	2.46	0.49
69:m2:1716:U:H2'	69:m2:1717:A:H8	1.75	0.49
72:p2:168:MET:HG2	72:p2:197:ILE:HG21	1.93	0.49
2:A2:270:U:H2'	2:A2:271:C:C6	2.47	0.49
2:A2:1490:PSU:H4'	2:A2:1493:G:C2	2.48	0.49
2:A2:3711:C:H2'	2:A2:3712:A:H8	1.76	0.49
4:B1:242:LEU:HB3	4:B1:246:SER:HB2	1.94	0.49
13:D1:60:LEU:HD22	13:D1:160:PRO:HD2	1.95	0.49
25:H1:189:ARG:HG2	25:H1:193:ARG:NH1	2.26	0.49
31:J3:169:TYR:CE1	31:J3:177:PRO:HA	2.47	0.49
35:L3:125:HIS:HB2	69:m2:529:C:H5'	1.94	0.49
45:Q3:16:ARG:C	45:Q3:19:GLN:H	2.20	0.49
69:m2:1847:A:H2'	69:m2:1848:G:C8	2.48	0.49
2:A2:161:G:H2'	2:A2:162:A:H8	1.76	0.49
2:A2:477:C:H2'	2:A2:478:G:H8	1.75	0.49
2:A2:1541:G:H2'	2:A2:1542:C:C6	2.48	0.49
7:Bv:6:G:O2'	7:Bv:7:A:H8	1.96	0.49
29:I3:11:LEU:HB2	29:I3:307:VAL:HB	1.94	0.49
43:P3:52:ILE:HB	76:t2:144:ILE:HG21	1.93	0.49
69:m2:514:A2M:H4'	69:m2:578:A2M:H2	1.95	0.49
69:m2:1166:G:O2'	69:m2:1167:G:H5'	2.13	0.49
2:A2:302:C:OP1	25:H1:68:ARG:HB2	2.13	0.49
2:A2:310:G:H5''	60:c2:85:ARG:NH1	2.28	0.49
2:A2:1363:G:OP1	34:L2:86:ASN:HB3	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:3268:C:H1'	2:A2:4662:A:H8	1.77	0.49
2:A2:4156:C:H2'	2:A2:4157:C:C6	2.47	0.49
3:A3:37:GLY:N	69:m2:1632:A:H5''	2.28	0.49
18:E3:22:TRP:O	18:E3:28:LYS:HE2	2.12	0.49
28:I2:9:LEU:HD23	28:I2:118:MET:HB2	1.93	0.49
41:O3:51:GLU:OE1	69:m2:954:G:H4'	2.12	0.49
43:P3:62:VAL:HB	49:S3:8:LEU:HD21	1.95	0.49
45:Q3:69:THR:O	45:Q3:69:THR:HG22	2.13	0.49
47:R3:63:PRO:HA	47:R3:97:ILE:HD11	1.93	0.49
69:m2:911:G:H2'	69:m2:912:G:H8	1.77	0.49
74:r2:100:ARG:HH22	74:r2:122:LYS:HA	1.77	0.49
2:A2:955:U:H3	2:A2:1027:G:H1	1.61	0.49
2:A2:1468:C:H3'	52:U2:26:ARG:HH12	1.77	0.49
2:A2:4274:A:H4'	17:E2:13:SER:HB2	1.95	0.49
3:A3:23:ARG:HG2	47:R3:48:VAL:HG21	1.94	0.49
11:C2:41:A:H4'	61:d2:59:THR:HG23	1.94	0.49
14:D2:80:GLU:HG2	67:j2:76:ALA:HB2	1.94	0.49
23:G2:37:VAL:HG12	23:G2:50:ARG:HD3	1.94	0.49
26:H2:197:HIS:HB3	26:H2:200:PHE:HD2	1.77	0.49
43:P3:3:ARG:HH22	69:m2:1095:A:H4'	1.76	0.49
47:R3:103:HIS:NE2	75:s2:91:ARG:HD2	2.27	0.49
69:m2:456:U:H2'	69:m2:457:A:C8	2.47	0.49
69:m2:815:A:H4'	74:r2:22:LYS:HD3	1.94	0.49
69:m2:982:A:H2'	69:m2:983:A:C8	2.47	0.49
70:n2:42:G:H2'	70:n2:43:A:C8	2.47	0.49
2:A2:1155:U:H2'	2:A2:1156:A:H8	1.78	0.49
2:A2:1187:A:H2	20:F2:234:LYS:HD3	1.77	0.49
2:A2:1447:A:H62	14:D2:3:ARG:HH12	1.61	0.49
2:A2:3430:A:H2'	2:A2:3431:A:H8	1.76	0.49
2:A2:4649:U:H2'	2:A2:4650:C:C6	2.48	0.49
16:E1:112:HIS:CD2	16:E1:117:ILE:HD11	2.45	0.49
41:O3:30:VAL:HG12	41:O3:94:HIS:HB2	1.93	0.49
69:m2:611:U:H2'	69:m2:612:G:H8	1.77	0.49
69:m2:1344:U:H4'	69:m2:1345:U:H5'	1.95	0.49
2:A2:57:G:H5''	25:H1:154:PRO:HB2	1.94	0.49
2:A2:162:A:H2'	2:A2:163:A:H8	1.77	0.49
2:A2:1147:A:H2'	2:A2:1148:A:C8	2.47	0.49
2:A2:1559:U:C5	2:A2:3907:A:H5'	2.48	0.49
2:A2:2167:A:H2'	2:A2:2168:U:C6	2.47	0.49
2:A2:3297:U:H5	2:A2:3302:A:N7	2.10	0.49
2:A2:3373:A:H2'	2:A2:3374:A2M:C8	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:3840:U:H2'	2:A2:3841:U:C6	2.48	0.49
6:B3:65:TYR:HE2	6:B3:128:GLN:HG3	1.76	0.49
20:F2:36:ILE:HD12	20:F2:122:TYR:CE2	2.48	0.49
23:G2:41:LYS:HD2	38:N2:93:ILE:HG13	1.95	0.49
35:L3:93:LYS:HE2	35:L3:96:TYR:HB2	1.95	0.49
38:N2:45:MET:HE2	38:N2:94:GLU:HB3	1.94	0.49
39:N3:76:LYS:HG2	39:N3:81:ALA:HB2	1.94	0.49
42:P2:70:PRO:HG2	69:m2:1726:A:P	2.52	0.49
69:m2:174:OMC:H2'	69:m2:175:A:O4'	2.13	0.49
69:m2:190:G:H21	69:m2:192:C:N4	2.10	0.49
69:m2:377:U:H2'	69:m2:378:A:C8	2.47	0.49
69:m2:957:A:H61	69:m2:973:G:H1'	1.78	0.49
69:m2:1146:A:H2'	69:m2:1147:A:C8	2.47	0.49
69:m2:1714:A:H2'	69:m2:1715:C:C6	2.48	0.49
79:w2:35:ARG:HH21	79:w2:53:GLY:HA3	1.78	0.49
82:z2:98:VAL:HB	82:z2:114:LEU:HD12	1.95	0.49
2:A2:418:A:C2	11:C2:17:A:H1'	2.47	0.49
2:A2:1118:C:H2'	2:A2:1119:C:C6	2.48	0.49
2:A2:1153:U:H2'	2:A2:1154:OMC:C6	2.48	0.49
2:A2:1366:A:OP2	67:j2:4:ARG:HD3	2.13	0.49
2:A2:1367:A:OP2	67:j2:4:ARG:HD2	2.13	0.49
2:A2:3427:C:H2'	2:A2:3428:U:C6	2.48	0.49
2:A2:3736:G:H5''	4:B1:54:PHE:HB3	1.95	0.49
2:A2:3738:C:H2'	2:A2:3739:G:H8	1.78	0.49
2:A2:4109:U:H1'	17:E2:252:ALA:HB3	1.94	0.49
2:A2:4650:C:H2'	2:A2:4651:G:O4'	2.13	0.49
7:Bv:34:G:H2'	7:Bv:35:A:H8	1.77	0.49
11:C2:141:C:H2'	11:C2:142:U:C6	2.47	0.49
12:C3:69:PRO:HA	27:H3:40:ARG:HH12	1.77	0.49
14:D2:28:ARG:HB2	14:D2:123:ARG:CB	2.42	0.49
17:E2:57:VAL:HG22	17:E2:73:VAL:HG22	1.95	0.49
18:E3:88:ASP:HA	69:m2:619:G:H4'	1.95	0.49
69:m2:474:C:H4'	69:m2:476:G:OP1	2.13	0.49
69:m2:1139:U:H3	69:m2:1150:A:H2	1.57	0.49
69:m2:1225:A:H2'	69:m2:1226:G:O4'	2.13	0.49
69:m2:1724:G:C2	69:m2:1725:G:H1'	2.48	0.49
74:r2:242:LYS:HG3	74:r2:244:ILE:HG12	1.95	0.49
2:A2:106:A:H2'	2:A2:107:G:O4'	2.12	0.49
2:A2:768:G:H2'	2:A2:769:G:C8	2.48	0.49
2:A2:1156:A:OP1	25:H1:204:ARG:HD2	2.12	0.49
2:A2:3275:G:H4'	34:L2:79:GLY:O	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A3:46:ARG:HH11	6:B3:37:VAL:HG21	1.77	0.49
5:B2:4:U:H2'	5:B2:5:A:H8	1.78	0.49
17:E2:60:VAL:HG21	17:E2:67:VAL:HG23	1.95	0.49
36:M2:93:MET:SD	36:M2:113:MET:HE1	2.53	0.49
43:P3:107:SER:HB3	69:m2:862:G:H21	1.77	0.49
45:Q3:10:ARG:NH2	45:Q3:24:VAL:HG11	2.28	0.49
69:m2:597:U:H2'	69:m2:598:U:C6	2.47	0.49
2:A2:406:C:H2'	2:A2:407:A:C8	2.48	0.48
2:A2:1709:A:H2'	2:A2:1710:A:C8	2.48	0.48
2:A2:3377:U:H2'	2:A2:3378:G:H8	1.78	0.48
2:A2:3557:A:H8	2:A2:4170:A:N1	2.11	0.48
4:B1:136:LEU:HD13	4:B1:202:VAL:HG11	1.95	0.48
14:D2:107:MET:HE1	14:D2:113:VAL:HG12	1.95	0.48
16:E1:48:PRO:HB2	16:E1:70:VAL:HG22	1.94	0.48
17:E2:77:THR:HG21	17:E2:337:VAL:HG13	1.94	0.48
26:H2:183:THR:HB	26:H2:193:LEU:HD23	1.95	0.48
77:u2:114:GLU:HA	77:u2:118:ALA:HA	1.95	0.48
2:A2:2211:G:H2'	2:A2:2212:G:C8	2.48	0.48
2:A2:4234:C:H2'	2:A2:4235:C:O4'	2.13	0.48
2:A2:4506:G:H2'	2:A2:4507:G:H8	1.78	0.48
7:Bv:47:C:H1'	7:Bv:48:C:C4	2.48	0.48
11:C2:141:C:H5'	25:H1:113:LEU:HD11	1.95	0.48
12:C3:49:LYS:HB2	12:C3:92:HIS:HB3	1.94	0.48
35:L3:111:GLN:NE2	35:L3:127:ARG:HD2	2.28	0.48
42:P2:13:LYS:HD2	42:P2:128:LEU:HD11	1.94	0.48
43:P3:31:SER:HG	43:P3:34:ILE:HG13	1.77	0.48
45:Q3:47:MET:HE3	69:m2:839:A:C8	2.48	0.48
46:R2:127:LEU:HD22	46:R2:135:LYS:HE3	1.95	0.48
62:e2:8:ILE:HG23	62:e2:56:LEU:HD12	1.94	0.48
69:m2:85:A:O2'	69:m2:149:A:H8	1.97	0.48
69:m2:463:U:H2'	69:m2:464:C:C6	2.47	0.48
69:m2:1398:A:N1	69:m2:1451:G:C6	2.80	0.48
71:o2:180:ARG:HG3	71:o2:195:TRP:CE3	2.47	0.48
80:x2:83:MET:HB3	80:x2:116:LEU:HG	1.95	0.48
2:A2:2:G:H2'	2:A2:3:C:C6	2.48	0.48
2:A2:38:A:H5''	52:U2:35:ALA:HB2	1.95	0.48
2:A2:1657:G:OP1	53:V2:4:SER:HB2	2.13	0.48
2:A2:3909:A:H2	16:E1:27:GLY:HA3	1.78	0.48
19:F1:80:GLU:HB3	19:F1:110:LEU:HD12	1.95	0.48
20:F2:301:ALA:HB1	32:K2:132:LYS:HE2	1.95	0.48
29:I3:52:TYR:CE2	29:I3:309:VAL:HG21	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:J3:209:VAL:HG13	31:J3:210:PRO:HD3	1.94	0.48
41:O3:90:ILE:HG22	41:O3:124:MET:HE1	1.96	0.48
69:m2:31:U:H3	69:m2:518:A:H2	1.60	0.48
78:v2:45:VAL:HG22	78:v2:53:LYS:HD2	1.95	0.48
2:A2:268:G:H2'	2:A2:269:G:H8	1.78	0.48
2:A2:319:A:H1'	2:A2:3382:A:N3	2.29	0.48
2:A2:1596:A:H5''	2:A2:3866:A:H61	1.78	0.48
2:A2:4294:U:H2'	2:A2:4295:G:C8	2.48	0.48
5:B2:16:A:H2'	5:B2:17:C:C6	2.49	0.48
17:E2:378:ARG:CG	44:Q2:32:LEU:HD21	2.44	0.48
18:E3:76:LYS:HA	69:m2:484:G:OP1	2.14	0.48
45:Q3:25:ILE:HG21	45:Q3:44:LEU:HD11	1.96	0.48
47:R3:92:LEU:HD11	47:R3:99:LEU:HD23	1.95	0.48
71:o2:124:VAL:HG21	71:o2:134:LEU:HD11	1.94	0.48
78:v2:24:LYS:HG2	78:v2:61:GLN:OE1	2.14	0.48
2:A2:4337:U:H2'	2:A2:4338:G:C8	2.49	0.48
18:E3:17:ARG:O	18:E3:21:LYS:HG3	2.13	0.48
69:m2:835:C:H2'	69:m2:836:C:C6	2.48	0.48
73:q2:24:PHE:HB2	78:v2:58:VAL:HG11	1.96	0.48
77:u2:66:SER:HA	77:u2:73:THR:HG22	1.96	0.48
1:A1:158:VAL:O	1:A1:162:ILE:HG12	2.13	0.48
2:A2:279:A:C4	25:H1:12:ARG:HG2	2.48	0.48
39:N3:70:LYS:HD3	39:N3:73:ARG:HE	1.77	0.48
45:Q3:11:LYS:HG2	69:m2:844:C:H41	1.78	0.48
61:d2:4:GLY:O	61:d2:8:PHE:HD1	1.96	0.48
69:m2:602:G:H2'	69:m2:603:OMG:H8	1.78	0.48
69:m2:915:A:OP1	76:t2:99:ARG:HD3	2.13	0.48
73:q2:133:GLY:HA3	73:q2:156:LEU:O	2.13	0.48
82:z2:20:TYR:CD1	82:z2:23:ARG:HD3	2.49	0.48
2:A2:184:U:H5''	2:A2:254:G:H22	1.79	0.48
2:A2:1888:G:H5''	20:F2:306:ARG:HH21	1.79	0.48
2:A2:3567:C:H2'	2:A2:3568:U:C6	2.48	0.48
7:Bv:44:G:N3	7:Bv:44:G:H2'	2.29	0.48
12:C3:66:ARG:HH21	12:C3:75:LYS:HA	1.79	0.48
29:I3:120:ILE:CG1	29:I3:132:TRP:HB2	2.44	0.48
43:P3:52:ILE:HG13	43:P3:61:ILE:HG12	1.95	0.48
54:W2:29:LEU:HD22	54:W2:91:VAL:HG11	1.95	0.48
69:m2:530:A:H2'	69:m2:531:A:C8	2.48	0.48
71:o2:30:LEU:HA	71:o2:150:THR:HG22	1.95	0.48
71:o2:195:TRP:HD1	71:o2:197:VAL:O	1.97	0.48
72:p2:49:VAL:HG21	72:p2:62:LEU:CD2	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
72:p2:62:LEU:HD13	72:p2:65:ARG:HH11	1.78	0.48
74:r2:175:PHE:HB2	74:r2:227:VAL:HG21	1.95	0.48
81:y2:134:GLY:HA3	81:y2:139:ALA:O	2.13	0.48
1:A1:245:LYS:HE3	2:A2:1709:A:H4'	1.95	0.48
2:A2:1723:C:C4	22:G1:17:PHE:HB3	2.48	0.48
2:A2:3953:U:H4'	38:N2:54:HIS:CD2	2.48	0.48
2:A2:4289:OMG:HM23	2:A2:4289:OMG:H1'	1.58	0.48
3:A3:121:ARG:HG3	3:A3:131:VAL:HB	1.94	0.48
17:E2:288:GLY:HA3	17:E2:330:PHE:CE2	2.48	0.48
26:H2:103:VAL:HG23	26:H2:105:GLY:H	1.79	0.48
33:K3:14:LYS:NZ	33:K3:16:ILE:HD11	2.23	0.48
43:P3:32:LYS:HA	43:P3:35:VAL:HG22	1.96	0.48
45:Q3:47:MET:HG3	45:Q3:48:TYR:CD1	2.49	0.48
50:T2:15:ALA:HB2	58:a2:88:ARG:HH12	1.79	0.48
55:X2:26:THR:HB	55:X2:85:ARG:HH11	1.78	0.48
71:o2:195:TRP:NE1	71:o2:197:VAL:HB	2.28	0.48
76:t2:100:ILE:HD13	76:t2:125:VAL:HG21	1.96	0.48
2:A2:163:A:H2'	2:A2:164:G:C8	2.47	0.48
2:A2:389:A:H1'	48:S2:90:ALA:O	2.13	0.48
2:A2:2159:A:H3'	2:A2:2160:G:H8	1.79	0.48
2:A2:2614:G:H21	2:A2:3493:C:H1'	1.79	0.48
2:A2:4190:G:H2'	2:A2:4191:U:H6	1.78	0.48
2:A2:4402:G:H2'	2:A2:4403:G:C8	2.49	0.48
4:B1:96:LEU:HD21	4:B1:184:ILE:HD11	1.96	0.48
18:E3:114:ASP:HB2	69:m2:621:A:N1	2.29	0.48
22:G1:117:LYS:O	22:G1:121:ARG:HG2	2.14	0.48
30:J2:122:ALA:HB3	30:J2:143:PRO:HG2	1.94	0.48
35:L3:33:GLY:HA3	51:T3:38:TYR:CD2	2.48	0.48
45:Q3:111:LYS:HA	45:Q3:114:MET:HE3	1.96	0.48
69:m2:119:U:H2'	69:m2:120:U:H6	1.78	0.48
69:m2:181:A:OP2	69:m2:182:C:H5''	2.13	0.48
73:q2:5:ILE:HG23	73:q2:9:ARG:HH21	1.78	0.48
75:s2:49:LEU:HD21	81:y2:48:GLN:O	2.13	0.48
2:A2:376:A:H1'	20:F2:84:THR:HG23	1.95	0.48
2:A2:1626:G:H5''	38:N2:35:LYS:HZ2	1.77	0.48
14:D2:66:PRO:HG2	14:D2:67:TYR:CE2	2.49	0.48
45:Q3:55:ILE:HD12	45:Q3:75:ILE:HG13	1.95	0.48
53:V2:101:LYS:HA	53:V2:104:LYS:HE2	1.94	0.48
69:m2:12:U:H2'	69:m2:13:C:C6	2.49	0.48
69:m2:1278:A:H2	78:v2:49:MET:HE3	1.78	0.48
69:m2:1547:A:H2'	69:m2:1548:G:C8	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:o2:99:ILE:O	71:o2:99:ILE:HG13	2.13	0.48
74:r2:141:THR:HB	74:r2:145:ARG:HB2	1.96	0.48
75:s2:20:PHE:CZ	75:s2:94:LYS:HG3	2.48	0.48
2:A2:2418:G:H4'	34:L2:117:ARG:HH11	1.79	0.47
2:A2:3512:A:H5''	30:J2:83:TRP:O	2.14	0.47
2:A2:4044:OMG:HM21	2:A2:4046:A:H2'	1.95	0.47
2:A2:4603:C:H2'	2:A2:4604:C:H6	1.79	0.47
2:A2:4616:C:C2	2:A2:4617:A:C8	3.02	0.47
28:I2:16:LEU:HD21	28:I2:83:THR:HG21	1.95	0.47
31:J3:209:VAL:CG1	31:J3:210:PRO:HD3	2.44	0.47
34:L2:81:ARG:HG2	34:L2:88:ARG:CZ	2.44	0.47
55:X2:68:LEU:HD22	55:X2:106:VAL:HG12	1.96	0.47
69:m2:1296:G:H2'	69:m2:1297:A:H8	1.78	0.47
2:A2:108:A:H4'	2:A2:109:G:OP1	2.15	0.47
2:A2:821:U:H2'	2:A2:822:C:H6	1.79	0.47
2:A2:1159:G:H2'	2:A2:1160:C:C6	2.49	0.47
5:B2:58:A:H2'	5:B2:59:G:C8	2.50	0.47
20:F2:298:ILE:O	20:F2:302:LEU:HG	2.14	0.47
35:L3:142:VAL:HG13	35:L3:144:ILE:HG12	1.96	0.47
36:M2:164:LYS:HB3	36:M2:165:PRO:HD3	1.97	0.47
41:O3:64:ALA:HB3	41:O3:67:ASP:HB2	1.97	0.47
46:R2:147:LEU:HD11	46:R2:156:ILE:HD13	1.95	0.47
69:m2:346:U:H2'	69:m2:347:U:C6	2.49	0.47
69:m2:528:A:H61	69:m2:590:G:H1	1.62	0.47
69:m2:945:U:C2	69:m2:946:A:C8	3.02	0.47
69:m2:951:G:H2'	69:m2:952:C:C6	2.50	0.47
2:A2:100:C:C2	2:A2:101:A:C8	3.03	0.47
2:A2:2176:G:C8	30:J2:129:THR:HG22	2.49	0.47
2:A2:3366:G:N3	2:A2:3367:A:H1'	2.30	0.47
2:A2:3373:A:H2'	2:A2:3374:A2M:H8	1.96	0.47
2:A2:3378:G:H2'	2:A2:3379:A:C8	2.49	0.47
6:B3:71:GLY:N	6:B3:121:ARG:HD3	2.29	0.47
12:C3:39:LEU:HD11	12:C3:102:THR:HG22	1.96	0.47
18:E3:41:PHE:CZ	18:E3:102:VAL:HG13	2.49	0.47
20:F2:284:MET:HE2	20:F2:287:THR:HA	1.96	0.47
31:J3:270:THR:HG21	71:o2:69:GLU:HB3	1.97	0.47
48:S2:47:MET:HE2	48:S2:115:ARG:HH21	1.79	0.47
55:X2:37:GLY:O	55:X2:41:ARG:HG3	2.14	0.47
69:m2:65:C:H5'	69:m2:78:C:N4	2.30	0.47
73:q2:29:LEU:HD11	73:q2:69:LEU:HD11	1.96	0.47
74:r2:198:ARG:NH1	74:r2:200:ARG:HD2	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:y2:38:PRO:HG2	81:y2:41:MET:HG2	1.95	0.47
2:A2:74:G:O5'	19:F1:59:VAL:HG13	2.14	0.47
2:A2:1092:C:H2'	2:A2:1093:A:O4'	2.14	0.47
2:A2:1333:C:H5'	20:F2:102:PHE:HE1	1.79	0.47
2:A2:1597:A:H5''	5:B2:98:G:O2'	2.15	0.47
2:A2:2102:A:C6	56:Y2:31:ILE:HD11	2.50	0.47
2:A2:3603:A:H2'	2:A2:3604:C:C6	2.49	0.47
2:A2:3735:A:OP1	46:R2:45:THR:HG22	2.14	0.47
2:A2:4277:C:OP1	17:E2:224:LYS:HG2	2.14	0.47
2:A2:4427:C:H2'	2:A2:4428:C:C6	2.48	0.47
13:D1:209:TRP:CE2	23:G2:284:LYS:HD3	2.49	0.47
29:I3:45:LEU:HB3	29:I3:47:ARG:HH11	1.79	0.47
31:J3:230:THR:HG23	69:m2:5:U:OP2	2.14	0.47
46:R2:100:VAL:HG23	46:R2:134:LYS:HB3	1.96	0.47
58:a2:82:MET:HE1	58:a2:90:ARG:NH1	2.28	0.47
69:m2:555:A:H2'	69:m2:556:A:C8	2.49	0.47
72:p2:122:GLU:HG2	72:p2:140:VAL:HG12	1.97	0.47
76:t2:18:GLU:HG2	76:t2:19:PHE:H	1.79	0.47
76:t2:101:LEU:HD23	76:t2:116:ARG:HG3	1.96	0.47
2:A2:1665:U:OP1	13:D1:15:LYS:HG3	2.15	0.47
2:A2:1724:G:OP1	36:M2:160:ARG:HD3	2.15	0.47
2:A2:3600:G:O2'	2:A2:3601:A:H5'	2.14	0.47
2:A2:3943:G:OP2	66:i2:10:THR:HG22	2.15	0.47
2:A2:3996:U:H2'	2:A2:3997:C:C6	2.49	0.47
2:A2:4542:G:H1'	2:A2:4572:G:N1	2.29	0.47
29:I3:130:LYS:HZ3	29:I3:143:GLN:HB3	1.80	0.47
29:I3:255:SER:HB2	29:I3:270:LEU:O	2.14	0.47
35:L3:107:GLU:HA	35:L3:112:THR:HG21	1.96	0.47
48:S2:55:VAL:CG2	48:S2:104:VAL:HB	2.45	0.47
55:X2:117:LEU:HA	55:X2:117:LEU:HD23	1.76	0.47
69:m2:90:G:H2'	69:m2:91:A:O4'	2.13	0.47
69:m2:604:G:H1	69:m2:622:G:N2	2.13	0.47
79:w2:61:PRO:HD3	79:w2:141:ASN:ND2	2.29	0.47
80:x2:87:PRO:HG3	80:x2:112:ILE:HD13	1.95	0.47
1:A1:53:LYS:HZ1	2:A2:1251:U:H4'	1.79	0.47
1:A1:166:TYR:CE2	1:A1:259:GLU:HB2	2.49	0.47
2:A2:1763:G:H2'	2:A2:1826:G:H22	1.79	0.47
2:A2:3551:G:N2	17:E2:268:ARG:HH21	2.12	0.47
2:A2:4642:C:H4'	55:X2:26:THR:HG23	1.96	0.47
17:E2:172:PRO:HB2	17:E2:324:GLY:HA3	1.96	0.47
30:J2:126:ARG:HA	30:J2:140:MET:SD	2.54	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:K3:98:ARG:HH11	33:K3:99:GLY:H	1.62	0.47
35:L3:159:PHE:CD2	35:L3:165:TYR:HB2	2.50	0.47
39:N3:99:ARG:HE	39:N3:115:LEU:HD21	1.80	0.47
55:X2:33:ILE:O	55:X2:36:VAL:HG22	2.15	0.47
69:m2:1804:C:H2'	69:m2:1805:U:H6	1.79	0.47
74:r2:222:LEU:HA	74:r2:225:ILE:HD12	1.97	0.47
75:s2:50:PRO:HB3	75:s2:69:VAL:HG12	1.96	0.47
77:u2:13:LYS:HB2	79:w2:137:THR:HG21	1.97	0.47
82:z2:124:VAL:O	82:z2:124:VAL:HG12	2.14	0.47
2:A2:72:C:H5	19:F1:67:HIS:ND1	2.12	0.47
2:A2:931:C:H2'	2:A2:932:C:C6	2.50	0.47
2:A2:2236:G:H2'	2:A2:2237:C:C6	2.49	0.47
2:A2:4642:C:OP1	55:X2:31:LYS:HD3	2.15	0.47
4:B1:137[A]:ARG:HG2	4:B1:142:THR:HG21	1.96	0.47
5:B2:27:G:H2'	5:B2:28:C:C6	2.50	0.47
5:B2:57:C:H4'	16:E1:147:ARG:NH2	2.30	0.47
6:B3:12:GLN:NE2	69:m2:1543:G:H21	2.13	0.47
7:Bv:4:C:H2'	7:Bv:5:G:H8	1.80	0.47
7:Bv:64:A:H4'	13:D1:27:PRO:HA	1.97	0.47
11:C2:40:A:H2'	11:C2:41:A:C8	2.50	0.47
12:C3:23:THR:HB	12:C3:113:GLU:HB3	1.96	0.47
17:E2:283:LYS:HD2	17:E2:285:TYR:HE1	1.80	0.47
20:F2:144:ILE:HG13	20:F2:144:ILE:O	2.14	0.47
29:I3:130:LYS:NZ	29:I3:143:GLN:HB3	2.30	0.47
33:K3:58:LYS:HA	33:K3:107:SER:HB3	1.96	0.47
35:L3:147:PHE:HE1	69:m2:826:C:H5'	1.80	0.47
41:O3:149:ARG:HH12	41:O3:151:LEU:HD13	1.79	0.47
43:P3:39:THR:HA	43:P3:42:MET:HE2	1.96	0.47
43:P3:47:ILE:HD11	43:P3:63:VAL:HB	1.95	0.47
45:Q3:94:HIS:HB2	45:Q3:96:LEU:HD23	1.96	0.47
57:Z2:48:ALA:HB2	57:Z2:71:TRP:CZ3	2.50	0.47
66:i2:23:VAL:HG12	66:i2:70:LEU:HD22	1.96	0.47
69:m2:29:G:H2'	69:m2:30:C:H6	1.80	0.47
69:m2:62:G:C2'	69:m2:63:U:H5'	2.44	0.47
69:m2:528:A:H2	69:m2:561:G:H1	1.62	0.47
69:m2:1103:U:OP1	72:p2:151:ARG:HG2	2.15	0.47
69:m2:1569:G:H2'	69:m2:1570:C:C6	2.49	0.47
69:m2:1630:C:H2'	69:m2:1631:C:C6	2.49	0.47
69:m2:1819:G:H2'	69:m2:1820:A:C8	2.49	0.47
70:n2:33:C:H2'	70:n2:34:A:C8	2.50	0.47
70:n2:68:U:H2'	70:n2:69:G:C8	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:o2:201:LEU:HD23	71:o2:201:LEU:H	1.79	0.47
78:v2:50:GLN:HG2	78:v2:50:GLN:O	2.14	0.47
79:w2:68:ILE:CD1	79:w2:143:LEU:HD21	2.45	0.47
2:A2:426:A:H2'	2:A2:427:A:C8	2.50	0.47
2:A2:1080:C:H2'	2:A2:1081:G:C8	2.50	0.47
2:A2:4037:A:H4'	2:A2:4038:C:H5''	1.96	0.47
2:A2:4587:G:OP1	26:H2:226:LYS:HE3	2.14	0.47
4:B1:89:ARG:HG2	4:B1:89:ARG:HH11	1.79	0.47
14:D2:196:TRP:HB3	14:D2:197:PRO:HD3	1.96	0.47
18:E3:81:ILE:HD12	18:E3:120:PHE:CE2	2.49	0.47
30:J2:15:CYS:SG	30:J2:150:LEU:HB2	2.55	0.47
32:K2:177:ALA:O	32:K2:184:ARG:HB2	2.14	0.47
33:K3:23:LYS:HG2	33:K3:42:GLY:H	1.80	0.47
33:K3:191:ARG:O	33:K3:195:LYS:HG3	2.15	0.47
38:N2:4:THR:OG1	38:N2:9:ARG:HD3	2.15	0.47
39:N3:34:LYS:HE2	39:N3:67:THR:HG23	1.96	0.47
46:R2:114:LYS:NZ	46:R2:121:VAL:H	2.13	0.47
69:m2:223:A:H2'	69:m2:224:U:C6	2.50	0.47
69:m2:477:C:C2	69:m2:478:A:C8	3.02	0.47
74:r2:184:ILE:HG21	74:r2:226:PHE:CE2	2.47	0.47
2:A2:1560:G:H2'	2:A2:1561:G:C8	2.49	0.47
2:A2:3490:C:H2'	2:A2:3491:C:H6	1.80	0.47
2:A2:4277:C:P	17:E2:223:THR:HG23	2.55	0.47
2:A2:4340:C:H2'	2:A2:4341:U:C6	2.49	0.47
2:A2:4700:C:H4'	2:A2:4701:G:H8	1.79	0.47
29:I3:11:LEU:HD21	29:I3:52:TYR:HD2	1.80	0.47
30:J2:32:THR:O	30:J2:36:ILE:HG12	2.14	0.47
33:K3:215:LYS:HE3	33:K3:216:ARG:HH22	1.79	0.47
41:O3:143:LYS:HB3	69:m2:1049:C:H5'	1.95	0.47
69:m2:1116:U:H3	69:m2:1121:A:N6	2.13	0.47
2:A2:1763:G:H21	2:A2:1827:A:H62	1.62	0.47
2:A2:2475:C:H2'	2:A2:2476:G:O4'	2.14	0.47
2:A2:3275:G:H22	2:A2:3280:A:H1'	1.79	0.47
2:A2:3589:G:H2'	2:A2:3590:G:H8	1.80	0.47
18:E3:52:LEU:HD11	18:E3:73:GLN:HB2	1.97	0.47
23:G2:204:VAL:O	23:G2:208:MET:HG3	2.14	0.47
32:K2:12:LYS:HB2	32:K2:14:ARG:HH11	1.80	0.47
50:T2:112:ARG:HH11	50:T2:115:LYS:HD3	1.80	0.47
69:m2:28:U:H2'	69:m2:29:G:C8	2.49	0.47
69:m2:390:U:H2'	69:m2:391:A:C8	2.50	0.47
69:m2:933:C:H2'	69:m2:934:G:C8	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:1145:A:H2'	69:m2:1146:A:C8	2.50	0.47
69:m2:1685:C:H2'	69:m2:1686:C:H6	1.80	0.47
78:v2:32:HIS:H	78:v2:39:ASN:HB2	1.79	0.47
2:A2:1686:C:H4'	2:A2:1872:U:C4	2.50	0.46
2:A2:3975:A:N7	23:G2:153:THR:HG21	2.29	0.46
2:A2:4332:G:H2'	2:A2:4333:A:C8	2.51	0.46
10:C1:91:LYS:HE3	10:C1:143:GLU:OE2	2.14	0.46
16:E1:66:GLU:O	16:E1:68:ILE:HG12	2.16	0.46
31:J3:94:ILE:HG21	31:J3:162:ILE:HD12	1.96	0.46
31:J3:165:VAL:HG21	31:J3:217:ALA:HB1	1.96	0.46
35:L3:133:ARG:HH21	45:Q3:64:PHE:HE2	1.64	0.46
53:V2:68:ARG:HH11	53:V2:72:ILE:HD12	1.80	0.46
69:m2:1279:C:H2'	69:m2:1280:A:C8	2.47	0.46
69:m2:1665:A:O2'	69:m2:1666:A:H5'	2.15	0.46
71:o2:206:ASP:OD1	71:o2:207:PRO:HD2	2.14	0.46
72:p2:70:SER:HA	72:p2:83:LYS:HA	1.97	0.46
80:x2:111:MET:HE3	80:x2:119:PHE:CD2	2.50	0.46
1:A1:173:ASN:HD21	2:A2:841:A:H62	1.64	0.46
1:A1:248:HIS:ND1	1:A1:250:VAL:HG22	2.31	0.46
2:A2:478:G:H21	68:k2:100:ASN:HD21	1.62	0.46
2:A2:1274:C:H2'	2:A2:1275:A:H8	1.80	0.46
2:A2:1914:C:H1'	2:A2:2004:G:H1	1.81	0.46
2:A2:2240:U:H2'	2:A2:2241:G:C8	2.50	0.46
2:A2:3606:U:H2'	2:A2:3607:G:C8	2.50	0.46
10:C1:118:LEU:HD11	10:C1:167:VAL:HG22	1.97	0.46
17:E2:370:THR:HG22	17:E2:370:THR:O	2.16	0.46
17:E2:378:ARG:HG3	44:Q2:32:LEU:HD21	1.96	0.46
33:K3:12:CYS:SG	33:K3:124:LEU:HD12	2.55	0.46
35:L3:111:GLN:NE2	35:L3:127:ARG:HA	2.28	0.46
36:M2:161:ARG:HG3	36:M2:164:LYS:HB2	1.98	0.46
39:N3:141:TYR:CE1	39:N3:146:ALA:HB2	2.50	0.46
69:m2:870:G:C2	76:t2:115:LYS:HE2	2.50	0.46
69:m2:1571:A:H8	69:m2:1615:G:H21	1.63	0.46
71:o2:41:ARG:HB2	71:o2:47:TYR:CE1	2.49	0.46
73:q2:17:PHE:HZ	73:q2:48:ILE:HD11	1.80	0.46
78:v2:3:MET:HG3	78:v2:41:PRO:HB2	1.98	0.46
79:w2:12:LYS:HB2	79:w2:56:ILE:HD13	1.98	0.46
79:w2:37:TYR:OH	79:w2:51:ILE:HD13	2.15	0.46
2:A2:712:G:H2'	2:A2:713:C:C6	2.49	0.46
2:A2:1079:A:H2'	2:A2:1080:C:C6	2.50	0.46
2:A2:1281:C:H2'	2:A2:1282:C:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1347:A2M:N7	61:d2:15:THR:HG22	2.31	0.46
2:A2:1869:C:O2'	2:A2:1870:C:H5'	2.16	0.46
2:A2:2166:C:H2'	2:A2:2167:A:C8	2.50	0.46
2:A2:4067:1MA:H2'	2:A2:4068:G:O4'	2.15	0.46
2:A2:4160:C:N3	2:A2:4164:U:H5	2.12	0.46
21:F3:49:ALA:HA	41:O3:117:ARG:HD3	1.98	0.46
25:H1:191:ALA:HB1	25:H1:195:ARG:NH1	2.30	0.46
29:I3:270:LEU:HD23	29:I3:310:TRP:CD2	2.49	0.46
31:J3:183:LYS:HD3	31:J3:194:ARG:NH2	2.31	0.46
31:J3:233:LEU:HA	31:J3:236:PHE:HB3	1.97	0.46
35:L3:130:ILE:HG21	35:L3:145:PRO:HA	1.97	0.46
57:Z2:50:VAL:HG22	57:Z2:69:VAL:HG22	1.96	0.46
69:m2:164:A:H2'	69:m2:165:G:C8	2.50	0.46
69:m2:165:G:C2	69:m2:166:A:N7	2.83	0.46
69:m2:847:G:H2'	69:m2:848:G:O4'	2.15	0.46
69:m2:1522:G:H5''	69:m2:1523:C:OP2	2.15	0.46
72:p2:30:TRP:CH2	72:p2:48:LEU:HD11	2.50	0.46
72:p2:144:LYS:HG2	72:p2:146:ARG:HH21	1.81	0.46
80:x2:33:LEU:H	80:x2:33:LEU:HD23	1.78	0.46
2:A2:928:G:H1	2:A2:1064:G:H22	1.64	0.46
2:A2:1228:G:H2'	2:A2:1229:C:C6	2.51	0.46
2:A2:3744:G:H22	2:A2:3765:G:N2	2.13	0.46
2:A2:3972:G:H2'	2:A2:3973:U:C6	2.50	0.46
2:A2:4236:A:H2'	2:A2:4237:U:O4'	2.15	0.46
5:B2:49:A:H5''	23:G2:224:SER:HB2	1.97	0.46
11:C2:64:U:C2	11:C2:65:A:C8	3.04	0.46
21:F3:98:PRO:C	69:m2:1870:U:H3	2.23	0.46
35:L3:83:ARG:HG2	35:L3:150:ARG:HD2	1.97	0.46
49:S3:19:HIS:HB3	49:S3:22:LYS:HG2	1.98	0.46
69:m2:1234:U:H2'	69:m2:1235:G:C8	2.51	0.46
75:s2:77:MET:HB2	75:s2:89:THR:HG21	1.97	0.46
1:A1:187:LYS:HE2	2:A2:1884:G:N2	2.30	0.46
1:A1:244:LYS:HE2	5:B2:85:G:OP1	2.15	0.46
2:A2:2241:G:H2'	2:A2:2242:G:C8	2.51	0.46
2:A2:2652:G:H2'	2:A2:2653:G:H8	1.80	0.46
4:B1:59:ARG:HG2	4:B1:62:ARG:NH2	2.30	0.46
7:Bv:68:C:H2'	7:Bv:69:G:C8	2.51	0.46
16:E1:15:LEU:HD23	16:E1:165:TRP:HB2	1.97	0.46
24:G3:17:VAL:HA	24:G3:30:VAL:HG12	1.97	0.46
29:I3:14:HIS:CE1	29:I3:41:ILE:HD12	2.50	0.46
33:K3:195:LYS:HG2	69:m2:126:G:OP2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:P3:93:LEU:HD13	43:P3:128:PHE:HD2	1.80	0.46
56:Y2:35:TRP:CZ2	56:Y2:56:PRO:HD2	2.51	0.46
69:m2:354:U:H2'	69:m2:355:OMC:C6	2.49	0.46
69:m2:443:C:H2'	69:m2:444:C:C6	2.50	0.46
69:m2:571:A:H2'	69:m2:572:C:O4'	2.16	0.46
69:m2:1694:U:H2'	69:m2:1695:G:C8	2.51	0.46
69:m2:1702:C:H4'	69:m2:1703:C:H5''	1.96	0.46
71:o2:121:LEU:HD13	71:o2:143:PRO:HG2	1.97	0.46
72:p2:62:LEU:HA	72:p2:65:ARG:HD3	1.98	0.46
79:w2:128:VAL:HG12	79:w2:142:VAL:HA	1.97	0.46
2:A2:1087:G:H2'	2:A2:1088:A:C8	2.50	0.46
2:A2:2440:C:H2'	2:A2:2441:G:O4'	2.15	0.46
2:A2:3388:A:H2'	2:A2:3389:A:H8	1.77	0.46
2:A2:4356:C:H2'	2:A2:4357:A:H8	1.81	0.46
23:G2:153:THR:HG23	23:G2:160:PHE:CE2	2.50	0.46
30:J2:94:MET:HE3	30:J2:148:MET:HG2	1.96	0.46
45:Q3:41:ARG:HH22	45:Q3:53:ASP:HA	1.80	0.46
47:R3:69:THR:H	47:R3:72:VAL:HG12	1.79	0.46
50:T2:21:ARG:HD3	50:T2:46:ILE:O	2.16	0.46
65:h2:12:ARG:HG3	65:h2:15:ARG:HH21	1.80	0.46
69:m2:500:C:H2'	69:m2:501:G:C8	2.50	0.46
69:m2:642:A:H2'	69:m2:643:A:C8	2.51	0.46
69:m2:926:G:H1	69:m2:1020:U:H3	1.62	0.46
69:m2:1608:G:N2	69:m2:1634:G:H2'	2.30	0.46
69:m2:1683:U:H2'	69:m2:1684:C:C6	2.51	0.46
72:p2:92:GLN:OE1	72:p2:97:LEU:HD13	2.15	0.46
72:p2:141:GLY:HA3	72:p2:207:LEU:HD23	1.98	0.46
1:A1:219:VAL:HG23	1:A1:223:PHE:CG	2.51	0.46
2:A2:2294:C:H2'	2:A2:2295:C:C6	2.51	0.46
2:A2:4652:U:H4'	2:A2:4653:A:H5'	1.98	0.46
10:C1:95:VAL:HG22	64:g2:82:LEU:HB3	1.96	0.46
17:E2:14:LEU:HD23	17:E2:264:PHE:HE2	1.81	0.46
20:F2:84:THR:HG22	20:F2:86:ARG:N	2.20	0.46
29:I3:64:HIS:HD2	29:I3:83:TRP:CB	2.27	0.46
30:J2:67:VAL:HG22	30:J2:82:ARG:HD2	1.98	0.46
42:P2:42:VAL:HG13	42:P2:45:ILE:HG13	1.97	0.46
45:Q3:44:LEU:O	45:Q3:47:MET:HG2	2.16	0.46
68:k2:51:VAL:HG22	68:k2:62:VAL:HG22	1.98	0.46
69:m2:589:A:H8	69:m2:592:A:H2'	1.81	0.46
69:m2:1540:C:H2'	69:m2:1541:U:C6	2.51	0.46
73:q2:115:VAL:HG21	73:q2:142:LEU:HD22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A1:94:ALA:O	1:A1:98:ARG:HG3	2.16	0.46
1:A1:201:LEU:HD21	1:A1:226:ALA:HA	1.96	0.46
2:A2:46:U:OP1	19:F1:16:LYS:HE2	2.16	0.46
2:A2:857:A:C8	26:H2:130:ARG:HG2	2.50	0.46
2:A2:1024:C:H2'	2:A2:1025:C:H6	1.78	0.46
2:A2:1721:G:C2	36:M2:166:ARG:HD2	2.51	0.46
2:A2:3437:C:H5'	2:A2:3477:A:H4'	1.97	0.46
2:A2:3721:U:H2'	2:A2:3722:C:H6	1.81	0.46
2:A2:3932:A:P	23:G2:19:ARG:HH12	2.38	0.46
2:A2:4500:G:H2'	2:A2:4501:G:H8	1.81	0.46
5:B2:23:A:H2'	5:B2:24:C:C6	2.49	0.46
12:C3:58:THR:HG23	69:m2:1448:A:H5''	1.98	0.46
17:E2:223:THR:HB	17:E2:275:HIS:H	1.81	0.46
30:J2:131:ARG:HG3	30:J2:137:ASN:ND2	2.31	0.46
31:J3:94:ILE:HD13	31:J3:159:LYS:O	2.15	0.46
32:K2:66:MET:HE3	32:K2:98:LEU:HD22	1.97	0.46
32:K2:110:ARG:HG3	32:K2:120:ILE:HD12	1.97	0.46
33:K3:38:ALA:HB1	33:K3:41:LEU:HD21	1.97	0.46
69:m2:124:U:H5''	74:r2:148:ARG:HH21	1.79	0.46
69:m2:1379:U:O2	69:m2:1381:A:H5'	2.15	0.46
69:m2:1630:C:H2'	69:m2:1631:C:H6	1.81	0.46
69:m2:1715:C:H2'	69:m2:1716:U:C6	2.50	0.46
74:r2:123:LEU:HD23	74:r2:123:LEU:HA	1.80	0.46
78:v2:79:LEU:HD23	78:v2:80:ARG:N	2.30	0.46
2:A2:329:A:H4'	25:H1:170:LYS:HZ1	1.80	0.46
2:A2:939:C:H2'	2:A2:940:C:H6	1.81	0.46
2:A2:1718:G:O6	57:Z2:18:LEU:HB2	2.16	0.46
2:A2:3346:U:H5'	2:A2:3474:OMU:OP2	2.15	0.46
2:A2:3576:U:H2'	2:A2:3577:U:H6	1.81	0.46
2:A2:4436:C:H42	2:A2:4495:C:N4	2.13	0.46
6:B3:67:ARG:HD3	69:m2:1589:G:C5	2.50	0.46
11:C2:66:A:H2'	11:C2:67:U:C6	2.51	0.46
17:E2:105:VAL:HG21	17:E2:150:PHE:CE1	2.50	0.46
31:J3:183:LYS:HG3	43:P3:95:PRO:O	2.16	0.46
35:L3:46:VAL:HG11	35:L3:106:LEU:HG	1.98	0.46
55:X2:90:ARG:HD3	55:X2:102:LEU:HD13	1.98	0.46
69:m2:1721:A:H2	69:m2:1816:G:H21	1.62	0.46
77:u2:67:TRP:CD1	77:u2:70:GLU:H	2.34	0.46
82:z2:41:ILE:HD12	82:z2:47:ARG:HG3	1.97	0.46
2:A2:1162:U:H2'	2:A2:1163:G:H8	1.81	0.46
13:D1:145:LYS:NZ	13:D1:167:ILE:HG13	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:E1:10:ASN:N	16:E1:11:PRO:HD2	2.31	0.46
20:F2:207:PRO:HD2	20:F2:227:ILE:HD13	1.98	0.46
27:H3:40:ARG:HB3	69:m2:1258:G:C2	2.51	0.46
36:M2:31:ARG:NH2	36:M2:102:THR:HG21	2.31	0.46
43:P3:52:ILE:HB	76:t2:144:ILE:CG2	2.46	0.46
69:m2:62:G:H2'	69:m2:63:U:H5'	1.98	0.46
70:n2:21:G:H2'	70:n2:22:C:H6	1.80	0.46
72:p2:189:ILE:HB	72:p2:190:PRO:HD3	1.98	0.46
76:t2:27:LEU:HG	76:t2:40:LEU:HD13	1.97	0.46
2:A2:689:G:H2'	2:A2:690:C:C6	2.51	0.45
2:A2:1114:G:H2'	2:A2:1115:C:C6	2.50	0.45
2:A2:1281:C:H2'	2:A2:1282:C:H6	1.79	0.45
2:A2:2139:U:H2'	2:A2:2140:U:H6	1.81	0.45
2:A2:4550:C:H2'	2:A2:4551:C:C6	2.51	0.45
3:A3:90:VAL:O	3:A3:91:LYS:HG2	2.16	0.45
32:K2:178:ARG:N	52:U2:51:GLY:HA2	2.31	0.45
41:O3:138:ASP:OD2	69:m2:987:G:H1'	2.16	0.45
43:P3:50:PHE:CB	43:P3:63:VAL:HG12	2.46	0.45
51:T3:12:VAL:HG21	69:m2:618:A:N3	2.31	0.45
69:m2:1680:A2M:O2'	69:m2:1681:A:H5'	2.16	0.45
2:A2:377:A:H2'	2:A2:378:A:O4'	2.16	0.45
2:A2:3825:G:H2'	2:A2:3826:U:C6	2.51	0.45
2:A2:4263:A:H2	10:C1:120:GLU:HB3	1.81	0.45
3:A3:43:VAL:HG11	3:A3:83:PHE:CE2	2.51	0.45
5:B2:58:A:H2'	5:B2:59:G:H8	1.80	0.45
10:C1:41:ILE:HG22	10:C1:43:VAL:HG13	1.99	0.45
20:F2:195:LYS:HA	20:F2:200:ARG:HG2	1.98	0.45
47:R3:48:VAL:HG22	47:R3:80:ARG:HE	1.81	0.45
56:Y2:76:LYS:HD2	56:Y2:98:GLU:CD	2.41	0.45
65:h2:9:ARG:NH2	69:m2:1709:U:H5'	2.31	0.45
71:o2:77:ILE:HG13	71:o2:99:ILE:HG13	1.97	0.45
74:r2:162:ILE:HG22	74:r2:169:ILE:HD13	1.98	0.45
79:w2:8:ARG:HG3	79:w2:8:ARG:O	2.16	0.45
1:A1:65:ARG:O	1:A1:69:ARG:HG2	2.17	0.45
2:A2:260:C:H2'	2:A2:261:G:C8	2.49	0.45
2:A2:425:U:H2'	2:A2:426:A:C8	2.51	0.45
2:A2:1323:G:H2'	2:A2:1324:C:H6	1.81	0.45
2:A2:4555:A:C8	28:I2:156:LEU:HD12	2.52	0.45
2:A2:4637:U:H2'	2:A2:4638:G:H8	1.81	0.45
14:D2:108:PRO:HG2	67:j2:86:LEU:HD13	1.98	0.45
18:E3:45:SER:HB2	69:m2:650:A:N3	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:I3:85:GLY:HA2	29:I3:108:VAL:HG23	1.99	0.45
35:L3:38:ARG:HD3	69:m2:525:A:OP2	2.15	0.45
35:L3:132:GLN:HB3	69:m2:564:U:H4'	1.98	0.45
46:R2:126:THR:HG21	46:R2:134:LYS:HE2	1.98	0.45
53:V2:43:MET:HG2	53:V2:47:LYS:HE2	1.98	0.45
55:X2:32:ARG:HB3	55:X2:48:GLU:HG3	1.97	0.45
65:h2:9:ARG:HH22	69:m2:1709:U:H5'	1.82	0.45
69:m2:355:OMC:H1'	69:m2:355:OMC:HM23	1.58	0.45
69:m2:1219:A:H2'	69:m2:1220:C:H6	1.80	0.45
69:m2:1281:C:H2'	69:m2:1282:G:C8	2.50	0.45
69:m2:1322:G:H2'	69:m2:1323:G:O4'	2.16	0.45
69:m2:1349:U:H2'	69:m2:1350:G:N3	2.31	0.45
69:m2:1651:U:H2'	69:m2:1652:A:H8	1.81	0.45
69:m2:1799:U:H2'	69:m2:1800:C:H6	1.80	0.45
82:z2:103:LYS:HB2	82:z2:113:SER:HB2	1.99	0.45
2:A2:19:G:H2'	2:A2:20:U:C6	2.51	0.45
3:A3:47:LYS:HZ2	6:B3:36:THR:HA	1.81	0.45
3:A3:59:LEU:HD23	3:A3:64:VAL:HG22	1.97	0.45
16:E1:136:ARG:HB2	16:E1:139:PHE:CE1	2.52	0.45
27:H3:40:ARG:HE	69:m2:1258:G:H5''	1.81	0.45
29:I3:107:ASP:HB2	29:I3:125:ARG:HD2	1.98	0.45
31:J3:200:ARG:O	35:L3:98:LEU:HB3	2.15	0.45
33:K3:174:PRO:HG3	69:m2:65:C:C4	2.52	0.45
36:M2:83:ARG:CD	38:N2:156:TYR:HB2	2.46	0.45
50:T2:14:LEU:HD13	58:a2:92:LYS:HE3	1.98	0.45
52:U2:75:LEU:HD12	52:U2:136:LYS:HD2	1.98	0.45
58:a2:5:LEU:HD13	58:a2:32:TYR:CE1	2.51	0.45
69:m2:1846:U:H2'	69:m2:1847:A:C8	2.52	0.45
74:r2:75:LYS:HD2	74:r2:77:ARG:NH2	2.32	0.45
74:r2:194:VAL:HG12	74:r2:211:LYS:O	2.16	0.45
2:A2:1147:A:H2'	2:A2:1148:A:H8	1.82	0.45
2:A2:1212:A:N7	52:U2:115:GLY:HA2	2.32	0.45
2:A2:1288:G:H2'	2:A2:1289:C:C6	2.51	0.45
2:A2:1317:G:H2'	2:A2:1318:C:H6	1.79	0.45
2:A2:3573:A:H2'	2:A2:3574:G:H8	1.82	0.45
2:A2:3821:G:H4'	2:A2:3823:C:C2	2.51	0.45
2:A2:3891:A:H2'	2:A2:3892:G:H8	1.79	0.45
2:A2:4112:U:H2'	2:A2:4113:C:H6	1.82	0.45
2:A2:4244:C:H42	2:A2:4270:A2M:H62	1.65	0.45
2:A2:4400:U:H2'	2:A2:4401:C:C6	2.52	0.45
2:A2:4701:G:H2'	2:A2:4702:A:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:H2:165:ARG:HD3	57:Z2:5:LEU:HD12	1.99	0.45
29:I3:78:ALA:HB2	29:I3:92:LEU:HD11	1.98	0.45
39:N3:16:LEU:HD11	39:N3:62:GLN:CG	2.46	0.45
50:T2:4:PHE:HE2	54:W2:67:ALA:HB2	1.81	0.45
60:c2:16:LYS:HD3	60:c2:16:LYS:HA	1.75	0.45
66:i2:66:ILE:HG21	66:i2:91:PHE:CE1	2.51	0.45
69:m2:1597:U:H2'	69:m2:1598:U:C6	2.52	0.45
69:m2:1714:A:H2'	69:m2:1715:C:H6	1.80	0.45
76:t2:52:GLU:HA	76:t2:58:LYS:HB2	1.97	0.45
76:t2:66:VAL:N	76:t2:67:PRO:HD2	2.31	0.45
82:z2:20:TYR:HD1	82:z2:23:ARG:HD3	1.81	0.45
2:A2:1506:U:H2'	2:A2:1507:C:O4'	2.17	0.45
2:A2:1820:C:H2'	2:A2:1821:C:C6	2.52	0.45
2:A2:2022:U:C6	2:A2:2025:G:H4'	2.52	0.45
2:A2:2048:U:H2'	2:A2:2049:G:C8	2.51	0.45
2:A2:2275:C:H2'	2:A2:2276:G:H8	1.82	0.45
14:D2:101:VAL:HG22	14:D2:165:VAL:HG22	1.99	0.45
18:E3:106:GLY:O	18:E3:108:LYS:HG2	2.17	0.45
26:H2:53:ARG:HB2	26:H2:69:MET:HE1	1.97	0.45
28:I2:49:ARG:NH1	28:I2:53:LYS:HE3	2.31	0.45
29:I3:149:GLU:CB	29:I3:171:ASP:HB3	2.46	0.45
29:I3:168:CYS:HB3	29:I3:195:LEU:HG	1.97	0.45
29:I3:302:TYR:HE2	29:I3:308:ARG:HB3	1.81	0.45
31:J3:227:ARG:CG	31:J3:228:GLY:H	2.25	0.45
33:K3:164:LYS:HE3	69:m2:67:C:C5	2.51	0.45
44:Q2:45:ASN:ND2	44:Q2:47:ARG:HB2	2.32	0.45
48:S2:50:ARG:NH1	48:S2:110:LYS:HD3	2.32	0.45
69:m2:943:C:H2'	69:m2:944:G:H8	1.81	0.45
69:m2:1128:G:P	71:o2:41:ARG:HH12	2.39	0.45
73:q2:39:VAL:HG22	73:q2:48:ILE:HG12	1.99	0.45
74:r2:233:LYS:HD3	74:r2:234:PRO:HD2	1.99	0.45
76:t2:144:ILE:HG12	76:t2:145:ARG:H	1.81	0.45
2:A2:35:U:H4'	2:A2:1338:A:C2	2.51	0.45
2:A2:280:G:H5''	25:H1:14:LYS:HE2	1.99	0.45
2:A2:287:U:H2'	2:A2:288:G:C8	2.52	0.45
2:A2:453:G:H22	2:A2:1107:G:H22	1.65	0.45
2:A2:1067:A:C6	2:A2:1082:A:C6	3.04	0.45
2:A2:1071:G:N2	2:A2:1078:G:H1	2.15	0.45
2:A2:1079:A:OP1	53:V2:87:LYS:HD2	2.16	0.45
2:A2:1188:G:H1'	20:F2:234:LYS:HG2	1.98	0.45
2:A2:1608:G:H2'	2:A2:1609:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1836:G:H2'	2:A2:1837:C:C6	2.51	0.45
2:A2:2135:G:N2	2:A2:2179:OMG:H5''	2.31	0.45
2:A2:2520:A:H2'	2:A2:2521:A:C8	2.52	0.45
2:A2:3409:G:H2'	2:A2:3410:G:O4'	2.16	0.45
2:A2:3542:G:H5''	28:I2:82:ARG:NH2	2.32	0.45
2:A2:4063:G:H2'	2:A2:4064:C:H6	1.82	0.45
2:A2:4110:C:H2'	2:A2:4111:U:C6	2.52	0.45
7:Bv:51:U:H3	7:Bv:63:G:H1	1.64	0.45
12:C3:82:MET:HE1	27:H3:50:ILE:HG22	1.99	0.45
23:G2:115:MET:HA	23:G2:118:ILE:HD13	1.99	0.45
31:J3:164:PRO:HB2	31:J3:248:TYR:HE2	1.81	0.45
31:J3:207:ALA:O	31:J3:210:PRO:HD2	2.16	0.45
40:O2:84:LYS:HA	40:O2:87:THR:HG22	1.98	0.45
54:W2:48:LEU:HD13	54:W2:71:VAL:HG13	1.97	0.45
69:m2:115:U:H2'	69:m2:116:OMU:C6	2.46	0.45
69:m2:293:G:C8	79:w2:41:GLY:HA3	2.42	0.45
74:r2:198:ARG:HH12	74:r2:200:ARG:HD2	1.81	0.45
81:y2:44:PRO:CD	81:y2:81:ILE:HD11	2.45	0.45
2:A2:1911:G:H2'	2:A2:1912:A:C8	2.52	0.45
2:A2:2480:A:H1'	34:L2:93:VAL:HG21	1.98	0.45
2:A2:2498:A:H2'	2:A2:2499:A:C8	2.52	0.45
10:C1:12:ILE:HG12	10:C1:18:ILE:HD12	1.99	0.45
25:H1:60:VAL:HG23	25:H1:134:LEU:HB2	1.98	0.45
30:J2:95:LEU:HD23	30:J2:148:MET:HE1	1.99	0.45
35:L3:39:ASN:HB2	69:m2:644:U:P	2.56	0.45
36:M2:44:PHE:O	36:M2:48:VAL:HG12	2.16	0.45
39:N3:47:PRO:HD2	39:N3:86:GLU:HG2	1.97	0.45
39:N3:91:LEU:HD12	39:N3:125:LEU:HD12	1.98	0.45
39:N3:135:LEU:HD23	39:N3:139:TRP:CD2	2.51	0.45
45:Q3:104:ARG:HG2	69:m2:493:C:OP2	2.16	0.45
69:m2:651:U:H2'	69:m2:652:A:C8	2.51	0.45
69:m2:1104:G:H2'	69:m2:1105:C:C6	2.51	0.45
69:m2:1389:G:H2'	69:m2:1390:A:O4'	2.17	0.45
69:m2:1826:A:H2'	69:m2:1827:A:C4	2.52	0.45
72:p2:71:LEU:HD11	72:p2:189:ILE:HD12	1.99	0.45
75:s2:41:VAL:O	75:s2:42:LYS:HE2	2.17	0.45
2:A2:425:U:H2'	2:A2:426:A:H8	1.81	0.45
2:A2:1669:A:H2'	2:A2:1670:A:C8	2.52	0.45
2:A2:3720:U:H2'	2:A2:3721:U:C6	2.51	0.45
2:A2:3777:A:O2'	2:A2:3778:A:H8	1.99	0.45
2:A2:4637:U:H2'	2:A2:4638:G:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A3:37:GLY:H	69:m2:1632:A:H5''	1.81	0.45
10:C1:128:MET:SD	10:C1:157:SER:HB3	2.57	0.45
19:F1:124:LEU:HD11	59:b2:119:TYR:HB2	1.99	0.45
28:I2:12:ARG:HB2	28:I2:37:ARG:CD	2.46	0.45
28:I2:79:ILE:HG21	28:I2:138:LEU:HD11	1.98	0.45
28:I2:185:VAL:O	28:I2:189:ILE:HG12	2.16	0.45
29:I3:37:ASP:O	29:I3:39:THR:HG23	2.17	0.45
35:L3:2:PRO:O	69:m2:511:OMG:H5''	2.17	0.45
42:P2:35:LYS:NZ	42:P2:68:GLY:HA2	2.32	0.45
55:X2:25:TYR:CD2	55:X2:88:LEU:HD13	2.51	0.45
69:m2:99:A2M:H8	69:m2:99:A2M:O5'	2.17	0.45
69:m2:863:A:H1'	69:m2:864:A:H2	1.82	0.45
69:m2:1234:U:H2'	69:m2:1235:G:H8	1.82	0.45
69:m2:1266:C:H4'	69:m2:1267:A:O4'	2.17	0.45
69:m2:1409:U:H5''	81:y2:71:ARG:NH1	2.32	0.45
69:m2:1847:A:H2'	69:m2:1848:G:H8	1.82	0.45
72:p2:33:VAL:HG21	72:p2:67:PHE:CZ	2.52	0.45
74:r2:133:VAL:O	74:r2:136:ILE:HG12	2.16	0.45
75:s2:51:HIS:HA	75:s2:86:LYS:HE3	1.98	0.45
2:A2:456:C:H2'	2:A2:457:G:C8	2.52	0.45
2:A2:2117:U:H2'	2:A2:2118:A2M:H8	1.98	0.45
2:A2:3710:U:H2'	2:A2:3711:C:C6	2.52	0.45
2:A2:4010:U:H5''	19:F1:194:ILE:HD13	1.98	0.45
2:A2:4304:G:H2'	2:A2:4305:C:H6	1.82	0.45
2:A2:4368:C:OP2	17:E2:30:LYS:HD2	2.17	0.45
2:A2:4509:U:H2'	2:A2:4510:C:C6	2.52	0.45
3:A3:19:ASN:HD21	3:A3:32:ALA:C	2.25	0.45
4:B1:37:LYS:HD3	4:B1:44:ASP:OD2	2.15	0.45
19:F1:18:TRP:CD1	19:F1:18:TRP:H	2.35	0.45
19:F1:179:PHE:CD2	52:U2:131:ARG:HB2	2.52	0.45
20:F2:183:VAL:HA	20:F2:204:ARG:HG2	1.99	0.45
69:m2:382:G:OP1	77:u2:31:ARG:HD2	2.17	0.45
69:m2:642:A:C6	69:m2:643:A:N6	2.85	0.45
69:m2:1731:U:H3	69:m2:1807:G:H1	1.64	0.45
70:n2:26:C:H2'	70:n2:27:U:C6	2.52	0.45
76:t2:60:ILE:HG23	76:t2:90:LYS:HD2	1.99	0.45
76:t2:61:ILE:HG21	76:t2:176:VAL:CG2	2.46	0.45
80:x2:22:LEU:HD11	80:x2:90:VAL:HG21	1.99	0.45
2:A2:1285:C:H2'	2:A2:1286:U:H6	1.82	0.44
2:A2:1330:2MG:H2'	2:A2:1331:A:N7	2.32	0.44
2:A2:1358:G:H2'	2:A2:1359:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A3:23:ARG:CG	47:R3:48:VAL:HG21	2.47	0.44
5:B2:82:G:H2'	5:B2:83:A:C8	2.52	0.44
20:F2:179:ASP:O	20:F2:183:VAL:HG23	2.16	0.44
23:G2:33:ARG:O	23:G2:37:VAL:HG22	2.18	0.44
23:G2:70:GLU:CD	23:G2:70:GLU:H	2.26	0.44
24:G3:12:ALA:HB1	24:G3:32:VAL:HB	1.98	0.44
28:I2:110:PRO:N	28:I2:111:PRO:HD2	2.32	0.44
29:I3:256:ILE:HG23	29:I3:270:LEU:HB2	1.99	0.44
33:K3:6:SER:OG	33:K3:112:VAL:HG22	2.17	0.44
33:K3:137:ARG:HG2	69:m2:170:A:O5'	2.17	0.44
42:P2:82:ILE:HG22	42:P2:125:CYS:SG	2.57	0.44
42:P2:99:GLU:HG3	44:Q2:21:TYR:OH	2.17	0.44
57:Z2:36:ARG:HD2	57:Z2:79:GLY:O	2.17	0.44
64:g2:112:LYS:HB3	64:g2:114:LYS:HG2	1.98	0.44
69:m2:391:A:H2'	69:m2:392:C:C6	2.52	0.44
69:m2:866:A:H2'	69:m2:867:A:H8	1.83	0.44
70:n2:60:C:H2'	70:n2:61:C:C6	2.52	0.44
71:o2:51:LEU:HA	71:o2:54:THR:HB	1.98	0.44
71:o2:68:ILE:HG21	71:o2:73:ASP:HB2	1.98	0.44
71:o2:103:PHE:CG	71:o2:133:PRO:HG3	2.52	0.44
72:p2:103:MET:O	72:p2:214:LYS:HA	2.17	0.44
75:s2:96:ALA:O	75:s2:100:ILE:HG12	2.16	0.44
1:A1:200:SER:C	1:A1:201:LEU:HD12	2.43	0.44
2:A2:952:C:H2'	2:A2:953:G:C8	2.49	0.44
2:A2:2158:A:OP1	58:a2:10:ARG:HD3	2.17	0.44
2:A2:2256:C:C2'	2:A2:2257:G:H5'	2.47	0.44
2:A2:3815:U:H5'	2:A2:3816:C:H5''	1.98	0.44
2:A2:3965:A:OP1	38:N2:50:LYS:HB3	2.17	0.44
2:A2:4304:G:H2'	2:A2:4305:C:C6	2.51	0.44
13:D1:33:ILE:HB	13:D1:69:ARG:NH1	2.30	0.44
16:E1:114:ASP:HB2	80:x2:12:PHE:HE2	1.82	0.44
17:E2:8:ALA:HB1	42:P2:48:ARG:HH12	1.83	0.44
23:G2:10:LYS:HG2	23:G2:14:LYS:NZ	2.32	0.44
34:L2:119:MET:HE1	34:L2:145:LEU:CD1	2.48	0.44
39:N3:16:LEU:HD23	69:m2:921:A:H5''	1.99	0.44
48:S2:110:LYS:O	48:S2:115:ARG:HG3	2.17	0.44
50:T2:99:ASP:HB3	50:T2:102:ARG:HH21	1.83	0.44
69:m2:1738:G:H2'	69:m2:1739:G:C8	2.51	0.44
74:r2:126:VAL:HG22	74:r2:139:LEU:HD21	1.99	0.44
74:r2:138:HIS:CE1	74:r2:148:ARG:HG3	2.52	0.44
79:w2:80:MET:HB3	79:w2:80:MET:HE2	1.75	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A1:117:ILE:HB	1:A1:242:MET:HE1	1.99	0.44
1:A1:258:ARG:HB2	1:A1:261:GLN:HB2	1.98	0.44
2:A2:222:C:H2'	2:A2:223:G:O4'	2.18	0.44
2:A2:270:U:H2'	2:A2:271:C:H6	1.83	0.44
2:A2:939:C:H2'	2:A2:940:C:C6	2.52	0.44
2:A2:1273:C:H2'	2:A2:1274:C:C6	2.52	0.44
2:A2:2498:A:H1'	14:D2:21:LYS:NZ	2.33	0.44
2:A2:4024:U:OP2	66:i2:61:LYS:HG2	2.17	0.44
2:A2:4123:U:H2'	2:A2:4124:G:C8	2.50	0.44
2:A2:4279:U:H4'	17:E2:373:LYS:HE2	1.99	0.44
6:B3:31:PRO:O	6:B3:34:VAL:HG12	2.17	0.44
11:C2:40:A:H2'	11:C2:41:A:H8	1.83	0.44
25:H1:65:ARG:HD3	25:H1:127:TYR:CG	2.53	0.44
27:H3:26:ASN:HB3	27:H3:39:CYS:SG	2.58	0.44
45:Q3:121:ALA:HA	45:Q3:124:ASN:ND2	2.32	0.44
69:m2:220:U:H2'	69:m2:221:U:C6	2.52	0.44
69:m2:564:U:H2'	69:m2:565:G:H8	1.82	0.44
69:m2:651:U:H2'	69:m2:652:A:H8	1.81	0.44
76:t2:57:ARG:HH12	76:t2:59:ALA:HB2	1.82	0.44
77:u2:65:PHE:HD2	77:u2:104:ILE:HG13	1.82	0.44
2:A2:746:G:O2'	2:A2:747:G:H8	2.00	0.44
2:A2:1285:C:H2'	2:A2:1286:U:C6	2.52	0.44
2:A2:1505:C:OP1	32:K2:53:MET:HG2	2.16	0.44
2:A2:1541:G:H5''	5:B2:102:U:H1'	1.99	0.44
2:A2:2176:G:N7	30:J2:129:THR:HG22	2.32	0.44
2:A2:3720:U:H2'	2:A2:3721:U:H6	1.81	0.44
2:A2:4436:C:H42	2:A2:4495:C:H42	1.65	0.44
11:C2:89:U:H2'	11:C2:90:C:C6	2.53	0.44
23:G2:44:TYR:OH	38:N2:67:VAL:HG21	2.17	0.44
46:R2:60:TYR:HE2	59:b2:81:LEU:HD12	1.83	0.44
46:R2:71:LEU:HD21	46:R2:103:LYS:O	2.17	0.44
59:b2:6:ALA:O	59:b2:10:ARG:HG2	2.17	0.44
59:b2:48:ARG:O	59:b2:52:LYS:HG2	2.18	0.44
69:m2:511:OMG:HM22	69:m2:512:G:O4'	2.16	0.44
69:m2:1200:G:H2'	69:m2:1201:A:C8	2.53	0.44
69:m2:1838:G:H4'	69:m2:1839:G:C4	2.52	0.44
73:q2:5:ILE:HG23	73:q2:9:ARG:HE	1.82	0.44
74:r2:31:PRO:HD2	74:r2:38:LEU:CD1	2.48	0.44
80:x2:28:MET:HB3	80:x2:32:GLN:HB2	1.98	0.44
80:x2:81:ARG:HH12	80:x2:120:SER:HB3	1.83	0.44
2:A2:426:A:H2'	2:A2:427:A:H8	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:850:G:H2'	2:A2:851:C:C6	2.53	0.44
2:A2:1118:C:H2'	2:A2:1119:C:H6	1.82	0.44
2:A2:1406:A:H5''	2:A2:2594:U:H5''	2.00	0.44
2:A2:1862:G:H2'	2:A2:1863:U:C6	2.52	0.44
2:A2:2513:G:H2'	2:A2:2514:G:C8	2.52	0.44
2:A2:3511:C:H2'	2:A2:3512:A:H8	1.83	0.44
2:A2:3515:G:H4'	30:J2:139:TYR:CE1	2.52	0.44
2:A2:3722:C:C2	2:A2:3723:A:C8	3.05	0.44
2:A2:3948:U:H2'	2:A2:3949:G:O4'	2.18	0.44
3:A3:39:ARG:HH22	6:B3:38:LYS:HA	1.83	0.44
16:E1:93:GLU:OE2	16:E1:175:LEU:HD21	2.18	0.44
18:E3:40:PRO:O	18:E3:41:PHE:HB2	2.18	0.44
23:G2:153:THR:HG23	23:G2:160:PHE:CZ	2.53	0.44
29:I3:88:ARG:HH21	29:I3:100:ARG:HD3	1.83	0.44
29:I3:124:SER:HB3	29:I3:126:ASP:OD1	2.18	0.44
41:O3:128:ARG:NH1	72:p2:70:SER:HB3	2.32	0.44
47:R3:50:PHE:HE2	47:R3:87:ALA:HB2	1.83	0.44
61:d2:34:CYS:HB3	61:d2:38:GLY:N	2.27	0.44
65:h2:20:MET:HA	65:h2:23:ARG:HE	1.82	0.44
69:m2:1649:A:N1	69:m2:1677:A:H5''	2.32	0.44
69:m2:1726:A:H2'	69:m2:1727:U:C6	2.52	0.44
74:r2:94:LYS:HD3	74:r2:95:THR:HG23	1.99	0.44
76:t2:18:GLU:HG2	76:t2:19:PHE:N	2.32	0.44
78:v2:24:LYS:HD3	78:v2:29:MET:HE1	1.99	0.44
2:A2:456:C:H2'	2:A2:457:G:H8	1.83	0.44
2:A2:2311:G:H2'	2:A2:2312:G:H8	1.82	0.44
2:A2:2429:A:N6	67:j2:42:CYS:HA	2.33	0.44
2:A2:4526:U:C4	22:G1:113:MET:HG2	2.53	0.44
11:C2:115:G:H2'	11:C2:116:C:C6	2.53	0.44
18:E3:135:LYS:HD3	18:E3:135:LYS:HA	1.76	0.44
20:F2:235:LEU:HD22	20:F2:240:LEU:HD11	2.00	0.44
22:G1:15:ILE:HD13	22:G1:55:MET:HG2	2.00	0.44
29:I3:17:TRP:HB2	29:I3:36:ARG:HD2	1.99	0.44
56:Y2:22:ARG:HD3	56:Y2:31:ILE:HG23	1.99	0.44
68:k2:54:ALA:HA	68:k2:61:VAL:HG23	1.98	0.44
69:m2:911:G:H2'	69:m2:912:G:C8	2.53	0.44
77:u2:48:VAL:HG11	77:u2:54:LYS:HE2	2.00	0.44
82:z2:96:ILE:HG13	82:z2:96:ILE:O	2.18	0.44
2:A2:49:U:H2'	2:A2:50:C:H6	1.83	0.44
2:A2:263:G:H2'	2:A2:264:C:C6	2.53	0.44
2:A2:467:U:H2'	2:A2:468:U:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1722:C:H3'	2:A2:1723:C:H5''	2.00	0.44
2:A2:2214:G:H2'	2:A2:2216:G:OP2	2.17	0.44
2:A2:2485:U:H2'	2:A2:2486:C:C6	2.52	0.44
2:A2:3366:G:N3	2:A2:3368:A:N6	2.66	0.44
2:A2:4610:C:H2'	2:A2:4611:U:C6	2.53	0.44
3:A3:59:LEU:HG	3:A3:63:GLU:HB2	2.00	0.44
3:A3:124:ARG:HH11	3:A3:129:LEU:HB3	1.82	0.44
5:B2:57:C:H2'	5:B2:58:A:H8	1.83	0.44
15:D3:16:LYS:HE3	15:D3:16:LYS:HB2	1.80	0.44
29:I3:70:VAL:HG11	29:I3:113:PHE:HB3	1.99	0.44
35:L3:46:VAL:HG12	35:L3:102:ILE:HD11	2.00	0.44
45:Q3:37:LYS:HE2	45:Q3:57:VAL:O	2.17	0.44
53:V2:85:MET:HE3	53:V2:97:ILE:HD11	1.99	0.44
56:Y2:99:ILE:HG21	56:Y2:108:ARG:HG2	2.00	0.44
65:h2:10:MET:HE1	69:m2:1172:A:C5'	2.42	0.44
69:m2:869:OMG:H1'	69:m2:869:OMG:HM23	1.67	0.44
69:m2:1232:C:H2'	69:m2:1233:C:H6	1.82	0.44
69:m2:1513:U:H2'	69:m2:1514:C:H6	1.83	0.44
74:r2:168:LYS:HA	74:r2:168:LYS:HD2	1.78	0.44
2:A2:207:G:H2'	2:A2:208:A:C8	2.53	0.44
2:A2:1084:G:H1'	2:A2:1909:G:N2	2.31	0.44
2:A2:1473:U:OP1	52:U2:15:VAL:HA	2.17	0.44
2:A2:1527:U:H2'	2:A2:1528:U:H6	1.83	0.44
2:A2:3323:C:H4'	14:D2:8:GLN:HA	1.99	0.44
2:A2:3382:A:H2'	2:A2:3383:A:C8	2.52	0.44
2:A2:4565:C:H2'	2:A2:4566:C:C6	2.52	0.44
10:C1:167:VAL:HB	10:C1:172:ILE:HG22	1.99	0.44
11:C2:154:G:H2'	11:C2:155:C:C6	2.52	0.44
20:F2:221:PHE:HB2	20:F2:229:LEU:HD21	2.00	0.44
28:I2:197:LYS:HA	28:I2:203:VAL:HG22	1.99	0.44
31:J3:88:ILE:HG23	31:J3:93:ILE:HD11	1.99	0.44
35:L3:127:ARG:HG3	51:T3:35:ARG:HH21	1.82	0.44
45:Q3:10:ARG:CZ	45:Q3:24:VAL:HG11	2.48	0.44
45:Q3:66:GLY:H	69:m2:583:U:H5''	1.82	0.44
69:m2:1141:C:H2'	69:m2:1142:G:O4'	2.17	0.44
69:m2:1581:A:OP2	73:q2:7:LYS:HG2	2.18	0.44
69:m2:1653:A:H2'	69:m2:1654:G:H8	1.82	0.44
71:o2:123:VAL:HA	71:o2:145:ILE:O	2.18	0.44
71:o2:148:CYS:N	71:o2:163:CYS:SG	2.89	0.44
2:A2:35:U:H2'	2:A2:36:U:H5'	1.98	0.44
2:A2:444:G:N1	2:A2:1117:A:N6	2.60	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1320:U:H2'	2:A2:1321:A:C8	2.52	0.44
2:A2:1474:C:H2'	2:A2:1475:C:H6	1.83	0.44
2:A2:2324:G:H2'	2:A2:2325:U:C6	2.53	0.44
2:A2:4137:C:H4'	64:g2:114:LYS:NZ	2.33	0.44
11:C2:75:OMG:C8	63:f2:30:LYS:HG2	2.53	0.44
26:H2:192:PRO:HG2	26:H2:194:ARG:HG3	1.99	0.44
39:N3:15:ALA:O	69:m2:1018:U:H5'	2.18	0.44
41:O3:17:LEU:HD22	72:p2:51:ARG:NH2	2.33	0.44
69:m2:1296:G:H2'	69:m2:1297:A:C8	2.53	0.44
71:o2:90:PHE:HD1	71:o2:179:ALA:HB2	1.83	0.44
73:q2:50:ILE:HD12	73:q2:86:LEU:HD21	2.00	0.44
74:r2:68:ARG:HE	74:r2:76:VAL:HG11	1.83	0.44
76:t2:51:ILE:HD12	76:t2:51:ILE:HA	1.92	0.44
79:w2:17:PHE:CE2	79:w2:19:ASN:HB2	2.53	0.44
81:y2:13:PHE:HA	81:y2:21:ALA:O	2.18	0.44
81:y2:98:LYS:HZ2	81:y2:99:TYR:HE1	1.65	0.44
2:A2:275:C:H2'	2:A2:276:C:C6	2.52	0.43
2:A2:696:U:H2'	2:A2:697:C:H6	1.83	0.43
2:A2:835:U:H2'	2:A2:836:C:C6	2.53	0.43
2:A2:937:C:H2'	2:A2:938:U:H5'	1.99	0.43
2:A2:1284:U:H2'	2:A2:1285:C:H6	1.82	0.43
2:A2:1649:C:H2'	2:A2:1650:C:C6	2.53	0.43
2:A2:2273:G:H5'	58:a2:66:ARG:NH2	2.33	0.43
2:A2:3915:C:H2'	2:A2:3916:G:O4'	2.18	0.43
2:A2:3973:U:H2'	2:A2:3974:G:C8	2.53	0.43
2:A2:4375:A:H2'	2:A2:4376:A:C8	2.53	0.43
5:B2:4:U:H2'	5:B2:5:A:C8	2.53	0.43
13:D1:47:PRO:HG2	13:D1:142:LEU:HG	2.00	0.43
13:D1:170:LYS:HD3	13:D1:175:LYS:HA	2.00	0.43
16:E1:151:ILE:HD11	16:E1:156:ARG:HG2	2.00	0.43
20:F2:137:VAL:HA	20:F2:247:GLY:O	2.18	0.43
31:J3:137:VAL:HG11	31:J3:244:ILE:HD13	2.00	0.43
43:P3:31:SER:HB3	69:m2:687:A:H5''	2.00	0.43
60:c2:73:ILE:O	60:c2:77:VAL:HG22	2.18	0.43
62:e2:47:ILE:HD11	62:e2:56:LEU:HD13	2.00	0.43
69:m2:603:OMG:HM23	69:m2:603:OMG:H1'	1.72	0.43
69:m2:615:G:H22	69:m2:631:A:H5'	1.82	0.43
69:m2:950:C:H2'	69:m2:951:G:H8	1.82	0.43
69:m2:1704:G:H2'	69:m2:1705:OMC:O4'	2.18	0.43
72:p2:109:LYS:HZ3	72:p2:211:PHE:HE2	1.66	0.43
2:A2:50:C:C2	2:A2:51:A:C8	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1159:G:H5''	32:K2:166:TYR:CD1	2.53	0.43
2:A2:1333:C:H5'	20:F2:102:PHE:CE1	2.53	0.43
2:A2:2290:G:H2'	2:A2:2291:A:C8	2.53	0.43
2:A2:2565:U:H2'	2:A2:2566:G:O4'	2.18	0.43
2:A2:2592:OMU:H2'	2:A2:2593:G:O4'	2.18	0.43
6:B3:127:GLY:O	6:B3:131:LEU:HD23	2.18	0.43
11:C2:113:C:H2'	11:C2:114:G:O4'	2.18	0.43
20:F2:163:LYS:HB2	20:F2:166:GLU:HG3	2.00	0.43
28:I2:172:LYS:O	28:I2:176:ARG:HG3	2.19	0.43
29:I3:195:LEU:H	29:I3:195:LEU:HD23	1.83	0.43
30:J2:118:GLN:HE22	30:J2:120:ASN:ND2	2.16	0.43
57:Z2:43:LEU:HD22	57:Z2:76:ARG:HA	2.00	0.43
69:m2:439:G:H2'	69:m2:440:G:O4'	2.18	0.43
69:m2:644:U:H1'	69:m2:646:OMG:HM21	1.99	0.43
69:m2:813:A:H2'	69:m2:814:A:O4'	2.18	0.43
69:m2:1246:U:H2'	69:m2:1247:G:C8	2.53	0.43
69:m2:1493:G:H2'	69:m2:1494:U:C6	2.53	0.43
71:o2:173:LEU:HD21	71:o2:177:MET:HE3	2.01	0.43
1:A1:56:ARG:HH21	2:A2:1085:C:H1'	1.83	0.43
1:A1:109:PRO:HG3	1:A1:166:TYR:CD2	2.53	0.43
1:A1:231:TRP:CD1	1:A1:232:PRO:HD2	2.53	0.43
2:A2:1274:C:H2'	2:A2:1275:A:C8	2.53	0.43
2:A2:1613:G:H2'	2:A2:1614:C:C6	2.53	0.43
2:A2:1766:A:H3'	2:A2:1767:G:H8	1.82	0.43
2:A2:4329:U:C4	17:E2:280:ILE:HD13	2.53	0.43
2:A2:4700:C:H5''	2:A2:4701:G:H5'	2.00	0.43
17:E2:213:GLN:NE2	17:E2:363:ILE:HD11	2.33	0.43
17:E2:339:GLY:HA3	17:E2:343:ARG:HG2	2.00	0.43
24:G3:51:ARG:HG3	75:s2:61:PHE:CE2	2.53	0.43
31:J3:134:ASN:O	31:J3:218:GLY:HA3	2.17	0.43
69:m2:179:C:H5'	69:m2:180:G:OP2	2.18	0.43
69:m2:811:A:OP1	74:r2:186:GLY:HA3	2.19	0.43
69:m2:1201:A:H2'	69:m2:1202:A:C8	2.53	0.43
69:m2:1457:A:P	82:z2:5:ARG:HH22	2.41	0.43
69:m2:1459:U:H2'	69:m2:1460:G:C8	2.53	0.43
69:m2:1708:G:H2'	69:m2:1709:U:H6	1.84	0.43
81:y2:25:CYS:SG	81:y2:66:VAL:HG11	2.58	0.43
2:A2:690:C:H2'	2:A2:691:G:O4'	2.18	0.43
2:A2:1371:A:H2'	2:A2:1372:G:H8	1.83	0.43
2:A2:2031:A:H2'	2:A2:2032:C:O4'	2.19	0.43
2:A2:3844:A:H2'	2:A2:3845:C:H6	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:4430:U:H2'	2:A2:4431:C:C6	2.51	0.43
2:A2:4701:G:H2'	2:A2:4702:A:H8	1.84	0.43
3:A3:42:HIS:O	3:A3:46:ARG:HG2	2.18	0.43
4:B1:78:PRO:HD3	4:B1:237:TRP:CE2	2.53	0.43
10:C1:6:SER:OG	10:C1:59:LYS:HB3	2.18	0.43
15:D3:37:ALA:O	71:o2:63:ARG:HD3	2.19	0.43
33:K3:1:MET:HG2	33:K3:24:LEU:HD11	2.00	0.43
43:P3:6:VAL:HG23	43:P3:29:PRO:HG2	2.00	0.43
43:P3:77:PRO:HG2	43:P3:79:PHE:CE2	2.53	0.43
52:U2:124:VAL:HG21	52:U2:137:ILE:HD13	2.01	0.43
69:m2:528:A:N1	69:m2:561:G:O6	2.51	0.43
69:m2:1486:A:H2'	69:m2:1487:U:C6	2.53	0.43
69:m2:1655:U:H3	69:m2:1673:G:H1	1.66	0.43
76:t2:58:LYS:NZ	76:t2:90:LYS:HD3	2.34	0.43
2:A2:1332:C:HO2'	20:F2:102:PHE:HE1	1.64	0.43
2:A2:4506:G:H2'	2:A2:4507:G:C8	2.54	0.43
2:A2:4604:C:H2'	2:A2:4605:U:H6	1.84	0.43
2:A2:4677:G:H2'	2:A2:4678:C:H6	1.83	0.43
5:B2:39:C:O2'	16:E1:46:GLN:HB3	2.18	0.43
5:B2:94:C:H2'	5:B2:95:C:H6	1.83	0.43
6:B3:87:VAL:HG13	69:m2:1231:G:H21	1.83	0.43
22:G1:124:LYS:HE2	22:G1:124:LYS:HB2	1.73	0.43
35:L3:134:HIS:HA	35:L3:162:ARG:HD2	2.00	0.43
69:m2:200:C:O2	69:m2:200:C:H2'	2.18	0.43
69:m2:445:U:H2'	69:m2:446:G:O4'	2.18	0.43
69:m2:496:C:H42	69:m2:511:OMG:HN22	1.65	0.43
79:w2:120:VAL:O	79:w2:121:GLN:O	2.36	0.43
81:y2:31:LEU:H	81:y2:67:ASP:CB	2.32	0.43
2:A2:123:C:H2'	2:A2:124:C:H6	1.83	0.43
2:A2:1868:C:O2'	57:Z2:79:GLY:HA2	2.18	0.43
2:A2:2113:G:H2'	2:A2:2114:U:O4'	2.18	0.43
2:A2:2438:C:H2'	2:A2:2439:C:C6	2.52	0.43
2:A2:4288:PSU:C2	55:X2:78:ARG:HD3	2.53	0.43
3:A3:118:ARG:HE	3:A3:123:LEU:HD21	1.84	0.43
16:E1:157:ILE:HA	16:E1:161:GLU:OE2	2.19	0.43
39:N3:55:ARG:HD3	69:m2:1019:U:H5'	2.00	0.43
39:N3:64:ARG:NH2	39:N3:65:PHE:HE1	2.16	0.43
46:R2:114:LYS:HZ1	46:R2:121:VAL:H	1.66	0.43
61:d2:63:ARG:NH1	61:d2:65:ARG:HH21	2.16	0.43
62:e2:19:ASP:OD1	62:e2:39:SER:HB2	2.19	0.43
69:m2:1690:C:H2'	69:m2:1691:C:H6	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:o2:136:GLU:HA	71:o2:139:TYR:CD2	2.52	0.43
76:t2:28:LEU:HD23	76:t2:32:MET:HE1	2.00	0.43
77:u2:21:TYR:CE1	77:u2:22:HIS:HD2	2.36	0.43
77:u2:42:ARG:HG2	77:u2:58:LEU:HB2	2.01	0.43
78:v2:11:ILE:HG22	78:v2:35:LEU:HD11	2.01	0.43
1:A1:239:ARG:HD3	2:A2:725:C:OP1	2.18	0.43
2:A2:18:C:H4'	25:H1:138:PHE:CD2	2.53	0.43
2:A2:855:G:O6	2:A2:1098:G:H3'	2.19	0.43
2:A2:1527:U:H2'	2:A2:1528:U:C6	2.53	0.43
6:B3:82:ARG:HD3	6:B3:90:SER:CB	2.48	0.43
10:C1:44:GLU:CG	10:C1:58:ASP:HB2	2.49	0.43
10:C1:49:GLY:O	10:C1:53:LYS:HG2	2.18	0.43
11:C2:70:G:H5''	48:S2:27:ARG:CZ	2.48	0.43
13:D1:181:PHE:CE1	13:D1:197:VAL:HG11	2.54	0.43
21:F3:59:PHE:HB3	21:F3:62:TYR:HD2	1.83	0.43
29:I3:99:ARG:NH1	29:I3:135:LEU:HD13	2.34	0.43
31:J3:255:LEU:HD23	31:J3:255:LEU:HA	1.84	0.43
40:O2:36:ALA:HB1	40:O2:65:ARG:HD2	2.00	0.43
69:m2:1741:C:H2'	69:m2:1742:C:C6	2.54	0.43
70:n2:70:C:H2'	70:n2:71:U:H6	1.84	0.43
71:o2:57:LYS:HD2	71:o2:60:LEU:HD12	2.01	0.43
72:p2:28:LYS:NZ	72:p2:50:THR:HG22	2.34	0.43
74:r2:14:ALA:HB3	74:r2:20:LEU:HD12	2.01	0.43
75:s2:63:LYS:HD3	75:s2:71:ARG:HH12	1.84	0.43
1:A1:120:ILE:HG21	32:K2:4:ASP:HB2	1.99	0.43
2:A2:698:C:H2'	2:A2:699:A:H8	1.84	0.43
2:A2:1364:C:H2'	2:A2:1365:G:O4'	2.19	0.43
2:A2:3779:G:H1'	4:B1:34:LYS:NZ	2.34	0.43
2:A2:4104:U:H2'	2:A2:4174:G:O6	2.19	0.43
2:A2:4433:G:H22	2:A2:4499:G:H1	1.66	0.43
20:F2:142:HIS:CE1	20:F2:248:ARG:HA	2.54	0.43
29:I3:120:ILE:HD11	29:I3:132:TRP:HB2	1.99	0.43
38:N2:30:TYR:HE1	38:N2:94:GLU:OE2	2.02	0.43
45:Q3:117:VAL:HG11	45:Q3:125:VAL:HG11	2.01	0.43
56:Y2:72:SER:HB2	56:Y2:121:ARG:NH1	2.34	0.43
63:f2:28:ARG:HA	63:f2:33:ASN:ND2	2.33	0.43
69:m2:120:U:H1'	74:r2:33:THR:O	2.18	0.43
69:m2:159:A:O2'	69:m2:160:U:H5''	2.19	0.43
69:m2:1060:A:H2'	69:m2:1061:G:C8	2.54	0.43
69:m2:1344:U:C2	69:m2:1345:U:H5	2.36	0.43
70:n2:17:G:H5''	70:n2:57:A:H2	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
76:t2:63:PHE:HA	76:t2:95:ILE:O	2.19	0.43
1:A1:125:PRO:HD3	2:A2:1678:U:O3'	2.19	0.43
2:A2:175:C:H2'	2:A2:176:G:C8	2.54	0.43
2:A2:300:A:H2'	2:A2:301:G:C8	2.52	0.43
2:A2:802:A:C8	2:A2:803:C:H5	2.37	0.43
2:A2:1880:C:H2'	2:A2:1881:G:C8	2.54	0.43
2:A2:2102:A:N6	56:Y2:24:GLN:HE21	2.11	0.43
5:B2:54:A:H1'	16:E1:13:ARG:HG2	1.99	0.43
23:G2:84:PRO:HB3	23:G2:89:LYS:HD2	2.01	0.43
25:H1:33:LEU:HD13	25:H1:37:HIS:ND1	2.34	0.43
28:I2:105:LEU:HD23	28:I2:109:PRO:HG2	2.00	0.43
28:I2:125:LYS:HE3	28:I2:135:PHE:CD1	2.54	0.43
29:I3:67:SER:HB2	29:I3:109:LEU:HD12	2.00	0.43
29:I3:153:CYS:HB3	29:I3:168:CYS:HB2	1.29	0.43
29:I3:197:THR:O	29:I3:209:SER:HA	2.19	0.43
30:J2:27:LYS:HG2	30:J2:63:TYR:CG	2.54	0.43
31:J3:192:LEU:H	31:J3:227:ARG:HB3	1.83	0.43
32:K2:178:ARG:H	52:U2:51:GLY:HA2	1.84	0.43
35:L3:145:PRO:HD2	69:m2:524:A:H5'	1.99	0.43
44:Q2:47:ARG:CZ	44:Q2:54:LEU:HD21	2.48	0.43
68:k2:39:ARG:HD3	68:k2:105:ASP:OD1	2.19	0.43
69:m2:376:G:H2'	69:m2:377:U:C6	2.54	0.43
69:m2:485:C:H2'	69:m2:486:A2M:O4'	2.19	0.43
69:m2:1229:G:C2	69:m2:1230:A:C8	3.07	0.43
69:m2:1310:U:H2'	69:m2:1311:C:C6	2.53	0.43
69:m2:1535:A:C8	69:m2:1606:G:H1'	2.54	0.43
71:o2:123:VAL:HG22	71:o2:145:ILE:HB	2.00	0.43
75:s2:17:ILE:HG23	75:s2:19:LEU:HD13	2.00	0.43
75:s2:201:LYS:HG3	75:s2:204:ARG:NH2	2.34	0.43
2:A2:239:C:H5'	48:S2:33:PRO:HD3	2.00	0.43
2:A2:1260:C:C2	2:A2:1261:G:C8	3.06	0.43
2:A2:1613:G:H2'	2:A2:1614:C:H6	1.84	0.43
2:A2:2211:G:H2'	2:A2:2212:G:H8	1.83	0.43
2:A2:3608:A:H2'	2:A2:3609:G:C8	2.54	0.43
2:A2:4499:G:H2'	2:A2:4500:G:C8	2.54	0.43
2:A2:4564:G:H2'	2:A2:4565:C:C6	2.54	0.43
10:C1:25:VAL:HB	10:C1:80:MET:HE1	2.00	0.43
13:D1:60:LEU:HD13	13:D1:159:PHE:CD1	2.54	0.43
13:D1:180:GLU:O	13:D1:184:MET:HG3	2.19	0.43
21:F3:29:CYS:SG	41:O3:146:ARG:HG3	2.58	0.43
29:I3:45:LEU:HD21	29:I3:52:TYR:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:J3:167:ARG:HG2	31:J3:219:ILE:HD13	2.01	0.43
31:J3:227:ARG:HG3	31:J3:228:GLY:N	2.25	0.43
35:L3:76:ALA:O	35:L3:80:ARG:HG3	2.19	0.43
42:P2:42:VAL:HA	42:P2:61:VAL:HA	2.00	0.43
51:T3:31:ARG:HD2	51:T3:35:ARG:HH21	1.83	0.43
56:Y2:23:HIS:CD2	56:Y2:24:GLN:HE22	2.37	0.43
62:e2:27:LYS:HD2	62:e2:70:LYS:NZ	2.34	0.43
69:m2:1284:A:O2'	69:m2:1289:A:H5'	2.19	0.43
69:m2:1725:G:H2'	69:m2:1726:A:OP1	2.18	0.43
69:m2:1850:U:H2'	69:m2:1852:A:OP2	2.19	0.43
71:o2:10:MET:HG3	82:z2:111:PHE:HZ	1.83	0.43
75:s2:33:ILE:HD12	75:s2:36:GLN:NE2	2.34	0.43
2:A2:1441:C:OP2	14:D2:9:ARG:HD2	2.19	0.42
2:A2:1608:G:H2'	2:A2:1609:C:H6	1.84	0.42
2:A2:1652:A:H2'	2:A2:1653:G:C8	2.54	0.42
2:A2:1710:A:H2'	2:A2:1711:G:O4'	2.19	0.42
2:A2:2652:G:H2'	2:A2:2653:G:C8	2.53	0.42
2:A2:3604:C:C2	2:A2:3605:A:C8	3.06	0.42
6:B3:28:LEU:HD12	6:B3:106:ALA:HB1	2.01	0.42
6:B3:76:THR:HB	6:B3:94:ARG:HB3	2.01	0.42
12:C3:94:PRO:O	12:C3:98:VAL:HG23	2.19	0.42
17:E2:219:VAL:HG11	17:E2:337:VAL:HB	2.00	0.42
20:F2:137:VAL:HG21	20:F2:150:LEU:HD21	1.99	0.42
24:G3:16:LYS:HG2	24:G3:18:LEU:HD23	2.00	0.42
26:H2:283:SER:OG	57:Z2:3:GLY:HA3	2.19	0.42
28:I2:25:LYS:O	28:I2:29:LEU:HD23	2.19	0.42
30:J2:48:LEU:HB2	30:J2:92:LEU:HD21	2.00	0.42
33:K3:63:MET:SD	33:K3:106:LEU:HD21	2.59	0.42
33:K3:63:MET:HB2	33:K3:99:GLY:O	2.19	0.42
35:L3:160:SER:H	35:L3:162:ARG:HH21	1.65	0.42
39:N3:10:GLY:HA2	69:m2:1132:G:H4'	2.01	0.42
68:k2:20:ARG:O	68:k2:23:GLN:HG2	2.19	0.42
69:m2:289:U:H2'	69:m2:290:G:C8	2.53	0.42
69:m2:457:A:H2'	69:m2:458:C:C6	2.54	0.42
69:m2:914:C:H3'	69:m2:915:A:C5'	2.48	0.42
77:u2:67:TRP:CE3	77:u2:189:VAL:HG11	2.54	0.42
81:y2:53:GLU:N	81:y2:54:PRO:HD2	2.33	0.42
1:A1:86:MET:HE1	1:A1:218:THR:HG22	2.01	0.42
2:A2:176:G:H2'	2:A2:177:G:C8	2.54	0.42
2:A2:228:C:H2'	2:A2:229:G:H8	1.84	0.42
2:A2:317:A:C2	2:A2:4013:U:H1'	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:436:C:H2'	2:A2:437:G:C8	2.53	0.42
2:A2:2448:G:OP1	62:e2:35:LYS:HE2	2.19	0.42
2:A2:4126:A:H5''	64:g2:125:LYS:HD2	2.01	0.42
2:A2:4245:C:H2'	2:A2:4246:U:H6	1.83	0.42
19:F1:128:PRO:HG3	19:F1:134:PRO:HB3	2.00	0.42
19:F1:155:MET:HE2	19:F1:155:MET:HB3	1.90	0.42
20:F2:7:LEU:HG	20:F2:21:ASN:HB3	2.02	0.42
26:H2:169:VAL:HG12	26:H2:184:GLY:HA3	2.00	0.42
29:I3:59:LEU:HD13	29:I3:90:TRP:CG	2.54	0.42
30:J2:84:PRO:HB2	30:J2:87:SER:HB2	2.02	0.42
33:K3:48:TYR:CZ	33:K3:117:GLY:HA2	2.54	0.42
35:L3:121:LYS:O	35:L3:122:SER:HB3	2.18	0.42
38:N2:28:ALA:HB1	38:N2:32:ARG:NH1	2.32	0.42
39:N3:15:ALA:CB	49:S3:20:LYS:HG3	2.44	0.42
39:N3:38:TYR:CZ	39:N3:78:LYS:HD3	2.54	0.42
69:m2:1104:G:H2'	69:m2:1105:C:H6	1.84	0.42
69:m2:1726:A:H2'	69:m2:1727:U:H6	1.84	0.42
70:n2:26:C:H2'	70:n2:27:U:H6	1.84	0.42
74:r2:123:LEU:HD21	74:r2:235:TRP:CE3	2.54	0.42
76:t2:145:ARG:HB2	76:t2:155:LYS:NZ	2.34	0.42
2:A2:665:C:H2'	2:A2:666:G:C8	2.51	0.42
2:A2:1140:A2M:H2'	2:A2:1141:C:C6	2.55	0.42
2:A2:2095:C:H4'	20:F2:42:THR:HG23	2.00	0.42
2:A2:2167:A:H2'	2:A2:2168:U:H6	1.84	0.42
2:A2:2424:C:H2'	2:A2:2425:C:O4'	2.20	0.42
2:A2:3283:OMG:H1'	2:A2:3283:OMG:HM23	1.78	0.42
2:A2:3730:C:H2'	2:A2:3731:G:H8	1.84	0.42
16:E1:163:MET:HG2	16:E1:174:ILE:HD13	2.01	0.42
33:K3:110:ASN:C	33:K3:111:LEU:HD12	2.44	0.42
36:M2:27:LEU:HD21	38:N2:141:VAL:HG11	2.00	0.42
46:R2:89:LYS:HB3	46:R2:95:THR:OG1	2.19	0.42
67:j2:79:VAL:O	67:j2:83:ILE:HG12	2.19	0.42
69:m2:188:C:C4	69:m2:189:U:C4	3.08	0.42
69:m2:589:A:H2'	69:m2:589:A:N3	2.33	0.42
69:m2:1049:C:H2'	69:m2:1050:G:O4'	2.19	0.42
69:m2:1130:C:H2'	69:m2:1131:G:H8	1.85	0.42
69:m2:1391:C:C2	69:m2:1392:U:C5	3.07	0.42
69:m2:1409:U:H2'	69:m2:1410:U:H6	1.84	0.42
69:m2:1558:A:H2'	69:m2:1558:A:N3	2.35	0.42
74:r2:183:VAL:HG13	74:r2:220:THR:HG21	2.00	0.42
81:y2:50:LYS:HD2	81:y2:85:ARG:HH11	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:176:G:H2'	2:A2:177:G:H8	1.84	0.42
2:A2:184:U:H5''	2:A2:254:G:N2	2.34	0.42
2:A2:1401:U:H2'	2:A2:1402:C:C6	2.55	0.42
2:A2:1666:G:H21	13:D1:115:MET:HE2	1.83	0.42
2:A2:2117:U:H5'	30:J2:65:GLY:O	2.19	0.42
2:A2:3706:A:H5''	2:A2:3707:C:C6	2.53	0.42
2:A2:4357:A:H2'	2:A2:4358:G:O4'	2.20	0.42
2:A2:4386:A:H2'	2:A2:4387:G:H8	1.82	0.42
2:A2:4417:G:N2	36:M2:173:ASN:HD21	2.17	0.42
2:A2:4564:G:O2'	2:A2:4565:C:H5'	2.19	0.42
26:H2:147:LEU:HD12	26:H2:147:LEU:HA	1.86	0.42
28:I2:37:ARG:HH21	28:I2:160:ARG:NH2	2.17	0.42
41:O3:98:ARG:HG3	41:O3:133:THR:HA	2.00	0.42
41:O3:138:ASP:HB2	69:m2:944:G:N2	2.34	0.42
47:R3:88:LEU:HD13	47:R3:109:TYR:HD2	1.84	0.42
54:W2:34:THR:HG21	54:W2:93:THR:HG22	2.01	0.42
69:m2:93:U:H2'	69:m2:94:G:O4'	2.19	0.42
69:m2:496:C:N4	69:m2:511:OMG:HN22	2.17	0.42
69:m2:560:G:H2'	69:m2:561:G:C8	2.55	0.42
69:m2:993:G:C6	69:m2:1136:G:H4'	2.54	0.42
69:m2:1183:A:H2'	69:m2:1184:A:C8	2.54	0.42
69:m2:1325:U:H2'	69:m2:1326:G:C8	2.55	0.42
69:m2:1535:A:H2	69:m2:1538:G:N3	2.17	0.42
70:n2:22:C:H2'	70:n2:23:G:H8	1.83	0.42
71:o2:29:ASN:HB2	71:o2:151:ASP:HB3	2.01	0.42
72:p2:101:HIS:O	72:p2:217:MET:HG2	2.18	0.42
74:r2:124:CYS:HB3	74:r2:141:THR:CG2	2.48	0.42
2:A2:228:C:H2'	2:A2:229:G:C8	2.55	0.42
2:A2:3390:U:H2'	2:A2:3391:G:O4'	2.18	0.42
2:A2:3457:U:H2'	2:A2:3459:A:N7	2.35	0.42
2:A2:3868:G:OP1	38:N2:14:MET:HE1	2.18	0.42
2:A2:3930:C:O2'	2:A2:3933:A:H1'	2.19	0.42
2:A2:4069:C:H2'	2:A2:4070:G:O4'	2.20	0.42
2:A2:4093:A:H5''	13:D1:114:GLY:HA2	2.02	0.42
3:A3:25:LYS:HD2	3:A3:55:ARG:HD3	2.00	0.42
7:Bv:13:C:H42	7:Bv:23:A:N6	2.17	0.42
12:C3:80:PHE:HB3	27:H3:52:PHE:HB3	2.01	0.42
26:H2:275:GLN:O	26:H2:279:ARG:HG3	2.19	0.42
31:J3:167:ARG:CB	31:J3:177:PRO:HB2	2.50	0.42
43:P3:18:GLU:OE2	43:P3:67:GLY:HA2	2.19	0.42
69:m2:118:C:H1'	69:m2:447:A:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:223:A:H2'	69:m2:224:U:H6	1.84	0.42
69:m2:377:U:H2'	69:m2:378:A:H8	1.82	0.42
78:v2:21:MET:SD	78:v2:43:LEU:HD12	2.59	0.42
2:A2:1371:A:H2'	2:A2:1372:G:C8	2.54	0.42
2:A2:1677:C:H2'	2:A2:1678:U:C6	2.55	0.42
2:A2:1697:G:H2'	2:A2:1698:A:O4'	2.20	0.42
2:A2:2129:A:H5'	55:X2:64:ILE:O	2.19	0.42
2:A2:3358:A:C6	2:A2:3359:G:C8	3.08	0.42
11:C2:33:G:H4'	11:C2:34:U:C6	2.55	0.42
14:D2:206:PRO:HD3	14:D2:213:GLY:CA	2.50	0.42
17:E2:83:PRO:O	17:E2:167:GLN:HG3	2.19	0.42
20:F2:292:ILE:O	20:F2:298:ILE:HD12	2.20	0.42
27:H3:36:LEU:HD23	27:H3:36:LEU:H	1.84	0.42
29:I3:63:SER:HB3	69:m2:1400:G:H1'	2.01	0.42
35:L3:60:LEU:HD13	35:L3:74:GLY:HA2	2.00	0.42
42:P2:70:PRO:HA	42:P2:73:ARG:HB2	2.02	0.42
58:a2:19:LYS:HA	58:a2:19:LYS:HD3	1.82	0.42
63:f2:27:ILE:HG22	63:f2:33:ASN:ND2	2.34	0.42
75:s2:68:ILE:HD12	75:s2:71:ARG:HD3	2.01	0.42
76:t2:40:LEU:HD21	76:t2:79:LEU:HD11	2.02	0.42
82:z2:96:ILE:HD12	82:z2:114:LEU:HD13	2.02	0.42
1:A1:242:MET:HB3	1:A1:254:ASP:OD2	2.20	0.42
2:A2:189:G:H2'	2:A2:190:G:C8	2.53	0.42
2:A2:1231:C:H2'	2:A2:1232:G:O4'	2.19	0.42
2:A2:1252:C:O2'	2:A2:1253:U:H5'	2.20	0.42
2:A2:1511:C:H2'	2:A2:1512:U:C4	2.55	0.42
2:A2:2106:OMC:H1'	2:A2:2106:OMC:HM23	1.62	0.42
2:A2:2172:A:C4	2:A2:2173:A:C8	3.07	0.42
2:A2:4112:U:H2'	2:A2:4113:C:C6	2.55	0.42
6:B3:41:LYS:HG3	6:B3:42:HIS:N	2.35	0.42
15:D3:70:LEU:HD11	15:D3:83:PHE:CZ	2.55	0.42
19:F1:42:LYS:O	19:F1:46:ILE:HG12	2.20	0.42
24:G3:10:LYS:HE3	24:G3:10:LYS:HB3	1.84	0.42
27:H3:55:LEU:HD23	69:m2:1393:C:H4'	2.01	0.42
28:I2:151:ALA:O	28:I2:155:THR:HG23	2.19	0.42
47:R3:55:TYR:O	47:R3:58:LEU:HG	2.20	0.42
54:W2:37:MET:HE2	54:W2:97:ILE:HG12	2.01	0.42
68:k2:32:LEU:O	68:k2:33:LYS:HB2	2.18	0.42
69:m2:296:U:C4	79:w2:65:ASN:HB3	2.55	0.42
69:m2:447:A:H2'	69:m2:448:G:O4'	2.19	0.42
69:m2:561:G:O2'	69:m2:562:A:H8	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:1105:C:H2'	69:m2:1106:G:C8	2.55	0.42
69:m2:1131:G:H3'	69:m2:1132:G:H21	1.85	0.42
70:n2:71:U:H2'	70:n2:72:A:H8	1.84	0.42
72:p2:183:GLU:HA	72:p2:186:ASN:HB2	2.02	0.42
77:u2:42:ARG:NH2	77:u2:59:ARG:HH21	2.16	0.42
2:A2:153:G:H2'	2:A2:154:G:H8	1.84	0.42
2:A2:712:G:H2'	2:A2:713:C:H6	1.84	0.42
2:A2:746:G:O2'	2:A2:747:G:H5'	2.19	0.42
2:A2:932:C:H42	2:A2:1059:C:N4	2.17	0.42
2:A2:2366:A:H2'	2:A2:2367:G:H8	1.81	0.42
2:A2:2464:C:H2'	2:A2:2465:C:C6	2.55	0.42
2:A2:2527:C:OP1	62:e2:41:TYR:HE2	2.02	0.42
2:A2:3308:A:H2'	2:A2:3309:A:C5	2.55	0.42
2:A2:3536:G:H2'	2:A2:3537:G:C8	2.55	0.42
2:A2:4382:C:H2'	2:A2:4383:G:O4'	2.20	0.42
4:B1:43:GLN:O	4:B1:44:ASP:HB2	2.20	0.42
4:B1:87:LEU:HD13	4:B1:91:THR:HG22	2.02	0.42
7:Bv:31:A:H3'	7:Bv:32:U:C5'	2.50	0.42
16:E1:17:ILE:HD12	16:E1:80:GLU:OE1	2.20	0.42
69:m2:676:C:H2'	69:m2:677:U:H6	1.84	0.42
69:m2:848:G:H21	74:r2:19:MET:HE1	1.85	0.42
69:m2:1090:U:H4'	69:m2:1091:G:OP2	2.20	0.42
69:m2:1804:C:H2'	69:m2:1805:U:C6	2.55	0.42
74:r2:183:VAL:HA	74:r2:224:ASN:O	2.20	0.42
78:v2:71:LEU:HA	78:v2:78:TYR:OH	2.20	0.42
2:A2:20:U:H3'	2:A2:21:G:H8	1.85	0.42
2:A2:179:G:C6	2:A2:258:G:C6	3.08	0.42
2:A2:757:U:C2	2:A2:758:G:C8	3.07	0.42
2:A2:1458:C:H2'	2:A2:1459:A:H8	1.81	0.42
2:A2:1891:G:H1	2:A2:1897:A:H4'	1.85	0.42
2:A2:3263:U:H2'	2:A2:3264:A:H8	1.83	0.42
19:F1:110:LEU:O	19:F1:114:VAL:HG23	2.18	0.42
20:F2:94:ASN:HB3	20:F2:100:ARG:HH12	1.85	0.42
20:F2:318:PRO:O	20:F2:325:MET:HB2	2.20	0.42
26:H2:181:LEU:HD21	26:H2:219:LEU:HD23	2.00	0.42
29:I3:44:LYS:HG2	29:I3:56:GLN:HB2	2.01	0.42
29:I3:87:LEU:HB2	29:I3:101:PHE:HD2	1.84	0.42
31:J3:114:LYS:HD3	31:J3:121:ARG:HH21	1.85	0.42
35:L3:26:ASP:HA	51:T3:42:PHE:HZ	1.85	0.42
36:M2:159:LEU:HD22	36:M2:172:PRO:HB3	2.01	0.42
37:M3:85:LEU:HD13	37:M3:88:TRP:HE3	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:N3:94:LYS:HG2	39:N3:118:ILE:HD13	2.02	0.42
45:Q3:51:THR:HG22	45:Q3:53:ASP:H	1.85	0.42
46:R2:95:THR:HG22	46:R2:139:ARG:HA	2.01	0.42
58:a2:63:VAL:HG12	58:a2:66:ARG:NH2	2.35	0.42
69:m2:1718:C:H2'	69:m2:1719:C:H6	1.84	0.42
69:m2:1790:A:H2'	69:m2:1791:G:O4'	2.20	0.42
71:o2:102:ARG:HG3	71:o2:104:THR:H	1.85	0.42
72:p2:63:LYS:HE2	72:p2:90:ASP:HA	2.01	0.42
78:v2:32:HIS:CE1	78:v2:34:GLU:HB3	2.55	0.42
2:A2:21:G:H1'	11:C2:103:A:N3	2.34	0.42
2:A2:113:A:H2'	2:A2:114:G:O4'	2.20	0.42
2:A2:221:C:H2'	2:A2:222:C:C6	2.55	0.42
2:A2:3490:C:H2'	2:A2:3491:C:C6	2.55	0.42
2:A2:3923:A:O2'	2:A2:3924:G:H5'	2.20	0.42
2:A2:4108:OMC:HM21	17:E2:241:PRO:CD	2.50	0.42
2:A2:4650:C:OP1	44:Q2:35:LYS:HD3	2.20	0.42
5:B2:75:G:H5''	36:M2:49:SER:O	2.19	0.42
10:C1:41:ILE:HG21	10:C1:73:ILE:HD11	2.02	0.42
11:C2:115:G:H2'	11:C2:116:C:H6	1.85	0.42
21:F3:2:THR:HB	69:m2:1201:A:H5''	2.01	0.42
30:J2:30:ARG:HA	30:J2:119:VAL:HG21	2.01	0.42
33:K3:63:MET:HB3	33:K3:98:ARG:HB3	2.01	0.42
35:L3:118:GLY:O	35:L3:119:LEU:HG	2.20	0.42
48:S2:47:MET:HE1	48:S2:118:ILE:HD11	2.01	0.42
52:U2:8:THR:HG23	52:U2:17:HIS:CE1	2.54	0.42
54:W2:14:ILE:HD13	54:W2:17:ARG:HH21	1.85	0.42
69:m2:77:A:H2'	69:m2:78:C:O4'	2.20	0.42
69:m2:121:OMU:HN3	69:m2:345:A:N6	2.17	0.42
69:m2:217:G:H2'	69:m2:218:C:H6	1.85	0.42
69:m2:495:A:H1'	69:m2:576:A:O5'	2.20	0.42
69:m2:513:U:H3'	69:m2:514:A2M:H8	2.02	0.42
69:m2:896:G:H2'	69:m2:897:G:C8	2.55	0.42
69:m2:1808:A:H2'	69:m2:1809:C:C6	2.55	0.42
70:n2:41:A:H2'	70:n2:42:G:C8	2.55	0.42
71:o2:26:GLY:O	71:o2:46:ILE:HG23	2.19	0.42
73:q2:46:THR:O	73:q2:84:VAL:HA	2.20	0.42
74:r2:37:LYS:HB2	74:r2:40:GLU:CD	2.44	0.42
74:r2:173:ILE:HB	74:r2:235:TRP:CH2	2.55	0.42
77:u2:176:ALA:HB3	77:u2:187:GLY:HA2	2.01	0.42
79:w2:143:LEU:HA	79:w2:143:LEU:HD23	1.69	0.42
81:y2:52:LEU:HD23	81:y2:52:LEU:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
82:z2:99:ASP:HB2	82:z2:102:THR:OG1	2.20	0.42
2:A2:295:A:O4'	66:i2:39:ARG:HD2	2.20	0.41
2:A2:299:C:H5''	25:H1:170:LYS:O	2.20	0.41
2:A2:1711:G:H2'	2:A2:1712:G:O4'	2.19	0.41
2:A2:1874:C:C2	2:A2:1875:C:C5	3.09	0.41
2:A2:2132:C:H2'	2:A2:2133:G:O4'	2.20	0.41
2:A2:2297:G:H2'	2:A2:2298:A:C8	2.55	0.41
2:A2:3501:A:H2'	2:A2:3502:C:H6	1.84	0.41
2:A2:3826:U:H2'	2:A2:3827:G:H8	1.85	0.41
2:A2:4343:A:H2'	2:A2:4344:A:O4'	2.20	0.41
3:A3:104:ASP:OD2	16:E1:121:PRO:HG3	2.19	0.41
11:C2:24:G:H2'	11:C2:25:G:O4'	2.19	0.41
15:D3:66:ASP:HA	71:o2:158:ASP:O	2.20	0.41
18:E3:48:LYS:HE3	69:m2:485:C:H5''	2.00	0.41
23:G2:41:LYS:HG3	38:N2:93:ILE:HG13	2.02	0.41
23:G2:164:LYS:HA	23:G2:167:VAL:HG22	2.02	0.41
27:H3:32:ARG:HA	69:m2:1661:U:OP1	2.20	0.41
27:H3:46:TYR:O	27:H3:50:ILE:HG13	2.18	0.41
36:M2:76:LYS:HB2	36:M2:76:LYS:HE2	1.84	0.41
39:N3:87:ASP:CG	69:m2:926:G:H21	2.28	0.41
45:Q3:12:PHE:HZ	45:Q3:21:LYS:HE2	1.85	0.41
46:R2:123:LYS:HG2	46:R2:139:ARG:HB3	2.02	0.41
66:i2:32:SER:C	66:i2:34:TYR:H	2.28	0.41
69:m2:499:C:H2'	69:m2:500:C:C6	2.55	0.41
69:m2:1006:U:H2'	69:m2:1007:G:H8	1.85	0.41
69:m2:1531:C:H5'	69:m2:1668:C:OP1	2.20	0.41
69:m2:1690:C:H2'	69:m2:1691:C:C6	2.55	0.41
69:m2:1692:U:H2'	69:m2:1693:U:C6	2.54	0.41
71:o2:122:LEU:HB2	71:o2:142:LEU:CD1	2.50	0.41
74:r2:98:HIS:ND1	74:r2:119:ALA:HB2	2.35	0.41
76:t2:148:LEU:HD23	76:t2:148:LEU:O	2.20	0.41
77:u2:78:ILE:HG13	77:u2:104:ILE:HD11	2.01	0.41
82:z2:17:ILE:HG12	82:z2:58:MET:HE2	2.02	0.41
1:A1:53:LYS:HA	1:A1:56:ARG:HD2	2.02	0.41
2:A2:130:G:C6	2:A2:139:G:N1	2.88	0.41
2:A2:423:G:H5'	30:J2:26:PHE:HZ	1.84	0.41
2:A2:462:G:H2'	2:A2:463:A:C8	2.54	0.41
2:A2:1391:U:H2'	2:A2:1392:C:H6	1.84	0.41
2:A2:1604:A:H4'	38:N2:105:PHE:CE1	2.55	0.41
2:A2:2567:A:H2	34:L2:82:LYS:HB3	1.84	0.41
2:A2:3377:U:H2'	2:A2:3378:G:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:3600:G:H1	2:A2:3719:U:H3	1.66	0.41
2:A2:4138:C:H2'	2:A2:4139:A:O4'	2.20	0.41
2:A2:4352:A:O2'	10:C1:65:LYS:HD2	2.20	0.41
6:B3:5:THR:HG22	6:B3:6:VAL:N	2.31	0.41
6:B3:107:LEU:HA	6:B3:110:LEU:HG	2.02	0.41
10:C1:156:ASN:C	10:C1:156:ASN:HD22	2.28	0.41
12:C3:22:ILE:O	12:C3:88:LEU:HA	2.20	0.41
18:E3:40:PRO:HG3	18:E3:81:ILE:CD1	2.47	0.41
26:H2:184:GLY:HA2	26:H2:185:PRO:HD3	1.93	0.41
31:J3:174:ILE:O	31:J3:174:ILE:HG22	2.20	0.41
31:J3:204:ILE:HG13	31:J3:204:ILE:O	2.20	0.41
33:K3:164:LYS:HZ1	33:K3:170:ARG:H	1.68	0.41
68:k2:71:ARG:O	68:k2:73:PRO:HD3	2.20	0.41
69:m2:890:U:H2'	69:m2:891:U:C6	2.55	0.41
69:m2:1533:A:H2'	69:m2:1534:C:C6	2.55	0.41
69:m2:1623:U:O2'	69:m2:1624:U:H2'	2.21	0.41
73:q2:17:PHE:HE2	73:q2:39:VAL:HG11	1.85	0.41
76:t2:125:VAL:O	76:t2:129:ILE:HG13	2.20	0.41
1:A1:239:ARG:O	1:A1:268:ARG:HD2	2.21	0.41
2:A2:425:U:H4'	30:J2:6:LEU:HD21	2.01	0.41
2:A2:1068:C:N4	2:A2:1082:A:H61	2.18	0.41
2:A2:1500:U:H2'	2:A2:1501:G:C8	2.55	0.41
2:A2:2173:A:H5''	30:J2:125:MET:HE1	2.03	0.41
2:A2:2216:G:H2'	2:A2:2217:U:C6	2.54	0.41
2:A2:2357:G:H2'	2:A2:2358:C:C6	2.55	0.41
2:A2:2382:C:H2'	2:A2:2383:U:C6	2.56	0.41
2:A2:2652:G:H5'	34:L2:101:ILE:HG21	2.02	0.41
2:A2:3442:U:O2	2:A2:3470:U:H4'	2.20	0.41
2:A2:3826:U:H2'	2:A2:3827:G:C8	2.55	0.41
2:A2:3991:A:H2'	2:A2:3992:U:C6	2.55	0.41
2:A2:4152:PSU:H2'	2:A2:4153:U:C6	2.54	0.41
2:A2:4230:G:H2'	2:A2:4231:U:H6	1.84	0.41
2:A2:4410:C:C4	28:I2:114:LYS:HG2	2.56	0.41
10:C1:129:ARG:HE	10:C1:153:LEU:CD2	2.34	0.41
11:C2:65:A:C4	11:C2:66:A:C8	3.07	0.41
11:C2:139:G:H2'	11:C2:140:C:O4'	2.20	0.41
14:D2:204:MET:HB3	14:D2:208:GLU:HG3	2.00	0.41
16:E1:147:ARG:NH1	23:G2:25:GLU:HB3	2.35	0.41
24:G3:32:VAL:O	24:G3:41:SER:HA	2.20	0.41
25:H1:18:VAL:HG13	25:H1:19:MET:HG2	2.02	0.41
33:K3:47:GLY:HA3	33:K3:116:LYS:HD3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:L3:131:ARG:HD2	35:L3:131:ARG:HA	1.79	0.41
38:N2:84:ILE:HD13	53:V2:23:LYS:HD3	2.02	0.41
45:Q3:37:LYS:O	45:Q3:41:ARG:HG3	2.20	0.41
45:Q3:111:LYS:O	45:Q3:115:LYS:HG3	2.21	0.41
45:Q3:121:ALA:HA	45:Q3:124:ASN:HD21	1.85	0.41
56:Y2:85:LEU:HD21	56:Y2:115:ALA:HB2	2.02	0.41
69:m2:432:C:C2	69:m2:433:G:C8	3.08	0.41
69:m2:806:U:H2'	69:m2:807:U:C6	2.55	0.41
69:m2:824:PSU:H5''	69:m2:825:PSU:H5'	2.01	0.41
73:q2:211:VAL:HG22	82:z2:38:ILE:O	2.20	0.41
74:r2:43:PRO:HA	74:r2:82:TYR:O	2.19	0.41
78:v2:15:LEU:HB2	78:v2:21:MET:HE3	2.01	0.41
2:A2:477:C:H2'	2:A2:478:G:C8	2.55	0.41
2:A2:1322:C:H5''	52:U2:2:PRO:CD	2.51	0.41
2:A2:1505:C:H2'	2:A2:1506:U:C6	2.55	0.41
2:A2:2566:G:H2'	2:A2:2568:A:H2	1.84	0.41
2:A2:4342:G:O6	2:A2:4350:C:H5''	2.21	0.41
3:A3:19:ASN:ND2	3:A3:33:ILE:HA	2.35	0.41
11:C2:44:A:H2'	11:C2:45:C:C6	2.55	0.41
12:C3:65:THR:HG22	69:m2:1258:G:O6	2.20	0.41
15:D3:70:LEU:HD12	71:o2:57:LYS:NZ	2.34	0.41
18:E3:5:ARG:HD2	69:m2:1161:G:OP2	2.20	0.41
18:E3:48:LYS:HE3	18:E3:48:LYS:HB2	1.64	0.41
18:E3:85:VAL:HA	18:E3:86:PRO:HD3	1.94	0.41
19:F1:125:ILE:HA	19:F1:138:ASP:OD2	2.20	0.41
20:F2:73:VAL:HG22	20:F2:78:ARG:NH2	2.35	0.41
29:I3:48:ASP:HB2	29:I3:51:ASN:HB2	2.02	0.41
30:J2:146:ILE:HG21	30:J2:146:ILE:HD13	1.83	0.41
31:J3:108:LYS:HB3	31:J3:233:LEU:HD11	2.02	0.41
33:K3:14:LYS:HE2	33:K3:121:ILE:HG21	2.02	0.41
42:P2:16:ILE:HD13	42:P2:57:VAL:HG23	2.02	0.41
42:P2:42:VAL:HG23	42:P2:61:VAL:HG12	2.01	0.41
69:m2:657:A:H1'	69:m2:660:U:OP1	2.21	0.41
71:o2:88:LEU:HD23	71:o2:98:PRO:HB2	2.01	0.41
77:u2:101:ILE:HD11	77:u2:198:TYR:CE2	2.56	0.41
78:v2:3:MET:HE3	78:v2:8:ARG:HB2	2.01	0.41
1:A1:147:LEU:HD22	1:A1:152:ILE:HD11	2.02	0.41
2:A2:131:C:H2'	2:A2:132:G:H8	1.86	0.41
2:A2:325:U:H2'	2:A2:326:C:H6	1.82	0.41
2:A2:424:U:H2'	2:A2:425:U:C6	2.55	0.41
2:A2:1385:U:H2'	2:A2:1386:G:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1911:G:H2'	2:A2:1912:A:H8	1.84	0.41
2:A2:2048:U:H2'	2:A2:2049:G:H8	1.85	0.41
2:A2:4113:C:H2'	2:A2:4114:C:H6	1.86	0.41
2:A2:4237:U:H2'	2:A2:4238:G:C8	2.56	0.41
3:A3:88:LYS:NZ	80:x2:42:ARG:HH22	2.18	0.41
6:B3:71:GLY:O	6:B3:75:MET:HG2	2.20	0.41
11:C2:90:C:O2'	48:S2:22:PRO:HB2	2.20	0.41
12:C3:77:TRP:CD1	81:y2:132:PHE:HB2	2.56	0.41
14:D2:180:LEU:HD23	14:D2:180:LEU:HA	1.94	0.41
15:D3:82:ASN:ND2	71:o2:52:LYS:HE2	2.35	0.41
21:F3:21:ILE:HD12	21:F3:72:HIS:CG	2.56	0.41
25:H1:45:PRO:O	25:H1:49:ARG:HG3	2.20	0.41
29:I3:238:ALA:H	29:I3:251:ALA:HB3	1.84	0.41
33:K3:28:TYR:HE1	33:K3:104:ALA:HB2	1.86	0.41
41:O3:96:LYS:HB3	41:O3:132:VAL:HG21	2.02	0.41
41:O3:98:ARG:HG2	41:O3:99:ALA:O	2.20	0.41
69:m2:352:C:H2'	69:m2:353:G:H8	1.85	0.41
69:m2:657:A:H4'	69:m2:658:G:H3'	2.01	0.41
69:m2:1618:U:H2'	69:m2:1619:G:O4'	2.19	0.41
71:o2:21:ALA:HB2	71:o2:173:LEU:HD13	2.01	0.41
71:o2:122:LEU:HB2	71:o2:142:LEU:HD13	2.02	0.41
72:p2:97:LEU:HD23	72:p2:232:HIS:ND1	2.35	0.41
76:t2:155:LYS:HA	76:t2:186:ASN:O	2.21	0.41
81:y2:16:LYS:HG2	81:y2:79:ALA:HA	2.03	0.41
1:A1:204:PHE:CZ	1:A1:225:GLU:HG2	2.56	0.41
2:A2:2448:G:H2'	2:A2:2449:G:N2	2.35	0.41
2:A2:3767:U:C4	4:B1:41:ILE:HB	2.56	0.41
2:A2:4251:A:N1	2:A2:4262:A:H5''	2.36	0.41
2:A2:4313:G:H2'	2:A2:4314:C:C6	2.56	0.41
2:A2:4330:G:N2	2:A2:4365:G:H1'	2.36	0.41
21:F3:41:ILE:CG2	21:F3:66:LYS:HD3	2.50	0.41
21:F3:46:GLU:O	21:F3:50:VAL:HG13	2.21	0.41
23:G2:179:ARG:HA	23:G2:179:ARG:HD3	1.84	0.41
29:I3:30:MET:HA	29:I3:43:TRP:O	2.21	0.41
34:L2:145:LEU:HA	34:L2:145:LEU:HD23	1.82	0.41
35:L3:81:LEU:HB2	35:L3:87:LEU:HD12	2.03	0.41
35:L3:86:VAL:HG11	35:L3:105:PHE:CD1	2.56	0.41
35:L3:160:SER:C	35:L3:161:LEU:HD23	2.44	0.41
46:R2:104:ALA:HA	46:R2:108:GLN:NE2	2.36	0.41
57:Z2:21:GLN:HG2	57:Z2:23:GLU:HG3	2.01	0.41
58:a2:69:LYS:HG3	58:a2:73:HIS:CD2	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:344:C:H2'	69:m2:345:A:O4'	2.20	0.41
69:m2:1809:C:H2'	69:m2:1810:U:O4'	2.20	0.41
73:q2:169:ASP:O	73:q2:187:LYS:HA	2.20	0.41
75:s2:79:HIS:O	75:s2:81:ARG:HG2	2.20	0.41
2:A2:375:G:O2'	20:F2:84:THR:HG21	2.20	0.41
2:A2:1241:U:H5''	32:K2:42:THR:HB	2.02	0.41
2:A2:1362:G:C2	2:A2:1363:G:C8	3.09	0.41
2:A2:2119:OMG:HM23	2:A2:2119:OMG:H1'	1.81	0.41
2:A2:3719:U:H2'	2:A2:3720:U:C6	2.55	0.41
2:A2:4170:A:O5'	2:A2:4172:G:H4'	2.20	0.41
2:A2:4351:U:H4'	2:A2:4352:A:OP1	2.20	0.41
5:B2:27:G:H2'	5:B2:28:C:H6	1.85	0.41
6:B3:28:LEU:HD21	6:B3:53:PHE:CD2	2.44	0.41
22:G1:81:ASP:O	22:G1:85:LYS:HG3	2.21	0.41
48:S2:111:LEU:HB3	48:S2:116:LYS:HE3	2.01	0.41
49:S3:37:CYS:HB3	49:S3:40:CYS:O	2.21	0.41
69:m2:19:A:H2'	69:m2:20:G:O4'	2.20	0.41
69:m2:931:G:N2	69:m2:1106:G:H4'	2.35	0.41
69:m2:1130:C:H2'	69:m2:1131:G:C8	2.55	0.41
69:m2:1255:A:H4'	69:m2:1256:C:H5''	2.03	0.41
69:m2:1646:C:H4'	81:y2:140:ARG:HB2	2.03	0.41
72:p2:205:TYR:O	72:p2:207:LEU:HD12	2.21	0.41
73:q2:126:ILE:HD13	73:q2:134:CYS:SG	2.61	0.41
75:s2:60:ARG:HG3	75:s2:61:PHE:CD2	2.55	0.41
78:v2:62:PHE:HB3	78:v2:64:TRP:CE2	2.55	0.41
78:v2:80:ARG:O	78:v2:80:ARG:HD2	2.21	0.41
81:y2:107:GLU:HA	81:y2:110:ASP:OD2	2.21	0.41
2:A2:65:A:N6	2:A2:75:G:H1'	2.36	0.41
2:A2:1473:U:H3'	52:U2:13:GLY:HA2	2.03	0.41
2:A2:3961:G:H5'	2:A2:3990:G:H5''	2.02	0.41
3:A3:50:ILE:HD13	3:A3:59:LEU:HD11	2.02	0.41
4:B1:140:VAL:O	4:B1:144:THR:HG22	2.21	0.41
14:D2:118:GLU:HG3	14:D2:156:LYS:NZ	2.35	0.41
19:F1:126:LEU:HD12	19:F1:126:LEU:HA	1.88	0.41
21:F3:79:ILE:HD13	69:m2:1865:A:H1'	2.03	0.41
24:G3:45:ASN:O	75:s2:139:VAL:HB	2.21	0.41
30:J2:78:TRP:HD1	30:J2:80:GLN:O	2.03	0.41
35:L3:78:LEU:HB3	35:L3:92:MET:HE3	2.02	0.41
36:M2:95:ARG:HD2	36:M2:113:MET:HE3	2.03	0.41
42:P2:106:VAL:HG11	42:P2:132:ILE:HD11	2.02	0.41
47:R3:103:HIS:HE1	69:m2:1595:C:OP1	2.04	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:X2:54:MET:HE2	55:X2:60:PRO:HA	2.02	0.41
58:a2:60:ARG:HA	58:a2:60:ARG:HD2	1.96	0.41
69:m2:226:A:H2'	69:m2:227:G:C8	2.55	0.41
69:m2:476:G:C2	69:m2:477:C:C5	3.08	0.41
69:m2:528:A:H2'	69:m2:529:C:C6	2.56	0.41
69:m2:942:U:H2'	69:m2:943:C:C6	2.56	0.41
69:m2:1484:C:H2'	69:m2:1485:A:O4'	2.20	0.41
69:m2:1742:C:H2'	69:m2:1743:U:C6	2.56	0.41
71:o2:115:ALA:HB1	71:o2:117:ARG:NH1	2.35	0.41
71:o2:206:ASP:CG	71:o2:210:ILE:HD13	2.45	0.41
72:p2:59:SER:O	72:p2:63:LYS:HG2	2.21	0.41
72:p2:121:ILE:HG12	72:p2:161:VAL:HG13	2.02	0.41
78:v2:80:ARG:HD2	78:v2:83:LEU:H	1.86	0.41
79:w2:40:ILE:HD12	79:w2:61:PRO:HB2	2.03	0.41
79:w2:82:MET:HB2	79:w2:85:THR:O	2.21	0.41
2:A2:510:A:C4	52:U2:82:VAL:HG12	2.55	0.41
2:A2:1111:U:OP1	57:Z2:56:ASN:HB2	2.21	0.41
2:A2:1140:A2M:HM'3	2:A2:1140:A2M:H1'	1.82	0.41
2:A2:1244:C:H2'	2:A2:1245:G:O4'	2.21	0.41
2:A2:1350:A:H2'	2:A2:1351:U:C6	2.56	0.41
2:A2:1391:U:H2'	2:A2:1392:C:C6	2.55	0.41
2:A2:2139:U:H2'	2:A2:2140:U:C6	2.56	0.41
2:A2:2177:OMC:H1'	2:A2:2177:OMC:HM23	1.80	0.41
2:A2:2179:OMG:H1'	2:A2:2179:OMG:HM23	1.78	0.41
2:A2:2382:C:C2	2:A2:2383:U:C5	3.09	0.41
2:A2:2426:C:H2'	2:A2:2427:C:C6	2.55	0.41
2:A2:3293:U:O4	2:A2:3307:A:H2	2.04	0.41
2:A2:3461:U:C2	2:A2:3462:G:C8	3.09	0.41
2:A2:3501:A:H2'	2:A2:3502:C:C6	2.56	0.41
2:A2:3848:OMG:HM23	2:A2:3848:OMG:H1'	1.69	0.41
2:A2:4147:G:C2	2:A2:4148:A:N7	2.88	0.41
2:A2:4526:U:H4'	2:A2:4527:U:C5	2.56	0.41
2:A2:4546:G:H2'	2:A2:4547:C:C6	2.56	0.41
2:A2:4550:C:H2'	2:A2:4551:C:H6	1.86	0.41
2:A2:4587:G:H2'	2:A2:4588:C:C6	2.56	0.41
3:A3:41:ALA:O	3:A3:45:LEU:HD23	2.20	0.41
3:A3:86:ARG:HD3	3:A3:98:VAL:HG11	2.02	0.41
4:B1:158:ALA:HB2	4:B1:190:LEU:HD12	2.03	0.41
4:B1:240:ASN:C	4:B1:240:ASN:HD22	2.29	0.41
8:Bx:50:U:H2'	8:Bx:51:U:C6	2.56	0.41
10:C1:18:ILE:HG12	10:C1:27:VAL:HG22	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:E2:58:ARG:NH1	17:E2:60:VAL:HG12	2.36	0.41
18:E3:129:SER:HB3	69:m2:29:G:H4'	2.02	0.41
19:F1:2:ALA:HB3	19:F1:3:PRO:HD3	2.03	0.41
20:F2:340:ILE:HD13	26:H2:58:VAL:HG21	2.03	0.41
22:G1:100:ARG:HH22	28:I2:203:VAL:HG11	1.86	0.41
23:G2:41:LYS:HA	23:G2:41:LYS:HE2	2.03	0.41
25:H1:137:PRO:O	25:H1:143:ARG:HD2	2.20	0.41
26:H2:180:LEU:O	26:H2:195:ARG:HA	2.20	0.41
28:I2:116:LYS:HE3	36:M2:169:THR:HB	2.01	0.41
29:I3:113:PHE:CD1	29:I3:120:ILE:HG22	2.48	0.41
30:J2:16:LYS:HG2	30:J2:149:ILE:CD1	2.51	0.41
31:J3:135:GLY:HA2	31:J3:167:ARG:HH12	1.85	0.41
33:K3:181:THR:O	33:K3:185:LEU:HD12	2.20	0.41
41:O3:72:TYR:CZ	41:O3:76:LEU:HD11	2.56	0.41
43:P3:102:ILE:HG13	43:P3:102:ILE:O	2.21	0.41
46:R2:102:VAL:HA	46:R2:134:LYS:HD2	2.02	0.41
49:S3:7:LEU:O	49:S3:24:LEU:HD11	2.21	0.41
51:T3:8:ARG:HB3	69:m2:618:A:H5'	2.03	0.41
59:b2:4:ILE:HD11	59:b2:53:SER:HB3	2.03	0.41
69:m2:511:OMG:H2'	69:m2:512:G:C8	2.53	0.41
69:m2:658:G:H21	69:m2:665:C:H5''	1.85	0.41
69:m2:850:U:C2	69:m2:851:A:C8	3.09	0.41
69:m2:924:A:C2	69:m2:1024:U:H5	2.39	0.41
69:m2:1179:U:H2'	69:m2:1180:U:C6	2.56	0.41
69:m2:1223:G:H2'	69:m2:1224:G:C8	2.56	0.41
69:m2:1315:A:H4'	69:m2:1316:U:O5'	2.20	0.41
69:m2:1409:U:H5''	81:y2:71:ARG:HH22	1.86	0.41
69:m2:1448:A:O2'	69:m2:1449:G:H8	2.04	0.41
69:m2:1668:C:H2'	69:m2:1669:U:C6	2.56	0.41
70:n2:69:G:H2'	70:n2:70:C:C6	2.55	0.41
74:r2:191:ARG:HG3	74:r2:191:ARG:HH11	1.86	0.41
75:s2:77:MET:HG3	75:s2:84:GLY:O	2.21	0.41
76:t2:36:LEU:HD23	76:t2:75:ILE:HD12	2.03	0.41
76:t2:166:VAL:HG13	76:t2:173:PHE:HE2	1.86	0.41
81:y2:49:TYR:O	81:y2:53:GLU:HB2	2.20	0.41
81:y2:109:LYS:HB2	81:y2:109:LYS:HE2	1.86	0.41
1:A1:183:LYS:HA	1:A1:187:LYS:O	2.21	0.41
2:A2:147:A:OP1	4:B1:197:LYS:HE2	2.20	0.41
2:A2:175:C:H2'	2:A2:176:G:H8	1.86	0.41
2:A2:184:U:H5''	2:A2:254:G:H1	1.85	0.41
2:A2:288:G:H2'	2:A2:289:C:H6	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:1360:A:H2'	2:A2:1361:G:O4'	2.22	0.41
2:A2:3362:C:H5''	14:D2:226:ARG:HB3	2.03	0.41
2:A2:3488:U:H2'	2:A2:3489:C:H6	1.86	0.41
2:A2:4023:G:H1'	2:A2:4024:U:C6	2.56	0.41
2:A2:4560:G:H2'	2:A2:4561:G:H8	1.86	0.41
2:A2:4614:A:H2'	2:A2:4615:C:C6	2.56	0.41
4:B1:38:ASN:OD1	4:B1:43:GLN:HB3	2.21	0.41
6:B3:18:LEU:HA	6:B3:134:ILE:HD13	2.02	0.41
16:E1:19:LYS:HD3	16:E1:75:ARG:NH2	2.36	0.41
17:E2:56:ILE:HD11	17:E2:285:TYR:CD2	2.56	0.41
18:E3:13:LEU:HD12	79:w2:101:ARG:HD2	2.02	0.41
20:F2:124:ILE:HG21	20:F2:264:TYR:OH	2.21	0.41
23:G2:152:ARG:HG3	23:G2:154:THR:HG23	2.03	0.41
33:K3:138:ALA:O	33:K3:142:ARG:HG2	2.20	0.41
35:L3:69:ARG:NH1	35:L3:73:GLU:HG3	2.35	0.41
67:j2:70:THR:HG23	67:j2:72:ASN:O	2.21	0.41
69:m2:5:U:O2'	69:m2:604:G:H4'	2.20	0.41
69:m2:43:U:O5'	69:m2:44:U:H5	2.04	0.41
69:m2:1007:G:H2'	69:m2:1008:C:H6	1.86	0.41
69:m2:1408:G:H2'	69:m2:1409:U:C6	2.56	0.41
69:m2:1720:G:N2	69:m2:1816:G:H2'	2.36	0.41
69:m2:1739:G:H2'	69:m2:1740:C:H6	1.86	0.41
77:u2:82:VAL:O	77:u2:91:VAL:HG21	2.20	0.41
81:y2:76:GLY:O	81:y2:80:GLN:HG3	2.21	0.41
81:y2:131:LYS:HB2	81:y2:140:ARG:NH2	2.32	0.41
2:A2:363:A:N1	2:A2:376:A:H5''	2.36	0.40
2:A2:1505:C:H2'	2:A2:1506:U:H6	1.85	0.40
2:A2:2430:G:H1'	2:A2:2431:A:OP2	2.22	0.40
2:A2:2620:U:H1'	34:L2:78:ILE:HD12	2.03	0.40
2:A2:3367:A:C8	2:A2:3369:U:C2	3.09	0.40
2:A2:3860:U:H2'	2:A2:3861:G:C8	2.56	0.40
2:A2:3975:A:H4'	23:G2:176:SER:OG	2.21	0.40
2:A2:4388:C:H4'	2:A2:4714:G:C4	2.56	0.40
4:B1:57:TRP:NE1	4:B1:65:ARG:HH12	2.19	0.40
10:C1:162:GLN:OE1	10:C1:180:TYR:HA	2.21	0.40
11:C2:152:U:H2'	11:C2:153:C:O4'	2.21	0.40
14:D2:20:VAL:O	14:D2:20:VAL:HG23	2.20	0.40
17:E2:168:MET:HE3	17:E2:168:MET:HB3	1.96	0.40
29:I3:20:GLN:CG	29:I3:69:VAL:H	2.34	0.40
30:J2:36:ILE:HA	30:J2:39:MET:CE	2.50	0.40
31:J3:204:ILE:HD12	31:J3:211:LYS:HA	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:L3:18:ARG:NH2	69:m2:4:C:H1'	2.25	0.40
45:Q3:110:ARG:HG2	45:Q3:113:ARG:HH21	1.86	0.40
49:S3:19:HIS:HB3	49:S3:22:LYS:CG	2.50	0.40
52:U2:31:GLY:HA3	52:U2:35:ALA:HB3	2.03	0.40
60:c2:70:LEU:HB2	60:c2:87:ARG:NH1	2.36	0.40
69:m2:70:G:H21	69:m2:79:A:H62	1.69	0.40
69:m2:217:G:H2'	69:m2:218:C:C6	2.56	0.40
69:m2:292:U:H2'	69:m2:294:A:H2	1.86	0.40
69:m2:892:U:H2'	69:m2:893:G:C8	2.56	0.40
69:m2:914:C:H3'	69:m2:915:A:H5''	2.02	0.40
69:m2:1111:C:O2	82:z2:122:PRO:HA	2.22	0.40
76:t2:134:VAL:HG23	76:t2:134:VAL:O	2.21	0.40
79:w2:22:ARG:HD3	79:w2:22:ARG:H	1.85	0.40
1:A1:98:ARG:HD2	2:A2:736:G:H5''	2.03	0.40
2:A2:201:C:C2	2:A2:202:C:C5	3.10	0.40
2:A2:277:G:O2'	2:A2:278:G:H5''	2.21	0.40
2:A2:1053:G:H8	2:A2:1053:G:OP2	2.03	0.40
2:A2:1211:A:C8	52:U2:114:LYS:HD2	2.57	0.40
2:A2:1474:C:H2'	2:A2:1475:C:C6	2.55	0.40
2:A2:2236:G:H2'	2:A2:2237:C:H6	1.85	0.40
2:A2:2512:A:H2'	2:A2:2513:G:C8	2.57	0.40
2:A2:2625:A:H2'	2:A2:2626:A:C8	2.56	0.40
2:A2:4176:G:OP2	2:A2:4176:G:H4'	2.21	0.40
3:A3:132:ARG:HB2	3:A3:134:GLN:NE2	2.31	0.40
17:E2:224:LYS:HD2	17:E2:340:THR:HG22	2.02	0.40
22:G1:109:ARG:HH22	26:H2:293:LEU:HD23	1.85	0.40
24:G3:44:ARG:NH1	24:G3:63:ARG:HB2	2.34	0.40
30:J2:52:THR:HG23	30:J2:85:LYS:HE2	2.03	0.40
31:J3:110:MET:HE2	31:J3:125:LYS:HD3	2.04	0.40
31:J3:136:HIS:HB3	31:J3:162:ILE:CG2	2.50	0.40
35:L3:170:PRO:HG2	69:m2:564:U:OP2	2.20	0.40
36:M2:113:MET:HA	36:M2:113:MET:HE2	2.03	0.40
36:M2:165:PRO:C	36:M2:167:PHE:H	2.29	0.40
42:P2:87:SER:HA	42:P2:97:TYR:HB3	2.03	0.40
45:Q3:16:ARG:HA	45:Q3:19:GLN:HA	2.02	0.40
45:Q3:116:LYS:HG2	69:m2:161:U:H5'	2.03	0.40
49:S3:14:GLU:O	49:S3:18:LYS:HG3	2.21	0.40
54:W2:66:LEU:HD23	54:W2:66:LEU:HA	1.88	0.40
67:j2:8:VAL:HG13	67:j2:11:VAL:HG23	2.04	0.40
68:k2:26:SER:HB3	68:k2:31:ASN:ND2	2.37	0.40
69:m2:106:C:H5''	69:m2:433:G:O2'	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
69:m2:208:G:H2'	69:m2:209:G:C8	2.56	0.40
69:m2:1232:C:H2'	69:m2:1233:C:C6	2.57	0.40
69:m2:1638:G:H21	75:s2:164:ARG:HH12	1.69	0.40
69:m2:1744:C:H2'	69:m2:1745:G:O4'	2.22	0.40
71:o2:50:ASN:HA	82:z2:105:MET:SD	2.62	0.40
74:r2:18:TRP:N	74:r2:18:TRP:CD1	2.88	0.40
76:t2:23:ILE:HG21	76:t2:62:ILE:HD11	2.03	0.40
2:A2:100:C:H2'	2:A2:101:A:H8	1.87	0.40
2:A2:223:G:C4	20:F2:164:THR:HG21	2.56	0.40
2:A2:1166:C:H2'	2:A2:1167:G:O4'	2.21	0.40
2:A2:1295:G:H5'	2:A2:1296:C:C6	2.56	0.40
2:A2:1612:G:H2'	2:A2:1613:G:O4'	2.20	0.40
2:A2:1660:A:H2'	2:A2:1661:C:H6	1.86	0.40
2:A2:2575:C:H5''	34:L2:56:THR:OG1	2.21	0.40
2:A2:3340:G:H2'	2:A2:3341:C:H6	1.83	0.40
2:A2:3443:G:H1'	2:A2:3445:C:N4	2.37	0.40
2:A2:3588:U:H2'	2:A2:3589:G:C8	2.56	0.40
2:A2:3958:OMU:OP2	32:K2:159:PRO:HD2	2.21	0.40
2:A2:4106:G:H2'	2:A2:4107:G:H8	1.86	0.40
2:A2:4226:U:H3'	2:A2:4227:G:H5''	2.02	0.40
11:C2:67:U:H2'	11:C2:68:G:C8	2.55	0.40
11:C2:105:C:H5''	11:C2:107:C:OP2	2.22	0.40
14:D2:92:LYS:HG3	14:D2:106:THR:HG21	2.04	0.40
17:E2:285:TYR:CD1	17:E2:363:ILE:HD13	2.56	0.40
25:H1:80:THR:OG1	25:H1:87:HIS:HA	2.21	0.40
26:H2:183:THR:O	26:H2:183:THR:HG23	2.21	0.40
29:I3:5:MET:HG2	29:I3:312:VAL:HG22	2.02	0.40
29:I3:21:ILE:HG21	29:I3:299:PHE:HB2	2.03	0.40
31:J3:114:LYS:HD3	31:J3:121:ARG:NH2	2.36	0.40
43:P3:93:LEU:HD13	43:P3:128:PHE:CD2	2.57	0.40
54:W2:60:ILE:HD13	54:W2:93:THR:HG21	2.04	0.40
55:X2:33:ILE:HD11	55:X2:45:ALA:HA	2.03	0.40
69:m2:806:U:C2	69:m2:807:U:C5	3.09	0.40
69:m2:1222:A:H2'	69:m2:1223:G:O4'	2.21	0.40
69:m2:1232:C:H5'	69:m2:1609:A:O2'	2.21	0.40
69:m2:1629:C:H2'	69:m2:1630:C:H6	1.86	0.40
69:m2:1724:G:H2'	69:m2:1725:G:O4'	2.22	0.40
69:m2:1750:G:C2	69:m2:1751:G:C5	3.10	0.40
70:n2:6:A:H2'	70:n2:7:G:C8	2.57	0.40
74:r2:201:HIS:HB2	74:r2:205:PHE:O	2.22	0.40
74:r2:236:ILE:HG13	74:r2:237:SER:N	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:y2:31:LEU:HB2	81:y2:67:ASP:HB2	2.04	0.40
1:A1:193:ASP:HB2	1:A1:196:LEU:CD1	2.51	0.40
2:A2:696:U:H2'	2:A2:697:C:C6	2.56	0.40
2:A2:1332:C:H2'	2:A2:1333:C:H6	1.87	0.40
2:A2:1556:U:H3	2:A2:1578:A:H61	1.70	0.40
2:A2:1590:A:H2'	13:D1:22:PHE:CZ	2.57	0.40
2:A2:2030:G:H2'	2:A2:2031:A:C8	2.56	0.40
2:A2:2090:C:H2'	2:A2:2091:G:C8	2.46	0.40
2:A2:2284:A:H2'	2:A2:2284:A:N3	2.36	0.40
2:A2:2328:A:H2'	2:A2:2329:G:O4'	2.22	0.40
2:A2:2431:A:C4	2:A2:2432:G:C8	3.10	0.40
2:A2:2613:A:H2'	2:A2:2614:G:O4'	2.21	0.40
2:A2:2651:G:H5''	34:L2:134:ASN:CG	2.46	0.40
2:A2:3588:U:H2'	2:A2:3589:G:H8	1.86	0.40
2:A2:4215:U:H2'	2:A2:4216:A:C8	2.55	0.40
3:A3:24:ARG:HG3	3:A3:25:LYS:N	2.36	0.40
5:B2:3:C:H2'	5:B2:4:U:H6	1.85	0.40
6:B3:104:LEU:HD23	6:B3:104:LEU:HA	1.90	0.40
15:D3:37:ALA:H	71:o2:63:ARG:HB3	1.86	0.40
16:E1:104:ASN:OD1	16:E1:133:VAL:HA	2.21	0.40
28:I2:181:ALA:O	28:I2:185:VAL:HG22	2.22	0.40
31:J3:184:VAL:HG23	31:J3:243:ALA:HB1	2.02	0.40
38:N2:9:ARG:HG2	38:N2:9:ARG:NH1	2.35	0.40
43:P3:105:THR:OG1	69:m2:864:A:H8	2.04	0.40
47:R3:50:PHE:CE2	47:R3:87:ALA:HB2	2.57	0.40
57:Z2:11:PHE:HB2	57:Z2:101:ILE:CD1	2.51	0.40
68:k2:71:ARG:O	68:k2:71:ARG:HG2	2.22	0.40
69:m2:350:A:H2'	69:m2:351:A:C8	2.57	0.40
69:m2:584:U:H2'	69:m2:585:A:H5''	2.02	0.40
69:m2:1007:G:H2'	69:m2:1008:C:C6	2.57	0.40
69:m2:1454:A:H5''	82:z2:48:ASN:ND2	2.36	0.40
72:p2:103:MET:HE1	72:p2:212:VAL:O	2.22	0.40
74:r2:18:TRP:CE3	74:r2:20:LEU:HD11	2.54	0.40
77:u2:172:LEU:H	77:u2:172:LEU:HD23	1.86	0.40
1:A1:69:ARG:HB2	2:A2:1063:G:H22	1.87	0.40
2:A2:91:G:O5'	2:A2:92:C:H5''	2.22	0.40
2:A2:478:G:H21	68:k2:100:ASN:ND2	2.19	0.40
2:A2:1683:OMC:H5''	2:A2:2036:U:H1'	2.04	0.40
2:A2:1732:U:OP2	28:I2:49:ARG:HD2	2.22	0.40
2:A2:1882:U:H2'	2:A2:1883:C:C6	2.56	0.40
2:A2:2141:U:H2'	2:A2:2142:G:H8	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:4111:U:H2'	2:A2:4112:U:H6	1.84	0.40
2:A2:4278:A:H8	2:A2:4280:PSU:O2	2.05	0.40
16:E1:159:LYS:HB3	16:E1:163:MET:CE	2.52	0.40
62:e2:61:PRO:HA	62:e2:62:PRO:HD3	1.94	0.40
69:m2:1492:G:OP2	69:m2:1492:G:H8	2.04	0.40
71:o2:25:LEU:HD12	71:o2:46:ILE:HG21	2.02	0.40
76:t2:134:VAL:HG12	76:t2:173:PHE:CD2	2.57	0.40
80:x2:25:LEU:HA	80:x2:28:MET:HE2	2.04	0.40
81:y2:31:LEU:H	81:y2:67:ASP:HB3	1.87	0.40
81:y2:85:ARG:NH2	81:y2:118:THR:HG23	2.36	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A1	220/270 (82%)	214 (97%)	6 (3%)	0	100	100
3	A3	137/152 (90%)	124 (90%)	12 (9%)	1 (1%)	18	47
4	B1	214/266 (80%)	207 (97%)	7 (3%)	0	100	100
6	B3	136/145 (94%)	125 (92%)	10 (7%)	1 (1%)	18	47
10	C1	188/192 (98%)	185 (98%)	3 (2%)	0	100	100
12	C3	95/119 (80%)	93 (98%)	2 (2%)	0	100	100
13	D1	200/214 (94%)	194 (97%)	6 (3%)	0	100	100
14	D2	243/257 (95%)	228 (94%)	15 (6%)	0	100	100
15	D3	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
16	E1	172/178 (97%)	164 (95%)	8 (5%)	0	100	100
17	E2	400/403 (99%)	379 (95%)	21 (5%)	0	100	100
18	E3	137/143 (96%)	123 (90%)	14 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	F1	201/211 (95%)	190 (94%)	11 (6%)	0	100	100
20	F2	350/419 (84%)	344 (98%)	6 (2%)	0	100	100
21	F3	95/115 (83%)	90 (95%)	5 (5%)	0	100	100
22	G1	137/217 (63%)	136 (99%)	1 (1%)	0	100	100
23	G2	291/297 (98%)	286 (98%)	5 (2%)	0	100	100
24	G3	52/69 (75%)	52 (100%)	0	0	100	100
25	H1	201/204 (98%)	196 (98%)	5 (2%)	0	100	100
26	H2	212/296 (72%)	204 (96%)	8 (4%)	0	100	100
27	H3	49/56 (88%)	45 (92%)	4 (8%)	0	100	100
28	I2	196/203 (97%)	193 (98%)	3 (2%)	0	100	100
29	I3	208/317 (66%)	185 (89%)	22 (11%)	1 (0%)	24	55
30	J2	151/184 (82%)	145 (96%)	6 (4%)	0	100	100
31	J3	215/293 (73%)	200 (93%)	15 (7%)	0	100	100
32	K2	184/188 (98%)	180 (98%)	4 (2%)	0	100	100
33	K3	205/249 (82%)	195 (95%)	10 (5%)	0	100	100
34	L2	167/196 (85%)	167 (100%)	0	0	100	100
35	L3	177/194 (91%)	161 (91%)	16 (9%)	0	100	100
36	M2	173/176 (98%)	164 (95%)	9 (5%)	0	100	100
37	M3	74/132 (56%)	65 (88%)	9 (12%)	0	100	100
38	N2	157/160 (98%)	153 (98%)	4 (2%)	0	100	100
39	N3	147/151 (97%)	133 (90%)	14 (10%)	0	100	100
40	O2	99/128 (77%)	97 (98%)	2 (2%)	0	100	100
41	O3	133/151 (88%)	125 (94%)	8 (6%)	0	100	100
42	P2	127/140 (91%)	126 (99%)	1 (1%)	0	100	100
43	P3	127/130 (98%)	120 (94%)	7 (6%)	0	100	100
44	Q2	60/157 (38%)	60 (100%)	0	0	100	100
45	Q3	117/133 (88%)	108 (92%)	9 (8%)	0	100	100
46	R2	116/156 (74%)	115 (99%)	1 (1%)	0	100	100
47	R3	71/125 (57%)	67 (94%)	4 (6%)	0	100	100
48	S2	132/145 (91%)	131 (99%)	1 (1%)	0	100	100
49	S3	75/84 (89%)	72 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
50	T2	133/136 (98%)	131 (98%)	2 (2%)	0	100	100
51	T3	40/133 (30%)	39 (98%)	0	1 (2%)	4	16
52	U2	145/148 (98%)	141 (97%)	4 (3%)	0	100	100
53	V2	115/160 (72%)	110 (96%)	5 (4%)	0	100	100
54	W2	92/115 (80%)	90 (98%)	2 (2%)	0	100	100
55	X2	105/125 (84%)	104 (99%)	1 (1%)	0	100	100
56	Y2	126/135 (93%)	125 (99%)	1 (1%)	0	100	100
57	Z2	107/110 (97%)	105 (98%)	2 (2%)	0	100	100
58	a2	105/117 (90%)	104 (99%)	1 (1%)	0	100	100
59	b2	118/123 (96%)	117 (99%)	1 (1%)	0	100	100
60	c2	100/105 (95%)	96 (96%)	4 (4%)	0	100	100
61	d2	84/97 (87%)	80 (95%)	4 (5%)	0	100	100
62	e2	67/70 (96%)	67 (100%)	0	0	100	100
63	f2	48/51 (94%)	47 (98%)	1 (2%)	0	100	100
64	g2	50/128 (39%)	50 (100%)	0	0	100	100
65	h2	22/25 (88%)	22 (100%)	0	0	100	100
66	i2	101/106 (95%)	97 (96%)	4 (4%)	0	100	100
67	j2	87/92 (95%)	84 (97%)	3 (3%)	0	100	100
68	k2	123/137 (90%)	121 (98%)	2 (2%)	0	100	100
71	o2	213/295 (72%)	196 (92%)	17 (8%)	0	100	100
72	p2	210/264 (80%)	195 (93%)	15 (7%)	0	100	100
73	q2	211/243 (87%)	208 (99%)	3 (1%)	0	100	100
74	r2	255/257 (99%)	239 (94%)	14 (6%)	2 (1%)	16	44
75	s2	181/204 (89%)	168 (93%)	13 (7%)	0	100	100
76	t2	166/194 (86%)	155 (93%)	11 (7%)	0	100	100
77	u2	175/208 (84%)	168 (96%)	7 (4%)	0	100	100
78	v2	81/165 (49%)	66 (82%)	14 (17%)	1 (1%)	10	34
79	w2	134/158 (85%)	127 (95%)	6 (4%)	1 (1%)	18	47
80	x2	125/145 (86%)	117 (94%)	8 (6%)	0	100	100
81	y2	137/146 (94%)	125 (91%)	12 (9%)	0	100	100
82	z2	123/135 (91%)	113 (92%)	10 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	10701/12625 (85%)	10228 (96%)	465 (4%)	8 (0%)	49	77

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	A3	91	LYS
79	w2	121	GLN
29	I3	52	TYR
78	v2	53	LYS
51	T3	22	GLN
74	r2	247	THR
6	B3	37	VAL
74	r2	150	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	A1	193/234 (82%)	193 (100%)	0	100	100
3	A3	121/132 (92%)	121 (100%)	0	100	100
4	B1	189/223 (85%)	187 (99%)	2 (1%)	65	87
6	B3	111/115 (96%)	111 (100%)	0	100	100
10	C1	169/171 (99%)	169 (100%)	0	100	100
12	C3	90/107 (84%)	90 (100%)	0	100	100
13	D1	174/181 (96%)	174 (100%)	0	100	100
14	D2	188/199 (94%)	188 (100%)	0	100	100
15	D3	53/67 (79%)	53 (100%)	0	100	100
16	E1	147/149 (99%)	147 (100%)	0	100	100
17	E2	347/348 (100%)	347 (100%)	0	100	100
18	E3	111/115 (96%)	111 (100%)	0	100	100
19	F1	170/178 (96%)	170 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
20	F2	298/348 (86%)	298 (100%)	0	100	100
21	F3	84/98 (86%)	84 (100%)	0	100	100
22	G1	118/157 (75%)	118 (100%)	0	100	100
23	G2	246/249 (99%)	246 (100%)	0	100	100
24	G3	49/62 (79%)	49 (100%)	0	100	100
25	H1	171/172 (99%)	171 (100%)	0	100	100
26	H2	196/256 (77%)	196 (100%)	0	100	100
27	H3	45/49 (92%)	45 (100%)	0	100	100
28	I2	170/173 (98%)	170 (100%)	0	100	100
29	I3	197/275 (72%)	197 (100%)	0	100	100
30	J2	134/163 (82%)	134 (100%)	0	100	100
31	J3	155/224 (69%)	155 (100%)	0	100	100
32	K2	164/165 (99%)	164 (100%)	0	100	100
33	K3	182/218 (84%)	182 (100%)	0	100	100
34	L2	149/175 (85%)	149 (100%)	0	100	100
35	L3	160/168 (95%)	160 (100%)	0	100	100
36	M2	155/156 (99%)	155 (100%)	0	100	100
37	M3	35/108 (32%)	35 (100%)	0	100	100
38	N2	139/140 (99%)	139 (100%)	0	100	100
39	N3	130/131 (99%)	130 (100%)	0	100	100
40	O2	91/114 (80%)	91 (100%)	0	100	100
41	O3	103/119 (87%)	103 (100%)	0	100	100
42	P2	100/107 (94%)	100 (100%)	0	100	100
43	P3	110/113 (97%)	110 (100%)	0	100	100
44	Q2	54/126 (43%)	54 (100%)	0	100	100
45	Q3	103/115 (90%)	103 (100%)	0	100	100
46	R2	106/133 (80%)	106 (100%)	0	100	100
47	R3	65/103 (63%)	65 (100%)	0	100	100
48	S2	124/135 (92%)	124 (100%)	0	100	100
49	S3	71/76 (93%)	71 (100%)	0	100	100
50	T2	117/118 (99%)	117 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
51	T3	35/105 (33%)	35 (100%)	0	100	100
52	U2	120/121 (99%)	120 (100%)	0	100	100
53	V2	98/124 (79%)	98 (100%)	0	100	100
54	W2	79/97 (81%)	79 (100%)	0	100	100
55	X2	98/110 (89%)	98 (100%)	0	100	100
56	Y2	114/121 (94%)	114 (100%)	0	100	100
57	Z2	88/89 (99%)	88 (100%)	0	100	100
58	a2	93/100 (93%)	93 (100%)	0	100	100
59	b2	108/110 (98%)	108 (100%)	0	100	100
60	c2	86/89 (97%)	86 (100%)	0	100	100
61	d2	73/80 (91%)	73 (100%)	0	100	100
62	e2	64/65 (98%)	64 (100%)	0	100	100
63	f2	47/48 (98%)	47 (100%)	0	100	100
64	g2	48/116 (41%)	48 (100%)	0	100	100
65	h2	23/24 (96%)	23 (100%)	0	100	100
66	i2	91/94 (97%)	91 (100%)	0	100	100
67	j2	73/75 (97%)	73 (100%)	0	100	100
68	k2	109/121 (90%)	109 (100%)	0	100	100
71	o2	180/242 (74%)	180 (100%)	0	100	100
72	p2	193/229 (84%)	193 (100%)	0	100	100
73	q2	176/202 (87%)	175 (99%)	1 (1%)	78	92
74	r2	220/220 (100%)	220 (100%)	0	100	100
75	s2	157/170 (92%)	157 (100%)	0	100	100
76	t2	132/174 (76%)	132 (100%)	0	100	100
77	u2	137/180 (76%)	137 (100%)	0	100	100
78	v2	75/136 (55%)	75 (100%)	0	100	100
79	w2	125/142 (88%)	125 (100%)	0	100	100
80	x2	113/130 (87%)	113 (100%)	0	100	100
81	y2	115/121 (95%)	115 (100%)	0	100	100
82	z2	113/121 (93%)	113 (100%)	0	100	100
All	All	9267/10721 (86%)	9264 (100%)	3 (0%)	100	100

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	B1	137[A]	ARG
4	B1	137[B]	ARG
73	q2	4	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (96) such sidechains are listed below:

Mol	Chain	Res	Type
1	A1	102	ASN
3	A3	10	GLN
3	A3	19	ASN
3	A3	105	ASN
3	A3	134	GLN
4	B1	46	GLN
4	B1	66	GLN
4	B1	82	GLN
4	B1	85	GLN
4	B1	240	ASN
6	B3	12	GLN
6	B3	91	HIS
10	C1	8	GLN
10	C1	108	ASN
10	C1	138	GLN
14	D2	22	HIS
15	D3	29	HIS
16	E1	71	HIS
16	E1	98	ASN
16	E1	112	HIS
17	E2	25	HIS
17	E2	42	HIS
17	E2	68	ASN
17	E2	138	GLN
17	E2	184	GLN
18	E3	31	HIS
19	F1	20	GLN
19	F1	149	GLN
20	F2	50	GLN
20	F2	329	ASN
20	F2	347	HIS
21	F3	86	ASN
23	G2	191	ASN
26	H2	275	GLN

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Mol	Chain	Res	Type
28	I2	72	HIS
28	I2	167	HIS
29	I3	20	GLN
29	I3	64	HIS
29	I3	76	GLN
29	I3	196	ASN
30	J2	25	HIS
30	J2	75	GLN
30	J2	118	GLN
30	J2	133	HIS
30	J2	137	ASN
33	K3	110	ASN
33	K3	155	GLN
33	K3	163	ASN
34	L2	39	GLN
34	L2	40	GLN
34	L2	134	ASN
35	L3	111	GLN
35	L3	134	HIS
38	N2	54	HIS
43	P3	44	HIS
43	P3	90	GLN
43	P3	113	HIS
44	Q2	17	HIS
45	Q3	15	ASN
45	Q3	124	ASN
46	R2	69	ASN
47	R3	103	HIS
48	S2	40	GLN
48	S2	96	HIS
50	T2	127	ASN
52	U2	60	HIS
52	U2	62	HIS
56	Y2	24	GLN
57	Z2	21	GLN
59	b2	68	ASN
60	c2	80	HIS
64	g2	117	HIS
66	i2	76	ASN
67	j2	72	ASN
68	k2	23	GLN
71	o2	50	ASN

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Mol	Chain	Res	Type
71	o2	110	ASN
72	p2	177	GLN
72	p2	202	GLN
73	q2	57	ASN
74	r2	138	HIS
74	r2	142	HIS
74	r2	157	ASN
74	r2	171	ASN
75	s2	65	GLN
75	s2	186	ASN
75	s2	203	ASN
77	u2	146	GLN
78	v2	7	ASN
78	v2	28	HIS
78	v2	44	HIS
78	v2	61	GLN
79	w2	94	HIS
80	x2	32	GLN
80	x2	35	GLN
82	z2	121	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	C2	155/156 (99%)	31 (20%)	0
2	A2	3484/3615 (96%)	648 (18%)	12 (0%)
5	B2	118/121 (97%)	11 (9%)	0
69	m2	1616/1635 (98%)	390 (24%)	0
7	Bv	63/76 (82%)	24 (38%)	0
70	n2	70/73 (95%)	9 (12%)	0
8	Bx	9/10 (90%)	4 (44%)	0
All	All	5515/5686 (96%)	1117 (20%)	12 (0%)

All (1117) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	A2	13	U
2	A2	17	A
2	A2	21	G
2	A2	25	A
2	A2	39	A

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Mol	Chain	Res	Type
2	A2	42	A
2	A2	48	G
2	A2	59	A
2	A2	63	G
2	A2	64	A
2	A2	65	A
2	A2	69	A
2	A2	73	A
2	A2	74	G
2	A2	91	G
2	A2	104	G
2	A2	108	A
2	A2	109	G
2	A2	110	C
2	A2	119	G
2	A2	120	A
2	A2	131	C
2	A2	134	G
2	A2	144	G
2	A2	159	C
2	A2	164	G
2	A2	172	C
2	A2	183	C
2	A2	184	U
2	A2	185	C
2	A2	186	G
2	A2	187	U
2	A2	188	G
2	A2	189	G
2	A2	197	A
2	A2	200	U
2	A2	201	C
2	A2	209	U
2	A2	216	C
2	A2	217	C
2	A2	218	A
2	A2	220	C
2	A2	233	U
2	A2	234	G
2	A2	237	G
2	A2	253	G
2	A2	254	G

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Mol	Chain	Res	Type
2	A2	266	C
2	A2	267	G
2	A2	280	G
2	A2	281	U
2	A2	297	U
2	A2	315	G
2	A2	316	U
2	A2	340	C
2	A2	341	G
2	A2	345	C
2	A2	362	A
2	A2	373	G
2	A2	379	G
2	A2	387	G
2	A2	396	A
2	A2	407	A
2	A2	408	A
2	A2	409	G
2	A2	410	A
2	A2	412	G
2	A2	413	G
2	A2	433	A
2	A2	440	U
2	A2	449	C
2	A2	450	G
2	A2	452	A
2	A2	453	G
2	A2	467	U
2	A2	468	U
2	A2	469	C
2	A2	479	G
2	A2	486	C
2	A2	497	G
2	A2	498	G
2	A2	499	U
2	A2	500	G
2	A2	510	A
2	A2	511	U
2	A2	671	G
2	A2	673	G
2	A2	674	A
2	A2	678	G

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Mol	Chain	Res	Type
2	A2	692	C
2	A2	693	A
2	A2	694	C
2	A2	699	A
2	A2	703	U
2	A2	704	G
2	A2	711	C
2	A2	715	G
2	A2	737	G
2	A2	738	G
2	A2	747	G
2	A2	753	A
2	A2	767	G
2	A2	770	G
2	A2	805	C
2	A2	811	G
2	A2	812	U
2	A2	814	A
2	A2	816	A
2	A2	824	G
2	A2	839	C
2	A2	841	A
2	A2	842	A
2	A2	843	U
2	A2	844	C
2	A2	853	G
2	A2	856	G
2	A2	857	A
2	A2	858	A
2	A2	869	C
2	A2	870	G
2	A2	871	U
2	A2	876	G
2	A2	927	C
2	A2	929	G
2	A2	933	G
2	A2	934	C
2	A2	935	C
2	A2	936	C
2	A2	937	C
2	A2	938	U
2	A2	1000	G

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Mol	Chain	Res	Type
2	A2	1002	G
2	A2	1004	C
2	A2	1005	G
2	A2	1006	G
2	A2	1010	G
2	A2	1011	U
2	A2	1012	C
2	A2	1013	C
2	A2	1014	C
2	A2	1015	C
2	A2	1019	G
2	A2	1022	C
2	A2	1024	C
2	A2	1031	U
2	A2	1032	C
2	A2	1036	G
2	A2	1038	G
2	A2	1043	C
2	A2	1044	G
2	A2	1048	C
2	A2	1049	C
2	A2	1053	G
2	A2	1054	G
2	A2	1067	A
2	A2	1070	C
2	A2	1071	G
2	A2	1072	U
2	A2	1079	A
2	A2	1081	G
2	A2	1082	A
2	A2	1085	C
2	A2	1086	C
2	A2	1087	G
2	A2	1094	C
2	A2	1098	G
2	A2	1099	U
2	A2	1101	G
2	A2	1108	A
2	A2	1110	G
2	A2	1116	U
2	A2	1118	C
2	A2	1127	C

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Mol	Chain	Res	Type
2	A2	1136	A
2	A2	1140	A2M
2	A2	1159	G
2	A2	1168	A
2	A2	1172	A
2	A2	1173	G
2	A2	1179	C
2	A2	1180	G
2	A2	1181	U
2	A2	1184	G
2	A2	1191	G
2	A2	1201	A
2	A2	1208	G
2	A2	1211	A
2	A2	1212	A
2	A2	1224	G
2	A2	1229	C
2	A2	1233	A
2	A2	1251	U
2	A2	1253	U
2	A2	1265	A
2	A2	1270	G
2	A2	1293	C
2	A2	1295	G
2	A2	1296	C
2	A2	1303	G
2	A2	1310	A
2	A2	1311	G
2	A2	1315	G
2	A2	1317	G
2	A2	1338	A
2	A2	1347	A2M
2	A2	1360	A
2	A2	1379	C
2	A2	1389	G
2	A2	1391	U
2	A2	1404	U
2	A2	1409	U
2	A2	1437	G
2	A2	1438	OMG
2	A2	1444	A
2	A2	1446	G

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Mol	Chain	Res	Type
2	A2	1447	A
2	A2	1451	A
2	A2	1453	C
2	A2	1454	G
2	A2	1467	G
2	A2	1474	C
2	A2	1489	C
2	A2	1490	PSU
2	A2	1491	C
2	A2	1493	G
2	A2	1507	C
2	A2	1511	C
2	A2	1512	U
2	A2	1522	C
2	A2	1523	G
2	A2	1533	C
2	A2	1536	G
2	A2	1542	C
2	A2	1544	A
2	A2	1552	G
2	A2	1558	U
2	A2	1559	U
2	A2	1560	G
2	A2	1573	U
2	A2	1589	A
2	A2	1599	G
2	A2	1606	A
2	A2	1608	G
2	A2	1613	G
2	A2	1617	G
2	A2	1622	C
2	A2	1623	G
2	A2	1624	U
2	A2	1638	G
2	A2	1639	A
2	A2	1644	G
2	A2	1657	G
2	A2	1671	G
2	A2	1684	U
2	A2	1694	A
2	A2	1699	A
2	A2	1700	C

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Mol	Chain	Res	Type
2	A2	1719	A
2	A2	1721	G
2	A2	1722	C
2	A2	1723	C
2	A2	1724	G
2	A2	1727	G
2	A2	1733	C
2	A2	1734	A
2	A2	1738	C
2	A2	1747	G
2	A2	1750	G
2	A2	1761	U
2	A2	1762	A
2	A2	1763	G
2	A2	1764	A
2	A2	1769	A
2	A2	1821	C
2	A2	1822	U
2	A2	1825	C
2	A2	1828	A
2	A2	1846	U
2	A2	1848	G
2	A2	1850	U
2	A2	1854	G
2	A2	1857	G
2	A2	1858	G
2	A2	1871	A
2	A2	1886	C
2	A2	1893	C
2	A2	1895	G
2	A2	1897	A
2	A2	1899	G
2	A2	1900	G
2	A2	1902	A
2	A2	1904	G
2	A2	1905	G
2	A2	1909	G
2	A2	1910	G
2	A2	1911	G
2	A2	2005	U
2	A2	2006	C
2	A2	2008	G

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Mol	Chain	Res	Type
2	A2	2009	G
2	A2	2012	C
2	A2	2014	G
2	A2	2015	C
2	A2	2021	C
2	A2	2044	C
2	A2	2052	G
2	A2	2055	A
2	A2	2056	G
2	A2	2061	G
2	A2	2068	A
2	A2	2069	G
2	A2	2071	G
2	A2	2077	G
2	A2	2087	A
2	A2	2088	G
2	A2	2094	G
2	A2	2103	G
2	A2	2106	OMC
2	A2	2119	OMG
2	A2	2137	A
2	A2	2138	C
2	A2	2150	A
2	A2	2152	G
2	A2	2153	U
2	A2	2176	G
2	A2	2177	OMC
2	A2	2180	U
2	A2	2192	C
2	A2	2196	C
2	A2	2202	U
2	A2	2205	G
2	A2	2208	A
2	A2	2224	C
2	A2	2225	C
2	A2	2226	G
2	A2	2229	G
2	A2	2233	C
2	A2	2239	A
2	A2	2245	U
2	A2	2249	U
2	A2	2257	G

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Mol	Chain	Res	Type
2	A2	2258	G
2	A2	2259	C
2	A2	2260	C
2	A2	2261	G
2	A2	2262	A
2	A2	2268	A
2	A2	2275	C
2	A2	2284	A
2	A2	2285	U
2	A2	2299	G
2	A2	2301	G
2	A2	2302	G
2	A2	2310	G
2	A2	2328	A
2	A2	2341	G
2	A2	2342	A
2	A2	2344	C
2	A2	2356	A
2	A2	2361	G
2	A2	2373	G
2	A2	2382	C
2	A2	2383	U
2	A2	2393	G
2	A2	2408	C
2	A2	2417	G
2	A2	2424	C
2	A2	2430	G
2	A2	2431	A
2	A2	2442	U
2	A2	2449	G
2	A2	2450	A
2	A2	2451	A
2	A2	2458	G
2	A2	2463	U
2	A2	2464	C
2	A2	2466	G
2	A2	2476	G
2	A2	2479	G
2	A2	2481	G
2	A2	2494	C
2	A2	2498	A
2	A2	2509	G

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Mol	Chain	Res	Type
2	A2	2511	G
2	A2	2513	G
2	A2	2514	G
2	A2	2515	G
2	A2	2518	U
2	A2	2519	A
2	A2	2524	U
2	A2	2525	C
2	A2	2543	U
2	A2	2545	U
2	A2	2549	C
2	A2	2561	A
2	A2	2569	C
2	A2	2581	U
2	A2	2582	G
2	A2	2584	U
2	A2	2601	G
2	A2	2603	G
2	A2	2610	G
2	A2	2632	G
2	A2	3252	A
2	A2	3253	G
2	A2	3254	C
2	A2	3261	C
2	A2	3272	U
2	A2	3282	G
2	A2	3286	A
2	A2	3291	A
2	A2	3300	U
2	A2	3302	A
2	A2	3304	A
2	A2	3318	A
2	A2	3320	G
2	A2	3329	C
2	A2	3348	A
2	A2	3365	U
2	A2	3366	G
2	A2	3367	A
2	A2	3368	A
2	A2	3370	G
2	A2	3373	A
2	A2	3380	A2M

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Mol	Chain	Res	Type
2	A2	3383	A
2	A2	3404	A
2	A2	3406	G
2	A2	3409	G
2	A2	3410	G
2	A2	3413	G
2	A2	3416	A
2	A2	3422	A
2	A2	3424	U
2	A2	3429	U
2	A2	3430	A
2	A2	3431	A
2	A2	3433	G
2	A2	3440	A
2	A2	3441	A2M
2	A2	3442	U
2	A2	3466	C
2	A2	3467	G
2	A2	3470	U
2	A2	3473	A
2	A2	3475	G
2	A2	3494	U
2	A2	3495	G
2	A2	3496	U
2	A2	3523	A
2	A2	3526	C
2	A2	3533	A
2	A2	3534	C
2	A2	3535	G
2	A2	3553	G
2	A2	3557	A
2	A2	3561	A
2	A2	3562	A
2	A2	3563	G
2	A2	3564	A
2	A2	3571	U
2	A2	3586	U
2	A2	3595	G
2	A2	3598	A
2	A2	3599	A
2	A2	3601	A
2	A2	3604	C

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Mol	Chain	Res	Type
2	A2	3606	U
2	A2	3608	A
2	A2	3611	G
2	A2	3612	G
2	A2	3614	G
2	A2	3615	U
2	A2	3706	A
2	A2	3707	C
2	A2	3708	U
2	A2	3709	C
2	A2	3710	U
2	A2	3712	A
2	A2	3713	U
2	A2	3726	G
2	A2	3734	G
2	A2	3736	G
2	A2	3747	G
2	A2	3765	G
2	A2	3766	C
2	A2	3769	C
2	A2	3771	G
2	A2	3772	G
2	A2	3777	A
2	A2	3784	C
2	A2	3802	G
2	A2	3814	C
2	A2	3815	U
2	A2	3822	A
2	A2	3829	C
2	A2	3835	G
2	A2	3836	G
2	A2	3843	G
2	A2	3855	A
2	A2	3874	G
2	A2	3877	G
2	A2	3881	U
2	A2	3885	A
2	A2	3886	A
2	A2	3895	C
2	A2	3903	A
2	A2	3906	G
2	A2	3909	A

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Mol	Chain	Res	Type
2	A2	3910	C
2	A2	3917	U
2	A2	3920	A
2	A2	3924	G
2	A2	3925	A
2	A2	3933	A
2	A2	3943	G
2	A2	3956	A
2	A2	3957	G
2	A2	3966	C
2	A2	3981	G
2	A2	3982	G
2	A2	3984	C
2	A2	3990	G
2	A2	4002	C
2	A2	4006	U
2	A2	4010	U
2	A2	4023	G
2	A2	4025	G
2	A2	4028	A
2	A2	4029	G
2	A2	4030	A
2	A2	4032	A
2	A2	4033	A
2	A2	4038	C
2	A2	4039	C
2	A2	4043	G
2	A2	4046	A
2	A2	4050	C
2	A2	4067	1MA
2	A2	4068	G
2	A2	4073	C
2	A2	4074	A
2	A2	4090	U
2	A2	4096	C
2	A2	4100	G
2	A2	4101	A
2	A2	4105	C
2	A2	4116	A
2	A2	4118	C
2	A2	4127	G
2	A2	4151	OMG

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Mol	Chain	Res	Type
2	A2	4152	PSU
2	A2	4164	U
2	A2	4165	A
2	A2	4171	C
2	A2	4176	G
2	A2	4177	C
2	A2	4180	G
2	A2	4184	U
2	A2	4200	A
2	A2	4206	G
2	A2	4212	C
2	A2	4219	G
2	A2	4225	G
2	A2	4227	G
2	A2	4242	A
2	A2	4247	G
2	A2	4252	G
2	A2	4272	OMU
2	A2	4276	A
2	A2	4278	A
2	A2	4284	U
2	A2	4287	A
2	A2	4288	PSU
2	A2	4289	OMG
2	A2	4304	G
2	A2	4308	A
2	A2	4322	C
2	A2	4324	A
2	A2	4331	G
2	A2	4352	A
2	A2	4360	A
2	A2	4361	U
2	A2	4382	C
2	A2	4385	C
2	A2	4386	A
2	A2	4393	A
2	A2	4394	G
2	A2	4403	G
2	A2	4406	G
2	A2	4409	C
2	A2	4411	C
2	A2	4413	G

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Mol	Chain	Res	Type
2	A2	4417	G
2	A2	4422	G
2	A2	4434	U
2	A2	4436	C
2	A2	4497	U
2	A2	4498	C
2	A2	4504	C
2	A2	4508	G
2	A2	4512	G
2	A2	4515	G
2	A2	4516	C
2	A2	4520	G
2	A2	4521	A
2	A2	4522	G
2	A2	4525	G
2	A2	4528	C
2	A2	4540	C
2	A2	4541	G
2	A2	4545	U
2	A2	4546	G
2	A2	4548	G
2	A2	4552	G
2	A2	4553	G
2	A2	4555	A
2	A2	4557	G
2	A2	4560	G
2	A2	4565	C
2	A2	4569	C
2	A2	4570	U
2	A2	4571	C
2	A2	4582	U
2	A2	4583	U
2	A2	4587	G
2	A2	4588	C
2	A2	4589	A
2	A2	4591	G
2	A2	4609	G
2	A2	4610	C
2	A2	4622	U
2	A2	4634	U
2	A2	4636	C
2	A2	4637	U

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Mol	Chain	Res	Type
2	A2	4641	U
2	A2	4653	A
2	A2	4659	C
2	A2	4663	G
2	A2	4668	U
2	A2	4680	A
2	A2	4687	G
2	A2	4693	C
2	A2	4696	C
2	A2	4701	G
2	A2	4702	A
2	A2	4707	A
2	A2	4715	U
5	B2	22	A
5	B2	33	U
5	B2	41	G
5	B2	49	A
5	B2	53	U
5	B2	54	A
5	B2	64	G
5	B2	97	G
5	B2	100	A
5	B2	110	G
5	B2	119	U
7	Bv	3	C
7	Bv	7	A
7	Bv	9	A
7	Bv	10	G
7	Bv	11	C
7	Bv	12	U
7	Bv	14	A
7	Bv	19	G
7	Bv	23	A
7	Bv	30	G
7	Bv	32	U
7	Bv	35	A
7	Bv	36	A
7	Bv	44	G
7	Bv	45	U
7	Bv	46	G
7	Bv	47	C
7	Bv	48	C

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Mol	Chain	Res	Type
7	Bv	52	G
7	Bv	53	G
7	Bv	59	U
7	Bv	62	C
7	Bv	63	G
7	Bv	64	A
8	Bx	46	U
8	Bx	49	U
8	Bx	50	U
8	Bx	52	U
11	C2	23	C
11	C2	25	G
11	C2	34	U
11	C2	35	C
11	C2	39	G
11	C2	51	U
11	C2	52	A
11	C2	59	A
11	C2	61	A
11	C2	63	U
11	C2	68	G
11	C2	70	G
11	C2	75	OMG
11	C2	82	A
11	C2	84	A
11	C2	85	U
11	C2	87	G
11	C2	94	G
11	C2	103	A
11	C2	105	C
11	C2	110	U
11	C2	111	U
11	C2	112	G
11	C2	114	G
11	C2	123	U
11	C2	125	C
11	C2	126	C
11	C2	127	U
11	C2	128	C
11	C2	155	C
11	C2	156	U
69	m2	14	C

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Mol	Chain	Res	Type
69	m2	30	C
69	m2	33	G
69	m2	41	G
69	m2	46	A
69	m2	49	C
69	m2	56	G
69	m2	59	U
69	m2	60	A
69	m2	61	A
69	m2	63	U
69	m2	66	G
69	m2	67	C
69	m2	68	A
69	m2	78	C
69	m2	79	A
69	m2	82	G
69	m2	103	A
69	m2	113	G
69	m2	115	U
69	m2	118	C
69	m2	126	G
69	m2	127	C
69	m2	130	G
69	m2	142	C
69	m2	143	U
69	m2	144	U
69	m2	145	G
69	m2	158	A
69	m2	159	A
69	m2	160	U
69	m2	161	U
69	m2	162	C
69	m2	163	U
69	m2	167	G
69	m2	168	C
69	m2	170	A
69	m2	171	A
69	m2	172	OMU
69	m2	179	C
69	m2	180	G
69	m2	181	A
69	m2	182	C

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Mol	Chain	Res	Type
69	m2	189	U
69	m2	190	G
69	m2	191	A
69	m2	193	C
69	m2	195	C
69	m2	198	U
69	m2	199	U
69	m2	200	C
69	m2	201	C
69	m2	202	C
69	m2	204	G
69	m2	209	G
69	m2	212	U
69	m2	217	G
69	m2	293	G
69	m2	296	U
69	m2	297	C
69	m2	301	A
69	m2	306	C
69	m2	307	U
69	m2	308	C
69	m2	310	G
69	m2	311	G
69	m2	313	C
69	m2	314	G
69	m2	315	A
69	m2	316	U
69	m2	317	C
69	m2	319	C
69	m2	321	C
69	m2	322	G
69	m2	323	C
69	m2	324	C
69	m2	337	G
69	m2	342	C
69	m2	349	G
69	m2	358	C
69	m2	362	A
69	m2	364	C
69	m2	366	A
69	m2	370	U
69	m2	372	G

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Mol	Chain	Res	Type
69	m2	379	G
69	m2	383	C
69	m2	385	G
69	m2	386	U
69	m2	387	G
69	m2	388	C
69	m2	395	U
69	m2	401	C
69	m2	411	C
69	m2	415	G
69	m2	423	G
69	m2	450	A
69	m2	451	A
69	m2	452	C
69	m2	454	G
69	m2	466	A
69	m2	467	A
69	m2	473	G
69	m2	474	C
69	m2	476	G
69	m2	484	G
69	m2	489	U
69	m2	494	C
69	m2	497	U
69	m2	502	A
69	m2	504	C
69	m2	509	G
69	m2	518	A
69	m2	525	A
69	m2	527	A
69	m2	530	A
69	m2	532	U
69	m2	534	C
69	m2	557	A
69	m2	558	U
69	m2	559	U
69	m2	561	G
69	m2	562	A
69	m2	565	G
69	m2	568	U
69	m2	570	C
69	m2	572	C

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Mol	Chain	Res	Type
69	m2	575	U
69	m2	576	A
69	m2	578	A2M
69	m2	585	A
69	m2	589	A
69	m2	591	G
69	m2	592	A
69	m2	593	U
69	m2	594	C
69	m2	596	A
69	m2	600	G
69	m2	602	G
69	m2	606	A
69	m2	608	G
69	m2	609	U
69	m2	616	C
69	m2	617	C
69	m2	619	G
69	m2	625	G
69	m2	630	A
69	m2	631	A
69	m2	632	U
69	m2	633	U
69	m2	645	A
69	m2	646	OMG
69	m2	657	A
69	m2	662	C
69	m2	670	A2M
69	m2	671	A
69	m2	673	A
69	m2	674	A
69	m2	675	G
69	m2	686	G
69	m2	803	U
69	m2	809	G
69	m2	821	G
69	m2	823	G
69	m2	824	PSU
69	m2	832	A
69	m2	836	C
69	m2	837	C
69	m2	839	A

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Mol	Chain	Res	Type
69	m2	840	G
69	m2	842	C
69	m2	843	G
69	m2	845	C
69	m2	849	A
69	m2	863	A
69	m2	870	G
69	m2	871	A
69	m2	872	A
69	m2	875	G
69	m2	880	G
69	m2	882	G
69	m2	884	U
69	m2	888	A
69	m2	889	U
69	m2	890	U
69	m2	891	U
69	m2	892	U
69	m2	893	G
69	m2	894	U
69	m2	898	U
69	m2	900	U
69	m2	902	C
69	m2	906	A
69	m2	911	G
69	m2	912	G
69	m2	913	C
69	m2	915	A
69	m2	916	U
69	m2	918	A
69	m2	920	U
69	m2	921	A
69	m2	922	A
69	m2	924	A
69	m2	932	C
69	m2	935	G
69	m2	936	G
69	m2	945	U
69	m2	957	A
69	m2	965	A
69	m2	972	G
69	m2	973	G

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Mol	Chain	Res	Type
69	m2	992	A
69	m2	994	A
69	m2	1001	G
69	m2	1003	A
69	m2	1004	U
69	m2	1019	U
69	m2	1025	A
69	m2	1029	A
69	m2	1030	A
69	m2	1032	A
69	m2	1047	U
69	m2	1049	C
69	m2	1063	U
69	m2	1064	A
69	m2	1082	A
69	m2	1085	A
69	m2	1087	C
69	m2	1091	G
69	m2	1095	A
69	m2	1111	C
69	m2	1115	A
69	m2	1117	U
69	m2	1118	C
69	m2	1123	G
69	m2	1132	G
69	m2	1135	A
69	m2	1140	C
69	m2	1150	A
69	m2	1155	C
69	m2	1156	U
69	m2	1168	G
69	m2	1172	A
69	m2	1184	A
69	m2	1185	A
69	m2	1197	A
69	m2	1209	G
69	m2	1217	C
69	m2	1218	C
69	m2	1219	A
69	m2	1226	G
69	m2	1229	G
69	m2	1233	C

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Mol	Chain	Res	Type
69	m2	1244	U
69	m2	1245	PSU
69	m2	1250	B8N
69	m2	1252	A
69	m2	1253	A
69	m2	1255	A
69	m2	1258	G
69	m2	1259	G
69	m2	1261	A
69	m2	1268	C
69	m2	1273	C
69	m2	1275	C
69	m2	1276	G
69	m2	1285	C
69	m2	1286	A
69	m2	1287	G
69	m2	1289	A
69	m2	1302	U
69	m2	1304	G
69	m2	1305	C
69	m2	1306	U
69	m2	1310	U
69	m2	1315	A
69	m2	1316	U
69	m2	1330	OMG
69	m2	1335	U
69	m2	1343	C
69	m2	1345	U
69	m2	1346	A
69	m2	1350	G
69	m2	1358	G
69	m2	1360	U
69	m2	1366	U
69	m2	1368	G
69	m2	1373	U
69	m2	1374	U
69	m2	1380	A
69	m2	1384	A
69	m2	1399	U
69	m2	1400	G
69	m2	1403	A
69	m2	1411	A

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Mol	Chain	Res	Type
69	m2	1412	C
69	m2	1416	A
69	m2	1417	C
69	m2	1418	C
69	m2	1419	C
69	m2	1420	C
69	m2	1421	C
69	m2	1423	A
69	m2	1425	C
69	m2	1431	G
69	m2	1444	U
69	m2	1451	G
69	m2	1456	A
69	m2	1465	U
69	m2	1468	G
69	m2	1470	C
69	m2	1482	A
69	m2	1491	A
69	m2	1492	G
69	m2	1496	U
69	m2	1497	G
69	m2	1499	G
69	m2	1500	A
69	m2	1509	G
69	m2	1512	G
69	m2	1522	G
69	m2	1523	C
69	m2	1524	A
69	m2	1530	G
69	m2	1533	A
69	m2	1535	A
69	m2	1546	C
69	m2	1547	A
69	m2	1554	G
69	m2	1559	C
69	m2	1560	C
69	m2	1570	C
69	m2	1572	G
69	m2	1581	A
69	m2	1582	A
69	m2	1587	U
69	m2	1590	A

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Mol	Chain	Res	Type
69	m2	1602	G
69	m2	1603	A
69	m2	1606	G
69	m2	1608	G
69	m2	1623	U
69	m2	1625	A
69	m2	1627	U
69	m2	1631	C
69	m2	1634	G
69	m2	1636	A
69	m2	1641	G
69	m2	1642	A
69	m2	1643	A
69	m2	1648	C
69	m2	1649	A
69	m2	1650	G
69	m2	1656	G
69	m2	1661	U
69	m2	1662	C
69	m2	1664	U
69	m2	1665	A
69	m2	1666	A
69	m2	1667	G
69	m2	1673	G
69	m2	1682	G
69	m2	1698	C
69	m2	1700	C
69	m2	1702	C
69	m2	1703	C
69	m2	1723	G
69	m2	1724	G
69	m2	1726	A
69	m2	1729	G
69	m2	1746	G
69	m2	1788	U
69	m2	1813	C
69	m2	1817	A
69	m2	1822	G
69	m2	1824	A
69	m2	1826	A
69	m2	1827	A
69	m2	1828	G

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Mol	Chain	Res	Type
69	m2	1831	G
69	m2	1837	A
69	m2	1840	U
69	m2	1851	G
69	m2	1853	A
69	m2	1854	C
69	m2	1863	G
69	m2	1864	G
69	m2	1865	A
69	m2	1866	U
69	m2	1867	C
70	n2	8	U
70	n2	17	G
70	n2	18	G
70	n2	21	G
70	n2	45	G
70	n2	48	G
70	n2	56	G
70	n2	69	G
70	n2	75	A

All (12) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	A2	236	G
2	A2	406	C
2	A2	1446	G
2	A2	2259	C
2	A2	2382	C
2	A2	2430	G
2	A2	2463	U
2	A2	3253	G
2	A2	3614	G
2	A2	4277	C
2	A2	4351	U
2	A2	4582	U

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

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	A2M	A2	4270	2	22,25,26	0.09	0	31,36,39	0.39	0
2	PSU	A2	3371	2	18,21,22	0.54	0	22,30,33	0.56	0
69	OMG	m2	438	69	23,26,27	0.32	0	33,38,41	0.40	0
2	OMG	A2	2119	2	23,26,27	0.29	0	33,38,41	0.41	0
2	A2M	A2	2156	2	22,25,26	0.10	0	31,36,39	0.24	0
2	A2M	A2	3380	2	22,25,26	0.13	0	31,36,39	0.36	0
2	OMU	A2	4272	2	19,22,23	0.40	0	26,31,34	0.61	0
2	OMC	A2	4188	2	19,22,23	0.33	0	26,31,34	0.50	0
69	UR3	m2	1832	69	19,22,23	0.31	0	26,32,35	0.37	0
69	OMU	m2	172	69	19,22,23	0.25	0	26,31,34	0.62	1 (3%)
2	PSU	A2	4055	2	18,21,22	0.54	0	22,30,33	0.61	1 (4%)
69	OMG	m2	1330	69	23,26,27	0.35	0	33,38,41	0.45	0
2	PSU	A2	4102	2,83	18,21,22	0.52	0	22,30,33	0.43	0
2	OMC	A2	4108	2	19,22,23	0.30	0	26,31,34	0.36	0
2	OMC	A2	3464	2	19,22,23	0.31	0	26,31,34	0.37	0
2	OMG	A2	4289	2	23,26,27	0.35	0	33,38,41	0.43	0
69	A2M	m2	99	69,83	22,25,26	0.09	0	31,36,39	0.34	0
2	OMC	A2	2559	2	19,22,23	0.31	0	26,31,34	0.36	0
69	A2M	m2	486	69	22,25,26	0.08	0	31,36,39	0.22	0
2	A2M	A2	2570	2	22,25,26	0.08	0	31,36,39	0.18	0
69	OMG	m2	603	69	23,26,27	0.29	0	33,38,41	0.33	0
69	A2M	m2	27	69	22,25,26	0.12	0	31,36,39	0.33	0
69	OMG	m2	869	69	23,26,27	0.29	0	33,38,41	0.32	0
2	A2M	A2	2118	2,83	22,25,26	0.07	0	31,36,39	0.22	0
69	OMU	m2	430	69	19,22,23	0.27	0	26,31,34	0.46	0
2	PSU	A2	2263	2	18,21,22	0.47	0	22,30,33	0.62	0
2	A2M	A2	4175	2,83	22,25,26	0.09	0	31,36,39	0.37	0
2	OMU	A2	3581	2	19,22,23	0.32	0	26,31,34	0.53	0
2	OMG	A2	3283	2	23,26,27	0.29	0	33,38,41	0.55	0
69	A2M	m2	578	69	22,25,26	0.08	0	31,36,39	0.24	0
2	A2M	A2	4223	2	22,25,26	0.10	0	31,36,39	0.23	0
2	PSU	A2	4183	2	18,21,22	0.53	0	22,30,33	0.42	0
69	OMC	m2	519	69	19,22,23	0.28	0	26,31,34	0.45	0
2	OMG	A2	3400	2	23,26,27	0.30	0	33,38,41	0.40	0
2	5MC	A2	4099	2	18,22,23	0.33	0	26,32,35	0.63	0
2	5MC	A2	3438	2,83	18,22,23	0.29	0	26,32,35	0.42	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
69	OMG	m2	511	69,83	23,26,27	0.30	0	33,38,41	0.50	0
69	A2M	m2	1033	69	22,25,26	0.10	0	31,36,39	0.25	0
69	4AC	m2	1844	69	21,24,25	0.34	0	29,34,37	0.31	0
69	OMU	m2	121	69	19,22,23	0.30	0	26,31,34	0.48	0
69	PSU	m2	614	69	18,21,22	0.53	0	22,30,33	0.61	1 (4%)
69	PSU	m2	825	69	18,21,22	0.51	0	22,30,33	0.59	1 (4%)
2	A2M	A2	1673	2	22,25,26	0.09	0	31,36,39	0.46	0
69	A2M	m2	1680	69	22,25,26	0.10	0	31,36,39	0.25	0
2	OMG	A2	3848	2	23,26,27	0.31	0	33,38,41	0.38	0
2	PSU	A2	4094	2	18,21,22	0.53	0	22,30,33	0.63	1 (4%)
69	OMC	m2	1705	69	19,22,23	0.26	0	26,31,34	0.39	0
2	OMG	A2	4151	2	23,26,27	0.34	0	33,38,41	0.50	0
2	A2M	A2	3374	2	22,25,26	0.09	0	31,36,39	0.25	0
2	OMU	A2	2592	2	19,22,23	0.33	0	26,31,34	0.68	0
2	A2M	A2	1137	2	22,25,26	0.08	0	31,36,39	0.18	0
69	B8T	m2	1339	69	19,22,23	0.42	0	26,31,34	0.46	0
69	OMU	m2	116	69	19,22,23	0.27	0	26,31,34	0.42	0
2	OMC	A2	1683	2,83	19,22,23	0.29	0	26,31,34	0.55	0
69	PSU	m2	824	69	18,21,22	0.55	0	22,30,33	0.65	1 (4%)
2	OMG	A2	3880	2	23,26,27	0.30	0	33,38,41	0.56	0
2	OMG	A2	3448	2	23,26,27	0.30	0	33,38,41	0.35	0
69	PSU	m2	1083	69	18,21,22	0.61	1 (5%)	22,30,33	0.66	0
2	OMU	A2	3958	2	19,22,23	0.29	0	26,31,34	0.44	0
2	OMU	A2	4150	2	19,22,23	0.28	0	26,31,34	0.46	0
2	OMU	A2	3474	2	19,22,23	0.36	0	26,31,34	0.41	0
2	PSU	A2	4288	2	18,21,22	0.51	0	22,30,33	0.62	0
69	PSU	m2	1245	69	18,21,22	0.52	0	22,30,33	0.61	0
2	OMG	A2	1335	2	23,26,27	0.32	0	33,38,41	0.45	0
2	A2M	A2	398	2	22,25,26	0.08	0	31,36,39	0.27	0
2	OMC	A2	3357	2	19,22,23	0.27	0	26,31,34	0.53	0
11	OMG	C2	75	11	23,26,27	0.29	0	33,38,41	0.36	0
2	1MA	A2	4067	2	21,25,26	0.32	0	31,37,40	0.46	0
2	OMG	A2	2179	2	23,26,27	0.28	0	33,38,41	0.33	0
2	OMC	A2	2177	2,83	19,22,23	0.30	0	26,31,34	0.38	0
2	PSU	A2	3385	2	18,21,22	0.56	0	22,30,33	0.55	0
2	OMC	A2	3543	2	19,22,23	0.31	0	26,31,34	0.46	0
2	OMG	A2	1130	2	23,26,27	0.33	0	33,38,41	0.49	0
2	OMC	A2	2579	2	19,22,23	0.30	0	26,31,34	0.40	0
2	A2M	A2	3441	2	22,25,26	0.10	0	31,36,39	0.30	0
69	OMG	m2	685	69	23,26,27	0.35	0	33,38,41	0.44	0
2	PSU	A2	4152	2	18,21,22	0.56	0	22,30,33	0.65	1 (4%)
2	OMC	A2	2616	2	19,22,23	0.28	0	26,31,34	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	OMG	A2	4022	2	23,26,27	0.32	0	33,38,41	0.40	0
2	OMC	A2	3525	2	19,22,23	0.31	0	26,31,34	0.42	0
2	A2M	A2	3486	2	22,25,26	0.08	0	31,36,39	0.35	0
2	A2M	A2	1337	2	22,25,26	0.13	0	31,36,39	0.39	0
2	PSU	A2	3945	2	18,21,22	0.51	0	22,30,33	0.58	0
69	OMC	m2	174	69	19,22,23	0.34	0	26,31,34	0.55	0
2	A2M	A2	1140	2	22,25,26	0.08	0	31,36,39	0.17	0
69	A2M	m2	514	69	22,25,26	0.11	0	31,36,39	0.36	0
69	OMC	m2	355	69	19,22,23	0.31	0	26,31,34	0.38	0
2	OMC	A2	1154	2	19,22,23	0.29	0	26,31,34	0.44	0
2	OMG	A2	4146	2	23,26,27	0.32	0	33,38,41	0.41	0
2	A2M	A2	2542	2	22,25,26	0.08	0	31,36,39	0.34	0
69	A2M	m2	670	69,83	22,25,26	0.13	0	31,36,39	0.27	0
2	OMG	A2	1438	2	23,26,27	0.28	0	33,38,41	0.39	0
2	OMG	A2	3555	2,83	23,26,27	0.32	0	33,38,41	0.46	0
2	OMC	A2	2120	2	19,22,23	0.29	0	26,31,34	0.49	0
2	2MG	A2	1330	2	23,26,27	0.31	0	32,38,41	0.40	0
2	PSU	A2	1496	2	18,21,22	0.54	0	22,30,33	0.60	0
2	A2M	A2	1347	2,83	22,25,26	0.09	0	31,36,39	0.50	0
2	A2M	A2	3481	2	22,25,26	0.09	0	31,36,39	0.27	0
69	B8N	m2	1250	69	24,29,30	0.57	0	29,42,45	0.64	0
2	OMC	A2	2106	2	19,22,23	0.30	0	26,31,34	0.34	0
2	OMG	A2	4275	2	23,26,27	0.33	0	33,38,41	0.52	0
2	OMG	A2	4044	2	23,26,27	0.29	0	33,38,41	0.34	0
2	OMC	A2	3497	2	19,22,23	0.30	0	26,31,34	0.42	0
2	PSU	A2	1490	2	18,21,22	0.62	1 (5%)	22,30,33	0.38	0
2	PSU	A2	1395	2	18,21,22	0.61	0	22,30,33	0.56	0
69	OMG	m2	646	69	23,26,27	0.33	0	33,38,41	0.38	0
2	PSU	A2	4280	2	18,21,22	0.55	0	22,30,33	0.57	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
2	A2M	A2	4270	2	-	0/9/27/28	0/3/3/3
2	PSU	A2	3371	2	-	0/7/25/26	0/2/2/2
69	OMG	m2	438	69	-	0/9/27/28	0/3/3/3
2	OMG	A2	2119	2	-	2/9/27/28	0/3/3/3
2	A2M	A2	2156	2	-	0/9/27/28	0/3/3/3
2	A2M	A2	3380	2	-	2/9/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OMU	A2	4272	2	-	2/9/27/28	0/2/2/2
2	OMC	A2	4188	2	-	0/9/27/28	0/2/2/2
69	UR3	m2	1832	69	-	0/7/25/26	0/2/2/2
69	OMU	m2	172	69	-	3/9/27/28	0/2/2/2
2	PSU	A2	4055	2	-	0/7/25/26	0/2/2/2
69	OMG	m2	1330	69	-	2/9/27/28	0/3/3/3
2	PSU	A2	4102	2,83	-	3/7/25/26	0/2/2/2
2	OMC	A2	4108	2	-	0/9/27/28	0/2/2/2
2	OMC	A2	3464	2	-	0/9/27/28	0/2/2/2
2	OMG	A2	4289	2	-	3/9/27/28	0/3/3/3
69	A2M	m2	99	69,83	-	0/9/27/28	0/3/3/3
2	OMC	A2	2559	2	-	0/9/27/28	0/2/2/2
69	A2M	m2	486	69	-	0/9/27/28	0/3/3/3
2	A2M	A2	2570	2	-	0/9/27/28	0/3/3/3
69	OMG	m2	603	69	-	1/9/27/28	0/3/3/3
69	A2M	m2	27	69	-	1/9/27/28	0/3/3/3
69	OMG	m2	869	69	-	1/9/27/28	0/3/3/3
2	A2M	A2	2118	2,83	-	0/9/27/28	0/3/3/3
69	OMU	m2	430	69	-	4/9/27/28	0/2/2/2
2	PSU	A2	2263	2	-	0/7/25/26	0/2/2/2
2	A2M	A2	4175	2,83	-	1/9/27/28	0/3/3/3
2	OMU	A2	3581	2	-	0/9/27/28	0/2/2/2
2	OMG	A2	3283	2	-	1/9/27/28	0/3/3/3
69	A2M	m2	578	69	-	3/9/27/28	0/3/3/3
2	A2M	A2	4223	2	-	0/9/27/28	0/3/3/3
2	PSU	A2	4183	2	-	2/7/25/26	0/2/2/2
69	OMC	m2	519	69	-	2/9/27/28	0/2/2/2
2	OMG	A2	3400	2	-	0/9/27/28	0/3/3/3
2	5MC	A2	4099	2	-	4/7/25/26	0/2/2/2
2	5MC	A2	3438	2,83	-	0/7/25/26	0/2/2/2
69	OMG	m2	511	69,83	-	0/9/27/28	0/3/3/3
69	A2M	m2	1033	69	-	0/9/27/28	0/3/3/3
69	4AC	m2	1844	69	-	0/11/29/30	0/2/2/2
69	OMU	m2	121	69	-	0/9/27/28	0/2/2/2
69	PSU	m2	614	69	-	0/7/25/26	0/2/2/2
69	PSU	m2	825	69	-	0/7/25/26	0/2/2/2
2	A2M	A2	1673	2	-	0/9/27/28	0/3/3/3
69	A2M	m2	1680	69	-	0/9/27/28	0/3/3/3
2	OMG	A2	3848	2	-	1/9/27/28	0/3/3/3
2	PSU	A2	4094	2	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
69	OMC	m2	1705	69	-	0/9/27/28	0/2/2/2
2	OMG	A2	4151	2	-	2/9/27/28	0/3/3/3
2	A2M	A2	3374	2	-	0/9/27/28	0/3/3/3
2	OMU	A2	2592	2	-	0/9/27/28	0/2/2/2
2	A2M	A2	1137	2	-	1/9/27/28	0/3/3/3
69	B8T	m2	1339	69	-	0/7/27/28	0/2/2/2
69	OMU	m2	116	69	-	0/9/27/28	0/2/2/2
2	OMC	A2	1683	2,83	-	0/9/27/28	0/2/2/2
69	PSU	m2	824	69	-	0/7/25/26	0/2/2/2
2	OMG	A2	3880	2	-	0/9/27/28	0/3/3/3
2	OMG	A2	3448	2	-	0/9/27/28	0/3/3/3
69	PSU	m2	1083	69	-	1/7/25/26	0/2/2/2
2	OMU	A2	3958	2	-	0/9/27/28	0/2/2/2
2	OMU	A2	4150	2	-	0/9/27/28	0/2/2/2
2	OMU	A2	3474	2	-	1/9/27/28	0/2/2/2
2	PSU	A2	4288	2	-	4/7/25/26	0/2/2/2
69	PSU	m2	1245	69	-	2/7/25/26	0/2/2/2
2	OMG	A2	1335	2	-	0/9/27/28	0/3/3/3
2	A2M	A2	398	2	-	0/9/27/28	0/3/3/3
2	OMC	A2	3357	2	-	4/9/27/28	0/2/2/2
11	OMG	C2	75	11	-	2/9/27/28	0/3/3/3
2	1MA	A2	4067	2	-	2/7/25/26	0/3/3/3
2	OMG	A2	2179	2	-	1/9/27/28	0/3/3/3
2	OMC	A2	2177	2,83	-	1/9/27/28	0/2/2/2
2	PSU	A2	3385	2	-	0/7/25/26	0/2/2/2
2	OMC	A2	3543	2	-	0/9/27/28	0/2/2/2
2	OMG	A2	1130	2	-	0/9/27/28	0/3/3/3
2	OMC	A2	2579	2	-	1/9/27/28	0/2/2/2
2	A2M	A2	3441	2	-	4/9/27/28	0/3/3/3
69	OMG	m2	685	69	-	0/9/27/28	0/3/3/3
2	PSU	A2	4152	2	-	1/7/25/26	0/2/2/2
2	OMC	A2	2616	2	-	0/9/27/28	0/2/2/2
2	OMG	A2	4022	2	-	0/9/27/28	0/3/3/3
2	OMC	A2	3525	2	-	0/9/27/28	0/2/2/2
2	A2M	A2	3486	2	-	0/9/27/28	0/3/3/3
2	A2M	A2	1337	2	-	1/9/27/28	0/3/3/3
2	PSU	A2	3945	2	-	0/7/25/26	0/2/2/2
69	OMC	m2	174	69	-	2/9/27/28	0/2/2/2
2	A2M	A2	1140	2	-	4/9/27/28	0/3/3/3
69	A2M	m2	514	69	-	0/9/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
69	OMC	m2	355	69	-	1/9/27/28	0/2/2/2
2	OMC	A2	1154	2	-	0/9/27/28	0/2/2/2
2	OMG	A2	4146	2	-	0/9/27/28	0/3/3/3
2	A2M	A2	2542	2	-	3/9/27/28	0/3/3/3
69	A2M	m2	670	69,83	-	2/9/27/28	0/3/3/3
2	OMG	A2	1438	2	-	1/9/27/28	0/3/3/3
2	OMG	A2	3555	2,83	-	0/9/27/28	0/3/3/3
2	OMC	A2	2120	2	-	0/9/27/28	0/2/2/2
2	2MG	A2	1330	2	-	0/9/27/28	0/3/3/3
2	PSU	A2	1496	2	-	0/7/25/26	0/2/2/2
2	A2M	A2	1347	2,83	-	3/9/27/28	0/3/3/3
2	A2M	A2	3481	2	-	0/9/27/28	0/3/3/3
69	B8N	m2	1250	69	-	5/16/34/35	0/2/2/2
2	OMC	A2	2106	2	-	2/9/27/28	0/2/2/2
2	OMG	A2	4275	2	-	0/9/27/28	0/3/3/3
2	OMG	A2	4044	2	-	0/9/27/28	0/3/3/3
2	OMC	A2	3497	2	-	0/9/27/28	0/2/2/2
2	PSU	A2	1490	2	-	2/7/25/26	0/2/2/2
2	PSU	A2	1395	2	-	0/7/25/26	0/2/2/2
69	OMG	m2	646	69	-	3/9/27/28	0/3/3/3
2	PSU	A2	4280	2	-	0/7/25/26	0/2/2/2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
69	m2	1083	PSU	O4'-C1'	-2.13	1.40	1.43
2	A2	1490	PSU	O4'-C1'	-2.05	1.41	1.43

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
69	m2	172	OMU	O2'-C2'-C1'	2.32	113.60	109.08
69	m2	824	PSU	O4'-C1'-C2'	2.20	108.24	105.14
69	m2	614	PSU	O4'-C1'-C2'	2.13	108.14	105.14
2	A2	4094	PSU	O4'-C1'-C2'	2.10	108.10	105.14
69	m2	825	PSU	O4'-C1'-C2'	2.05	108.03	105.14
2	A2	4152	PSU	O4'-C1'-C2'	2.05	108.03	105.14
2	A2	4055	PSU	O4'-C1'-C2'	2.04	108.02	105.14

There are no chirality outliers.

All (94) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	C2	75	OMG	O4'-C4'-C5'-O5'
11	C2	75	OMG	C3'-C4'-C5'-O5'
2	A2	1140	A2M	O4'-C4'-C5'-O5'
2	A2	1140	A2M	C3'-C4'-C5'-O5'
2	A2	1347	A2M	C4'-C5'-O5'-P
2	A2	1347	A2M	C3'-C4'-C5'-O5'
2	A2	2106	OMC	C1'-C2'-O2'-CM2
2	A2	2579	OMC	C1'-C2'-O2'-CM2
2	A2	3283	OMG	C1'-C2'-O2'-CM2
2	A2	3357	OMC	C2'-C1'-N1-C6
2	A2	3380	A2M	O4'-C4'-C5'-O5'
2	A2	3380	A2M	C3'-C4'-C5'-O5'
2	A2	3848	OMG	C1'-C2'-O2'-CM2
2	A2	4102	PSU	C2'-C1'-C5-C4
2	A2	4175	A2M	C1'-C2'-O2'-CM'
2	A2	4183	PSU	O4'-C1'-C5-C4
2	A2	4183	PSU	O4'-C1'-C5-C6
2	A2	4272	OMU	C3'-C4'-C5'-O5'
2	A2	4272	OMU	O4'-C4'-C5'-O5'
2	A2	4288	PSU	C3'-C4'-C5'-O5'
2	A2	4289	OMG	C1'-C2'-O2'-CM2
69	m2	172	OMU	C1'-C2'-O2'-CM2
69	m2	174	OMC	O4'-C1'-N1-C2
69	m2	174	OMC	O4'-C1'-N1-C6
69	m2	355	OMC	C1'-C2'-O2'-CM2
69	m2	430	OMU	C2'-C1'-N1-C2
69	m2	430	OMU	C2'-C1'-N1-C6
69	m2	603	OMG	C1'-C2'-O2'-CM2
69	m2	646	OMG	C3'-C4'-C5'-O5'
69	m2	869	OMG	C1'-C2'-O2'-CM2
69	m2	1245	PSU	O4'-C4'-C5'-O5'
69	m2	1250	B8N	O4'-C4'-C5'-O5'
69	m2	1250	B8N	C3'-C4'-C5'-O5'
69	m2	1250	B8N	N34-C33-C34-O35
69	m2	1330	OMG	O4'-C4'-C5'-O5'
2	A2	3357	OMC	C2'-C1'-N1-C2
2	A2	4152	PSU	C4'-C5'-O5'-P
2	A2	2119	OMG	O4'-C4'-C5'-O5'
2	A2	3441	A2M	O4'-C4'-C5'-O5'
69	m2	1330	OMG	C3'-C4'-C5'-O5'
2	A2	1347	A2M	O4'-C4'-C5'-O5'
2	A2	2119	OMG	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	A2	4067	1MA	O4'-C4'-C5'-O5'
2	A2	4067	1MA	C3'-C4'-C5'-O5'
2	A2	4289	OMG	O4'-C4'-C5'-O5'
69	m2	1245	PSU	C3'-C4'-C5'-O5'
2	A2	3441	A2M	C3'-C4'-C5'-O5'
69	m2	646	OMG	O4'-C4'-C5'-O5'
2	A2	4288	PSU	O4'-C4'-C5'-O5'
2	A2	4289	OMG	C3'-C4'-C5'-O5'
69	m2	519	OMC	O4'-C4'-C5'-O5'
69	m2	1250	B8N	N34-C33-C34-O36
2	A2	4151	OMG	C3'-C4'-C5'-O5'
69	m2	670	A2M	O4'-C4'-C5'-O5'
69	m2	519	OMC	C3'-C4'-C5'-O5'
2	A2	1140	A2M	C1'-C2'-O2'-CM'
2	A2	2179	OMG	C1'-C2'-O2'-CM2
2	A2	4099	5MC	C2'-C1'-N1-C6
69	m2	172	OMU	C4'-C5'-O5'-P
69	m2	578	A2M	C4'-C5'-O5'-P
2	A2	2542	A2M	C2'-C1'-N9-C8
2	A2	3441	A2M	C2'-C1'-N9-C8
2	A2	4099	5MC	O4'-C1'-N1-C6
2	A2	4151	OMG	O4'-C4'-C5'-O5'
2	A2	3357	OMC	O4'-C1'-N1-C2
2	A2	3474	OMU	C4'-C5'-O5'-P
69	m2	646	OMG	C4'-C5'-O5'-P
69	m2	1083	PSU	C4'-C5'-O5'-P
2	A2	3357	OMC	O4'-C1'-N1-C6
69	m2	430	OMU	O4'-C1'-N1-C6
2	A2	4099	5MC	O4'-C1'-N1-C2
69	m2	578	A2M	C3'-C4'-C5'-O5'
2	A2	2542	A2M	C2'-C1'-N9-C4
2	A2	2106	OMC	O4'-C4'-C5'-O5'
2	A2	4102	PSU	O4'-C1'-C5-C4
2	A2	4288	PSU	O4'-C1'-C5-C4
69	m2	670	A2M	C3'-C4'-C5'-O5'
2	A2	1137	A2M	O4'-C4'-C5'-O5'
69	m2	578	A2M	O4'-C4'-C5'-O5'
2	A2	1140	A2M	C4'-C5'-O5'-P
2	A2	1337	A2M	O4'-C1'-N9-C8
2	A2	2542	A2M	O4'-C1'-N9-C8
69	m2	430	OMU	O4'-C1'-N1-C2
2	A2	1490	PSU	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	A2	1490	PSU	O4'-C1'-C5-C6
2	A2	4102	PSU	O4'-C1'-C5-C6
2	A2	4288	PSU	O4'-C1'-C5-C6
69	m2	1250	B8N	C31-C32-C33-N34
2	A2	1438	OMG	C4'-C5'-O5'-P
2	A2	2177	OMC	O4'-C4'-C5'-O5'
69	m2	27	A2M	C3'-C4'-C5'-O5'
69	m2	172	OMU	O4'-C4'-C5'-O5'
2	A2	3441	A2M	O4'-C1'-N9-C8
2	A2	4099	5MC	C2'-C1'-N1-C2

There are no ring outliers.

49 monomers are involved in 67 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A2	4270	A2M	1	0
2	A2	2119	OMG	1	0
2	A2	3380	A2M	1	0
2	A2	4272	OMU	1	0
2	A2	4108	OMC	1	0
2	A2	4289	OMG	1	0
69	m2	99	A2M	1	0
69	m2	486	A2M	1	0
69	m2	603	OMG	2	0
69	m2	27	A2M	1	0
69	m2	869	OMG	1	0
2	A2	2118	A2M	1	0
2	A2	3283	OMG	1	0
69	m2	578	A2M	1	0
2	A2	4099	5MC	2	0
69	m2	511	OMG	8	0
69	m2	121	OMU	2	0
69	m2	825	PSU	1	0
2	A2	1673	A2M	1	0
69	m2	1680	A2M	1	0
2	A2	3848	OMG	1	0
69	m2	1705	OMC	2	0
2	A2	3374	A2M	3	0
2	A2	2592	OMU	1	0
69	m2	116	OMU	2	0
2	A2	1683	OMC	1	0
69	m2	824	PSU	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A2	3958	OMU	1	0
2	A2	3474	OMU	1	0
2	A2	4288	PSU	1	0
11	C2	75	OMG	1	0
2	A2	4067	1MA	1	0
2	A2	2179	OMG	3	0
2	A2	2177	OMC	1	0
2	A2	3441	A2M	1	0
2	A2	4152	PSU	1	0
69	m2	174	OMC	1	0
2	A2	1140	A2M	2	0
69	m2	514	A2M	2	0
69	m2	355	OMC	2	0
2	A2	1154	OMC	1	0
2	A2	1438	OMG	1	0
2	A2	1330	2MG	1	0
2	A2	1347	A2M	1	0
2	A2	2106	OMC	2	0
2	A2	4044	OMG	2	0
2	A2	1490	PSU	1	0
69	m2	646	OMG	1	0
2	A2	4280	PSU	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 129 ligands modelled in this entry, 129 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	A2	15
69	m2	6
70	n2	2
51	T3	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	m2	130:G	O3'	141:A	P	25.34
1	A2	1512:U	O3'	1521:A	P	24.97
1	m2	690:U	O3'	801:U	P	18.19
1	A2	4437:C	O3'	4493:G	P	17.28
1	A2	770:G	O3'	799:C	P	16.50
1	m2	536:G	O3'	554:U	P	15.86
1	A2	859:G	O3'	866:A	P	15.23
1	A2	1564:C	O3'	1572:A	P	14.84
1	m2	1753:C	O3'	1786:G	P	14.75
1	m2	324:C	O3'	331:G	P	14.71
1	T3	43:VAL	C	55:PRO	N	13.95
1	A2	1772:A	O3'	1820:C	P	13.88
1	A2	1914:C	O3'	2004:G	P	13.51
1	A2	4668:U	O3'	4674:G	P	12.27
1	A2	481:G	O3'	485:U	P	12.03
1	A2	1055:G	O3'	1059:C	P	11.76
1	A2	866:A	O3'	868:C	P	8.89
1	A2	1072:U	O3'	1078:G	P	8.42
1	m2	227:G	O3'	289:U	P	7.76
1	n2	18:G	O3'	20:A	P	7.76
1	A2	956:C	O3'	999:C	P	7.46
1	n2	45:G	O3'	47:C	P	6.67
1	A2	501:G	O3'	506:G	P	5.08
1	A2	4422:G	O3'	4424:U	P	4.77

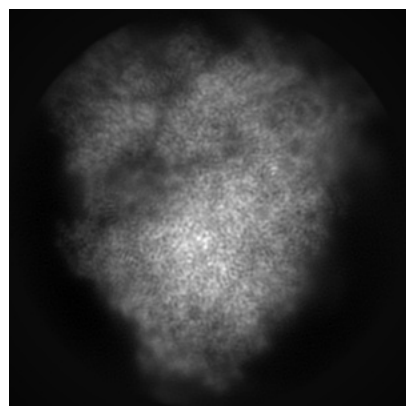
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-53310. These allow visual inspection of the internal detail of the map and identification of artifacts.

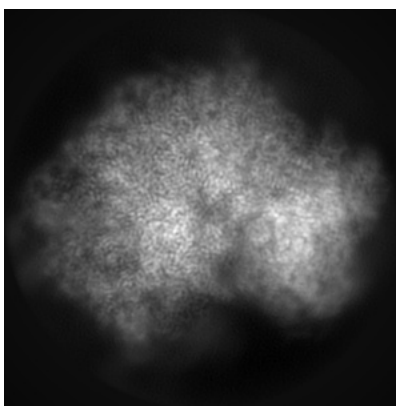
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

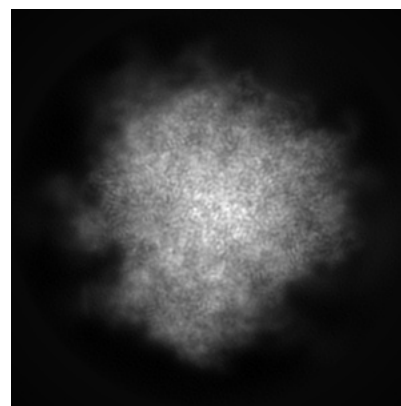
6.1.1 Primary map



X

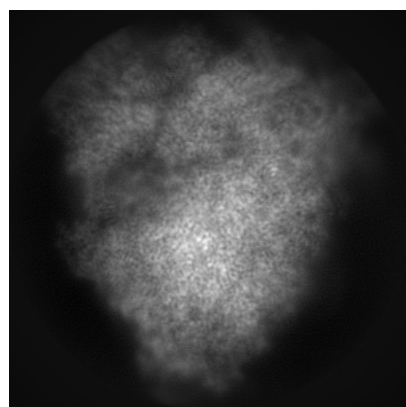


Y

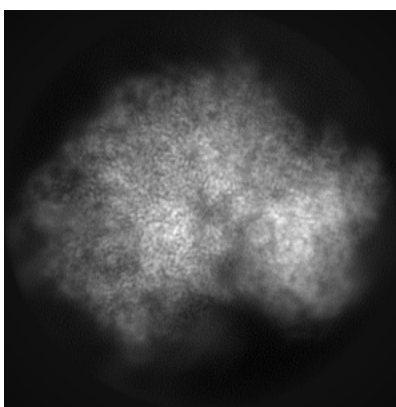


Z

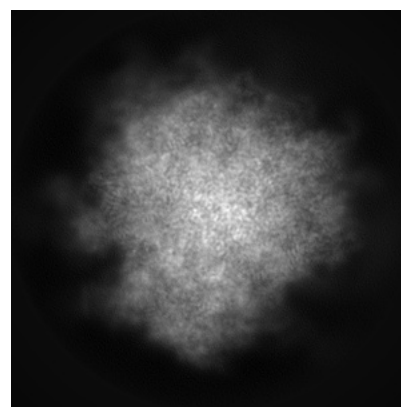
6.1.2 Raw map



X



Y

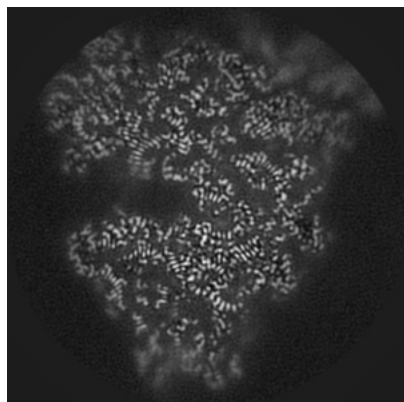


Z

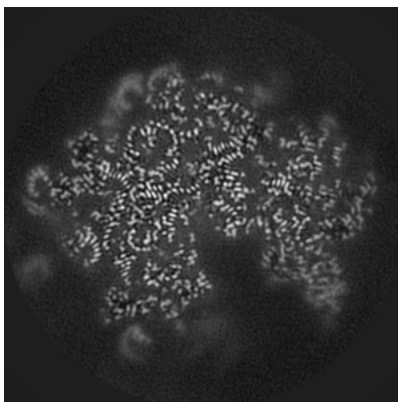
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

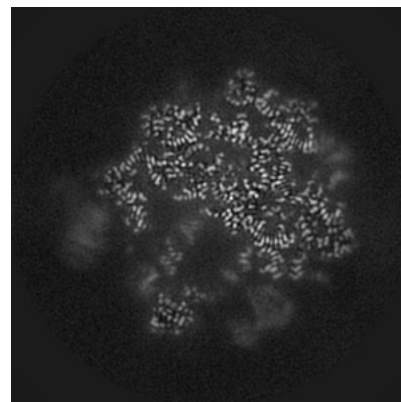
6.2.1 Primary map



X Index: 156

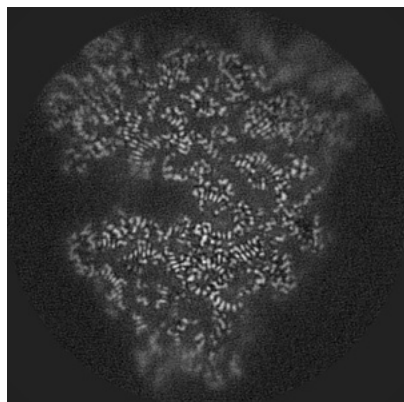


Y Index: 156

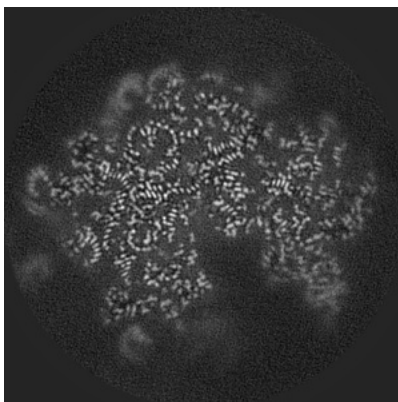


Z Index: 156

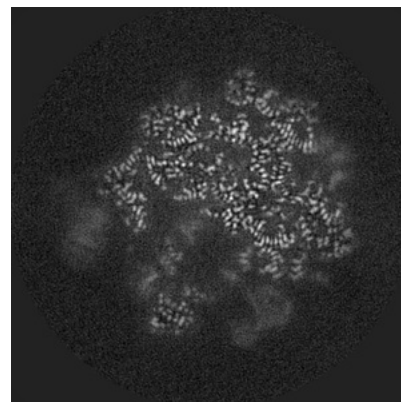
6.2.2 Raw map



X Index: 156



Y Index: 156

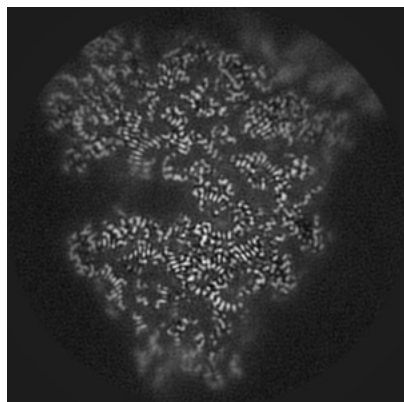


Z Index: 156

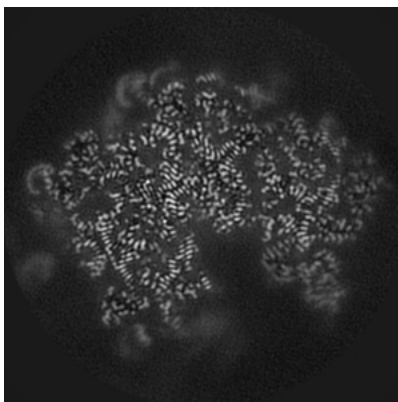
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

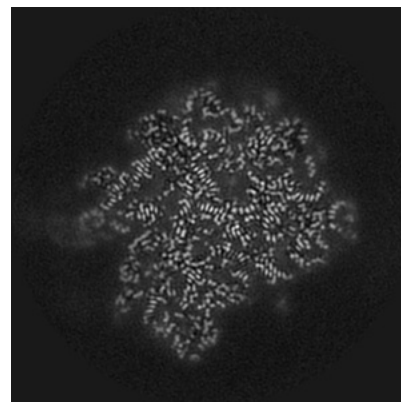
6.3.1 Primary map



X Index: 156

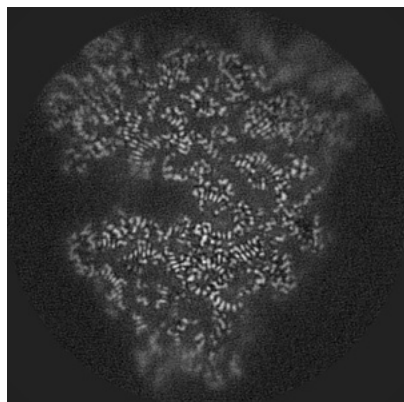


Y Index: 153

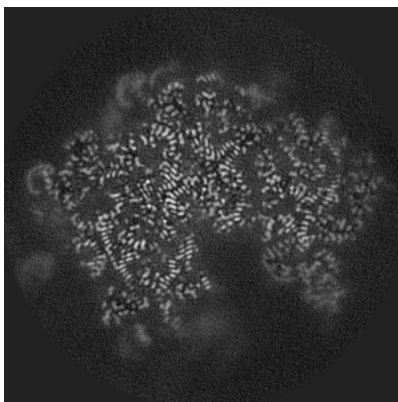


Z Index: 132

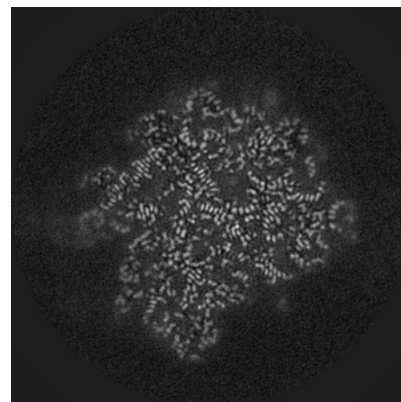
6.3.2 Raw map



X Index: 156



Y Index: 153

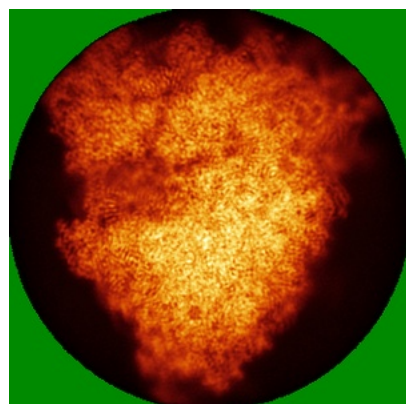


Z Index: 132

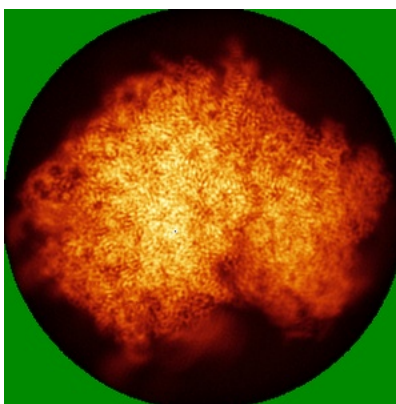
The images above show the largest variance slices of the map in three orthogonal directions.

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

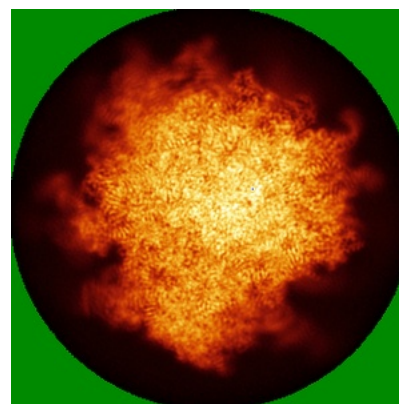
6.4.1 Primary map



X

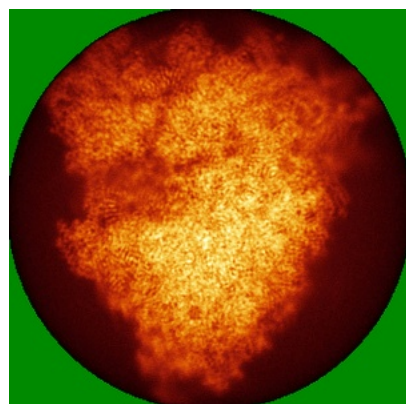


Y

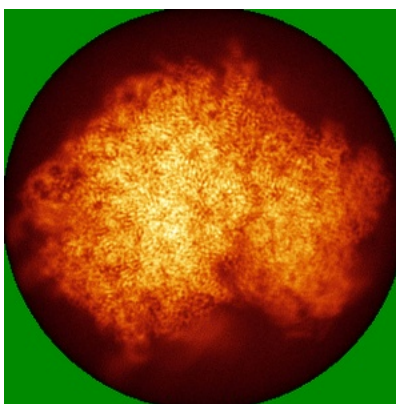


Z

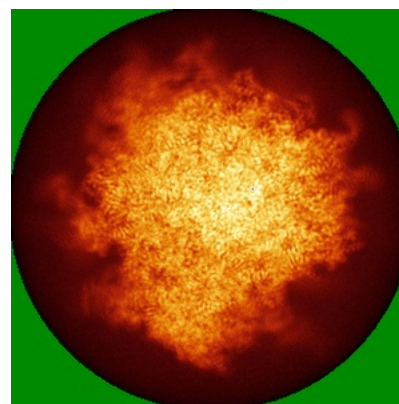
6.4.2 Raw map



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



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0198. 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



X



Y



Z

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.

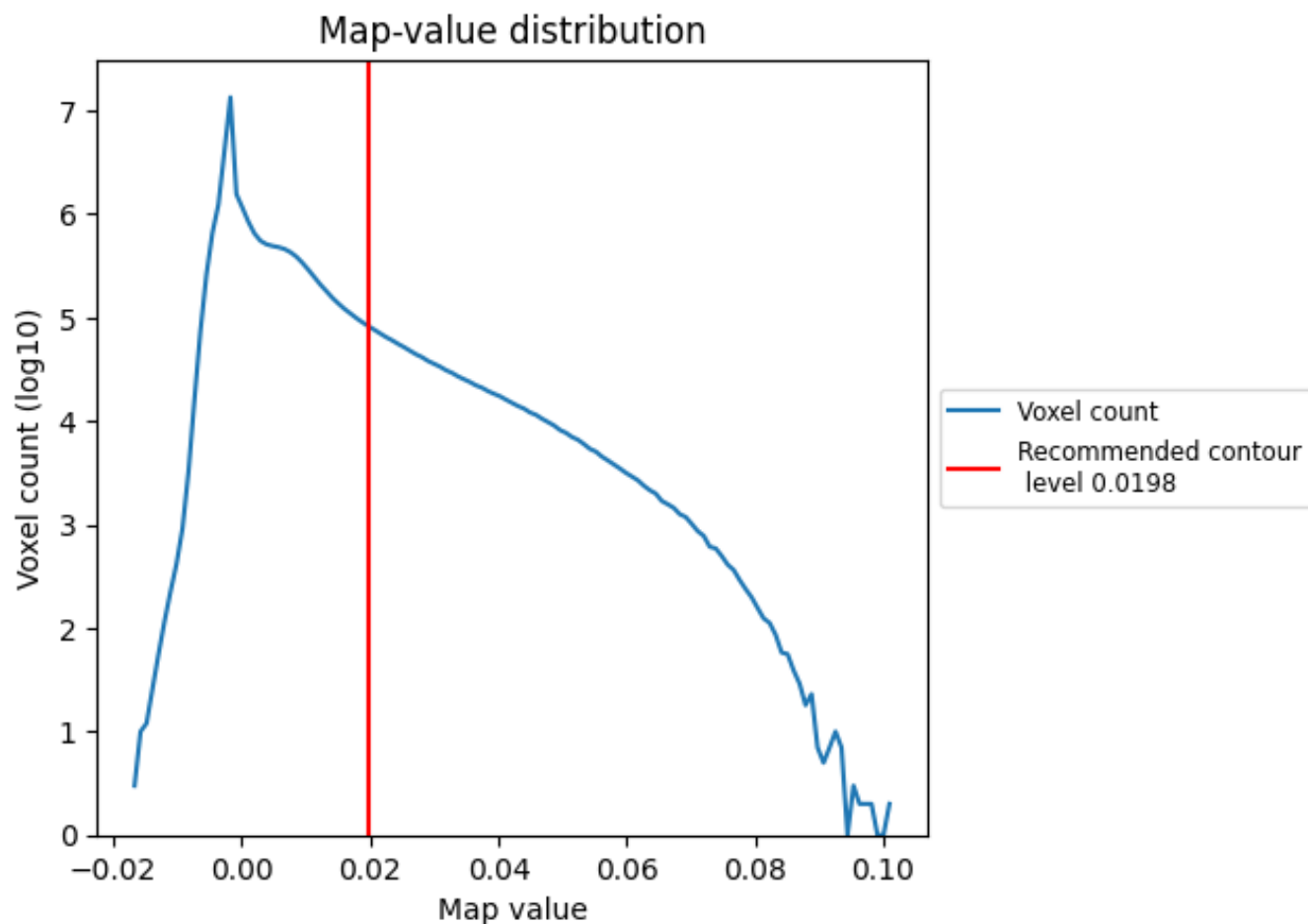
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

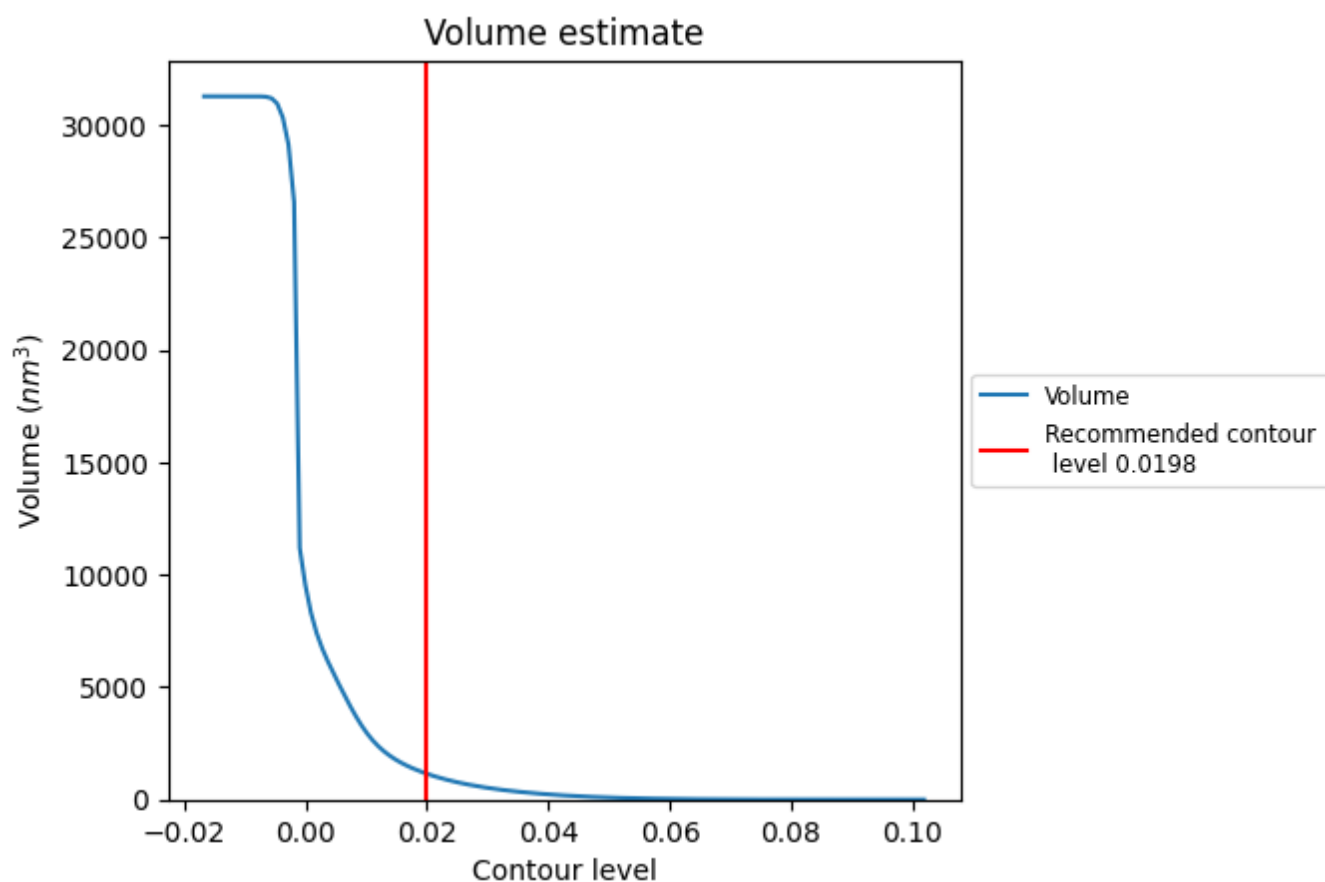
This section contains the results of statistical analysis of the map.

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.

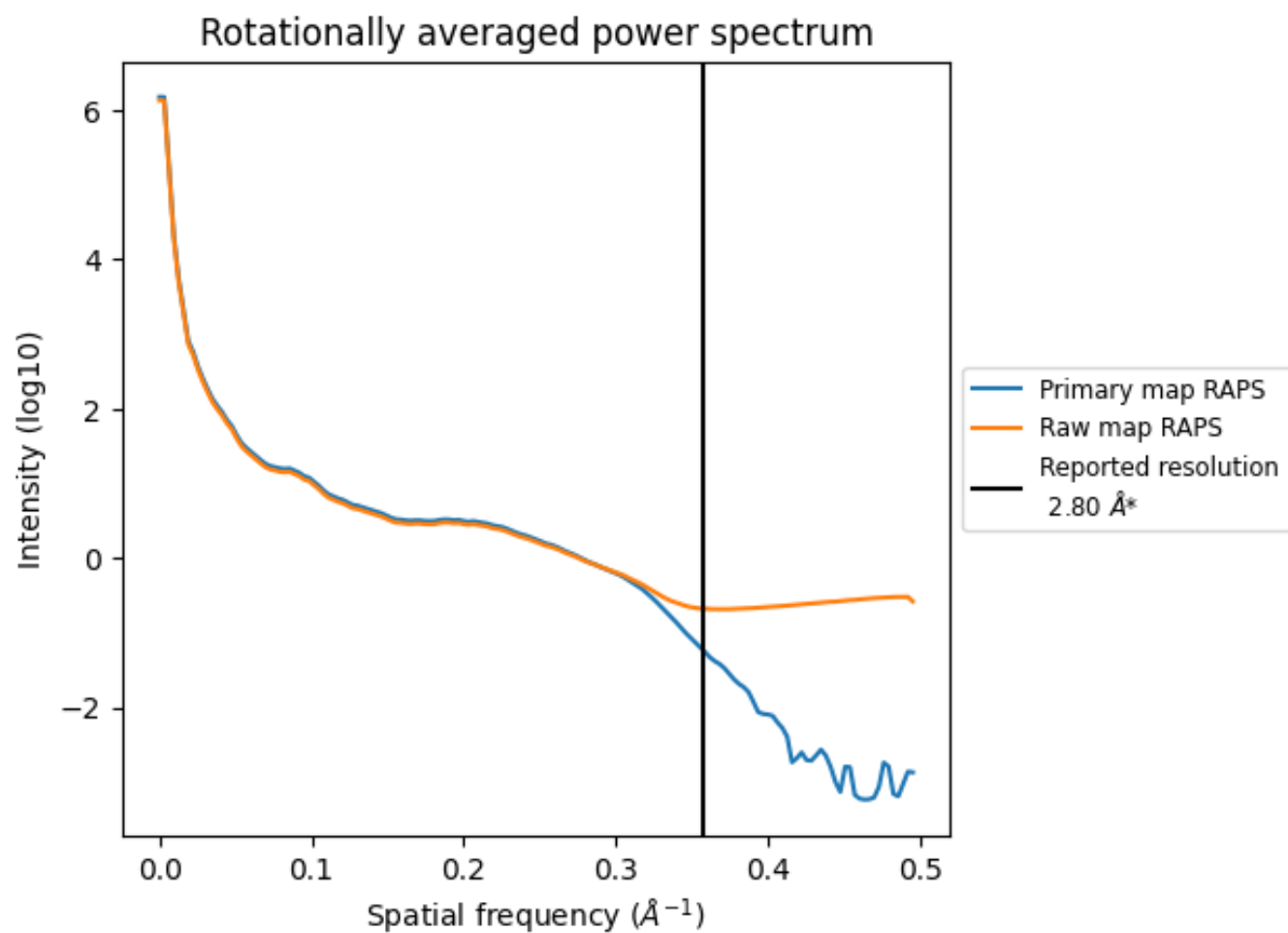
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1165 nm³; this corresponds to an approximate mass of 1052 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

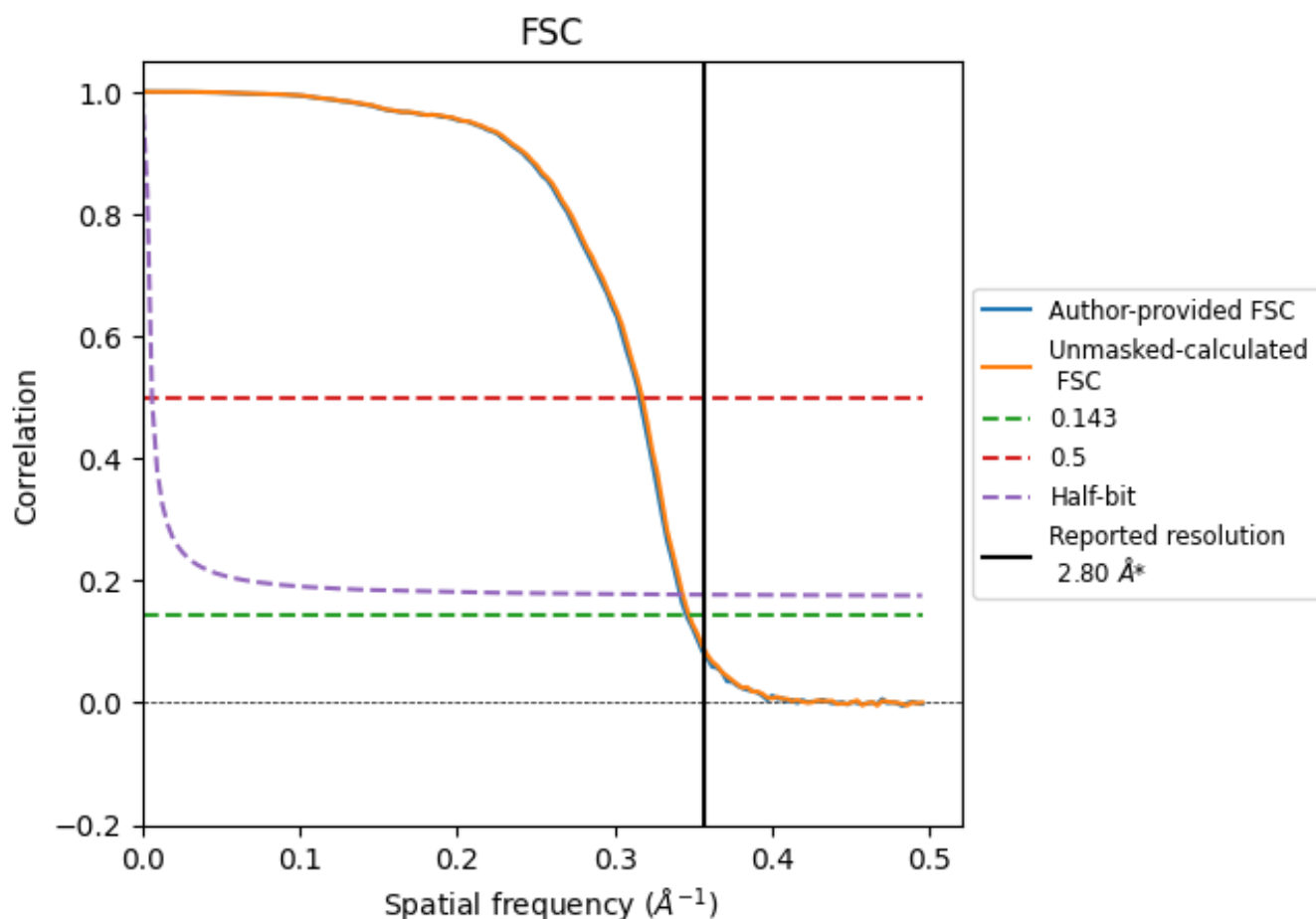


*Reported resolution corresponds to spatial frequency of 0.357 Å⁻¹

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 0.357 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

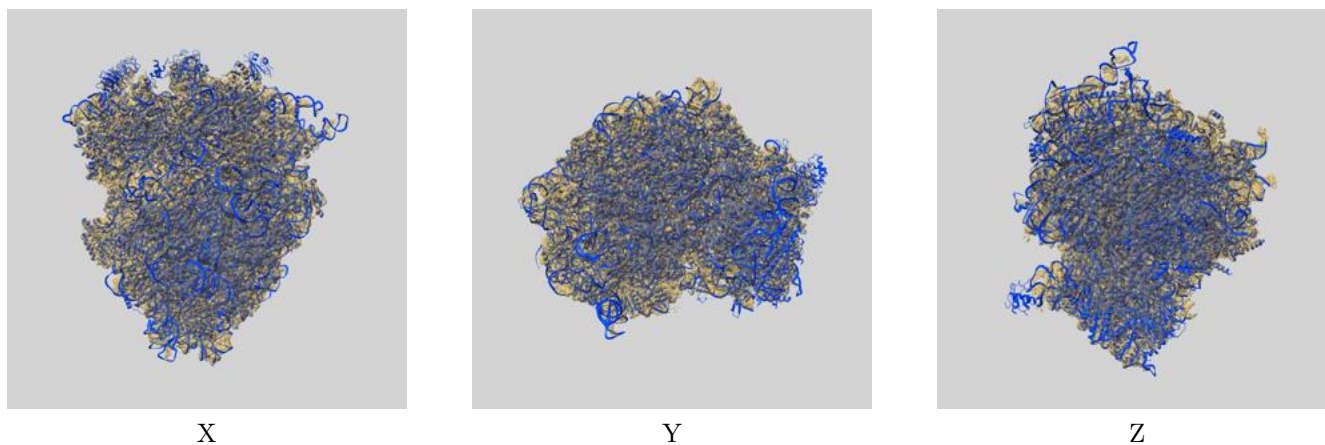
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.89	3.17	2.93
Unmasked-calculated*	2.88	3.15	2.91

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

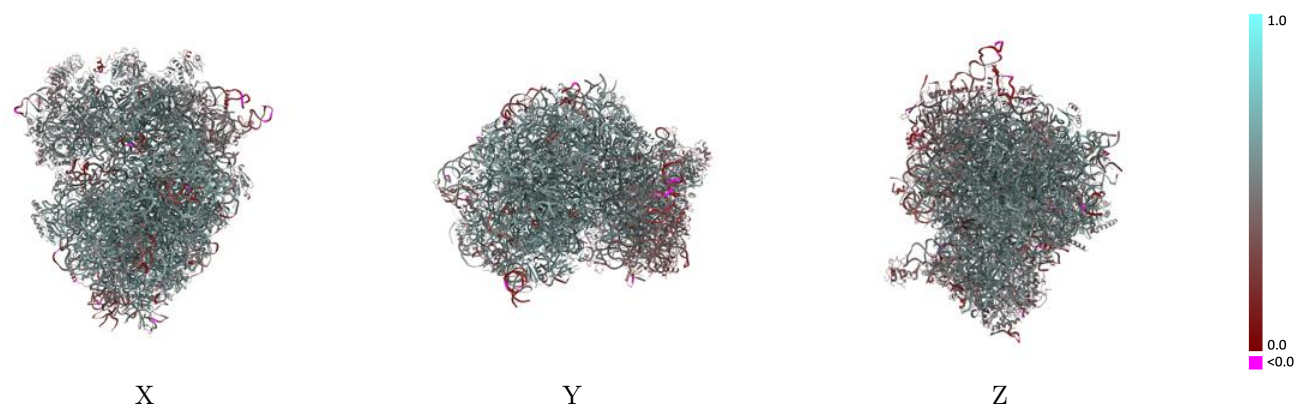
This section contains information regarding the fit between EMDB map EMD-53310 and PDB model 9QQP. Per-residue inclusion information can be found in section 3 on page 21.

9.1 Map-model overlay [i](#)



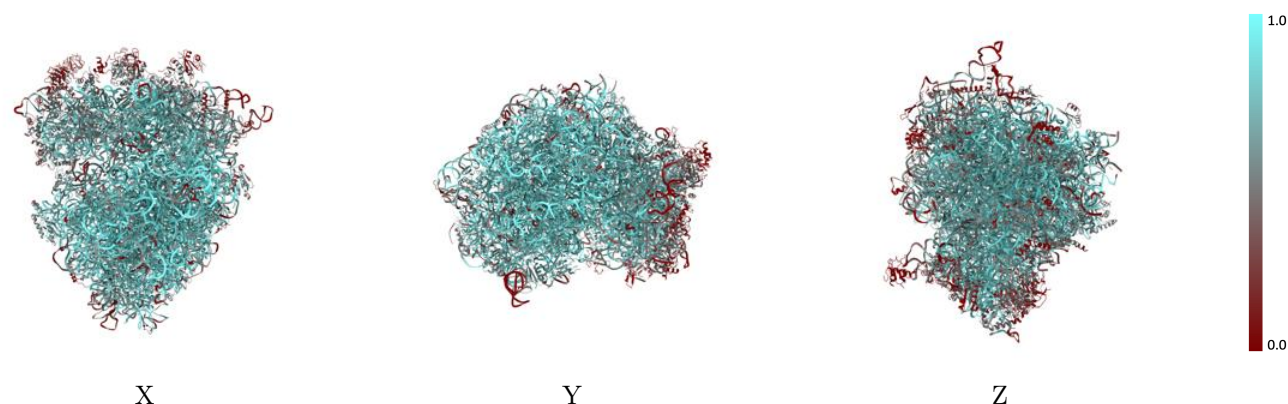
The images above show the 3D surface view of the map at the recommended contour level 0.0198 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



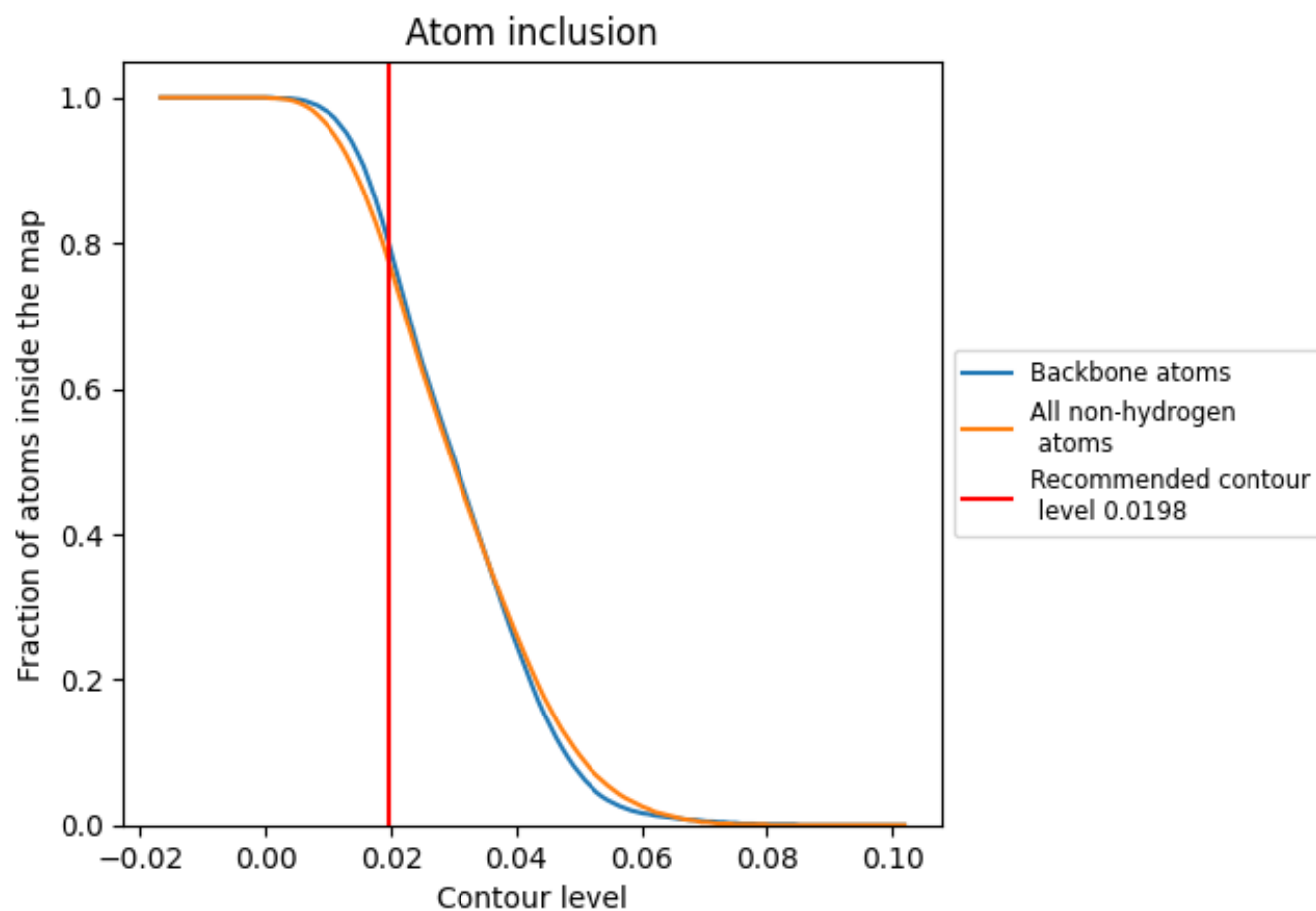
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0198).

9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.0198) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7710	 0.5280
A1	 0.8210	 0.5550
A2	 0.8760	 0.5480
A3	 0.5920	 0.4810
B1	 0.6540	 0.5270
B2	 0.9590	 0.5930
B3	 0.5480	 0.4640
Bv	 0.6090	 0.4090
Bx	 0.9050	 0.5370
By	 0.3640	 0.2960
C1	 0.7000	 0.5520
C2	 0.9000	 0.5570
C3	 0.3600	 0.4380
D1	 0.7970	 0.5620
D2	 0.8970	 0.5980
D3	 0.4520	 0.5310
E1	 0.6530	 0.4970
E2	 0.7960	 0.5660
E3	 0.6850	 0.4880
F1	 0.7430	 0.5420
F2	 0.8420	 0.5750
F3	 0.7390	 0.5420
G1	 0.7420	 0.5560
G2	 0.6840	 0.5360
G3	 0.5060	 0.5080
H1	 0.9200	 0.5980
H2	 0.6560	 0.5300
H3	 0.7070	 0.4840
I2	 0.8450	 0.5780
I3	 0.1770	 0.4210
J2	 0.8570	 0.5810
J3	 0.6440	 0.5330
K2	 0.8590	 0.5840
K3	 0.3530	 0.3680
L2	 0.7670	 0.5340



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Chain	Atom inclusion	Q-score
L3	 0.4390	 0.3900
M2	 0.8440	 0.5810
M3	 0.0000	 0.3110
N2	 0.7950	 0.5520
N3	 0.6400	 0.5110
O2	 0.5540	 0.4720
O3	 0.6400	 0.5210
P2	 0.8520	 0.5780
P3	 0.7060	 0.5420
Q2	 0.8280	 0.5590
Q3	 0.2240	 0.3220
R2	 0.7680	 0.5550
R3	 0.4390	 0.4590
S2	 0.7490	 0.5470
S3	 0.4690	 0.4840
T2	 0.6980	 0.5450
T3	 0.4230	 0.3990
U2	 0.8610	 0.5940
V2	 0.6070	 0.4730
W2	 0.7020	 0.5410
X2	 0.7490	 0.5470
Y2	 0.8600	 0.5820
Z2	 0.8820	 0.5960
a2	 0.8430	 0.5760
b2	 0.7350	 0.5440
c2	 0.6910	 0.5260
d2	 0.9290	 0.5950
e2	 0.5410	 0.4880
f2	 0.8840	 0.5760
g2	 0.7880	 0.5600
h2	 0.8420	 0.5170
i2	 0.8000	 0.5640
j2	 0.8240	 0.5760
k2	 0.8050	 0.5710
m2	 0.8250	 0.5150
n2	 0.8290	 0.4750
o2	 0.4200	 0.4770
p2	 0.5990	 0.5160
q2	 0.4440	 0.4580
r2	 0.4190	 0.4120
s2	 0.5550	 0.4900
t2	 0.2640	 0.4340

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Chain	Atom inclusion	Q-score
u2	 0.6150	 0.4770
v2	 0.3440	 0.3750
w2	 0.6380	 0.4860
x2	 0.5480	 0.4670
y2	 0.5210	 0.4650
z2	 0.3130	 0.4140