



Full wwPDB EM Validation Report ⓘ

Mar 29, 2026 – 08:52 AM UTC

PDB ID : 6W6L / pdb_00006w6l
EMDB ID : EMD-21435
Title : Cryo-EM structure of the human ribosome-TMCO1 translocon
Authors : Keenan, R.J.; McGilvray, P.T.
Deposited on : 2020-03-17
Resolution : 3.84 Å(reported)
Based on initial models : 6OM0, 5A63, 6FTI

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
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

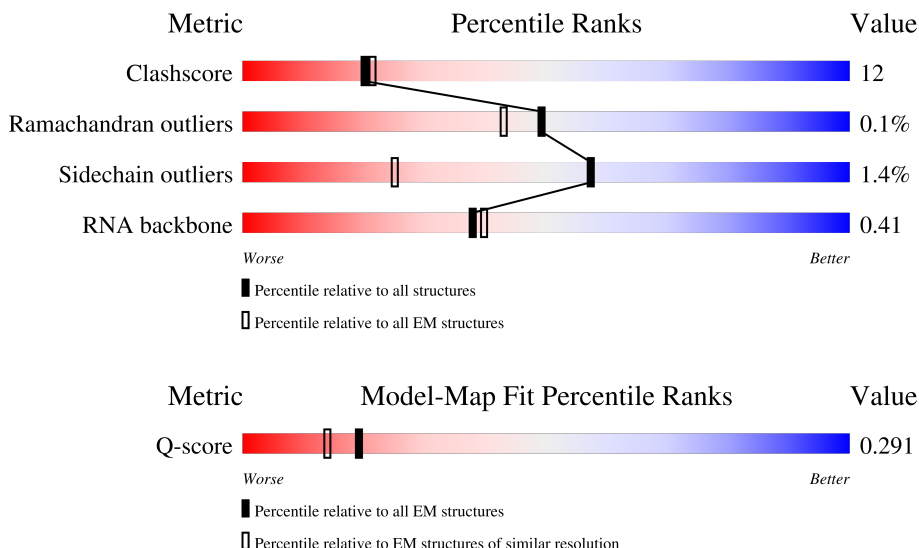
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.84 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.



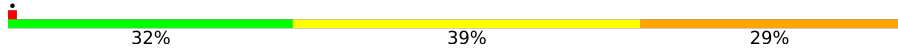
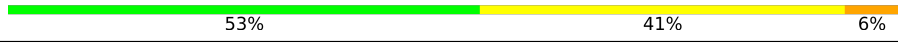
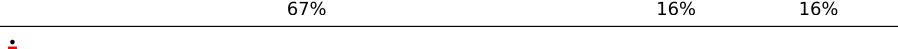
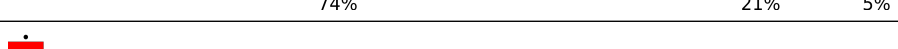
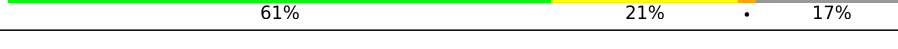
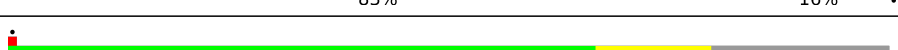
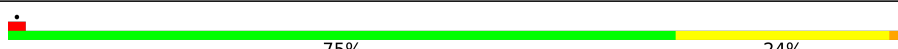
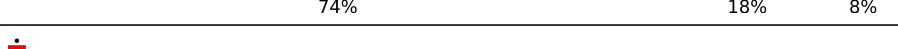
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10198 (3.30 - 4.30)

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	A	257	
2	B	403	
3	C	427	

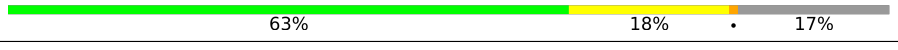
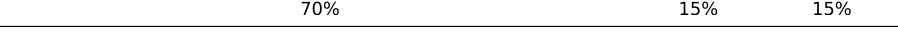
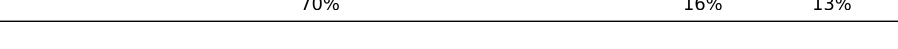
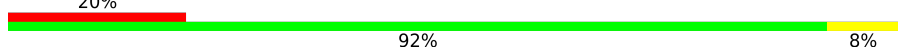
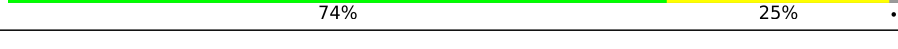
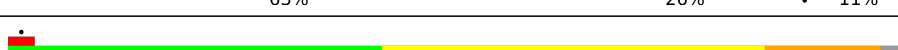
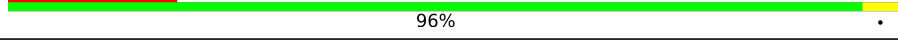
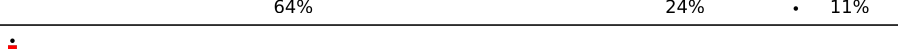
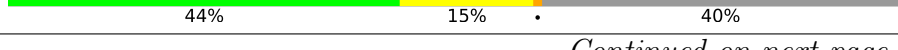
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Mol	Chain	Length	Quality of chain
4	D	157	
5	E	119	
6	F	297	
7	G	288	
8	H	248	
9	I	266	
10	J	192	
11	K	214	
12	L	178	
13	M	211	
14	N	215	
15	O	204	
16	P	203	
17	Q	184	
18	R	188	
19	S	196	
20	T	176	
21	U	160	
22	V	128	
23	W	140	
24	X	157	
25	Y	156	
26	Z	145	
27	a	136	
28	b	148	

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Mol	Chain	Length	Quality of chain
29	c	159	
30	d	115	
31	e	125	
32	f	135	
33	g	110	
34	h	117	
35	i	123	
36	j	105	
37	k	97	
38	l	70	
39	m	51	
40	o	25	
41	p	106	
42	q	92	
43	r	137	
44	t	3579	
45	u	76	
46	v	76	
47	y	27	
48	1	476	
49	2	68	
50	3	96	
51	4	224	
52	5	563	
53	7	483	

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Mol	Chain	Length	Quality of chain
54	6	188	7% 75% 15% • 7%

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 259082 atoms, of which 110309 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 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	246	Total	C	H	N	O	S	0	0
			3870	1183	1983	387	311	6		

- Molecule 2 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	B	396	Total	C	H	N	O	S	0	0
			6535	2036	3338	601	546	14		

- Molecule 3 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	C	363	Total	C	H	N	O	S	0	0
			5952	1817	3064	577	480	14		

- Molecule 4 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	D	157	Total	C	H	N	O	P	0	0
			5029	1489	1692	587	1104	157		

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

Mol	Chain	Residues	Atoms						AltConf	Trace
5	E	119	Total	C	H	N	O	P	0	0
			3825	1132	1284	454	836	119		

- Molecule 6 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	F	248	Total	C	H	N	O	S	0	0
			4010	1271	1998	358	370	13		

- Molecule 7 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	G	220	Total	C	H	N	O	S	0	0
			3689	1138	1917	335	295	4		

- Molecule 8 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	H	225	Total	C	H	N	O	S	0	0
			3866	1202	1996	358	301	9		

- Molecule 9 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	I	234	Total	C	H	N	O	S	0	0
			3898	1197	2018	362	317	4		

- Molecule 10 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	J	191	Total	C	H	N	O	S	0	0
			3131	960	1605	285	275	6		

- Molecule 11 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms						AltConf	Trace
11	K	152	Total	C	H	N	O	S	0	0
			2508	789	1270	233	208	8		

- Molecule 12 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms						AltConf	Trace
12	L	169	Total	C	H	N	O	S	0	0
			2739	855	1386	252	240	6		

- Molecule 13 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms						AltConf	Trace
13	M	205	Total	C	H	N	O	S	0	0
			3421	1036	1764	344	273	4		

- Molecule 14 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	N	138	Total	C	H	N	O	S	0	0
			2328	725	1197	217	182	7		

- Molecule 15 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	O	203	Total	C	H	N	O	S	0	0
			3450	1072	1749	359	266	4		

- Molecule 16 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	P	195	Total	C	H	N	O	S	0	0
			3352	1034	1746	315	252	5		

- Molecule 17 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	Q	153	Total	C	H	N	O	S	0	0
			2511	776	1269	241	216	9		

- Molecule 18 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms						AltConf	Trace
18	R	187	Total	C	H	N	O	S	0	0
			3141	944	1628	314	250	5		

- Molecule 19 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms						AltConf	Trace
19	S	156	Total	C	H	N	O	S	0	0
			2750	816	1439	278	209	8		

- Molecule 20 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms						AltConf	Trace
20	T	175	Total	C	H	N	O	S	0	0
			2942	921	1493	283	234	11		

- Molecule 21 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms						AltConf	Trace
21	U	157	Total	C	H	N	O	S	0	0
			2636	815	1352	250	214	5		

- Molecule 22 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms						AltConf	Trace
22	V	99	Total	C	H	N	O	S	0	0
			1639	518	831	141	147	2		

- Molecule 23 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms						AltConf	Trace
23	W	129	Total	C	H	N	O	S	0	0
			2000	613	1031	182	169	5		

- Molecule 24 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms						AltConf	Trace
24	X	61	Total	C	H	N	O	S	0	0
			1032	327	521	100	82	2		

- Molecule 25 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms						AltConf	Trace
25	Y	117	Total	C	H	N	O	S	0	0
			1987	612	1029	180	165	1		

- Molecule 26 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms						AltConf	Trace
26	Z	133	Total	C	H	N	O	S	0	0
			2298	694	1192	224	185	3		

- Molecule 27 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms						AltConf	Trace
27	a	134	Total	C	H	N	O	S	0	0
			2282	712	1179	207	181	3		

- Molecule 28 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms						AltConf	Trace
28	b	147	Total	C	H	N	O	S	0	0
			2375	736	1213	237	186	3		

- Molecule 29 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms						AltConf	Trace
29	c	96	Total	C	H	N	O	S	0	0
			1641	489	854	174	121	3		

- Molecule 30 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms						AltConf	Trace
30	d	95	Total	C	H	N	O	S	0	0
			1512	468	774	131	133	6		

- Molecule 31 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms						AltConf	Trace
31	e	106	Total	C	H	N	O	S	0	0
			1803	555	924	170	152	2		

- Molecule 32 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms						AltConf	Trace
32	f	129	Total	C	H	N	O	S	0	0
			2224	673	1160	220	166	5		

- Molecule 33 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms						AltConf	Trace
33	g	109	Total	C	H	N	O	S	0	0
			1788	555	912	174	144	3		

- Molecule 34 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms						AltConf	Trace
34	h	112	Total	C	H	N	O	S	0	0
			1867	555	979	183	144	6		

- Molecule 35 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms						AltConf	Trace
35	i	122	Total	C	H	N	O	S	0	0
			2163	641	1148	205	168	1		

- Molecule 36 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms						AltConf	Trace
36	j	97	Total	C	H	N	O	S	0	0
			1664	497	870	168	124	5		

- Molecule 37 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms						AltConf	Trace
37	k	84	Total	C	H	N	O	S	0	0
			1407	423	718	152	109	5		

- Molecule 38 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms						AltConf	Trace
38	l	69	Total	C	H	N	O	S	0	0
			1206	366	637	103	99	1		

- Molecule 39 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms						AltConf	Trace
39	m	50	Total	C	H	N	O	S	0	0
			927	281	483	98	64	1		

- Molecule 40 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms						AltConf	Trace
40	o	25	Total	C	H	N	O	S	0	0
			529	145	289	64	28	3		

- Molecule 41 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms						AltConf	Trace
41	p	99	Total	C	H	N	O	S	0	0
			1696	510	882	167	131	6		

- Molecule 42 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms						AltConf	Trace
42	q	91	Total	C	H	N	O	S	0	0
			1464	445	756	136	120	7		

- Molecule 43 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms						AltConf	Trace
43	r	122	Total	C	H	N	O	S	0	0
			2021	607	1041	204	165	4		

- Molecule 44 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
44	t	3510	Total	C	H	N	O	P	0	0
			113261	33507	38018	13757	24469	3510		

- Molecule 45 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
45	u	75	Total	C	H	N	O	P	0	0
			2402	710	809	278	530	75		

- Molecule 46 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
46	v	76	Total	C	H	N	O	P	0	0
			2440	721	822	287	534	76		

- Molecule 47 is a protein called Nascent chain mixture.

Mol	Chain	Residues	Atoms						AltConf	Trace
47	y	27	Total	C	H	N	O		0	0
			245	81	110	27	27			

- Molecule 48 is a protein called Protein transport protein Sec61 subunit alpha isoform 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
48	1	426	Total	C	H	N	O	S	0	0
			6775	2189	3452	535	578	21		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	145	SER	ALA	conflict	UNP P61619
1	343	HIS	TYR	conflict	UNP P61619

- Molecule 49 is a protein called Protein transport protein Sec61 subunit gamma.

Mol	Chain	Residues	Atoms						AltConf	Trace
49	2	62	Total	C	H	N	O	S	0	0
			1021	326	527	86	79	3		

- Molecule 50 is a protein called Protein transport protein Sec61 subunit beta.

Mol	Chain	Residues	Atoms						AltConf	Trace
50	3	29	Total	C	H	N	O	S	0	0
			474	157	245	36	34	2		

- Molecule 51 is a protein called Transmembrane protein 147.

Mol	Chain	Residues	Atoms						AltConf	Trace
51	4	221	Total	C	H	N	O	S	0	0
			3526	1175	1769	272	294	16		

- Molecule 52 is a protein called Nicalin.

Mol	Chain	Residues	Atoms						AltConf	Trace
52	5	516	Total	C	H	N	O	S	0	0
			8173	2595	4083	722	756	17		

- Molecule 53 is a protein called Coiled-coil domain-containing protein 47.

Mol	Chain	Residues	Atoms						AltConf	Trace
53	7	290	Total	C	H	N	O	S	0	0
			4775	1475	2400	435	447	18		

- Molecule 54 is a protein called Calcium load-activated calcium channel.

Mol	Chain	Residues	Atoms						AltConf	Trace
54	6	174	Total	C	H	N	O	S	0	0
			2850	887	1463	239	249	12		

- Molecule 55 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
55	B	1	Total 1	Mg 1	0
55	D	6	Total 6	Mg 6	0
55	E	9	Total 9	Mg 9	0
55	k	1	Total 1	Mg 1	0
55	o	1	Total 1	Mg 1	0
55	t	10	Total 10	Mg 10	0

- Molecule 56 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
56	k	1	Total 1	Zn 1	0
56	p	1	Total 1	Zn 1	0
56	q	1	Total 1	Zn 1	0

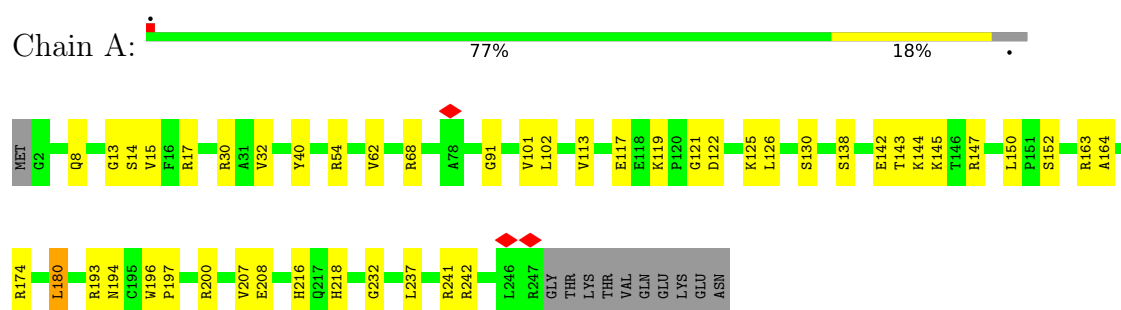
- Molecule 57 is water.

Mol	Chain	Residues	Atoms		AltConf
57	u	1	Total 1	O 1	0

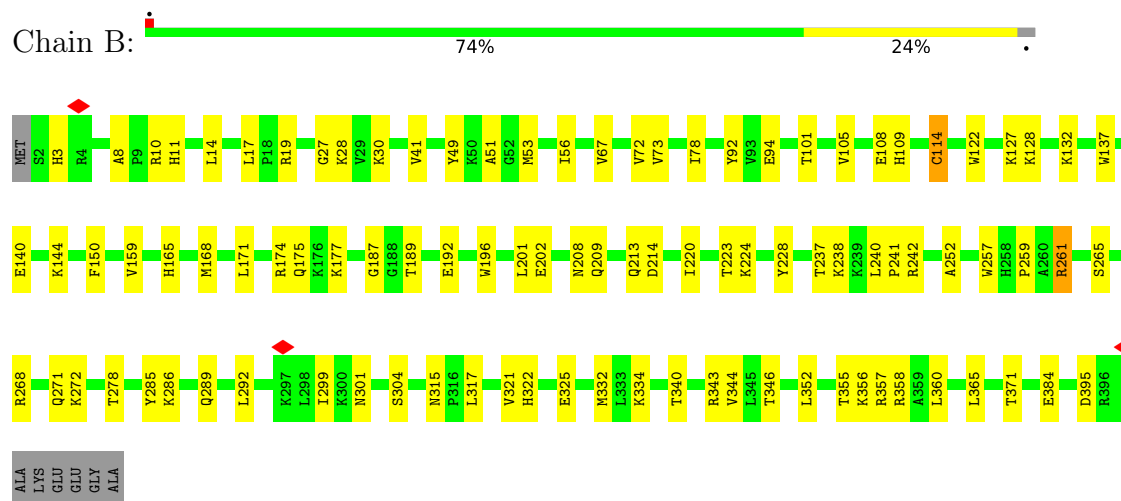
3 Residue-property plots

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.

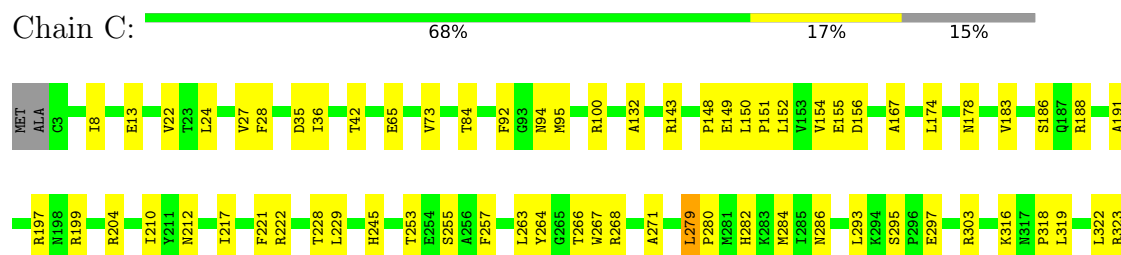
• Molecule 1: 60S ribosomal protein L8

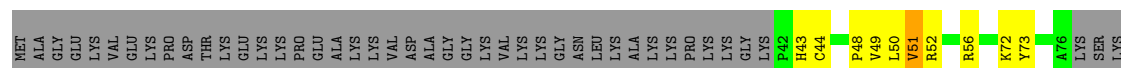
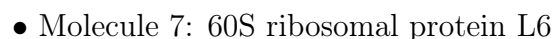
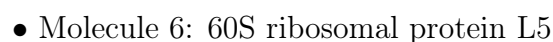
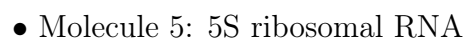


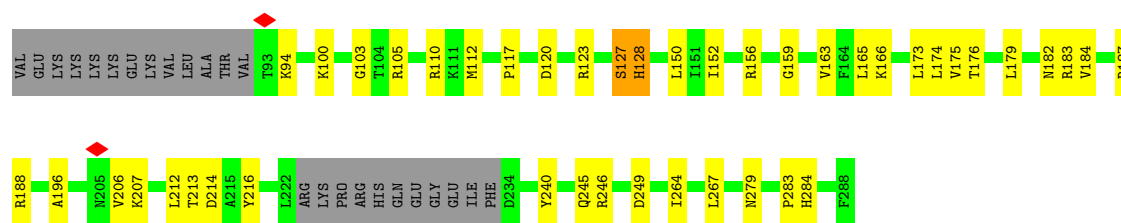
• Molecule 2: 60S ribosomal protein L3



• Molecule 3: 60S ribosomal protein L4

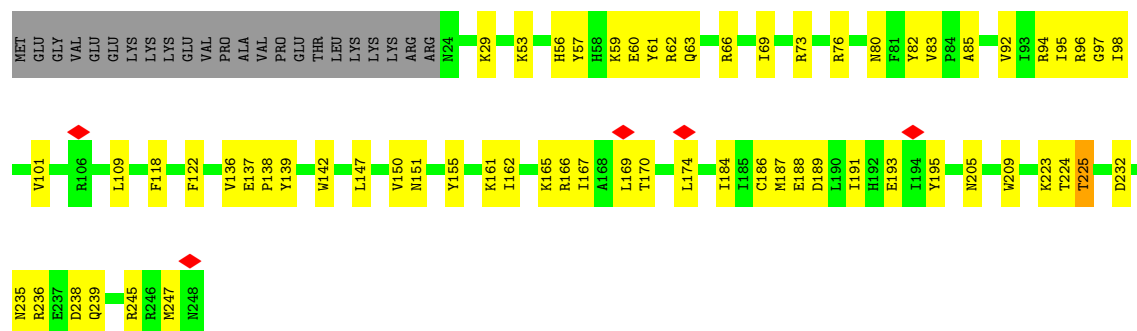






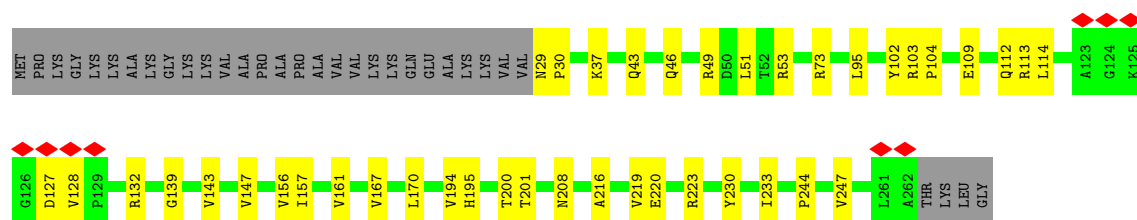
• Molecule 8: 60S ribosomal protein L7

Chain H: 65% 25% 9%



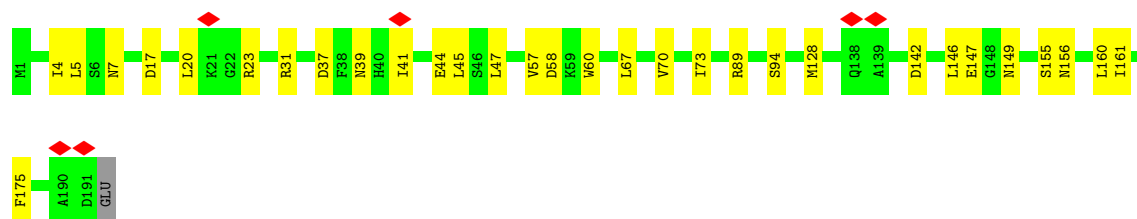
• Molecule 9: 60S ribosomal protein L7a

Chain I: 73% 15% 12%



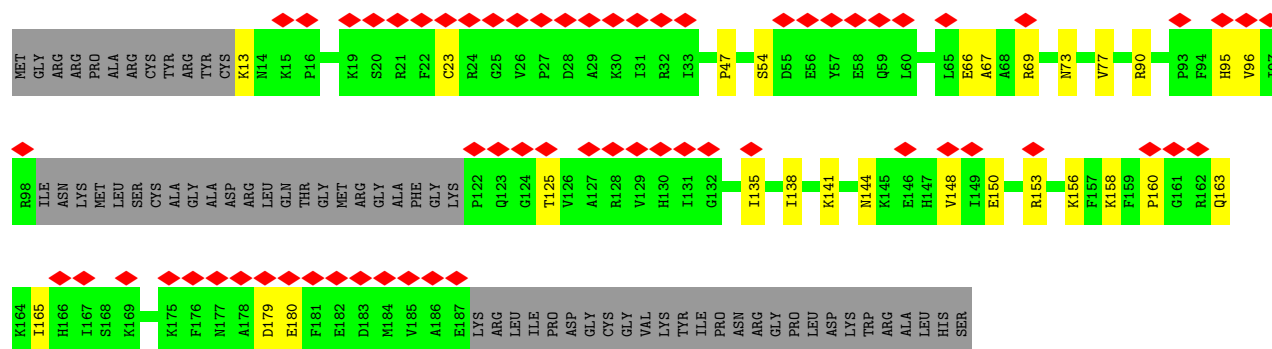
• Molecule 10: 60S ribosomal protein L9

Chain J: 83% 16%

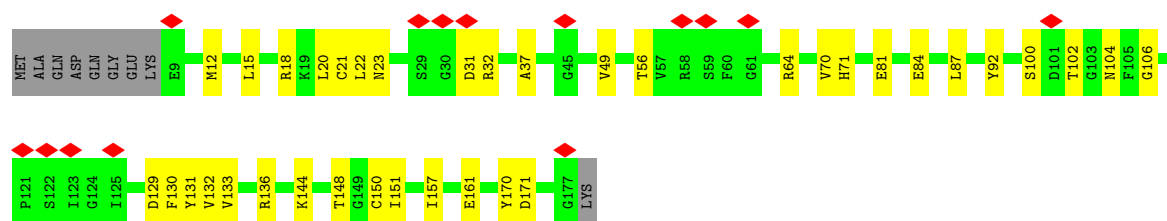


• Molecule 11: 60S ribosomal protein L10

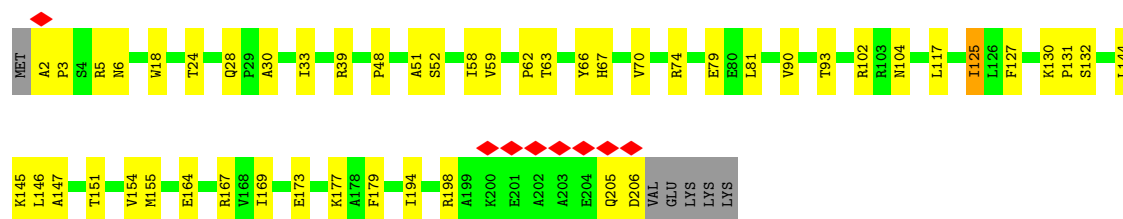
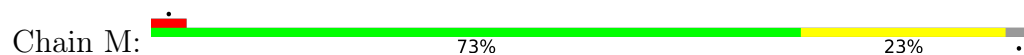
Chain K: 30% 58% 13% 29%



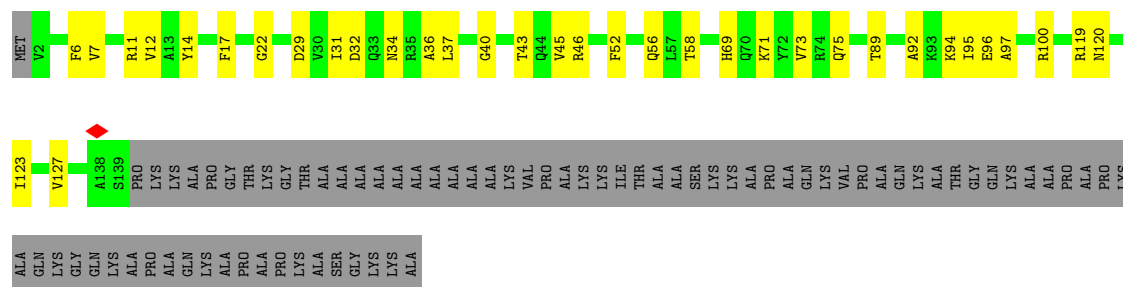
• Molecule 12: 60S ribosomal protein L11



• Molecule 13: 60S ribosomal protein L13



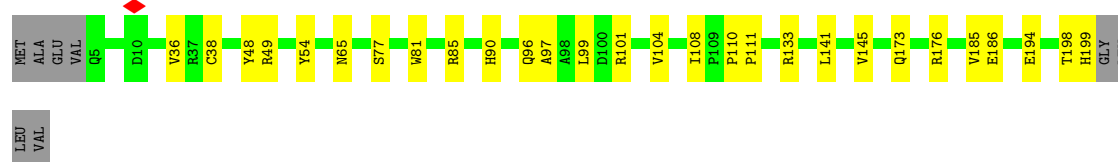
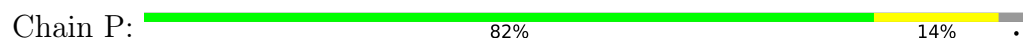
• Molecule 14: 60S ribosomal protein L14



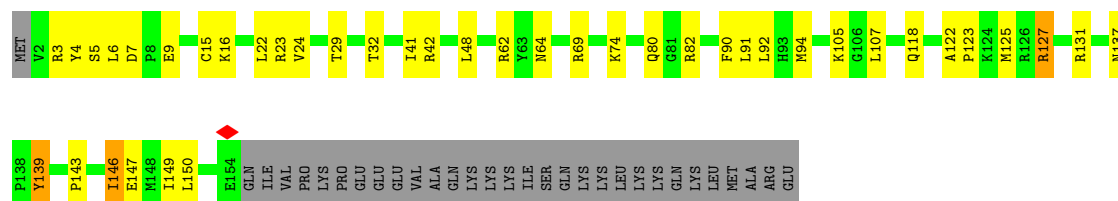
• Molecule 15: 60S ribosomal protein L15



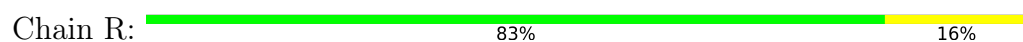
- Molecule 16: 60S ribosomal protein L13a



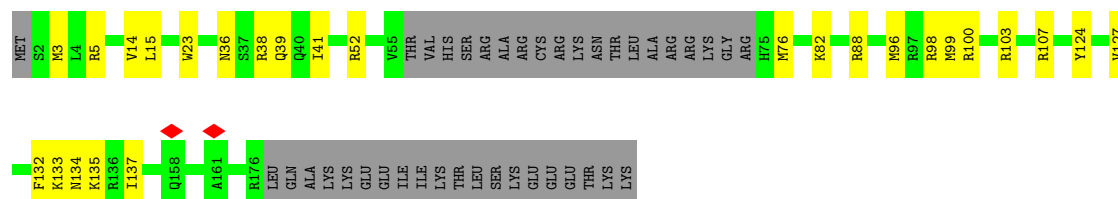
- Molecule 17: 60S ribosomal protein L17



- Molecule 18: 60S ribosomal protein L18



- Molecule 19: 60S ribosomal protein L19

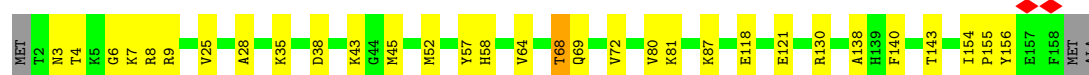
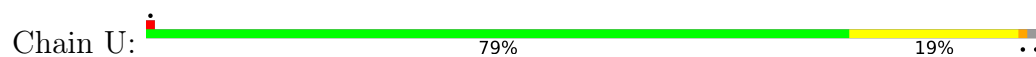


- Molecule 20: 60S ribosomal protein L18a

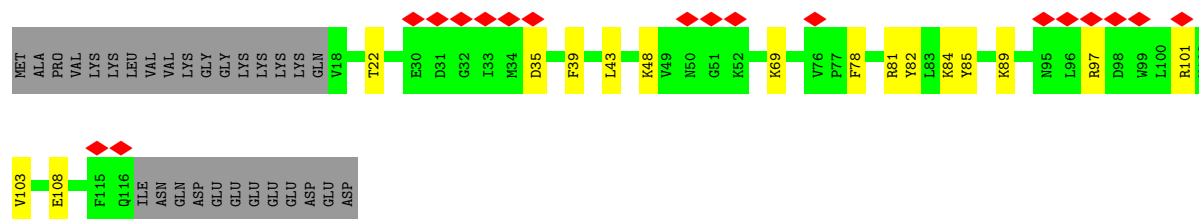




- Molecule 21: 60S ribosomal protein L21



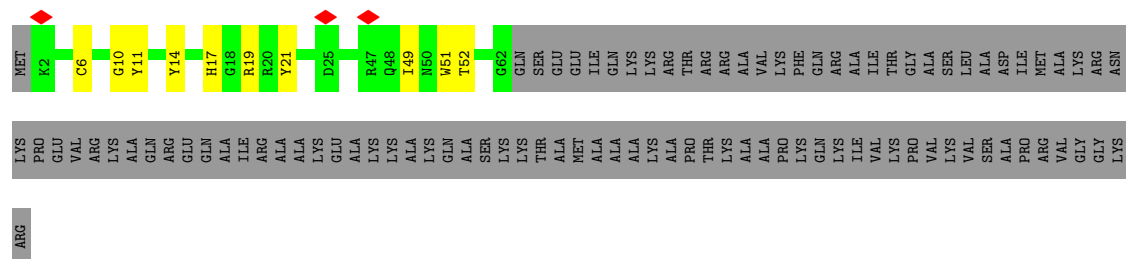
- Molecule 22: 60S ribosomal protein L22



- Molecule 23: 60S ribosomal protein L23

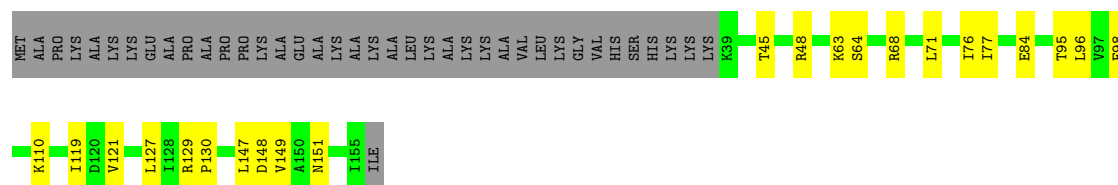


- Molecule 24: 60S ribosomal protein L24

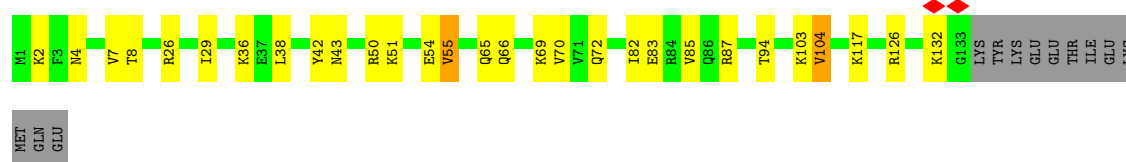


- Molecule 25: 60S ribosomal protein L23a

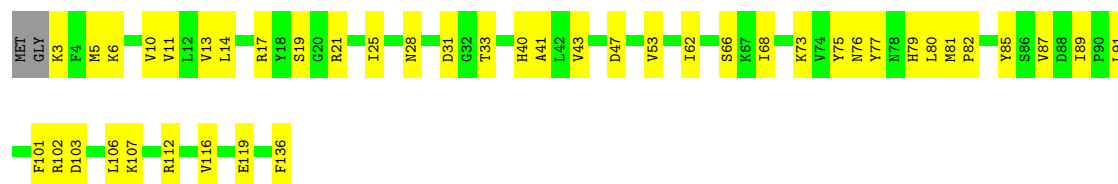




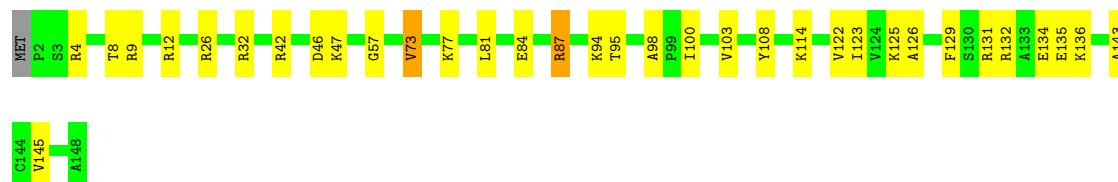
- Molecule 26: 60S ribosomal protein L26



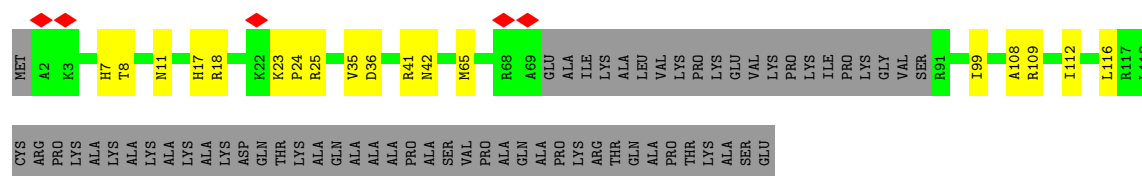
- Molecule 27: 60S ribosomal protein L27



- Molecule 28: 60S ribosomal protein L27a



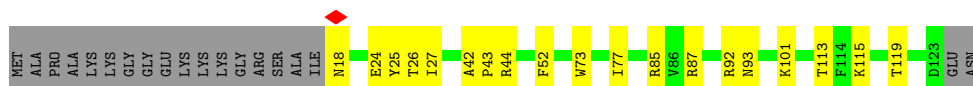
- Molecule 29: 60S ribosomal protein L29



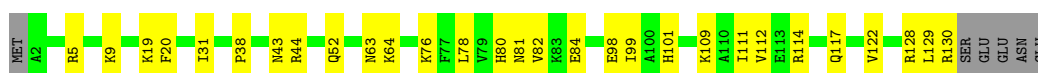
- Molecule 30: 60S ribosomal protein L30



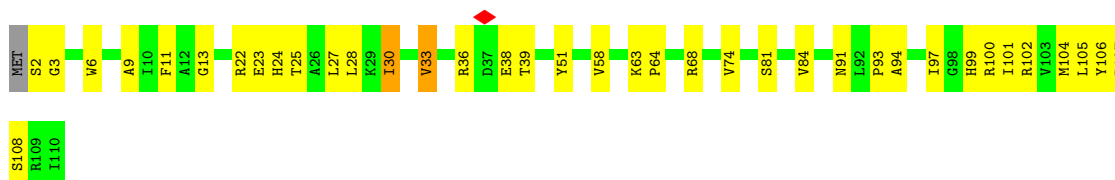
- Molecule 31: 60S ribosomal protein L31



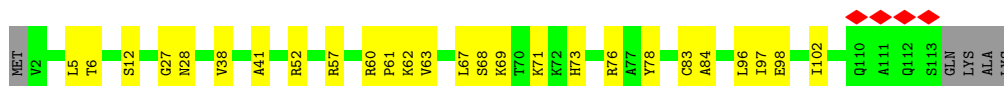
- Molecule 32: 60S ribosomal protein L32



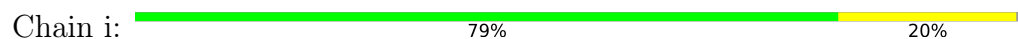
- Molecule 33: 60S ribosomal protein L35a



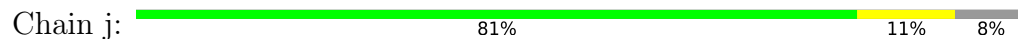
- Molecule 34: 60S ribosomal protein L34



- Molecule 35: 60S ribosomal protein L35

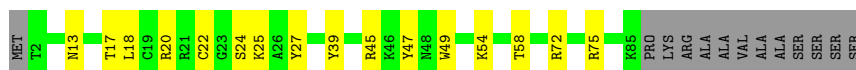


- Molecule 36: 60S ribosomal protein L36

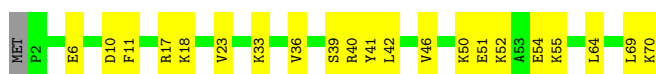




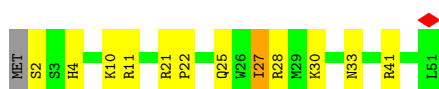
- Molecule 37: 60S ribosomal protein L37



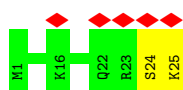
- Molecule 38: 60S ribosomal protein L38



- Molecule 39: 60S ribosomal protein L39



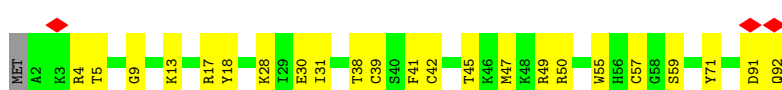
- Molecule 40: 60S ribosomal protein L41



- Molecule 41: 60S ribosomal protein L36a

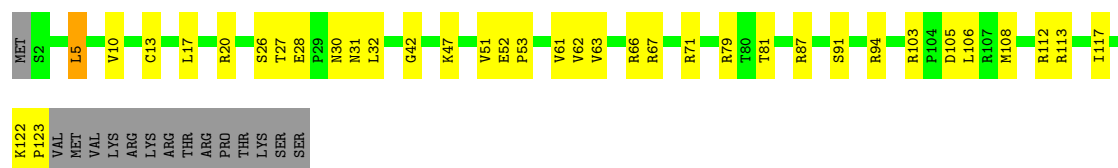


- Molecule 42: 60S ribosomal protein L37a

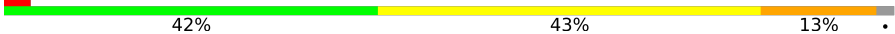


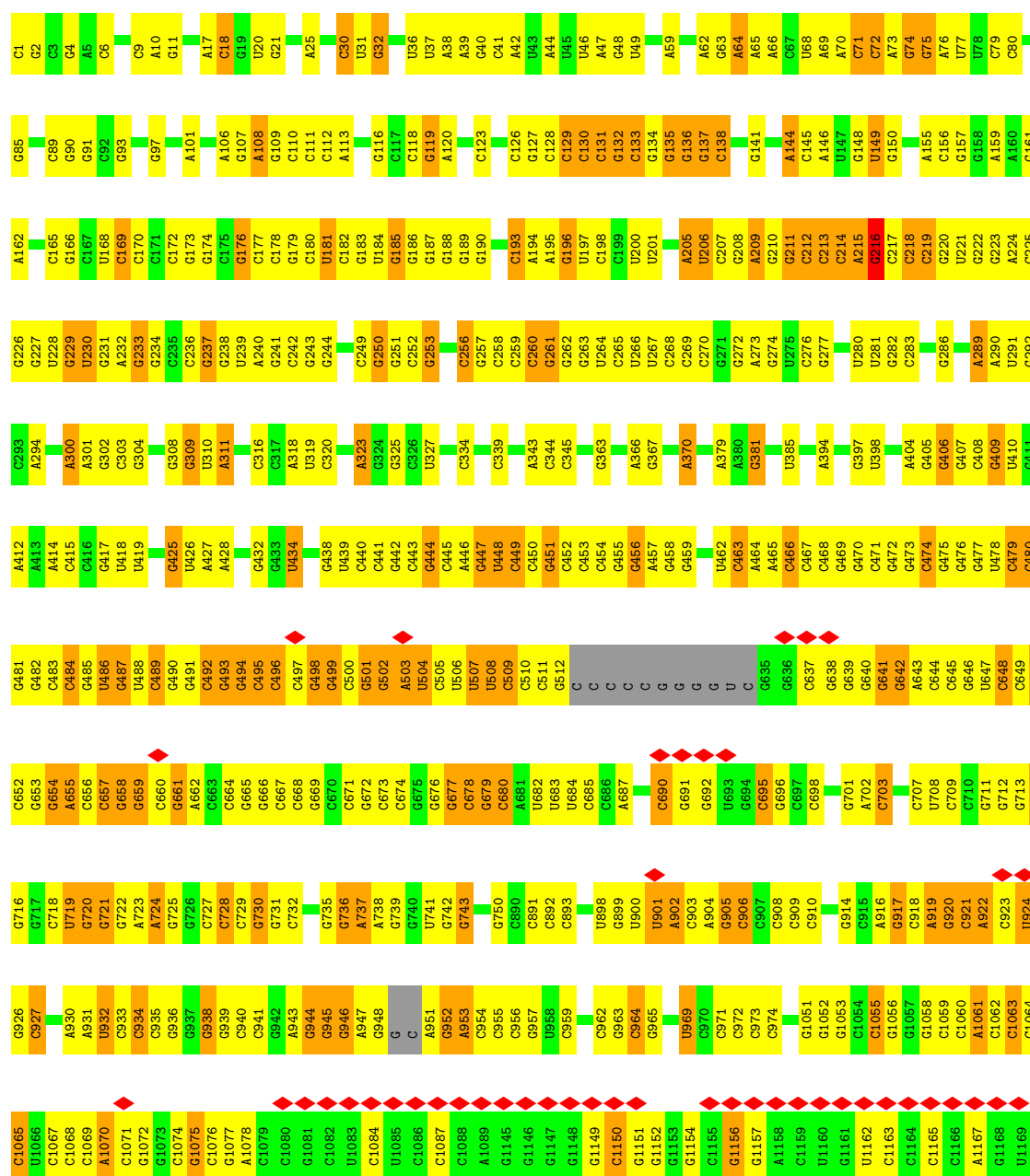
- Molecule 43: 60S ribosomal protein L28

Chain r: 



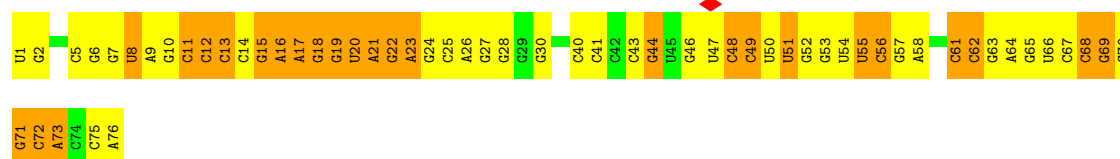
• Molecule 44: 28S ribosomal RNA

Chain t: 

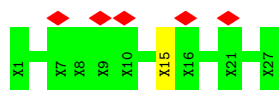


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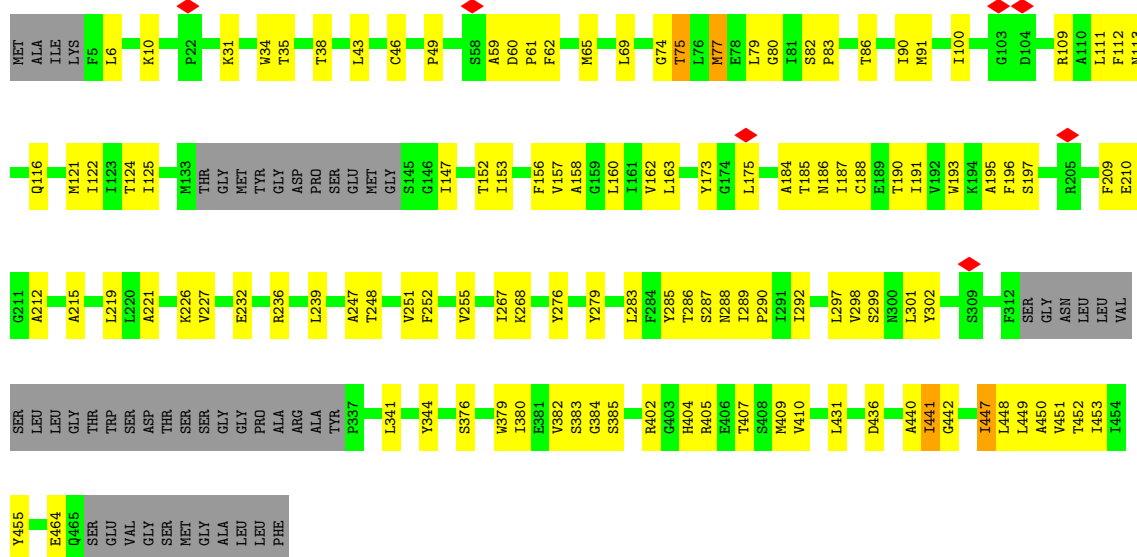
C4299	C4300	A4301	C4304	U4305	U4306	C4307	C4308	C4309	C4310	C4311	U4316	C4317	C4318	C4319	U4320	G4326	A4327	A4328	G4329	G4330	G4333	U4334	G4335	A4338	G4339	A4340	A4341	A4342	G4343	G4344	C4348	C4349	G4353	G4354	G4355	A4356	U4357	A4358	A4359	C4360	U4361	G4362	G4363	C4364	U4365	U4366	C4367	U4368	G4369	C4370	C4371	C4372									
C4221	U4222	C4223	C4224	C4225	U4226	U4227	C4228	C4229	U4230	C4231	C4232	A4233	C4234	A4235	A4236	C4237	C4238	A4239	A4240	A4241	A4242	C4243	A4244	C4245	U4246	C4247	C4248	C4249	C4250	C4251	C4252	C4253	C4254	C4255	C4256	C4257	C4258	C4259	C4260	C4261	C4262	C4263	C4264	C4265	C4266	C4267	C4268	C4269	C4270	C4271	C4272										
G4135	U4136	G4137	G4145	G4146	U4150	U4151	U4152	U4153	C4154	C4155	U4156	G4157	C4158	G4163	U4164	A4165	C4166	A4167	C4168	U4172	C4173	U4174	C4175	C4176	C4177	G4178	U4181	C4187	C4188	U4189	C4190	U4191	U4194	A4195	A4196	C4197	U4198	C4199	C4200	A4201	A4202	C4205	C4206	C4212	C4213	C4214	C4215	C4216	C4220												
C4066	G4067	A4068	G4069	C4070	C4071	C4072	G4075	G4076	G4077	G4078	C4079	U4080	C4081	U4082	C4083	C4084	C4085	U4086	U4087	C4088	U4089	G4090	C4091	C4092	C4095	U4096	C4097	C4098	C4099	U4099	G4100	C4105	C4106	C4107	C4108	C4109	C4110	G4114	C4115	C4116	C4117	C4118	C4119	C4120	C4121	C4122	G4123	C4124	U4125	C4126	C4130	G4131	A4132	C4133	A4134						
C3880	C3881	C3882	U3883	U3886	C3887	A3888	C3889	C3890	G3893	C3894	C3895	U3896	C3897	G3904	C3905	C3906	C3908	C3909	C3910	U3911	C3912	A3913	C3914	C3915	C3916	C3917	C3918	C3919	G4035	U4036	U4037	U4038	U4039	U4040	U4041	C4042	C4043	G4046	A4047	C4048	C4049	G4054	A4055	C4056	U4057	C4058	C4059	G4060	C4061	C4062	C4063	C4064	C4065								
A3795	C3796	C3797	C3798	C3799	C3800	C3806	C3807	C3808	C3809	C3810	C3811	C3814	C3819	C3820	C3827	C3830	C3831	C3836	C3837	C3838	C3841	C3844	C3845	C3848	C3849	C3850	C3851	C3852	C3853	U3854	U3855	C3856	C3857	C3858	C3859	C3860	A3861	C3862	C3863	C3864	C3865	C3866	C3867	C3868	A3872	C3876	C3877	C3878	C3879	U3879	C3880	C3881	C3882	C3883	C3884	C3885	C3886	C3887	C3888	C3889	C3890
G3711	C3712	G3715	G3716	A3719	C3723	C3724	C3725	G3728	U3729	A3730	C3731	G3736	C3737	C3738	C3739	U3741	A3745	C3746	G3747	C3748	C3751	C3752	C3753	C3754	C3755	C3756	U3757	C3758	C3759	A3766	U3769	C3770	A3771	G3777	C3780	G3782	C3783	C3784	U3785	C3788	U3789	C3790	U3793	C3794																	
A3622	A3623	A3624	C3625	C3632	C3633	C3634	C3635	C3636	C3643	C3644	U3648	U3651	C3655	C3656	C3657	C3660	U3661	C3662	A3663	C3664	C3665	C3666	C3667	C3670	U3675	C3676	C3677	C3678	C3679	C3680	C3681	C3682	C3683	C3684	A3688	C3689	C3690	C3691	U3692	C3693	U3700	A3703	A3704	U3705	C3706	C3707	C3708	C3709	C3710												
A2860	A2861	C2862	C2869	U2870	C2871	A2874	C2875	C2876	C2877	C2878	U2879	C2880	C2881	C3569	C3570	C3571	C3572	C3573	C3574	C3575	C3576	U3577	U3578	A3581	C3582	U3587	C3588	C3589	C3590	C3591	C3592	C3593	C3594	C3595	C3596	C3597	C3598	C3599	A3600	A3601	G3605	A3606	U3611	U3612	A3613	A3614	U3615	U3616	A3617	A3618	A3619	A3620	C3621								
G2760	U2767	U2768	U2769	C2773	C2776	C2777	C2778	C2779	U2780	C2781	C2782	C2785	C2788	U2789	C2790	C2791	C2792	C2793	U2798	C2805	C2806	C2807	C2812	C2813	C2814	C2817	C2827	C2828	C2834	C2835	C2838	C2839	C2840	C2841	C2846	C2847	C2851	C2855	C2856	C2857	C2858	C2859	C2864	C2865	C2866	C2867	C2868	C2869	C2870	C2871											
U2686	U2687	C2688	C2689	C2690	C2691	C2692	C2693	C2694	C2700	C2701	A2704	C2705	C2706	U2707	C2708	C2711	C2714	C2717	C2718	U2719	C2720	C2721	C2722	C2723	A2724	C2725	U2726	C2727	C2728	C2729	C2730	C2731	C2732	C2733	C2734	C2735	C2736	C2737	C2738	C2739	C2740	C2741	U2742	C2743	A2744	C2745	U2746	C2747	U2748	C2749	C2750	C2751	C2752								
U2607	C2608	U2609	U2610	U2611	U2612	C2613	U2614	U2615	U2616	C2617	U2618	U2619	C2620	C2621	C2622	A2626	C2632	C2633	C2637	C2638	U2645	C2646	C2647	C2648	C2652	C2653	C2654	C2655	C2656	C2657	C2658	C2659	C2660	C2664	C2665	U2666	C2667	C2668	C2669	U2670	U2671	C2672	C2673	C2674	A2675	C2676	C2677	C2678	U2679	C2680	C2681	C2682	C2683	C2685							
G2534	C2535	C2536	C2537	C2538	C2542	C2543	A2544	C2545	C2546	C2547	C2548	U2549	C2550	C2551	C2552	C2553	U2554	C2557	C2558	C2559	A2560	C2565	C2566	C2567	C2568	C2569	C2570	C2573	C2574	C2575	C2576	C2577	C2578	A2579	C2580	C2581	C2582	C2585	C2586	C2587	C2590	A2591	C2592	C2593	C2594	C2595	C2596	C2597	A2600	C2601	A2602	C2603	C2604	C2605	C2606						
A2463	U2464	G2465	C2466	C2467	C2468	U2469	C2470	C2471	C2472	U2473	U2474	C2475	C2476	C2477	C2478	U2479	C2480	C2481	C2482	C2483	C2484	C2485	C2486	U2487	C2488	A2492	C2495	C2496	C2499	C2500	C2501	C2502	U2503	U2504	C2505	A2506	C2507	C2512	C2513	C2514	A2515	C2516	U2517	C2518	C2523	U2524	C2525	C2526	C2527	C2528	C2531	A2532	U2533								



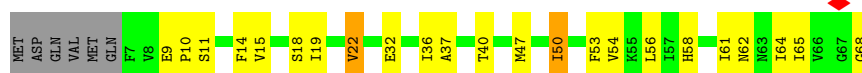
- Molecule 47: Nascent chain mixture



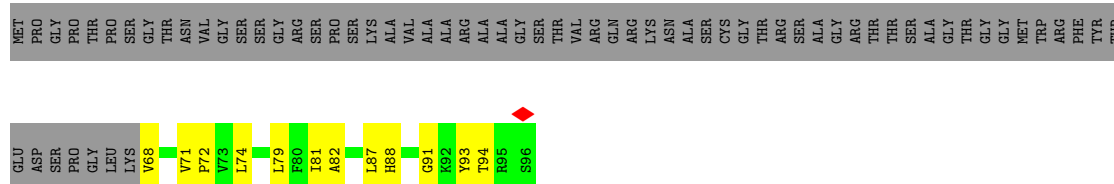
- Molecule 48: Protein transport protein Sec61 subunit alpha isoform 1



- Molecule 49: Protein transport protein Sec61 subunit gamma

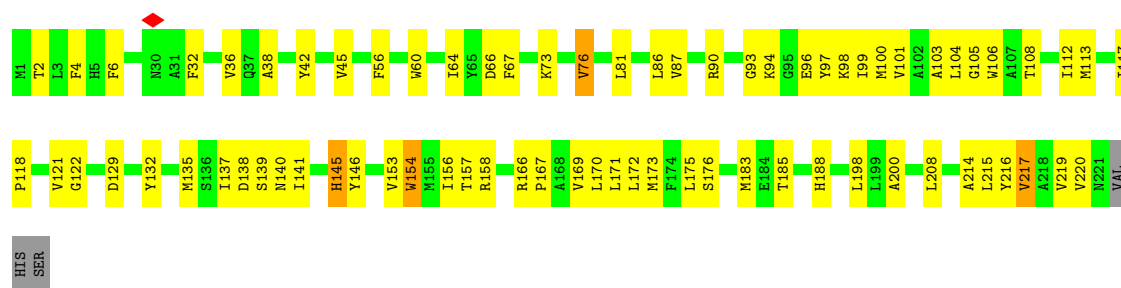


- Molecule 50: Protein transport protein Sec61 subunit beta

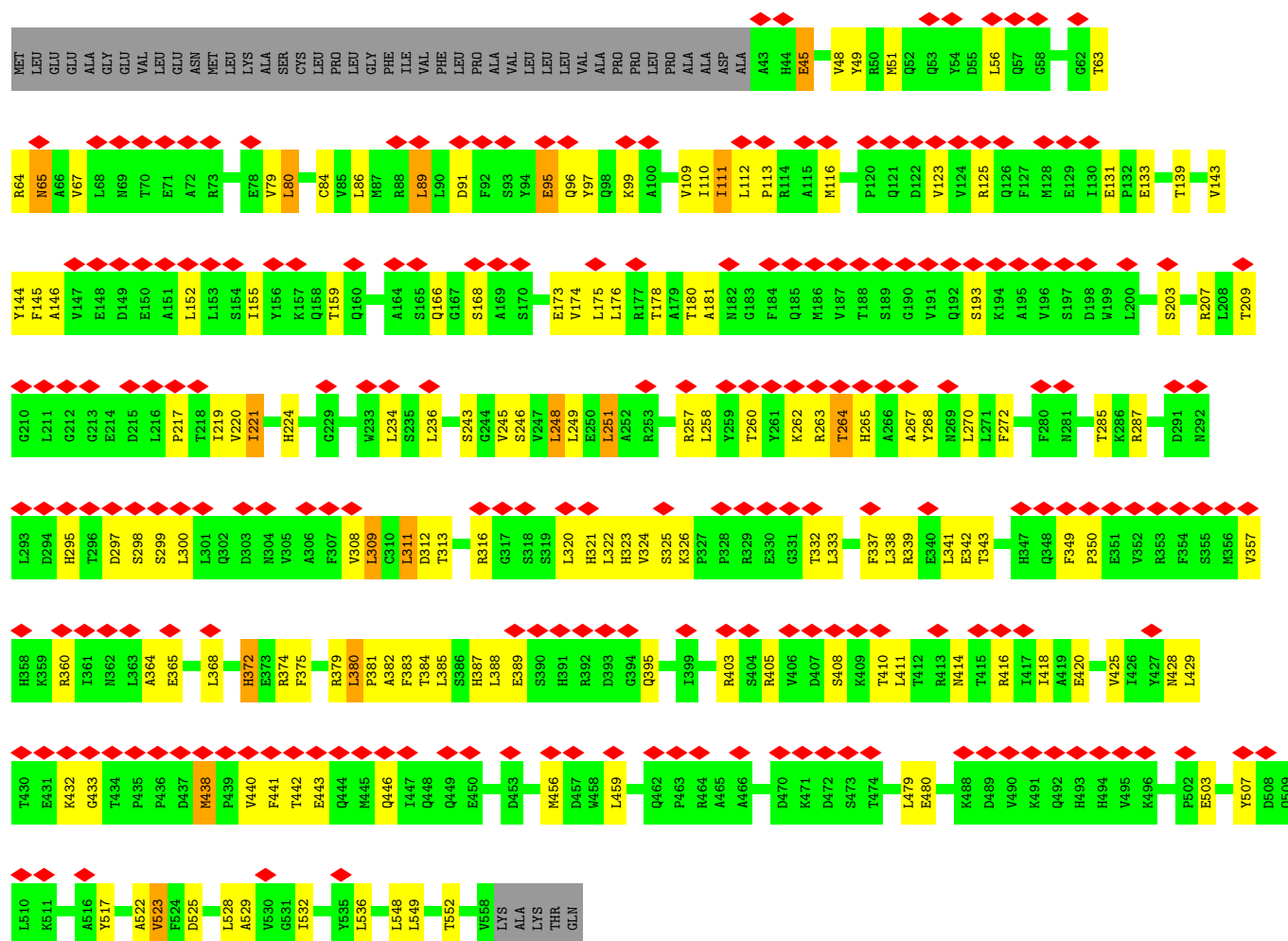
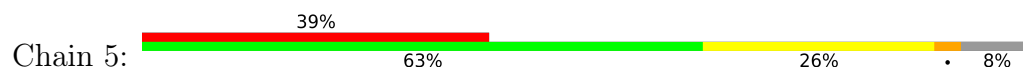


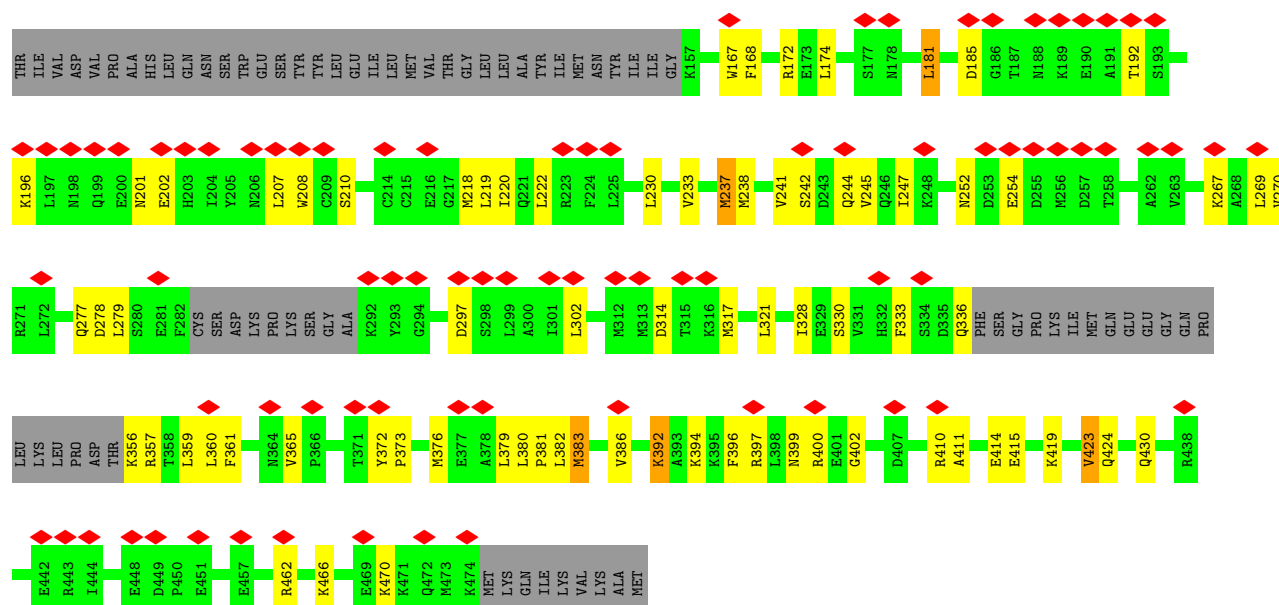
- Molecule 51: Transmembrane protein 147



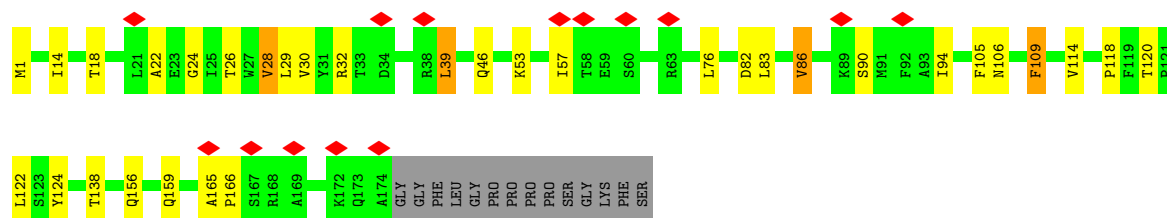
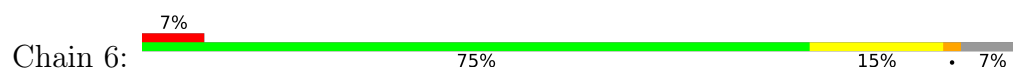


• Molecule 52: Nicalin





• Molecule 54: Calcium load-activated calcium channel



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	82684	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.047	Depositor
Minimum map value	-0.019	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0073	Depositor
Map size (Å)	680.0, 680.0, 680.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.36, 1.36, 1.36	Depositor

5 Model quality

5.1 Standard geometry

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

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	A	0.36	0/1925	0.46	0/2581
2	B	0.30	0/3265	0.44	0/4370
3	C	0.51	0/2942	0.53	0/3951
4	D	0.72	0/3726	0.74	0/5804
5	E	0.25	0/2839	0.38	0/4425
6	F	0.20	0/2052	0.38	0/2755
7	G	0.25	0/1806	0.42	0/2421
8	H	0.31	0/1905	0.48	0/2539
9	I	0.28	0/1913	0.41	0/2576
10	J	0.21	0/1545	0.39	0/2077
11	K	0.14	0/1265	0.33	0/1688
12	L	0.18	0/1376	0.38	0/1841
13	M	0.35	0/1688	0.49	0/2260
14	N	0.24	0/1153	0.37	0/1542
15	O	0.43	0/1746	0.53	0/2338
16	P	0.32	0/1638	0.46	0/2191
17	Q	0.66	0/1268	0.62	0/1701
18	R	0.36	0/1537	0.48	0/2052
19	S	0.44	0/1325	0.54	0/1750
20	T	0.24	0/1488	0.47	0/1997
21	U	0.23	0/1312	0.35	0/1753
22	V	0.16	0/822	0.32	0/1103
23	W	0.25	0/983	0.36	0/1319
24	X	0.26	0/524	0.34	0/698
25	Y	0.72	0/975	0.61	0/1312
26	Z	0.71	0/1123	0.58	0/1493
27	a	0.28	0/1126	0.42	0/1502
28	b	0.37	0/1191	0.47	0/1591
29	c	0.25	0/799	0.45	0/1053
30	d	0.29	0/748	0.44	0/1004
31	e	0.41	0/894	0.49	0/1204
32	f	0.58	0/1082	0.58	0/1443

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	g	0.33	0/895	0.44	0/1198
34	h	0.41	0/898	0.47	0/1197
35	i	0.66	0/1023	0.63	0/1351
36	j	0.27	0/805	0.42	0/1065
37	k	0.69	0/703	0.61	0/929
38	l	0.37	0/575	0.43	0/761
39	m	0.64	0/454	0.57	0/599
40	o	0.20	0/241	0.42	0/305
41	p	0.28	0/827	0.38	0/1090
42	q	0.34	0/718	0.45	0/953
43	r	0.47	0/995	0.57	0/1334
44	t	0.44	0/84165	0.48	0/131283
45	u	0.18	0/1777	0.49	0/2767
46	v	0.26	0/1806	0.80	0/2813
48	1	0.36	0/3394	0.47	0/4598
49	2	0.37	0/504	0.53	0/673
50	3	0.22	0/236	0.42	0/321
51	4	0.28	0/1808	0.50	0/2459
52	5	0.14	0/4174	0.34	0/5661
53	7	0.22	0/2406	0.46	1/3214 (0.0%)
54	6	0.23	0/1406	0.39	0/1882
All	All	0.41	0/159791	0.48	1/234787 (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
44	t	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	7	356	LYS	N-CA-C	-6.67	96.60	110.80

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
44	t	216	G	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1887	1983	1983	37	0
2	B	3197	3338	3338	76	0
3	C	2888	3064	3064	63	0
4	D	3337	1692	1692	135	0
5	E	2541	1284	1284	43	0
6	F	2012	1998	1998	40	0
7	G	1772	1917	1917	45	0
8	H	1870	1996	1996	50	0
9	I	1880	2018	2018	28	0
10	J	1526	1605	1605	21	0
11	K	1238	1270	1270	16	0
12	L	1353	1386	1386	24	0
13	M	1657	1764	1764	44	0
14	N	1131	1197	1197	30	0
15	O	1701	1749	1749	45	0
16	P	1606	1746	1745	17	0
17	Q	1242	1269	1269	38	0
18	R	1513	1628	1628	23	0
19	S	1311	1439	1439	24	0
20	T	1449	1493	1493	35	0
21	U	1284	1352	1352	29	0
22	V	808	831	831	18	0
23	W	969	1031	1031	17	0
24	X	511	521	521	8	0
25	Y	958	1029	1029	20	0
26	Z	1106	1192	1192	21	0
27	a	1103	1179	1179	30	0
28	b	1162	1213	1213	34	0
29	c	787	854	854	15	0
30	d	738	774	774	14	0
31	e	879	924	924	11	0
32	f	1064	1160	1160	20	0
33	g	876	912	912	27	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	h	888	979	979	25	0
35	i	1015	1148	1148	22	0
36	j	794	870	870	11	0
37	k	689	718	717	11	0
38	l	569	637	637	16	0
39	m	444	483	483	11	0
40	o	240	289	289	1	0
41	p	814	882	882	23	0
42	q	708	756	756	19	0
43	r	980	1041	1041	27	0
44	t	75243	38018	38017	1671	0
45	u	1593	809	809	21	0
46	v	1618	822	822	52	0
47	y	135	110	30	1	0
48	1	3323	3452	3452	96	0
49	2	494	527	527	19	0
50	3	229	245	245	9	0
51	4	1757	1769	1769	64	0
52	5	4090	4083	4082	146	0
53	7	2375	2400	2400	53	0
54	6	1387	1463	1463	24	0
55	B	1	0	0	0	0
55	D	6	0	0	0	0
55	E	9	0	0	0	0
55	k	1	0	0	0	0
55	o	1	0	0	0	0
55	t	10	0	0	0	0
56	k	1	0	0	0	0
56	p	1	0	0	0	0
56	q	1	0	0	0	0
57	u	1	0	0	2	0
All	All	148773	110309	110225	3066	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 12.

All (3066) 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)
44:t:205:A:N6	44:t:229:G:O6	1.85	1.07
44:t:2553:G:N7	44:t:2739:G:N2	2.06	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:135:G:O2'	44:t:136:G:O4'	1.76	1.02
21:U:3:ASN:OD1	21:U:9:ARG:NH2	1.92	1.02
44:t:1064:C:O2	44:t:1201:G:N2	1.92	1.01
44:t:132:G:O6	44:t:137:G:O6	1.76	1.01
44:t:2372:C:OP2	44:t:2373:G:N2	1.94	1.01
44:t:447:G:O2'	44:t:448:U:O2	1.81	0.97
52:5:243:SER:OG	52:5:313:THR:OG1	1.83	0.95
44:t:1416:A:N6	44:t:1433:C:O2	2.00	0.95
44:t:1898:A:HO2'	44:t:2047:C:HO2'	1.00	0.95
44:t:2617:G:N2	44:t:2676:A:N1	2.16	0.94
28:b:4:ARG:NH2	44:t:2320:A:OP2	2.01	0.94
44:t:2532:A:OP1	44:t:2744:A:N6	2.02	0.93
44:t:1065:C:O2	44:t:1200:G:N2	2.02	0.93
44:t:447:G:O6	44:t:1277:A:N6	2.02	0.92
44:t:2618:U:HO2'	44:t:2673:G:H1	1.18	0.92
44:t:3680:U:O4	44:t:3712:C:N4	2.02	0.92
44:t:4379:C:N4	44:t:4384:A:O2'	2.03	0.92
44:t:1939:A:O2'	44:t:2006:A:N1	2.01	0.92
44:t:226:G:O6	44:t:227:G:N2	2.03	0.91
44:t:4717:G:N2	44:t:4836:C:N3	2.18	0.91
44:t:446:A:OP2	44:t:1276:G:O2'	1.89	0.91
44:t:1268:U:O2'	44:t:1269:C:O4'	1.88	0.91
44:t:484:C:O2'	44:t:485:G:O4'	1.89	0.90
44:t:1249:G:N2	44:t:1251:G:N7	2.20	0.90
44:t:955:C:OP1	44:t:956:C:N4	2.05	0.89
44:t:506:U:O2	44:t:641:G:O6	1.90	0.89
44:t:4381:U:OP1	44:t:4437:G:N2	2.04	0.89
9:I:73:ARG:NH1	44:t:4046:G:OP1	2.05	0.89
44:t:4062:G:O2'	44:t:4063:G:N2	2.06	0.89
19:S:107:ARG:NH2	44:t:2645:U:OP1	2.06	0.89
44:t:4713:G:N2	44:t:4907:G:O6	2.07	0.88
44:t:4885:G:OP2	44:t:4885:G:N2	2.06	0.88
44:t:1387:G:N2	44:t:1396:C:O2	2.05	0.88
44:t:1721:G:O2'	44:t:1724:A:N7	2.06	0.88
41:p:28:LYS:O	44:t:4306:U:O2'	1.92	0.87
16:P:90:HIS:O	16:P:96:GLN:NE2	2.07	0.87
6:F:28:THR:O	44:t:4242:A:N6	2.08	0.87
32:f:78:LEU:O	43:r:20:ARG:NH1	2.08	0.86
52:5:64:ARG:NH1	52:5:65:ASN:O	2.08	0.86
52:5:207:ARG:NH1	52:5:270:LEU:O	2.08	0.86
28:b:26:ARG:NH2	44:t:1638:U:OP2	2.07	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:2580:A:O2'	44:t:2722:A:OP1	1.93	0.86
5:E:12:U:O3'	5:E:109:U:O2'	1.94	0.86
19:S:124:TYR:OH	44:t:2645:U:OP2	1.94	0.85
44:t:1419:C:O2	44:t:1431:G:N2	2.09	0.85
37:k:22:CYS:SG	37:k:24:SER:OG	2.33	0.85
13:M:74:ARG:NH1	44:t:76:A:OP2	2.10	0.85
28:b:100:ILE:HG22	28:b:123:ILE:HD11	1.57	0.85
44:t:2838:G:N2	44:t:3808:C:O2	2.09	0.85
44:t:445:C:O2	44:t:1279:G:N2	2.09	0.84
7:G:283:PRO:O	7:G:284:HIS:ND1	2.10	0.84
14:N:46:ARG:NH2	44:t:924:U:OP1	2.11	0.84
52:5:416:ARG:NH1	52:5:420:GLU:OE1	2.10	0.84
44:t:4562:G:O2'	44:t:4571:G:O6	1.95	0.83
44:t:1923:A:N3	44:t:4394:C:O2'	2.12	0.83
46:v:2:G:O6	46:v:71:G:N2	2.12	0.83
44:t:445:C:N3	44:t:1279:G:N1	2.26	0.83
45:u:22:G:N7	45:u:46:G:O6	2.12	0.83
28:b:42:ARG:NH1	44:t:4338:A:O2'	2.11	0.83
4:D:45:C:O2'	39:m:11:ARG:NH2	2.12	0.83
44:t:641:G:H3'	44:t:642:G:H5''	1.60	0.83
52:5:146:ALA:HB2	52:5:155:ILE:HD11	1.61	0.83
7:G:72:LYS:NZ	44:t:1223:G:OP2	2.12	0.82
17:Q:62:ARG:NH1	44:t:417:G:OP1	2.13	0.82
19:S:133:LYS:H	19:S:137:ILE:HD11	1.43	0.82
27:a:17:ARG:NH1	44:t:2557:G:N7	2.26	0.82
44:t:2552:A:C8	44:t:2740:U:N3	2.48	0.82
45:u:9:A:N7	57:u:101:HOH:O	2.13	0.81
53:7:399:ASN:O	53:7:402:GLY:N	2.13	0.81
27:a:21:ARG:NH1	27:a:47:ASP:O	2.13	0.81
44:t:2395:G:N2	44:t:2406:G:N7	2.28	0.81
44:t:181:U:O2	44:t:250:G:N1	2.14	0.81
44:t:1229:G:N2	44:t:1247:C:O2	2.14	0.81
44:t:241:G:N2	44:t:241:G:OP1	2.13	0.81
44:t:1840:C:H42	44:t:1856:C:H42	1.26	0.81
2:B:140:GLU:OE1	2:B:144:LYS:NZ	2.13	0.80
3:C:204:ARG:NH1	44:t:2278:G:OP2	2.15	0.80
14:N:12:VAL:O	14:N:58:THR:OG1	1.98	0.80
52:5:110:ILE:HG22	52:5:145:PHE:HA	1.64	0.80
9:I:157:ILE:HD11	9:I:167:VAL:HG13	1.62	0.80
44:t:1848:A:N3	44:t:4365:U:O2'	2.14	0.80
20:T:8:ARG:NH1	20:T:35:PRO:O	2.16	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:63:U:OP1	35:i:48:ARG:NH2	2.14	0.79
5:E:23:A:N3	5:E:118:C:O2'	2.15	0.79
44:t:445:C:C2	44:t:1279:G:N2	2.50	0.79
44:t:4973:G:O2'	44:t:4992:A:N6	2.14	0.79
16:P:133:ARG:NH1	44:t:2036:G:OP2	2.15	0.79
32:f:19:LYS:NZ	44:t:2297:G:O6	2.15	0.79
21:U:130:ARG:NH2	44:t:1784:A:N3	2.31	0.78
3:C:143:ARG:NH1	44:t:2279:A:N7	2.30	0.78
3:C:245:HIS:ND1	43:r:13:CYS:SG	2.56	0.78
13:M:62:PRO:O	13:M:63:THR:HG23	1.83	0.78
8:H:76:ARG:NH2	44:t:720:G:OP2	2.17	0.78
7:G:123:ARG:O	44:t:946:G:O2'	2.01	0.78
44:t:2088:G:O6	44:t:2089:G:N2	2.17	0.77
44:t:3893:G:OP2	44:t:4145:G:N2	2.17	0.77
44:t:4333:G:O2'	44:t:4334:U:OP1	2.03	0.77
41:p:28:LYS:NZ	44:t:4305:U:O2'	2.18	0.77
44:t:4284:G:N2	44:t:4287:A:OP2	2.18	0.77
54:6:22:ALA:O	54:6:26:THR:HG23	1.85	0.77
32:f:80:HIS:N	32:f:84:GLU:OE2	2.18	0.76
10:J:44:GLU:HG3	10:J:58:ASP:OD1	1.85	0.76
44:t:4846:U:O2	44:t:4889:G:N2	2.19	0.76
54:6:26:THR:HG22	54:6:94:ILE:HD13	1.66	0.76
13:M:28:GLN:NE2	44:t:1344:G:OP1	2.19	0.76
46:v:15:G:O6	46:v:48:C:O2	2.02	0.76
48:1:122:ILE:HA	48:1:125:ILE:HD12	1.65	0.76
35:i:112:ARG:NH1	44:t:170:C:O2	2.19	0.76
21:U:7:LYS:NZ	44:t:4297:C:OP2	2.19	0.76
32:f:130:ARG:NH2	44:t:2284:U:O2	2.19	0.76
44:t:4503:G:N2	44:t:4506:A:OP2	2.19	0.75
27:a:76:ASN:OD1	27:a:79:HIS:ND1	2.19	0.75
44:t:469:G:N1	44:t:673:C:N3	2.30	0.75
45:u:12:U:O4	57:u:101:HOH:O	2.03	0.75
44:t:211:G:O2'	44:t:212:C:OP2	2.04	0.75
44:t:4366:U:O2'	44:t:4398:U:O4	2.04	0.75
46:v:50:U:O2'	46:v:51:U:O5'	2.05	0.75
48:1:121:MET:O	48:1:124:THR:OG1	2.04	0.75
44:t:180:C:O2	44:t:251:G:N2	2.19	0.75
44:t:2558:G:N2	44:t:2561:A:OP2	2.18	0.75
52:5:89:LEU:HD11	52:5:116:MET:SD	2.27	0.75
7:G:94:LYS:NZ	44:t:680:C:OP1	2.20	0.75
26:Z:2:LYS:NZ	26:Z:4:ASN:O	2.20	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:228:TYR:O	44:t:2814:A:O2'	2.03	0.74
16:P:194:GLU:O	16:P:199:HIS:N	2.20	0.74
28:b:94:LYS:O	28:b:95:THR:OG1	2.04	0.74
44:t:1651:A:N3	44:t:1833:U:O2'	2.19	0.74
52:5:428:ASN:OD1	52:5:429:LEU:N	2.20	0.74
44:t:149:U:O3'	44:t:150:G:N2	2.20	0.74
31:e:26:THR:HG23	31:e:85:ARG:HH11	1.51	0.74
34:h:68:SER:OG	34:h:71:LYS:NZ	2.19	0.74
35:i:4:ILE:HG22	35:i:9:LEU:HD11	1.68	0.74
38:l:17:ARG:NE	38:l:18:LYS:O	2.19	0.74
44:t:4436:A:OP2	44:t:4438:C:N4	2.20	0.74
24:X:19:ARG:NH2	44:t:4592:G:O5'	2.21	0.74
15:O:200:LEU:O	15:O:200:LEU:HD12	1.87	0.74
34:h:12:SER:O	44:t:2782:U:O2'	2.04	0.74
1:A:193:ARG:NH1	44:t:3648:U:O2'	2.21	0.73
8:H:224:THR:O	8:H:225:THR:HG23	1.88	0.73
2:B:224:LYS:HD3	2:B:340:THR:HG22	1.68	0.73
51:4:153:VAL:O	51:4:157:THR:HG23	1.88	0.73
17:Q:94:MET:SD	17:Q:146:ILE:HD11	2.29	0.73
44:t:2374:A:N3	44:t:2785:A:O2'	2.21	0.73
51:4:117:ILE:HG23	51:4:118:PRO:HD3	1.67	0.73
22:V:84:LYS:NZ	44:t:2602:A:OP2	2.20	0.73
43:r:63:VAL:HG12	43:r:79:ARG:HB3	1.69	0.73
44:t:469:G:N2	44:t:673:C:O2	2.17	0.73
44:t:4951:G:H1	44:t:5016:A:H61	1.36	0.73
21:U:8:ARG:NH1	44:t:4295:C:O2	2.22	0.73
53:7:359:LEU:HD13	53:7:360:LEU:N	2.04	0.73
41:p:36:GLN:NE2	44:t:4304:C:OP1	2.22	0.73
44:t:189:G:H22	44:t:244:G:N2	1.87	0.73
39:m:27:ILE:O	39:m:33:ASN:ND2	2.22	0.73
44:t:4080:U:O2'	44:t:4081:C:P	2.47	0.72
53:7:394:LYS:O	53:7:397:ARG:NH1	2.22	0.72
8:H:245:ARG:NH2	44:t:930:A:OP1	2.22	0.72
9:I:200:THR:O	9:I:201:THR:HG23	1.89	0.72
44:t:444:G:H1'	44:t:445:C:C6	2.24	0.72
52:5:263:ARG:O	52:5:264:THR:HG23	1.89	0.72
52:5:287:ARG:NH2	52:5:503:GLU:OE2	2.23	0.72
10:J:31:ARG:NH1	10:J:149:ASN:OD1	2.23	0.72
20:T:146:HIS:ND1	20:T:146:HIS:O	2.23	0.72
51:4:38:ALA:HB1	51:4:106:TRP:HB3	1.72	0.72
52:5:338:LEU:HD21	52:5:382:ALA:O	1.89	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:52:A:H62	39:m:27:ILE:HD13	1.55	0.72
44:t:1846:G:N2	44:t:1849:A:OP2	2.20	0.72
44:t:180:C:N3	44:t:251:G:N1	2.37	0.72
44:t:211:G:HO2'	44:t:212:C:P	2.12	0.72
44:t:470:G:N2	44:t:471:C:N3	2.36	0.72
35:i:98:HIS:ND1	44:t:137:G:OP1	2.23	0.71
44:t:2645:U:O2'	44:t:2647:G:N7	2.22	0.71
8:H:151:ASN:HA	8:H:191:ILE:HD11	1.70	0.71
44:t:2578:G:N2	44:t:2726:U:O4	2.23	0.71
12:L:100:SER:OG	12:L:104:ASN:OD1	2.07	0.71
44:t:132:G:O6	44:t:137:G:C6	2.43	0.71
44:t:2637:G:N2	44:t:2637:G:OP2	2.24	0.71
18:R:70:MET:SD	18:R:80:ALA:HB2	2.29	0.71
27:a:3:LYS:O	27:a:6:LYS:NZ	2.24	0.71
44:t:216:G:O6	44:t:233:G:O6	2.08	0.71
7:G:183:ARG:NH1	44:t:4894:G:N7	2.38	0.71
44:t:1060:C:H42	44:t:1217:G:H22	1.38	0.71
44:t:4065:G:N7	44:t:4068:A:N6	2.38	0.71
44:t:4728:C:N3	44:t:4824:C:N4	2.37	0.71
52:5:221:ILE:HD13	52:5:309:LEU:CD1	2.20	0.71
3:C:282:HIS:ND1	3:C:284:MET:O	2.22	0.71
18:R:65:ARG:NH2	44:t:1441:A:OP1	2.23	0.71
44:t:3736:G:O2'	44:t:3738:C:N4	2.23	0.71
44:t:652:C:N4	44:t:653:G:O6	2.23	0.71
44:t:1938:U:H3'	44:t:1939:A:H5''	1.71	0.71
44:t:2027:G:O2'	44:t:2028:A:N7	2.21	0.71
48:1:448:LEU:O	48:1:451:VAL:HG22	1.91	0.71
44:t:4070:C:O2	44:t:4080:U:N3	2.24	0.71
44:t:658:G:O2'	44:t:662:A:N6	2.24	0.70
44:t:955:C:OP2	44:t:2238:G:N2	2.24	0.70
44:t:2373:G:O2'	44:t:2798:U:O4	2.09	0.70
2:B:268:ARG:NH1	44:t:3867:C:O2'	2.24	0.70
44:t:501:G:O2'	44:t:502:G:O5'	2.08	0.70
44:t:1927:G:O2'	44:t:1929:G:OP2	2.09	0.70
44:t:123:C:H42	44:t:144:A:H61	1.40	0.70
51:4:137:ILE:HG23	51:4:198:LEU:HD11	1.73	0.70
53:7:168:PHE:HE2	53:7:222:LEU:HD21	1.55	0.70
44:t:1898:A:O2'	44:t:2047:C:O2'	1.92	0.70
51:4:66:ASP:OD1	51:4:67:PHE:N	2.24	0.70
6:F:50:ARG:NH1	6:F:147:ASP:OD2	2.23	0.70
24:X:51:TRP:O	44:t:4999:G:N2	2.25	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:5:411:LEU:HD12	52:5:456:MET:SD	2.32	0.70
44:t:463:C:N4	44:t:680:C:O2	2.23	0.69
54:6:120:THR:HG1	54:6:138:THR:HG1	1.37	0.69
15:O:178:HIS:ND1	44:t:68:U:OP1	2.21	0.69
25:Y:95:THR:O	25:Y:96:LEU:HD12	1.92	0.69
52:5:217:PRO:HB2	52:5:333:LEU:HD13	1.72	0.69
44:t:492:C:O2'	44:t:495:C:N4	2.26	0.69
44:t:952:G:O2'	44:t:953:A:N3	2.24	0.69
4:D:125:C:O3'	44:t:2523:G:N2	2.25	0.69
44:t:133:C:N4	44:t:135:G:N3	2.40	0.69
19:S:103:ARG:NH1	19:S:124:TYR:OH	2.24	0.69
44:t:955:C:O2'	44:t:956:C:O4'	2.11	0.69
46:v:26:A:H61	46:v:44:G:H1	1.40	0.69
52:5:84:CYS:HB3	52:5:159:THR:HG22	1.75	0.69
22:V:97:ARG:NH2	44:t:2603:G:OP2	2.25	0.69
44:t:1322:U:H2'	44:t:1323:C:C6	2.28	0.69
52:5:63:THR:HG21	52:5:143:VAL:HG23	1.72	0.69
26:Z:8:THR:O	44:t:223:G:N2	2.26	0.69
44:t:2452:A:O2'	44:t:2453:G:OP1	2.10	0.69
48:1:276:TYR:OH	48:1:402:ARG:NH1	2.25	0.69
52:5:248:LEU:HD11	52:5:272:PHE:CE2	2.27	0.69
52:5:308:VAL:HG21	52:5:375:PHE:CG	2.26	0.69
4:D:83:C:OP2	51:4:94:LYS:NZ	2.25	0.69
44:t:4366:U:O2'	44:t:4368:U:O4	2.09	0.69
48:1:302:TYR:CZ	48:1:341:LEU:HD22	2.28	0.69
44:t:659:G:H21	44:t:661:G:P	2.16	0.68
44:t:722:G:O6	44:t:921:C:N4	2.25	0.68
15:O:124:ASP:OD1	44:t:3908:C:O2'	2.10	0.68
44:t:1853:G:O2'	44:t:4181:A:N3	2.19	0.68
7:G:152:ILE:O	7:G:159:GLY:N	2.27	0.68
44:t:639:G:O2'	44:t:640:G:O4'	2.11	0.68
44:t:2618:U:O2'	44:t:2673:G:N1	2.20	0.68
4:D:12:G:OP1	17:Q:3:ARG:NH2	2.27	0.68
7:G:206:VAL:HG13	7:G:207:LYS:H	1.59	0.68
44:t:132:G:N7	44:t:137:G:N1	2.42	0.68
7:G:188:ARG:NH1	7:G:214:ASP:OD1	2.27	0.68
23:W:71:GLU:HG2	23:W:72:LEU:HD12	1.74	0.68
44:t:397:G:OP2	53:7:419:LYS:NZ	2.26	0.68
44:t:954:C:O2'	44:t:956:C:OP2	2.12	0.68
44:t:1387:G:N1	44:t:1396:C:N3	2.34	0.68
44:t:4946:U:O2'	44:t:4947:U:H4'	1.94	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:1:464:GLU:OE1	48:1:464:GLU:N	2.27	0.68
36:j:28:ARG:NH2	44:t:320:C:OP2	2.27	0.67
3:C:268:ARG:NH2	44:t:486:U:OP2	2.27	0.67
44:t:132:G:H2'	44:t:135:G:N1	2.08	0.67
44:t:489:C:O2'	44:t:490:G:O4'	2.09	0.67
44:t:4566:G:N2	44:t:4569:A:OP2	2.27	0.67
3:C:178:ASN:OD1	44:t:2279:A:N6	2.27	0.67
44:t:4597:A:OP1	44:t:4598:U:O2'	2.11	0.67
44:t:205:A:N3	44:t:205:A:H2'	2.08	0.67
44:t:2533:U:N3	44:t:2743:A:OP2	2.27	0.67
11:K:90:ARG:O	44:t:1765:C:O2'	2.13	0.67
29:c:99:ILE:O	29:c:109:ARG:NH1	2.27	0.67
4:D:91:A:O2'	4:D:92:U:O4'	2.10	0.67
44:t:85:G:O2'	44:t:97:G:O6	2.11	0.67
4:D:70:G:N2	4:D:87:G:O2'	2.27	0.67
44:t:216:G:O6	44:t:233:G:C6	2.47	0.67
44:t:363:G:N2	44:t:366:A:OP2	2.27	0.67
44:t:1250:C:HO2'	44:t:1253:A:N6	1.93	0.67
44:t:4429:A:O2'	44:t:4472:A:N3	2.26	0.66
48:1:187:ILE:HB	48:1:447:ILE:HD13	1.77	0.66
52:5:207:ARG:NH2	52:5:209:THR:OG1	2.27	0.66
8:H:62:ARG:NH1	44:t:932:U:OP2	2.28	0.66
8:H:184:ILE:HG21	8:H:193:GLU:HG3	1.77	0.66
44:t:131:C:H2'	44:t:132:G:C4	2.30	0.66
44:t:920:G:N3	44:t:925:C:O2'	2.29	0.66
44:t:1760:C:H2'	44:t:1761:U:C6	2.30	0.66
44:t:653:G:H2'	44:t:654:G:C4	2.30	0.66
52:5:258:LEU:HG	52:5:442:THR:HG21	1.75	0.66
53:7:244:GLN:N	53:7:244:GLN:OE1	2.28	0.66
35:i:4:ILE:HG23	35:i:9:LEU:HD21	1.76	0.66
44:t:2841:G:N3	44:t:3595:A:O2'	2.28	0.66
7:G:183:ARG:NH2	44:t:4896:A:OP1	2.28	0.66
14:N:94:LYS:NZ	44:t:4829:C:OP2	2.26	0.66
44:t:1860:C:O2'	44:t:1872:A:N3	2.29	0.66
52:5:221:ILE:HD11	52:5:311:LEU:HB2	1.78	0.66
9:I:157:ILE:HD11	9:I:167:VAL:CG1	2.25	0.66
20:T:81:TRP:HB3	20:T:127:MET:HE3	1.76	0.66
33:g:81:SER:N	44:t:1899:U:OP1	2.29	0.66
44:t:1250:C:O2'	44:t:1253:A:N6	2.29	0.66
53:7:252:ASN:O	53:7:357:ARG:NH1	2.29	0.66
50:3:81:ILE:HD12	50:3:82:ALA:N	2.11	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:64:U:O2'	4:D:65:A:H5'	1.96	0.66
44:t:3681:G:N2	44:t:3681:G:OP2	2.28	0.66
1:A:174:ARG:NH2	44:t:3655:G:OP1	2.29	0.65
44:t:211:G:O2'	44:t:212:C:P	2.52	0.65
48:1:210:GLU:HG3	48:1:239:LEU:HD22	1.77	0.65
3:C:295:SER:OG	3:C:297:GLU:OE1	2.13	0.65
48:1:292:ILE:HG23	48:1:449:LEU:HD13	1.78	0.65
52:5:89:LEU:HD13	52:5:112:LEU:HD12	1.78	0.65
5:E:7:G:O5'	6:F:33:ARG:NH1	2.29	0.65
44:t:728:C:H2'	44:t:729:C:C6	2.31	0.65
52:5:297:ASP:HB3	52:5:300:LEU:HD13	1.77	0.65
52:5:459:LEU:HD13	52:5:459:LEU:O	1.96	0.65
17:Q:9:GLU:O	53:7:410:ARG:NH2	2.29	0.65
29:c:41:ARG:NH1	44:t:1474:G:O2'	2.30	0.65
44:t:3851:G:HO2'	44:t:3852:G:H8	1.44	0.65
4:D:126:C:H41	44:t:2466:G:H21	1.45	0.65
15:O:200:LEU:HD13	15:O:204:ARG:HH12	1.62	0.65
10:J:155:SER:OG	44:t:4650:C:O3'	2.14	0.65
33:g:3:GLY:O	44:t:4903:G:N1	2.29	0.65
44:t:506:U:O2'	44:t:508:U:OP2	2.14	0.65
31:e:18:ASN:O	31:e:92:ARG:NH2	2.30	0.65
35:i:106:LYS:NZ	44:t:112:C:OP2	2.28	0.65
44:t:131:C:O2	44:t:137:G:N2	2.24	0.65
45:u:62:C:N4	45:u:63:G:O6	2.29	0.65
27:a:89:ILE:HD12	27:a:89:ILE:O	1.96	0.65
44:t:446:A:O4'	44:t:1276:G:H2'	1.97	0.65
44:t:1430:C:H2'	44:t:1431:G:C4	2.31	0.65
44:t:4066:C:O2'	44:t:4067:G:P	2.55	0.65
44:t:4601:G:H22	44:t:4622:G:N2	1.94	0.65
20:T:101:THR:HG23	20:T:104:GLY:H	1.62	0.64
44:t:180:C:O2'	44:t:181:U:O4'	2.15	0.64
53:7:219:LEU:HD23	53:7:220:ILE:N	2.12	0.64
48:1:74:GLY:O	48:1:75:THR:OG1	2.14	0.64
51:4:185:THR:O	51:4:188:HIS:ND1	2.30	0.64
4:D:77:A:O2'	4:D:78:G:H5'	1.97	0.64
4:D:121:G:N2	4:D:122:G:N7	2.45	0.64
30:d:81:LEU:HD21	30:d:94:LEU:HD23	1.78	0.64
52:5:324:VAL:HG23	52:5:338:LEU:HD22	1.78	0.64
29:c:11:ASN:ND2	44:t:1652:G:OP2	2.29	0.64
13:M:144:LEU:HD12	13:M:144:LEU:O	1.97	0.64
23:W:84:GLN:NE2	23:W:86:LYS:O	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:6:120:THR:OG1	54:6:138:THR:OG1	2.10	0.64
48:1:184:ALA:O	48:1:187:ILE:HG13	1.98	0.64
48:1:209:PHE:HB2	48:1:215:ALA:HB1	1.80	0.64
44:t:462:U:O2'	44:t:463:C:O4'	2.13	0.64
44:t:501:G:O2'	44:t:502:G:P	2.56	0.64
7:G:279:ASN:ND2	44:t:4717:G:O6	2.31	0.64
44:t:1835:G:N2	44:t:4356:A:O4'	2.31	0.64
52:5:320:LEU:HD13	52:5:357:VAL:HG13	1.80	0.64
44:t:641:G:H3'	44:t:642:G:C5'	2.27	0.63
53:7:172:ARG:NH2	53:7:192:THR:O	2.31	0.63
3:C:149:GLU:OE2	43:r:71:ARG:NH1	2.30	0.63
44:t:129:C:N3	44:t:131:C:N4	2.46	0.63
8:H:53:LYS:NZ	8:H:189:ASP:OD2	2.19	0.63
44:t:658:G:O2'	44:t:659:G:OP2	2.14	0.63
52:5:251:LEU:HD12	52:5:418:ILE:CG2	2.28	0.63
4:D:83:C:O2	4:D:83:C:H2'	1.98	0.63
44:t:4722:G:N2	44:t:4727:G:O3'	2.31	0.63
46:v:17:A:H1'	46:v:18:G:H4'	1.79	0.63
54:6:82:ASP:O	54:6:86:VAL:HG13	1.99	0.63
35:i:112:ARG:NH2	44:t:259:C:O2'	2.32	0.63
44:t:217:C:O2'	44:t:218:C:H5'	1.98	0.63
17:Q:80:GLN:OE1	44:t:3863:U:O2'	2.17	0.63
44:t:701:G:H2'	44:t:702:A:C8	2.33	0.63
33:g:33:VAL:HG23	33:g:38:GLU:HG3	1.81	0.63
34:h:6:THR:HG22	44:t:2379:G:H21	1.64	0.63
44:t:1758:A:H2'	44:t:1759:C:C6	2.33	0.63
1:A:13:GLY:O	1:A:17:ARG:NH1	2.32	0.62
21:U:7:LYS:O	44:t:4296:U:O2'	2.14	0.62
44:t:215:A:H2'	44:t:216:G:H21	1.63	0.62
44:t:498:G:O2'	44:t:499:G:H5''	1.98	0.62
48:1:302:TYR:CE2	48:1:341:LEU:HD22	2.34	0.62
5:E:30:C:N4	5:E:48:G:O6	2.31	0.62
27:a:11:VAL:HG12	27:a:82:PRO:HA	1.81	0.62
44:t:1544:G:N2	44:t:1547:A:OP2	2.32	0.62
22:V:81:ARG:NH2	44:t:2602:A:N7	2.46	0.62
44:t:4692:C:O4'	44:t:4696:A:N6	2.33	0.62
4:D:52:A:N6	39:m:27:ILE:HD13	2.14	0.62
9:I:244:PRO:HA	9:I:247:VAL:HG12	1.80	0.62
39:m:2:SER:N	44:t:2386:G:O6	2.33	0.62
2:B:114:CYS:HG	2:B:165:HIS:CE1	2.16	0.62
4:D:91:A:H2'	4:D:92:U:C6	2.34	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:13:VAL:HG22	20:T:63:TYR:HB3	1.81	0.62
23:W:31:ASN:ND2	23:W:115:SER:OG	2.29	0.62
44:t:1199:C:H2'	44:t:1200:G:C8	2.35	0.62
33:g:28:LEU:HD13	33:g:101:ILE:HD11	1.81	0.62
21:U:57:TYR:OH	44:t:4263:U:OP1	2.16	0.62
44:t:4063:G:H2'	44:t:4064:G:O4'	1.99	0.62
46:v:15:G:H22	46:v:48:C:H42	1.46	0.62
4:D:126:C:O2'	44:t:2472:G:H4'	2.00	0.61
4:D:121:G:H2'	4:D:122:G:H5''	1.81	0.61
28:b:77:LYS:NZ	44:t:1484:G:H22	1.98	0.61
51:4:32:PHE:O	51:4:36:VAL:HG23	1.99	0.61
53:7:241:VAL:HG12	53:7:241:VAL:O	1.99	0.61
12:L:15:LEU:HD21	12:L:157:ILE:HG21	1.82	0.61
44:t:181:U:O2'	44:t:185:G:O4'	2.17	0.61
52:5:339:ARG:NH1	52:5:343:THR:HG23	2.14	0.61
9:I:37:LYS:NZ	44:t:4095:C:OP1	2.33	0.61
2:B:108:GLU:OE1	2:B:109:HIS:ND1	2.32	0.61
4:D:85:U:H4'	4:D:86:U:H5'	1.82	0.61
6:F:39:GLN:NE2	6:F:46:THR:O	2.33	0.61
16:P:185:VAL:HG13	16:P:186:GLU:HG3	1.82	0.61
18:R:3:VAL:O	18:R:4:ASP:OD1	2.18	0.61
20:T:80:ILE:HG22	20:T:129:VAL:HG13	1.82	0.61
44:t:920:G:H2'	44:t:927:C:N4	2.16	0.61
44:t:4732:U:C4	44:t:4821:G:C6	2.88	0.61
7:G:50:LEU:HD23	7:G:56:ARG:HG2	1.82	0.61
12:L:136:ARG:NH2	12:L:161:GLU:OE2	2.33	0.61
18:R:148:VAL:HG12	18:R:152:PHE:CZ	2.35	0.61
4:D:121:G:N2	4:D:130:C:C2	2.69	0.61
28:b:73:VAL:HG23	28:b:108:TYR:CD1	2.35	0.61
42:q:13:LYS:NZ	42:q:30:GLU:OE2	2.29	0.61
44:t:2297:G:N2	44:t:2300:G:OP2	2.32	0.61
52:5:438:MET:N	52:5:438:MET:SD	2.73	0.61
54:6:24:GLY:O	54:6:28:VAL:HG13	2.00	0.61
37:k:49:TRP:O	44:t:1628:A:O2'	2.17	0.61
44:t:2465:G:H2'	44:t:2466:G:C8	2.36	0.61
44:t:1759:C:H2'	44:t:1760:C:C6	2.36	0.61
44:t:2626:A:H62	44:t:2665:G:H8	1.46	0.61
48:1:187:ILE:O	48:1:190:THR:OG1	2.16	0.61
5:E:87:G:N2	5:E:90:A:OP2	2.30	0.60
22:V:48:LYS:NZ	44:t:2609:U:OP1	2.25	0.60
44:t:219:C:O2'	44:t:221:U:OP2	2.17	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:665:G:H2'	44:t:666:G:C8	2.35	0.60
2:B:8:ALA:HB2	23:W:49:LEU:HD12	1.82	0.60
17:Q:23:ARG:NH2	17:Q:125:MET:SD	2.74	0.60
25:Y:95:THR:C	25:Y:96:LEU:HD12	2.26	0.60
45:u:55:U:O2	45:u:55:U:H2'	1.99	0.60
52:5:221:ILE:HD13	52:5:309:LEU:HD11	1.82	0.60
4:D:96:C:OP1	35:i:70:ARG:NH1	2.34	0.60
44:t:2773:C:N3	47:y:15:UNK:CB	2.64	0.60
20:T:112:ASP:OD1	20:T:116:ARG:NH1	2.35	0.60
44:t:62:A:N3	44:t:77:U:O2'	2.32	0.60
2:B:49:TYR:CE1	2:B:344:VAL:HG22	2.35	0.60
44:t:439:U:H2'	44:t:440:C:O4'	2.00	0.60
52:5:410:THR:O	52:5:414:ASN:ND2	2.35	0.60
7:G:165:LEU:HD11	7:G:176:THR:HG22	1.83	0.60
14:N:14:TYR:N	14:N:56:GLN:O	2.32	0.60
44:t:440:C:H2'	44:t:441:C:C6	2.35	0.60
5:E:48:G:O2'	5:E:49:A:O5'	2.19	0.60
17:Q:74:LYS:NZ	44:t:4940:A:OP1	2.30	0.60
26:Z:51:LYS:O	26:Z:70:VAL:HG23	2.02	0.60
44:t:227:G:H21	44:t:234:G:H1	1.50	0.60
44:t:2460:G:H2'	44:t:2461:C:C6	2.36	0.60
52:5:45:GLU:OE1	52:5:145:PHE:N	2.35	0.60
52:5:146:ALA:HB2	52:5:155:ILE:CD1	2.29	0.60
25:Y:148:ASP:OD1	25:Y:149:VAL:N	2.34	0.60
26:Z:103:LYS:NZ	44:t:227:G:O2'	2.28	0.60
44:t:506:U:C2	44:t:641:G:O6	2.55	0.60
44:t:637:C:H2'	44:t:638:G:C8	2.36	0.60
44:t:2245:C:O2'	44:t:2247:A:N7	2.32	0.60
44:t:4729:C:H42	44:t:4823:C:H42	1.49	0.60
51:4:117:ILE:HG23	51:4:118:PRO:CD	2.31	0.60
52:5:91:ASP:OD2	52:5:96:GLN:NE2	2.35	0.60
6:F:20:PHE:O	6:F:24:ARG:NE	2.35	0.59
13:M:154:VAL:HG23	13:M:154:VAL:O	2.02	0.59
19:S:39:GLN:NE2	44:t:2689:C:OP2	2.33	0.59
20:T:115:ALA:O	20:T:118:ARG:NH1	2.34	0.59
52:5:372:HIS:CG	52:5:382:ALA:HB1	2.36	0.59
1:A:138:SER:HB3	1:A:147:ARG:HG2	1.84	0.59
5:E:38:U:N3	5:E:41:G:OP2	2.23	0.59
22:V:39:PHE:CE2	22:V:43:LEU:HD11	2.37	0.59
44:t:2026:G:O6	44:t:3841:C:O2'	2.18	0.59
54:6:29:LEU:O	54:6:32:ARG:NH2	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:R:79:THR:HG22	18:R:99:LYS:HD2	1.84	0.59
44:t:459:G:H22	44:t:683:U:H3	1.50	0.59
44:t:1320:A:H62	44:t:2325:C:H5	1.50	0.59
44:t:4591:U:C2	44:t:4592:G:C8	2.90	0.59
3:C:217:ILE:HD11	3:C:221:PHE:CE2	2.37	0.59
41:p:33:LEU:HD12	41:p:38:LYS:HG2	1.83	0.59
44:t:651:C:H2'	44:t:652:C:C6	2.37	0.59
44:t:1276:G:OP2	44:t:1276:G:N2	2.19	0.59
44:t:2531:G:O2'	44:t:2745:A:N6	2.35	0.59
44:t:4707:G:H22	44:t:4912:G:H22	1.50	0.59
44:t:4736:C:H3'	44:t:4737:G:H5''	1.83	0.59
44:t:189:G:N2	44:t:244:G:H22	2.00	0.59
44:t:2552:A:N7	44:t:2740:U:C2	2.71	0.59
44:t:4817:G:HO2'	44:t:4818:G:P	2.24	0.59
46:v:52:G:C2	46:v:63:G:N1	2.71	0.59
52:5:408:SER:HA	52:5:456:MET:HE2	1.85	0.59
8:H:29:LYS:NZ	44:t:951:A:OP1	2.34	0.59
41:p:26:TYR:HB3	41:p:67:VAL:HG23	1.85	0.59
44:t:4510:A:H2'	45:u:75:C:OP1	2.02	0.59
52:5:246:SER:OG	52:5:411:LEU:HD13	2.02	0.59
53:7:466:LYS:O	53:7:470:LYS:HG3	2.03	0.59
8:H:238:ASP:N	8:H:238:ASP:OD1	2.36	0.59
32:f:129:LEU:HD23	32:f:129:LEU:H	1.68	0.59
44:t:205:A:N7	44:t:229:G:C5	2.71	0.59
44:t:488:U:H2'	44:t:489:C:O4'	2.03	0.59
44:t:2448:C:N4	44:t:2450:G:N7	2.41	0.59
44:t:2617:G:H1	44:t:2676:A:H61	1.49	0.59
25:Y:147:LEU:O	25:Y:151:ASN:ND2	2.35	0.59
44:t:196:G:N2	44:t:206:U:OP1	2.36	0.59
44:t:1227:G:N2	44:t:1229:G:O6	2.36	0.59
44:t:4817:G:O2'	44:t:4818:G:OP1	2.21	0.59
52:5:429:LEU:O	52:5:429:LEU:HD13	2.03	0.59
4:D:130:C:H2'	4:D:131:G:C8	2.38	0.58
26:Z:132:LYS:HD2	44:t:242:C:O2'	2.03	0.58
44:t:4047:A:N1	44:t:4133:C:N4	2.51	0.58
44:t:226:G:N7	44:t:227:G:C2	2.71	0.58
44:t:4081:C:P	44:t:4081:C:O4'	2.62	0.58
46:v:68:C:N4	46:v:69:G:O6	2.36	0.58
3:C:328:LEU:HD11	8:H:170:THR:O	2.03	0.58
6:F:108:ARG:NE	6:F:251:PRO:O	2.33	0.58
9:I:104:PRO:HG2	9:I:194:VAL:HG23	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:a:136:PHE:O	44:t:4091:G:O2'	2.20	0.58
44:t:2340:G:O2'	44:t:3830:G:O6	2.14	0.58
46:v:17:A:H1'	46:v:18:G:O5'	2.03	0.58
4:D:108:A:C2	4:D:112:G:C6	2.91	0.58
5:E:117:G:OP1	6:F:253:TYR:OH	2.19	0.58
51:4:112:ILE:HD12	51:4:113:MET:N	2.18	0.58
44:t:724:A:H62	44:t:917:G:H21	1.52	0.58
44:t:1840:C:N4	44:t:1856:C:H42	1.98	0.58
53:7:168:PHE:CE2	53:7:222:LEU:HD21	2.37	0.58
44:t:1059:C:H2'	44:t:1060:C:C5	2.39	0.58
44:t:1228:C:N4	44:t:1251:G:O6	2.36	0.58
3:C:322:LEU:O	44:t:1264:G:O2'	2.19	0.58
44:t:4692:C:H5'	44:t:4696:A:H61	1.67	0.58
46:v:20:U:H2'	46:v:21:A:H4'	1.86	0.58
52:5:131:GLU:N	52:5:131:GLU:OE1	2.36	0.58
4:D:77:A:C2'	4:D:78:G:H5'	2.33	0.58
5:E:99:G:N7	20:T:55:LYS:NZ	2.52	0.58
41:p:82:MET:HE3	44:t:4307:C:O2'	2.03	0.58
52:5:220:VAL:CG1	52:5:308:VAL:HG12	2.34	0.58
2:B:357:ARG:NH1	44:t:4577:C:O3'	2.37	0.58
4:D:85:U:H4'	4:D:86:U:C5'	2.34	0.58
19:S:98:ARG:HH21	19:S:133:LYS:HA	1.67	0.58
32:f:76:LYS:NZ	32:f:98:GLU:OE1	2.37	0.58
44:t:719:U:O2'	44:t:721:G:O2'	1.97	0.58
44:t:1056:G:H22	44:t:1221:A:H2	1.49	0.58
4:D:140:C:H2'	4:D:141:C:C6	2.39	0.58
14:N:14:TYR:O	14:N:56:GLN:N	2.37	0.58
14:N:17:PHE:HB3	44:t:1902:C:C4	2.38	0.58
22:V:108:GLU:OE1	22:V:108:GLU:N	2.37	0.58
44:t:2496:A:N3	44:t:2518:C:O2'	2.37	0.58
44:t:2652:G:H5''	44:t:2653:A:H3'	1.86	0.58
52:5:64:ARG:HE	52:5:178:THR:HG21	1.68	0.58
2:B:92:TYR:HB2	2:B:159:VAL:HG23	1.86	0.57
44:t:723:A:H2'	44:t:724:A:O4'	2.04	0.57
44:t:945:G:H2'	44:t:946:G:C8	2.38	0.57
44:t:2611:U:H2'	44:t:2612:U:C6	2.39	0.57
4:D:102:G:OP2	4:D:104:A:O2'	2.22	0.57
4:D:109:C:O2'	4:D:110:U:O5'	2.22	0.57
4:D:141:C:H2'	4:D:142:U:C6	2.40	0.57
12:L:20:LEU:HD13	12:L:132:VAL:HG22	1.85	0.57
20:T:13:VAL:HG23	20:T:62:VAL:HG23	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:4:THR:HG1	21:U:9:ARG:HE	1.51	0.57
31:e:44:ARG:NH2	44:t:2812:A:OP2	2.37	0.57
44:t:446:A:C1'	44:t:1276:G:H2'	2.34	0.57
44:t:1460:C:H2'	44:t:1461:G:C8	2.38	0.57
2:B:92:TYR:CE1	2:B:101:THR:HG22	2.39	0.57
4:D:126:C:H41	44:t:2466:G:N2	2.02	0.57
13:M:179:PHE:N	28:b:134:GLU:OE1	2.38	0.57
34:h:97:ILE:HD11	44:t:4091:G:C6	2.38	0.57
44:t:1769:A:N3	44:t:4172:U:O2'	2.37	0.57
44:t:4309:G:O6	44:t:4328:A:N6	2.37	0.57
50:3:91:GLY:HA2	50:3:94:THR:HG22	1.86	0.57
52:5:89:LEU:HD13	52:5:112:LEU:CD1	2.34	0.57
52:5:438:MET:HE3	52:5:441:PHE:CB	2.34	0.57
17:Q:48:LEU:HD21	17:Q:91:LEU:HD12	1.85	0.57
44:t:1074:C:O2	44:t:1188:G:N2	2.37	0.57
9:I:157:ILE:HD12	9:I:170:LEU:HD22	1.87	0.57
5:E:51:G:N2	12:L:12:MET:SD	2.75	0.57
44:t:2460:G:H2'	44:t:2461:C:H6	1.69	0.57
44:t:4235:A:H2'	44:t:4236:A:C8	2.40	0.57
48:1:86:THR:HG21	48:1:301:LEU:HD21	1.86	0.57
2:B:67:VAL:CG1	2:B:72:VAL:HG21	2.34	0.57
15:O:150:TRP:O	15:O:156:HIS:ND1	2.37	0.57
44:t:1067:C:C4	44:t:1198:C:N4	2.73	0.57
44:t:2069:G:N1	44:t:2074:G:O2'	2.36	0.57
44:t:4736:C:C3'	44:t:4737:G:H5''	2.35	0.57
44:t:4819:G:H2'	44:t:4820:G:C8	2.39	0.57
31:e:113:THR:HG22	31:e:115:LYS:H	1.69	0.57
44:t:213:C:O2	44:t:213:C:H2'	2.04	0.57
44:t:707:C:H2'	44:t:708:U:C6	2.40	0.57
44:t:3730:A:H5'	44:t:3736:G:H22	1.70	0.57
46:v:23:A:H2'	46:v:24:G:O4'	2.05	0.57
48:1:188:CYS:HA	48:1:191:ILE:HD12	1.86	0.57
52:5:438:MET:HE3	52:5:441:PHE:HB3	1.86	0.57
53:7:383:MET:O	53:7:386:VAL:HG12	2.04	0.57
44:t:197:U:H5	44:t:210:G:H1	1.52	0.57
44:t:2682:G:C6	44:t:2693:G:C6	2.92	0.57
44:t:3569:C:H2'	44:t:3570:A:C8	2.39	0.57
44:t:3707:A:H2'	44:t:3708:A:O4'	2.04	0.57
7:G:156:ARG:NH2	44:t:4898:C:OP1	2.33	0.57
33:g:58:VAL:HG23	44:t:1280:U:O3'	2.05	0.57
44:t:1721:G:N2	44:t:1772:U:C2	2.73	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:2464:U:O2	44:t:2472:G:N2	2.37	0.57
44:t:4376:A:OP2	44:t:4384:A:N6	2.35	0.57
46:v:22:G:O2'	46:v:23:A:H5''	2.04	0.57
49:2:36:ILE:O	49:2:40:THR:HG23	2.05	0.57
52:5:372:HIS:ND1	52:5:382:ALA:HB1	2.19	0.57
53:7:167:TRP:CE3	53:7:376:MET:HE1	2.39	0.57
53:7:220:ILE:HG23	53:7:245:VAL:HG13	1.86	0.57
6:F:37:VAL:CG1	6:F:67:ALA:HB2	2.34	0.56
44:t:189:G:H22	44:t:244:G:H22	1.50	0.56
44:t:220:G:HO2'	44:t:239:U:HO2'	1.51	0.56
44:t:4066:C:O2'	44:t:4067:G:OP2	2.23	0.56
44:t:4098:G:O6	44:t:4118:G:N2	2.38	0.56
5:E:78:C:O2'	44:t:1718:A:N3	2.39	0.56
21:U:4:THR:OG1	21:U:9:ARG:NE	2.22	0.56
44:t:487:G:H2'	44:t:488:U:C6	2.40	0.56
44:t:1316:A:H2'	44:t:1317:A:C8	2.40	0.56
44:t:1427:G:N1	44:t:2080:A:N1	2.53	0.56
44:t:2456:A:H2	44:t:2457:C:H41	1.53	0.56
44:t:4705:G:H2'	44:t:4706:A:C8	2.40	0.56
44:t:4842:G:H2'	44:t:4843:U:O4'	2.06	0.56
46:v:19:G:N3	46:v:57:G:N2	2.52	0.56
48:1:267:ILE:HD12	48:1:279:TYR:HB3	1.86	0.56
51:4:42:TYR:CD1	51:4:106:TRP:CZ3	2.93	0.56
52:5:245:VAL:CG1	52:5:459:LEU:HD11	2.34	0.56
3:C:316:LYS:NZ	44:t:1265:G:OP1	2.38	0.56
52:5:178:THR:HG22	52:5:178:THR:O	2.05	0.56
4:D:71:A:H1'	4:D:88:A:C6	2.41	0.56
4:D:130:C:H2'	4:D:131:G:H8	1.70	0.56
13:M:59:VAL:HG13	44:t:74:G:H5'	1.88	0.56
14:N:96:GLU:OE2	14:N:100:ARG:NH2	2.38	0.56
34:h:76:ARG:CZ	34:h:84:ALA:HB2	2.35	0.56
44:t:655:A:H2'	44:t:656:C:C6	2.40	0.56
44:t:4600:U:H2'	44:t:4601:G:C8	2.40	0.56
51:4:98:LYS:O	51:4:101:VAL:HG22	2.06	0.56
26:Z:54:GLU:HA	26:Z:69:LYS:HA	1.88	0.56
44:t:165:C:C2	44:t:263:G:C2	2.94	0.56
44:t:742:G:N2	44:t:743:G:O6	2.38	0.56
44:t:4083:C:H4'	44:t:4084:G:O5'	2.05	0.56
1:A:30:ARG:O	1:A:163:ARG:NH2	2.39	0.56
4:D:86:U:O2'	4:D:87:G:O5'	2.22	0.56
15:O:16:SER:OG	36:j:48:CYS:SG	2.64	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:49:ARG:NH2	44:t:150:G:OP2	2.39	0.56
39:m:25:GLN:OE1	39:m:28:ARG:NH1	2.36	0.56
44:t:1058:G:N2	44:t:1219:C:O2	2.39	0.56
48:1:219:LEU:HD21	48:1:232:GLU:OE2	2.06	0.56
6:F:37:VAL:HG13	6:F:67:ALA:HB2	1.86	0.56
44:t:3844:G:H2'	44:t:3845:G:C8	2.41	0.56
2:B:174:ARG:NH2	44:t:4943:U:O2	2.39	0.56
6:F:82:GLU:OE2	6:F:108:ARG:NH2	2.38	0.56
13:M:51:ALA:O	13:M:52:SER:OG	2.17	0.56
38:l:40:ARG:NH1	44:t:2517:U:OP2	2.38	0.56
44:t:463:C:H2'	44:t:464:A:O4'	2.06	0.56
2:B:56:ILE:HD11	2:B:365:LEU:HG	1.87	0.56
17:Q:22:LEU:HD12	17:Q:22:LEU:O	2.06	0.56
44:t:481:G:H2'	44:t:482:G:C8	2.41	0.56
44:t:944:G:O6	44:t:1267:G:O2'	2.24	0.56
44:t:2413:G:OP1	48:1:402:ARG:NH2	2.39	0.56
2:B:317:LEU:HD21	44:t:4959:U:H5''	1.88	0.55
8:H:85:ALA:N	21:U:138:ALA:HB2	2.21	0.55
26:Z:85:VAL:O	26:Z:85:VAL:HG13	2.06	0.55
43:r:103:ARG:HE	43:r:106:LEU:HD21	1.70	0.55
44:t:165:C:H2'	44:t:166:G:C8	2.41	0.55
44:t:4069:G:H4'	44:t:4070:C:H5'	1.87	0.55
44:t:4832:A:H1'	44:t:4834:U:C2	2.40	0.55
51:4:215:LEU:O	51:4:219:VAL:HG13	2.06	0.55
4:D:94:G:OP2	37:k:72:ARG:NH2	2.37	0.55
4:D:123:U:O4'	4:D:123:U:P	2.64	0.55
30:d:20:LEU:HD22	30:d:101:ASP:HB2	1.86	0.55
44:t:111:C:C2	44:t:325:G:C2	2.94	0.55
44:t:442:G:H2'	44:t:443:C:C6	2.40	0.55
44:t:481:G:H2'	44:t:482:G:H8	1.70	0.55
44:t:482:G:H2'	44:t:483:C:C6	2.41	0.55
4:D:60:G:OP1	25:Y:68:ARG:NH2	2.40	0.55
4:D:154:G:H2'	4:D:155:C:C6	2.41	0.55
5:E:12:U:OP2	5:E:67:C:O2'	2.22	0.55
7:G:73:TYR:OH	44:t:969:U:O5'	2.24	0.55
44:t:4309:G:C6	44:t:4328:A:C6	2.94	0.55
44:t:4499:C:H2'	44:t:4500:G:H8	1.72	0.55
52:5:48:VAL:HG23	52:5:143:VAL:O	2.07	0.55
52:5:109:VAL:CG2	52:5:155:ILE:HD12	2.37	0.55
17:Q:48:LEU:HD23	17:Q:92:LEU:HB2	1.88	0.55
38:l:6:GLU:OE1	38:l:6:GLU:N	2.36	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:207:C:H4'	44:t:229:G:H22	1.70	0.55
44:t:3693:G:C6	44:t:3703:A:C6	2.94	0.55
13:M:39:ARG:NH1	44:t:1345:G:OP1	2.39	0.55
44:t:40:G:C6	44:t:4340:A:C5	2.95	0.55
44:t:1315:C:H2'	44:t:1316:A:H8	1.72	0.55
44:t:1457:G:N2	44:t:1472:G:C4	2.74	0.55
44:t:1739:U:H2'	44:t:1740:G:C8	2.40	0.55
44:t:1761:U:H2'	44:t:1762:A:C8	2.42	0.55
44:t:2455:G:N2	44:t:2481:G:H1'	2.22	0.55
51:4:106:TRP:CZ2	51:4:146:TYR:HE2	2.24	0.55
51:4:140:ASN:OD1	51:4:141:ILE:N	2.40	0.55
17:Q:94:MET:CE	17:Q:146:ILE:HD11	2.37	0.55
35:i:21:LEU:HD21	35:i:25:LYS:HE2	1.88	0.55
44:t:30:C:C4	44:t:31:U:C4	2.94	0.55
44:t:1938:U:C3'	44:t:1939:A:H5''	2.36	0.55
1:A:101:VAL:C	1:A:102:LEU:HD12	2.32	0.55
2:B:10:ARG:NH1	2:B:11:HIS:O	2.40	0.55
28:b:77:LYS:HZ1	44:t:1484:G:N2	2.03	0.55
41:p:36:GLN:HG3	41:p:37:GLY:N	2.20	0.55
44:t:3879:A:N7	44:t:4411:A:N6	2.54	0.55
48:1:74:GLY:O	48:1:75:THR:CB	2.54	0.55
48:1:248:THR:O	48:1:251:VAL:HG22	2.07	0.55
52:5:308:VAL:HG11	52:5:375:PHE:CE2	2.41	0.55
52:5:323:HIS:NE2	52:5:364:ALA:O	2.40	0.55
6:F:86:TYR:CG	6:F:247:ILE:HG22	2.42	0.55
44:t:231:G:C2	44:t:234:G:N7	2.73	0.55
44:t:2411:U:O3'	48:1:268:LYS:NZ	2.40	0.55
44:t:4080:U:O2'	44:t:4081:C:OP1	2.21	0.55
49:2:18:SER:O	49:2:22:VAL:HG13	2.07	0.55
44:t:132:G:H2'	44:t:135:G:H1	1.71	0.55
44:t:490:G:H2'	44:t:491:G:H8	1.72	0.55
44:t:1061:A:H2	44:t:1216:G:H22	1.55	0.55
44:t:3664:U:C4	44:t:3794:G:N2	2.75	0.55
10:J:7:ASN:HB3	10:J:58:ASP:HB3	1.89	0.55
17:Q:16:LYS:HB3	17:Q:149:ILE:HD13	1.89	0.55
42:q:4:ARG:NE	44:t:1536:A:OP2	2.36	0.55
46:v:61:C:O2	46:v:61:C:H2'	2.06	0.55
7:G:212:LEU:O	7:G:212:LEU:HD12	2.07	0.54
8:H:236:ARG:HD3	8:H:239:GLN:HB2	1.88	0.54
15:O:116:LEU:CB	15:O:133:ILE:HD11	2.37	0.54
17:Q:4:TYR:OH	44:t:394:A:OP1	2.20	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:h:97:ILE:HD11	44:t:4091:G:C5	2.43	0.54
50:3:71:VAL:N	50:3:72:PRO:CD	2.70	0.54
52:5:309:LEU:HD22	52:5:337:PHE:CZ	2.42	0.54
25:Y:77:ILE:HD11	25:Y:98:PHE:CD1	2.42	0.54
44:t:2531:G:HO2'	44:t:2745:A:N6	2.05	0.54
52:5:48:VAL:O	52:5:63:THR:OG1	2.20	0.54
6:F:9:ASN:HD22	6:F:9:ASN:N	2.03	0.54
43:r:51:VAL:HG23	43:r:113:ARG:HG2	1.87	0.54
44:t:489:C:H2'	44:t:490:G:H8	1.71	0.54
2:B:132:LYS:NZ	44:t:4690:U:OP1	2.40	0.54
7:G:49:VAL:HG23	7:G:49:VAL:O	2.08	0.54
42:q:47:MET:HE2	42:q:71:TYR:CE1	2.43	0.54
44:t:2086:G:N2	44:t:2087:C:N3	2.55	0.54
44:t:4108:G:O2'	44:t:4109:G:N1	2.41	0.54
25:Y:63:LYS:O	25:Y:64:SER:OG	2.24	0.54
44:t:2417:A:O2'	44:t:2419:U:OP2	2.21	0.54
44:t:4727:G:N2	44:t:4825:G:H22	2.06	0.54
51:4:106:TRP:CZ2	51:4:146:TYR:CE2	2.95	0.54
7:G:100:LYS:HB2	44:t:677:G:H4'	1.89	0.54
26:Z:2:LYS:HD2	26:Z:7:VAL:HG13	1.89	0.54
28:b:9:ARG:HG2	44:t:2323:U:H3	1.73	0.54
28:b:126:ALA:HB3	28:b:129:PHE:CZ	2.42	0.54
44:t:445:C:O2	44:t:1279:G:C2	2.60	0.54
44:t:3688:A:H2'	44:t:3689:A:C8	2.43	0.54
44:t:4832:A:OP2	44:t:4832:A:H4'	2.04	0.54
53:7:383:MET:N	53:7:383:MET:SD	2.80	0.54
44:t:443:C:N4	44:t:444:G:O6	2.40	0.54
44:t:451:G:H22	44:t:691:G:H22	1.55	0.54
44:t:708:U:H3	44:t:938:G:H1	1.56	0.54
44:t:2390:C:C2	44:t:2413:G:N2	2.76	0.54
49:2:58:HIS:O	49:2:62:ASN:N	2.37	0.54
50:3:71:VAL:HG13	50:3:74:LEU:HD12	1.90	0.54
13:M:167:ARG:NH2	13:M:173:GLU:OE2	2.41	0.54
15:O:39:ALA:HB2	15:O:63:ARG:HE	1.71	0.54
20:T:27:LEU:O	20:T:27:LEU:HD12	2.08	0.54
33:g:9:ALA:HB2	33:g:30:ILE:CG2	2.38	0.54
33:g:93:PRO:O	33:g:94:ALA:HB3	2.08	0.54
35:i:51:ARG:O	35:i:54:ILE:HG22	2.08	0.54
44:t:250:G:H2'	44:t:251:G:C4	2.41	0.54
44:t:485:G:H2'	44:t:486:U:C6	2.41	0.54
44:t:2739:G:O2'	44:t:2740:U:O4'	2.26	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:4062:G:C2'	44:t:4063:G:H21	2.20	0.54
52:5:267:ALA:C	52:5:429:LEU:HD12	2.33	0.54
3:C:156:ASP:OD1	3:C:253:THR:HG22	2.08	0.54
3:C:199:ARG:NH2	44:t:344:C:OP2	2.41	0.54
15:O:46:ASP:OD1	15:O:47:LYS:N	2.37	0.54
19:S:5:ARG:NH2	44:t:2364:U:OP1	2.41	0.54
44:t:4072:C:N3	44:t:4077:G:N1	2.55	0.54
25:Y:84:GLU:HG3	48:1:404:HIS:HA	1.90	0.54
29:c:7:HIS:O	29:c:8:THR:HG23	2.08	0.54
44:t:2619:G:H2'	44:t:2620:A:C8	2.43	0.54
4:D:86:U:OP2	4:D:86:U:O3'	2.26	0.53
8:H:122:PHE:O	8:H:205:ASN:ND2	2.35	0.53
21:U:64:VAL:HG13	21:U:72:VAL:HG13	1.89	0.53
23:W:43:LYS:HE2	23:W:62:MET:HE2	1.90	0.53
28:b:8:THR:HG21	44:t:1322:U:OP1	2.08	0.53
37:k:18:LEU:HA	37:k:25:LYS:HA	1.90	0.53
44:t:703:C:H42	44:t:943:A:H61	1.55	0.53
44:t:4601:G:H1	44:t:4622:G:H22	1.57	0.53
4:D:92:U:O2'	4:D:93:C:H5'	2.08	0.53
27:a:79:HIS:O	27:a:80:LEU:HD12	2.08	0.53
35:i:4:ILE:HD12	35:i:20:GLN:NE2	2.22	0.53
44:t:135:G:HO2'	44:t:136:G:C1'	2.11	0.53
44:t:471:C:C4	44:t:472:G:N7	2.76	0.53
44:t:2436:G:N3	44:t:3643:G:N2	2.57	0.53
52:5:316:ARG:NE	52:5:405:ARG:O	2.41	0.53
33:g:9:ALA:HB2	33:g:30:ILE:HG22	1.88	0.53
42:q:47:MET:SD	42:q:57:CYS:SG	3.07	0.53
44:t:3851:G:O2'	44:t:3852:G:H8	1.90	0.53
14:N:43:THR:HG23	14:N:45:VAL:HG12	1.90	0.53
18:R:104:ARG:NH1	44:t:1336:G:N7	2.56	0.53
35:i:4:ILE:CG2	35:i:9:LEU:HD11	2.37	0.53
44:t:500:C:H2'	44:t:501:G:C8	2.44	0.53
44:t:1658:C:H41	44:t:4340:A:H2'	1.74	0.53
44:t:4733:C:H2'	44:t:4734:C:C6	2.43	0.53
52:5:372:HIS:ND1	52:5:372:HIS:O	2.39	0.53
7:G:48:PRO:O	7:G:56:ARG:HG3	2.07	0.53
44:t:319:U:H2'	44:t:320:C:C6	2.43	0.53
44:t:502:G:O2'	44:t:503:A:H5''	2.08	0.53
44:t:645:C:H2'	44:t:646:G:C8	2.44	0.53
44:t:3663:A:H62	44:t:3794:G:N2	2.07	0.53
52:5:262:LYS:NZ	52:5:441:PHE:O	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:5:299:SER:C	52:5:300:LEU:HD12	2.34	0.53
54:6:30:VAL:HG12	54:6:90:SER:CB	2.38	0.53
5:E:6:C:H4'	6:F:52:ILE:HD13	1.90	0.53
14:N:46:ARG:HB3	44:t:922:A:C6	2.43	0.53
26:Z:55:VAL:CG1	26:Z:104:VAL:HG13	2.39	0.53
44:t:231:G:N1	44:t:234:G:N7	2.55	0.53
44:t:1409:G:N1	44:t:1440:C:OP2	2.37	0.53
51:4:97:TYR:O	51:4:101:VAL:HG13	2.08	0.53
6:F:209:ARG:HA	6:F:212:MET:HE2	1.90	0.53
18:R:67:ILE:HD11	18:R:92:VAL:HG21	1.91	0.53
27:a:91:LEU:O	27:a:91:LEU:HD12	2.08	0.53
44:t:499:G:H2'	44:t:500:C:C6	2.44	0.53
44:t:920:G:H2'	44:t:927:C:H41	1.73	0.53
44:t:951:A:H2'	44:t:952:G:H4'	1.91	0.53
44:t:4420:C:H2'	44:t:4421:U:C6	2.44	0.53
44:t:4592:G:HO2'	44:t:4633:C:H5	1.56	0.53
14:N:97:ALA:HB1	16:P:198:THR:HG23	1.91	0.53
35:i:88:THR:O	35:i:89:ARG:C	2.52	0.53
44:t:1389:G:C6	44:t:1395:G:C2	2.97	0.53
49:2:62:ASN:HA	49:2:65:ILE:HD12	1.89	0.53
53:7:237:MET:SD	53:7:238:MET:N	2.82	0.53
11:K:144:ASN:O	11:K:148:VAL:HG23	2.09	0.53
12:L:56:THR:OG1	12:L:64:ARG:N	2.41	0.53
28:b:9:ARG:HG2	44:t:2323:U:N3	2.24	0.53
44:t:74:G:O6	44:t:75:G:N1	2.42	0.53
44:t:127:G:C6	44:t:141:G:C6	2.97	0.53
44:t:470:G:C2	44:t:471:C:C4	2.97	0.53
44:t:2060:G:H2'	44:t:2061:U:C6	2.44	0.53
44:t:2706:C:H2'	44:t:2707:U:C6	2.44	0.53
44:t:3916:A:H2'	44:t:3917:G:H8	1.74	0.53
48:1:195:ALA:O	48:1:212:ALA:HB1	2.08	0.53
52:5:299:SER:O	52:5:300:LEU:HD12	2.09	0.53
52:5:337:PHE:HD1	52:5:425:VAL:HG21	1.73	0.53
7:G:187:ARG:NH2	44:t:4899:G:O3'	2.42	0.53
44:t:473:G:H22	44:t:669:G:N2	2.08	0.53
44:t:1749:A:H2'	44:t:1751:G:N7	2.25	0.53
44:t:1857:U:H2'	44:t:1858:G:O4'	2.09	0.53
44:t:2738:G:H8	44:t:2743:A:H2	1.55	0.53
44:t:4067:G:HO2'	44:t:4068:A:P	2.32	0.53
3:C:350:ARG:NH1	44:t:715:C:OP2	2.43	0.52
4:D:86:U:HO2'	4:D:87:G:P	2.32	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:131:G:C2'	4:D:132:G:H5''	2.39	0.52
17:Q:127:ARG:O	17:Q:139:TYR:N	2.42	0.52
44:t:179:G:H2'	44:t:180:C:C6	2.44	0.52
44:t:1226:C:O2'	44:t:1251:G:N2	2.39	0.52
44:t:4440:G:O2'	44:t:4564:A:N1	2.42	0.52
54:6:18:THR:HG21	54:6:105:PHE:HZ	1.74	0.52
54:6:26:THR:CG2	54:6:94:ILE:HD13	2.35	0.52
44:t:473:G:N2	44:t:669:G:N2	2.58	0.52
44:t:2464:U:H2'	44:t:2465:G:C8	2.44	0.52
44:t:2479:U:H2'	44:t:2480:C:C6	2.44	0.52
44:t:4701:C:C2	44:t:4919:G:N2	2.77	0.52
52:5:49:TYR:HA	52:5:176:LEU:HD11	1.90	0.52
53:7:254:GLU:O	53:7:357:ARG:NH1	2.40	0.52
1:A:241:ARG:O	1:A:242:ARG:HG3	2.09	0.52
7:G:173:LEU:HD23	7:G:173:LEU:H	1.75	0.52
44:t:4821:G:H3'	44:t:4822:U:H5''	1.90	0.52
48:1:452:THR:HA	48:1:455:TYR:CD2	2.44	0.52
20:T:99:ASP:OD1	20:T:100:LEU:N	2.41	0.52
27:a:107:LYS:NZ	44:t:2557:G:OP1	2.34	0.52
44:t:280:U:OP2	44:t:290:A:N6	2.41	0.52
2:B:105:VAL:HG11	2:B:150:PHE:CZ	2.44	0.52
2:B:220:ILE:HG23	2:B:278:THR:HG22	1.91	0.52
3:C:328:LEU:HD23	8:H:187:MET:HE3	1.91	0.52
8:H:118:PHE:CD1	8:H:247:MET:HE1	2.44	0.52
9:I:132:ARG:NH1	44:t:119:G:O4'	2.31	0.52
41:p:23:VAL:HG23	41:p:68:LEU:HB3	1.92	0.52
44:t:487:G:O6	44:t:655:A:N6	2.43	0.52
44:t:4421:U:H2'	44:t:4422:U:C6	2.45	0.52
53:7:172:ARG:HD3	53:7:207:LEU:HD11	1.92	0.52
9:I:127:ASP:OD1	9:I:128:VAL:N	2.41	0.52
44:t:1564:U:O2	44:t:1564:U:O4'	2.27	0.52
53:7:321:LEU:HD13	53:7:321:LEU:O	2.09	0.52
8:H:80:ASN:HA	21:U:143:THR:HG22	1.92	0.52
44:t:501:G:HO2'	44:t:502:G:P	2.32	0.52
44:t:1286:A:C2	44:t:1286:A:OP1	2.63	0.52
44:t:2450:G:C5	44:t:2452:A:C6	2.98	0.52
44:t:3625:G:O2'	44:t:3664:U:OP1	2.24	0.52
52:5:309:LEU:HD22	52:5:337:PHE:CE2	2.45	0.52
52:5:395:GLN:OE1	52:5:405:ARG:NH1	2.41	0.52
5:E:48:G:OP1	6:F:226:TYR:OH	2.28	0.52
7:G:127:SER:OG	7:G:128:HIS:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:22:LEU:HD22	12:L:130:PHE:CD1	2.45	0.52
15:O:115:VAL:HB	15:O:160:GLU:OE2	2.10	0.52
18:R:65:ARG:NH1	44:t:1484:G:OP1	2.37	0.52
21:U:8:ARG:HH21	21:U:52:MET:HE2	1.75	0.52
33:g:6:TRP:CD2	33:g:102:ARG:HG3	2.45	0.52
44:t:132:G:N7	44:t:137:G:C2	2.78	0.52
44:t:2554:U:O2'	44:t:2568:C:OP2	2.22	0.52
44:t:4255:U:OP2	44:t:4291:G:O2'	2.21	0.52
44:t:4597:A:H2	44:t:4625:G:H21	1.56	0.52
53:7:174:LEU:O	53:7:174:LEU:HD13	2.10	0.52
4:D:119:C:N3	4:D:132:G:C6	2.78	0.52
12:L:37:ALA:HB2	12:L:70:VAL:HG11	1.91	0.52
14:N:119:ARG:NH1	14:N:120:ASN:OD1	2.42	0.52
44:t:952:G:N2	44:t:2072:G:H1'	2.25	0.52
44:t:3660:G:O2'	44:t:3789:U:OP2	2.28	0.52
44:t:3910:G:N7	44:t:4132:A:H2'	2.25	0.52
44:t:4548:G:O6	44:t:4679:A:N6	2.42	0.52
46:v:15:G:N1	46:v:48:C:N3	2.50	0.52
48:1:160:LEU:HA	48:1:163:LEU:HD12	1.92	0.52
4:D:65:A:O2'	4:D:66:A:H5'	2.10	0.52
4:D:66:A:O2'	4:D:67:U:H5'	2.09	0.52
4:D:112:G:C6	4:D:113:C:C4	2.98	0.52
6:F:219:TYR:CE2	6:F:227:ILE:HD11	2.45	0.52
18:R:62:SER:OG	44:t:1484:G:OP2	2.19	0.52
28:b:77:LYS:NZ	44:t:1484:G:N2	2.57	0.52
43:r:10:VAL:HG12	43:r:10:VAL:O	2.10	0.52
44:t:189:G:H1	44:t:244:G:H22	1.56	0.52
44:t:474:C:C2	44:t:669:G:N2	2.79	0.52
44:t:1071:C:H2'	44:t:1072:G:H8	1.75	0.52
44:t:1297:C:C2	44:t:1298:C:C5	2.97	0.52
44:t:2483:C:OP2	44:t:2484:C:C6	2.63	0.52
44:t:4372:G:C4	44:t:4395:G:C2	2.98	0.52
49:2:50:ILE:O	49:2:54:VAL:HG23	2.10	0.52
13:M:169:ILE:HD11	28:b:98:ALA:HB2	1.92	0.51
44:t:181:U:N3	44:t:185:G:C8	2.78	0.51
44:t:222:G:C5	44:t:232:A:C8	2.97	0.51
44:t:1278:C:H4'	44:t:1279:G:O4'	2.09	0.51
44:t:1739:U:H2'	44:t:1740:G:H8	1.75	0.51
48:1:221:ALA:HB1	51:4:117:ILE:HD11	1.92	0.51
48:1:384:GLY:O	48:1:385:SER:C	2.53	0.51
52:5:49:TYR:OH	52:5:51:MET:SD	2.63	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:47:PRO:HD2	11:K:141:LYS:HA	1.92	0.51
15:O:116:LEU:HB3	15:O:133:ILE:HD11	1.91	0.51
17:Q:5:SER:O	17:Q:6:LEU:HG	2.09	0.51
44:t:1365:G:H2'	44:t:1366:G:H8	1.76	0.51
44:t:2738:G:C8	44:t:2744:A:C2	2.99	0.51
44:t:4061:G:H2'	44:t:4062:G:O4'	2.10	0.51
44:t:4707:G:N2	44:t:4912:G:H22	2.08	0.51
48:1:255:VAL:HG21	48:1:448:LEU:HG	1.91	0.51
51:4:137:ILE:CG2	51:4:198:LEU:HD11	2.41	0.51
2:B:360:LEU:HD23	2:B:360:LEU:O	2.10	0.51
18:R:64:SER:OG	18:R:89:ASP:OD2	2.19	0.51
26:Z:55:VAL:HG13	26:Z:104:VAL:HG13	1.90	0.51
33:g:11:PHE:CE2	33:g:97:ILE:HD13	2.46	0.51
35:i:89:ARG:NH2	44:t:20:U:OP2	2.41	0.51
44:t:206:U:O4	44:t:227:G:C8	2.63	0.51
44:t:207:C:C2	44:t:208:G:C8	2.98	0.51
44:t:485:G:N2	44:t:657:C:C2	2.78	0.51
44:t:732:C:H42	44:t:910:C:H42	1.58	0.51
44:t:1733:A:H2'	44:t:1734:G:C8	2.46	0.51
44:t:1888:A:H2'	44:t:1889:A:C8	2.46	0.51
44:t:1923:A:N6	44:t:2020:G:H2'	2.25	0.51
44:t:2788:G:O2'	44:t:4606:G:OP1	2.25	0.51
44:t:4066:C:H4'	44:t:4067:G:H5'	1.92	0.51
44:t:4265:C:H2'	44:t:4267:G:C8	2.45	0.51
44:t:4400:U:H2'	44:t:4401:U:O4'	2.10	0.51
51:4:183:MET:HG2	51:4:200:ALA:HB1	1.93	0.51
52:5:403:ARG:HD2	52:5:456:MET:HE3	1.91	0.51
4:D:120:G:N1	4:D:131:G:C6	2.78	0.51
4:D:141:C:C2	4:D:142:U:C5	2.99	0.51
5:E:11:A:O2'	5:E:13:A:OP2	2.22	0.51
7:G:110:ARG:NH2	44:t:955:C:O4'	2.44	0.51
25:Y:119:ILE:HD12	25:Y:119:ILE:O	2.11	0.51
28:b:9:ARG:NH2	44:t:2323:U:C6	2.78	0.51
44:t:668:C:H2'	44:t:669:G:C8	2.45	0.51
44:t:1060:C:H42	44:t:1217:G:N2	2.08	0.51
44:t:1389:G:N7	44:t:1391:G:H5''	2.26	0.51
44:t:1895:C:H5''	44:t:1896:C:H2'	1.91	0.51
44:t:2357:G:OP1	53:7:462:ARG:NH1	2.43	0.51
44:t:4567:A:H2'	44:t:4568:G:O4'	2.10	0.51
46:v:11:C:H2'	46:v:12:C:C6	2.46	0.51
46:v:62:C:H2'	46:v:63:G:C8	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:51:ALA:HB3	2:B:78:ILE:HD11	1.92	0.51
4:D:61:A:OP1	35:i:52:LYS:NZ	2.36	0.51
8:H:167:ILE:HD13	8:H:174:LEU:HD23	1.92	0.51
17:Q:6:LEU:O	17:Q:6:LEU:HD12	2.10	0.51
17:Q:146:ILE:HD12	17:Q:146:ILE:C	2.34	0.51
26:Z:42:TYR:O	26:Z:43:ASN:OD1	2.29	0.51
29:c:23:LYS:HB3	29:c:24:PRO:HD2	1.93	0.51
44:t:193:C:C4	44:t:221:U:O2	2.63	0.51
44:t:496:C:OP2	44:t:499:G:OP2	2.28	0.51
44:t:1296:C:O2	44:t:3852:G:O2'	2.24	0.51
44:t:1389:G:N1	44:t:1395:G:N3	2.59	0.51
44:t:4070:C:N3	44:t:4078:G:N1	2.58	0.51
44:t:4422:U:H2'	44:t:4423:C:H6	1.76	0.51
4:D:91:A:O2'	4:D:92:U:C5'	2.58	0.51
18:R:95:VAL:HG12	18:R:96:PRO:O	2.09	0.51
43:r:5:LEU:C	43:r:5:LEU:HD12	2.36	0.51
44:t:225:C:C4	44:t:226:G:C6	2.98	0.51
44:t:642:G:H2'	44:t:643:A:H8	1.75	0.51
44:t:1068:C:H2'	44:t:1069:C:C6	2.46	0.51
44:t:2827:G:O2'	44:t:3809:U:O4	2.25	0.51
44:t:4373:G:C4	44:t:4374:C:C5	2.98	0.51
44:t:4499:C:H2'	44:t:4500:G:C8	2.45	0.51
52:5:97:TYR:HE2	52:5:139:THR:HG21	1.76	0.51
52:5:549:LEU:HD23	52:5:549:LEU:C	2.35	0.51
4:D:65:A:H2'	4:D:66:A:H8	1.75	0.51
7:G:182:ASN:HB3	7:G:184:VAL:HG23	1.93	0.51
27:a:103:ASP:OD2	27:a:106:LEU:HD12	2.10	0.51
28:b:132:ARG:NH2	44:t:1450:C:OP1	2.44	0.51
40:o:24:SER:O	40:o:25:LYS:C	2.53	0.51
44:t:222:G:C6	44:t:232:A:C5	2.99	0.51
44:t:1228:C:N4	44:t:1251:G:C6	2.79	0.51
44:t:1360:G:H5'	44:t:1362:C:C5'	2.41	0.51
44:t:3691:G:N2	44:t:3704:A:N1	2.58	0.51
44:t:3793:U:H2'	44:t:3794:G:C8	2.46	0.51
44:t:4064:G:H3'	44:t:4065:G:H5''	1.93	0.51
44:t:4376:A:P	44:t:4384:A:N6	2.84	0.51
44:t:4661:U:H4'	44:t:4662:A:OP1	2.10	0.51
48:1:236:ARG:NE	48:1:236:ARG:HA	2.25	0.51
52:5:333:LEU:HD11	52:5:429:LEU:HD21	1.93	0.51
53:7:208:TRP:HA	53:7:218:MET:O	2.11	0.51
4:D:87:G:C8	4:D:87:G:OP2	2.64	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:151:THR:O	13:M:151:THR:HG22	2.10	0.51
25:Y:48:ARG:HB3	44:t:2451:A:H1'	1.91	0.51
44:t:205:A:C6	44:t:229:G:O6	2.60	0.51
44:t:2434:G:N2	44:t:2449:C:O2'	2.44	0.51
46:v:43:C:H2'	46:v:44:G:C8	2.45	0.51
52:5:320:LEU:HD13	52:5:357:VAL:CG1	2.41	0.51
1:A:196:TRP:HB3	1:A:197:PRO:HD3	1.92	0.51
19:S:99:MET:SD	19:S:103:ARG:NH2	2.83	0.51
20:T:13:VAL:CG2	20:T:63:TYR:HB3	2.41	0.51
20:T:163:HIS:NE2	44:t:1901:C:OP1	2.44	0.51
34:h:69:LYS:O	34:h:73:HIS:NE2	2.42	0.51
44:t:500:C:H2'	44:t:501:G:H8	1.76	0.51
44:t:720:G:H5''	44:t:721:G:H4'	1.92	0.51
44:t:2766:A:H2	44:t:2780:U:H3	1.59	0.51
44:t:4106:C:H2'	44:t:4109:G:C8	2.46	0.51
48:1:196:PHE:HA	48:1:212:ALA:HB1	1.92	0.51
48:1:451:VAL:O	48:1:455:TYR:CD1	2.63	0.51
7:G:103:GLY:O	7:G:105:ARG:NH1	2.44	0.51
12:L:31:ASP:OD1	12:L:32:ARG:N	2.44	0.51
17:Q:127:ARG:NH1	44:t:2399:A:OP2	2.44	0.51
19:S:100:ARG:HD3	44:t:2646:C:OP1	2.11	0.51
19:S:133:LYS:N	19:S:137:ILE:HD11	2.19	0.51
44:t:135:G:HO2'	44:t:136:G:C4'	2.11	0.51
44:t:508:U:H3'	44:t:509:C:H5''	1.93	0.51
44:t:1752:A:H2'	44:t:1753:U:C6	2.45	0.51
44:t:2531:G:H1'	44:t:2745:A:H61	1.76	0.51
44:t:2724:A:H2'	44:t:2725:A:C8	2.46	0.51
1:A:180:LEU:O	1:A:180:LEU:HD13	2.11	0.50
3:C:191:ALA:HB2	44:t:2313:C:C5	2.46	0.50
3:C:349:LEU:C	3:C:349:LEU:HD23	2.36	0.50
4:D:155:C:C4	4:D:156:U:C4	2.99	0.50
7:G:50:LEU:HD12	7:G:51:VAL:N	2.26	0.50
14:N:7:VAL:HG22	20:T:152:PHE:O	2.11	0.50
14:N:89:THR:HG23	14:N:92:ALA:H	1.76	0.50
15:O:64:ILE:HD11	15:O:102:ALA:CB	2.42	0.50
38:l:23:VAL:HG22	38:l:36:VAL:HG22	1.93	0.50
44:t:180:C:HO2'	44:t:181:U:C1'	2.23	0.50
44:t:664:C:N4	44:t:665:G:O6	2.43	0.50
44:t:721:G:H3'	44:t:722:G:C8	2.46	0.50
44:t:1559:G:O2'	44:t:1594:G:H4'	2.11	0.50
44:t:1746:G:O2'	44:t:1747:A:H5'	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:2476:C:H2'	44:t:2477:C:C6	2.46	0.50
44:t:4067:G:O2'	44:t:4068:A:OP1	2.26	0.50
48:1:247:ALA:O	48:1:251:VAL:HG13	2.10	0.50
52:5:86:LEU:HA	52:5:109:VAL:CG1	2.41	0.50
52:5:125:ARG:HB2	52:5:368:LEU:HD21	1.92	0.50
53:7:328:ILE:HD13	53:7:382:LEU:HD13	1.92	0.50
5:E:48:G:O2'	5:E:49:A:O4'	2.29	0.50
17:Q:131:ARG:HD3	17:Q:137:ASN:OD1	2.11	0.50
18:R:172:ARG:O	18:R:173:LYS:HG2	2.10	0.50
26:Z:82:ILE:HB	26:Z:85:VAL:HG12	1.94	0.50
44:t:137:G:C6	44:t:138:C:N4	2.80	0.50
44:t:166:G:N2	44:t:261:G:H22	2.09	0.50
44:t:177:C:O2	44:t:252:C:C4	2.64	0.50
44:t:1534:G:N3	44:t:1556:G:C2	2.79	0.50
44:t:3611:U:C4	44:t:3617:A:C4	2.99	0.50
44:t:4222:U:H2'	44:t:4223:C:C6	2.46	0.50
48:1:61:PRO:HG2	48:1:65:MET:HE2	1.92	0.50
51:4:106:TRP:CH2	51:4:146:TYR:CE2	3.00	0.50
2:B:252:ALA:HB1	44:t:4486:G:N3	2.25	0.50
5:E:13:A:OP2	5:E:66:G:N2	2.43	0.50
5:E:30:C:C2	5:E:48:G:N7	2.80	0.50
11:K:179:ASP:OD1	11:K:180:GLU:N	2.43	0.50
14:N:92:ALA:O	14:N:95:ILE:HG13	2.12	0.50
44:t:274:G:N2	44:t:300:A:OP2	2.43	0.50
44:t:452:C:H2'	44:t:453:C:C6	2.46	0.50
44:t:1733:A:H2'	44:t:1734:G:H8	1.76	0.50
44:t:4947:U:O2'	44:t:5018:A:N1	2.45	0.50
3:C:27:VAL:HA	3:C:279:LEU:HD11	1.92	0.50
4:D:64:U:H2'	4:D:65:A:H8	1.75	0.50
6:F:128:ASP:O	6:F:164:LYS:NZ	2.35	0.50
8:H:101:VAL:HG13	8:H:139:TYR:HE2	1.77	0.50
13:M:63:THR:O	13:M:67:HIS:ND1	2.40	0.50
27:a:73:LYS:NZ	44:t:2560:A:OP1	2.41	0.50
44:t:193:C:N4	44:t:238:G:H22	2.09	0.50
44:t:444:G:H2'	44:t:444:G:OP2	2.11	0.50
44:t:491:G:H3'	44:t:492:C:C5'	2.42	0.50
51:4:99:ILE:O	51:4:154:TRP:CZ3	2.64	0.50
51:4:176:SER:HB3	51:4:208:LEU:HD21	1.93	0.50
53:7:174:LEU:HD13	53:7:174:LEU:C	2.37	0.50
2:B:220:ILE:HG12	2:B:278:THR:HG22	1.93	0.50
4:D:55:U:H3	4:D:62:A:H2	1.59	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:425:G:H2'	44:t:3859:G:N2	2.26	0.50
44:t:477:G:C2	44:t:666:G:C2	3.00	0.50
44:t:1303:U:O2'	44:t:1872:A:N1	2.44	0.50
44:t:4309:G:C6	44:t:4328:A:N6	2.80	0.50
52:5:246:SER:HB3	52:5:459:LEU:HD12	1.93	0.50
22:V:81:ARG:HH21	44:t:2602:A:H62	1.58	0.50
29:c:36:ASP:OD1	29:c:36:ASP:N	2.45	0.50
34:h:62:LYS:NZ	44:t:2495:G:O2'	2.41	0.50
44:t:1059:C:H2'	44:t:1060:C:H5	1.77	0.50
44:t:2307:G:C6	44:t:2308:U:C4	3.00	0.50
44:t:4710:U:H3	44:t:4909:G:H1	1.58	0.50
48:1:59:ALA:HB3	48:1:62:PHE:HA	1.93	0.50
54:6:53:LYS:O	54:6:57:ILE:HG13	2.12	0.50
1:A:193:ARG:NH1	44:t:3657:G:OP1	2.45	0.50
2:B:30:LYS:HG3	44:t:4678:C:OP2	2.12	0.50
19:S:135:LYS:NZ	44:t:2877:G:OP2	2.45	0.50
22:V:81:ARG:NH2	44:t:2602:A:H62	2.09	0.50
30:d:37:MET:SD	30:d:42:LYS:NZ	2.84	0.50
32:f:5:ARG:NH1	44:t:695:C:OP1	2.44	0.50
33:g:106:TYR:O	33:g:108:SER:N	2.45	0.50
44:t:136:G:C6	44:t:137:G:C6	2.99	0.50
44:t:486:U:H2'	44:t:487:G:C8	2.46	0.50
44:t:1263:C:O2'	44:t:1265:G:N7	2.42	0.50
44:t:1315:C:H2'	44:t:1316:A:C8	2.47	0.50
44:t:1365:G:C2	44:t:1366:G:C5	3.00	0.50
44:t:1794:C:H2'	44:t:1795:U:C6	2.46	0.50
44:t:4706:A:H2'	44:t:4707:G:C8	2.46	0.50
46:v:53:G:C2	46:v:62:C:C2	3.00	0.50
48:1:43:LEU:HG	49:2:54:VAL:HG22	1.94	0.50
52:5:111:ILE:HG23	52:5:152:LEU:HD11	1.93	0.50
13:M:81:LEU:HD23	13:M:117:LEU:HD21	1.94	0.50
15:O:93:LYS:O	44:t:294:A:O2'	2.27	0.50
23:W:37:LEU:HD21	23:W:105:ILE:HD11	1.93	0.50
44:t:1558:G:C5	44:t:1560:U:C4	2.99	0.50
44:t:2840:C:N3	44:t:3597:G:OP2	2.44	0.50
44:t:4893:C:H2'	44:t:4894:G:C8	2.47	0.50
3:C:267:TRP:CZ2	3:C:279:LEU:HD22	2.47	0.50
20:T:17:LEU:HD22	20:T:60:GLU:OE1	2.11	0.50
28:b:32:ARG:HD2	44:t:37:U:H4'	1.92	0.50
44:t:197:U:O2	44:t:197:U:O4'	2.29	0.50
44:t:282:G:C6	44:t:294:A:N1	2.80	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:445:C:H2'	44:t:1277:A:H1'	1.94	0.50
44:t:449:C:H2'	44:t:450:C:C6	2.47	0.50
44:t:2072:G:O2'	44:t:2241:G:N2	2.44	0.50
44:t:2461:C:C2	44:t:2462:G:C8	3.00	0.50
44:t:2462:G:H2'	44:t:2463:A:O4'	2.12	0.50
44:t:2532:A:H1'	44:t:2533:U:O4'	2.12	0.50
44:t:2874:A:H2'	44:t:2875:G:O4'	2.12	0.50
44:t:4727:G:N2	44:t:4825:G:N2	2.60	0.50
48:1:69:LEU:HB2	48:1:80:GLY:HA2	1.94	0.50
49:2:32:GLU:OE1	49:2:32:GLU:N	2.44	0.50
17:Q:82:ARG:HG2	44:t:3827:A:OP1	2.12	0.49
21:U:87:LYS:HZ3	44:t:4267:G:N2	2.09	0.49
33:g:36:ARG:O	33:g:39:THR:HG22	2.12	0.49
44:t:218:C:H2'	44:t:219:C:H5''	1.94	0.49
44:t:227:G:N2	44:t:234:G:H1	2.10	0.49
44:t:492:C:H5''	44:t:493:G:O4'	2.12	0.49
44:t:2531:G:C2'	44:t:2745:A:H61	2.25	0.49
51:4:112:ILE:HD12	51:4:112:ILE:C	2.37	0.49
2:B:334:LYS:NZ	44:t:4636:C:O3'	2.45	0.49
2:B:357:ARG:HD3	44:t:4577:C:H5''	1.93	0.49
4:D:140:C:H2'	4:D:141:C:H6	1.76	0.49
28:b:77:LYS:CE	44:t:1484:G:H22	2.24	0.49
31:e:73:TRP:CZ3	31:e:77:ILE:HG12	2.47	0.49
44:t:2245:C:O2	44:t:2247:A:N6	2.38	0.49
44:t:4707:G:H22	44:t:4912:G:H1	1.59	0.49
48:1:379:TRP:O	48:1:382:VAL:N	2.43	0.49
2:B:28:LYS:NZ	44:t:4544:C:OP2	2.28	0.49
3:C:167:ALA:HB1	3:C:221:PHE:CE1	2.48	0.49
3:C:204:ARG:HH12	44:t:2277:U:H3'	1.76	0.49
34:h:5:LEU:HD23	34:h:5:LEU:H	1.76	0.49
36:j:82:ARG:NH1	44:t:300:A:N3	2.59	0.49
43:r:61:VAL:HG12	43:r:81:THR:HG22	1.93	0.49
44:t:79:C:H2'	44:t:80:C:H6	1.77	0.49
44:t:190:G:N2	44:t:243:G:H22	2.10	0.49
44:t:3635:G:H2'	44:t:3636:G:H8	1.78	0.49
44:t:4118:G:H5''	44:t:4119:A:H2'	1.95	0.49
52:5:221:ILE:HA	52:5:309:LEU:HG	1.94	0.49
3:C:35:ASP:OD1	3:C:36:ILE:N	2.44	0.49
3:C:284:MET:HE3	18:R:124:ASP:OD1	2.13	0.49
12:L:144:LYS:O	12:L:148:THR:OG1	2.29	0.49
17:Q:105:LYS:HB2	17:Q:107:LEU:HD13	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:87:ARG:NH2	44:t:398:U:O3'	2.39	0.49
44:t:2532:A:N6	44:t:2744:A:OP2	2.42	0.49
44:t:2569:G:H1'	44:t:2734:A:H61	1.77	0.49
44:t:4360:C:H2'	44:t:4361:U:H6	1.76	0.49
44:t:4960:U:H2'	44:t:4961:U:C6	2.48	0.49
46:v:15:G:H2'	46:v:16:A:H2'	1.94	0.49
4:D:65:A:H2'	4:D:66:A:C8	2.48	0.49
10:J:17:ASP:OD1	10:J:17:ASP:N	2.45	0.49
11:K:73:ASN:O	11:K:77:VAL:HG22	2.12	0.49
17:Q:48:LEU:HD21	17:Q:91:LEU:CD1	2.42	0.49
27:a:31:ASP:N	27:a:31:ASP:OD1	2.45	0.49
27:a:53:VAL:HG23	27:a:53:VAL:O	2.13	0.49
43:r:105:ASP:OD1	43:r:106:LEU:N	2.45	0.49
44:t:31:U:O2'	44:t:32:G:P	2.71	0.49
44:t:265:C:H2'	44:t:266:U:C6	2.48	0.49
44:t:494:G:H3'	44:t:495:C:H5''	1.94	0.49
44:t:1923:A:H2'	44:t:1924:A:C8	2.47	0.49
44:t:1932:G:C6	44:t:2014:A:C6	3.00	0.49
44:t:2478:C:H2'	44:t:2479:U:C6	2.48	0.49
52:5:528:LEU:O	52:5:532:ILE:HG23	2.12	0.49
1:A:207:VAL:HG23	1:A:208:GLU:HG3	1.95	0.49
4:D:125:C:H4'	4:D:126:C:OP1	2.13	0.49
4:D:126:C:H3'	4:D:127:U:C5'	2.42	0.49
12:L:20:LEU:HD12	12:L:131:TYR:O	2.12	0.49
12:L:102:THR:OG1	12:L:104:ASN:OD1	2.31	0.49
17:Q:64:ASN:HB2	17:Q:80:GLN:NE2	2.28	0.49
25:Y:77:ILE:HD11	25:Y:98:PHE:CE1	2.48	0.49
41:p:18:HIS:ND1	44:t:4280:C:O2'	2.40	0.49
44:t:507:U:P	44:t:508:U:H5'	2.52	0.49
48:1:209:PHE:CB	48:1:215:ALA:HB1	2.42	0.49
53:7:278:ASP:OD1	53:7:279:LEU:N	2.44	0.49
3:C:150:LEU:HB3	3:C:151:PRO:HD3	1.95	0.49
14:N:32:ASP:O	14:N:34:ASN:N	2.44	0.49
44:t:445:C:C2	44:t:1279:G:N1	2.78	0.49
44:t:1286:A:N3	44:t:1286:A:H2'	2.27	0.49
46:v:19:G:H1'	46:v:57:G:H22	1.78	0.49
54:6:14:ILE:O	54:6:18:THR:HG23	2.12	0.49
6:F:9:ASN:N	6:F:9:ASN:ND2	2.60	0.49
14:N:71:LYS:O	14:N:75:GLN:HG2	2.12	0.49
17:Q:29:THR:HA	17:Q:32:THR:HG22	1.95	0.49
32:f:82:VAL:CG2	32:f:111:ILE:HG22	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:908:C:H2'	44:t:909:C:C6	2.46	0.49
44:t:1461:G:H2'	44:t:1462:C:C6	2.47	0.49
44:t:4081:C:OP1	44:t:4081:C:C6	2.65	0.49
44:t:4457:G:C2	44:t:4458:A:N7	2.81	0.49
45:u:25:C:C2	45:u:26:A:C8	3.01	0.49
46:v:15:G:H22	46:v:48:C:N4	2.11	0.49
51:4:166:ARG:N	51:4:167:PRO:HD2	2.26	0.49
52:5:109:VAL:HG23	52:5:155:ILE:HD12	1.94	0.49
2:B:321:VAL:HG12	2:B:322:HIS:ND1	2.27	0.49
7:G:245:GLN:NE2	7:G:249:ASP:OD2	2.45	0.49
30:d:31:TYR:OH	30:d:59:GLU:OE2	2.27	0.49
38:l:10:ASP:OD1	38:l:11:PHE:N	2.45	0.49
44:t:1259:C:H2'	44:t:1260:G:C8	2.48	0.49
44:t:1414:C:H2'	44:t:1415:G:O4'	2.12	0.49
44:t:2453:G:H2'	44:t:2481:G:N2	2.28	0.49
44:t:2596:G:C6	44:t:2700:G:C6	3.01	0.49
48:1:91:MET:HG3	48:1:112:PHE:CE1	2.48	0.49
49:2:9:GLU:HG2	49:2:10:PRO:HD3	1.94	0.49
11:K:160:PRO:O	11:K:163:GLN:NE2	2.46	0.49
12:L:23:ASN:ND2	44:t:4221:C:O4'	2.46	0.49
15:O:133:ILE:C	15:O:133:ILE:HD12	2.38	0.49
27:a:5:MET:O	27:a:28:ASN:ND2	2.43	0.49
44:t:40:G:C6	44:t:4340:A:C4	3.01	0.49
44:t:220:G:O2'	44:t:239:U:O2'	2.21	0.49
44:t:474:C:N3	44:t:669:G:N2	2.61	0.49
44:t:649:C:H2'	44:t:650:C:C6	2.48	0.49
44:t:682:U:H2'	44:t:683:U:C6	2.48	0.49
44:t:722:G:N7	44:t:919:A:OP2	2.46	0.49
44:t:1075:G:H22	44:t:1186:G:N2	2.10	0.49
44:t:2613:C:H2'	44:t:2614:U:H6	1.78	0.49
51:4:38:ALA:CB	51:4:106:TRP:HB3	2.42	0.49
53:7:423:VAL:HG22	53:7:424:GLN:OE1	2.12	0.49
4:D:87:G:OP2	4:D:87:G:H8	1.96	0.48
18:R:70:MET:SD	18:R:98:LEU:HD12	2.52	0.48
44:t:71:C:O2'	44:t:72:C:O5'	2.27	0.48
44:t:250:G:H2'	44:t:251:G:N9	2.28	0.48
44:t:477:G:H22	44:t:665:G:N2	2.11	0.48
44:t:482:G:N2	44:t:662:A:C4	2.81	0.48
44:t:484:C:O2'	44:t:485:G:C8	2.66	0.48
44:t:668:C:H3'	44:t:669:G:C8	2.48	0.48
44:t:1366:G:H2'	44:t:1367:C:C6	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1759:C:H2'	44:t:1760:C:H6	1.77	0.48
44:t:3703:A:H2'	44:t:3704:A:C8	2.48	0.48
46:v:71:G:N3	46:v:71:G:H2'	2.28	0.48
1:A:130:SER:OG	1:A:174:ARG:NH1	2.46	0.48
3:C:279:LEU:HD23	3:C:280:PRO:HD2	1.94	0.48
4:D:36:G:C2	44:t:21:G:C6	3.01	0.48
4:D:87:G:OP2	4:D:87:G:C2'	2.61	0.48
4:D:119:C:N4	4:D:132:G:O6	2.46	0.48
6:F:103:LEU:HD23	6:F:247:ILE:HD11	1.94	0.48
20:T:156:HIS:CG	20:T:157:ARG:H	2.31	0.48
21:U:35:LYS:N	21:U:38:ASP:OD2	2.31	0.48
26:Z:126:ARG:NH2	44:t:194:A:OP1	2.46	0.48
27:a:62:ILE:O	27:a:66:SER:OG	2.22	0.48
42:q:28:LYS:O	42:q:31:ILE:HG13	2.13	0.48
44:t:180:C:H2'	44:t:181:U:C5	2.48	0.48
44:t:483:C:H2'	44:t:484:C:C2	2.47	0.48
44:t:1257:A:H2'	44:t:1258:G:O4'	2.13	0.48
44:t:2450:G:N7	44:t:2452:A:N6	2.61	0.48
44:t:3663:A:H62	44:t:3794:G:H21	1.61	0.48
44:t:4328:A:N1	44:t:4329:G:C6	2.81	0.48
44:t:4727:G:N1	44:t:4826:G:C2	2.81	0.48
48:1:74:GLY:O	48:1:75:THR:HG23	2.12	0.48
52:5:67:VAL:HG11	52:5:175:LEU:CD2	2.43	0.48
53:7:314:ASP:HB3	53:7:317:MET:HB3	1.95	0.48
2:B:56:ILE:O	2:B:73:VAL:HA	2.13	0.48
4:D:91:A:O2'	4:D:92:U:H5'	2.13	0.48
4:D:154:G:C6	44:t:4:G:C6	3.00	0.48
6:F:22:ARG:HD2	6:F:27:LYS:HB2	1.95	0.48
23:W:87:SER:HA	23:W:97:TYR:HB3	1.94	0.48
29:c:41:ARG:CZ	44:t:1474:G:O2'	2.61	0.48
42:q:49:ARG:HG2	42:q:50:ARG:O	2.13	0.48
44:t:308:G:C6	44:t:318:A:C6	3.02	0.48
44:t:1570:U:H2'	44:t:1571:C:C6	2.48	0.48
44:t:4364:C:H42	44:t:4403:A:H61	1.61	0.48
45:u:9:A:H1'	45:u:45:U:H2'	1.94	0.48
48:1:6:LEU:HD11	48:1:100:ILE:CG2	2.43	0.48
48:1:147:ILE:O	48:1:147:ILE:HG22	2.13	0.48
51:4:146:TYR:CD2	51:4:146:TYR:C	2.91	0.48
52:5:166:GLN:O	52:5:168:SER:N	2.42	0.48
52:5:525:ASP:N	52:5:525:ASP:OD1	2.47	0.48
42:q:39:CYS:SG	42:q:41:PHE:N	2.77	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:665:G:H2'	44:t:666:G:H8	1.77	0.48
44:t:1291:C:H2'	44:t:1292:C:C6	2.48	0.48
44:t:1467:C:O4'	44:t:4311:C:N4	2.46	0.48
44:t:2463:A:C2	44:t:2474:U:O2	2.67	0.48
44:t:2672:G:C6	44:t:2673:G:C6	3.02	0.48
44:t:4817:G:O2'	44:t:4818:G:P	2.70	0.48
49:2:9:GLU:N	49:2:10:PRO:CD	2.77	0.48
52:5:372:HIS:ND1	52:5:372:HIS:C	2.70	0.48
3:C:318:PRO:O	3:C:319:LEU:HB2	2.13	0.48
4:D:66:A:H2'	4:D:67:U:C6	2.49	0.48
4:D:131:G:H2'	4:D:132:G:H5''	1.96	0.48
5:E:47:G:OP2	6:F:158:LYS:NZ	2.31	0.48
22:V:81:ARG:HH21	44:t:2602:A:N6	2.11	0.48
23:W:69:LYS:HB2	23:W:72:LEU:HD13	1.95	0.48
27:a:73:LYS:HG2	27:a:75:TYR:CZ	2.48	0.48
44:t:1064:C:N3	44:t:1201:G:N1	2.61	0.48
44:t:1071:C:H2'	44:t:1072:G:C8	2.48	0.48
44:t:2325:C:O2	44:t:2325:C:O5'	2.30	0.48
44:t:2855:G:N2	44:t:2856:G:C8	2.81	0.48
44:t:3753:C:H2'	44:t:3780:G:H1	1.77	0.48
44:t:4733:C:H2'	44:t:4734:C:H6	1.78	0.48
46:v:6:G:O6	46:v:69:G:O6	2.31	0.48
2:B:223:THR:O	2:B:343:ARG:NH1	2.45	0.48
3:C:264:TYR:C	3:C:271:ALA:HB2	2.38	0.48
8:H:98:ILE:HD11	18:R:4:ASP:HB3	1.95	0.48
41:p:18:HIS:HE1	44:t:4280:C:O2	1.97	0.48
44:t:657:C:O2'	44:t:659:G:N7	2.42	0.48
44:t:4097:A:H2'	44:t:4098:G:O4'	2.13	0.48
44:t:4925:A:H2'	44:t:4926:A:H8	1.77	0.48
44:t:4961:U:H2'	44:t:4962:C:C6	2.48	0.48
48:1:287:SER:O	48:1:292:ILE:HD12	2.13	0.48
53:7:218:MET:SD	53:7:247:ILE:HG23	2.53	0.48
2:B:94:GLU:OE1	2:B:94:GLU:N	2.43	0.48
2:B:384:GLU:OE2	24:X:14:TYR:OH	2.31	0.48
3:C:149:GLU:O	3:C:152:LEU:HD22	2.13	0.48
10:J:89:ARG:NH2	10:J:147:GLU:OE2	2.46	0.48
11:K:54:SER:OG	11:K:135:ILE:HD11	2.12	0.48
36:j:33:LEU:N	44:t:303:C:OP2	2.44	0.48
39:m:22:PRO:HD3	39:m:41:ARG:NH2	2.29	0.48
44:t:249:C:C4	44:t:250:G:O6	2.67	0.48
44:t:940:C:H2'	44:t:941:C:C6	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1847:U:C2	44:t:4367:G:O4'	2.66	0.48
44:t:2723:A:H2'	44:t:2724:A:C8	2.49	0.48
44:t:2877:G:N2	44:t:3573:C:H1'	2.29	0.48
44:t:4370:G:C2	44:t:4397:U:C2	3.01	0.48
48:1:450:ALA:HA	48:1:453:ILE:HD12	1.96	0.48
3:C:204:ARG:NH1	44:t:2277:U:H3'	2.29	0.48
8:H:137:GLU:N	8:H:138:PRO:CD	2.76	0.48
21:U:4:THR:O	21:U:9:ARG:HD2	2.13	0.48
44:t:166:G:H22	44:t:261:G:H22	1.61	0.48
44:t:239:U:H2'	44:t:240:A:O4'	2.13	0.48
44:t:667:C:H2'	44:t:668:C:C6	2.48	0.48
44:t:1231:C:H2'	44:t:1232:C:C6	2.49	0.48
44:t:2504:U:C2	44:t:2507:G:C6	3.01	0.48
44:t:4150:U:H2'	44:t:4151:U:H6	1.79	0.48
44:t:4601:G:H22	44:t:4622:G:H22	1.60	0.48
44:t:4623:G:H2'	44:t:4624:C:C6	2.49	0.48
10:J:4:ILE:HG22	10:J:5:LEU:HD23	1.96	0.48
13:M:147:ALA:HB3	35:i:120:ALA:HB1	1.95	0.48
15:O:93:LYS:NZ	44:t:281:U:O2	2.43	0.48
19:S:38:ARG:NH2	44:t:2506:A:OP1	2.47	0.48
44:t:200:U:H2'	44:t:201:U:C6	2.49	0.48
44:t:652:C:H2'	44:t:653:G:C8	2.48	0.48
44:t:1195:G:C2	44:t:1197:C:C5	3.02	0.48
44:t:1760:C:H2'	44:t:1761:U:H6	1.78	0.48
44:t:4716:G:C6	44:t:4717:G:N1	2.81	0.48
50:3:79:LEU:HD23	50:3:79:LEU:C	2.38	0.48
52:5:321:HIS:HA	52:5:360:ARG:O	2.13	0.48
52:5:322:LEU:HD22	52:5:342:GLU:CG	2.44	0.48
53:7:201:ASN:OD1	53:7:202:GLU:N	2.47	0.48
4:D:141:C:H2'	4:D:142:U:H6	1.77	0.48
13:M:130:LYS:O	13:M:132:SER:N	2.44	0.48
28:b:131:ARG:HA	28:b:134:GLU:HG2	1.95	0.48
29:c:65:MET:HE2	44:t:1792:G:O2'	2.14	0.48
43:r:32:LEU:O	43:r:113:ARG:NH1	2.46	0.48
44:t:180:C:OP2	44:t:180:C:H6	1.97	0.48
44:t:2067:G:N2	44:t:2247:A:C6	2.82	0.48
44:t:2499:C:O2	44:t:2499:C:O4'	2.32	0.48
44:t:3678:U:H2'	44:t:3679:C:C6	2.49	0.48
44:t:4236:A:H2'	44:t:4237:G:C8	2.48	0.48
44:t:4239:G:O2'	44:t:4244:A:N1	2.44	0.48
8:H:166:ARG:HB3	8:H:209:TRP:CD2	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:118:GLU:O	21:U:121:GLU:HG3	2.14	0.47
44:t:440:C:H2'	44:t:441:C:H6	1.79	0.47
44:t:644:C:H2'	44:t:645:C:C6	2.49	0.47
44:t:651:C:H2'	44:t:652:C:C5	2.49	0.47
44:t:1360:G:H5'	44:t:1362:C:H5''	1.95	0.47
44:t:2063:G:C6	44:t:2254:G:C6	3.02	0.47
44:t:2079:G:C2	44:t:2080:A:H1'	2.49	0.47
44:t:4195:A:C8	44:t:4197:G:C8	3.02	0.47
2:B:259:PRO:O	2:B:261:ARG:NH1	2.47	0.47
4:D:84:A:H4'	4:D:85:U:OP2	2.13	0.47
9:I:102:TYR:OH	9:I:208:ASN:N	2.37	0.47
24:X:6:CYS:SG	24:X:10:GLY:N	2.87	0.47
41:p:10:THR:HG22	41:p:11:PHE:H	1.79	0.47
44:t:89:C:C4	44:t:90:G:N7	2.82	0.47
44:t:736:G:H22	44:t:906:C:N4	2.12	0.47
44:t:2790:G:N1	44:t:2793:C:OP2	2.38	0.47
44:t:2823:A:C5	44:t:3810:G:N7	2.82	0.47
44:t:4421:U:H2'	44:t:4422:U:H6	1.78	0.47
44:t:4950:G:C2	44:t:5018:A:C2	3.02	0.47
44:t:4951:G:H2'	44:t:4952:G:H8	1.79	0.47
48:1:60:ASP:HB2	48:1:61:PRO:HD3	1.96	0.47
51:4:105:GLY:O	51:4:108:THR:HG22	2.14	0.47
4:D:40:A:H2'	4:D:41:A:C8	2.49	0.47
22:V:81:ARG:CZ	44:t:2601:G:N7	2.78	0.47
26:Z:65:GLN:O	26:Z:66:GLN:NE2	2.48	0.47
29:c:108:ALA:O	29:c:112:ILE:HD12	2.15	0.47
35:i:4:ILE:CG2	35:i:9:LEU:HD21	2.42	0.47
37:k:20:ARG:NH1	37:k:39:TYR:OH	2.47	0.47
43:r:47:LYS:O	43:r:103:ARG:HD2	2.13	0.47
44:t:69:A:N1	44:t:318:A:O2'	2.40	0.47
44:t:214:C:O2'	44:t:215:A:OP2	2.25	0.47
44:t:260:C:O2'	44:t:261:G:H8	1.97	0.47
44:t:484:C:HO2'	44:t:485:G:C1'	2.27	0.47
44:t:905:G:N3	44:t:905:G:H2'	2.30	0.47
44:t:1070:A:H2'	44:t:1071:C:C6	2.49	0.47
44:t:2456:A:C2	44:t:2480:C:C2	3.02	0.47
48:1:6:LEU:HD11	48:1:100:ILE:HG23	1.96	0.47
49:2:68:GLY:O	50:3:93:TYR:OH	2.20	0.47
51:4:129:ASP:HA	51:4:132:TYR:CE2	2.49	0.47
12:L:18:ARG:HB3	12:L:133:VAL:HG23	1.97	0.47
44:t:459:G:H1	44:t:683:U:H3	1.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1760:C:H2'	44:t:1761:U:C5	2.48	0.47
44:t:4343:A:C6	44:t:4344:G:N7	2.83	0.47
44:t:4697:G:C6	44:t:4698:C:C4	3.03	0.47
46:v:66:U:H2'	46:v:67:C:C6	2.50	0.47
48:1:35:THR:O	48:1:38:THR:OG1	2.32	0.47
51:4:217:VAL:O	51:4:220:VAL:HG22	2.14	0.47
54:6:18:THR:HG21	54:6:105:PHE:CZ	2.49	0.47
3:C:323:ARG:NH1	44:t:1263:C:O2	2.48	0.47
13:M:18:TRP:NE1	44:t:1498:G:O2'	2.38	0.47
16:P:81:TRP:HB2	16:P:104:VAL:HG11	1.96	0.47
44:t:1785:G:C6	44:t:1817:G:C5	3.02	0.47
44:t:4562:G:H1'	44:t:4563:U:H5	1.79	0.47
44:t:4601:G:N2	44:t:4622:G:H22	2.12	0.47
44:t:4703:C:H2'	44:t:4704:G:C8	2.49	0.47
44:t:4722:G:H2'	44:t:4723:G:C8	2.49	0.47
52:5:65:ASN:OD1	52:5:174:VAL:HG13	2.14	0.47
54:6:83:LEU:O	54:6:86:VAL:HG22	2.13	0.47
2:B:174:ARG:HH22	44:t:4932:C:H1'	1.79	0.47
8:H:137:GLU:HG3	8:H:138:PRO:HD3	1.96	0.47
16:P:54:TYR:CE2	16:P:145:VAL:HG11	2.50	0.47
24:X:6:CYS:SG	24:X:11:TYR:N	2.88	0.47
34:h:27:GLY:O	34:h:28:ASN:OD1	2.33	0.47
44:t:135:G:C6	44:t:136:G:C6	3.02	0.47
44:t:189:G:N2	44:t:244:G:N2	2.57	0.47
44:t:209:A:HO2'	44:t:210:G:P	2.36	0.47
44:t:909:C:H2'	44:t:910:C:C6	2.49	0.47
44:t:945:G:O2'	44:t:946:G:O4'	2.25	0.47
44:t:1644:C:H2'	44:t:1645:C:C6	2.50	0.47
44:t:2499:C:H2'	44:t:2500:G:H8	1.80	0.47
49:2:56:LEU:C	49:2:56:LEU:HD13	2.39	0.47
52:5:79:VAL:HG22	52:5:80:LEU:HD12	1.97	0.47
3:C:150:LEU:O	3:C:152:LEU:N	2.48	0.47
4:D:36:G:C6	44:t:21:G:O6	2.68	0.47
4:D:75:G:H2'	4:D:76:C:C6	2.50	0.47
5:E:7:G:O3'	6:F:33:ARG:NH2	2.47	0.47
5:E:28:C:O2'	5:E:54:A:N1	2.41	0.47
7:G:206:VAL:O	7:G:207:LYS:HB2	2.15	0.47
9:I:216:ALA:O	9:I:219:VAL:HG12	2.15	0.47
13:M:154:VAL:O	13:M:155:MET:C	2.57	0.47
17:Q:69:ARG:NH1	44:t:3864:C:H1'	2.30	0.47
19:S:14:VAL:HG13	19:S:15:LEU:HD12	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:S:38:ARG:O	19:S:41:ILE:HG22	2.15	0.47
20:T:80:ILE:HG22	20:T:129:VAL:HG22	1.96	0.47
27:a:14:LEU:HD21	27:a:81:MET:HB2	1.96	0.47
38:l:51:GLU:HG2	38:l:52:LYS:N	2.29	0.47
41:p:75:PRO:O	41:p:76:ASN:CG	2.58	0.47
44:t:68:U:C2	44:t:74:G:N2	2.83	0.47
44:t:455:G:H22	44:t:687:A:H2	1.62	0.47
44:t:470:G:N2	44:t:672:G:N1	2.62	0.47
44:t:480:C:H2'	44:t:481:G:C8	2.50	0.47
44:t:490:G:H2'	44:t:491:G:C8	2.50	0.47
44:t:639:G:H2'	44:t:640:G:H8	1.78	0.47
44:t:1268:U:H2'	44:t:1269:C:C6	2.50	0.47
44:t:2476:C:H2'	44:t:2477:C:H6	1.80	0.47
44:t:2500:G:C6	44:t:2514:G:N1	2.83	0.47
44:t:3619:A:H1'	44:t:3756:A:N6	2.30	0.47
44:t:3724:G:C8	44:t:3747:G:C8	3.03	0.47
44:t:3769:U:H2'	44:t:3771:A:OP2	2.15	0.47
44:t:3882:C:H2'	44:t:3883:U:H6	1.80	0.47
44:t:4040:U:H2'	44:t:4041:U:C6	2.49	0.47
44:t:4470:C:N3	44:t:4474:U:H5	2.13	0.47
44:t:4597:A:H8	44:t:5006:A:H61	1.62	0.47
44:t:4921:G:C6	44:t:4922:C:N4	2.83	0.47
46:v:25:C:C2	46:v:26:A:C8	3.03	0.47
48:1:31:LYS:HG2	48:1:173:TYR:CD1	2.50	0.47
48:1:46:CYS:SG	48:1:77:MET:HE1	2.55	0.47
48:1:252:PHE:O	48:1:255:VAL:HG12	2.14	0.47
51:4:73:LYS:O	51:4:76:VAL:HG22	2.14	0.47
53:7:196:LYS:NZ	53:7:208:TRP:O	2.47	0.47
2:B:175:GLN:HG2	2:B:177:LYS:H	1.79	0.47
4:D:86:U:OP2	4:D:86:U:H4'	2.13	0.47
17:Q:7:ASP:N	17:Q:7:ASP:OD1	2.46	0.47
25:Y:71:LEU:HD23	25:Y:71:LEU:O	2.15	0.47
44:t:414:A:C8	44:t:415:C:C5	3.03	0.47
44:t:730:G:H2'	44:t:731:G:C8	2.50	0.47
44:t:1060:C:N4	44:t:1217:G:H22	2.09	0.47
44:t:4265:C:H2'	44:t:4267:G:H8	1.79	0.47
53:7:297:ASP:OD1	53:7:297:ASP:N	2.48	0.47
3:C:319:LEU:HD11	8:H:155:TYR:HD2	1.80	0.47
4:D:60:G:P	25:Y:68:ARG:HH22	2.38	0.47
4:D:73:U:H3'	4:D:74:U:H5''	1.96	0.47
4:D:78:G:H4'	4:D:79:G:OP1	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:23:ARG:HE	10:J:39:ASN:HA	1.79	0.47
19:S:36:ASN:ND2	48:1:407:THR:HG21	2.30	0.47
20:T:143:LYS:HA	20:T:146:HIS:NE2	2.30	0.47
28:b:9:ARG:CZ	44:t:2323:U:C2	2.98	0.47
43:r:51:VAL:HG12	43:r:62:VAL:HG22	1.96	0.47
44:t:131:C:N4	44:t:138:C:H42	2.13	0.47
44:t:131:C:H42	44:t:138:C:N4	2.13	0.47
44:t:185:G:C2	44:t:186:G:C4	3.03	0.47
44:t:190:G:N2	44:t:243:G:H1	2.12	0.47
44:t:679:G:H5'	44:t:680:C:C5	2.50	0.47
44:t:916:A:H3'	44:t:917:G:H2'	1.97	0.47
44:t:1919:C:H4'	44:t:1920:A:O5'	2.15	0.47
44:t:3616:U:O2	44:t:3616:U:H2'	2.15	0.47
44:t:3805:C:H2'	44:t:3806:C:H6	1.80	0.47
44:t:4072:C:O2	44:t:4076:G:N2	2.44	0.47
44:t:4615:C:H2'	44:t:4616:C:C6	2.50	0.47
44:t:4959:U:H2'	44:t:4960:U:O4'	2.14	0.47
48:1:90:ILE:HG13	48:1:91:MET:N	2.29	0.47
3:C:284:MET:HG2	18:R:28:LEU:HD11	1.96	0.47
5:E:113:G:H2'	5:E:114:U:C6	2.50	0.47
7:G:112:MET:O	43:r:87:ARG:NH1	2.48	0.47
18:R:152:PHE:CZ	44:t:1828:C:H4'	2.50	0.47
21:U:81:LYS:NZ	44:t:4266:A:OP1	2.29	0.47
22:V:81:ARG:NH2	44:t:2601:G:C6	2.83	0.47
44:t:166:G:C2	44:t:262:G:C2	3.03	0.47
44:t:445:C:C2	44:t:1279:G:C2	3.02	0.47
44:t:446:A:C8	44:t:1276:G:H3'	2.50	0.47
44:t:963:G:N1	44:t:1262:A:C2	2.83	0.47
44:t:1304:G:O4'	44:t:1872:A:N6	2.48	0.47
44:t:4195:A:C4	44:t:4197:G:N7	2.83	0.47
44:t:4950:G:H2'	44:t:4951:G:N9	2.30	0.47
48:1:191:ILE:HD11	48:1:447:ILE:HD12	1.97	0.47
48:1:267:ILE:HD12	48:1:279:TYR:CB	2.45	0.47
52:5:333:LEU:HD11	52:5:429:LEU:CD2	2.45	0.47
4:D:124:U:OP2	4:D:124:U:H4'	2.15	0.46
14:N:6:PHE:O	14:N:11:ARG:NH1	2.48	0.46
16:P:97:ALA:O	16:P:101:ARG:NE	2.48	0.46
18:R:75:ARG:NH2	44:t:1439:G:O2'	2.48	0.46
28:b:77:LYS:HE2	44:t:1484:G:H22	1.80	0.46
28:b:81:LEU:CD1	28:b:103:VAL:HG12	2.45	0.46
44:t:133:C:C4	44:t:135:G:N3	2.83	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:486:U:C2	44:t:655:A:C2	3.03	0.46
44:t:501:G:C6	44:t:646:G:C6	3.02	0.46
44:t:1060:C:H42	44:t:1217:G:H1	1.63	0.46
44:t:2587:G:C6	44:t:2711:G:C6	3.02	0.46
44:t:3611:U:O4	44:t:3617:A:H1'	2.16	0.46
44:t:3912:G:C6	44:t:4043:A:C6	3.03	0.46
44:t:5008:C:C2	44:t:5009:C:C5	3.03	0.46
52:5:260:THR:O	52:5:264:THR:N	2.48	0.46
2:B:286:LYS:HB3	2:B:332:MET:SD	2.55	0.46
13:M:145:LYS:HG3	13:M:146:LEU:N	2.30	0.46
15:O:153:LYS:HG2	15:O:154:PRO:HD2	1.97	0.46
17:Q:150:LEU:HD12	17:Q:150:LEU:N	2.31	0.46
19:S:134:ASN:OD1	19:S:137:ILE:HG23	2.16	0.46
20:T:76:LYS:NZ	20:T:100:LEU:O	2.47	0.46
23:W:99:GLU:HB3	24:X:21:TYR:OH	2.15	0.46
44:t:487:G:C6	44:t:655:A:N6	2.83	0.46
44:t:735:G:H2'	44:t:736:G:C8	2.50	0.46
44:t:908:C:H2'	44:t:909:C:H6	1.79	0.46
44:t:4091:G:C6	44:t:4092:C:C4	3.03	0.46
44:t:4960:U:H2'	44:t:4961:U:H6	1.81	0.46
48:1:82:SER:N	48:1:83:PRO:HD2	2.31	0.46
52:5:224:HIS:O	52:5:224:HIS:CG	2.66	0.46
52:5:349:PHE:N	52:5:350:PRO:HD2	2.29	0.46
1:A:117:GLU:OE1	1:A:121:GLY:N	2.48	0.46
8:H:161:LYS:HA	8:H:165:LYS:O	2.15	0.46
17:Q:127:ARG:NH2	44:t:2401:C:OP1	2.43	0.46
21:U:68:THR:HG22	21:U:69:GLN:H	1.79	0.46
31:e:26:THR:HG23	31:e:85:ARG:NH1	2.25	0.46
42:q:38:THR:HA	42:q:45:THR:HA	1.97	0.46
44:t:454:C:H2'	44:t:455:G:C8	2.50	0.46
44:t:463:C:N4	44:t:680:C:C2	2.83	0.46
44:t:1732:G:H2'	44:t:1733:A:H8	1.80	0.46
44:t:1937:A:C2	44:t:2009:C:C2	3.04	0.46
44:t:2552:A:C8	44:t:2740:U:C4	3.03	0.46
44:t:4469:A:H2'	44:t:4470:C:C6	2.50	0.46
44:t:4952:G:H2'	44:t:4953:U:C6	2.51	0.46
52:5:312:ASP:OD2	52:5:387:HIS:ND1	2.47	0.46
52:5:425:VAL:HG23	52:5:428:ASN:HD21	1.79	0.46
4:D:88:A:H2'	4:D:89:U:C6	2.50	0.46
5:E:26:C:H2'	5:E:27:G:O4'	2.15	0.46
6:F:69:ILE:HD11	21:U:28:ALA:HB1	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:212:MET:HE1	6:F:233:PRO:HG3	1.96	0.46
8:H:162:ILE:CD1	8:H:167:ILE:HG12	2.46	0.46
10:J:20:LEU:HD12	10:J:20:LEU:O	2.15	0.46
13:M:59:VAL:HG22	13:M:102:ARG:NH2	2.30	0.46
15:O:9:GLU:O	15:O:13:LYS:NZ	2.47	0.46
20:T:90:THR:HG23	21:U:156:TYR:CD2	2.51	0.46
33:g:100:ARG:HH11	44:t:4713:G:H5'	1.80	0.46
34:h:97:ILE:HG22	44:t:4089:U:C4	2.50	0.46
44:t:185:G:H2'	44:t:186:G:C8	2.51	0.46
44:t:1283:G:H2'	44:t:1284:C:N1	2.31	0.46
44:t:2537:C:H2'	44:t:2538:G:H8	1.80	0.46
44:t:2841:G:H2'	44:t:3590:G:O6	2.15	0.46
44:t:3708:A:H2'	44:t:3709:G:O4'	2.15	0.46
44:t:4154:A:H2'	44:t:4155:C:H6	1.80	0.46
48:1:75:THR:HB	48:1:77:MET:SD	2.55	0.46
48:1:197:SER:OG	48:1:210:GLU:HB3	2.16	0.46
2:B:213:GLN:O	2:B:214:ASP:OD1	2.34	0.46
9:I:51:LEU:HD11	44:t:4056:G:C4	2.51	0.46
14:N:40:GLY:N	14:N:45:VAL:O	2.41	0.46
20:T:98:ARG:HH22	44:t:737:A:H61	1.63	0.46
44:t:64:A:C4	44:t:109:G:N7	2.84	0.46
44:t:231:G:C5	44:t:234:G:O6	2.69	0.46
44:t:1746:G:H2'	44:t:1746:G:N3	2.31	0.46
44:t:2069:G:C6	44:t:2074:G:O2'	2.68	0.46
44:t:2371:C:C2	44:t:2372:C:C5	3.03	0.46
44:t:2841:G:N2	44:t:3595:A:O2'	2.48	0.46
44:t:4035:G:H2'	44:t:4036:U:C6	2.50	0.46
44:t:5009:C:C2	44:t:5010:C:C5	3.03	0.46
48:1:409:MET:O	48:1:410:VAL:C	2.55	0.46
2:B:122:TRP:CE2	2:B:127:LYS:HE3	2.51	0.46
3:C:73:VAL:O	44:t:2329:U:C4	2.68	0.46
3:C:284:MET:HE2	3:C:286:ASN:O	2.14	0.46
4:D:154:G:H2'	4:D:155:C:H6	1.80	0.46
13:M:145:LYS:O	13:M:146:LEU:C	2.56	0.46
15:O:192:TRP:O	15:O:196:ASN:ND2	2.40	0.46
20:T:15:ARG:HB3	20:T:27:LEU:HA	1.98	0.46
38:l:23:VAL:HG23	38:l:64:LEU:HD21	1.98	0.46
42:q:17:ARG:NH2	44:t:1559:G:OP1	2.44	0.46
42:q:91:ASP:O	42:q:92:GLN:C	2.58	0.46
43:r:91:SER:O	43:r:94:ARG:HG2	2.15	0.46
44:t:1198:C:N4	44:t:1199:C:N4	2.64	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1772:U:O2	44:t:1773:U:H5	1.98	0.46
44:t:2502:G:N2	44:t:2512:C:C2	2.84	0.46
44:t:2535:G:C2	44:t:2551:C:C2	3.03	0.46
44:t:3880:C:C4	44:t:3881:C:C5	3.03	0.46
44:t:4194:U:H1'	44:t:4195:A:C2	2.50	0.46
44:t:4557:G:H2'	44:t:4558:C:H6	1.81	0.46
48:1:285:TYR:O	48:1:286:THR:OG1	2.22	0.46
52:5:428:ASN:OD1	52:5:428:ASN:C	2.59	0.46
2:B:10:ARG:HH21	2:B:14:LEU:HD21	1.81	0.46
2:B:41:VAL:HA	2:B:187:GLY:CA	2.46	0.46
4:D:71:A:H5''	26:Z:50:ARG:CZ	2.46	0.46
4:D:76:C:O2'	4:D:77:A:O5'	2.34	0.46
4:D:84:A:OP1	4:D:84:A:C8	2.69	0.46
20:T:164:LYS:O	20:T:165:PRO:C	2.58	0.46
30:d:52:CYS:HB3	30:d:92:CYS:HB3	1.96	0.46
41:p:76:ASN:OD1	41:p:76:ASN:C	2.58	0.46
44:t:207:C:C4	44:t:208:G:N7	2.84	0.46
44:t:441:C:H2'	44:t:442:G:H8	1.80	0.46
44:t:502:G:C2	44:t:504:U:C4	3.03	0.46
44:t:725:G:N1	44:t:917:G:N2	2.64	0.46
44:t:901:U:H1'	44:t:902:A:O5'	2.16	0.46
44:t:952:G:H2'	44:t:2072:G:N2	2.31	0.46
44:t:1068:C:H2'	44:t:1069:C:H6	1.81	0.46
44:t:2060:G:H2'	44:t:2061:U:H6	1.80	0.46
44:t:2674:A:C4	44:t:2676:A:C5	3.04	0.46
44:t:4600:U:OP1	44:t:5002:A:O2'	2.33	0.46
44:t:4721:C:H2'	44:t:4722:G:O4'	2.15	0.46
46:v:7:G:O2'	46:v:49:C:H5'	2.16	0.46
9:I:103:ARG:HD3	9:I:195:HIS:NE2	2.30	0.46
10:J:47:LEU:HD12	10:J:47:LEU:O	2.16	0.46
10:J:89:ARG:HA	10:J:146:LEU:O	2.15	0.46
11:K:66:GLU:OE1	11:K:69:ARG:NH2	2.49	0.46
29:c:18:ARG:NH1	44:t:1668:C:O2'	2.48	0.46
44:t:136:G:C2	44:t:137:G:C4	3.04	0.46
44:t:237:G:N1	44:t:238:G:C2	2.84	0.46
44:t:264:U:H2'	44:t:265:C:C6	2.51	0.46
44:t:282:G:H2'	44:t:283:C:C6	2.51	0.46
44:t:684:U:H2'	44:t:685:C:C6	2.50	0.46
44:t:1069:C:H42	44:t:1193:C:N4	2.14	0.46
44:t:3623:A:H2'	44:t:3624:A:C8	2.51	0.46
44:t:4832:A:C2	44:t:4835:G:N2	2.84	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:4925:A:C4	44:t:4926:A:C8	3.04	0.46
53:7:372:TYR:HB3	53:7:373:PRO:HD2	1.98	0.46
4:D:13:G:C6	4:D:14:U:C4	3.04	0.46
4:D:114:G:C2	4:D:115:G:C8	3.04	0.46
5:E:112:U:H2'	5:E:113:G:H8	1.79	0.46
6:F:51:MET:O	6:F:147:ASP:OD1	2.34	0.46
11:K:13:LYS:NZ	44:t:1848:A:OP1	2.46	0.46
22:V:81:ARG:NH2	44:t:2601:G:C5	2.83	0.46
30:d:45:LEU:O	30:d:96:ILE:HG13	2.16	0.46
44:t:476:G:H22	44:t:666:G:N2	2.13	0.46
44:t:506:U:O2	44:t:509:C:N4	2.49	0.46
44:t:2079:G:N2	44:t:2080:A:H1'	2.31	0.46
44:t:2260:U:C2	44:t:2261:A:C8	3.04	0.46
44:t:2475:G:C6	44:t:2476:C:C4	3.03	0.46
44:t:3666:U:H2'	44:t:3667:C:C6	2.51	0.46
44:t:4067:G:O2'	44:t:4068:A:P	2.73	0.46
44:t:4232:C:H1'	44:t:4245:G:H5'	1.97	0.46
44:t:4374:C:C2	44:t:4375:C:C5	3.04	0.46
44:t:4851:A:N3	44:t:4884:C:OP2	2.48	0.46
48:1:153:ILE:O	48:1:157:VAL:HG23	2.16	0.46
48:1:383:SER:O	48:1:384:GLY:C	2.57	0.46
53:7:380:LEU:HB3	53:7:381:PRO:HD3	1.97	0.46
2:B:265:SER:OG	44:t:4421:U:O3'	2.34	0.46
12:L:87:LEU:O	12:L:92:TYR:N	2.48	0.46
15:O:115:VAL:HA	15:O:134:LEU:HD13	1.98	0.46
29:c:24:PRO:O	29:c:25:ARG:HB2	2.16	0.46
39:m:21:ARG:HG2	39:m:22:PRO:HD2	1.97	0.46
42:q:49:ARG:HB2	42:q:55:TRP:CZ3	2.51	0.46
44:t:654:G:C8	44:t:655:A:N7	2.83	0.46
44:t:724:A:C8	44:t:725:G:C8	3.04	0.46
44:t:3724:G:H2'	44:t:3725:G:O4'	2.15	0.46
44:t:3881:C:H2'	44:t:3882:C:C6	2.50	0.46
44:t:3904:G:H2'	44:t:3905:G:H8	1.81	0.46
44:t:4328:A:C2	44:t:4329:G:C5	3.04	0.46
45:u:52:G:C6	45:u:63:G:N1	2.84	0.46
1:A:40:TYR:N	44:t:4086:U:O4	2.44	0.45
2:B:114:CYS:SG	2:B:165:HIS:ND1	2.87	0.45
3:C:28:PHE:CD1	3:C:132:ALA:HB2	2.51	0.45
3:C:42:THR:HG23	44:t:2319:C:H4'	1.98	0.45
8:H:147:LEU:O	8:H:150:VAL:HG12	2.16	0.45
12:L:23:ASN:OD1	12:L:129:ASP:HB2	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:31:ILE:HG13	14:N:32:ASP:H	1.81	0.45
15:O:38:ARG:NE	15:O:60:VAL:HG23	2.31	0.45
17:Q:22:LEU:HD12	17:Q:22:LEU:C	2.41	0.45
25:Y:119:ILE:HD12	25:Y:119:ILE:C	2.41	0.45
31:e:27:ILE:HD11	31:e:52:PHE:CE2	2.51	0.45
33:g:106:TYR:HB2	33:g:107:PRO:HD3	1.98	0.45
34:h:60:ARG:HD3	34:h:61:PRO:CD	2.45	0.45
41:p:21:HIS:ND1	41:p:72:CYS:HA	2.30	0.45
43:r:66:ARG:O	43:r:67:ARG:HB3	2.15	0.45
44:t:31:U:H2'	44:t:32:G:O4'	2.16	0.45
44:t:653:G:O2'	44:t:654:G:O4'	2.30	0.45
44:t:714:A:C2	44:t:930:A:N1	2.84	0.45
44:t:951:A:C4	44:t:953:A:H1'	2.51	0.45
44:t:1754:C:H2'	44:t:1755:U:C6	2.51	0.45
44:t:2581:G:H2'	44:t:2582:C:C6	2.50	0.45
44:t:2705:G:H2'	44:t:2706:C:C6	2.51	0.45
44:t:3597:G:C6	44:t:3807:A:C2	3.04	0.45
44:t:3683:A:N1	44:t:3711:G:N2	2.64	0.45
44:t:3769:U:O2'	44:t:3771:A:N7	2.39	0.45
44:t:4621:G:C6	44:t:4622:G:C6	3.04	0.45
44:t:4973:G:N2	44:t:4993:U:O4	2.49	0.45
52:5:248:LEU:HD11	52:5:272:PHE:CZ	2.52	0.45
52:5:379:ARG:O	52:5:380:LEU:HD22	2.16	0.45
3:C:212:ASN:OD1	3:C:255:SER:OG	2.27	0.45
4:D:154:G:C6	4:D:155:C:N4	2.84	0.45
6:F:110:LEU:HD23	6:F:115:MET:O	2.16	0.45
7:G:176:THR:HG23	7:G:176:THR:O	2.15	0.45
28:b:132:ARG:O	28:b:135:GLU:HG2	2.16	0.45
30:d:45:LEU:HD22	30:d:70:GLY:O	2.16	0.45
44:t:127:G:H2'	44:t:128:C:C6	2.51	0.45
44:t:159:A:H61	44:t:268:C:H42	1.62	0.45
44:t:451:G:H1	44:t:691:G:H22	1.64	0.45
44:t:485:G:H2'	44:t:486:U:N1	2.31	0.45
44:t:1441:A:H2'	44:t:1442:C:O4'	2.16	0.45
44:t:1654:U:H2'	44:t:1655:U:C6	2.51	0.45
46:v:22:G:C8	46:v:46:G:O6	2.70	0.45
1:A:193:ARG:HG2	1:A:194:ASN:N	2.31	0.45
2:B:3:HIS:O	2:B:3:HIS:CG	2.69	0.45
4:D:125:C:H1'	4:D:126:C:C2	2.51	0.45
15:O:157:LYS:O	15:O:162:ARG:NH1	2.45	0.45
16:P:49:ARG:NH1	44:t:1913:A:OP2	2.41	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:185:VAL:C	16:P:186:GLU:HG3	2.42	0.45
19:S:96:MET:HE1	44:t:2586:C:H5''	1.98	0.45
30:d:94:LEU:C	30:d:94:LEU:HD12	2.40	0.45
41:p:10:THR:HG22	41:p:11:PHE:N	2.31	0.45
44:t:655:A:H2'	44:t:656:C:N1	2.32	0.45
44:t:1790:C:N3	44:t:1813:G:N1	2.65	0.45
44:t:2538:G:C6	44:t:2548:G:C6	3.04	0.45
44:t:3688:A:H2'	44:t:3689:A:H8	1.81	0.45
44:t:4892:A:H2'	44:t:4893:C:C6	2.50	0.45
51:4:117:ILE:CG2	51:4:118:PRO:CD	2.94	0.45
51:4:145:HIS:ND1	51:4:208:LEU:HD22	2.31	0.45
9:I:53:ARG:NH2	44:t:4125:U:OP2	2.50	0.45
11:K:150:GLU:OE2	11:K:153:ARG:NH2	2.49	0.45
13:M:24:THR:HG22	15:O:200:LEU:HD11	1.99	0.45
18:R:172:ARG:HD2	28:b:57:GLY:HA3	1.99	0.45
21:U:87:LYS:NZ	44:t:4262:U:OP1	2.50	0.45
44:t:240:A:C6	44:t:242:C:C5	3.04	0.45
44:t:286:G:H22	44:t:309:G:N2	2.14	0.45
44:t:301:A:H2'	44:t:302:G:C8	2.50	0.45
44:t:1854:A:C2	44:t:1855:A:C8	3.04	0.45
44:t:2876:G:C2	44:t:2877:G:C8	3.03	0.45
44:t:4039:U:H2'	44:t:4040:U:H6	1.81	0.45
44:t:4062:G:N2	44:t:4120:C:C4	2.84	0.45
44:t:4220:C:H2'	44:t:4221:C:H6	1.81	0.45
44:t:4333:G:HO2'	44:t:4334:U:P	2.35	0.45
44:t:4548:G:C6	44:t:4679:A:C6	3.04	0.45
44:t:5008:C:H2'	44:t:5009:C:H6	1.81	0.45
46:v:25:C:H2'	46:v:26:A:H8	1.81	0.45
48:1:221:ALA:HB1	51:4:117:ILE:CD1	2.45	0.45
2:B:371:THR:HG21	24:X:17:HIS:NE2	2.32	0.45
3:C:13:GLU:N	3:C:155:GLU:OE2	2.50	0.45
3:C:222:ARG:NH1	44:t:221:U:OP1	2.50	0.45
7:G:166:LYS:O	7:G:174:LEU:N	2.48	0.45
13:M:104:ASN:O	36:j:20:ASN:ND2	2.46	0.45
15:O:179:LYS:HE3	44:t:292:G:OP1	2.16	0.45
23:W:107:ASN:OD1	23:W:111:GLU:N	2.45	0.45
44:t:40:G:C5	44:t:4340:A:C6	3.05	0.45
44:t:63:G:O2'	44:t:76:A:N3	2.36	0.45
44:t:446:A:C2	44:t:446:A:OP1	2.69	0.45
44:t:466:C:H2'	44:t:467:C:C6	2.51	0.45
44:t:1352:C:OP2	44:t:1353:G:O2'	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1457:G:H2'	44:t:1458:C:C6	2.51	0.45
44:t:1459:C:H2'	44:t:1460:C:H6	1.82	0.45
44:t:1460:C:H2'	44:t:1461:G:H8	1.79	0.45
44:t:1863:U:C4	44:t:2258:A:C2	3.05	0.45
44:t:2613:C:C2	44:t:2614:U:C5	3.04	0.45
44:t:3881:C:H2'	44:t:3882:C:H6	1.81	0.45
44:t:4355:G:C4	44:t:4408:U:C5	3.04	0.45
44:t:4401:U:H2'	44:t:4402:G:O4'	2.16	0.45
44:t:4611:G:H3'	44:t:4612:G:H8	1.81	0.45
44:t:4716:G:N1	44:t:4717:G:N2	2.64	0.45
48:1:43:LEU:HD11	49:2:50:ILE:HG23	1.99	0.45
51:4:101:VAL:O	51:4:104:LEU:HB3	2.16	0.45
3:C:65:GLU:OE1	3:C:65:GLU:N	2.46	0.45
3:C:263:LEU:HD22	3:C:264:TYR:CE2	2.52	0.45
4:D:3:A:C4	4:D:4:C:C6	3.05	0.45
4:D:114:G:H1	4:D:136:U:H3	1.63	0.45
12:L:49:VAL:HG13	12:L:71:HIS:CE1	2.51	0.45
12:L:106:GLY:HA3	12:L:131:TYR:CD1	2.52	0.45
12:L:170:TYR:O	12:L:171:ASP:C	2.60	0.45
13:M:127:PHE:CZ	13:M:145:LYS:HD3	2.51	0.45
14:N:45:VAL:O	14:N:45:VAL:HG13	2.17	0.45
18:R:163:THR:HG22	18:R:163:THR:O	2.17	0.45
26:Z:82:ILE:HG22	26:Z:83:GLU:N	2.32	0.45
27:a:25:ILE:HA	27:a:43:VAL:HG12	1.98	0.45
44:t:225:C:N4	44:t:226:G:O6	2.49	0.45
44:t:316:C:N3	44:t:4318:G:C6	2.85	0.45
44:t:718:C:O2'	44:t:719:U:H2'	2.16	0.45
44:t:971:C:H2'	44:t:972:C:H6	1.82	0.45
44:t:2462:G:C2	44:t:2463:A:C4	3.04	0.45
44:t:2619:G:C2	44:t:2620:A:C5	3.05	0.45
44:t:4206:A:N6	44:t:4226:G:O2'	2.47	0.45
46:v:9:A:H4'	46:v:46:G:H5''	1.99	0.45
52:5:522:ALA:O	52:5:523:VAL:C	2.60	0.45
53:7:411:ALA:O	53:7:415:GLU:HG2	2.16	0.45
2:B:395:ASP:OD2	2:B:395:ASP:N	2.50	0.45
4:D:13:G:C4	4:D:14:U:C5	3.05	0.45
7:G:216:TYR:OH	7:G:245:GLN:OE1	2.31	0.45
11:K:156:LYS:HD2	11:K:165:ILE:HD11	1.99	0.45
17:Q:149:ILE:C	17:Q:150:LEU:HD12	2.41	0.45
20:T:80:ILE:HD11	20:T:109:CYS:SG	2.56	0.45
28:b:114:LYS:HE2	44:t:1380:A:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:g:74:VAL:HG13	33:g:84:VAL:HG11	1.99	0.45
41:p:12:CYS:HB3	41:p:21:HIS:CE1	2.51	0.45
44:t:256:C:H3'	44:t:257:G:H8	1.82	0.45
44:t:286:G:H22	44:t:309:G:H21	1.64	0.45
44:t:475:G:N1	44:t:668:C:N3	2.65	0.45
44:t:4071:C:H42	44:t:4079:C:H5''	1.82	0.45
44:t:4375:C:C4	44:t:4376:A:C6	3.05	0.45
44:t:4824:C:H2'	44:t:4825:G:C8	2.51	0.45
44:t:4915:C:N3	44:t:4916:C:N4	2.65	0.45
48:l:31:LYS:O	48:l:35:THR:HG23	2.16	0.45
52:5:109:VAL:HB	52:5:144:TYR:CE2	2.52	0.45
52:5:249:LEU:HD12	52:5:479:LEU:HD23	1.99	0.45
2:B:49:TYR:HE1	2:B:344:VAL:HG13	1.82	0.45
4:D:3:A:C5	4:D:4:C:C5	3.05	0.45
6:F:37:VAL:O	6:F:37:VAL:HG12	2.17	0.45
9:I:200:THR:O	9:I:200:THR:HG22	2.17	0.45
10:J:128:MET:HE1	10:J:146:LEU:HD21	1.99	0.45
15:O:119:TYR:CE1	15:O:131:GLU:HB2	2.51	0.45
26:Z:26:ARG:HA	26:Z:29:ILE:HG22	1.98	0.45
32:f:31:ILE:HD11	44:t:2326:A:C6	2.51	0.45
34:h:5:LEU:HD23	34:h:5:LEU:N	2.31	0.45
38:l:69:LEU:O	38:l:70:LYS:C	2.59	0.45
43:r:26:SER:O	43:r:27:THR:C	2.58	0.45
44:t:224:A:N6	44:t:237:G:N2	2.64	0.45
44:t:1386:G:C6	44:t:1398:G:C6	3.05	0.45
44:t:2462:G:N1	44:t:2475:G:C6	2.85	0.45
44:t:2851:C:N4	44:t:2857:G:N2	2.64	0.45
44:t:2870:U:C2	44:t:3582:A:C2	3.05	0.45
44:t:4065:G:N2	44:t:4067:G:C6	2.84	0.45
44:t:4978:G:H2'	44:t:4979:C:H6	1.82	0.45
45:u:54:U:H5''	45:u:55:U:OP2	2.16	0.45
52:5:249:LEU:HD23	52:5:249:LEU:O	2.17	0.45
53:7:242:SER:OG	53:7:365:VAL:O	2.31	0.45
3:C:84:THR:OG1	44:t:370:A:H1'	2.17	0.45
3:C:150:LEU:HD13	3:C:150:LEU:C	2.42	0.45
4:D:157:U:C2	44:t:1:C:N4	2.85	0.45
6:F:99:TYR:CD1	6:F:199:ILE:HD11	2.52	0.45
16:P:65:ASN:ND2	44:t:4527:C:OP1	2.50	0.45
16:P:110:PRO:N	16:P:111:PRO:CD	2.79	0.45
22:V:35:ASP:N	22:V:35:ASP:OD1	2.49	0.45
27:a:10:VAL:HG12	27:a:85:TYR:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:81:ASN:N	32:f:81:ASN:OD1	2.46	0.45
35:i:23:ASP:O	35:i:27:GLU:OE1	2.35	0.45
44:t:132:G:H2'	44:t:135:G:C6	2.52	0.45
44:t:491:G:H3'	44:t:492:C:H5'	1.99	0.45
44:t:1341:G:C8	44:t:1362:C:N4	2.85	0.45
44:t:1457:G:N2	44:t:1471:G:N1	2.65	0.45
44:t:4698:C:C2	44:t:4699:G:C8	3.05	0.45
51:4:86:LEU:HD22	51:4:86:LEU:N	2.32	0.45
52:5:89:LEU:HB3	52:5:113:PRO:HD2	1.98	0.45
2:B:17:LEU:O	2:B:19:ARG:N	2.50	0.45
2:B:108:GLU:HG2	2:B:137:TRP:CB	2.47	0.45
4:D:36:G:N2	44:t:21:G:N7	2.65	0.45
4:D:64:U:O2	4:D:64:U:C2'	2.65	0.45
4:D:66:A:H2'	4:D:67:U:C5	2.52	0.45
5:E:60:G:H2'	5:E:61:G:H8	1.82	0.45
8:H:169:LEU:HD23	8:H:169:LEU:H	1.81	0.45
19:S:76:MET:SD	19:S:76:MET:N	2.90	0.45
27:a:13:VAL:HG13	27:a:19:SER:HA	1.99	0.45
28:b:132:ARG:O	28:b:136:LYS:HG2	2.17	0.45
44:t:195:A:N6	44:t:216:G:C6	2.85	0.45
44:t:265:C:H2'	44:t:266:U:H6	1.81	0.45
44:t:381:G:O2'	44:t:406:G:O6	2.12	0.45
44:t:671:C:H2'	44:t:672:G:C8	2.52	0.45
44:t:1409:G:N2	44:t:1440:C:OP2	2.48	0.45
44:t:1458:C:H2'	44:t:1459:C:C6	2.52	0.45
44:t:1869:A:C5	44:t:1870:U:C5	3.05	0.45
44:t:2393:G:C6	44:t:2410:A:C6	3.05	0.45
44:t:2477:C:H2'	44:t:2478:C:H6	1.82	0.45
44:t:2707:U:H2'	44:t:2708:C:C6	2.52	0.45
44:t:3683:A:N6	44:t:3711:G:H1	2.15	0.45
44:t:4062:G:N2	44:t:4063:G:H1	2.14	0.45
44:t:4235:A:H2'	44:t:4236:A:H8	1.81	0.45
44:t:4601:G:N1	44:t:4623:G:C6	2.85	0.45
44:t:4917:U:O3'	44:t:4918:G:H8	2.00	0.45
46:v:21:A:C2	46:v:22:G:O6	2.70	0.45
46:v:27:G:H2'	46:v:28:G:C8	2.52	0.45
48:1:341:LEU:HA	48:1:344:TYR:CZ	2.51	0.45
51:4:86:LEU:HD22	51:4:86:LEU:H	1.82	0.45
51:4:170:LEU:O	51:4:170:LEU:HD13	2.18	0.45
52:5:322:LEU:HD13	52:5:342:GLU:HG2	1.98	0.45
2:B:41:VAL:HG12	2:B:196:TRP:CE3	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:201:LEU:C	2:B:202:GLU:HG3	2.41	0.44
4:D:139:G:H2'	4:D:140:C:O4'	2.17	0.44
15:O:17:ASP:N	15:O:17:ASP:OD1	2.49	0.44
33:g:2:SER:OG	44:t:4715:U:OP2	2.32	0.44
44:t:108:A:N1	44:t:327:U:O2'	2.49	0.44
44:t:219:C:O2	44:t:219:C:O4'	2.33	0.44
44:t:487:G:C6	44:t:655:A:C6	3.05	0.44
44:t:736:G:H22	44:t:906:C:H41	1.64	0.44
44:t:1427:G:N2	44:t:2082:G:C6	2.85	0.44
44:t:1794:C:H2'	44:t:1795:U:H6	1.82	0.44
44:t:2465:G:H2'	44:t:2466:G:H8	1.82	0.44
44:t:4722:G:N2	44:t:4727:G:H4'	2.33	0.44
46:v:15:G:N2	46:v:48:C:H42	2.14	0.44
48:1:286:THR:O	48:1:287:SER:OG	2.24	0.44
1:A:62:VAL:HG23	1:A:62:VAL:O	2.16	0.44
6:F:225:GLN:HA	6:F:228:LYS:HB2	1.99	0.44
8:H:92:VAL:HG22	8:H:142:TRP:CB	2.47	0.44
10:J:37:ASP:OD1	10:J:37:ASP:N	2.48	0.44
31:e:42:ALA:N	31:e:43:PRO:CD	2.80	0.44
44:t:181:U:O2'	44:t:185:G:C4'	2.65	0.44
44:t:918:C:C5	44:t:919:A:C5	3.06	0.44
44:t:3683:A:H2'	44:t:3684:U:O4'	2.17	0.44
44:t:4064:G:H2'	44:t:4065:G:H5''	1.99	0.44
44:t:4199:C:O3'	44:t:4288:G:N2	2.50	0.44
44:t:4952:G:H2'	44:t:4953:U:H6	1.82	0.44
1:A:113:VAL:HG13	1:A:164:ALA:HB1	1.98	0.44
2:B:128:LYS:NZ	44:t:4924:A:OP1	2.49	0.44
4:D:13:G:C5	4:D:14:U:C4	3.05	0.44
5:E:94:C:OP1	20:T:46:TYR:OH	2.33	0.44
8:H:109:LEU:HD21	8:H:136:VAL:HG11	1.99	0.44
13:M:48:PRO:HB3	13:M:145:LYS:NZ	2.32	0.44
32:f:82:VAL:HG22	32:f:111:ILE:HG22	2.00	0.44
33:g:13:GLY:O	33:g:27:LEU:HD23	2.18	0.44
43:r:26:SER:C	43:r:27:THR:HG22	2.42	0.44
44:t:38:A:C2	44:t:44:A:C6	3.06	0.44
44:t:181:U:C4	44:t:185:G:C8	3.06	0.44
44:t:457:A:H61	44:t:685:C:N4	2.14	0.44
44:t:491:G:C2	44:t:651:C:N3	2.86	0.44
44:t:506:U:C2	44:t:509:C:N4	2.85	0.44
44:t:647:U:H2'	44:t:648:C:C6	2.52	0.44
44:t:927:C:H6	44:t:927:C:O5'	2.01	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1156:G:H2'	44:t:1157:G:C8	2.53	0.44
44:t:1309:A:OP2	44:t:4407:U:O2'	2.35	0.44
44:t:1748:A:H2'	44:t:1749:A:C8	2.52	0.44
44:t:1806:G:H2'	44:t:1807:A:C8	2.53	0.44
44:t:2089:G:N2	44:t:2231:G:H1	2.15	0.44
44:t:2453:G:C5	44:t:2481:G:C6	3.06	0.44
44:t:4188:G:H4'	44:t:4235:A:O4'	2.17	0.44
44:t:4972:A:C2	44:t:4994:C:C2	3.05	0.44
51:4:64:ILE:H	51:4:64:ILE:HD12	1.82	0.44
2:B:301:ASN:O	2:B:304:SER:OG	2.28	0.44
3:C:327:LYS:C	3:C:328:LEU:HD12	2.42	0.44
4:D:17:A:H1'	44:t:412:A:C2	2.51	0.44
23:W:48:ARG:HB3	23:W:51:ARG:HE	1.81	0.44
25:Y:64:SER:OG	35:i:82:ASP:OD2	2.34	0.44
25:Y:129:ARG:HB2	25:Y:130:PRO:HD2	1.99	0.44
33:g:74:VAL:HG13	33:g:84:VAL:CG1	2.47	0.44
44:t:494:G:H3'	44:t:495:C:C5'	2.48	0.44
44:t:1071:C:H42	44:t:1190:C:N4	2.15	0.44
44:t:2823:A:C6	44:t:3810:G:C5	3.05	0.44
44:t:4556:U:H2'	44:t:4557:G:H8	1.83	0.44
45:u:52:G:H2'	45:u:53:G:H8	1.82	0.44
3:C:329:ASN:ND2	8:H:188:GLU:OE1	2.51	0.44
4:D:115:G:C6	4:D:116:C:N4	2.86	0.44
10:J:67:LEU:O	10:J:70:VAL:HG12	2.17	0.44
13:M:58:ILE:HG23	13:M:70:VAL:CG1	2.48	0.44
15:O:67:ARG:NH2	15:O:127:TYR:OH	2.51	0.44
15:O:89:VAL:O	15:O:90:ASN:CB	2.65	0.44
19:S:15:LEU:HD23	19:S:52:ARG:HB2	1.99	0.44
21:U:80:VAL:HG22	21:U:81:LYS:H	1.83	0.44
30:d:35:LEU:HA	30:d:38:ILE:HG22	2.00	0.44
44:t:131:C:H42	44:t:138:C:H42	1.66	0.44
44:t:176:G:H2'	44:t:177:C:O4'	2.17	0.44
44:t:450:C:H2'	44:t:451:G:C8	2.53	0.44
44:t:729:C:N3	44:t:730:G:N7	2.65	0.44
44:t:1382:G:N2	44:t:1402:G:H1'	2.33	0.44
44:t:1835:G:C4	44:t:4356:A:C2	3.04	0.44
44:t:2074:G:H2'	44:t:2075:A:O4'	2.18	0.44
44:t:2477:C:H2'	44:t:2478:C:C6	2.53	0.44
44:t:2505:C:C5	48:1:405:ARG:NH2	2.86	0.44
44:t:2554:U:C2	44:t:2568:C:C5	3.04	0.44
44:t:3711:G:C5	44:t:3712:C:C5	3.06	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:4036:U:C4	44:t:4037:U:C4	3.05	0.44
44:t:4038:U:H2'	44:t:4039:U:O4'	2.17	0.44
44:t:4163:G:O2'	44:t:4165:A:N6	2.50	0.44
44:t:4650:C:H2'	44:t:4651:U:C6	2.53	0.44
44:t:4698:C:H2'	44:t:4699:G:H8	1.82	0.44
44:t:4922:C:H2'	44:t:4923:U:C6	2.52	0.44
46:v:72:C:C2	46:v:73:A:C8	3.05	0.44
50:3:81:ILE:HD12	50:3:81:ILE:C	2.42	0.44
51:4:2:THR:HA	51:4:122:GLY:O	2.18	0.44
51:4:56:PHE:CE1	51:4:60:TRP:CD1	3.06	0.44
53:7:167:TRP:CZ3	53:7:376:MET:HE1	2.53	0.44
1:A:8:GLN:OE1	1:A:232:GLY:HA3	2.18	0.44
2:B:242:ARG:NH2	44:t:2835:C:O2	2.45	0.44
3:C:92:PHE:O	3:C:100:ARG:NH2	2.50	0.44
8:H:95:ILE:HD12	8:H:96:ARG:HG2	1.99	0.44
8:H:147:LEU:HD12	8:H:195:TYR:CE2	2.52	0.44
8:H:223:LYS:NZ	44:t:1877:A:OP1	2.43	0.44
9:I:43:GLN:NE2	44:t:4086:U:O4'	2.48	0.44
9:I:161:VAL:HG21	9:I:167:VAL:HG21	2.00	0.44
15:O:118:SER:HB3	15:O:132:VAL:HG22	2.00	0.44
42:q:57:CYS:HB3	42:q:59:SER:O	2.18	0.44
44:t:210:G:N1	44:t:211:G:C6	2.85	0.44
44:t:467:C:H2'	44:t:468:C:C6	2.53	0.44
44:t:973:C:C2	44:t:1051:G:C2	3.05	0.44
44:t:1387:G:C2	44:t:1397:C:C2	3.06	0.44
44:t:1414:C:H42	44:t:1435:A:H61	1.66	0.44
44:t:1517:C:H2'	44:t:1518:U:O4'	2.17	0.44
44:t:1709:U:C2	44:t:1710:U:C5	3.06	0.44
44:t:2249:G:C6	44:t:2250:C:C4	3.06	0.44
44:t:3660:G:C6	44:t:3661:U:C4	3.06	0.44
44:t:4150:U:H2'	44:t:4151:U:C6	2.53	0.44
44:t:4372:G:C2	44:t:4373:G:C8	3.06	0.44
44:t:4702:G:C6	44:t:4703:C:C5	3.04	0.44
46:v:9:A:C4'	46:v:46:G:H5''	2.48	0.44
52:5:146:ALA:HB1	52:5:152:LEU:CA	2.47	0.44
1:A:142:GLU:O	1:A:143:THR:CG2	2.66	0.44
3:C:8:ILE:HD11	3:C:24:LEU:HD13	2.00	0.44
10:J:41:ILE:HD13	10:J:73:ILE:HD11	2.00	0.44
10:J:175:PHE:HE1	44:t:4565:C:H4'	1.83	0.44
12:L:21:CYS:SG	12:L:131:TYR:HB3	2.57	0.44
15:O:89:VAL:HG12	15:O:90:ASN:ND2	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:140:LYS:O	15:O:144:ARG:HD3	2.18	0.44
34:h:60:ARG:O	34:h:63:VAL:HG12	2.18	0.44
38:l:46:VAL:O	38:l:46:VAL:HG13	2.18	0.44
44:t:229:G:N2	44:t:230:U:C4	2.85	0.44
44:t:1277:A:C6	44:t:1278:C:N4	2.86	0.44
44:t:1499:G:N3	44:t:1499:G:H2'	2.33	0.44
44:t:1914:G:H2'	44:t:1915:A:C8	2.53	0.44
44:t:2037:G:C4	44:t:2039:G:N7	2.86	0.44
44:t:2523:G:C5	44:t:2524:U:H5	2.36	0.44
44:t:2727:C:O2	44:t:2727:C:O5'	2.36	0.44
44:t:4485:A:H5''	44:t:4486:G:H5'	2.00	0.44
44:t:4823:C:H2'	44:t:4824:C:O4'	2.18	0.44
44:t:4924:A:H2'	44:t:4925:A:O4'	2.17	0.44
44:t:4928:C:C2	44:t:5022:G:C2	3.06	0.44
45:u:39:U:H2'	45:u:40:C:C6	2.53	0.44
45:u:54:U:H2'	45:u:55:U:H5	1.82	0.44
48:1:125:ILE:HG12	48:1:156:PHE:CZ	2.53	0.44
48:1:185:THR:HG22	49:2:47:MET:HG3	2.00	0.44
51:4:87:VAL:O	51:4:154:TRP:CZ2	2.70	0.44
52:5:123:VAL:HG21	52:5:368:LEU:HB2	1.99	0.44
52:5:295:HIS:NE2	52:5:300:LEU:HD22	2.32	0.44
2:B:49:TYR:HE2	2:B:171:LEU:HD13	1.82	0.44
2:B:257:TRP:CD1	2:B:257:TRP:C	2.95	0.44
4:D:115:G:H2'	4:D:116:C:H6	1.82	0.44
6:F:36:LEU:HD23	44:t:4287:A:H1'	2.00	0.44
15:O:12:ARG:NH2	44:t:273:A:N7	2.60	0.44
38:l:40:ARG:HG2	38:l:41:TYR:CE2	2.53	0.44
44:t:176:G:N2	44:t:252:C:H41	2.15	0.44
44:t:193:C:H41	44:t:238:G:H22	1.64	0.44
44:t:646:G:C6	44:t:647:U:C4	3.06	0.44
44:t:901:U:H4'	44:t:902:A:OP1	2.18	0.44
44:t:917:G:H1'	44:t:918:C:O4'	2.16	0.44
44:t:1739:U:C2	44:t:1740:G:N7	2.86	0.44
44:t:2507:G:H3'	44:t:2507:G:C8	2.53	0.44
44:t:3605:G:C6	44:t:3798:G:N1	2.85	0.44
44:t:4062:G:C6	44:t:4083:C:C4	3.06	0.44
44:t:4487:C:C2	44:t:4488:U:C5	3.06	0.44
48:1:186:ASN:O	48:1:190:THR:HG23	2.18	0.44
51:4:135:MET:O	51:4:139:SER:OG	2.22	0.44
51:4:214:ALA:O	51:4:217:VAL:HG22	2.17	0.44
52:5:97:TYR:CE2	52:5:139:THR:HG21	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:7:380:LEU:HD23	53:7:380:LEU:C	2.42	0.44
2:B:355:THR:O	2:B:357:ARG:N	2.51	0.44
8:H:167:ILE:C	8:H:167:ILE:HD12	2.42	0.44
15:O:10:LEU:HB2	36:j:44:ILE:HD11	2.00	0.44
44:t:1:C:H2'	44:t:2:G:O4'	2.17	0.44
44:t:207:C:C4'	44:t:229:G:H22	2.31	0.44
44:t:225:C:H42	44:t:236:C:N4	2.16	0.44
44:t:501:G:N1	44:t:646:G:C6	2.86	0.44
44:t:721:G:O6	44:t:920:G:O4'	2.36	0.44
44:t:1337:A:C5	44:t:1485:A:C2	3.06	0.44
44:t:2480:C:H2'	44:t:2481:G:O4'	2.18	0.44
44:t:2531:G:OP2	44:t:2532:A:H2'	2.18	0.44
44:t:2532:A:OP1	44:t:2743:A:N6	2.51	0.44
44:t:2533:U:C4	44:t:2743:A:OP2	2.71	0.44
44:t:3819:U:H2'	44:t:3820:A:C8	2.53	0.44
44:t:4114:G:H2'	44:t:4115:C:C6	2.52	0.44
44:t:4333:G:C5	44:t:4334:U:C4	3.06	0.44
45:u:47:U:H2'	45:u:50:U:OP1	2.17	0.44
46:v:1:U:H2'	46:v:2:G:C8	2.53	0.44
46:v:64:A:H2'	46:v:65:G:C8	2.53	0.44
48:1:283:LEU:C	48:1:283:LEU:HD23	2.43	0.44
5:E:42:A:C5	5:E:43:U:C5	3.05	0.43
13:M:30:ALA:O	13:M:33:ILE:HG13	2.17	0.43
26:Z:36:LYS:NZ	44:t:196:G:OP1	2.51	0.43
34:h:63:VAL:O	34:h:67:LEU:HD22	2.18	0.43
44:t:40:G:C4	44:t:4340:A:C6	3.05	0.43
44:t:181:U:C2	44:t:185:G:C8	3.06	0.43
44:t:289:A:C2	44:t:311:A:C8	3.06	0.43
44:t:474:C:H42	44:t:668:C:H42	1.66	0.43
44:t:1069:C:C2	44:t:1070:A:C8	3.06	0.43
44:t:1836:G:C6	44:t:1837:C:C4	3.06	0.43
44:t:1897:G:N3	44:t:2048:C:O2'	2.50	0.43
44:t:2016:C:H2'	44:t:2017:C:H6	1.83	0.43
44:t:4100:G:C6	44:t:4116:G:C6	3.06	0.43
48:1:193:TRP:O	48:1:196:PHE:O	2.36	0.43
52:5:45:GLU:OE1	52:5:145:PHE:O	2.36	0.43
52:5:251:LEU:HD12	52:5:418:ILE:HG22	1.99	0.43
53:7:372:TYR:HB3	53:7:373:PRO:CD	2.47	0.43
4:D:106:G:O4'	4:D:136:U:C2	2.71	0.43
4:D:147:G:N3	4:D:148:A:C8	2.86	0.43
5:E:7:G:C8	6:F:22:ARG:NH2	2.86	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:67:ALA:HB1	11:K:158:LYS:HD3	2.00	0.43
19:S:88:ARG:O	44:t:2704:A:N6	2.51	0.43
27:a:89:ILE:HD13	27:a:91:LEU:CD2	2.48	0.43
29:c:41:ARG:NH1	44:t:1474:G:HO2'	2.16	0.43
41:p:26:TYR:OH	44:t:4306:U:O2'	2.33	0.43
44:t:269:C:H2'	44:t:270:C:C6	2.53	0.43
44:t:711:G:C6	44:t:936:G:C6	3.06	0.43
44:t:972:C:C2	44:t:1052:G:C2	3.07	0.43
44:t:1430:C:N3	44:t:2078:G:C2	2.85	0.43
44:t:1450:C:C2	44:t:1451:C:C5	3.05	0.43
44:t:1730:U:H2'	44:t:1731:A:C8	2.53	0.43
44:t:2254:G:H2'	44:t:2255:A:C8	2.53	0.43
44:t:2474:U:H2'	44:t:2475:G:C8	2.53	0.43
44:t:2499:C:H5	44:t:2514:G:H1	1.66	0.43
44:t:2652:G:H5'	44:t:2654:G:O4'	2.18	0.43
44:t:3753:C:O2	44:t:3782:G:N2	2.51	0.43
44:t:4065:G:N3	44:t:4084:G:O6	2.52	0.43
51:4:38:ALA:HA	51:4:90:ARG:HD2	2.00	0.43
54:6:39:LEU:O	54:6:39:LEU:HD13	2.18	0.43
54:6:106:ASN:HA	54:6:109:PHE:HB3	2.00	0.43
1:A:32:VAL:O	1:A:32:VAL:HG13	2.19	0.43
2:B:289:GLN:NE2	2:B:292:LEU:HD22	2.33	0.43
3:C:148:PRO:O	3:C:149:GLU:C	2.60	0.43
4:D:86:U:O2'	4:D:87:G:P	2.76	0.43
5:E:74:A:O3'	20:T:53:LYS:HD3	2.18	0.43
32:f:38:PRO:HB2	32:f:43:ASN:ND2	2.34	0.43
32:f:114:ARG:NH1	32:f:117:GLN:OE1	2.47	0.43
44:t:135:G:N1	44:t:136:G:C6	2.86	0.43
44:t:135:G:N2	44:t:136:G:C2	2.87	0.43
44:t:179:G:H2'	44:t:180:C:O4'	2.18	0.43
44:t:2401:C:OP2	44:t:2402:A:OP2	2.36	0.43
44:t:2638:A:C8	44:t:2652:G:N1	2.86	0.43
44:t:4036:U:H2'	44:t:4037:U:O4'	2.18	0.43
44:t:4695:C:H2'	44:t:4696:A:O4'	2.18	0.43
44:t:4946:U:H1'	44:t:4947:U:OP1	2.18	0.43
48:1:34:TRP:CD2	50:3:68:VAL:HG21	2.54	0.43
1:A:122:ASP:OD2	1:A:125:LYS:HG3	2.19	0.43
3:C:154:VAL:HG11	3:C:174:LEU:HD11	2.00	0.43
4:D:87:G:OP2	4:D:87:G:H2'	2.17	0.43
6:F:107:ARG:NH2	6:F:110:LEU:HD22	2.34	0.43
17:Q:41:ILE:HG23	17:Q:42:ARG:N	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:80:ILE:CG2	20:T:129:VAL:HG22	2.48	0.43
22:V:89:LYS:HD2	44:t:2605:U:O2	2.17	0.43
23:W:48:ARG:NE	44:t:4583:C:OP1	2.47	0.43
33:g:22:ARG:NH2	44:t:2051:U:OP1	2.51	0.43
36:j:33:LEU:HD22	36:j:38:LYS:HB2	1.99	0.43
37:k:54:LYS:O	37:k:58:THR:HG23	2.18	0.43
42:q:18:TYR:HA	44:t:3606:A:H61	1.83	0.43
44:t:133:C:C4	44:t:135:G:C2	3.05	0.43
44:t:1077:G:H2'	44:t:1078:A:C8	2.53	0.43
44:t:1572:C:H5''	44:t:1573:U:O5'	2.18	0.43
44:t:1623:G:C8	44:t:4348:C:O2	2.72	0.43
44:t:1786:A:N3	44:t:1788:G:C6	2.87	0.43
44:t:2036:G:H4'	44:t:2037:G:OP2	2.18	0.43
44:t:2371:C:H2'	44:t:2372:C:H6	1.83	0.43
44:t:4155:C:H2'	44:t:4156:U:O4'	2.18	0.43
44:t:4441:A:H2'	44:t:4442:A:O4'	2.17	0.43
46:v:5:C:H2'	46:v:6:G:C8	2.53	0.43
1:A:144:LYS:O	1:A:145:LYS:HD2	2.19	0.43
4:D:115:G:H2'	4:D:116:C:C6	2.54	0.43
4:D:147:G:C6	44:t:10:A:C6	3.07	0.43
5:E:31:G:C6	5:E:47:G:O6	2.71	0.43
8:H:188:GLU:O	8:H:191:ILE:HG22	2.18	0.43
9:I:139:GLY:HA3	44:t:149:U:O4	2.18	0.43
12:L:150:CYS:SG	12:L:151:ILE:N	2.91	0.43
13:M:145:LYS:O	13:M:147:ALA:HB2	2.19	0.43
15:O:158:HIS:CG	15:O:161:MET:HE2	2.54	0.43
20:T:70:LYS:NZ	44:t:722:G:O3'	2.52	0.43
26:Z:94:THR:O	26:Z:94:THR:HG23	2.18	0.43
28:b:84:GLU:O	28:b:87:ARG:HG3	2.17	0.43
33:g:51:TYR:CZ	33:g:68:ARG:HG3	2.53	0.43
36:j:68:ARG:NH1	44:t:3693:G:OP1	2.51	0.43
44:t:136:G:C6	44:t:137:G:C5	3.06	0.43
44:t:451:G:H1	44:t:691:G:H1	1.65	0.43
44:t:484:C:O2'	44:t:485:G:C5'	2.66	0.43
44:t:495:C:O3'	44:t:498:G:H2'	2.19	0.43
44:t:736:G:H8	44:t:736:G:OP2	2.02	0.43
44:t:1069:C:H42	44:t:1193:C:H42	1.66	0.43
44:t:1230:U:H2'	44:t:1231:C:C6	2.53	0.43
44:t:1316:A:H2'	44:t:1317:A:H8	1.81	0.43
44:t:1560:U:H2'	44:t:1561:C:C6	2.54	0.43
44:t:1582:A:C6	44:t:1620:A:C6	3.07	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1921:G:N2	44:t:4396:C:OP1	2.48	0.43
44:t:2089:G:H2'	44:t:2090:C:O4'	2.18	0.43
44:t:2483:C:H2'	44:t:2484:C:H5'	2.01	0.43
44:t:4037:U:H2'	44:t:4038:U:O4'	2.18	0.43
44:t:4121:C:H2'	44:t:4122:C:C6	2.53	0.43
44:t:4692:C:H5	44:t:4697:G:C6	2.35	0.43
46:v:8:U:O2	46:v:21:A:N1	2.51	0.43
52:5:110:ILE:HG21	52:5:145:PHE:CD2	2.53	0.43
52:5:438:MET:HE2	52:5:443:GLU:OE1	2.17	0.43
2:B:189:THR:HG23	2:B:192:GLU:H	1.84	0.43
2:B:315:ASN:ND2	2:B:325:GLU:OE2	2.51	0.43
4:D:48:A:C6	4:D:62:A:C6	3.07	0.43
4:D:89:U:H2'	4:D:90:C:C6	2.54	0.43
15:O:172:ARG:NH1	44:t:62:A:OP1	2.49	0.43
20:T:26:PRO:O	20:T:27:LEU:HG	2.19	0.43
44:t:46:U:C4	44:t:47:A:C5	3.06	0.43
44:t:68:U:C2	44:t:74:G:C2	3.06	0.43
44:t:465:A:H3'	44:t:466:C:C6	2.54	0.43
44:t:657:C:H2'	44:t:658:G:C1'	2.48	0.43
44:t:713:G:N2	44:t:934:C:C2	2.87	0.43
44:t:722:G:H2'	44:t:723:A:O4'	2.18	0.43
44:t:972:C:H2'	44:t:973:C:H6	1.84	0.43
44:t:1223:G:N7	44:t:1253:A:H5'	2.34	0.43
44:t:1424:C:N3	44:t:2084:G:C2	2.86	0.43
44:t:1732:G:H22	44:t:1762:A:H2	1.66	0.43
44:t:1835:G:C2	44:t:4356:A:C4	3.05	0.43
44:t:2459:G:H2'	44:t:2460:G:C8	2.54	0.43
44:t:3621:C:H2'	44:t:3622:A:C8	2.53	0.43
44:t:3894:A:H2'	44:t:3895:C:C6	2.54	0.43
44:t:4109:G:N2	44:t:4109:G:OP2	2.52	0.43
44:t:4194:U:H4'	44:t:4195:A:O4'	2.18	0.43
44:t:4253:G:O4'	44:t:4255:U:C5	2.72	0.43
44:t:4920:C:C4	44:t:4921:G:N7	2.86	0.43
49:2:61:ILE:HA	49:2:64:ILE:HD12	2.01	0.43
52:5:49:TYR:CZ	52:5:507:TYR:HB3	2.54	0.43
52:5:95:GLU:OE2	52:5:99:LYS:NZ	2.48	0.43
54:6:122:LEU:N	54:6:122:LEU:HD22	2.34	0.43
2:B:299:ILE:HD12	2:B:299:ILE:O	2.19	0.43
4:D:78:G:H1'	4:D:79:G:C8	2.53	0.43
5:E:23:A:H2'	5:E:24:C:C6	2.53	0.43
9:I:46:GLN:OE1	9:I:49:ARG:NH2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:128:MET:CE	10:J:161:ILE:HD11	2.49	0.43
18:R:158:THR:HG23	18:R:159:PRO:HD2	2.01	0.43
19:S:23:TRP:CE3	19:S:23:TRP:O	2.72	0.43
25:Y:110:LYS:NZ	25:Y:121:VAL:O	2.52	0.43
32:f:44:ARG:HG3	32:f:52:GLN:NE2	2.34	0.43
39:m:10:LYS:HD3	44:t:2760:G:OP1	2.18	0.43
44:t:106:A:H2'	44:t:107:G:O4'	2.18	0.43
44:t:195:A:N1	44:t:211:G:O6	2.52	0.43
44:t:208:G:C2'	44:t:209:A:H5'	2.48	0.43
44:t:479:C:N4	44:t:658:G:H2'	2.33	0.43
44:t:954:C:C2	44:t:2241:G:N7	2.86	0.43
44:t:1061:A:C2	44:t:1217:G:N1	2.87	0.43
44:t:1493:U:C2	44:t:1494:G:C8	3.06	0.43
44:t:1636:G:N2	44:t:1660:C:OP1	2.52	0.43
44:t:2090:C:N4	44:t:2091:G:O6	2.52	0.43
44:t:2229:C:N4	44:t:2230:G:O6	2.52	0.43
44:t:2465:G:C4	44:t:2472:G:C2	3.07	0.43
44:t:2869:C:H42	44:t:3582:A:H61	1.66	0.43
44:t:3663:A:N6	44:t:3794:G:H21	2.15	0.43
44:t:4989:G:H2'	44:t:4990:C:C6	2.53	0.43
45:u:3:C:O2'	45:u:4:C:C6	2.71	0.43
48:1:226:LYS:O	48:1:227:VAL:C	2.62	0.43
48:1:289:ILE:HB	48:1:290:PRO:CD	2.48	0.43
52:5:337:PHE:HA	52:5:341:LEU:HB2	2.01	0.43
53:7:185:ASP:HB2	53:7:208:TRP:CD2	2.53	0.43
2:B:315:ASN:OD1	2:B:315:ASN:N	2.52	0.43
4:D:131:G:C3'	4:D:132:G:H5''	2.49	0.43
12:L:15:LEU:CD2	12:L:157:ILE:HG21	2.46	0.43
13:M:145:LYS:HG3	13:M:146:LEU:H	1.83	0.43
15:O:125:SER:HB2	44:t:3908:C:H1'	2.00	0.43
42:q:47:MET:HE2	42:q:71:TYR:HE1	1.82	0.43
44:t:446:A:N7	44:t:1277:A:OP2	2.51	0.43
44:t:505:C:H2'	44:t:506:U:C6	2.54	0.43
44:t:638:G:H2'	44:t:639:G:C8	2.54	0.43
44:t:656:C:O2'	44:t:657:C:O4'	2.37	0.43
44:t:657:C:H2'	44:t:658:G:O4'	2.18	0.43
44:t:964:C:H2'	44:t:965:G:C8	2.54	0.43
44:t:1173:C:H2'	44:t:1174:C:C6	2.53	0.43
44:t:1442:C:H2'	44:t:1443:C:H6	1.84	0.43
44:t:1731:A:H2'	44:t:1732:G:C8	2.54	0.43
44:t:2059:C:H2'	44:t:2060:G:C8	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:2410:A:H2'	44:t:2411:U:C6	2.54	0.43
44:t:2573:C:H2'	44:t:2574:C:C6	2.54	0.43
44:t:4062:G:N2	44:t:4120:C:N3	2.67	0.43
44:t:4234:G:N2	44:t:4298:A:N1	2.67	0.43
44:t:4537:G:C6	44:t:5027:U:C4	3.06	0.43
45:u:52:G:H2'	45:u:53:G:C8	2.54	0.43
48:1:59:ALA:HB1	48:1:65:MET:HE3	2.01	0.43
53:7:267:LYS:O	53:7:270:VAL:HG12	2.18	0.43
54:6:26:THR:O	54:6:30:VAL:HG13	2.19	0.43
4:D:156:U:O2	44:t:1:C:N4	2.45	0.43
9:I:95:LEU:HD21	9:I:156:VAL:CG2	2.48	0.43
11:K:158:LYS:NZ	44:t:4391:C:O2	2.45	0.43
15:O:114:ARG:NH1	15:O:151:ILE:O	2.52	0.43
21:U:25:VAL:HG11	21:U:45:MET:HE1	2.01	0.43
27:a:53:VAL:HB	27:a:62:ILE:CG1	2.49	0.43
28:b:12:ARG:NH1	44:t:1642:U:C4	2.87	0.43
30:d:78:ASN:OD1	30:d:79:ILE:N	2.52	0.43
34:h:98:GLU:O	34:h:102:ILE:HG12	2.19	0.43
42:q:39:CYS:SG	42:q:42:CYS:N	2.85	0.43
44:t:186:G:H2'	44:t:187:G:H8	1.84	0.43
44:t:266:U:H2'	44:t:267:U:C6	2.54	0.43
44:t:441:C:H2'	44:t:442:G:C8	2.53	0.43
44:t:489:C:O2'	44:t:490:G:C5'	2.67	0.43
44:t:652:C:C4	44:t:653:G:C6	3.06	0.43
44:t:715:C:H2'	44:t:716:G:H8	1.82	0.43
44:t:1279:G:C4	44:t:1280:U:C5	3.07	0.43
44:t:2455:G:C5	44:t:2481:G:C2	3.07	0.43
44:t:2465:G:C4	44:t:2472:G:N2	2.87	0.43
44:t:3783:C:H5''	44:t:3784:A:H2'	2.00	0.43
44:t:3878:G:N3	44:t:3880:C:C5	2.87	0.43
44:t:4047:A:C8	44:t:4048:C:C5	3.07	0.43
44:t:4201:A:H2'	44:t:4202:G:C8	2.54	0.43
44:t:4329:G:N3	44:t:4330:G:C8	2.87	0.43
44:t:4340:A:O2'	44:t:4341:A:H3'	2.19	0.43
44:t:4732:U:O4	44:t:4820:G:C6	2.71	0.43
52:5:264:THR:C	52:5:265:HIS:CG	2.97	0.43
54:6:26:THR:HG22	54:6:94:ILE:CD1	2.43	0.43
2:B:252:ALA:HB1	44:t:4486:G:C2	2.54	0.43
8:H:184:ILE:HG21	8:H:193:GLU:CG	2.48	0.43
9:I:220:GLU:HA	9:I:223:ARG:HG2	2.01	0.43
13:M:130:LYS:HB3	13:M:131:PRO:HD2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:46:ARG:NH1	44:t:925:C:O5'	2.40	0.43
20:T:28:TYR:OH	20:T:52:LYS:NZ	2.52	0.43
35:i:28:LEU:HD11	35:i:32:ARG:NE	2.34	0.43
37:k:13:ASN:OD1	37:k:13:ASN:N	2.51	0.43
41:p:2:VAL:HB	41:p:90:HIS:O	2.19	0.43
44:t:135:G:C2	44:t:136:G:N1	2.86	0.43
44:t:443:C:N3	44:t:444:G:C6	2.87	0.43
44:t:475:G:H2'	44:t:476:G:C8	2.54	0.43
44:t:498:G:O2'	44:t:499:G:OP2	2.30	0.43
44:t:719:U:O2	44:t:722:G:H4'	2.19	0.43
44:t:1799:U:H2'	44:t:1800:G:O4'	2.18	0.43
44:t:1851:C:H2'	44:t:1852:A:H8	1.84	0.43
44:t:1936:G:C6	44:t:2010:A:C6	3.06	0.43
44:t:2239:C:H5'	44:t:2240:G:N3	2.34	0.43
44:t:2294:G:C6	44:t:2295:G:C5	3.07	0.43
44:t:2684:G:C2	44:t:2691:G:N3	2.87	0.43
44:t:3888:A:H2'	44:t:3889:G:H8	1.83	0.43
44:t:4269:A:C6	44:t:4270:C:C4	3.07	0.43
44:t:4427:U:C4	44:t:4449:A:C5	3.07	0.43
44:t:4852:A:H4'	44:t:4853:C:C6	2.54	0.43
46:v:6:G:O2'	46:v:7:G:H5'	2.19	0.43
52:5:111:ILE:HG23	52:5:152:LEU:CG	2.49	0.43
52:5:529:ALA:O	52:5:532:ILE:HG13	2.18	0.43
3:C:197:ARG:NH1	44:t:345:C:OP2	2.52	0.42
4:D:58:G:O2'	4:D:98:C:O2'	2.36	0.42
7:G:183:ARG:O	44:t:4896:A:H5'	2.18	0.42
9:I:109:GLU:HA	9:I:112:GLN:HG2	2.01	0.42
13:M:90:VAL:O	13:M:93:THR:HG22	2.19	0.42
14:N:69:HIS:ND1	44:t:908:C:OP1	2.51	0.42
15:O:89:VAL:O	15:O:90:ASN:HB2	2.19	0.42
15:O:119:TYR:CZ	15:O:131:GLU:HB2	2.53	0.42
17:Q:23:ARG:HA	17:Q:143:PRO:HB3	2.01	0.42
20:T:156:HIS:CG	20:T:157:ARG:N	2.87	0.42
30:d:36:LYS:O	30:d:40:GLN:HG2	2.18	0.42
31:e:25:TYR:HD1	31:e:119:THR:HG22	1.84	0.42
44:t:113:A:N7	44:t:155:A:C2	2.85	0.42
44:t:180:C:H2'	44:t:181:U:C4	2.54	0.42
44:t:188:G:H2'	44:t:189:G:C8	2.53	0.42
44:t:712:G:C2	44:t:935:C:C2	3.07	0.42
44:t:938:G:H2'	44:t:939:G:H8	1.83	0.42
44:t:1076:C:H2'	44:t:1077:G:H8	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1351:A:OP2	44:t:1353:G:O2'	2.36	0.42
44:t:1813:G:H2'	44:t:1814:G:C8	2.54	0.42
44:t:2548:G:H2'	44:t:2549:U:C6	2.54	0.42
44:t:2638:A:C2	44:t:2655:A:C8	3.07	0.42
44:t:3576:C:C2	44:t:3577:U:C6	3.07	0.42
44:t:4212:G:N1	44:t:4221:C:C4	2.86	0.42
44:t:4236:A:H2'	44:t:4237:G:H8	1.81	0.42
2:B:240:LEU:HB3	2:B:241:PRO:HD2	2.01	0.42
5:E:3:C:H2'	5:E:4:U:H6	1.84	0.42
5:E:114:U:O2	6:F:74:ILE:HD12	2.19	0.42
7:G:120:ASP:OD2	43:r:112:ARG:NH2	2.53	0.42
8:H:167:ILE:HD13	8:H:174:LEU:CD2	2.48	0.42
20:T:68:PHE:CB	44:t:925:C:H41	2.32	0.42
23:W:45:ILE:O	23:W:45:ILE:HG23	2.18	0.42
25:Y:127:LEU:C	25:Y:127:LEU:HD23	2.45	0.42
27:a:112:ARG:O	27:a:116:VAL:HG23	2.20	0.42
34:h:60:ARG:HG3	34:h:61:PRO:HD2	2.01	0.42
43:r:122:LYS:HB3	43:r:123:PRO:HD3	2.01	0.42
44:t:488:U:C2'	44:t:489:C:O4'	2.66	0.42
44:t:502:G:H3'	44:t:502:G:OP2	2.19	0.42
44:t:664:C:H2'	44:t:665:G:C8	2.54	0.42
44:t:1060:C:N4	44:t:1217:G:H1	2.15	0.42
44:t:1069:C:H2'	44:t:1070:A:C8	2.54	0.42
44:t:1290:A:H2'	44:t:1291:C:C6	2.54	0.42
44:t:1885:G:N1	44:t:2054:C:C4	2.87	0.42
44:t:2016:C:H2'	44:t:2017:C:C6	2.54	0.42
44:t:2684:G:C2	44:t:2691:G:C4	3.07	0.42
44:t:4136:U:H2'	44:t:4137:G:H8	1.84	0.42
44:t:4222:U:H2'	44:t:4223:C:H6	1.84	0.42
44:t:4422:U:H2'	44:t:4423:C:C6	2.54	0.42
44:t:4652:G:H1'	44:t:4662:A:H61	1.83	0.42
44:t:4671:U:C4	44:t:4672:C:C4	3.07	0.42
48:1:158:ALA:O	48:1:162:VAL:HG23	2.19	0.42
52:5:383:PHE:C	52:5:383:PHE:CD2	2.97	0.42
1:A:8:GLN:OE1	1:A:232:GLY:CA	2.68	0.42
3:C:183:VAL:O	3:C:186:SER:N	2.52	0.42
5:E:3:C:H2'	5:E:4:U:C6	2.55	0.42
5:E:43:U:C4	5:E:44:C:C4	3.07	0.42
8:H:94:ARG:NH2	8:H:97:GLY:O	2.49	0.42
13:M:205:GLN:O	13:M:206:ASP:C	2.61	0.42
17:Q:24:VAL:HG22	17:Q:90:PHE:CE2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:19:LYS:O	32:f:20:PHE:C	2.63	0.42
36:j:44:ILE:HA	36:j:47:VAL:HG12	2.01	0.42
38:l:40:ARG:O	38:l:41:TYR:CD1	2.72	0.42
39:m:27:ILE:HG13	39:m:30:LYS:HD2	2.00	0.42
44:t:385:U:O3'	53:7:430:GLN:OE1	2.37	0.42
44:t:476:G:N2	44:t:666:G:H22	2.17	0.42
44:t:690:C:H2'	44:t:691:G:C8	2.54	0.42
44:t:2531:G:N2	44:t:2746:U:C4	2.88	0.42
52:5:180:THR:HG23	52:5:193:SER:OG	2.19	0.42
52:5:285:THR:HB	52:5:374:ARG:HE	1.85	0.42
52:5:298:SER:O	52:5:299:SER:OG	2.31	0.42
54:6:156:GLN:O	54:6:159:GLN:HG3	2.19	0.42
1:A:40:TYR:HA	1:A:91:GLY:HA3	2.01	0.42
1:A:113:VAL:CG1	1:A:164:ALA:HB1	2.49	0.42
4:D:13:G:C5	4:D:14:U:C5	3.07	0.42
4:D:36:G:C2	44:t:21:G:C5	3.07	0.42
5:E:7:G:C2	5:E:113:G:C5	3.07	0.42
5:E:76:U:C2	5:E:77:A:C8	3.08	0.42
7:G:48:PRO:HG2	7:G:56:ARG:HD2	2.01	0.42
13:M:177:LYS:HD2	28:b:145:VAL:HA	2.01	0.42
16:P:85:ARG:HG2	16:P:99:LEU:HD21	2.01	0.42
17:Q:122:ALA:HB1	17:Q:123:PRO:HD2	2.01	0.42
18:R:35:LEU:O	18:R:39:THR:HG22	2.19	0.42
19:S:127:VAL:HG22	19:S:132:PHE:HD2	1.83	0.42
22:V:101:ARG:NE	22:V:103:VAL:HG13	2.35	0.42
37:k:45:ARG:NH2	44:t:366:A:O3'	2.53	0.42
37:k:47:TYR:HB3	37:k:49:TRP:NE1	2.34	0.42
44:t:40:G:C8	44:t:41:C:C5	3.07	0.42
44:t:280:U:H2'	44:t:281:U:C6	2.55	0.42
44:t:470:G:C2	44:t:471:C:N3	2.86	0.42
44:t:1431:G:H21	44:t:2078:G:C1'	2.32	0.42
44:t:1506:A:H2	44:t:1507:A:C8	2.37	0.42
44:t:2395:G:N2	44:t:2408:A:N1	2.68	0.42
44:t:2470:C:H6	44:t:2470:C:O5'	2.01	0.42
44:t:3612:U:OP2	44:t:3617:A:N6	2.47	0.42
44:t:3789:U:O2'	44:t:3790:G:OP1	2.36	0.42
44:t:5017:C:H2'	44:t:5018:A:C8	2.55	0.42
46:v:63:G:H2'	46:v:64:A:H8	1.84	0.42
46:v:72:C:O2'	46:v:73:A:P	2.77	0.42
50:3:88:HIS:ND1	50:3:88:HIS:C	2.77	0.42
51:4:93:GLY:O	51:4:99:ILE:HD11	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:4:96:GLU:O	51:4:99:ILE:HB	2.19	0.42
52:5:64:ARG:HG2	52:5:65:ASN:H	1.85	0.42
52:5:313:THR:O	52:5:387:HIS:CG	2.72	0.42
52:5:425:VAL:HA	52:5:428:ASN:ND2	2.35	0.42
53:7:222:LEU:N	53:7:222:LEU:HD23	2.34	0.42
53:7:230:LEU:HA	53:7:233:VAL:HG22	2.02	0.42
1:A:200:ARG:NH2	44:t:3621:C:OP1	2.51	0.42
2:B:356:LYS:C	2:B:358:ARG:H	2.28	0.42
3:C:188:ARG:HD3	44:t:2280:G:N7	2.35	0.42
5:E:3:C:C2	5:E:4:U:C5	3.08	0.42
7:G:240:TYR:HE1	44:t:4897:C:H4'	1.85	0.42
13:M:79:GLU:OE2	13:M:104:ASN:HB2	2.20	0.42
22:V:22:THR:CG2	22:V:69:LYS:HD2	2.49	0.42
29:c:42:ASN:ND2	44:t:1798:C:C6	2.88	0.42
32:f:99:ILE:HG23	32:f:111:ILE:HD11	2.01	0.42
43:r:30:ASN:O	43:r:42:GLY:HA3	2.18	0.42
44:t:135:G:C2	44:t:136:G:C2	3.08	0.42
44:t:176:G:C6	44:t:253:G:C6	3.07	0.42
44:t:898:U:H2'	44:t:899:G:C8	2.54	0.42
44:t:901:U:HO2'	44:t:902:A:H8	1.64	0.42
44:t:952:G:H21	44:t:2072:G:H1'	1.83	0.42
44:t:1287:C:H2'	44:t:1288:C:C6	2.54	0.42
44:t:2041:G:C6	44:t:2042:U:C4	3.07	0.42
44:t:2606:C:H2'	44:t:2607:U:C6	2.54	0.42
44:t:2727:C:O2	44:t:2727:C:O4'	2.37	0.42
44:t:2735:G:H2'	44:t:2736:A:C8	2.54	0.42
44:t:2874:A:H2'	44:t:2875:G:C8	2.55	0.42
44:t:4281:C:H2'	44:t:4282:G:H8	1.84	0.42
44:t:4361:U:C2	44:t:4362:G:C8	3.08	0.42
44:t:4480:A:H8	44:t:4480:A:OP2	2.02	0.42
44:t:4560:C:H2'	44:t:4573:A:N6	2.35	0.42
44:t:4645:U:H2'	44:t:4646:A:O4'	2.20	0.42
46:v:10:G:C2'	46:v:11:C:O5'	2.67	0.42
52:5:388:LEU:O	52:5:389:GLU:C	2.63	0.42
52:5:438:MET:HE3	52:5:441:PHE:HB2	2.02	0.42
1:A:54:ARG:NH2	44:t:3651:U:OP1	2.36	0.42
1:A:180:LEU:HD21	42:q:18:TYR:HB3	2.01	0.42
2:B:53:MET:HE3	44:t:4589:U:C5	2.55	0.42
2:B:352:LEU:HD23	2:B:352:LEU:H	1.84	0.42
9:I:230:TYR:HA	9:I:233:ILE:HG22	2.01	0.42
14:N:120:ASN:HB3	44:t:4837:C:OP1	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:W:21:PRO:HA	23:W:54:ALA:HA	2.00	0.42
30:d:33:GLN:HE22	44:t:2637:G:H2'	1.84	0.42
38:l:33:LYS:NZ	44:t:2672:G:OP2	2.48	0.42
44:t:129:C:O2'	44:t:130:C:H5'	2.19	0.42
44:t:447:G:C6	44:t:1277:A:N6	2.84	0.42
44:t:646:G:H2'	44:t:647:U:C6	2.54	0.42
44:t:724:A:H62	44:t:917:G:N2	2.17	0.42
44:t:1067:C:H2'	44:t:1068:C:C6	2.55	0.42
44:t:1306:A:C2	44:t:3850:G:C2	3.08	0.42
44:t:3690:A:C6	44:t:3691:G:C5	3.08	0.42
44:t:4133:C:H2'	44:t:4134:A:O4'	2.20	0.42
52:5:109:VAL:O	52:5:109:VAL:HG13	2.20	0.42
4:D:123:U:H1'	4:D:127:U:H5	1.83	0.42
5:E:35:U:H2'	5:E:36:C:O4'	2.19	0.42
14:N:29:ASP:O	14:N:37:LEU:N	2.46	0.42
21:U:4:THR:O	21:U:6:GLY:N	2.48	0.42
44:t:1193:C:H2'	44:t:1194:G:O4'	2.19	0.42
44:t:1201:G:H2'	44:t:1202:G:C8	2.54	0.42
44:t:1734:G:O2'	44:t:1735:G:O4'	2.37	0.42
44:t:2457:C:H2'	44:t:2458:G:C4'	2.49	0.42
44:t:2487:U:H2'	44:t:2488:C:C6	2.55	0.42
44:t:2573:C:C2	44:t:2574:C:C5	3.08	0.42
44:t:2581:G:C5	44:t:2721:G:C6	3.07	0.42
44:t:2735:G:C6	44:t:2736:A:C6	3.08	0.42
44:t:2828:A:O2'	44:t:2834:G:N7	2.50	0.42
44:t:2879:U:O5'	44:t:2879:U:H6	2.03	0.42
44:t:3577:U:C4	44:t:3578:U:C4	3.07	0.42
44:t:4431:U:H2'	44:t:4432:G:C8	2.54	0.42
44:t:4922:C:C4	44:t:4923:U:O4	2.72	0.42
46:v:13:C:H42	46:v:46:G:N2	2.17	0.42
46:v:27:G:H2'	46:v:28:G:H8	1.85	0.42
48:1:221:ALA:CB	51:4:117:ILE:CD1	2.97	0.42
51:4:138:ASP:OD1	51:4:139:SER:N	2.53	0.42
51:4:156:ILE:HD12	51:4:169:VAL:HG22	2.02	0.42
52:5:349:PHE:CD1	52:5:350:PRO:HD3	2.54	0.42
1:A:237:LEU:HD22	1:A:237:LEU:N	2.35	0.42
4:D:71:A:H1'	4:D:88:A:N1	2.35	0.42
4:D:72:A:O2'	4:D:73:U:O5'	2.31	0.42
5:E:94:C:H2'	5:E:95:C:H6	1.85	0.42
6:F:60:ILE:HD13	6:F:98:ALA:HA	2.00	0.42
8:H:56:HIS:O	8:H:59:LYS:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:223:LYS:HA	8:H:232:ASP:OD1	2.20	0.42
13:M:66:TYR:OH	44:t:1365:G:OP1	2.32	0.42
14:N:14:TYR:OH	14:N:22:GLY:HA2	2.19	0.42
15:O:22:LEU:HA	15:O:25:VAL:HG12	2.02	0.42
16:P:36:VAL:HG12	16:P:108:ILE:HG12	2.01	0.42
21:U:154:ILE:HD12	21:U:155:PRO:O	2.20	0.42
23:W:20:LEU:O	23:W:55:ALA:N	2.50	0.42
23:W:109:LYS:HB3	23:W:111:GLU:OE1	2.20	0.42
27:a:41:ALA:HB2	27:a:77:TYR:HE1	1.85	0.42
32:f:109:LYS:O	32:f:112:VAL:HG12	2.20	0.42
38:l:50:LYS:O	38:l:54:GLU:HG2	2.20	0.42
42:q:5:THR:HG21	42:q:9:GLY:H	1.85	0.42
43:r:108:MET:O	43:r:112:ARG:HG2	2.19	0.42
44:t:260:C:C2	44:t:261:G:C8	3.08	0.42
44:t:510:C:H2'	44:t:511:C:C6	2.55	0.42
44:t:656:C:O2'	44:t:657:C:H5'	2.19	0.42
44:t:953:A:C2	44:t:2073:A:H2	2.37	0.42
44:t:2342:A:C2	44:t:3831:A:C4	3.08	0.42
44:t:2549:U:H2'	44:t:2550:C:C6	2.55	0.42
44:t:2590:A:H2'	44:t:2591:G:C8	2.55	0.42
44:t:2667:G:C4	44:t:2668:C:C5	3.08	0.42
44:t:2790:G:N2	44:t:2792:A:H3'	2.35	0.42
44:t:4037:U:H2'	44:t:4038:U:C6	2.54	0.42
44:t:4066:C:C4'	44:t:4067:G:H5'	2.49	0.42
44:t:4848:G:C2	44:t:4888:C:C2	3.08	0.42
46:v:18:G:C2	46:v:61:C:C2	3.08	0.42
48:1:376:SER:O	48:1:380:ILE:HG23	2.20	0.42
51:4:45:VAL:HG22	51:4:86:LEU:HG	2.02	0.42
51:4:183:MET:CG	51:4:200:ALA:HB1	2.49	0.42
52:5:64:ARG:NE	52:5:178:THR:HG21	2.33	0.42
52:5:380:LEU:HD13	52:5:381:PRO:HD2	2.01	0.42
3:C:228:THR:HG22	3:C:229:LEU:N	2.35	0.42
4:D:119:C:C4	4:D:132:G:C6	3.07	0.42
4:D:122:G:O2'	4:D:123:U:OP2	2.34	0.42
8:H:169:LEU:HG	8:H:169:LEU:O	2.20	0.42
12:L:170:TYR:O	12:L:171:ASP:OD1	2.38	0.42
13:M:5:ARG:O	13:M:6:ASN:C	2.63	0.42
27:a:101:PHE:O	27:a:102:ARG:HG2	2.19	0.42
34:h:60:ARG:HD3	34:h:61:PRO:HD2	2.01	0.42
36:j:21:VAL:HG23	36:j:21:VAL:O	2.19	0.42
41:p:66:ILE:HD11	41:p:85:ILE:HB	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:p:81:ARG:HH22	44:t:4256:C:H5'	1.85	0.42
44:t:149:U:H1'	44:t:150:G:N2	2.35	0.42
44:t:172:C:H42	44:t:256:C:H41	1.68	0.42
44:t:455:G:C5	44:t:456:G:C8	3.08	0.42
44:t:2270:G:C2	44:t:2271:C:C5	3.08	0.42
44:t:2464:U:H2'	44:t:2465:G:H8	1.85	0.42
44:t:2729:G:H2'	44:t:2730:G:O4'	2.20	0.42
44:t:2869:C:H1'	44:t:4992:A:H1'	2.01	0.42
44:t:3905:G:H2'	44:t:3906:C:C6	2.55	0.42
44:t:4070:C:N4	44:t:4078:G:O6	2.53	0.42
44:t:4155:C:H3'	44:t:4156:U:C6	2.55	0.42
44:t:4702:G:N1	44:t:4918:G:C6	2.88	0.42
44:t:4978:G:H2'	44:t:4979:C:C6	2.54	0.42
46:v:50:U:H3	46:v:65:G:H1	1.67	0.42
49:2:19:ILE:O	49:2:22:VAL:HG22	2.20	0.42
51:4:4:PHE:CD1	51:4:4:PHE:N	2.86	0.42
51:4:56:PHE:CZ	51:4:60:TRP:CD1	3.08	0.42
6:F:139:PRO:HB3	44:t:1802:C:H5'	2.01	0.42
7:G:117:PRO:O	43:r:112:ARG:HD2	2.20	0.42
8:H:66:ARG:O	8:H:69:ILE:HG13	2.20	0.42
23:W:107:ASN:ND2	23:W:111:GLU:OE1	2.46	0.42
28:b:125:LYS:HA	28:b:145:VAL:HG13	2.02	0.42
30:d:59:GLU:HB3	34:h:96:LEU:HD11	2.02	0.42
32:f:101:HIS:O	32:f:128:ARG:NH1	2.52	0.42
44:t:165:C:N3	44:t:263:G:N1	2.68	0.42
44:t:195:A:C2	44:t:197:U:C4	3.07	0.42
44:t:409:G:C4	44:t:410:U:C6	3.07	0.42
44:t:447:G:O3'	44:t:448:U:O4'	2.38	0.42
44:t:488:U:H3	44:t:654:G:N2	2.18	0.42
44:t:714:A:N1	44:t:930:A:N1	2.67	0.42
44:t:729:C:H2'	44:t:730:G:C8	2.55	0.42
44:t:916:A:H2'	44:t:917:G:C4	2.54	0.42
44:t:973:C:H2'	44:t:974:C:H6	1.84	0.42
44:t:1333:C:H2'	44:t:1334:G:H8	1.85	0.42
44:t:1720:A:H2	44:t:1773:U:O4	2.02	0.42
44:t:1880:G:N7	44:t:2257:G:C6	2.88	0.42
44:t:1901:C:C2	44:t:2045:G:N2	2.88	0.42
44:t:1932:G:O6	44:t:2014:A:N6	2.53	0.42
44:t:2534:G:O6	44:t:2741:G:H1'	2.20	0.42
44:t:2542:C:H2'	44:t:2543:G:C8	2.54	0.42
44:t:2546:G:H2'	44:t:2547:C:H6	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:3728:G:C2	44:t:3739:U:C2	3.08	0.42
44:t:3735:U:H2'	44:t:3736:G:O4'	2.19	0.42
44:t:3766:A:C6	44:t:3777:G:C6	3.08	0.42
44:t:3836:A:C6	44:t:3837:C:C4	3.08	0.42
44:t:3841:C:C2	44:t:3857:G:C2	3.08	0.42
44:t:4395:G:C6	44:t:4396:C:C4	3.08	0.42
44:t:4458:A:C4	44:t:4459:U:C5	3.08	0.42
45:u:53:G:H2'	45:u:54:U:C6	2.54	0.42
46:v:55:U:H2'	46:v:56:C:H2'	2.00	0.42
46:v:70:G:C6	46:v:71:G:N7	2.88	0.42
48:1:210:GLU:HA	48:1:239:LEU:HD13	2.02	0.42
54:6:46:GLN:HB3	54:6:76:LEU:HD21	2.02	0.42
3:C:293:LEU:HD21	18:R:31:LEU:HD12	2.02	0.41
8:H:184:ILE:HA	8:H:189:ASP:CG	2.44	0.41
31:e:93:ASN:HB2	31:e:101:LYS:O	2.20	0.41
36:j:100:ALA:O	36:j:101:ALA:C	2.63	0.41
41:p:6:LYS:O	41:p:23:VAL:HG12	2.20	0.41
42:q:5:THR:HG21	42:q:9:GLY:HA2	2.02	0.41
44:t:71:C:N4	44:t:73:A:C4	2.88	0.41
44:t:1568:G:H3'	44:t:1569:G:H8	1.85	0.41
44:t:1649:G:N7	44:t:2259:G:C6	2.88	0.41
44:t:1761:U:H2'	44:t:1762:A:O4'	2.19	0.41
44:t:2431:G:O6	44:t:2446:U:H2'	2.20	0.41
44:t:2876:G:C4	44:t:3574:G:N2	2.88	0.41
44:t:2876:G:C5	44:t:3574:G:N2	2.87	0.41
44:t:3655:G:H2'	44:t:3656:C:C6	2.55	0.41
44:t:3690:A:C2	44:t:3691:G:C4	3.08	0.41
44:t:4136:U:H2'	44:t:4137:G:C8	2.55	0.41
44:t:4950:G:H2'	44:t:4951:G:C8	2.55	0.41
49:2:14:PHE:CD2	49:2:14:PHE:C	2.98	0.41
52:5:333:LEU:HD12	52:5:333:LEU:N	2.35	0.41
53:7:277:GLN:CD	53:7:277:GLN:H	2.28	0.41
4:D:40:A:H2'	4:D:41:A:H8	1.85	0.41
4:D:87:G:H4'	4:D:88:A:H5'	2.01	0.41
8:H:57:TYR:O	8:H:61:TYR:CD2	2.73	0.41
11:K:23:CYS:SG	11:K:96:VAL:HG11	2.60	0.41
14:N:34:ASN:HA	14:N:52:PHE:HD2	1.86	0.41
27:a:68:ILE:HG22	27:a:119:GLU:HG3	2.02	0.41
27:a:87:VAL:HG12	27:a:89:ILE:HG23	2.01	0.41
32:f:9:LYS:HG3	32:f:9:LYS:O	2.20	0.41
33:g:91:ASN:O	44:t:434:U:O2'	2.32	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:k:75:ARG:HE	37:k:75:ARG:HB3	1.76	0.41
44:t:261:G:C4	44:t:262:G:C8	3.08	0.41
44:t:418:U:H2'	44:t:419:U:C6	2.55	0.41
44:t:462:U:H3'	44:t:678:C:N4	2.35	0.41
44:t:917:G:H1'	44:t:918:C:C1'	2.50	0.41
44:t:1062:C:C4	44:t:1063:C:N4	2.88	0.41
44:t:1372:U:H2'	44:t:1373:G:C8	2.55	0.41
44:t:1429:C:H2'	44:t:1430:C:C6	2.55	0.41
44:t:1571:C:H2'	44:t:1572:C:C6	2.55	0.41
44:t:2613:C:H2'	44:t:2614:U:C6	2.54	0.41
44:t:2744:A:H3'	44:t:2745:A:C8	2.56	0.41
44:t:4360:C:C2	44:t:4361:U:C5	3.08	0.41
44:t:4700:C:H2'	44:t:4701:C:C6	2.56	0.41
48:1:173:TYR:CE2	48:1:175:LEU:O	2.73	0.41
51:4:157:THR:OG1	51:4:158:ARG:N	2.53	0.41
52:5:178:THR:HG22	52:5:181:ALA:HB2	2.01	0.41
52:5:248:LEU:O	52:5:248:LEU:HD22	2.19	0.41
52:5:257:ARG:NH1	52:5:446:GLN:O	2.53	0.41
52:5:322:LEU:HD13	52:5:342:GLU:CG	2.50	0.41
52:5:325:SER:OG	52:5:326:LYS:N	2.54	0.41
54:6:1:MET:SD	54:6:118:PRO:HA	2.60	0.41
3:C:323:ARG:HD3	44:t:962:C:O2	2.20	0.41
7:G:213:THR:H	7:G:216:TYR:HB2	1.85	0.41
15:O:17:ASP:HA	15:O:20:ARG:HG2	2.02	0.41
15:O:138:PHE:CE2	44:t:18:C:H5'	2.55	0.41
17:Q:118:GLN:HG2	17:Q:147:GLU:HG2	2.02	0.41
21:U:80:VAL:O	21:U:81:LYS:C	2.63	0.41
29:c:35:VAL:HG12	29:c:36:ASP:OD1	2.21	0.41
34:h:57:ARG:HD3	44:t:2664:C:OP1	2.20	0.41
44:t:36:U:OP1	44:t:1633:G:N2	2.54	0.41
44:t:40:G:H8	44:t:41:C:C5	2.38	0.41
44:t:166:G:N1	44:t:262:G:N1	2.68	0.41
44:t:190:G:N1	44:t:244:G:N1	2.68	0.41
44:t:210:G:C6	44:t:211:G:O6	2.73	0.41
44:t:477:G:N1	44:t:666:G:N1	2.68	0.41
44:t:505:C:C2	44:t:643:A:C2	3.08	0.41
44:t:1062:C:C2	44:t:1216:G:C2	3.08	0.41
44:t:1309:A:H2'	44:t:1310:C:C6	2.54	0.41
44:t:1329:C:H2'	44:t:1330:G:H8	1.86	0.41
44:t:1337:A:C8	44:t:1485:A:N1	2.88	0.41
44:t:1427:G:H2'	44:t:1428:U:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1459:C:H2'	44:t:1460:C:C6	2.55	0.41
44:t:1827:G:H2'	44:t:1828:C:C6	2.55	0.41
44:t:2346:A:C8	44:t:2777:A:C6	3.08	0.41
44:t:2526:G:N2	44:t:2752:G:H1'	2.34	0.41
44:t:2573:C:H2'	44:t:2574:C:H6	1.84	0.41
44:t:2614:U:H2'	44:t:2615:U:C6	2.55	0.41
44:t:3581:A:H2'	44:t:3582:A:H8	1.86	0.41
44:t:3633:A:C8	44:t:3635:G:C4	3.08	0.41
44:t:4307:C:N3	44:t:4330:G:C6	2.88	0.41
44:t:4369:G:H2'	44:t:4370:G:O4'	2.20	0.41
44:t:4500:G:H2'	44:t:4501:U:C6	2.55	0.41
44:t:4507:G:C2	44:t:4508:A:C8	3.08	0.41
44:t:4925:A:C2	44:t:4926:A:C4	3.08	0.41
44:t:4948:C:O2	44:t:4950:G:N7	2.53	0.41
48:1:74:GLY:O	48:1:75:THR:CG2	2.68	0.41
48:1:379:TRP:O	48:1:380:ILE:C	2.62	0.41
49:2:11:SER:O	49:2:15:VAL:HG23	2.20	0.41
51:4:42:TYR:CE1	51:4:106:TRP:CH2	3.08	0.41
52:5:146:ALA:CB	52:5:152:LEU:HA	2.51	0.41
2:B:285:TYR:OH	2:B:334:LYS:HD3	2.21	0.41
3:C:155:GLU:OE1	3:C:155:GLU:N	2.38	0.41
4:D:132:G:H2'	4:D:133:G:H8	1.85	0.41
6:F:83:LEU:N	6:F:84:PRO:CD	2.84	0.41
8:H:169:LEU:H	8:H:169:LEU:CD2	2.33	0.41
10:J:94:SER:HB3	10:J:142:ASP:HB2	2.03	0.41
13:M:2:ALA:N	13:M:3:PRO:HD2	2.36	0.41
35:i:95:LEU:HD12	35:i:95:LEU:H	1.86	0.41
41:p:70:LEU:HD12	41:p:81:ARG:HD2	2.02	0.41
44:t:445:C:H3'	44:t:1277:A:N3	2.36	0.41
44:t:729:C:C2	44:t:730:G:N7	2.88	0.41
44:t:1185:C:H2'	44:t:1186:G:C8	2.55	0.41
44:t:1786:A:O2'	44:t:1815:U:O4	2.31	0.41
44:t:2537:C:H2'	44:t:2538:G:C8	2.55	0.41
44:t:2546:G:H2'	44:t:2547:C:C6	2.56	0.41
44:t:2569:G:H1'	44:t:2734:A:N6	2.35	0.41
44:t:4701:C:C2	44:t:4919:G:C2	3.08	0.41
44:t:4853:C:N4	44:t:4883:U:O2	2.54	0.41
44:t:4932:C:O2	44:t:4943:U:C2	2.74	0.41
48:1:431:LEU:HD23	48:1:448:LEU:HD21	2.02	0.41
52:5:548:LEU:O	52:5:552:THR:HG23	2.20	0.41
53:7:392:LYS:HB3	53:7:396:PHE:CZ	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:LYS:O	1:A:122:ASP:HB2	2.19	0.41
1:A:126:LEU:HD13	1:A:150:LEU:HD11	2.03	0.41
3:C:266:THR:OG1	3:C:267:TRP:N	2.53	0.41
4:D:42:G:O6	4:D:102:G:N2	2.53	0.41
7:G:163:VAL:O	7:G:175:VAL:HG23	2.21	0.41
8:H:60:GLU:HA	8:H:63:GLN:HG2	2.02	0.41
8:H:82:TYR:HD1	21:U:140:PHE:CD2	2.38	0.41
9:I:29:ASN:N	9:I:30:PRO:CD	2.84	0.41
9:I:143:VAL:O	9:I:147:VAL:HG23	2.20	0.41
14:N:32:ASP:C	14:N:34:ASN:H	2.29	0.41
14:N:36:ALA:HB2	14:N:52:PHE:CZ	2.55	0.41
20:T:143:LYS:HA	20:T:146:HIS:CD2	2.55	0.41
24:X:49:ILE:HG13	24:X:52:THR:HG22	2.00	0.41
26:Z:117:LYS:HE2	26:Z:117:LYS:HA	2.03	0.41
29:c:17:HIS:CG	44:t:1706:G:C5	3.08	0.41
30:d:20:LEU:O	30:d:20:LEU:HD23	2.20	0.41
34:h:38:VAL:O	34:h:60:ARG:NH2	2.54	0.41
34:h:78:TYR:HD1	44:t:2730:G:O2'	2.04	0.41
44:t:64:A:C8	44:t:109:G:O6	2.74	0.41
44:t:180:C:H2'	44:t:181:U:C6	2.55	0.41
44:t:190:G:H22	44:t:243:G:N2	2.18	0.41
44:t:196:G:C2	44:t:206:U:OP1	2.74	0.41
44:t:237:G:C6	44:t:238:G:C2	3.08	0.41
44:t:323:A:OP2	44:t:323:A:H8	2.03	0.41
44:t:438:G:H2'	44:t:439:U:C6	2.56	0.41
44:t:484:C:C2'	44:t:485:G:C8	3.03	0.41
44:t:1199:C:H2'	44:t:1200:G:N9	2.34	0.41
44:t:1431:G:C8	44:t:1432:C:H5	2.38	0.41
44:t:1555:G:C6	44:t:1556:G:N1	2.88	0.41
44:t:1829:C:H2'	44:t:1830:U:O4'	2.21	0.41
44:t:1883:G:C6	44:t:2056:G:C6	3.08	0.41
44:t:2048:C:O2'	44:t:2049:C:H5'	2.21	0.41
44:t:2395:G:N2	44:t:2406:G:C5	2.89	0.41
44:t:2459:G:N1	44:t:2478:C:N3	2.68	0.41
44:t:2550:C:H2'	44:t:2551:C:C6	2.56	0.41
44:t:3570:A:H2'	44:t:3571:G:C8	2.55	0.41
44:t:3867:C:O2	44:t:4526:A:N1	2.54	0.41
44:t:4364:C:N4	44:t:4403:A:H61	2.18	0.41
44:t:4835:G:H2'	44:t:4836:C:C6	2.55	0.41
48:1:247:ALA:HB3	48:1:440:ALA:HB1	2.02	0.41
51:4:138:ASP:OD1	51:4:138:ASP:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:216:HIS:O	1:A:218:HIS:ND1	2.52	0.41
2:B:168:MET:HA	2:B:171:LEU:HD12	2.03	0.41
2:B:271:GLN:NE2	2:B:272:LYS:O	2.53	0.41
4:D:5:U:H2'	4:D:6:C:H6	1.86	0.41
7:G:264:ILE:HD11	7:G:267:LEU:HG	2.03	0.41
33:g:63:LYS:O	33:g:64:PRO:C	2.64	0.41
34:h:27:GLY:O	34:h:28:ASN:C	2.64	0.41
42:q:18:TYR:HA	44:t:3606:A:N6	2.35	0.41
44:t:225:C:N4	44:t:236:C:N4	2.69	0.41
44:t:448:U:C5'	44:t:695:C:C6	3.04	0.41
44:t:502:G:N2	44:t:645:C:C2	2.89	0.41
44:t:661:G:H2'	44:t:662:A:O4'	2.21	0.41
44:t:891:C:H2'	44:t:892:C:H6	1.85	0.41
44:t:1232:C:H2'	44:t:1233:C:H6	1.85	0.41
44:t:1245:G:H2'	44:t:1246:A:O4'	2.21	0.41
44:t:1663:G:C2	44:t:1664:A:C4	3.08	0.41
44:t:1930:U:O2	44:t:1930:U:O4'	2.39	0.41
44:t:2824:A:H61	44:t:3814:C:H42	1.68	0.41
44:t:3683:A:H61	44:t:3711:G:H1	1.69	0.41
44:t:3723:C:C5	44:t:3748:G:C6	3.09	0.41
44:t:4068:A:C2	44:t:4081:C:C5	3.08	0.41
44:t:4230:A:H2'	44:t:4231:G:O4'	2.21	0.41
44:t:4540:G:C6	44:t:4688:G:C6	3.09	0.41
45:u:11:C:H2'	45:u:12:U:C6	2.56	0.41
46:v:19:G:H1'	46:v:57:G:N2	2.35	0.41
48:1:109:ARG:O	48:1:112:PHE:HB3	2.20	0.41
48:1:287:SER:O	48:1:288:ASN:C	2.63	0.41
48:1:298:VAL:HG23	48:1:299:SER:N	2.35	0.41
52:5:332:THR:OG1	52:5:333:LEU:HD12	2.21	0.41
52:5:459:LEU:HD21	52:5:479:LEU:HD21	2.03	0.41
53:7:181:LEU:O	53:7:210:SER:O	2.39	0.41
53:7:410:ARG:NH1	53:7:414:GLU:OE1	2.54	0.41
3:C:303:ARG:NH2	44:t:2067:G:OP1	2.52	0.41
4:D:83:C:OP1	4:D:83:C:H3'	2.21	0.41
9:I:216:ALA:O	9:I:220:GLU:OE1	2.39	0.41
13:M:194:ILE:O	13:M:198:ARG:HD3	2.20	0.41
15:O:94:PHE:O	15:O:95:ALA:C	2.64	0.41
19:S:82:LYS:HE3	44:t:3590:G:H1'	2.02	0.41
28:b:123:ILE:HG22	28:b:143:ALA:HB3	2.03	0.41
38:l:39:SER:O	38:l:40:ARG:CB	2.68	0.41
44:t:197:U:C6	44:t:198:C:C5	3.09	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:215:A:N3	44:t:216:G:N2	2.68	0.41
44:t:439:U:OP1	53:7:400:ARG:NH2	2.52	0.41
44:t:441:C:C2	44:t:442:G:C8	3.08	0.41
44:t:451:G:H22	44:t:691:G:N2	2.17	0.41
44:t:467:C:H2'	44:t:468:C:H6	1.85	0.41
44:t:917:G:C2	44:t:918:C:C4	3.08	0.41
44:t:1181:G:H2'	44:t:1182:G:H8	1.86	0.41
44:t:1333:C:H2'	44:t:1334:G:C8	2.54	0.41
44:t:1375:A:H2'	44:t:1376:G:C8	2.56	0.41
44:t:1652:G:C8	44:t:1836:G:C8	3.09	0.41
44:t:2447:U:C5	44:t:2452:A:N1	2.89	0.41
44:t:2465:G:C8	44:t:2468:C:N4	2.89	0.41
44:t:2717:C:O2'	44:t:2719:U:OP2	2.36	0.41
44:t:3754:A:C6	44:t:3758:G:C2	3.09	0.41
44:t:4064:G:C3'	44:t:4065:G:H5''	2.50	0.41
44:t:4375:C:C4	44:t:4392:G:N1	2.89	0.41
44:t:4448:C:H2'	44:t:4449:A:O4'	2.20	0.41
44:t:4672:C:H2'	44:t:4673:C:C6	2.56	0.41
44:t:4851:A:N1	44:t:4852:A:N6	2.68	0.41
44:t:4948:C:O2	44:t:4950:G:C5	2.74	0.41
51:4:118:PRO:HA	51:4:121:VAL:HG22	2.01	0.41
51:4:173:MET:HA	51:4:173:MET:HE3	2.02	0.41
51:4:216:TYR:O	51:4:219:VAL:HG22	2.19	0.41
52:5:174:VAL:HG22	52:5:175:LEU:N	2.36	0.41
52:5:440:VAL:HG13	52:5:440:VAL:O	2.20	0.41
53:7:269:LEU:HD21	53:7:302:LEU:HD22	2.01	0.41
1:A:152:SER:OG	44:t:3632:G:N7	2.43	0.41
2:B:208:ASN:OD1	2:B:209:GLN:N	2.53	0.41
2:B:334:LYS:HZ1	44:t:4637:U:P	2.42	0.41
2:B:355:THR:C	2:B:357:ARG:H	2.27	0.41
4:D:83:C:O2'	4:D:84:A:C8	2.73	0.41
4:D:121:G:N1	4:D:123:U:O4	2.49	0.41
4:D:149:G:C2	4:D:151:G:C5	3.09	0.41
7:G:183:ARG:HD3	44:t:4894:G:C6	2.55	0.41
13:M:90:VAL:HA	13:M:93:THR:HG22	2.03	0.41
14:N:69:HIS:O	14:N:73:VAL:HG23	2.21	0.41
21:U:87:LYS:HE2	44:t:4263:U:P	2.61	0.41
33:g:6:TRP:CE3	33:g:102:ARG:HG3	2.55	0.41
38:l:51:GLU:O	38:l:55:LYS:HG3	2.21	0.41
43:r:71:ARG:HG2	43:r:71:ARG:O	2.19	0.41
44:t:145:C:H2'	44:t:146:A:O4'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:177:C:H2'	44:t:178:C:C6	2.55	0.41
44:t:451:G:C5	44:t:452:C:C5	3.09	0.41
44:t:491:G:H2'	44:t:492:C:H5''	2.03	0.41
44:t:1431:G:C8	44:t:1432:C:C5	3.09	0.41
44:t:1458:C:H2'	44:t:1459:C:O4'	2.21	0.41
44:t:1615:G:OP1	44:t:4496:G:H5''	2.21	0.41
44:t:1838:C:H2'	44:t:1839:A:H8	1.85	0.41
44:t:2252:G:H2'	44:t:2253:C:C6	2.55	0.41
44:t:2472:G:C2	44:t:2473:U:C2	3.09	0.41
44:t:4523:C:C2	44:t:4524:C:C5	3.08	0.41
1:A:241:ARG:O	1:A:242:ARG:CG	2.69	0.41
4:D:135:C:N3	4:D:136:U:C5	2.89	0.41
4:D:144:U:H2'	4:D:145:C:C6	2.56	0.41
5:E:14:C:H5'	6:F:24:ARG:NH1	2.36	0.41
7:G:150:LEU:HD23	7:G:196:ALA:HA	2.02	0.41
7:G:179:LEU:HD22	7:G:183:ARG:HA	2.03	0.41
7:G:216:TYR:OH	7:G:246:ARG:HG2	2.20	0.41
7:G:283:PRO:O	7:G:284:HIS:CG	2.72	0.41
8:H:186:CYS:SG	8:H:189:ASP:HB2	2.60	0.41
9:I:113:ARG:HE	9:I:114:LEU:HD22	1.86	0.41
10:J:45:LEU:HD23	10:J:57:VAL:HG23	2.03	0.41
11:K:138:ILE:HD11	11:K:148:VAL:HG22	2.02	0.41
16:P:173:GLN:OE1	16:P:176:ARG:NH2	2.50	0.41
25:Y:45:THR:HG22	44:t:4055:A:OP1	2.21	0.41
31:e:24:GLU:HA	31:e:87:ARG:HA	2.03	0.41
33:g:23:GLU:OE2	44:t:432:G:N2	2.50	0.41
34:h:41:ALA:O	34:h:52:ARG:HD2	2.21	0.41
44:t:135:G:C6	44:t:136:G:O6	2.74	0.41
44:t:162:A:N6	44:t:265:C:H42	2.19	0.41
44:t:243:G:H2'	44:t:244:G:C8	2.56	0.41
44:t:249:C:H2'	44:t:250:G:C8	2.56	0.41
44:t:249:C:N3	44:t:250:G:O6	2.53	0.41
44:t:639:G:H2'	44:t:640:G:C8	2.56	0.41
44:t:665:G:H2'	44:t:666:G:O4'	2.21	0.41
44:t:892:C:H2'	44:t:893:C:C6	2.56	0.41
44:t:971:C:C2	44:t:1053:G:C2	3.08	0.41
44:t:1055:C:H42	44:t:1222:C:N4	2.18	0.41
44:t:1068:C:C2	44:t:1195:G:N2	2.89	0.41
44:t:1150:C:H2'	44:t:1151:G:C8	2.56	0.41
44:t:1200:G:H2'	44:t:1201:G:O4'	2.21	0.41
44:t:1275:C:H3'	44:t:1276:G:N2	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1381:A:O3'	44:t:1382:G:H8	2.04	0.41
44:t:1701:A:N6	44:t:1822:C:C4	2.88	0.41
44:t:1734:G:H2'	44:t:1735:G:H8	1.85	0.41
44:t:2469:U:H2'	44:t:2470:C:O4'	2.21	0.41
44:t:2578:G:N2	44:t:2726:U:C4	2.89	0.41
44:t:2676:A:C4	44:t:2677:G:C8	3.09	0.41
44:t:3623:A:H2'	44:t:3624:A:N7	2.36	0.41
44:t:3755:A:O2'	44:t:3756:A:H3'	2.21	0.41
44:t:3805:C:H2'	44:t:3806:C:C6	2.55	0.41
44:t:3854:U:H2'	44:t:3855:U:C6	2.56	0.41
44:t:3914:A:H2'	44:t:3915:G:O4'	2.21	0.41
44:t:4058:C:H2'	44:t:4059:G:H8	1.85	0.41
44:t:4133:C:C2	44:t:4134:A:C8	3.09	0.41
44:t:4285:A:H2'	44:t:4286:A:O4'	2.20	0.41
44:t:4343:A:C6	44:t:4344:G:C5	3.09	0.41
44:t:4653:A:H2'	44:t:4654:A:O4'	2.20	0.41
44:t:4667:A:H2'	44:t:4668:G:O4'	2.20	0.41
44:t:4736:C:H3'	44:t:4737:G:C5'	2.48	0.41
44:t:4886:C:OP2	44:t:4886:C:C6	2.74	0.41
44:t:5026:G:H2'	44:t:5026:G:N3	2.36	0.41
48:1:49:PRO:HD3	48:1:75:THR:H	1.86	0.41
48:1:441:ILE:H	48:1:441:ILE:HD12	1.85	0.41
49:2:50:ILE:HA	49:2:53:PHE:CD2	2.56	0.41
51:4:81:LEU:HD13	51:4:81:LEU:O	2.21	0.41
51:4:171:LEU:O	51:4:175:LEU:HG	2.20	0.41
52:5:251:LEU:HD12	52:5:418:ILE:HG21	2.00	0.41
53:7:241:VAL:O	53:7:241:VAL:CG1	2.68	0.41
54:6:165:ALA:N	54:6:166:PRO:HD2	2.36	0.41
1:A:68:ARG:NH2	44:t:4054:G:N7	2.68	0.41
1:A:242:ARG:CZ	44:t:3715:G:O2'	2.69	0.41
2:B:228:TYR:HB2	44:t:4937:A:OP1	2.20	0.41
4:D:115:G:C4	4:D:116:C:C5	3.09	0.41
8:H:142:TRP:CH2	8:H:235:ASN:ND2	2.89	0.41
10:J:156:ASN:O	10:J:160:LEU:HG	2.20	0.41
19:S:3:MET:HE1	44:t:2363:U:O2'	2.21	0.41
20:T:169:THR:OG1	44:t:4832:A:H5''	2.21	0.41
27:a:33:THR:HG23	27:a:40:HIS:CE1	2.56	0.41
34:h:83:CYS:O	34:h:84:ALA:HB3	2.21	0.41
43:r:53:PRO:HD3	43:r:117:ILE:HD11	2.02	0.41
44:t:210:G:C6	44:t:211:G:C6	3.09	0.41
44:t:654:G:N7	44:t:655:A:N7	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:1228:C:N4	44:t:1229:G:O6	2.55	0.41
44:t:1426:A:H2	44:t:2083:G:O6	2.04	0.41
44:t:1737:C:H2'	44:t:1738:U:O4'	2.21	0.41
44:t:1793:G:H2'	44:t:1794:C:C6	2.56	0.41
44:t:2352:C:H2'	44:t:2353:A:C8	2.56	0.41
44:t:2469:U:H3'	44:t:2470:C:C6	2.56	0.41
44:t:2622:G:O6	44:t:2671:U:O4	2.38	0.41
44:t:2668:C:C2	44:t:2669:C:C5	3.09	0.41
44:t:2679:G:H2'	44:t:2680:U:O4'	2.21	0.41
44:t:2847:G:C2	44:t:2862:G:C6	3.09	0.41
44:t:3592:A:C8	44:t:3593:C:C5	3.09	0.41
44:t:3689:A:H2	44:t:3905:G:O4'	2.03	0.41
44:t:3705:U:H2'	44:t:3706:G:O4'	2.21	0.41
44:t:3908:C:H2'	44:t:3909:G:C8	2.56	0.41
44:t:4223:C:H2'	44:t:4224:C:H6	1.86	0.41
46:v:14:C:H2'	46:v:15:G:O4'	2.20	0.41
48:l:441:ILE:O	48:l:442:GLY:C	2.64	0.41
51:4:42:TYR:HA	51:4:45:VAL:HG23	2.02	0.41
52:5:309:LEU:HB2	52:5:383:PHE:CD2	2.55	0.41
2:B:41:VAL:HA	2:B:187:GLY:HA3	2.03	0.40
4:D:46:G:O2'	4:D:61:A:N1	2.42	0.40
4:D:72:A:C5	4:D:73:U:C5	3.09	0.40
4:D:149:G:C2	4:D:151:G:N7	2.89	0.40
6:F:50:ARG:O	6:F:64:ILE:HA	2.21	0.40
7:G:43:HIS:CD2	7:G:44:CYS:H	2.39	0.40
10:J:5:LEU:HA	10:J:60:TRP:HA	2.03	0.40
15:O:28:TRP:O	15:O:32:GLN:HG2	2.21	0.40
16:P:48:TYR:CE2	44:t:1911:U:C2	3.10	0.40
17:Q:15:CYS:SG	17:Q:16:LYS:N	2.94	0.40
25:Y:71:LEU:HD21	25:Y:76:ILE:HD11	2.02	0.40
27:a:103:ASP:OD1	27:a:103:ASP:N	2.53	0.40
28:b:46:ASP:O	28:b:47:LYS:HG2	2.21	0.40
43:r:52:GLU:HB2	43:r:61:VAL:HG23	2.03	0.40
44:t:74:G:O6	44:t:75:G:C2	2.74	0.40
44:t:491:G:H2'	44:t:492:C:C5'	2.51	0.40
44:t:1583:A:C8	44:t:3614:A:C8	3.09	0.40
44:t:1709:U:C2	44:t:1818:A:C2	3.08	0.40
44:t:2391:A:H2'	44:t:2392:U:C6	2.55	0.40
44:t:2840:C:H2'	44:t:2841:G:O4'	2.21	0.40
44:t:4306:U:H2'	44:t:4307:C:C6	2.56	0.40
44:t:5009:C:H2'	44:t:5010:C:C6	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:1:86:THR:CG2	48:1:297:LEU:HD12	2.51	0.40
49:2:36:ILE:HG13	49:2:37:ALA:N	2.36	0.40
52:5:364:ALA:O	52:5:365:GLU:C	2.64	0.40
54:6:124:TYR:HB2	54:6:138:THR:HA	2.03	0.40
2:B:237:THR:HG22	2:B:238:LYS:N	2.37	0.40
3:C:22:VAL:HG11	3:C:257:PHE:HD2	1.87	0.40
4:D:4:C:H2'	4:D:5:U:H6	1.87	0.40
4:D:90:C:H2'	4:D:91:A:C8	2.56	0.40
5:E:8:G:O6	6:F:21:ARG:NH2	2.54	0.40
35:i:87:LYS:O	35:i:88:THR:HG23	2.21	0.40
44:t:190:G:N2	44:t:243:G:N2	2.69	0.40
44:t:220:G:H2'	44:t:220:G:N3	2.36	0.40
44:t:495:C:H1'	44:t:498:G:N7	2.36	0.40
44:t:1398:G:H2'	44:t:1399:G:C8	2.57	0.40
44:t:1432:C:H2'	44:t:1433:C:O4'	2.22	0.40
44:t:1853:G:C2	44:t:1854:A:C8	3.09	0.40
44:t:2607:U:H2'	44:t:2608:C:O4'	2.21	0.40
44:t:2611:U:C2	44:t:2612:U:C5	3.09	0.40
44:t:2638:A:C5	44:t:2652:G:C6	3.09	0.40
44:t:2655:A:C4	44:t:2656:G:C8	3.08	0.40
44:t:2681:C:N3	44:t:2694:G:C6	2.89	0.40
44:t:4653:A:N1	44:t:4662:A:C8	2.89	0.40
44:t:4730:G:C2	44:t:4823:C:C2	3.09	0.40
44:t:4843:U:H2'	44:t:4844:C:H6	1.85	0.40
44:t:4844:C:H2'	44:t:4845:C:H6	1.86	0.40
45:u:9:A:H2'	45:u:11:C:H5	1.86	0.40
45:u:35:C:H2'	45:u:36:G:O4'	2.21	0.40
52:5:79:VAL:HG13	52:5:80:LEU:N	2.36	0.40
52:5:203:SER:N	52:5:480:GLU:OE1	2.54	0.40
52:5:536:LEU:C	52:5:536:LEU:HD23	2.46	0.40
3:C:323:ARG:HA	3:C:326:LEU:HB2	2.04	0.40
8:H:73:ARG:HD3	44:t:718:C:OP1	2.22	0.40
11:K:95:HIS:O	11:K:125:THR:HA	2.22	0.40
14:N:120:ASN:HA	14:N:123:ILE:HD12	2.03	0.40
15:O:64:ILE:HD11	15:O:102:ALA:HA	2.02	0.40
17:Q:16:LYS:CB	17:Q:149:ILE:HD13	2.50	0.40
22:V:78:PHE:CE1	22:V:82:TYR:HD2	2.39	0.40
32:f:63:ASN:OD1	32:f:64:LYS:N	2.54	0.40
37:k:17:THR:O	37:k:27:TYR:HB3	2.21	0.40
39:m:2:SER:N	44:t:2385:G:N7	2.69	0.40
41:p:77:CYS:O	41:p:78:ARG:C	2.65	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:t:427:A:H2'	44:t:428:A:O4'	2.22	0.40
44:t:1670:G:H2'	44:t:1671:G:H8	1.86	0.40
44:t:1756:C:H2'	44:t:1757:A:O4'	2.21	0.40
44:t:2050:A:C2	44:t:2052:A:C8	3.10	0.40
44:t:3690:A:C4	44:t:3691:G:C8	3.09	0.40
44:t:3849:C:O2	44:t:4480:A:C6	2.73	0.40
44:t:3916:A:H2'	44:t:3917:G:C8	2.54	0.40
44:t:4061:G:N2	44:t:4121:C:C2	2.89	0.40
44:t:4823:C:N3	44:t:4824:C:C5	2.89	0.40
44:t:4967:G:O6	44:t:4998:U:O4	2.40	0.40
48:1:10:LYS:HB3	48:1:111:LEU:HD22	2.03	0.40
51:4:100:MET:O	51:4:103:ALA:HB3	2.20	0.40
1:A:14:SER:OG	1:A:15:VAL:N	2.55	0.40
13:M:67:HIS:HD2	44:t:72:C:C5	2.39	0.40
13:M:125:ILE:HD12	13:M:125:ILE:O	2.21	0.40
13:M:127:PHE:CE2	13:M:145:LYS:HD3	2.57	0.40
13:M:169:ILE:H	13:M:169:ILE:HD12	1.86	0.40
17:Q:146:ILE:O	17:Q:146:ILE:HG13	2.21	0.40
21:U:43:LYS:HG3	21:U:58:HIS:CE1	2.57	0.40
22:V:85:TYR:CD1	44:t:2611:U:C4	3.09	0.40
33:g:104:MET:C	33:g:105:LEU:HD12	2.46	0.40
38:l:42:LEU:N	44:t:2516:A:OP1	2.53	0.40
44:t:168:U:H2'	44:t:169:C:C6	2.57	0.40
44:t:242:C:H2'	44:t:243:G:C8	2.56	0.40
44:t:487:G:C5	44:t:488:U:C4	3.10	0.40
44:t:506:U:O2	44:t:641:G:C6	2.69	0.40
44:t:920:G:O2'	44:t:927:C:H5	2.03	0.40
44:t:956:C:O2	44:t:956:C:C2'	2.70	0.40
44:t:1461:G:N2	44:t:1469:G:H1'	2.36	0.40
44:t:2418:G:C2	44:t:2419:U:C6	3.09	0.40
44:t:2569:G:N2	44:t:2733:G:O2'	2.39	0.40
44:t:2600:A:H2'	44:t:2601:G:C8	2.57	0.40
44:t:2633:C:C2	44:t:2660:G:C2	3.09	0.40
44:t:2731:G:C5	44:t:2732:G:C5	3.09	0.40
44:t:3599:G:O6	44:t:3805:C:N4	2.54	0.40
44:t:3691:G:H1	44:t:3704:A:N6	2.19	0.40
44:t:4195:A:C5	44:t:4197:G:C8	3.09	0.40
44:t:4223:C:H2'	44:t:4224:C:C6	2.56	0.40
48:1:113:ASN:HA	48:1:116:GLN:HG2	2.03	0.40
48:1:152:THR:CG2	48:1:156:PHE:CZ	3.04	0.40
2:B:27:GLY:O	2:B:346:THR:HG21	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:94:ASN:OD1	3:C:95:MET:N	2.55	0.40
4:D:71:A:H1'	4:D:88:A:C2	2.56	0.40
4:D:125:C:N3	44:t:2466:G:N3	2.69	0.40
5:E:70:G:C6	5:E:106:G:C6	3.09	0.40
6:F:22:ARG:HG3	6:F:28:THR:OG1	2.22	0.40
12:L:81:GLU:O	12:L:84:GLU:HG3	2.22	0.40
13:M:164:GLU:HB3	28:b:100:ILE:HD13	2.03	0.40
16:P:38:CYS:SG	16:P:77:SER:HA	2.62	0.40
33:g:24:HIS:ND1	33:g:25:THR:HG23	2.37	0.40
33:g:58:VAL:CG2	44:t:1280:U:O3'	2.68	0.40
43:r:28:GLU:HB2	43:r:31:ASN:HB2	2.03	0.40
44:t:161:G:H1	44:t:266:U:H3	1.70	0.40
44:t:181:U:HO2'	44:t:185:G:C1'	2.32	0.40
44:t:276:C:C4	44:t:277:G:C5	3.09	0.40
44:t:455:G:H2'	44:t:456:G:O4'	2.22	0.40
44:t:470:G:C2	44:t:471:C:N4	2.89	0.40
44:t:750:G:C2	44:t:892:C:C2	3.10	0.40
44:t:1798:C:C4	44:t:1799:U:C4	3.10	0.40
44:t:2528:G:C6	44:t:2750:G:C6	3.09	0.40
44:t:2595:C:C2	44:t:2701:G:C2	3.09	0.40
44:t:3606:A:C8	44:t:3663:A:C8	3.10	0.40
44:t:4177:C:C2	44:t:4178:G:C8	3.09	0.40
44:t:4360:C:H2'	44:t:4361:U:C6	2.56	0.40
44:t:4912:G:OP2	44:t:5028:C:H4'	2.21	0.40
44:t:4964:U:H4'	44:t:4965:A:H5'	2.03	0.40
45:u:21:A:H2'	45:u:22:G:C8	2.57	0.40
46:v:40:C:H2'	46:v:41:C:C6	2.56	0.40
52:5:45:GLU:OE1	52:5:145:PHE:C	2.64	0.40
52:5:173:GLU:HG2	52:5:517:TYR:CZ	2.56	0.40
53:7:330:SER:O	53:7:361:PHE:HB2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	244/257 (95%)	224 (92%)	20 (8%)	0	100	100
2	B	394/403 (98%)	363 (92%)	31 (8%)	0	100	100
3	C	361/427 (84%)	337 (93%)	24 (7%)	0	100	100
6	F	246/297 (83%)	235 (96%)	11 (4%)	0	100	100
7	G	214/288 (74%)	186 (87%)	26 (12%)	2 (1%)	14	47
8	H	223/248 (90%)	207 (93%)	16 (7%)	0	100	100
9	I	232/266 (87%)	221 (95%)	11 (5%)	0	100	100
10	J	189/192 (98%)	173 (92%)	16 (8%)	0	100	100
11	K	148/214 (69%)	141 (95%)	7 (5%)	0	100	100
12	L	167/178 (94%)	155 (93%)	12 (7%)	0	100	100
13	M	203/211 (96%)	180 (89%)	23 (11%)	0	100	100
14	N	136/215 (63%)	127 (93%)	9 (7%)	0	100	100
15	O	201/204 (98%)	181 (90%)	19 (10%)	1 (0%)	24	59
16	P	193/203 (95%)	187 (97%)	6 (3%)	0	100	100
17	Q	151/184 (82%)	147 (97%)	4 (3%)	0	100	100
18	R	185/188 (98%)	175 (95%)	10 (5%)	0	100	100
19	S	152/196 (78%)	146 (96%)	6 (4%)	0	100	100
20	T	173/176 (98%)	165 (95%)	8 (5%)	0	100	100
21	U	155/160 (97%)	146 (94%)	9 (6%)	0	100	100
22	V	97/128 (76%)	95 (98%)	2 (2%)	0	100	100
23	W	127/140 (91%)	123 (97%)	4 (3%)	0	100	100
24	X	59/157 (38%)	57 (97%)	2 (3%)	0	100	100
25	Y	115/156 (74%)	107 (93%)	8 (7%)	0	100	100
26	Z	131/145 (90%)	126 (96%)	5 (4%)	0	100	100
27	a	132/136 (97%)	121 (92%)	11 (8%)	0	100	100
28	b	145/148 (98%)	128 (88%)	17 (12%)	0	100	100
29	c	92/159 (58%)	85 (92%)	7 (8%)	0	100	100
30	d	93/115 (81%)	91 (98%)	2 (2%)	0	100	100
31	e	104/125 (83%)	97 (93%)	7 (7%)	0	100	100
32	f	127/135 (94%)	115 (91%)	12 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
33	g	107/110 (97%)	100 (94%)	7 (6%)	0	100	100
34	h	110/117 (94%)	105 (96%)	5 (4%)	0	100	100
35	i	120/123 (98%)	115 (96%)	5 (4%)	0	100	100
36	j	95/105 (90%)	94 (99%)	1 (1%)	0	100	100
37	k	82/97 (84%)	79 (96%)	3 (4%)	0	100	100
38	l	67/70 (96%)	65 (97%)	2 (3%)	0	100	100
39	m	48/51 (94%)	48 (100%)	0	0	100	100
40	o	23/25 (92%)	23 (100%)	0	0	100	100
41	p	97/106 (92%)	94 (97%)	3 (3%)	0	100	100
42	q	89/92 (97%)	84 (94%)	5 (6%)	0	100	100
43	r	120/137 (88%)	106 (88%)	14 (12%)	0	100	100
48	1	420/476 (88%)	403 (96%)	16 (4%)	1 (0%)	43	74
49	2	60/68 (88%)	59 (98%)	1 (2%)	0	100	100
50	3	27/96 (28%)	25 (93%)	2 (7%)	0	100	100
51	4	219/224 (98%)	206 (94%)	13 (6%)	0	100	100
52	5	514/563 (91%)	472 (92%)	39 (8%)	3 (1%)	21	55
53	7	286/483 (59%)	273 (96%)	13 (4%)	0	100	100
54	6	172/188 (92%)	165 (96%)	7 (4%)	0	100	100
All	All	7845/9182 (85%)	7357 (94%)	481 (6%)	7 (0%)	49	80

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	G	127	SER
48	1	75	THR
7	G	128	HIS
52	5	432	LYS
15	O	90	ASN
52	5	523	VAL
52	5	433	GLY

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	A	189/199 (95%)	188 (100%)	1 (0%)	81	81
2	B	345/349 (99%)	343 (99%)	2 (1%)	78	80
3	C	302/348 (87%)	300 (99%)	2 (1%)	76	78
6	F	208/250 (83%)	207 (100%)	1 (0%)	81	81
7	G	195/252 (77%)	193 (99%)	2 (1%)	68	74
8	H	194/215 (90%)	192 (99%)	2 (1%)	68	74
9	I	199/223 (89%)	199 (100%)	0	100	100
10	J	170/171 (99%)	170 (100%)	0	100	100
11	K	132/181 (73%)	132 (100%)	0	100	100
12	L	142/149 (95%)	142 (100%)	0	100	100
13	M	171/177 (97%)	170 (99%)	1 (1%)	78	80
14	N	117/161 (73%)	116 (99%)	1 (1%)	70	75
15	O	171/172 (99%)	166 (97%)	5 (3%)	37	58
16	P	168/174 (97%)	167 (99%)	1 (1%)	78	80
17	Q	134/163 (82%)	131 (98%)	3 (2%)	45	64
18	R	164/165 (99%)	162 (99%)	2 (1%)	63	72
19	S	139/175 (79%)	139 (100%)	0	100	100
20	T	156/157 (99%)	154 (99%)	2 (1%)	61	71
21	U	138/140 (99%)	137 (99%)	1 (1%)	76	78
22	V	89/115 (77%)	89 (100%)	0	100	100
23	W	100/107 (94%)	100 (100%)	0	100	100
24	X	53/126 (42%)	53 (100%)	0	100	100
25	Y	105/133 (79%)	105 (100%)	0	100	100
26	Z	123/135 (91%)	119 (97%)	4 (3%)	33	56
27	a	117/118 (99%)	117 (100%)	0	100	100
28	b	120/121 (99%)	117 (98%)	3 (2%)	42	62
29	c	79/126 (63%)	78 (99%)	1 (1%)	61	71
30	d	80/97 (82%)	77 (96%)	3 (4%)	29	53
31	e	97/110 (88%)	97 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
32	f	115/121 (95%)	114 (99%)	1 (1%)	70	75
33	g	88/89 (99%)	85 (97%)	3 (3%)	32	56
34	h	96/100 (96%)	96 (100%)	0	100	100
35	i	109/110 (99%)	107 (98%)	2 (2%)	51	67
36	j	83/89 (93%)	83 (100%)	0	100	100
37	k	71/80 (89%)	71 (100%)	0	100	100
38	l	64/65 (98%)	64 (100%)	0	100	100
39	m	47/48 (98%)	45 (96%)	2 (4%)	26	50
40	o	24/24 (100%)	24 (100%)	0	100	100
41	p	88/94 (94%)	88 (100%)	0	100	100
42	q	74/75 (99%)	74 (100%)	0	100	100
43	r	106/121 (88%)	104 (98%)	2 (2%)	50	66
48	1	362/399 (91%)	357 (99%)	5 (1%)	59	70
49	2	53/59 (90%)	51 (96%)	2 (4%)	29	53
50	3	26/74 (35%)	25 (96%)	1 (4%)	29	53
51	4	183/186 (98%)	177 (97%)	6 (3%)	33	56
52	5	438/475 (92%)	415 (95%)	23 (5%)	20	46
53	7	261/436 (60%)	253 (97%)	8 (3%)	35	57
54	6	154/164 (94%)	149 (97%)	5 (3%)	34	56
All	All	6839/7818 (88%)	6742 (99%)	97 (1%)	57	70

All (97) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	180	LEU
2	B	114	CYS
2	B	261	ARG
3	C	210	ILE
3	C	279	LEU
6	F	9	ASN
7	G	51	VAL
7	G	52	ARG
8	H	83	VAL
8	H	225	THR
13	M	125	ILE

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Mol	Chain	Res	Type
14	N	127	VAL
15	O	60	VAL
15	O	64	ILE
15	O	133	ILE
15	O	153	LYS
15	O	204	ARG
16	P	141	LEU
17	Q	127	ARG
17	Q	139	TYR
17	Q	146	ILE
18	R	48	LEU
18	R	168	ARG
20	T	154	LEU
20	T	164	LYS
21	U	68	THR
26	Z	38	LEU
26	Z	55	VAL
26	Z	72	GLN
26	Z	104	VAL
28	b	73	VAL
28	b	87	ARG
28	b	122	VAL
29	c	116	LEU
30	d	20	LEU
30	d	55	LEU
30	d	91	VAL
32	f	122	VAL
33	g	30	ILE
33	g	33	VAL
33	g	99	HIS
35	i	36	VAL
35	i	86	LYS
39	m	4	HIS
39	m	27	ILE
43	r	5	LEU
43	r	17	LEU
48	1	77	MET
48	1	79	LEU
48	1	436	ASP
48	1	441	ILE
48	1	447	ILE
49	2	22	VAL

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Mol	Chain	Res	Type
49	2	50	ILE
50	3	87	LEU
51	4	6	PHE
51	4	76	VAL
51	4	145	HIS
51	4	154	TRP
51	4	172	LEU
51	4	217	VAL
52	5	45	GLU
52	5	56	LEU
52	5	65	ASN
52	5	80	LEU
52	5	89	LEU
52	5	95	GLU
52	5	111	ILE
52	5	133	GLU
52	5	219	ILE
52	5	221	ILE
52	5	234	LEU
52	5	236	LEU
52	5	248	LEU
52	5	251	LEU
52	5	264	THR
52	5	268	TYR
52	5	309	LEU
52	5	311	LEU
52	5	372	HIS
52	5	380	LEU
52	5	384	THR
52	5	385	LEU
52	5	438	MET
53	7	181	LEU
53	7	237	MET
53	7	333	PHE
53	7	336	GLN
53	7	379	LEU
53	7	383	MET
53	7	392	LYS
53	7	423	VAL
54	6	28	VAL
54	6	39	LEU
54	6	86	VAL

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Mol	Chain	Res	Type
54	6	109	PHE
54	6	114	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (52) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	22	HIS
2	B	275	HIS
3	C	41	HIS
3	C	329	ASN
3	C	362	GLN
6	F	191	ASN
7	G	47	ASN
8	H	119	ASN
8	H	131	ASN
10	J	39	ASN
10	J	98	HIS
11	K	92	HIS
11	K	130	HIS
11	K	166	HIS
12	L	42	GLN
12	L	65	ASN
13	M	19	GLN
13	M	115	GLN
13	M	149	GLN
14	N	66	HIS
15	O	182	HIS
17	Q	10	ASN
17	Q	133	HIS
18	R	7	HIS
20	T	117	HIS
21	U	131	GLN
23	W	135	ASN
25	Y	73	HIS
26	Z	20	ASN
26	Z	65	GLN
26	Z	66	GLN
28	b	14	HIS
29	c	10	HIS
30	d	33	GLN
31	e	100	ASN
32	f	107	ASN

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Mol	Chain	Res	Type
34	h	110	GLN
37	k	66	HIS
51	4	8	ASN
52	5	182	ASN
52	5	241	ASN
52	5	281	ASN
52	5	292	ASN
52	5	347	HIS
52	5	451	GLN
52	5	492	GLN
53	7	171	HIS
53	7	178	ASN
53	7	221	GLN
53	7	422	HIS
53	7	453	GLN
53	7	465	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
4	D	156/157 (99%)	60 (38%)	20 (12%)
44	t	3495/3579 (97%)	849 (24%)	0
45	u	74/76 (97%)	30 (40%)	0
46	v	75/76 (98%)	32 (42%)	0
5	E	118/119 (99%)	14 (11%)	0
All	All	3918/4007 (97%)	985 (25%)	20 (0%)

All (985) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
4	D	2	G
4	D	13	G
4	D	34	U
4	D	35	C
4	D	39	G
4	D	49	G
4	D	51	U
4	D	52	A
4	D	59	A
4	D	61	A
4	D	63	U

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Mol	Chain	Res	Type
4	D	64	U
4	D	65	A
4	D	67	U
4	D	71	A
4	D	72	A
4	D	73	U
4	D	74	U
4	D	75	G
4	D	76	C
4	D	77	A
4	D	78	G
4	D	79	G
4	D	80	A
4	D	81	C
4	D	82	A
4	D	83	C
4	D	84	A
4	D	85	U
4	D	86	U
4	D	87	G
4	D	88	A
4	D	89	U
4	D	96	C
4	D	104	A
4	D	105	C
4	D	109	C
4	D	110	U
4	D	111	U
4	D	112	G
4	D	114	G
4	D	116	C
4	D	117	C
4	D	119	C
4	D	120	G
4	D	121	G
4	D	122	G
4	D	123	U
4	D	124	U
4	D	125	C
4	D	126	C
4	D	127	U
4	D	128	C

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Mol	Chain	Res	Type
4	D	129	C
4	D	130	C
4	D	131	G
4	D	132	G
4	D	133	G
4	D	148	A
4	D	150	C
5	E	7	G
5	E	11	A
5	E	22	A
5	E	23	A
5	E	24	C
5	E	33	U
5	E	35	U
5	E	40	U
5	E	48	G
5	E	49	A
5	E	53	U
5	E	64	G
5	E	96	U
5	E	110	G
44	t	6	C
44	t	9	C
44	t	11	G
44	t	17	A
44	t	18	C
44	t	25	A
44	t	30	C
44	t	32	G
44	t	39	A
44	t	42	A
44	t	48	G
44	t	49	U
44	t	59	A
44	t	64	A
44	t	65	A
44	t	66	A
44	t	70	A
44	t	71	C
44	t	72	C
44	t	74	G
44	t	75	G

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Mol	Chain	Res	Type
44	t	91	G
44	t	93	G
44	t	101	A
44	t	108	A
44	t	110	C
44	t	116	G
44	t	118	C
44	t	119	G
44	t	120	A
44	t	126	C
44	t	129	C
44	t	130	C
44	t	131	C
44	t	132	G
44	t	133	C
44	t	134	G
44	t	135	G
44	t	136	G
44	t	137	G
44	t	138	C
44	t	144	A
44	t	148	G
44	t	149	U
44	t	156	C
44	t	157	G
44	t	169	C
44	t	173	G
44	t	174	G
44	t	176	G
44	t	181	U
44	t	182	C
44	t	183	G
44	t	184	U
44	t	185	G
44	t	193	C
44	t	196	G
44	t	205	A
44	t	206	U
44	t	209	A
44	t	211	G
44	t	212	C
44	t	213	C

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Mol	Chain	Res	Type
44	t	214	C
44	t	215	A
44	t	216	G
44	t	218	C
44	t	219	C
44	t	228	U
44	t	229	G
44	t	230	U
44	t	233	G
44	t	237	G
44	t	250	G
44	t	253	G
44	t	256	C
44	t	258	C
44	t	260	C
44	t	261	G
44	t	272	G
44	t	289	A
44	t	291	U
44	t	300	A
44	t	304	G
44	t	309	G
44	t	310	U
44	t	311	A
44	t	323	A
44	t	334	C
44	t	339	C
44	t	343	A
44	t	367	G
44	t	370	A
44	t	379	A
44	t	381	G
44	t	404	A
44	t	405	G
44	t	406	G
44	t	407	G
44	t	408	C
44	t	409	G
44	t	425	G
44	t	426	U
44	t	434	U
44	t	444	G

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Mol	Chain	Res	Type
44	t	447	G
44	t	448	U
44	t	449	C
44	t	451	G
44	t	456	G
44	t	458	G
44	t	463	C
44	t	466	C
44	t	474	C
44	t	478	U
44	t	479	C
44	t	480	C
44	t	484	C
44	t	486	U
44	t	487	G
44	t	489	C
44	t	492	C
44	t	493	G
44	t	494	G
44	t	495	C
44	t	496	C
44	t	497	C
44	t	498	G
44	t	499	G
44	t	501	G
44	t	502	G
44	t	503	A
44	t	504	U
44	t	507	U
44	t	508	U
44	t	509	C
44	t	512	G
44	t	641	G
44	t	642	G
44	t	648	C
44	t	650	C
44	t	654	G
44	t	655	A
44	t	657	C
44	t	658	G
44	t	659	G
44	t	660	C

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Mol	Chain	Res	Type
44	t	661	G
44	t	674	C
44	t	676	G
44	t	677	G
44	t	678	C
44	t	679	G
44	t	680	C
44	t	690	C
44	t	692	G
44	t	695	C
44	t	696	G
44	t	698	C
44	t	703	C
44	t	709	C
44	t	714	A
44	t	719	U
44	t	720	G
44	t	721	G
44	t	724	A
44	t	727	C
44	t	728	C
44	t	730	G
44	t	736	G
44	t	737	A
44	t	738	A
44	t	739	G
44	t	741	U
44	t	743	G
44	t	900	U
44	t	901	U
44	t	902	A
44	t	903	C
44	t	904	A
44	t	905	G
44	t	906	C
44	t	914	G
44	t	917	G
44	t	919	A
44	t	920	G
44	t	921	C
44	t	922	A
44	t	923	C

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Mol	Chain	Res	Type
44	t	924	U
44	t	925	C
44	t	926	G
44	t	927	C
44	t	931	A
44	t	932	U
44	t	933	C
44	t	934	C
44	t	938	G
44	t	944	G
44	t	945	G
44	t	946	G
44	t	947	A
44	t	948	G
44	t	952	G
44	t	953	A
44	t	957	G
44	t	959	C
44	t	964	C
44	t	969	U
44	t	1055	C
44	t	1061	A
44	t	1063	C
44	t	1065	C
44	t	1070	A
44	t	1075	G
44	t	1084	C
44	t	1087	C
44	t	1149	G
44	t	1150	C
44	t	1152	G
44	t	1154	G
44	t	1156	G
44	t	1162	U
44	t	1163	C
44	t	1165	C
44	t	1167	A
44	t	1172	G
44	t	1174	C
44	t	1179	G
44	t	1180	C
44	t	1190	C

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Mol	Chain	Res	Type
44	t	1192	U
44	t	1193	C
44	t	1196	G
44	t	1197	C
44	t	1198	C
44	t	1199	C
44	t	1201	G
44	t	1218	G
44	t	1220	C
44	t	1221	A
44	t	1222	C
44	t	1223	G
44	t	1225	G
44	t	1226	C
44	t	1228	C
44	t	1234	C
44	t	1237	A
44	t	1238	A
44	t	1239	G
44	t	1240	G
44	t	1248	G
44	t	1250	C
44	t	1251	G
44	t	1258	G
44	t	1259	C
44	t	1260	G
44	t	1261	C
44	t	1268	U
44	t	1269	C
44	t	1271	G
44	t	1277	A
44	t	1279	G
44	t	1285	U
44	t	1296	C
44	t	1301	C
44	t	1309	A
44	t	1320	A
44	t	1337	A
44	t	1341	G
44	t	1342	G
44	t	1348	C
44	t	1349	G

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Mol	Chain	Res	Type
44	t	1350	C
44	t	1351	A
44	t	1353	G
44	t	1354	A
44	t	1361	C
44	t	1362	C
44	t	1364	U
44	t	1370	A
44	t	1377	G
44	t	1380	A
44	t	1381	A
44	t	1391	G
44	t	1392	C
44	t	1393	U
44	t	1394	C
44	t	1395	G
44	t	1396	C
44	t	1401	C
44	t	1403	A
44	t	1420	C
44	t	1421	U
44	t	1423	U
44	t	1424	C
44	t	1426	A
44	t	1427	G
44	t	1428	U
44	t	1430	C
44	t	1431	G
44	t	1439	G
44	t	1463	C
44	t	1464	G
44	t	1465	C
44	t	1466	G
44	t	1467	C
44	t	1468	C
44	t	1469	G
44	t	1473	A
44	t	1480	G
44	t	1500	A
44	t	1507	A
44	t	1516	A
44	t	1521	G

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Mol	Chain	Res	Type
44	t	1531	G
44	t	1560	U
44	t	1564	U
44	t	1573	U
44	t	1578	U
44	t	1583	A
44	t	1587	G
44	t	1593	C
44	t	1606	G
44	t	1607	G
44	t	1613	A
44	t	1614	A
44	t	1615	G
44	t	1616	A
44	t	1619	A
44	t	1622	C
44	t	1624	A
44	t	1636	G
44	t	1638	U
44	t	1643	C
44	t	1652	G
44	t	1658	C
44	t	1659	U
44	t	1660	C
44	t	1663	G
44	t	1676	C
44	t	1680	C
44	t	1700	C
44	t	1701	A
44	t	1713	C
44	t	1723	G
44	t	1732	G
44	t	1736	U
44	t	1740	G
44	t	1741	G
44	t	1746	G
44	t	1747	A
44	t	1750	C
44	t	1757	A
44	t	1758	A
44	t	1769	A
44	t	1776	A

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Mol	Chain	Res	Type
44	t	1779	G
44	t	1785	G
44	t	1786	A
44	t	1794	C
44	t	1797	G
44	t	1803	G
44	t	1814	G
44	t	1816	G
44	t	1818	A
44	t	1823	G
44	t	1836	G
44	t	1850	G
44	t	1870	U
44	t	1871	G
44	t	1872	A
44	t	1879	C
44	t	1887	U
44	t	1891	G
44	t	1896	C
44	t	1898	A
44	t	1902	C
44	t	1903	G
44	t	1906	G
44	t	1909	C
44	t	1911	U
44	t	1912	C
44	t	1916	C
44	t	1920	A
44	t	1921	G
44	t	1928	U
44	t	1929	G
44	t	1933	G
44	t	1938	U
44	t	1939	A
44	t	1940	U
44	t	1941	A
44	t	1942	G
44	t	1943	A
44	t	2007	A
44	t	2025	U
44	t	2027	G
44	t	2029	U

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Mol	Chain	Res	Type
44	t	2036	G
44	t	2037	G
44	t	2043	C
44	t	2050	A
44	t	2051	U
44	t	2065	C
44	t	2069	G
44	t	2072	G
44	t	2073	A
44	t	2074	G
44	t	2075	A
44	t	2076	G
44	t	2078	G
44	t	2079	G
44	t	2081	C
44	t	2082	G
44	t	2084	G
44	t	2087	C
44	t	2090	C
44	t	2091	G
44	t	2092	G
44	t	2229	C
44	t	2232	A
44	t	2233	G
44	t	2234	C
44	t	2235	C
44	t	2241	G
44	t	2242	A
44	t	2246	U
44	t	2247	A
44	t	2249	G
44	t	2268	C
44	t	2269	C
44	t	2278	G
44	t	2279	A
44	t	2280	G
44	t	2282	C
44	t	2284	U
44	t	2285	G
44	t	2292	A
44	t	2301	G
44	t	2310	G

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Mol	Chain	Res	Type
44	t	2311	A
44	t	2326	A
44	t	2327	G
44	t	2330	C
44	t	2340	G
44	t	2343	G
44	t	2358	A
44	t	2374	A
44	t	2375	A
44	t	2377	U
44	t	2381	G
44	t	2387	U
44	t	2388	U
44	t	2396	A
44	t	2400	G
44	t	2401	C
44	t	2404	U
44	t	2416	C
44	t	2421	G
44	t	2426	U
44	t	2429	G
44	t	2431	G
44	t	2442	G
44	t	2446	U
44	t	2447	U
44	t	2449	C
44	t	2453	G
44	t	2457	C
44	t	2458	G
44	t	2467	C
44	t	2468	C
44	t	2469	U
44	t	2472	G
44	t	2473	U
44	t	2474	U
44	t	2475	G
44	t	2482	G
44	t	2483	C
44	t	2484	C
44	t	2485	G
44	t	2492	A
44	t	2499	C

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Mol	Chain	Res	Type
44	t	2516	A
44	t	2523	G
44	t	2524	U
44	t	2525	G
44	t	2526	G
44	t	2532	A
44	t	2533	U
44	t	2545	G
44	t	2565	G
44	t	2566	A
44	t	2568	C
44	t	2570	A
44	t	2580	A
44	t	2585	G
44	t	2595	C
44	t	2597	G
44	t	2606	C
44	t	2617	G
44	t	2618	U
44	t	2632	C
44	t	2645	U
44	t	2648	C
44	t	2652	G
44	t	2665	G
44	t	2666	U
44	t	2673	G
44	t	2675	A
44	t	2686	U
44	t	2689	C
44	t	2690	G
44	t	2691	G
44	t	2700	G
44	t	2705	G
44	t	2714	G
44	t	2719	U
44	t	2722	A
44	t	2723	A
44	t	2732	G
44	t	2733	G
44	t	2739	G
44	t	2741	G
44	t	2742	U

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Mol	Chain	Res	Type
44	t	2745	A
44	t	2746	U
44	t	2748	U
44	t	2751	C
44	t	2766	A
44	t	2767	U
44	t	2769	U
44	t	2776	C
44	t	2778	G
44	t	2785	A
44	t	2798	U
44	t	2805	U
44	t	2806	G
44	t	2814	A
44	t	2817	G
44	t	2834	G
44	t	2835	C
44	t	2846	C
44	t	2860	A
44	t	2870	U
44	t	2871	C
44	t	2876	G
44	t	2880	G
44	t	3570	A
44	t	3571	G
44	t	3572	C
44	t	3574	G
44	t	3577	U
44	t	3587	U
44	t	3589	C
44	t	3591	G
44	t	3596	G
44	t	3597	G
44	t	3601	A
44	t	3606	A
44	t	3612	U
44	t	3615	U
44	t	3616	U
44	t	3617	A
44	t	3619	A
44	t	3633	A
44	t	3635	G

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Mol	Chain	Res	Type
44	t	3643	G
44	t	3644	C
44	t	3651	U
44	t	3662	G
44	t	3663	A
44	t	3667	C
44	t	3670	C
44	t	3675	U
44	t	3683	A
44	t	3700	U
44	t	3707	A
44	t	3719	A
44	t	3728	G
44	t	3730	A
44	t	3731	A
44	t	3741	U
44	t	3745	A
44	t	3747	G
44	t	3748	G
44	t	3751	G
44	t	3754	A
44	t	3755	A
44	t	3759	C
44	t	3781	C
44	t	3782	G
44	t	3783	C
44	t	3784	A
44	t	3785	U
44	t	3788	A
44	t	3789	U
44	t	3790	G
44	t	3795	A
44	t	3798	G
44	t	3799	A
44	t	3809	U
44	t	3811	U
44	t	3838	A
44	t	3848	A
44	t	3849	C
44	t	3850	G
44	t	3851	G
44	t	3852	G

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Mol	Chain	Res	Type
44	t	3861	A
44	t	3863	U
44	t	3866	G
44	t	3868	G
44	t	3872	A
44	t	3876	A
44	t	3877	A
44	t	3878	G
44	t	3879	A
44	t	3886	U
44	t	3887	G
44	t	3890	C
44	t	3897	C
44	t	3909	G
44	t	3918	A
44	t	4046	G
44	t	4049	C
44	t	4054	G
44	t	4061	G
44	t	4062	G
44	t	4063	G
44	t	4064	G
44	t	4065	G
44	t	4066	C
44	t	4067	G
44	t	4068	A
44	t	4069	G
44	t	4070	C
44	t	4071	C
44	t	4072	C
44	t	4075	G
44	t	4076	G
44	t	4077	G
44	t	4078	G
44	t	4079	C
44	t	4080	U
44	t	4081	C
44	t	4082	U
44	t	4083	C
44	t	4084	G
44	t	4085	C
44	t	4086	U

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Mol	Chain	Res	Type
44	t	4088	C
44	t	4097	A
44	t	4105	C
44	t	4107	C
44	t	4108	G
44	t	4109	G
44	t	4110	C
44	t	4124	C
44	t	4125	U
44	t	4126	C
44	t	4130	G
44	t	4132	A
44	t	4145	G
44	t	4146	G
44	t	4153	G
44	t	4158	G
44	t	4165	A
44	t	4167	A
44	t	4168	C
44	t	4174	A
44	t	4176	A
44	t	4187	G
44	t	4190	G
44	t	4191	U
44	t	4195	A
44	t	4205	C
44	t	4213	A
44	t	4215	A
44	t	4216	G
44	t	4220	C
44	t	4228	G
44	t	4229	G
44	t	4230	A
44	t	4242	A
44	t	4243	A
44	t	4253	G
44	t	4266	A
44	t	4267	G
44	t	4268	U
44	t	4276	C
44	t	4288	G
44	t	4291	G

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Mol	Chain	Res	Type
44	t	4292	G
44	t	4294	C
44	t	4299	C
44	t	4300	G
44	t	4301	A
44	t	4311	C
44	t	4316	U
44	t	4320	U
44	t	4326	G
44	t	4327	C
44	t	4333	G
44	t	4334	U
44	t	4335	G
44	t	4338	A
44	t	4339	G
44	t	4340	A
44	t	4341	A
44	t	4343	A
44	t	4349	C
44	t	4353	G
44	t	4356	A
44	t	4358	A
44	t	4360	C
44	t	4367	G
44	t	4372	G
44	t	4373	G
44	t	4384	A
44	t	4388	C
44	t	4402	G
44	t	4414	U
44	t	4426	A
44	t	4437	G
44	t	4455	U
44	t	4459	U
44	t	4465	A
44	t	4474	U
44	t	4475	A
44	t	4477	G
44	t	4480	A
44	t	4481	C
44	t	4485	A
44	t	4486	G

Continued on next page...

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Mol	Chain	Res	Type
44	t	4490	G
44	t	4510	A
44	t	4517	U
44	t	4518	U
44	t	4522	C
44	t	4529	G
44	t	4532	G
44	t	4537	G
44	t	4551	A
44	t	4552	A
44	t	4559	U
44	t	4561	A
44	t	4562	G
44	t	4578	A
44	t	4579	G
44	t	4586	A
44	t	4593	G
44	t	4595	G
44	t	4598	U
44	t	4599	G
44	t	4601	G
44	t	4611	G
44	t	4618	A
44	t	4619	U
44	t	4626	A
44	t	4632	C
44	t	4634	A
44	t	4649	A
44	t	4656	G
44	t	4657	C
44	t	4662	A
44	t	4671	U
44	t	4681	G
44	t	4684	G
44	t	4692	C
44	t	4693	G
44	t	4694	G
44	t	4695	C
44	t	4696	A
44	t	4699	G
44	t	4703	C
44	t	4704	G

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Mol	Chain	Res	Type
44	t	4712	G
44	t	4715	U
44	t	4716	G
44	t	4718	C
44	t	4720	U
44	t	4722	G
44	t	4726	A
44	t	4727	G
44	t	4732	U
44	t	4735	C
44	t	4736	C
44	t	4737	G
44	t	4816	C
44	t	4817	G
44	t	4818	G
44	t	4819	G
44	t	4820	G
44	t	4822	U
44	t	4824	C
44	t	4827	U
44	t	4828	G
44	t	4831	G
44	t	4832	A
44	t	4833	G
44	t	4834	U
44	t	4838	C
44	t	4839	U
44	t	4840	U
44	t	4841	C
44	t	4852	A
44	t	4853	C
44	t	4883	U
44	t	4885	G
44	t	4886	C
44	t	4894	G
44	t	4895	C
44	t	4896	A
44	t	4898	C
44	t	4901	A
44	t	4902	C
44	t	4907	G
44	t	4908	U

Continued on next page...

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Mol	Chain	Res	Type
44	t	4909	G
44	t	4917	U
44	t	4924	A
44	t	4933	G
44	t	4934	U
44	t	4937	A
44	t	4943	U
44	t	4946	U
44	t	4947	U
44	t	4949	U
44	t	4950	G
44	t	4957	G
44	t	4971	C
44	t	4972	A
44	t	4975	G
44	t	4982	C
44	t	4984	U
44	t	4985	C
44	t	4986	G
44	t	4998	U
44	t	4999	G
44	t	5005	C
44	t	5007	G
44	t	5008	C
44	t	5011	U
44	t	5012	C
44	t	5015	C
44	t	5016	A
44	t	5020	G
44	t	5024	U
45	u	4	C
45	u	8	U
45	u	15	G
45	u	17	C
45	u	18	G
45	u	19	G
45	u	20	U
45	u	21	A
45	u	23	A
45	u	24	G
45	u	44	G
45	u	46	G

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Mol	Chain	Res	Type
45	u	47	U
45	u	48	C
45	u	50	U
45	u	51	U
45	u	52	G
45	u	55	U
45	u	56	C
45	u	57	G
45	u	59	U
45	u	60	U
45	u	61	C
45	u	64	A
45	u	69	G
45	u	71	G
45	u	72	C
45	u	73	A
45	u	74	C
45	u	76	A
46	v	8	U
46	v	11	C
46	v	12	C
46	v	13	C
46	v	15	G
46	v	16	A
46	v	17	A
46	v	18	G
46	v	19	G
46	v	20	U
46	v	21	A
46	v	22	G
46	v	23	A
46	v	30	G
46	v	44	G
46	v	47	U
46	v	48	C
46	v	49	C
46	v	51	U
46	v	54	U
46	v	55	U
46	v	56	C
46	v	58	A
46	v	61	C

Continued on next page...

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Mol	Chain	Res	Type
46	v	62	C
46	v	68	C
46	v	69	G
46	v	71	G
46	v	72	C
46	v	73	A
46	v	75	C
46	v	76	A

All (20) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
4	D	70	G
4	D	72	A
4	D	73	U
4	D	75	G
4	D	76	C
4	D	77	A
4	D	78	G
4	D	79	G
4	D	80	A
4	D	81	C
4	D	82	A
4	D	83	C
4	D	84	A
4	D	85	U
4	D	86	U
4	D	87	G
4	D	123	U
4	D	125	C
4	D	126	C
4	D	129	C

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

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

5.5 Carbohydrates [\(i\)](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 31 ligands modelled in this entry, 31 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
44	t	11

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	t	750:G	O3'	890:C	P	20.30
1	t	3919:C	O3'	4035:G	P	19.55
1	t	976:U	O3'	1047:G	P	16.16
1	t	1680:C	O3'	1699:C	P	15.85
1	t	1089:A	O3'	1145:G	P	15.56
1	t	2881:G	O3'	3569:C	P	15.47
1	t	2093:C	O3'	2228:C	P	14.21
1	t	1253:A	O3'	1256:G	P	12.99
1	t	4737:G	O3'	4815:C	P	12.48
1	t	4853:C	O3'	4882:C	P	11.15
1	t	1202:G	O3'	1216:G	P	9.86

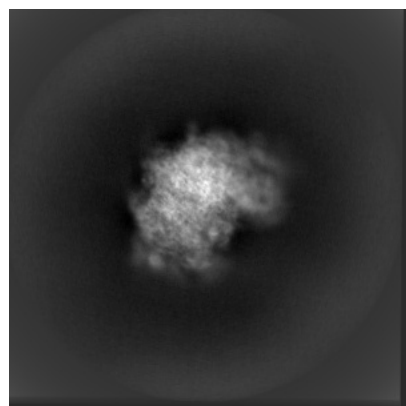
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-21435. These allow visual inspection of the internal detail of the map and identification of artifacts.

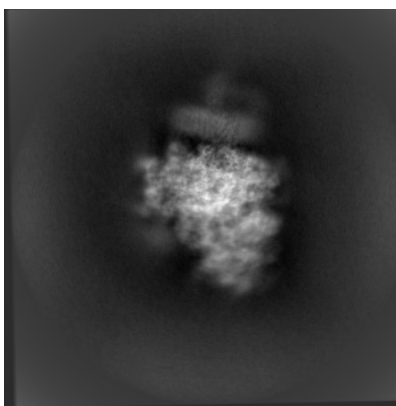
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

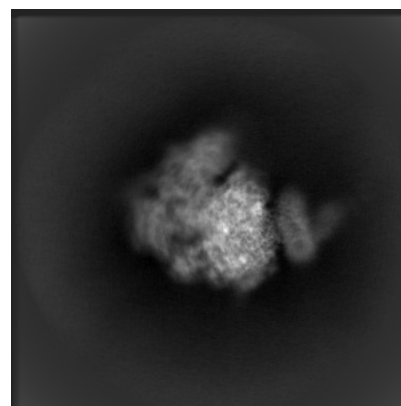
6.1.1 Primary map



X

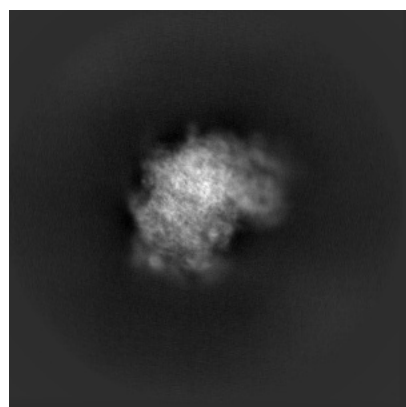


Y

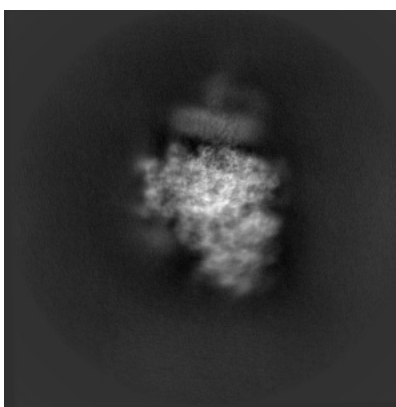


Z

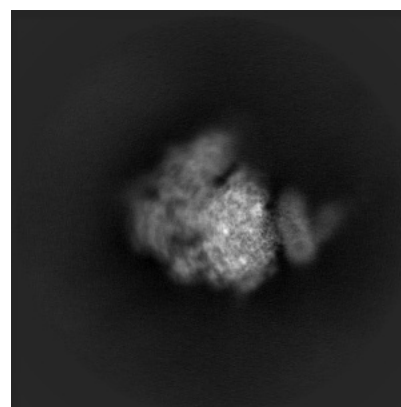
6.1.2 Raw map



X



Y

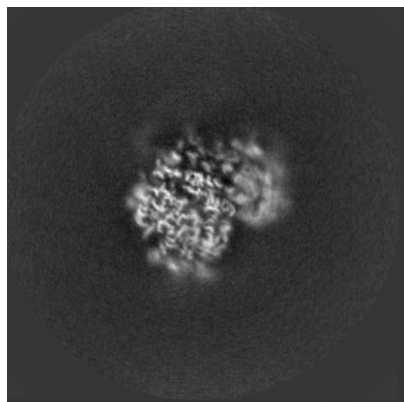


Z

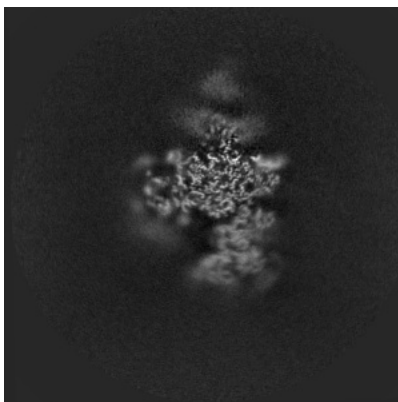
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

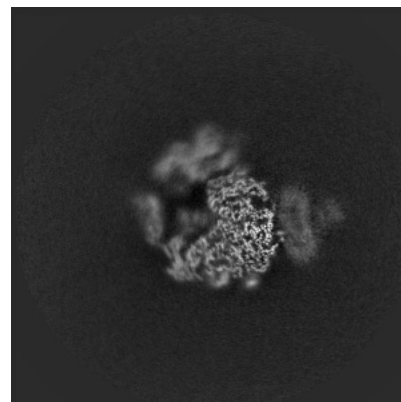
6.2.1 Primary map



X Index: 250

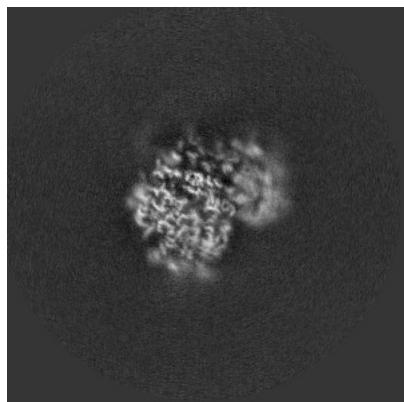


Y Index: 250

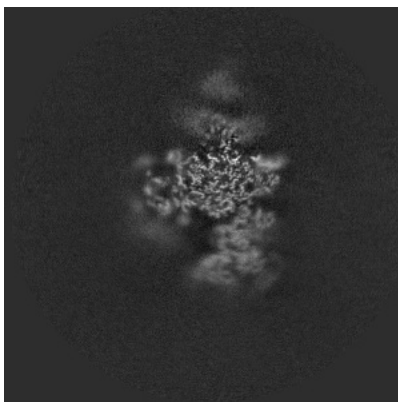


Z Index: 250

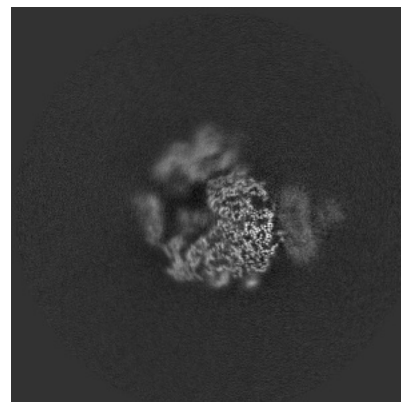
6.2.2 Raw map



X Index: 250



Y Index: 250

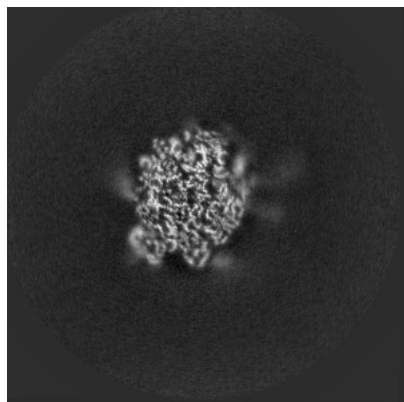


Z Index: 250

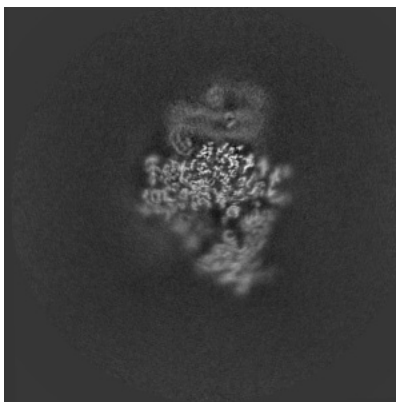
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

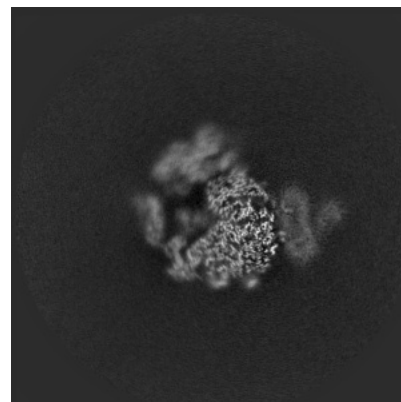
6.3.1 Primary map



X Index: 285

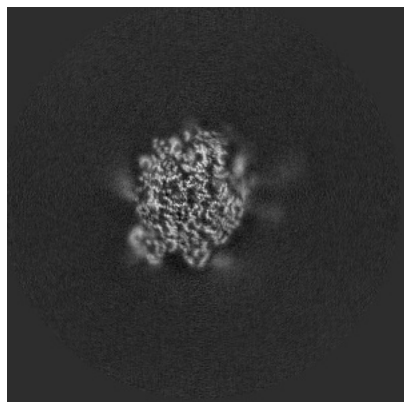


Y Index: 225

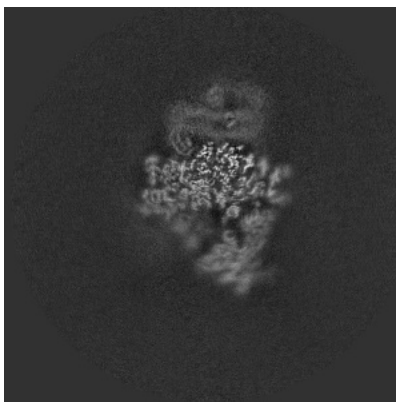


Z Index: 252

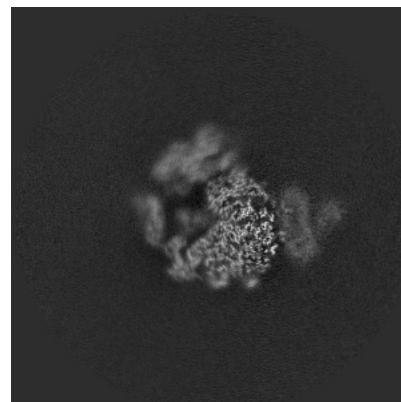
6.3.2 Raw map



X Index: 285



Y Index: 225

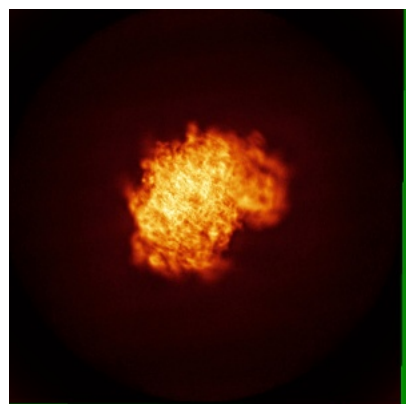


Z Index: 252

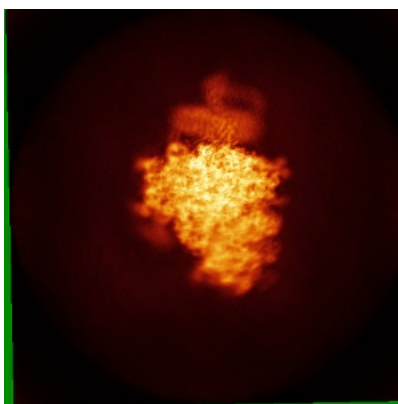
The images above show the largest variance slices of the map in three orthogonal directions.

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

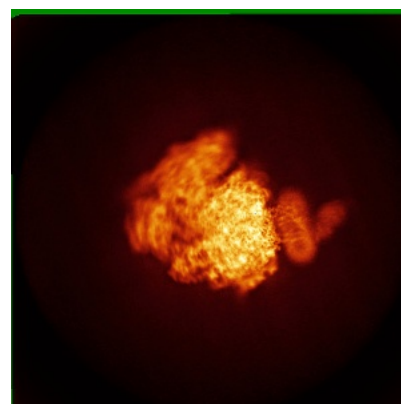
6.4.1 Primary map



X

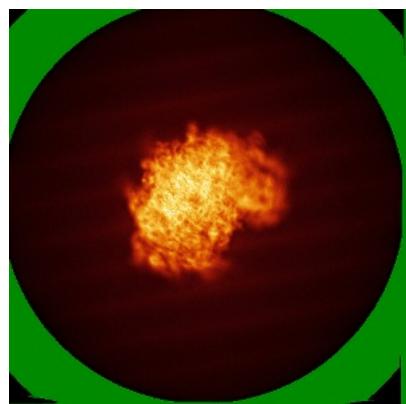


Y

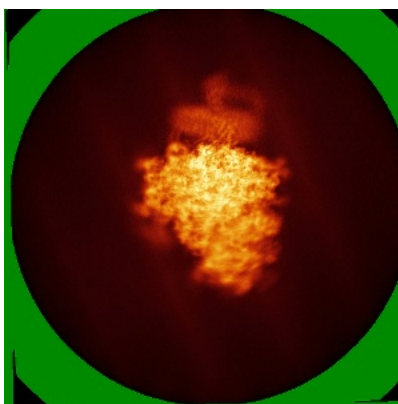


Z

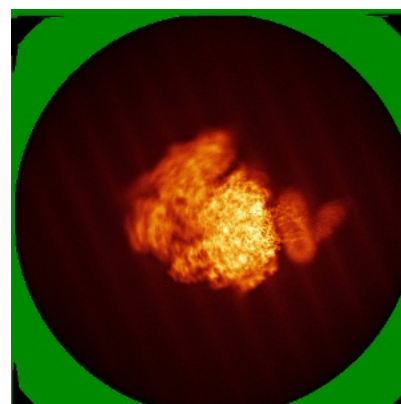
6.4.2 Raw map



X



Y

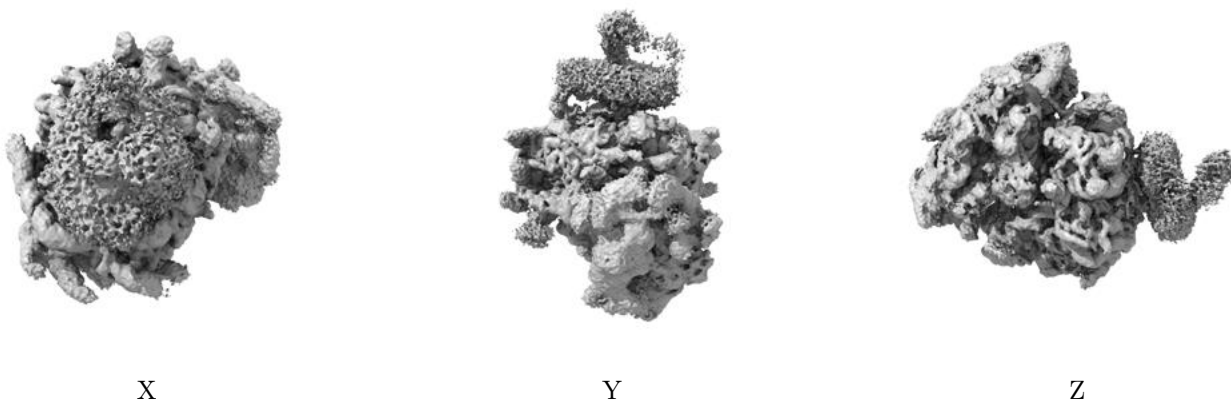


Z

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

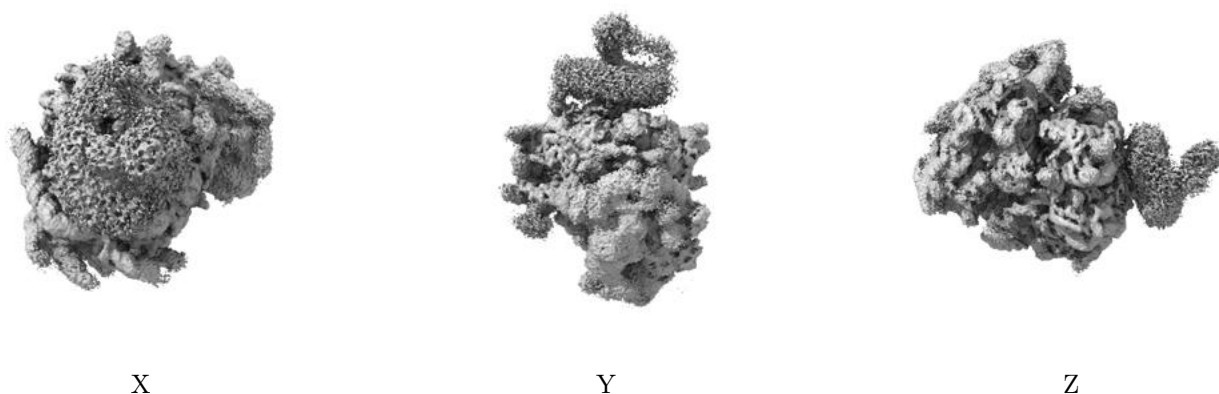
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0073. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

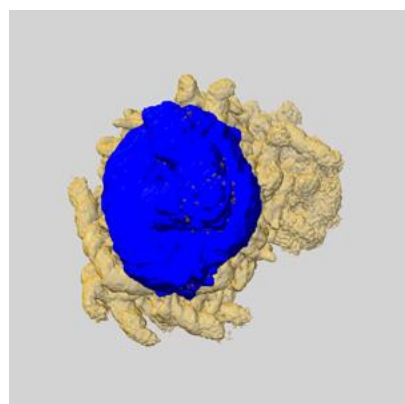
6.6 Mask visualisation [i](#)

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

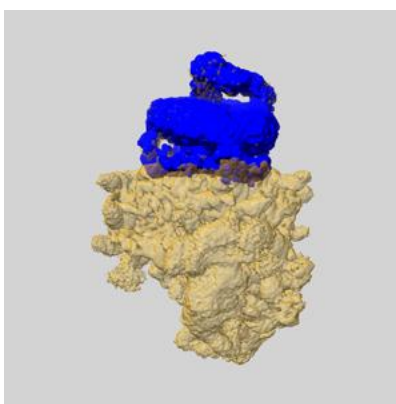
A mask typically either:

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

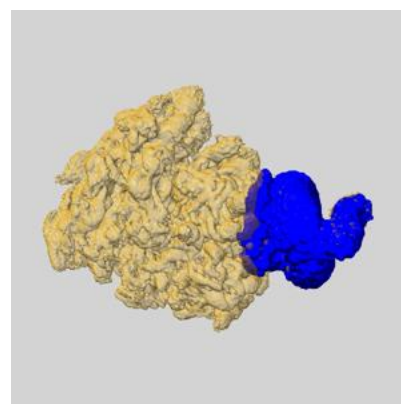
6.6.1 emd_21435_msk_1.map [i](#)



X



Y

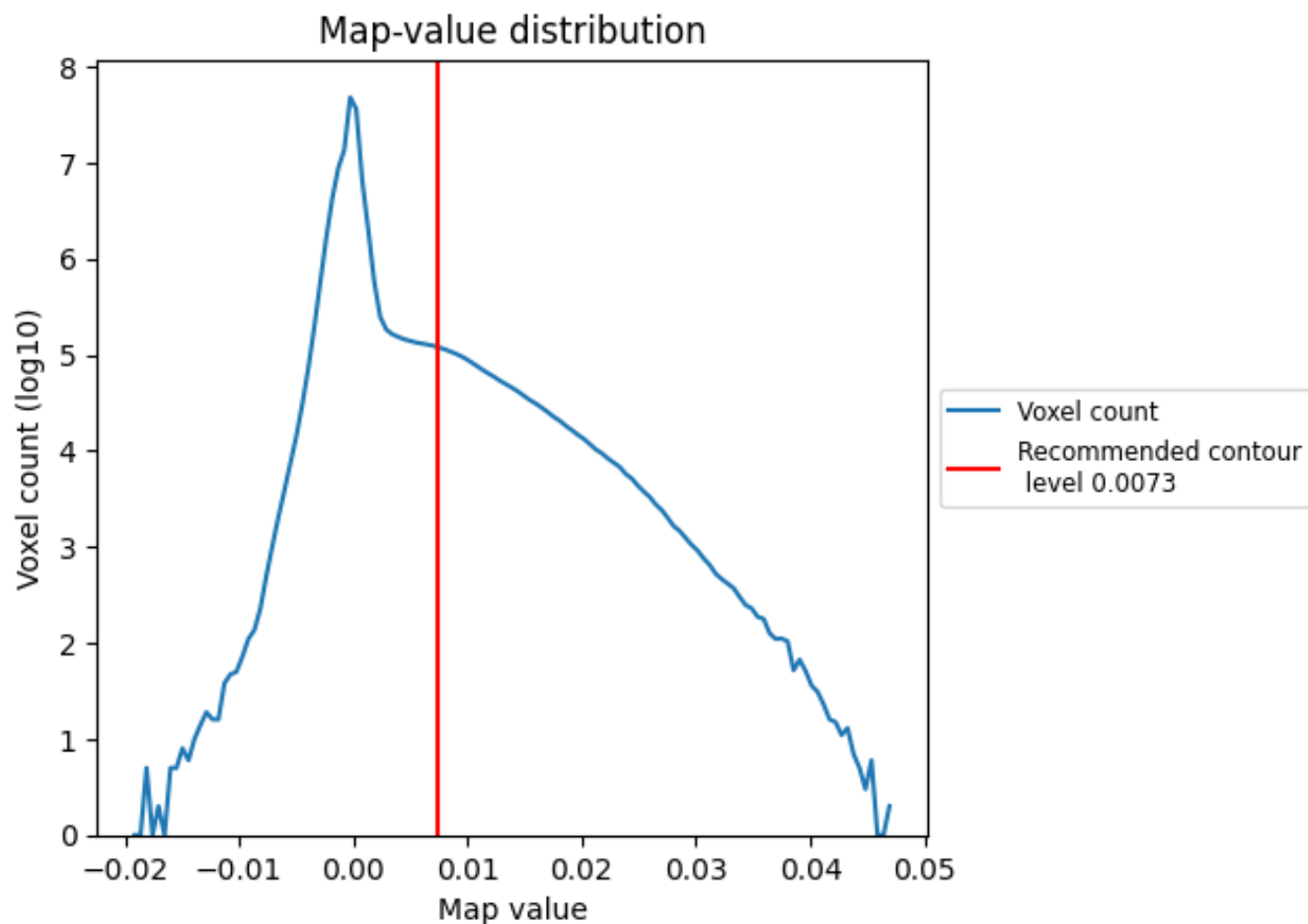


Z

7 Map analysis [i](#)

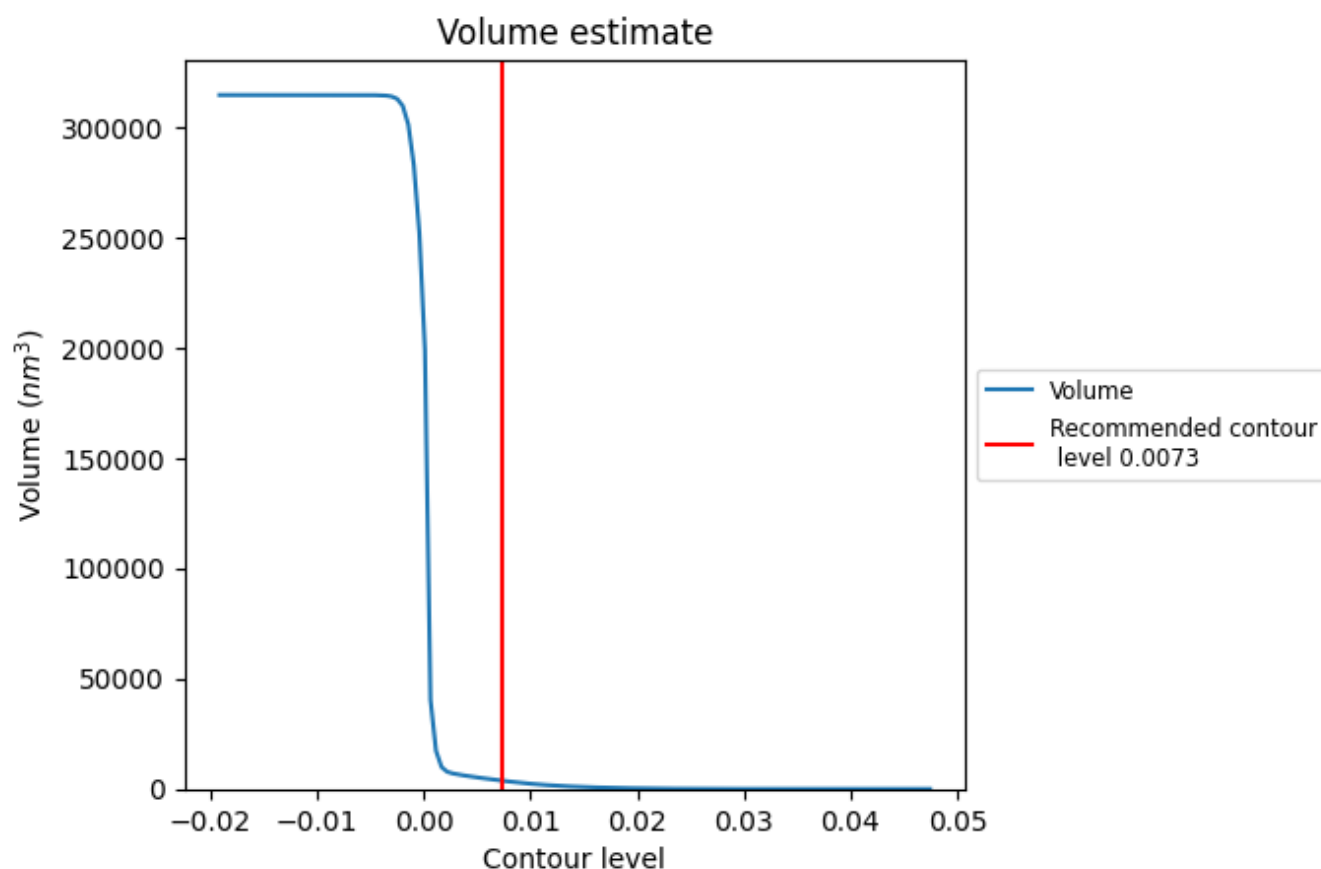
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

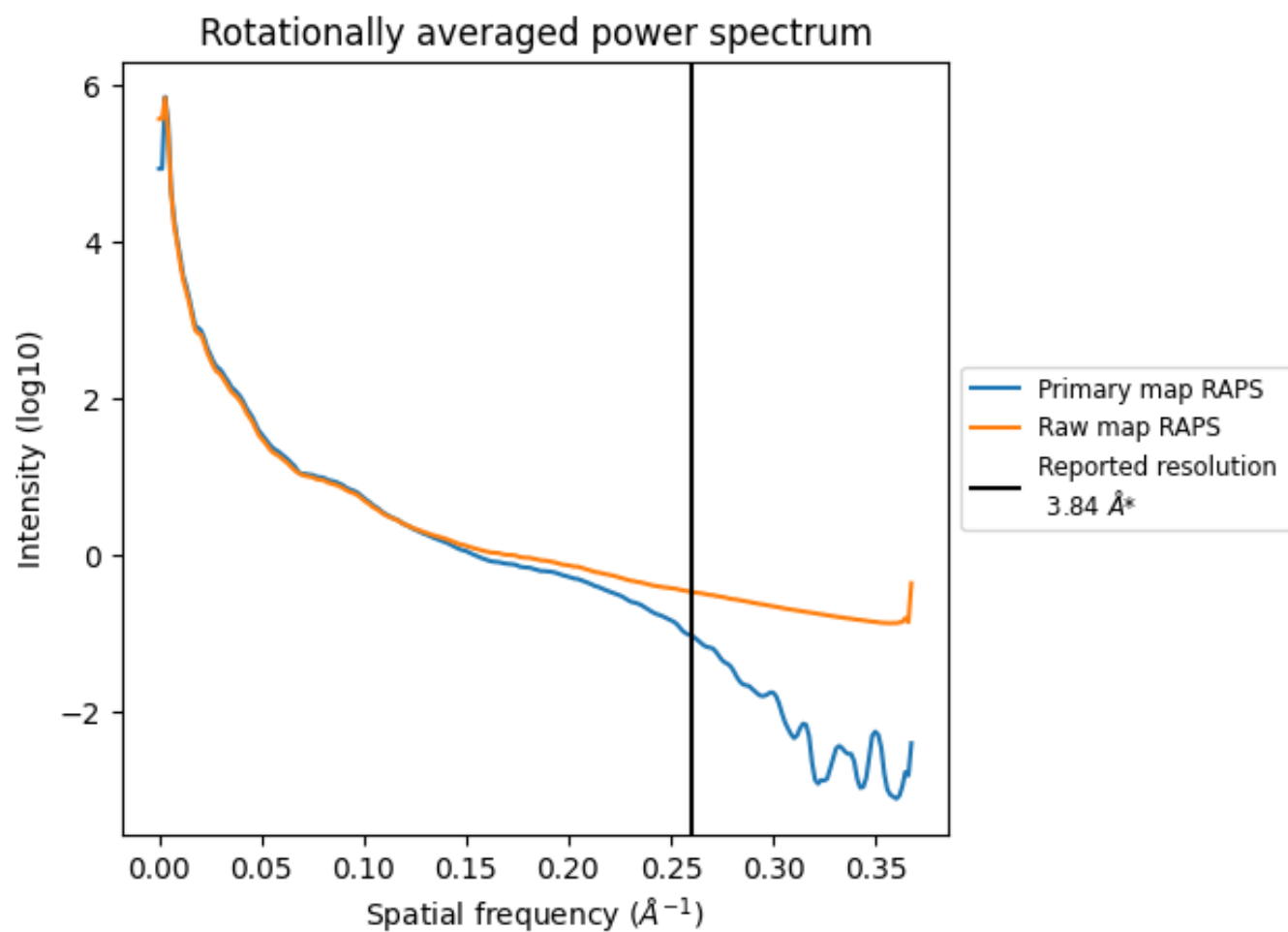
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3776 nm³; this corresponds to an approximate mass of 3411 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

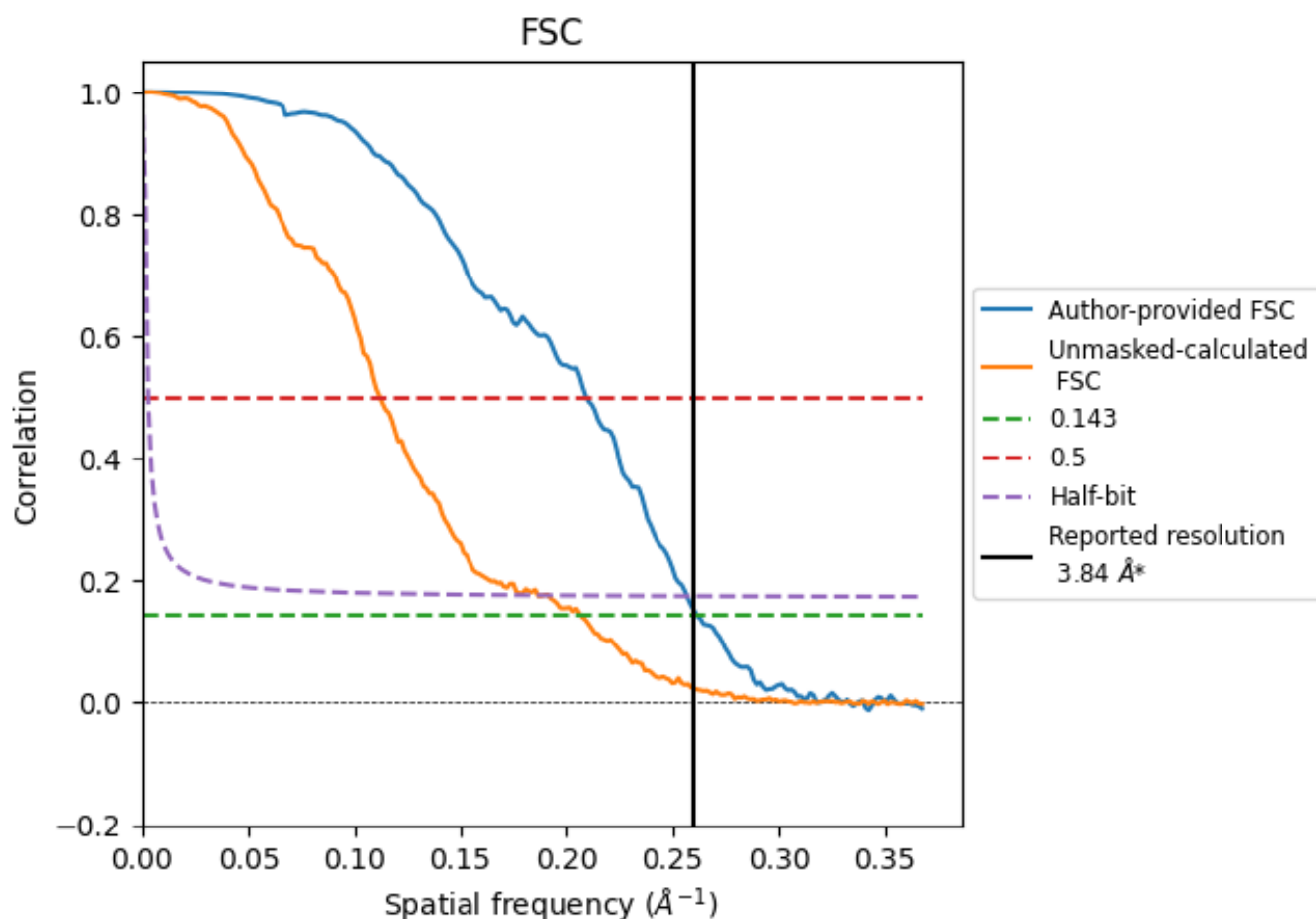


*Reported resolution corresponds to spatial frequency of 0.260 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.260 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

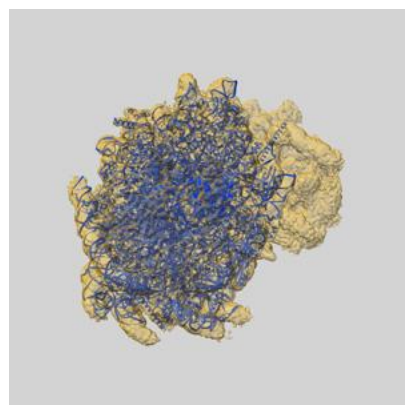
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.84	-	-
Author-provided FSC curve	3.82	4.78	3.89
Unmasked-calculated*	4.84	8.93	5.36

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.84 differs from the reported value 3.84 by more than 10 %

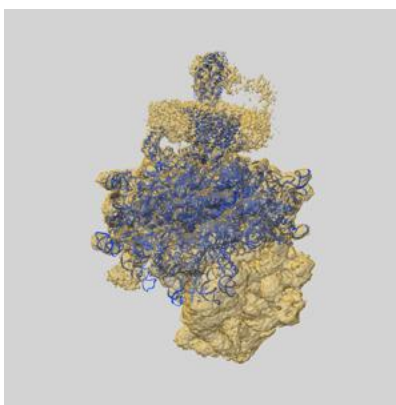
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-21435 and PDB model 6W6L. Per-residue inclusion information can be found in section 3 on page 15.

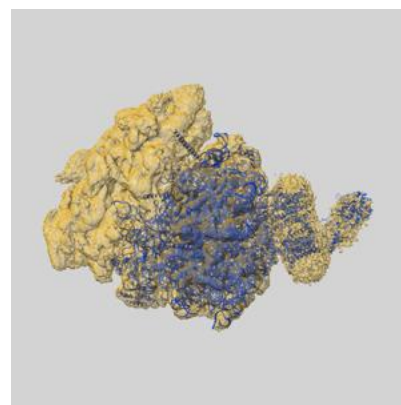
9.1 Map-model overlay [i](#)



X



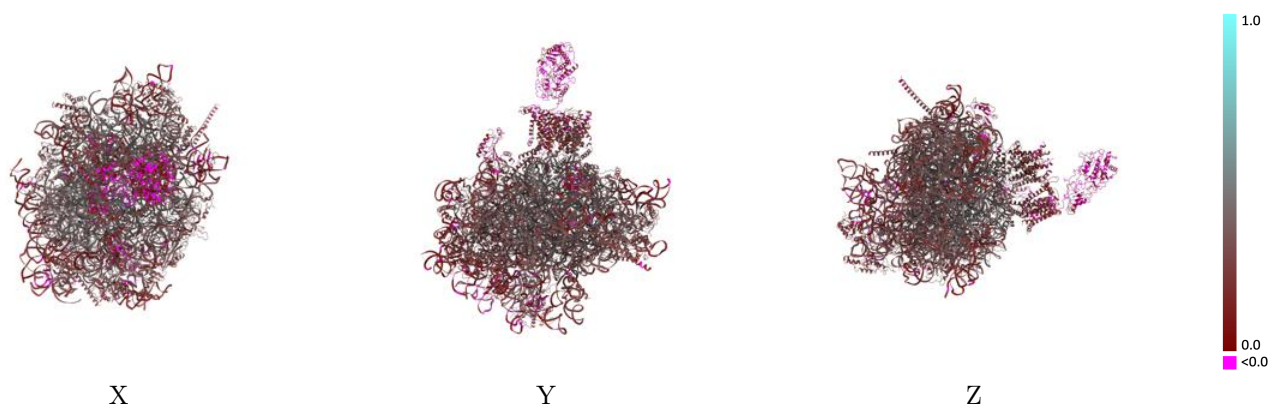
Y



Z

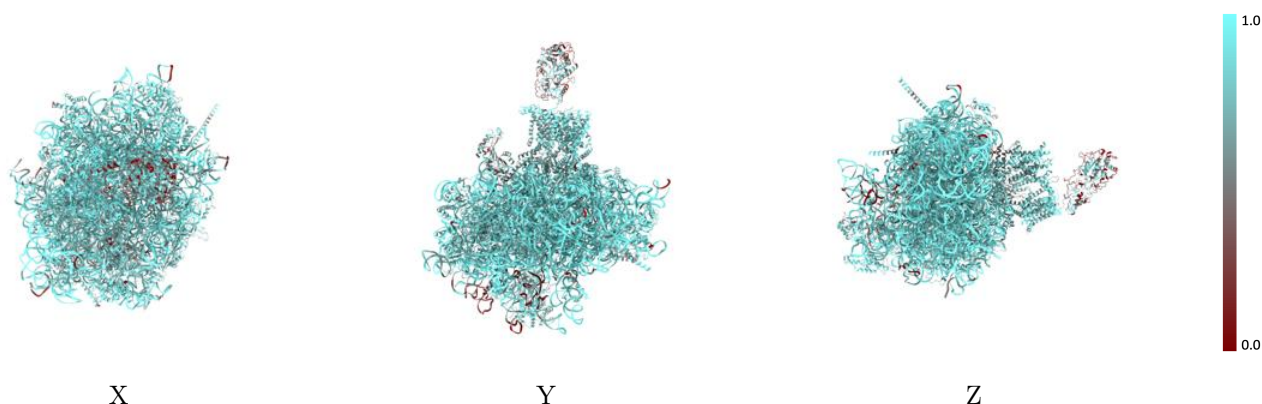
The images above show the 3D surface view of the map at the recommended contour level 0.0073 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



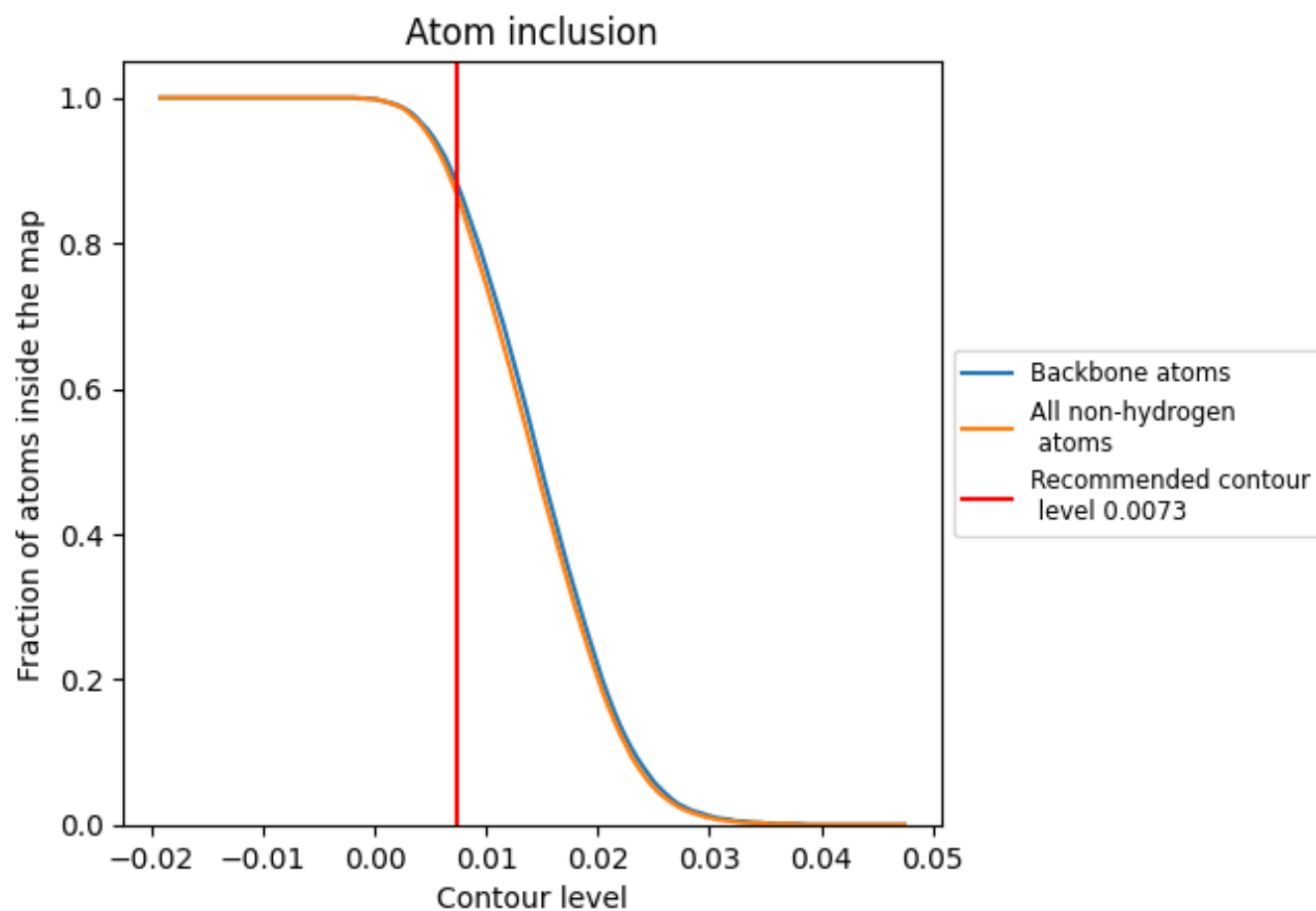
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0073).

9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 87% 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 (0.0073) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8710	 0.2910
1	 0.7880	 0.2400
2	 0.7820	 0.2730
3	 0.7560	 0.1440
4	 0.8210	 0.1830
5	 0.4940	 0.0340
6	 0.7640	 0.1540
7	 0.5230	 0.1630
A	 0.8390	 0.3420
B	 0.8620	 0.3090
C	 0.8920	 0.3840
D	 0.9840	 0.3990
E	 0.9940	 0.2630
F	 0.8960	 0.1970
G	 0.8860	 0.2800
H	 0.8220	 0.2760
I	 0.8430	 0.2960
J	 0.8310	 0.2060
K	 0.5280	 0.0810
L	 0.7780	 0.1730
M	 0.8340	 0.3220
N	 0.8820	 0.2330
O	 0.9060	 0.3690
P	 0.8450	 0.2920
Q	 0.8950	 0.4140
R	 0.8870	 0.3530
S	 0.8460	 0.3000
T	 0.8750	 0.2450
U	 0.8420	 0.2700
V	 0.7180	 0.1210
W	 0.7900	 0.3020
X	 0.8330	 0.2910
Y	 0.8680	 0.4090
Z	 0.8630	 0.4170
a	 0.8840	 0.2930



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Chain	Atom inclusion	Q-score
b	 0.9230	 0.3400
c	 0.8230	 0.2050
d	 0.8710	 0.2620
e	 0.9020	 0.3670
f	 0.8610	 0.4040
g	 0.8630	 0.3580
h	 0.8640	 0.3570
i	 0.8320	 0.3590
j	 0.8610	 0.2760
k	 0.9220	 0.4330
l	 0.8370	 0.3220
m	 0.8910	 0.4240
o	 0.6640	 0.1890
p	 0.7960	 0.2550
q	 0.8000	 0.3020
r	 0.9110	 0.3860
t	 0.9510	 0.3110
u	 0.3950	 0.1160
v	 0.8300	 0.2100
y	 0.7260	 0.3850