Full wwPDB EM Validation Report

Mar 20, 2026 – 11:36 AM UTC

PDB ID	:	9YPY / pdb_00009ypy
EMDB ID	:	EMD-73314
Title	:	Ribosome with accommodated A-site tRNA, Structure V
Authors	:	Susorov, D.; Korostelev, A.A.
Deposited on	:	2025-10-14
Resolution	:	3.00 Å(reported)
Based on initial model	:	5LZS

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

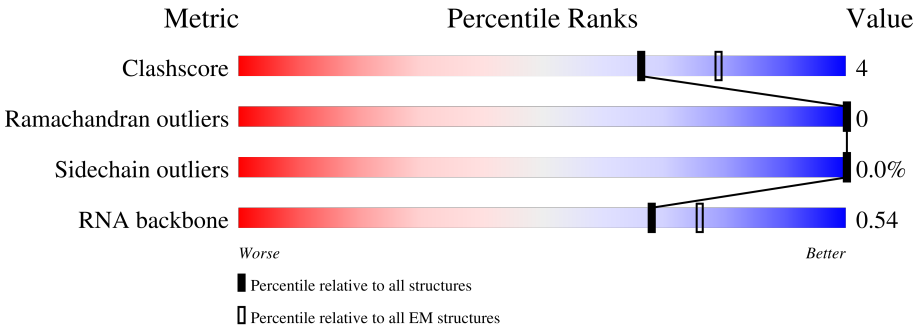
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

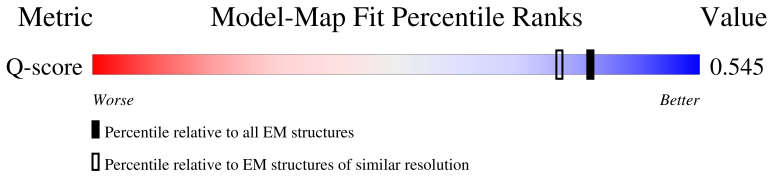
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 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	14081 (2.50 - 3.50)

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 <=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	5	3601	67% 28% 5%
2	7	120	82% 16%
3	8	156	69% 24%

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Mol	Chain	Length	Quality of chain
4	9	1869	61% 26% 9%
5	A	257	89% 7%
6	B	403	89% 9%
7	C	425	78% 7% 15%
8	D	297	95%
9	E	291	66% 8% 26%
10	G	319	5% 68% 5% 27%
11	H	192	91% 8%
12	I	214	93%
13	J	178	88% 7%
14	K	247	87% 9%
15	L	211	96%
16	M	218	62% 37%
17	N	204	87% 12%
18	O	203	94%
19	P	184	77% 5% 17%
20	Q	188	94% 5%
21	R	196	87% 5% 8%
22	S	176	90% 10%
23	T	160	91% 8%
24	U	128	73% 23%
25	V	140	87% 5% 8%
26	W	157	13% 66% 32%
27	X	156	71% 5% 24%
28	Y	145	85% 7% 8%

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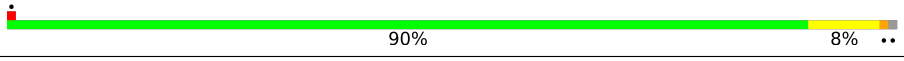
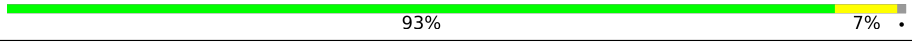
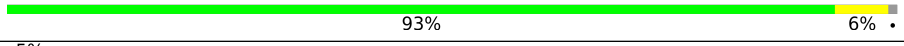
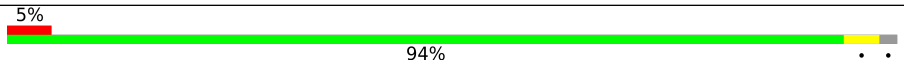
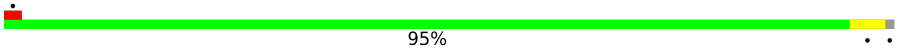
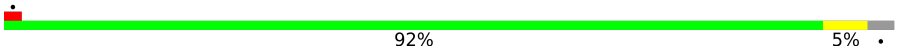
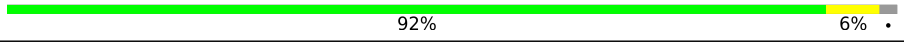
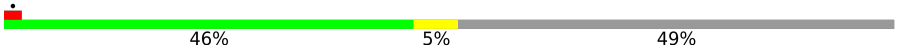
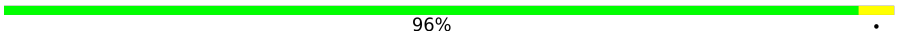
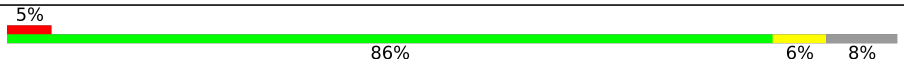
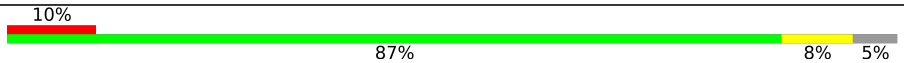
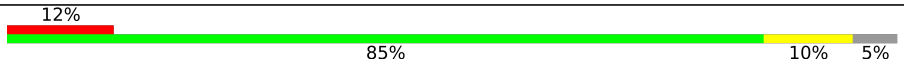
Mol	Chain	Length	Quality of chain
29	Z	136	
30	a	148	
31	b	245	
32	c	115	
33	d	125	
34	e	135	
35	f	110	
36	g	116	
37	h	123	
38	i	105	
39	k	70	
40	l	51	
41	m	102	
42	n	25	
43	o	106	
44	p	92	
45	r	137	
46	AA	295	
47	BB	264	
48	CC	293	
49	DD	243	
50	EE	263	
51	FF	204	
52	GG	249	
53	HH	194	

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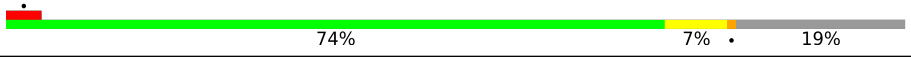
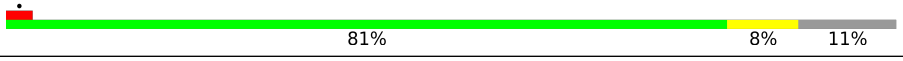
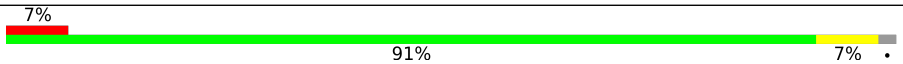
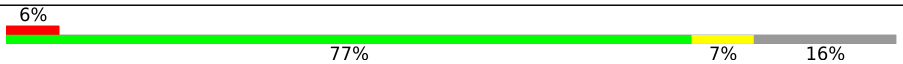
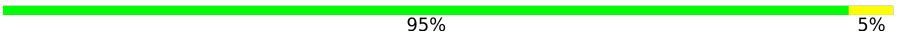
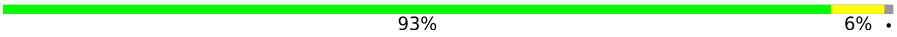
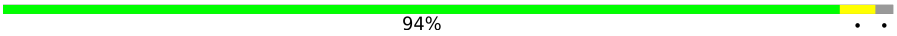
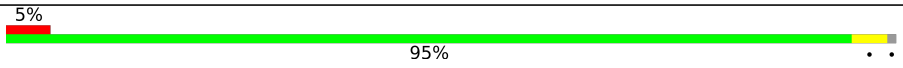
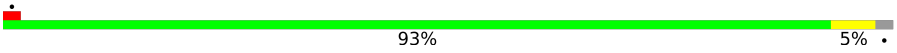
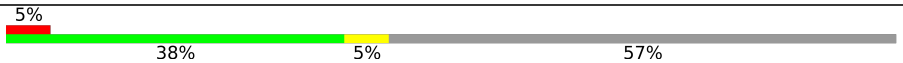
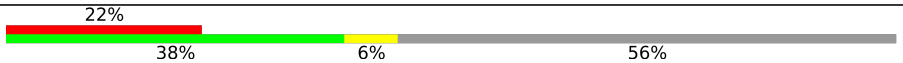
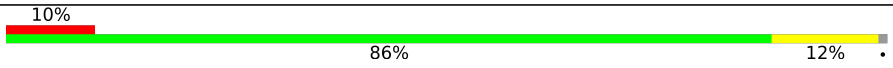
Mol	Chain	Length	Quality of chain
54	II	208	
55	JJ	194	
56	KK	165	
57	LL	158	
58	MM	132	
59	NN	151	
60	OO	168	
61	PP	145	
62	QQ	146	
63	RR	135	
64	SS	152	
65	TT	145	
66	UU	119	
67	VV	83	
68	WW	130	
69	XX	143	
70	YY	130	
71	ZZ	125	
72	aa	115	
73	bb	84	
74	cc	69	
75	dd	56	
76	ee	133	
77	ff	156	
78	gg	317	

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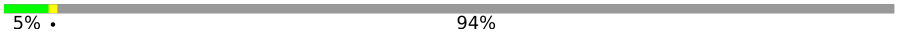
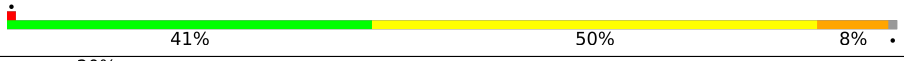
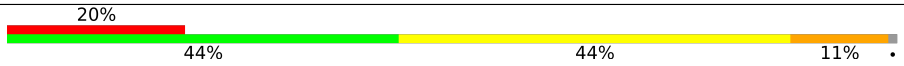
Mol	Chain	Length	Quality of chain
79	10	185	
80	12	76	
81	11	75	
81	13	75	
82	j	97	

2 Entry composition (i)

There are 88 unique types of molecules in this entry. The entry contains 215539 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	5	3601	77221	34390	14143	25087	3601	0	0

There are 59 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	1	C	N	conflict	GB 5LZS_5
5	3948	C	-	insertion	GB 5LZS_5
5	3949	A	-	insertion	GB 5LZS_5
5	3950	U	-	insertion	GB 5LZS_5
5	3951	G	-	insertion	GB 5LZS_5
5	3952	A	-	insertion	GB 5LZS_5
5	3953	G	-	insertion	GB 5LZS_5
5	3954	A	-	insertion	GB 5LZS_5
5	3955	G	-	insertion	GB 5LZS_5
5	3956	G	-	insertion	GB 5LZS_5
5	3957	U	-	insertion	GB 5LZS_5
5	3958	G	-	insertion	GB 5LZS_5
5	3959	U	-	insertion	GB 5LZS_5
5	3960	A	-	insertion	GB 5LZS_5
5	3961	G	-	insertion	GB 5LZS_5
5	3962	A	-	insertion	GB 5LZS_5
5	3963	A	-	insertion	GB 5LZS_5
5	3964	U	-	insertion	GB 5LZS_5
5	3965	A	-	insertion	GB 5LZS_5
5	3966	A	-	insertion	GB 5LZS_5
5	3967	G	-	insertion	GB 5LZS_5
5	3968	U	-	insertion	GB 5LZS_5
5	3969	G	-	insertion	GB 5LZS_5
5	3970	G	-	insertion	GB 5LZS_5
5	3971	G	-	insertion	GB 5LZS_5
5	3972	A	-	insertion	GB 5LZS_5
5	3973	G	-	insertion	GB 5LZS_5
5	3974	G	-	insertion	GB 5LZS_5

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Chain	Residue	Modelled	Actual	Comment	Reference
5	3975	C	-	insertion	GB 5LZS_5
5	3976	C	-	insertion	GB 5LZS_5
5	4035	G	-	insertion	GB 5LZS_5
5	4036	G	-	insertion	GB 5LZS_5
5	4037	C	-	insertion	GB 5LZS_5
5	4038	C	-	insertion	GB 5LZS_5
5	4039	G	-	insertion	GB 5LZS_5
5	4040	C	-	insertion	GB 5LZS_5
5	4041	C	-	insertion	GB 5LZS_5
5	4042	G	-	insertion	GB 5LZS_5
5	4043	G	-	insertion	GB 5LZS_5
5	4044	U	-	insertion	GB 5LZS_5
5	4045	G	-	insertion	GB 5LZS_5
5	4046	A	-	insertion	GB 5LZS_5
5	4047	A	-	insertion	GB 5LZS_5
5	4048	A	-	insertion	GB 5LZS_5
5	4049	U	-	insertion	GB 5LZS_5
5	4050	A	-	insertion	GB 5LZS_5
5	4051	C	-	insertion	GB 5LZS_5
5	4052	C	-	insertion	GB 5LZS_5
5	4053	A	-	insertion	GB 5LZS_5
5	4054	C	-	insertion	GB 5LZS_5
5	4055	U	-	insertion	GB 5LZS_5
5	4056	A	-	insertion	GB 5LZS_5
5	4057	C	-	insertion	GB 5LZS_5
5	4058	U	-	insertion	GB 5LZS_5
5	4059	C	-	insertion	GB 5LZS_5
5	4060	U	-	insertion	GB 5LZS_5
5	4061	G	-	insertion	GB 5LZS_5
5	4062	A	-	insertion	GB 5LZS_5
5	4063	U	-	insertion	GB 5LZS_5

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	7	119	Total	C	N	O	P	0	0
			2538	1132	454	834	118		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
7	2	U	N	conflict	GB X06789.1

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Chain	Residue	Modelled	Actual	Comment	Reference
7	36	C	N	conflict	GB X06789.1
7	102	U	N	conflict	GB X06789.1
7	112	U	N	conflict	GB X06789.1
7	114	U	N	conflict	GB X06789.1
7	119	U	C	conflict	GB X06789.1
7	120	U	N	conflict	GB X06789.1

- Molecule 3 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	8	151	Total	C	N	O	P	0	0
			3208	1432	564	1062	150		

- Molecule 4 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	9	1697	Total	C	N	O	P	0	0
			36229	16171	6507	11855	1696		

- Molecule 5 is a protein called Ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	A	248	Total	C	N	O	S	0	0
			1898	1189	389	314	6		

- Molecule 6 is a protein called Ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	B	394	Total	C	N	O	S	0	0
			3172	2020	597	542	13		

- Molecule 7 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	C	362	Total	C	N	O	S	0	0
			2883	1812	577	480	14		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	378	LYS	-	insertion	UNP G1SVW5

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Chain	Residue	Modelled	Actual	Comment	Reference
C	379	VAL	-	insertion	UNP G1SVW5
C	380	LYS	-	insertion	UNP G1SVW5
C	381	LYS	-	insertion	UNP G1SVW5
C	382	PRO	-	insertion	UNP G1SVW5
C	383	ARG	-	insertion	UNP G1SVW5
C	384	ALA	-	insertion	UNP G1SVW5
C	385	VAL	-	insertion	UNP G1SVW5
C	386	GLY	-	insertion	UNP G1SVW5
C	387	ILE	-	insertion	UNP G1SVW5
C	388	LYS	-	insertion	UNP G1SVW5
C	389	GLN	-	insertion	UNP G1SVW5

- Molecule 8 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	D	293	Total	C	N	O	S	0	0
			2391	1512	438	427	14		

- Molecule 9 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	E	216	Total	C	N	O	S	0	0
			1729	1115	329	282	3		

- Molecule 10 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	233	Total	C	N	O	S	0	0
			1879	1199	361	315	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	244	GLY	CYS	conflict	UNP G1STW0

- Molecule 11 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	H	190	Total	C	N	O	S	0	0
			1516	954	284	272	6		

- Molecule 12 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	I	205	Total	C	N	O	S	0	0
			1664	1056	321	274	13		

- Molecule 13 is a protein called Ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	170	Total	C	N	O	S	0	0
			1362	861	254	241	6		

- Molecule 14 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	225	Total	C	N	O	S	0	0
			1875	1205	358	303	9		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	61	ARG	GLY	conflict	UNP G1TUB1
K	93	ARG	GLY	conflict	UNP G1TUB1
K	131	MET	VAL	conflict	UNP G1TUB1
K	153	ILE	VAL	conflict	UNP G1TUB1

- Molecule 15 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	210	Total	C	N	O	S	0	0
			1702	1065	354	279	4		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	46	ILE	-	insertion	UNP G1TPV0
L	47	ALA	-	insertion	UNP G1TPV0
L	48	PRO	-	insertion	UNP G1TPV0
L	49	ARG	-	insertion	UNP G1TPV0
L	50	PRO	-	insertion	UNP G1TPV0
L	51	ALA	-	insertion	UNP G1TPV0
L	52	ALA	-	insertion	UNP G1TPV0
L	53	GLY	-	insertion	UNP G1TPV0
L	54	PRO	-	insertion	UNP G1TPV0

- Molecule 16 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	138	Total	C	N	O	S	0	0
			1137	727	221	182	7		

- Molecule 17 is a protein called Ribosomal protein L15.

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

- Molecule 18 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	O	199	Total	C	N	O	S	0	0
			1630	1051	319	255	5		

- Molecule 19 is a protein called Large ribosomal subunit protein uL22.

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

- Molecule 20 is a protein called Ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Q	187	Total	C	N	O	S	0	0
			1515	946	315	250	4		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Q	4	ASP	ASN	conflict	UNP G1TFE0
Q	14	ARG	TRP	conflict	UNP G1TFE0
Q	53	MET	LEU	conflict	UNP G1TFE0
Q	58	ARG	TRP	conflict	UNP G1TFE0
Q	75	ARG	GLN	conflict	UNP G1TFE0
Q	80	ALA	PRO	conflict	UNP G1TFE0
Q	86	VAL	ILE	conflict	UNP G1TFE0
Q	104	ARG	HIS	conflict	UNP G1TFE0
Q	110	ARG	CYS	conflict	UNP G1TFE0
Q	137	VAL	GLY	conflict	UNP G1TFE0
Q	157	GLY	ARG	conflict	UNP G1TFE0

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Chain	Residue	Modelled	Actual	Comment	Reference
Q	181	ARG	TRP	conflict	UNP G1TFE0

- Molecule 21 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	R	180	Total	C	N	O	S	0	0
			1508	933	328	238	9		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	38	ARG	CYS	conflict	UNP G1TJR3
R	64	ARG	GLN	conflict	UNP G1TJR3
R	94	THR	LYS	conflict	UNP G1TJR3

- Molecule 22 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	S	176	Total	C	N	O	S	0	0
			1462	930	285	236	11		

There are 23 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	1	MET	THR	conflict	UNP G1TTY7
S	18	PRO	-	insertion	UNP G1TTY7
S	19	THR	-	insertion	UNP G1TTY7
S	20	PRO	SER	conflict	UNP G1TTY7
S	22	CYS	SER	conflict	UNP G1TTY7
S	23	ARG	PRO	conflict	UNP G1TTY7
S	24	THR	ALA	conflict	UNP G1TTY7
S	49	SER	LEU	conflict	UNP G1TTY7
S	50	GLN	GLU	conflict	UNP G1TTY7
S	95	ARG	HIS	conflict	UNP G1TTY7
S	101	THR	ILE	conflict	UNP G1TTY7
S	102	THR	MET	conflict	UNP G1TTY7
S	104	GLY	SER	conflict	UNP G1TTY7
S	126	ILE	VAL	conflict	UNP G1TTY7
S	132	ILE	MET	conflict	UNP G1TTY7
S	135	SER	ALA	conflict	UNP G1TTY7
S	136	LYS	ARG	conflict	UNP G1TTY7
S	138	ARG	PRO	conflict	UNP G1TTY7

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Chain	Residue	Modelled	Actual	Comment	Reference
S	149	LYS	ARG	conflict	UNP G1TTY7
S	151	LYS	ARG	conflict	UNP G1TTY7
S	168	THR	TYR	conflict	UNP G1TTY7
S	169	THR	ALA	conflict	UNP G1TTY7
S	176	PHE	-	insertion	UNP G1TTY7

- Molecule 23 is a protein called eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	T	159	Total	C	N	O	S	0	0
			1298	823	252	217	6		

- Molecule 24 is a protein called eL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	U	99	Total	C	N	O	S	0	0
			809	519	141	147	2		

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	18	LEU	VAL	conflict	UNP G1TSG1
U	32	GLY	ARG	conflict	UNP G1TSG1
U	36	ALA	GLU	conflict	UNP G1TSG1
U	39	PHE	SER	conflict	UNP G1TSG1
U	54	GLY	ARG	conflict	UNP G1TSG1
U	60	VAL	ALA	conflict	UNP G1TSG1
U	62	SER	THR	conflict	UNP G1TSG1
U	63	LEU	ILE	conflict	UNP G1TSG1
U	97	ARG	HIS	conflict	UNP G1TSG1
U	106	THR	SER	conflict	UNP G1TSG1
U	126	GLU	ASP	conflict	UNP G1TSG1

- Molecule 25 is a protein called Ribosomal protein L23.

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

- Molecule 26 is a protein called eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	W	106	Total	C	N	O	S	0	0
			860	538	174	144	4		

- Molecule 27 is a protein called eL23.

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

- Molecule 28 is a protein called uL24.

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

- Molecule 29 is a protein called 60S ribosomal protein L27.

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

- Molecule 30 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	a	147	Total	C	N	O	S	0	0
			1162	734	239	185	4		

- Molecule 31 is a protein called Large ribosomal subunit protein eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	b	98	Total	C	N	O	S	0	0
			806	498	182	123	3		

- Molecule 32 is a protein called eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	c	98	Total	C	N	O	S	0	0
			761	481	134	140	6		

- Molecule 33 is a protein called eL31.

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

- Molecule 34 is a protein called Ribosomal protein L32.

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

- Molecule 35 is a protein called eL33.

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

- Molecule 36 is a protein called Large ribosomal subunit protein eL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	g	114	Total	C	N	O	S	0	0
			906	566	187	147	6		

- Molecule 37 is a protein called eL35.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	h	122	Total	C	N	O	S	0	0
			1013	640	204	168	1		

- Molecule 38 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	i	102	Total	C	N	O	S	0	0
			830	520	176	129	5		

- Molecule 39 is a protein called eL38.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	69	Total	C	N	O	S	0	0
			569	366	103	99	1		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
k	3	ARG	GLN	conflict	UNP G1U3J0
k	38	CYS	TYR	conflict	UNP G1U3J0
k	48	THR	MET	conflict	UNP G1U3J0
k	66	VAL	MET	conflict	UNP G1U3J0

- Molecule 40 is a protein called eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	50	Total	C	N	O	S	0	0
			447	286	96	64	1		

- Molecule 41 is a protein called Ubiquitin A-52 residue ribosomal protein fusion product 1.

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

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
m	1	MET	-	initiating methionine	UNP A0A2K5PSA0
m	2	GLY	-	expression tag	UNP A0A2K5PSA0
m	3	ASP	-	expression tag	UNP A0A2K5PSA0
m	4	PRO	-	expression tag	UNP A0A2K5PSA0
m	5	GLU	-	expression tag	UNP A0A2K5PSA0
m	6	SER	-	expression tag	UNP A0A2K5PSA0
m	7	GLY	-	expression tag	UNP A0A2K5PSA0
m	8	GLY	-	expression tag	UNP A0A2K5PSA0
m	9	CYS	-	expression tag	UNP A0A2K5PSA0

- Molecule 42 is a protein called eL41.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	n	25	Total	C	N	O	S	0	0
			240	145	64	28	3		

- Molecule 43 is a protein called Large ribosomal subunit protein eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	104	Total	C	N	O	S	0	0
			851	533	174	138	6		

- Molecule 44 is a protein called eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 45 is a protein called eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	r	124	Total	C	N	O	S	0	0
			994	616	205	167	6		

- Molecule 46 is a protein called uS2 (SA).

Mol	Chain	Residues	Atoms					AltConf	Trace
46	AA	217	Total	C	N	O	S	0	0
			1710	1086	300	316	8		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AA	114	THR	ALA	conflict	UNP G1TLT8

- Molecule 47 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	BB	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 48 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	CC	221	Total	C	N	O	S	0	0
			1716	1111	295	301	9		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
CC	13	ASP	GLY	conflict	UNP O18789
CC	19	ILE	MET	conflict	UNP O18789

- Molecule 49 is a protein called Ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	DD	224	Total	C	N	O	S	0	0
			1739	1108	313	311	7		

- Molecule 50 is a protein called eS4 (S4 X isoform).

Mol	Chain	Residues	Atoms					AltConf	Trace
50	EE	262	Total	C	N	O	S	0	0
			2076	1324	386	358	8		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
EE	25	GLY	SER	conflict	UNP G1TK17
EE	51	ARG	LYS	conflict	UNP G1TK17
EE	78	THR	ALA	conflict	UNP G1TK17
EE	156	VAL	MET	conflict	UNP G1TK17

- Molecule 51 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	FF	184	Total	C	N	O	S	0	0
			1460	915	273	265	7		

- Molecule 52 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	GG	237	Total	C	N	O	S	0	0
			1923	1200	387	329	7		

- Molecule 53 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	HH	185	Total	C	N	O	S	0	0
			1489	952	271	265	1		

- Molecule 54 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	II	198	Total	C	N	O	S	0	0
			1628	1021	322	280	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
II	47	ARG	GLY	conflict	UNP G1TJW1

- Molecule 55 is a protein called Ribosomal protein S9 (Predicted).

Mol	Chain	Residues	Atoms					AltConf	Trace
55	JJ	181	Total	C	N	O	S	0	0
			1508	960	302	244	2		

- Molecule 56 is a protein called S10_plectin domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	KK	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 57 is a protein called Ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	LL	143	Total	C	N	O	S	0	0
			1175	749	222	198	6		

- Molecule 58 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	MM	112	Total	C	N	O	S	0	0
			871	551	155	158	7		

- Molecule 59 is a protein called Ribosomal protein S13.

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

- Molecule 60 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	OO	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 61 is a protein called uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	PP	129	Total	C	N	O	S	0	0
			1058	670	201	180	7		

- Molecule 62 is a protein called uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	QQ	142	Total	C	N	O	S	0	0
			1128	717	213	195	3		

- Molecule 63 is a protein called eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	RR	132	Total	C	N	O	S	0	0
			1068	670	199	195	4		

- Molecule 64 is a protein called uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SS	140	Total	C	N	O	S	0	0
			1157	728	231	197	1		

- Molecule 65 is a protein called eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	TT	141	Total	C	N	O	S	0	0
			1097	688	211	195	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
TT	119	GLY	TRP	conflict	UNP G1TN62

- Molecule 66 is a protein called uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	UU	100	Total	C	N	O	S	0	0
			795	498	152	141	4		

- Molecule 67 is a protein called eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	VV	83	Total	C	N	O	S	0	0
			637	393	117	122	5		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
VV	3	ASN	SER	conflict	UNP G1TM82
VV	4	ASP	ASN	conflict	UNP G1TM82
VV	33	GLN	PRO	conflict	UNP G1TM82
VV	50	PHE	SER	conflict	UNP G1TM82
VV	75	ALA	SER	conflict	UNP G1TM82
VV	76	ASP	HIS	conflict	UNP G1TM82
VV	81	LYS	GLN	conflict	UNP G1TM82

- Molecule 68 is a protein called Ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	WW	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 69 is a protein called uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	XX	140	Total	C	N	O	S	0	0
			1087	687	215	182	3		

- Molecule 70 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	YY	124	Total	C	N	O	S	0	0
			1011	640	198	168	5		

- Molecule 71 is a protein called eS25.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	ZZ	75	Total	C	N	O	S	0	0
			598	382	111	104	1		

- Molecule 72 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	aa	101	Total	C	N	O	S	0	0
			814	507	170	132	5		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
aa	28	ARG	CYS	conflict	UNP G1TFE8
aa	56	ALA	VAL	conflict	UNP G1TFE8
aa	109	ARG	PRO	conflict	UNP G1TFE8

- Molecule 73 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	bb	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 74 is a protein called Ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	cc	62	Total	C	N	O	S	0	0
			488	297	97	92	2		

- Molecule 75 is a protein called eS29.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	dd	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 76 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	ee	57	Total	C	N	O	S	0	0
			457	282	101	73	1		

- Molecule 77 is a protein called Ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	ff	68	Total	C	N	O	S	0	0
			555	351	103	94	7		

- Molecule 78 is a protein called RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	gg	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 79 is a RNA chain called MF mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	10	11	Total	C	N	O	P	0	0
			234	105	41	77	11		

- Molecule 80 is a RNA chain called Phe-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	12	75	Total	C	N	O	P	0	0
			1599	714	286	524	75		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
12	37	C	G	conflict	GB 176419

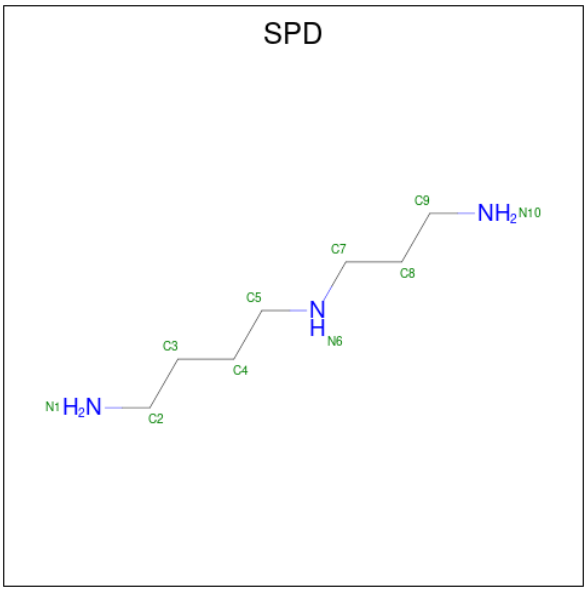
- Molecule 81 is a RNA chain called Met-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	13	74	Total	C	N	O	P	0	0
			1585	707	293	511	74		
81	11	74	Total	C	N	O	P	0	0
			1585	707	293	511	74		

- Molecule 82 is a protein called Ribosomal protein L37.

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

- Molecule 83 is SPERMIDINE (CCD ID: SPD) (formula: $C_7H_{19}N_3$).

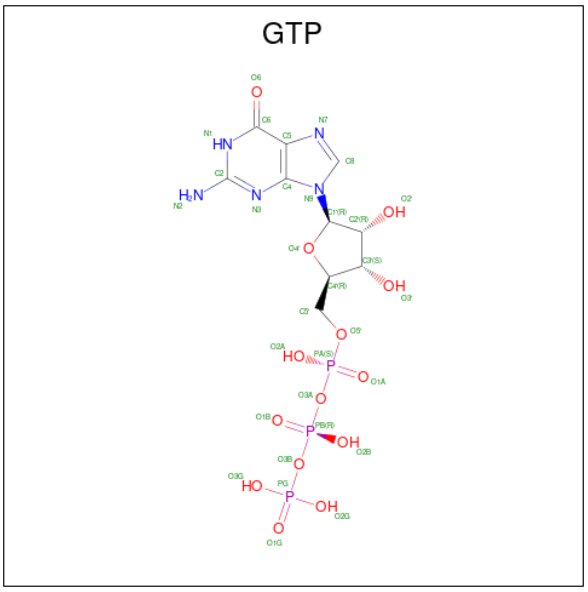


Mol	Chain	Residues	Atoms	AltConf
83	5	1	Total C N 10 7 3	0

- Molecule 84 is ZINC ION (CCD ID: ZN) (formula: Zn).

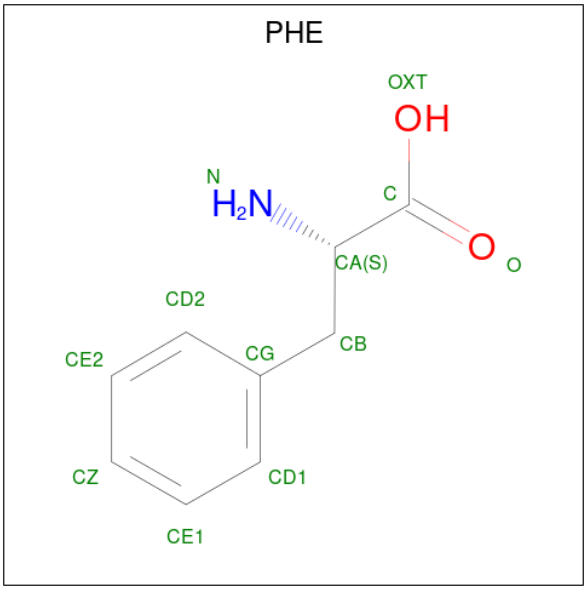
Mol	Chain	Residues	Atoms	AltConf
84	g	1	Total Zn 1 1	0
84	m	1	Total Zn 1 1	0
84	o	1	Total Zn 1 1	0
84	p	1	Total Zn 1 1	0
84	dd	1	Total Zn 1 1	0
84	j	1	Total Zn 1 1	0

- Molecule 85 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



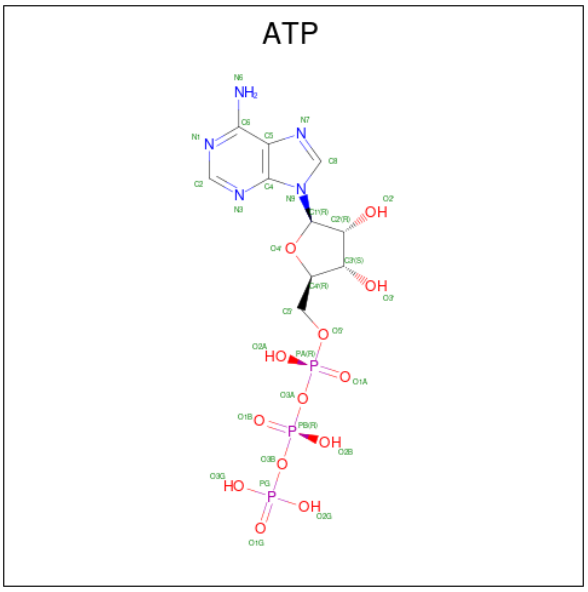
Mol	Chain	Residues	Atoms					AltConf
85	12	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 86 is PHENYLALANINE (CCD ID: PHE) (formula: $C_9H_{11}NO_2$).



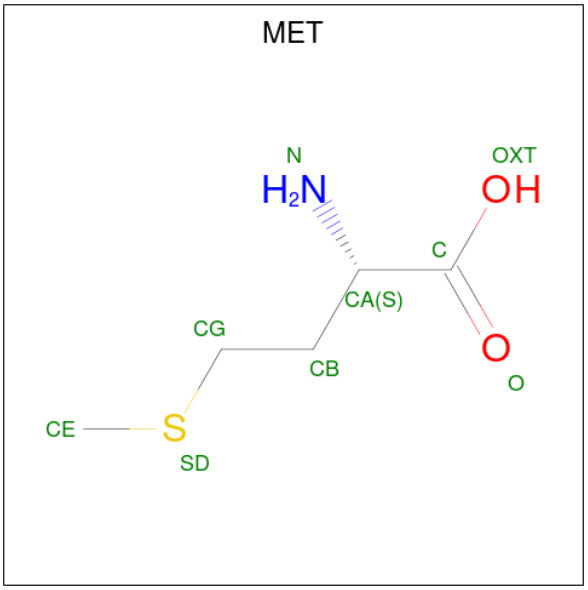
Mol	Chain	Residues	Atoms				AltConf
86	12	1	Total	C	N	O	0
			11	9	1	1	

- Molecule 87 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf
87	13	1	Total	C	N	O	P	0
			31	10	5	13	3	
87	11	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 88 is METHIONINE (CCD ID: MET) (formula: $C_5H_{11}NO_2S$).



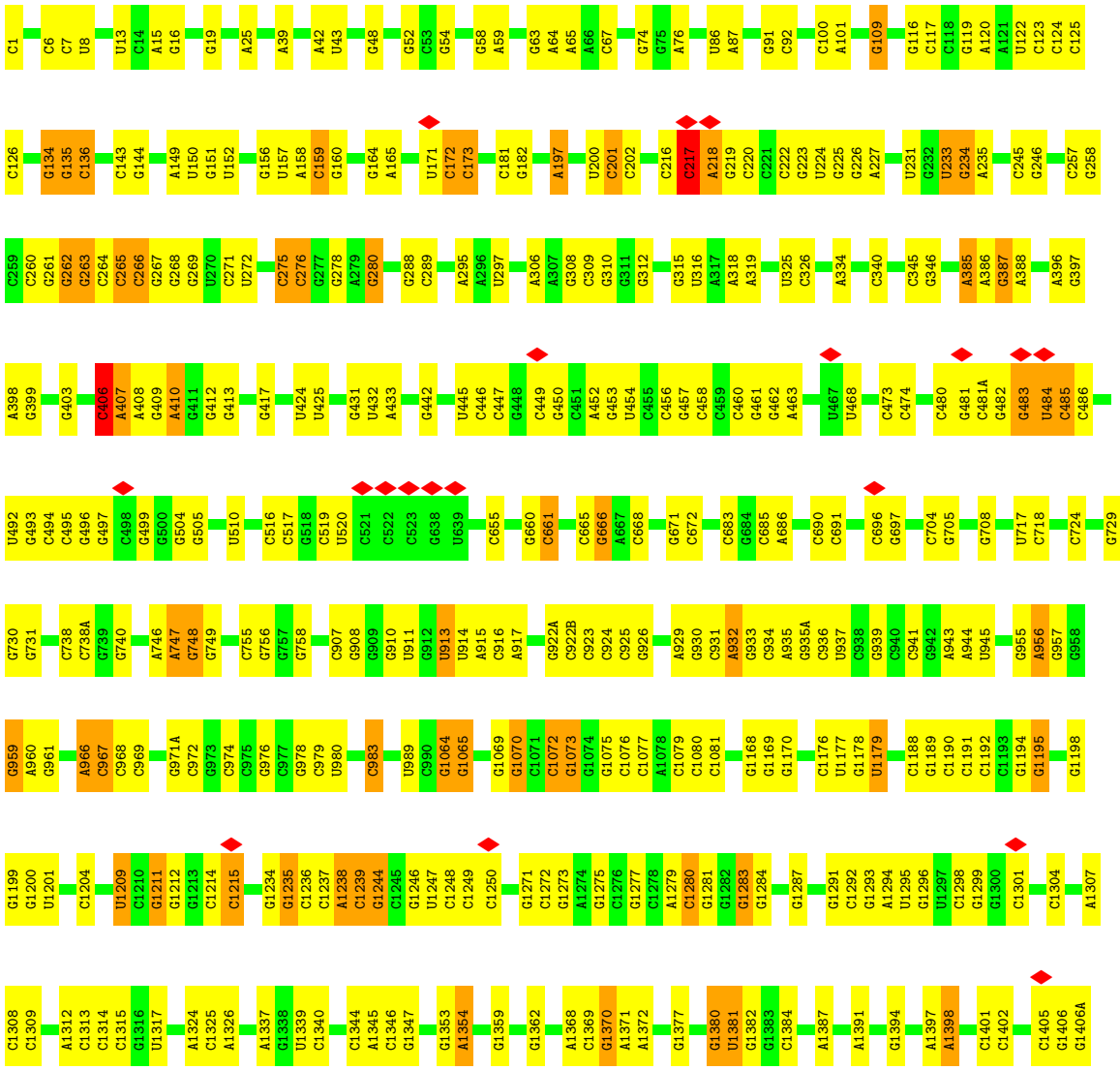
Mol	Chain	Residues	Atoms					AltConf
88	13	1	Total	C	N	O	S	0
			8	5	1	1	1	

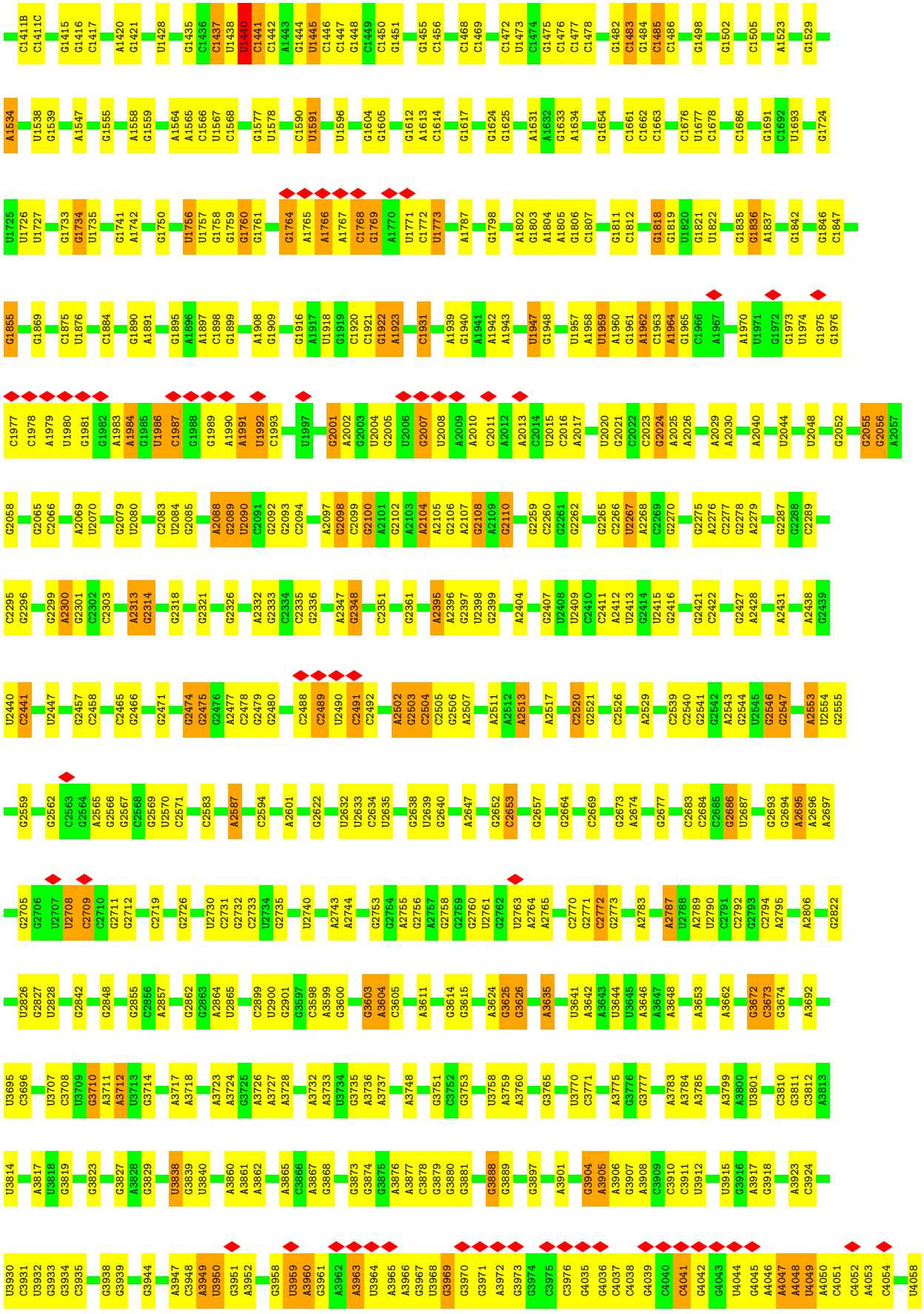
3 Residue-property plots (i)

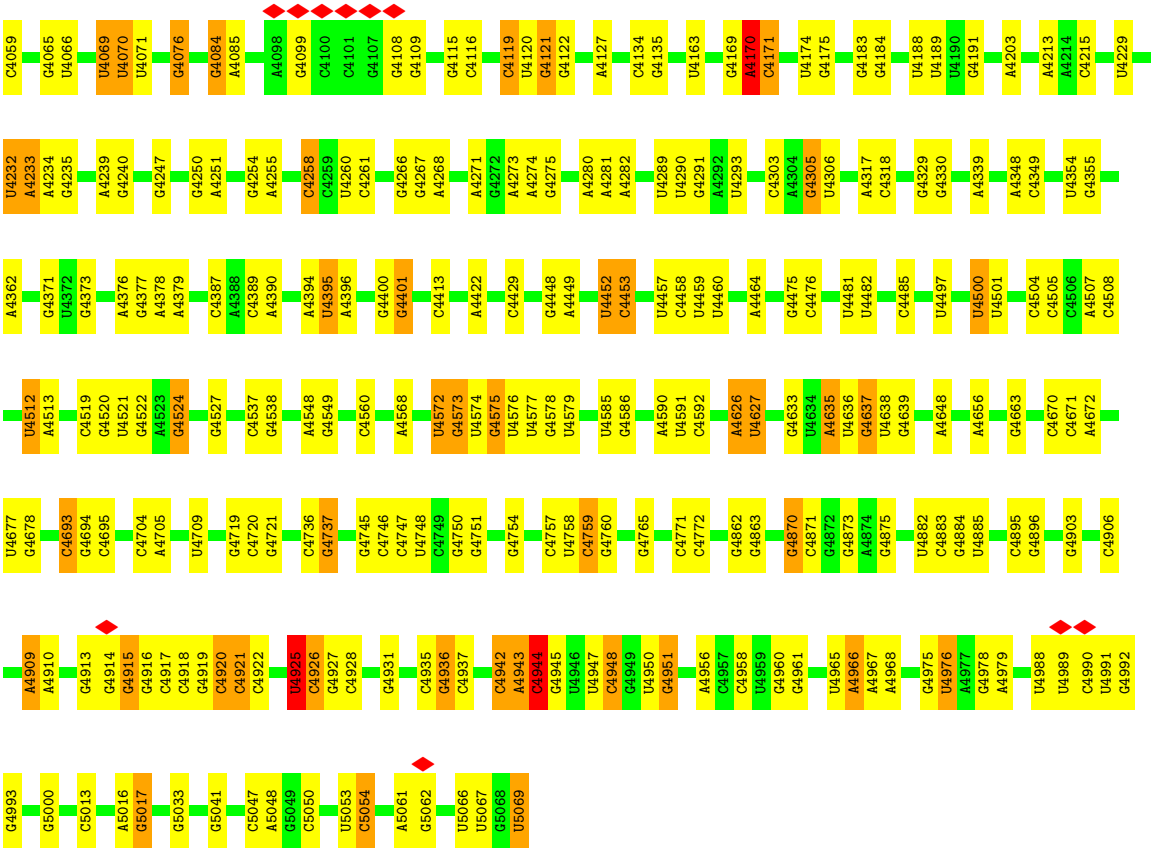
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 28S ribosomal RNA

Chain 5:




C1411B C1411C G1415 G1416 C1417 A1420 G1421 U1428 G1435 C1436 C1437 U1438 U1440 C1441 C1442 A1443 G1444 U1445 C1446 C1447 G1448 C1449 C1450 G1451 G1455 C1456 C1468 C1469 C1472 U1473 C1474 G1475 C1476 C1477 C1478 G1482 C1483 G1484 C1485 C1486 G1498 G1502 C1505 A1523 G1529
A1534 U1538 G1539 A1547 G1555 A1558 G1559 A1564 A1565 C1566 U1567 C1568 G1577 U1578 C1590 U1591 U1596 G1604 G1605 G1612 A1613 C1614 G1617 G1624 G1625 A1631 A1632 G1633 A1634 G1654 C1661 C1662 C1663 C1676 U1677 C1678 C1686 G1691 C1692 U1693 G1724
U1725 U1726 U1727 G1733 G1734 U1735 G1741 A1742 G1750 U1756 A1757 G1758 G1759 G1760 G1761 G1764 A1765 A1766 A1767 C1768 G1769 A1770 U1771 C1772 U1773 A1787 G1798 A1802 C1803 A1804 A1805 C1806 C1807 G1811 C1812 G1818 G1819 U1820 G1821 U1822 G1835 G1836 A1837 G1842 G1846 C1847
G1855 G1869 C1875 U1876 C1884 G1890 A1891 G1895 A1896 A1897 C1898 G1899 A1908 G1909 G1916 A1917 U1918 G1919 C1920 C1921 G1922 A1923 C1931 A1939 G1940 A1941 A1942 A1943 U1947 G1948 U1957 A1958 U1959 A1960 G1961 A1962 C1963 A1964 G1965 C1966 A1967 A1970 U1971 G1972 G1973 U1974 G1975 G1976
C1977 C1978 A1979 U1980 G1981 G1982 A1983 A1984 G1985 U1986 C1987 G1988 G1989 A1990 A1991 U1992 C1993 U1997 G2001 A2002 G2003 U2004 G2005 U2006 G2007 U2008 A2009 A2010 C2011 A2012 A2013 C2014 U2015 C2016 A2017 U2020 G2021 C2022 C2023 G2024 A2025 A2026 A2029 A2030 A2040 U2044 U2048 G2052 G2055 G2056 A2057
G2058 G2065 C2066 A2069 U2070 C2079 U2080 C2083 U2084 G2085 A2088 G2089 U2090 C2091 G2092 G2093 C2094 A2097 G2098 C2099 G2100 A2101 G2102 A2103 A2104 A2105 G2106 A2107 G2108 A2109 G2110 G2259 C2260 G2261 G2262 G2265 C2266 U2267 A2268 C2269 G2270 G2275 A2276 C2277 G2278 A2279 G2287 G2288 C2289
C2295 G2296 G2299 A2300 G2301 C2302 C2303 A2313 G2314 G2318 G2321 G2326 A2332 G2333 C2334 C2335 G2336 A2347 G2348 C2351 G2361 A2395 A2396 G2397 U2398 C2399 A2404 G2407 U2408 U2409 C2410 C2411 A2412 U2413 G2414 U2415 G2416 G2421 C2422 G2427 A2428 A2431 A2438 G2439
U2440 C2441 U2447 G2457 C2458 C2465 G2466 G2471 G2474 G2475 G2476 A2477 C2478 G2479 G2480 C2488 C2489 U2490 C2491 C2492 A2502 G2503 C2504 C2505 G2506 A2507 A2511 A2512 A2513 A2517 C2520 G2521 C2526 A2529 C2539 C2540 G2541 G2542 A2543 G2544 U2545 G2546 G2547 A2553 U2554 G2555
G2559 G2562 C2563 G2564 A2565 G2566 G2567 C2568 G2569 U2570 C2571 C2583 A2587 C2594 A2601 G2622 U2632 U2633 C2634 U2635 G2638 U2639 G2640 A2647 G2652 C2653 G2657 G2664 C2669 G2673 A2674 G2677 C2683 C2684 C2685 G2686 U2687 G2693 G2694 A2695 A2696 A2697
G2705 G2706 U2707 U2708 C2709 C2710 G2711 G2712 C2719 G2726 U2730 C2731 G2732 C2733 U2734 G2735 U2740 A2743 A2744 G2753 G2754 A2755 G2756 A2757 G2758 G2759 C2760 U2761 G2762 U2763 A2764 A2765 C2770 G2771 C2772 G2773 A2783 A2787 U2788 A2789 U2790 C2791 C2792 G2793 C2794 A2795 A2806 G2822
U2826 G2827 U2828 G2842 G2848 G2855 C2856 A2857 G2862 G2863 A2864 U2865 C2899 U2900 G2901 G3597 C3598 A3599 G3600 G3603 A3604 C3605 A3611 G3614 G3615 A3624 G3625 G3626 A3635 U3641 A3642 A3643 U3644 U3645 A3646 A3647 A3648 A3653 A3662 G3672 C3673 G3674 A3692
U3695 C3696 U3707 C3708 U3709 G3710 A3711 A3712 U3713 G3714 A3717 A3718 A3723 A3724 G3725 A3726 A3727 A3728 A3732 A3733 U3734 G3735 A3736 A3737 A3748 G3751 G3752 G3753 U3758 A3759 A3760 G3765 U3770 C3771 A3775 G3776 G3777 A3783 A3784 A3785 A3799 A3800 U3801 C3810 G3811 C3812 A3813
U3814 A3817 U3818 G3819 G3823 G3827 A3828 G3829 U3838 G3839 U3840 A3860 A3861 A3862 A3865 C3866 A3867 G3868 G3873 G3874 G3875 A3876 A3877 C3878 G3879 G3880 G3881 G3888 G3889 G3897 A3901 G3904 A3905 A3906 G3907 A3908 C3909 C3910 C3911 U3912 U3915 G3916 A3917 G3918 A3923 C3924
U3930 C3931 U3932 G3933 G3934 C3935 G3938 G3939 G3944 A3947 C3948 A3949 U3950 G3951 A3952 G3958 U3959 A3960 G3961 A3962 A3963 U3964 A3965 A3966 G3967 U3968 G3969 G3970 G3971 A3972 G3973 G3974 C3975 C3976 G4035 G4036 C4037 C4038 G4039 C4040 C4041 G4042 G4043 U4044 G4045 A4046 A4047 A4048 U4049 A4050 C4051 C4052 A4053 C4054 U4058

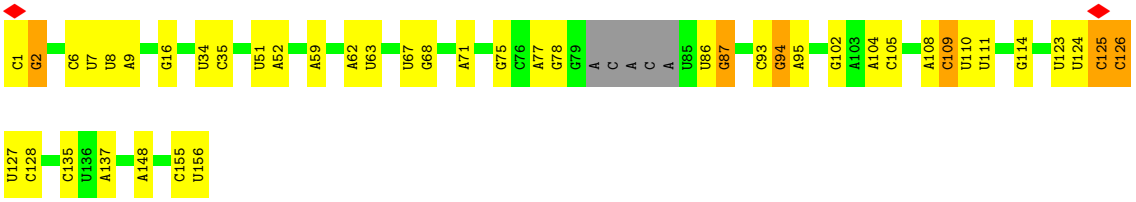


• Molecule 2: 5S ribosomal RNA

Chain 7:

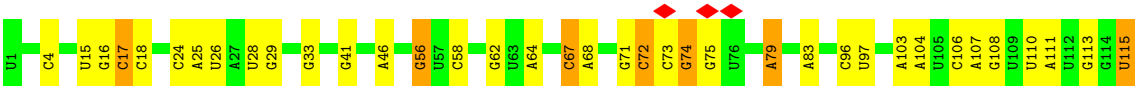
• Molecule 3: 5.8S ribosomal RNA

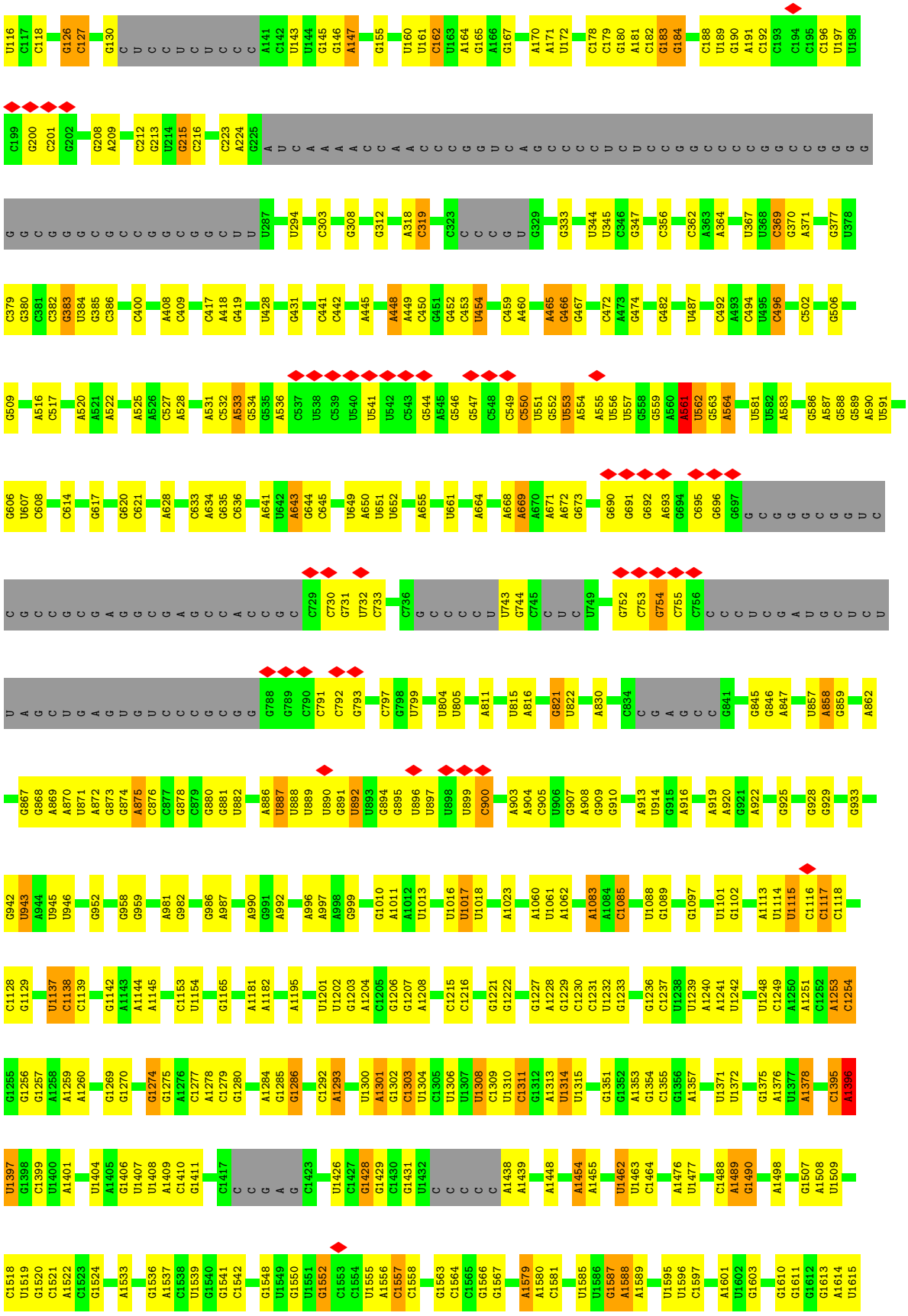
Chain 8:

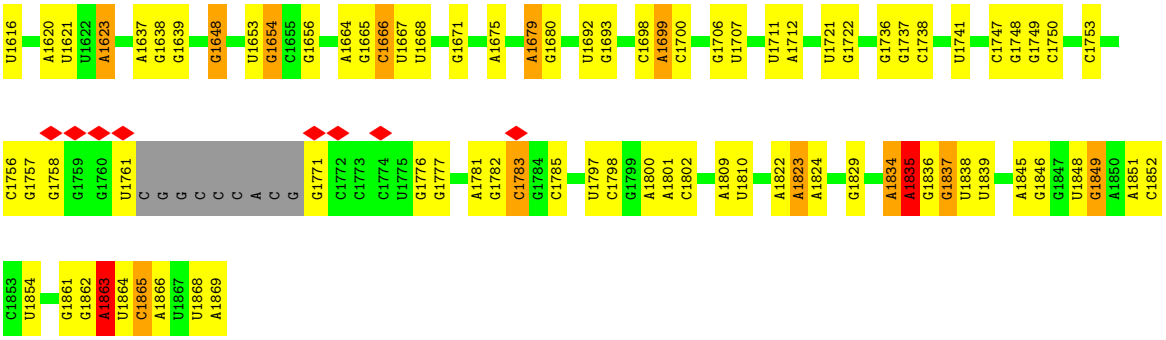


• Molecule 4: 18S ribosomal RNA

Chain 9:

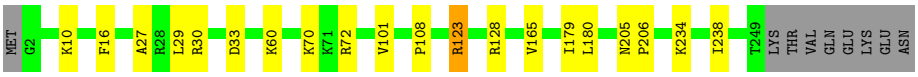






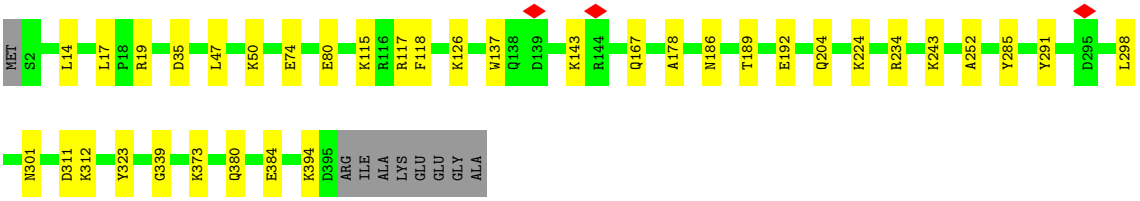
• Molecule 5: Ribosomal protein L8

Chain A:



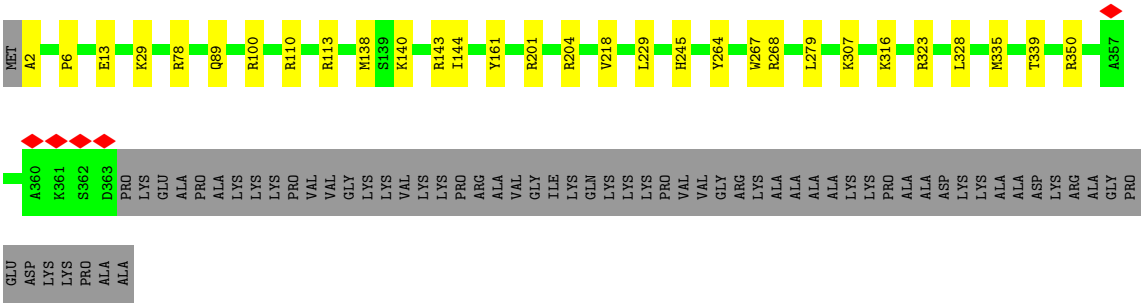
• Molecule 6: Ribosomal protein L3

Chain B:



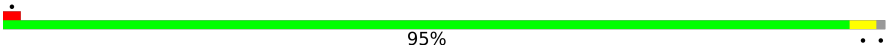
• Molecule 7: 60S ribosomal protein L4

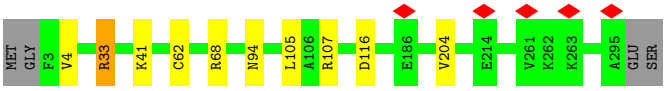
Chain C:



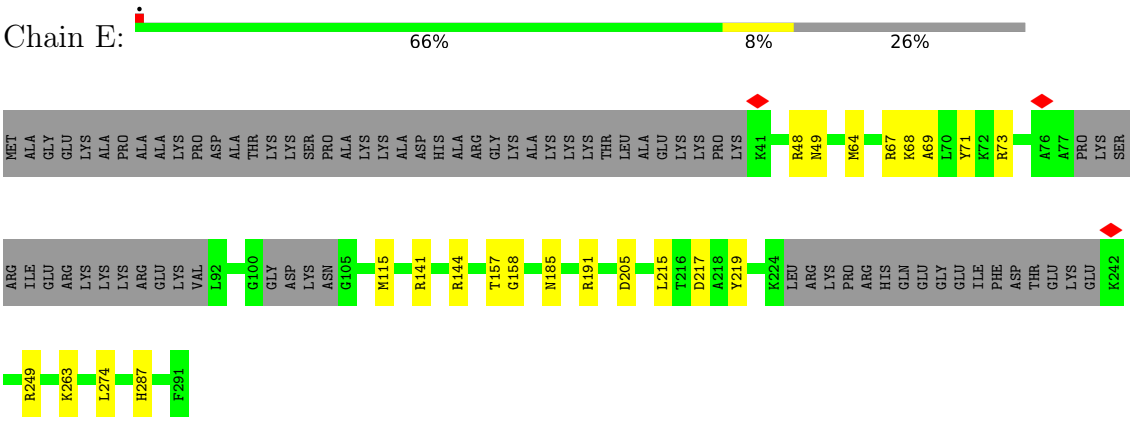
• Molecule 8: Large ribosomal subunit protein uL18

Chain D:

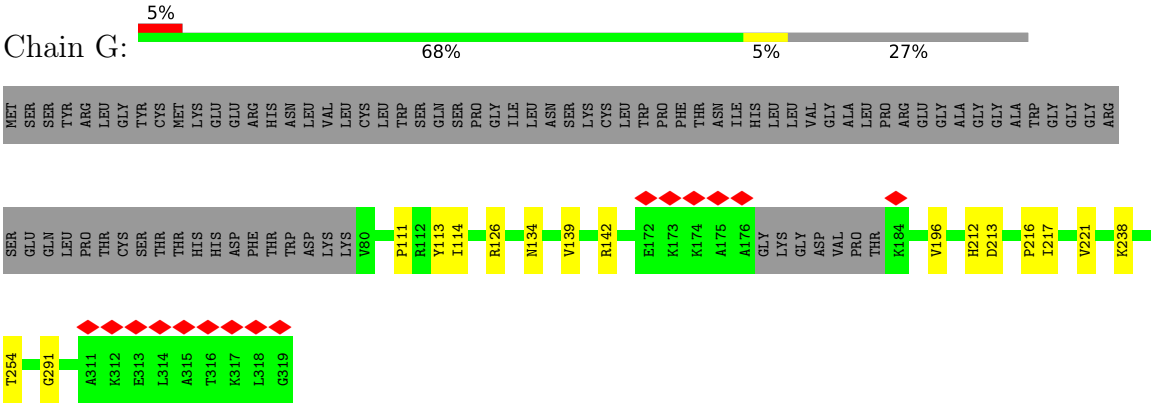




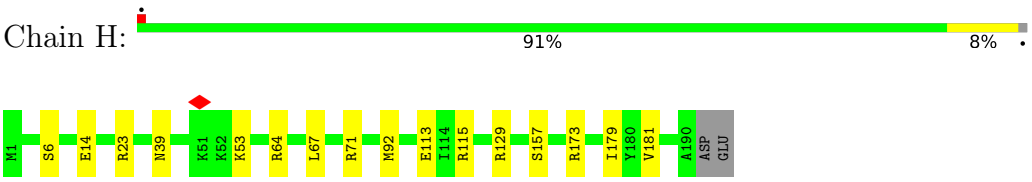
• Molecule 9: 60S ribosomal protein L6



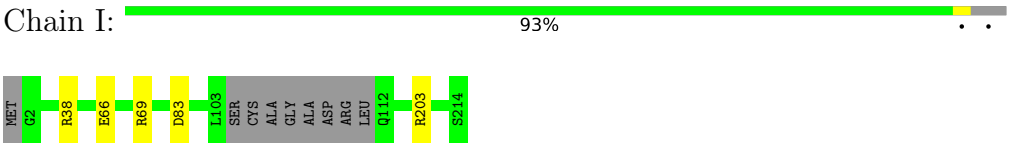
• Molecule 10: 60S ribosomal protein L7a



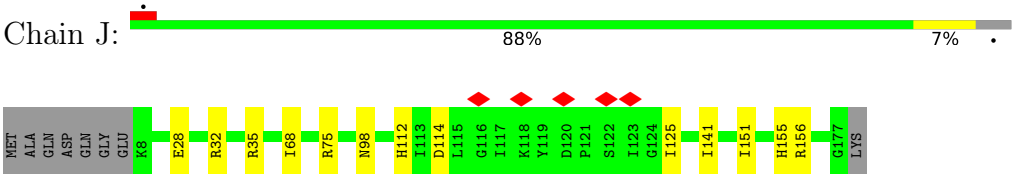
• Molecule 11: 60S ribosomal protein L9



• Molecule 12: 60S ribosomal protein L10

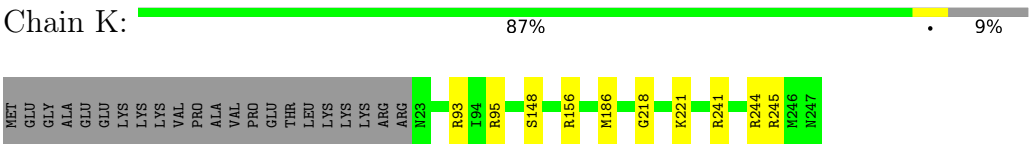


• Molecule 13: Ribosomal protein L11



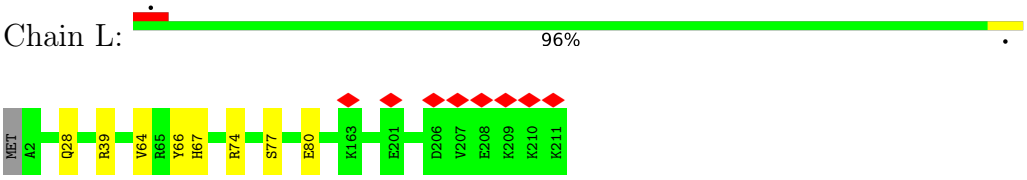
• Molecule 14: 60S ribosomal protein L7

Chain K:



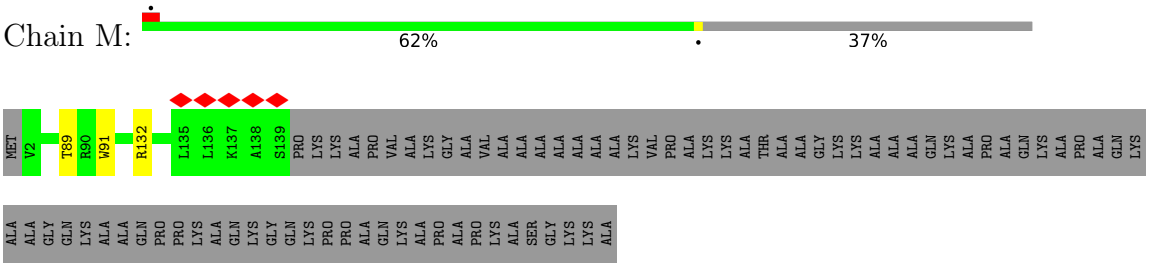
• Molecule 15: 60S ribosomal protein L13

Chain L:



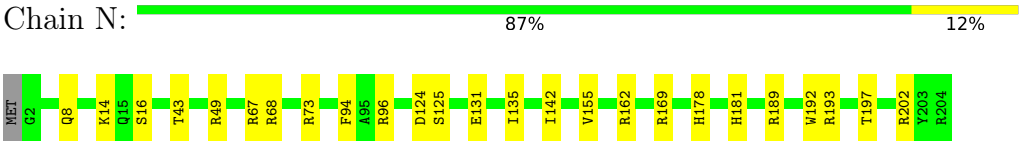
• Molecule 16: 60S ribosomal protein L14

Chain M:



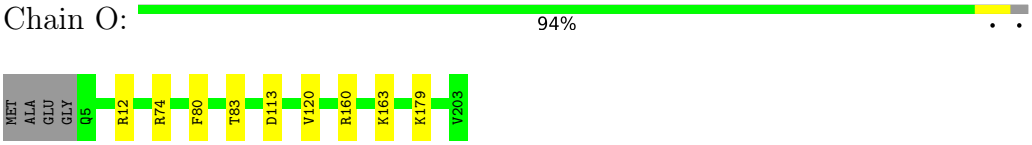
• Molecule 17: Ribosomal protein L15

Chain N:



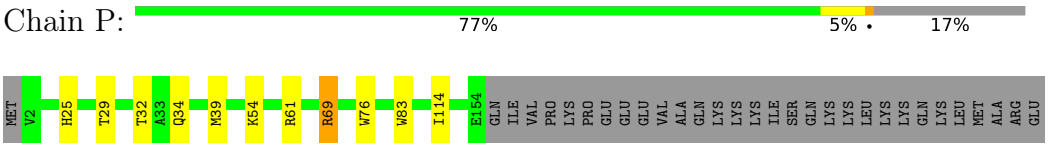
• Molecule 18: Large ribosomal subunit protein uL13

Chain O:



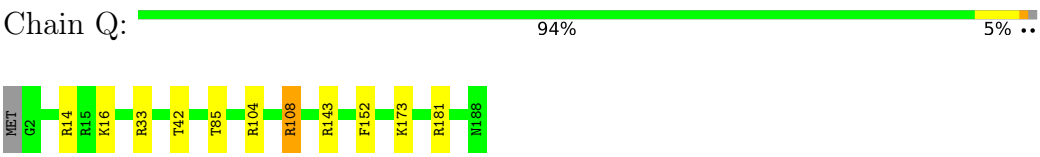
• Molecule 19: Large ribosomal subunit protein uL22

Chain P:



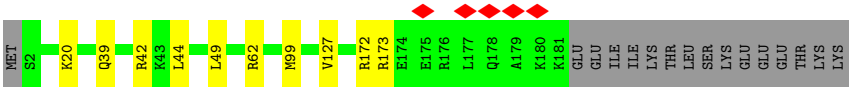
• Molecule 20: Ribosomal protein L18

Chain Q:



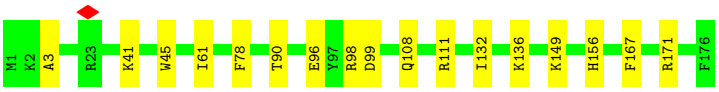
• Molecule 21: Ribosomal protein L19

Chain R:



• Molecule 22: 60S ribosomal protein L18a

Chain S:

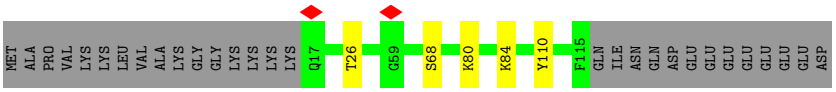


• Molecule 23: eL21

Chain T:

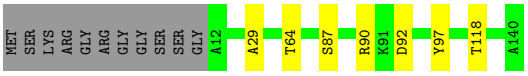
• Molecule 24: eL22

Chain U:



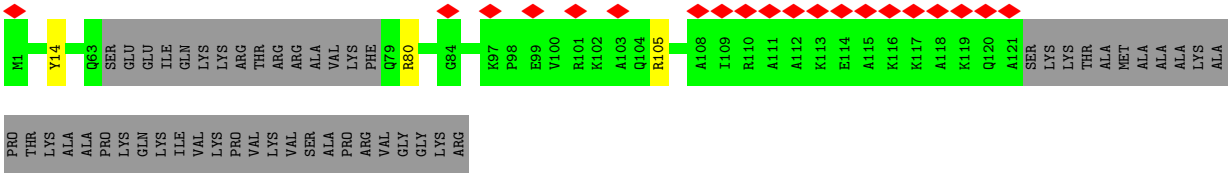
• Molecule 25: Ribosomal protein L23

Chain V:



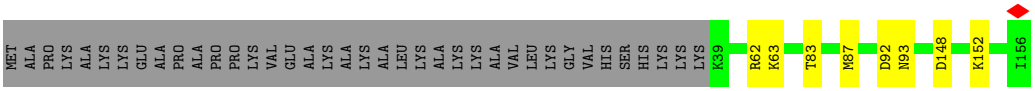
• Molecule 26: eL24

Chain W:



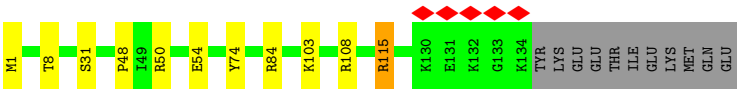
• Molecule 27: eL23

Chain X:



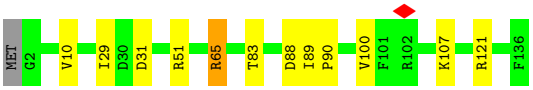
• Molecule 28: uL24

Chain Y:



• Molecule 29: 60S ribosomal protein L27

Chain Z:

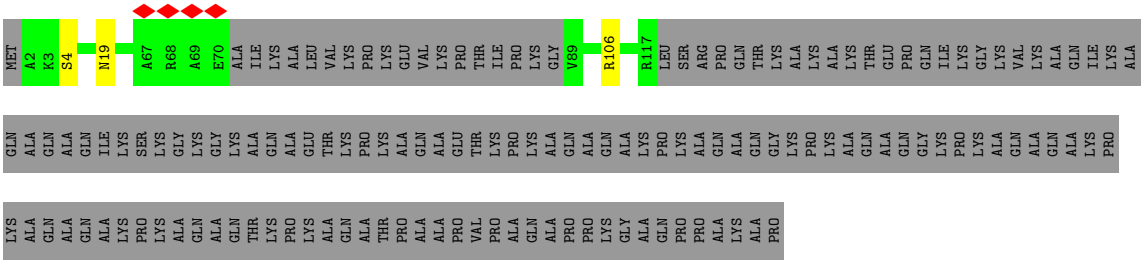


• Molecule 30: 60S ribosomal protein L27a

Chain a:

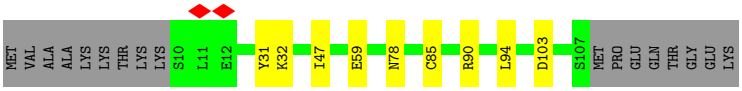
• Molecule 31: Large ribosomal subunit protein eL29

Chain b:



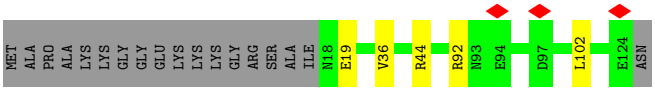
• Molecule 32: eL30

Chain c:

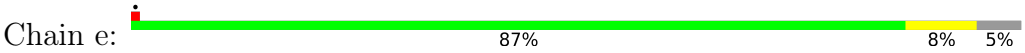


• Molecule 33: eL31

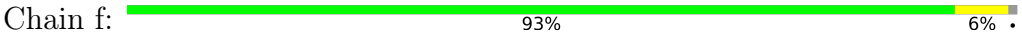
Chain d:



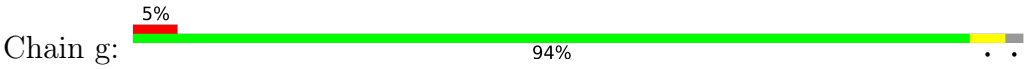
• Molecule 34: Ribosomal protein L32

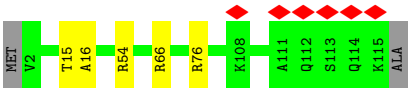


• Molecule 35: eL33

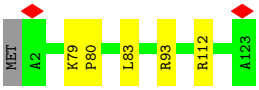


• Molecule 36: Large ribosomal subunit protein eL34

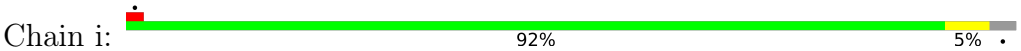


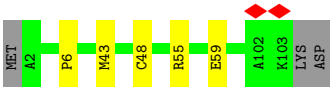


• Molecule 37: eL35

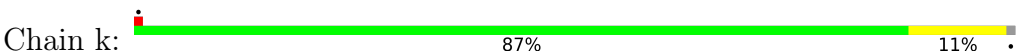


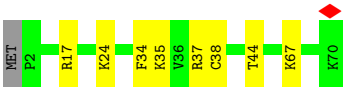
• Molecule 38: 60S ribosomal protein L36





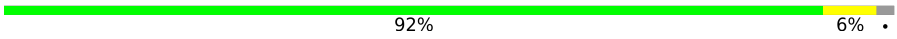
• Molecule 39: eL38





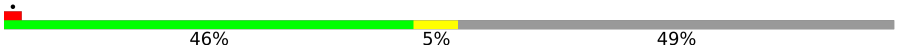
• Molecule 40: eL39

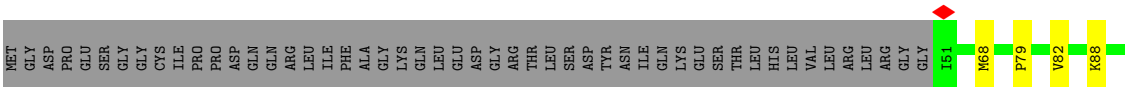
Chain l:



• Molecule 41: Ubiquitin A-52 residue ribosomal protein fusion product 1

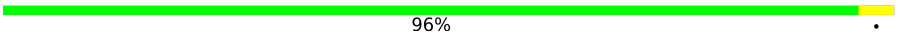
Chain m:





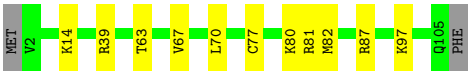
• Molecule 42: eL41

Chain n:



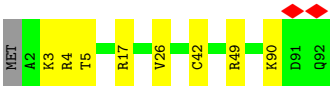
• Molecule 43: Large ribosomal subunit protein eL42

Chain o:



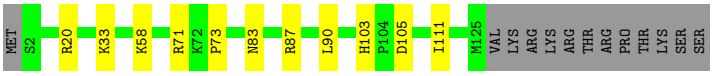
• Molecule 44: eL43

Chain p:



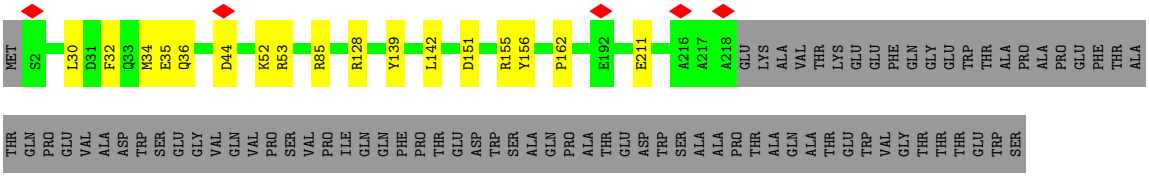
• Molecule 45: eL28

Chain r:



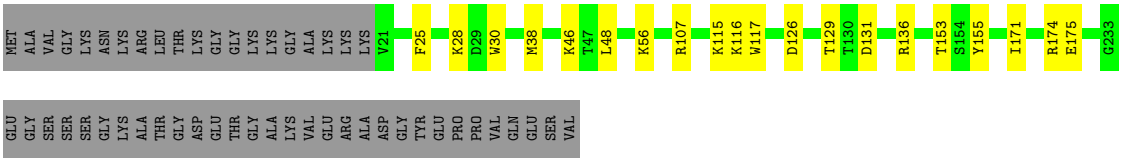
• Molecule 46: uS2 (SA)

Chain AA:



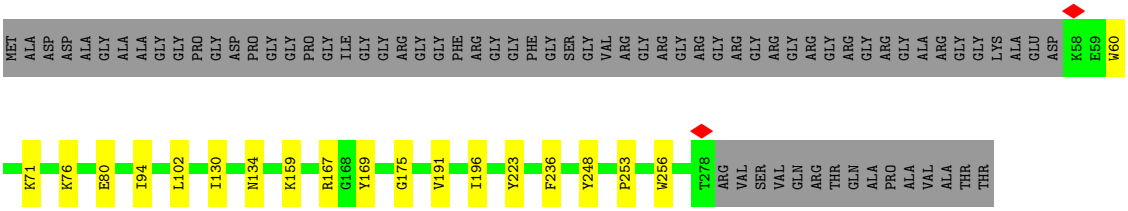
• Molecule 47: 40S ribosomal protein S3a

Chain BB:



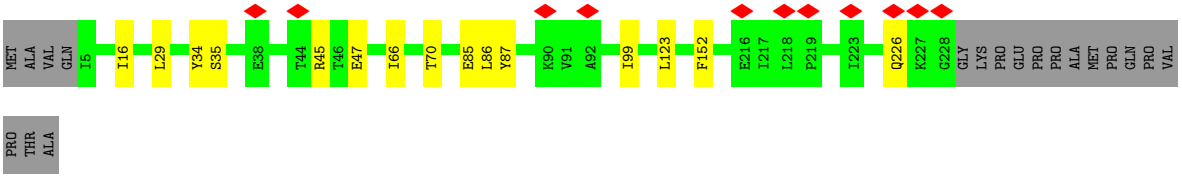
• Molecule 48: Small ribosomal subunit protein uS5

Chain CC:



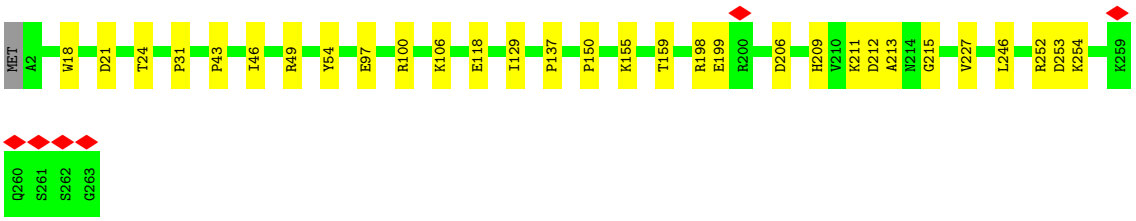
• Molecule 49: Ribosomal protein S3

Chain DD:



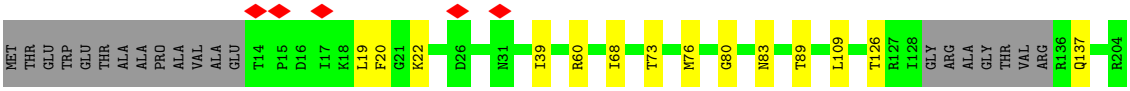
• Molecule 50: eS4 (S4 X isoform)

Chain EE:



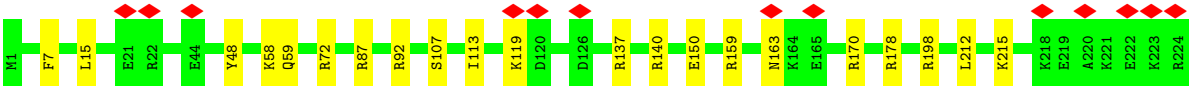
• Molecule 51: Ribosomal protein S5

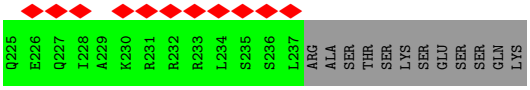
Chain FF:



• Molecule 52: 40S ribosomal protein S6

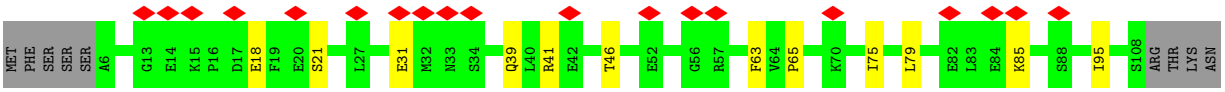
Chain GG:

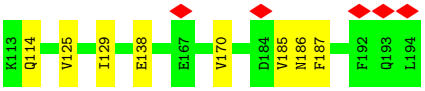




• Molecule 53: 40S ribosomal protein S7

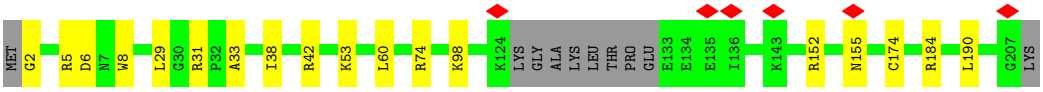
Chain HH:





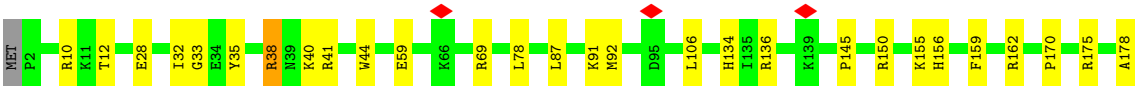
• Molecule 54: 40S ribosomal protein S8

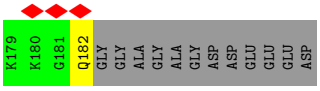
Chain II:



• Molecule 55: Ribosomal protein S9 (Predicted)

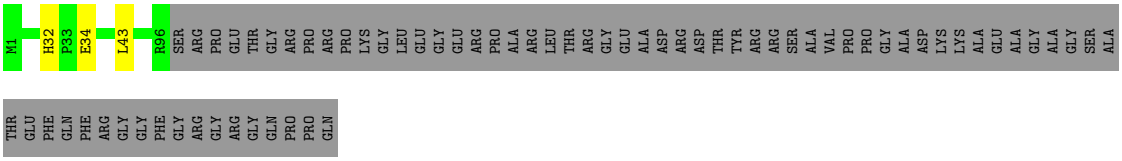
Chain JJ:





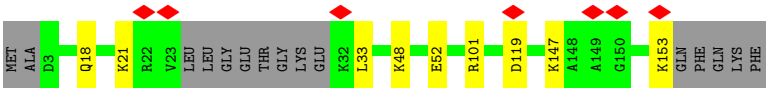
• Molecule 56: S10_plectin domain-containing protein

Chain KK:



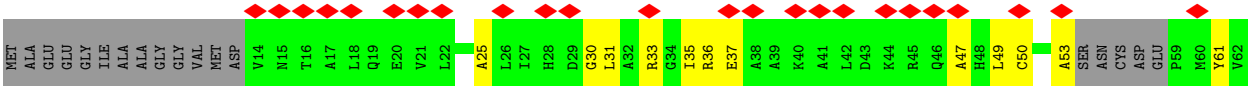
• Molecule 57: Ribosomal protein S11

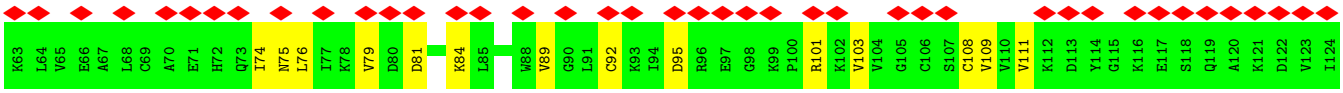
Chain LL:

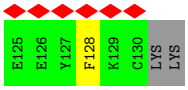


• Molecule 58: 40S ribosomal protein S12

Chain MM:

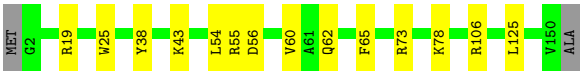






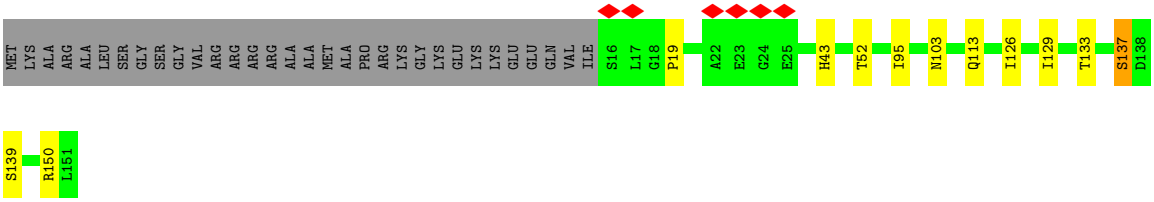
• Molecule 59: Ribosomal protein S13

Chain NN:



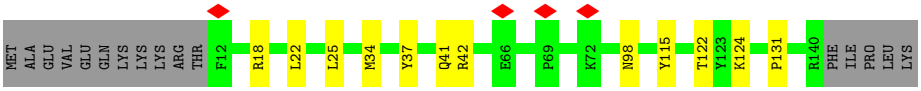
• Molecule 60: Small ribosomal subunit protein uS11

Chain OO:

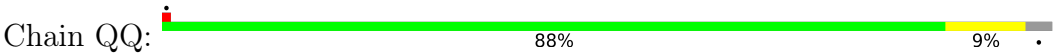


• Molecule 61: uS19

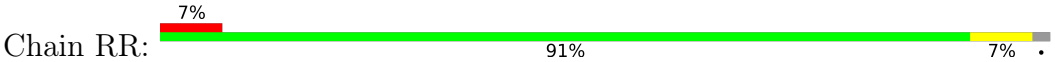
Chain PP:

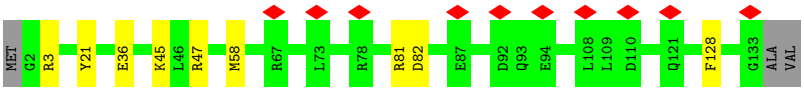


• Molecule 62: uS9

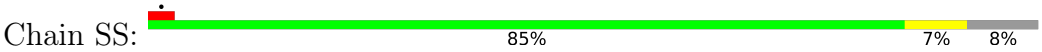


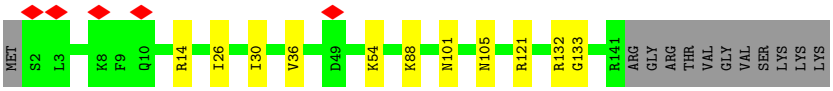
• Molecule 63: eS17



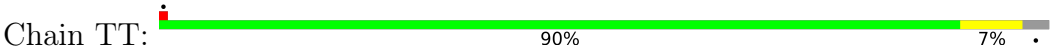


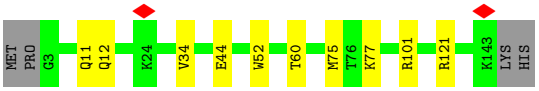
• Molecule 64: uS13



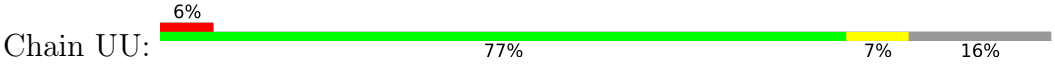


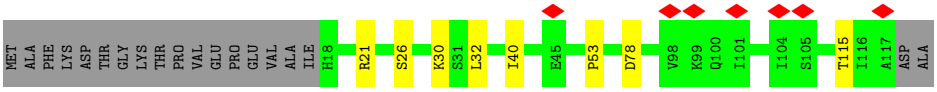
• Molecule 65: eS19



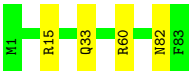


• Molecule 66: uS10



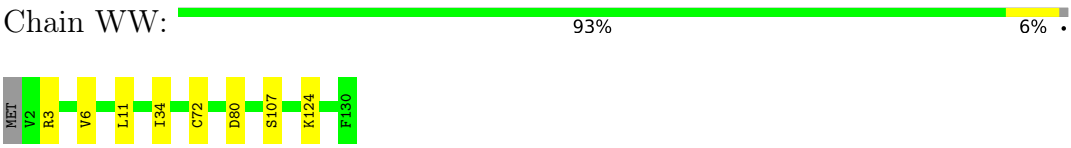


• Molecule 67: eS21



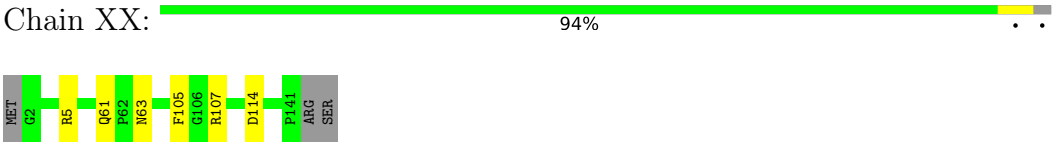
• Molecule 68: Ribosomal protein S15a

Chain WW:



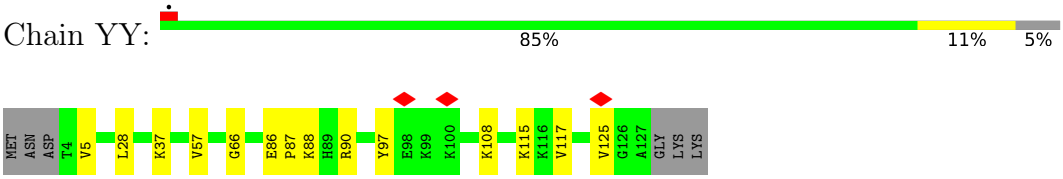
• Molecule 69: uS12

Chain XX:



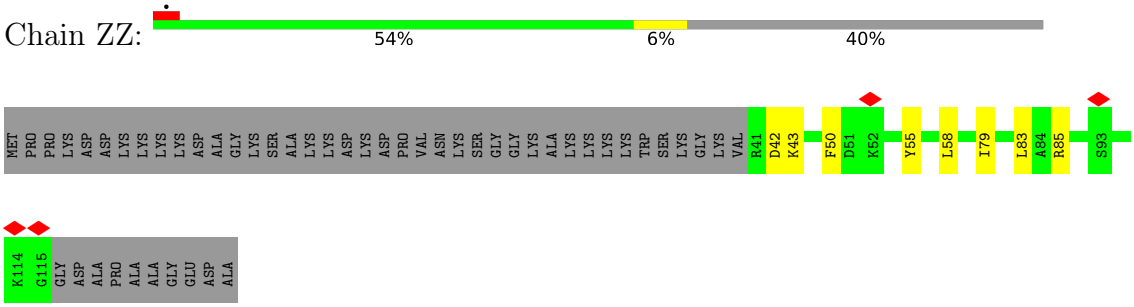
• Molecule 70: 40S ribosomal protein S24

Chain YY:



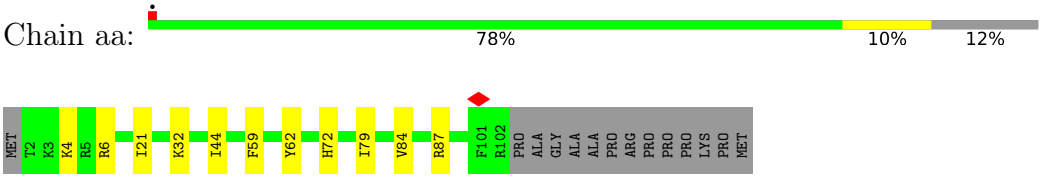
• Molecule 71: eS25

Chain ZZ:



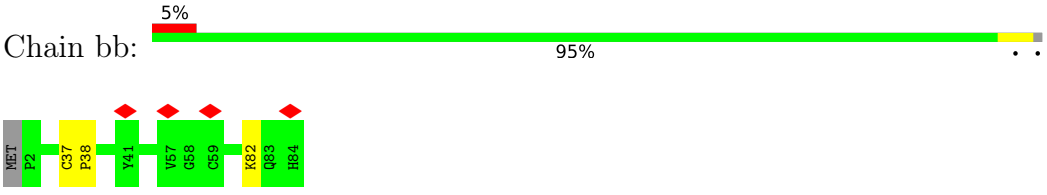
• Molecule 72: 40S ribosomal protein S26

Chain aa:



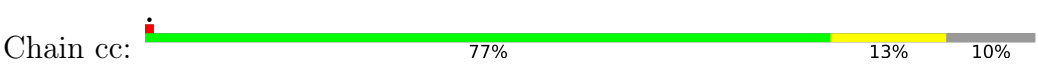
• Molecule 73: 40S ribosomal protein S27

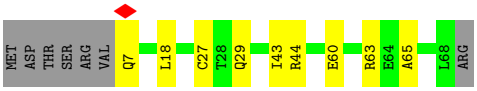
Chain bb:



• Molecule 74: Ribosomal protein S28

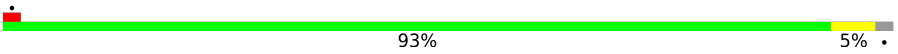
Chain cc:

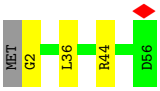




• Molecule 75: eS29

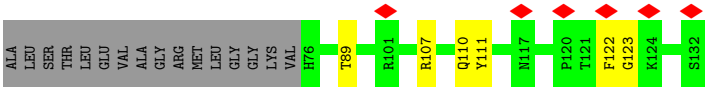
Chain dd:





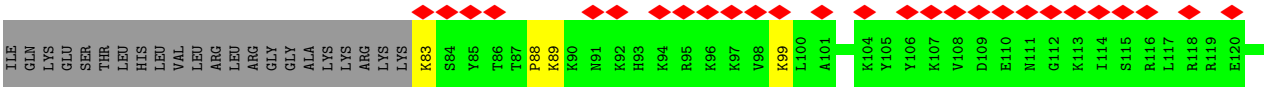
• Molecule 76: 40S ribosomal protein S30

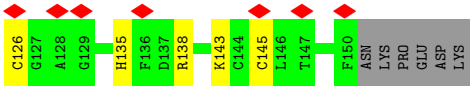
Chain ee:



• Molecule 77: Ribosomal protein S27a

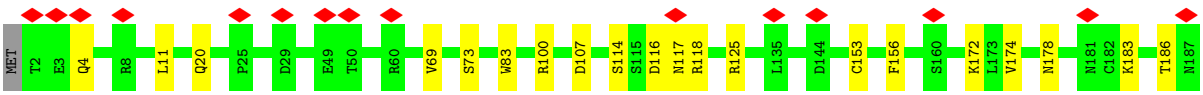
Chain ff:

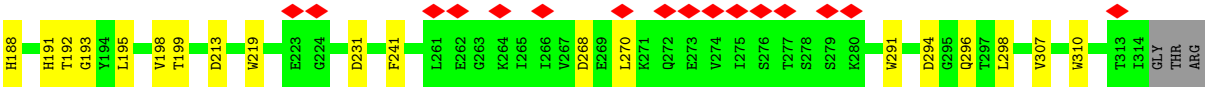




• Molecule 78: RACK1

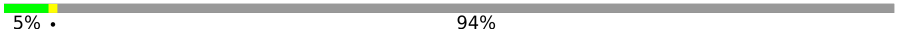
Chain gg:

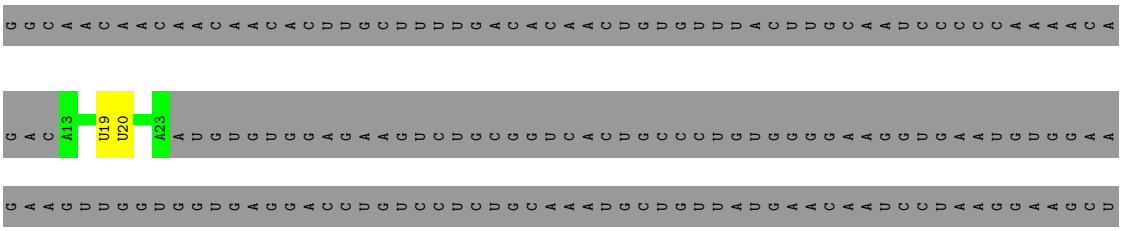




• Molecule 79: MF mRNA

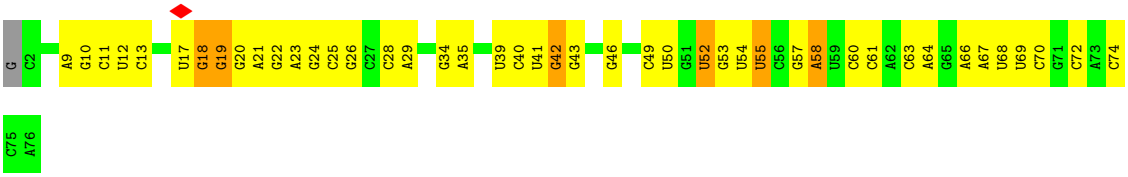
Chain 10:





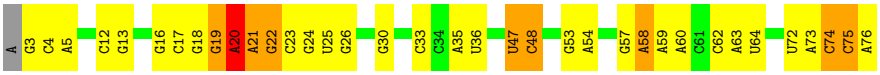
• Molecule 80: Phe-tRNA

Chain 12:



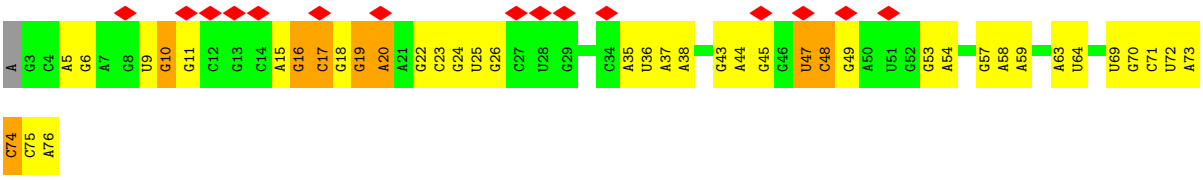
• Molecule 81: Met-tRNA

Chain 13:



• Molecule 81: Met-tRNA

Chain 11:



• Molecule 82: Ribosomal protein L37

Chain j:

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	15402	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	30.0165	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.108	Depositor
Minimum map value	-0.030	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.015	Depositor
Map size (Å)	464.8, 464.8, 464.8	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.162, 1.162, 1.162	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	5	0.46	0/86380	0.68	21/134721 (0.0%)
2	7	0.45	0/2836	0.62	0/4421
3	8	0.46	0/3581	0.66	0/5577
4	9	0.42	0/40509	0.66	9/63128 (0.0%)
5	A	0.36	0/1936	0.52	0/2596
6	B	0.34	0/3240	0.54	0/4339
7	C	0.36	0/2937	0.54	0/3946
8	D	0.31	0/2437	0.49	0/3264
9	E	0.30	0/1762	0.57	0/2362
10	G	0.30	0/1910	0.56	0/2569
11	H	0.31	0/1535	0.52	0/2063
12	I	0.32	0/1702	0.51	0/2272
13	J	0.28	0/1385	0.51	0/1852
14	K	0.37	0/1911	0.54	0/2549
15	L	0.32	0/1733	0.51	0/2316
16	M	0.32	0/1158	0.51	0/1547
17	N	0.37	0/1746	0.56	0/2338
18	O	0.38	0/1662	0.57	0/2222
19	P	0.37	0/1268	0.61	0/1700
20	Q	0.37	0/1539	0.59	0/2054
21	R	0.33	0/1524	0.54	0/2013
22	S	0.36	0/1501	0.49	0/2012
23	T	0.34	0/1326	0.49	0/1770
24	U	0.28	0/823	0.52	0/1104
25	V	0.34	0/983	0.49	0/1319
26	W	0.30	0/873	0.53	0/1158
27	X	0.31	0/984	0.52	0/1323
28	Y	0.33	0/1132	0.49	0/1504
29	Z	0.32	0/1130	0.49	0/1507
30	a	0.38	0/1191	0.56	0/1590
31	b	0.31	0/819	0.56	0/1081
32	c	0.34	0/771	0.48	0/1034

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	d	0.36	0/903	0.52	0/1216
34	e	0.38	0/1071	0.57	0/1429
35	f	0.39	0/895	0.51	0/1198
36	g	0.35	0/916	0.56	0/1220
37	h	0.31	0/1021	0.54	0/1348
38	i	0.30	0/841	0.53	0/1112
39	k	0.28	0/575	0.50	0/761
40	l	0.36	0/459	0.57	0/608
41	m	0.32	0/435	0.44	0/575
42	n	0.38	0/241	0.71	0/305
43	o	0.33	0/864	0.55	0/1140
44	p	0.37	0/718	0.57	0/953
45	r	0.34	0/1010	0.53	0/1354
46	AA	0.30	0/1747	0.49	0/2374
47	BB	0.30	0/1756	0.52	0/2350
48	CC	0.31	0/1753	0.51	0/2369
49	DD	0.27	0/1767	0.46	0/2378
50	EE	0.28	0/2118	0.52	0/2849
51	FF	0.28	0/1481	0.52	0/1991
52	GG	0.23	0/1946	0.50	0/2590
53	HH	0.25	0/1511	0.48	0/2022
54	II	0.27	0/1655	0.50	0/2205
55	JJ	0.30	0/1533	0.53	0/2047
56	KK	0.25	0/834	0.48	0/1125
57	LL	0.32	0/1195	0.50	0/1597
58	MM	0.21	0/880	0.50	0/1179
59	NN	0.30	0/1226	0.51	0/1649
60	OO	0.32	0/1029	0.54	0/1380
61	PP	0.25	0/1079	0.53	0/1441
62	QQ	0.28	0/1146	0.49	0/1534
63	RR	0.27	0/1082	0.54	0/1452
64	SS	0.27	0/1175	0.51	0/1575
65	TT	0.27	0/1115	0.52	0/1493
66	UU	0.27	0/805	0.49	0/1081
67	VV	0.29	0/644	0.46	0/860
68	WW	0.35	0/1051	0.51	0/1406
69	XX	0.32	0/1105	0.49	0/1476
70	YY	0.23	0/1028	0.45	0/1366
71	ZZ	0.25	0/604	0.54	0/810
72	aa	0.33	0/828	0.51	0/1109
73	bb	0.26	0/665	0.52	0/891
74	cc	0.26	0/490	0.38	0/656
75	dd	0.31	0/470	0.58	0/623

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
76	ee	0.27	0/462	0.52	0/607
77	ff	0.19	0/567	0.54	0/753
78	gg	0.23	0/2493	0.47	0/3394
79	10	0.40	0/261	0.59	0/404
80	12	0.34	0/1787	0.74	0/2783
81	11	0.28	0/1773	0.68	0/2763
81	13	0.37	0/1773	0.69	1/2763 (0.0%)
82	j	0.37	0/720	0.56	0/952
All	All	0.40	0/231727	0.62	31/340767 (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
1	5	0	1
4	9	0	1
5	A	0	1
7	C	0	2
8	D	0	1
9	E	0	2
14	K	0	1
17	N	0	2
18	O	0	1
19	P	0	1
20	Q	0	1
23	T	0	1
28	Y	0	2
29	Z	0	1
37	h	0	1
39	k	0	1
44	p	0	1
54	II	0	2
55	JJ	0	1
59	NN	0	1
60	OO	0	1
74	cc	0	1
All	All	0	27

There are no bond length outliers.

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	9	1835	A	C2'-C3'-O3'	7.42	120.63	109.50
1	5	4119	C	C2'-C3'-O3'	6.66	119.48	109.50
1	5	4944	C	C1'-O4'-C4'	-6.61	103.29	109.90
81	13	20	A	C2'-C3'-O3'	6.47	119.21	109.50
1	5	1440	U	C2'-C3'-O3'	5.90	118.34	109.50
4	9	1863	A	C1'-O4'-C4'	-5.81	103.89	109.70
1	5	3880	G	N9-C1'-C2'	5.70	120.54	112.00
1	5	3888	G	C2'-C3'-O3'	5.62	122.13	113.70
4	9	1396	A	C2'-C3'-O3'	5.60	117.90	109.50
1	5	1485	C	C2'-C3'-O3'	5.59	117.89	109.50
1	5	1818	G	C2'-C3'-O3'	5.59	117.89	109.50
1	5	217	C	C2'-C3'-O3'	5.55	122.02	113.70
1	5	4925	U	C2'-C3'-O3'	5.48	117.72	109.50
1	5	1891	A	N9-C1'-C2'	5.48	120.22	112.00
4	9	1137	U	C2'-C3'-O3'	5.40	121.81	113.70
1	5	4121	G	C2'-C3'-O3'	5.37	117.55	109.50
4	9	1060	A	C1'-O4'-C4'	-5.31	104.39	109.70
1	5	2098	G	N9-C1'-C2'	5.30	119.95	112.00
1	5	2753	G	N9-C1'-C2'	5.26	119.89	112.00
1	5	1916	G	N9-C1'-C2'	5.26	119.89	112.00
4	9	369	C	C2'-C3'-O3'	5.19	121.48	113.70
1	5	4170	A	C4'-C3'-O3'	5.18	117.17	109.40
1	5	4170	A	C2'-C3'-O3'	5.14	117.21	109.50
1	5	2007	G	N9-C1'-C2'	5.14	119.71	112.00
1	5	959	G	C2'-C3'-O3'	5.12	117.19	109.50
4	9	561	A	C2'-C3'-O3'	5.06	121.29	113.70
1	5	3673	C	C2'-C3'-O3'	5.05	117.08	109.50
4	9	1311	C	N1-C1'-C2'	5.03	119.54	112.00
1	5	2526	C	N1-C1'-C2'	5.01	119.52	112.00
4	9	892	U	N1-C1'-C2'	5.01	119.51	112.00
1	5	406	C	C2'-C3'-O3'	5.00	121.21	113.70

There are no chirality outliers.

All (27) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	5	2544	G	Sidechain
4	9	900	C	Sidechain
5	A	123	ARG	Sidechain
7	C	100	ARG	Sidechain
7	C	204	ARG	Sidechain
8	D	33	ARG	Sidechain
9	E	141	ARG	Sidechain

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Mol	Chain	Res	Type	Group
9	E	144	ARG	Sidechain
54	II	5	ARG	Sidechain
54	II	74	ARG	Sidechain
55	JJ	38	ARG	Sidechain
14	K	156	ARG	Sidechain
17	N	189	ARG	Sidechain
17	N	73	ARG	Sidechain
59	NN	106	ARG	Sidechain
18	O	74	ARG	Sidechain
60	OO	137	SER	Peptide
19	P	69	ARG	Sidechain
20	Q	108	ARG	Sidechain
23	T	130	ARG	Sidechain
28	Y	115	ARG	Sidechain
28	Y	84	ARG	Sidechain
29	Z	65	ARG	Sidechain
74	cc	63	ARG	Sidechain
37	h	112	ARG	Sidechain
39	k	17	ARG	Sidechain
44	p	49	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	5	77221	0	39013	613	0
2	7	2538	0	1286	12	0
3	8	3208	0	1629	24	0
4	9	36229	0	18300	306	0
5	A	1898	0	1993	14	0
6	B	3172	0	3310	24	0
7	C	2883	0	3053	22	0
8	D	2391	0	2424	9	0
9	E	1729	0	1887	14	0
10	G	1879	0	2027	13	0
11	H	1516	0	1597	10	0
12	I	1664	0	1712	3	0
13	J	1362	0	1399	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	K	1875	0	1995	8	0
15	L	1702	0	1820	7	0
16	M	1137	0	1211	3	0
17	N	1701	0	1749	18	0
18	O	1630	0	1778	6	0
19	P	1242	0	1274	10	0
20	Q	1515	0	1634	13	0
21	R	1508	0	1664	7	0
22	S	1462	0	1508	12	0
23	T	1298	0	1366	11	0
24	U	809	0	833	4	0
25	V	969	0	1031	4	0
26	W	860	0	903	3	0
27	X	967	0	1040	5	0
28	Y	1115	0	1205	8	0
29	Z	1107	0	1182	7	0
30	a	1162	0	1209	8	0
31	b	806	0	866	3	0
32	c	761	0	794	6	0
33	d	888	0	930	3	0
34	e	1053	0	1147	8	0
35	f	876	0	912	6	0
36	g	906	0	998	6	0
37	h	1013	0	1147	3	0
38	i	830	0	916	4	0
39	k	569	0	637	4	0
40	l	447	0	480	5	0
41	m	429	0	465	4	0
42	n	240	0	289	1	0
43	o	851	0	920	7	0
44	p	708	0	756	7	0
45	r	994	0	1051	8	0
46	AA	1710	0	1708	14	0
47	BB	1729	0	1803	17	0
48	CC	1716	0	1806	9	0
49	DD	1739	0	1832	10	0
50	EE	2076	0	2177	16	0
51	FF	1460	0	1509	10	0
52	GG	1923	0	2089	17	0
53	HH	1489	0	1582	12	0
54	II	1628	0	1706	14	0
55	JJ	1508	0	1626	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
56	KK	810	0	836	4	0
57	LL	1175	0	1249	6	0
58	MM	871	0	913	18	0
59	NN	1202	0	1289	9	0
60	OO	1016	0	1039	10	0
61	PP	1058	0	1104	9	0
62	QQ	1128	0	1195	10	0
63	RR	1068	0	1121	8	0
64	SS	1157	0	1213	9	0
65	TT	1097	0	1132	8	0
66	UU	795	0	862	7	0
67	VV	637	0	637	3	0
68	WW	1034	0	1080	5	0
69	XX	1087	0	1154	5	0
70	YY	1011	0	1083	11	0
71	ZZ	598	0	656	5	0
72	aa	814	0	867	10	0
73	bb	651	0	672	2	0
74	cc	488	0	514	5	0
75	dd	459	0	448	3	0
76	ee	457	0	502	4	0
77	ff	555	0	567	8	0
78	gg	2436	0	2393	25	0
79	10	234	0	118	1	0
80	12	1599	0	808	27	0
81	11	1585	0	804	27	0
81	13	1585	0	803	27	0
82	j	705	0	737	10	0
83	5	10	0	19	1	0
84	dd	1	0	0	0	0
84	g	1	0	0	0	0
84	j	1	0	0	0	0
84	m	1	0	0	0	0
84	o	1	0	0	0	0
84	p	1	0	0	0	0
85	12	32	0	11	1	0
86	12	11	0	8	1	0
87	11	31	0	11	0	0
87	13	31	0	11	1	0
88	13	8	0	8	2	0
All	All	215539	0	159042	1421	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 4.

All (1421) 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)
4:9:536:A:H61	4:9:547:G:H1	1.19	0.90
4:9:925:G:H1	4:9:1017:U:H3	1.18	0.90
1:5:2638:G:N2	1:5:2697:A:N1	2.19	0.89
1:5:976:G:H21	7:C:323:ARG:HD3	1.38	0.88
4:9:190:G:O2'	4:9:209:A:N6	2.07	0.87
1:5:1976:G:H1	1:5:1990:A:H61	1.23	0.86
1:5:3692:A:H62	1:5:3823:G:H21	1.25	0.84
1:5:2489:C:O2'	1:5:2491:C:N4	2.11	0.83
1:5:8:U:O2	10:G:113:TYR:OH	1.98	0.81
1:5:2553:A:H2	1:5:2765:A:H62	1.28	0.81
1:5:2457:G:H21	1:5:3672:G:N2	1.77	0.81
8:D:94:ASN:HD21	8:D:204:VAL:HG21	1.46	0.80
1:5:2395:A:O2'	1:5:2806:A:H1'	1.83	0.79
1:5:1976:G:H1	1:5:1990:A:N6	1.80	0.79
1:5:4751:G:H1	1:5:4948:C:H5	1.33	0.77
1:5:2361:G:N7	19:P:25:HIS:ND1	2.33	0.77
1:5:265:C:O2	1:5:266:C:N4	2.17	0.77
1:5:4039:G:N7	1:5:4041:C:N4	2.32	0.77
8:D:107:ARG:NH2	8:D:116:ASP:OD1	2.18	0.76
1:5:2416:G:N2	1:5:2427:G:O6	2.19	0.75
81:11:53:G:H2'	81:11:54:A:H8	1.50	0.75
1:5:3751:G:H21	1:5:3775:A:H8	1.34	0.75
1:5:1577:G:OP1	44:p:17:ARG:NH1	2.20	0.75
4:9:126:G:OP1	52:GG:198:ARG:NH1	2.20	0.75
1:5:976:G:H1	1:5:1279:A:H2	1.32	0.75
1:5:1555:G:O6	44:p:4:ARG:NH2	2.20	0.74
9:E:115:MET:O	45:r:87:ARG:NH1	2.20	0.74
1:5:4635:A:H8	1:5:5048:A:H61	1.34	0.74
2:7:72:U:O2	2:7:103:A:N6	2.19	0.74
4:9:1293:A:H61	4:9:1306:U:H3	1.33	0.74
1:5:3717:A:H2'	1:5:3718:A:C8	2.23	0.74
1:5:2313:A:O2'	1:5:2314:G:OP1	2.05	0.73
1:5:989:U:H3	1:5:1065:G:H1	1.34	0.73
11:H:113:GLU:OE2	11:H:115:ARG:NH2	2.20	0.72
74:cc:44:ARG:NH2	74:cc:60:GLU:O	2.22	0.72
4:9:816:A:OP2	55:JJ:10:ARG:NH2	2.23	0.71
64:SS:26:ILE:HD11	64:SS:54:LYS:HB2	1.72	0.71
12:I:38:ARG:HD2	12:I:83:ASP:HB2	1.73	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:2465:C:H1'	1:5:3672:G:H22	1.55	0.70
53:HH:138:GLU:OE2	59:NN:19:ARG:NH1	2.24	0.70
1:5:87:A:OP2	20:Q:173:LYS:NZ	2.24	0.70
4:9:1587:G:OP1	65:TT:77:LYS:NZ	2.25	0.70
4:9:693:A:H61	4:9:733:C:H42	1.39	0.69
1:5:4927:G:OP2	1:5:4927:G:N2	2.20	0.69
7:C:110:ARG:O	7:C:113:ARG:NH1	2.26	0.69
23:T:114:GLN:NE2	23:T:118:GLU:OE2	2.23	0.69
48:CC:196:ILE:HB	48:CC:223:TYR:HB2	1.75	0.69
1:5:1198:G:H2'	1:5:1199:G:C8	2.27	0.69
70:YY:117:VAL:HG21	70:YY:125:VAL:HG21	1.75	0.69
1:5:1802:A:N3	23:T:130:ARG:NH2	2.40	0.68
13:J:151:ILE:HD11	13:J:156:ARG:HG2	1.74	0.68
80:12:25:C:H2'	80:12:26:G:H8	1.58	0.68
4:9:1834:A:H2	4:9:1837:G:H1	1.41	0.68
51:FF:126:THR:O	51:FF:137:GLN:N	2.26	0.68
53:HH:31:GLU:OE2	53:HH:41:ARG:NH1	2.25	0.68
46:AA:36:GLN:O	46:AA:53:ARG:NH1	2.26	0.68
7:C:29:LYS:HB2	7:C:267:TRP:HH2	1.58	0.68
57:LL:101:ARG:NH1	69:XX:5:ARG:O	2.26	0.68
3:8:126:C:H1'	3:8:127:U:C6	2.30	0.67
1:5:4084:G:O6	5:A:72:ARG:NH2	2.27	0.67
4:9:1438:A:H2'	4:9:1439:A:C8	2.30	0.67
4:9:730:C:H2'	4:9:731:G:C8	2.30	0.67
1:5:2562:G:N2	1:5:2565:A:OP2	2.25	0.67
4:9:1664:A:O2'	4:9:1666:C:N4	2.26	0.67
4:9:910:G:OP2	21:R:173:ARG:NH1	2.28	0.67
1:5:1759:G:H1	1:5:1773:U:H3	1.41	0.67
1:5:235:A:OP1	7:C:201:ARG:NH2	2.28	0.66
1:5:3692:A:H62	1:5:3823:G:N2	1.93	0.66
1:5:3860:A:H61	1:5:4560:C:H5	1.42	0.66
1:5:1764:G:H8	1:5:1767:A:H62	1.41	0.66
1:5:1895:G:OP1	14:K:95:ARG:NH2	2.27	0.66
1:5:4635:A:H2	1:5:4663:G:H21	1.43	0.66
9:E:191:ARG:NH1	9:E:217:ASP:OD1	2.29	0.66
1:5:4099:G:H22	1:5:4109:G:H1	1.41	0.66
61:PP:18:ARG:NH1	64:SS:88:LYS:O	2.28	0.66
1:5:908:G:OP2	22:S:149:LYS:NZ	2.26	0.66
29:Z:88:ASP:OD1	29:Z:121:ARG:NH2	2.29	0.66
49:DD:123:LEU:HD11	49:DD:152:PHE:HB3	1.78	0.66
1:5:1188:C:H2'	1:5:1189:G:H8	1.61	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:1610:G:OP2	64:SS:132:ARG:NH1	2.28	0.65
1:5:956:A:N6	1:5:1283:G:O2'	2.26	0.65
1:5:2407:G:O6	40:l:2:SER:N	2.29	0.65
4:9:1616:U:H3	4:9:1620:A:H2	1.43	0.65
34:e:40:GLY:O	34:e:46:ARG:NH1	2.29	0.65
51:FF:39:ILE:HG23	51:FF:68:ILE:HD13	1.78	0.65
1:5:1177:U:H2'	1:5:1178:G:H8	1.62	0.65
1:5:4250:G:OP1	13:J:98:ASN:ND2	2.30	0.65
4:9:562:U:OP1	55:JJ:134:HIS:NE2	2.26	0.65
46:AA:52:LYS:NZ	67:VV:82:ASN:OD1	2.27	0.65
69:XX:63:ASN:ND2	69:XX:114:ASP:OD1	2.27	0.65
1:5:2504:C:H2'	1:5:2505:C:H2'	1.79	0.65
4:9:453:C:H2'	4:9:454:U:H5'	1.78	0.64
17:N:135:ILE:HG23	17:N:142:ILE:HD13	1.79	0.64
14:K:93:ARG:NH1	14:K:95:ARG:O	2.30	0.64
80:12:23:A:H2'	80:12:24:G:C8	2.32	0.64
58:MM:89:VAL:HG21	58:MM:109:VAL:HG21	1.79	0.64
1:5:271:C:H2'	1:5:272:U:C6	2.33	0.64
4:9:167:G:O2'	26:W:80:ARG:NH2	2.30	0.64
4:9:1693:G:H21	4:9:1834:A:H8	1.45	0.64
50:EE:129:ILE:HD11	50:EE:155:LYS:HA	1.79	0.64
66:UU:78:ASP:OD2	75:dd:44:ARG:NH1	2.28	0.64
1:5:4099:G:N2	1:5:4109:G:H22	1.95	0.64
13:J:114:ASP:OD1	64:SS:14:ARG:NH1	2.30	0.63
30:a:148:ALA:HB2	38:i:6:PRO:HB2	1.80	0.63
49:DD:70:THR:HG22	49:DD:86:LEU:HG	1.80	0.63
1:5:3635:A:N6	44:p:17:ARG:O	2.29	0.63
1:5:1372:A:OP1	17:N:202:ARG:NH2	2.29	0.63
49:DD:66:ILE:O	49:DD:70:THR:HG23	1.98	0.63
4:9:448:A:N6	54:II:29:LEU:HD13	2.14	0.63
1:5:4925:U:H4'	1:5:4926:C:C5'	2.28	0.63
4:9:308:G:OP1	54:II:53:LYS:NZ	2.22	0.63
81:13:63:A:H2'	81:13:64:U:C6	2.33	0.63
80:12:55:U:N3	80:12:58:A:OP2	2.31	0.63
1:5:4992:G:H2'	1:5:4993:G:C8	2.33	0.63
4:9:886:A:H3'	4:9:887:U:H5"	1.81	0.63
6:B:50:LYS:NZ	6:B:339:GLY:O	2.28	0.62
1:5:3732:A:H2'	1:5:3733:A:C8	2.35	0.62
6:B:384:GLU:OE2	26:W:14:TYR:OH	2.14	0.62
11:H:23:ARG:NH1	11:H:39:ASN:O	2.32	0.62
3:8:126:C:H1'	3:8:127:U:C5	2.34	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:1236:G:O2'	61:PP:131:PRO:O	2.18	0.62
4:9:1508:A:OP1	77:ff:83:LYS:NZ	2.24	0.62
62:QQ:146:ARG:NH2	81:13:33:C:OP2	2.33	0.62
1:5:2543:A:H2	1:5:2773:G:H1	1.46	0.62
7:C:140:LYS:HE2	7:C:245:HIS:HB2	1.82	0.62
1:5:2477:A:H2'	1:5:2478:C:C6	2.35	0.62
3:8:102:G:OP1	82:j:20:ARG:NH2	2.30	0.62
4:9:692:G:H2'	4:9:693:A:H8	1.64	0.62
4:9:981:A:H2'	4:9:982:G:C8	2.34	0.62
1:5:63:G:P	17:N:169:ARG:HH22	2.23	0.62
80:12:18:G:O2'	80:12:57:G:N2	2.30	0.62
50:EE:212:ASP:OD1	50:EE:213:ALA:N	2.33	0.62
1:5:956:A:H8	1:5:957:G:C8	2.18	0.61
43:o:63:THR:O	43:o:87:ARG:NH1	2.33	0.61
1:5:92:C:OP1	83:5:5101:SPD:N10	2.31	0.61
1:5:3911:C:H2'	1:5:3912:U:H6	1.65	0.61
1:5:4035:G:H2'	1:5:4036:G:C8	2.34	0.61
1:5:4037:C:H2'	1:5:4038:C:C6	2.36	0.61
4:9:1292:C:H2'	4:9:1293:A:H5"	1.81	0.61
1:5:1391:A:P	20:Q:181:ARG:HH22	2.24	0.61
1:5:1177:U:H2'	1:5:1178:G:C8	2.36	0.61
26:W:105:ARG:NH2	52:GG:150:GLU:OE1	2.34	0.61
1:5:1962:A:OP2	1:5:2024:G:N2	2.25	0.61
1:5:325:U:H2'	1:5:326:C:C6	2.36	0.61
4:9:881:G:H2'	4:9:882:U:C6	2.36	0.61
1:5:2864:A:H2'	1:5:2865:U:C6	2.36	0.60
24:U:26:THR:HG22	24:U:68:SER:HB2	1.82	0.60
81:13:23:C:H2'	81:13:24:G:C8	2.36	0.60
1:5:1077:C:OP1	1:5:1215:C:O2'	2.14	0.60
2:7:3:C:H2'	2:7:4:U:H6	1.66	0.60
58:MM:47:ALA:HB3	58:MM:74:ILE:HD13	1.83	0.60
1:5:2478:C:H2'	1:5:2479:G:C8	2.36	0.60
1:5:2848:G:O2'	1:5:3838:U:O4	2.16	0.60
4:9:72:C:H41	52:GG:170:ARG:NH1	2.00	0.60
4:9:1293:A:N6	4:9:1306:U:H3	1.99	0.60
80:12:63:C:H2'	80:12:64:A:H8	1.65	0.60
81:13:72:U:O4	81:13:73:A:N6	2.35	0.60
63:RR:36:GLU:OE1	63:RR:47:ARG:NH1	2.35	0.60
1:5:2318:G:N2	1:5:2321:G:OP2	2.23	0.60
4:9:1693:G:N2	4:9:1834:A:H8	2.00	0.60
10:G:139:VAL:HG11	10:G:238:LYS:HG3	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:HH:75:ILE:HG22	53:HH:79:LEU:HB2	1.82	0.60
81:11:23:C:H2'	81:11:24:G:H8	1.65	0.60
1:5:2520:C:H2'	1:5:2521:G:H8	1.65	0.60
1:5:2016:C:H2'	1:5:2017:A:H8	1.67	0.59
1:5:4036:G:H2'	1:5:4037:C:C6	2.37	0.59
4:9:791:C:H2'	4:9:792:C:C6	2.36	0.59
55:JJ:28:GLU:OE2	55:JJ:44:TRP:NE1	2.27	0.59
81:13:62:C:H2'	81:13:63:A:C8	2.36	0.59
1:5:3910:C:H2'	1:5:3911:C:C6	2.37	0.59
86:12:102:PHE:N	88:13:102:MET:O	2.35	0.59
1:5:424:U:H2'	1:5:425:U:C6	2.37	0.59
5:A:101:VAL:HG22	5:A:165:VAL:HG22	1.84	0.59
1:5:1758:G:H2'	1:5:1759:G:H8	1.67	0.59
8:D:94:ASN:ND2	8:D:204:VAL:HG21	2.17	0.59
1:5:2546:G:O2'	1:5:2547:G:OP1	2.15	0.59
1:5:4039:G:H4'	1:5:4049:U:H2'	1.84	0.59
4:9:743:U:H2'	4:9:744:G:C8	2.38	0.59
81:11:35:A:H2'	81:11:36:U:C6	2.37	0.59
1:5:1075:G:H1	1:5:1235:G:N2	2.00	0.59
1:5:3641:U:H5	1:5:3646:A:N7	2.00	0.59
10:G:139:VAL:HG11	10:G:238:LYS:CG	2.33	0.59
34:e:103:VAL:O	34:e:108:ARG:NH1	2.36	0.59
58:MM:25:ALA:O	58:MM:30:GLY:N	2.32	0.59
81:11:16:G:OP2	81:11:17:C:N4	2.35	0.59
1:5:717:U:H2'	1:5:718:C:C6	2.38	0.59
1:5:4751:G:N1	1:5:4948:C:H5	1.98	0.59
64:SS:101:ASN:OD1	64:SS:105:ASN:ND2	2.36	0.58
4:9:899:U:O4	4:9:900:C:N4	2.36	0.58
16:M:89:THR:HG22	16:M:91:TRP:H	1.68	0.58
55:JJ:32:ILE:HD11	55:JJ:40:LYS:HG3	1.85	0.58
1:5:2412:A:H2'	1:5:2413:U:C6	2.38	0.58
1:5:2639:U:HO2'	1:5:2694:G:H1	0.66	0.58
4:9:1595:U:H2'	4:9:1596:U:C6	2.38	0.58
80:12:11:C:H2'	80:12:12:U:C6	2.39	0.58
81:11:69:U:H2'	81:11:70:G:H8	1.68	0.58
1:5:1441:C:H2'	1:5:1442:C:C6	2.39	0.58
1:5:979:C:OP1	9:E:49:ASN:ND2	2.37	0.58
1:5:4038:C:H2'	1:5:4039:G:C8	2.38	0.58
22:S:99:ASP:OD2	22:S:108:GLN:NE2	2.35	0.58
47:BB:174:ARG:NH1	47:BB:175:GLU:OE2	2.36	0.58
4:9:958:G:H2'	4:9:959:G:C8	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:30:ARG:NH2	5:A:33:ASP:OD2	2.36	0.58
1:5:3961:G:C6	1:5:3963:A:H2'	2.39	0.58
1:5:4108:G:H2'	1:5:4109:G:C8	2.39	0.58
1:5:978:G:N2	1:5:1277:G:H22	2.02	0.58
6:B:312:LYS:HE2	6:B:380:GLN:HB3	1.85	0.58
47:BB:107:ARG:NH1	60:OO:133:THR:O	2.25	0.58
80:12:67:A:H2'	80:12:68:U:H6	1.69	0.58
1:5:1070:G:OP2	9:E:67:ARG:NH2	2.37	0.58
1:5:4047:A:O2'	1:5:4048:A:OP1	2.20	0.58
4:9:857:U:H2'	4:9:858:A:C8	2.38	0.57
1:5:1339:U:H2'	1:5:1340:C:C6	2.38	0.57
1:5:1472:C:H2'	1:5:1473:U:C6	2.39	0.57
1:5:2755:A:P	29:Z:65:ARG:HH22	2.27	0.57
4:9:821:G:C6	55:JJ:150:ARG:HG3	2.39	0.57
78:gg:192:THR:OG1	78:gg:213:ASP:OD2	2.16	0.57
1:5:2457:G:H21	1:5:3672:G:H21	1.50	0.57
1:5:4916:G:H2'	1:5:4917:C:C6	2.40	0.57
4:9:1741:U:OP1	54:II:42:ARG:NH2	2.38	0.57
4:9:1203:G:H2'	4:9:1204:A:C8	2.39	0.57
81:13:53:G:H2'	81:13:54:A:H8	1.68	0.57
1:5:4239:A:H2'	1:5:4240:G:C8	2.40	0.57
2:7:27:G:H21	2:7:55:A:N6	2.02	0.57
4:9:562:U:H2'	4:9:563:G:C8	2.39	0.57
6:B:167:GLN:OE1	6:B:204:GLN:NE2	2.31	0.57
1:5:4274:A:H2'	1:5:4275:G:C8	2.38	0.57
4:9:303:C:O2	54:II:184:ARG:NH2	2.35	0.57
4:9:1507:G:C4	77:ff:89:LYS:HB3	2.39	0.57
81:11:23:C:H2'	81:11:24:G:C8	2.40	0.57
81:11:71:C:H2'	81:11:72:U:H6	1.69	0.57
1:5:4053:A:H2'	1:5:4054:C:C6	2.38	0.57
76:ee:107:ARG:NH1	76:ee:110:GLN:OE1	2.36	0.57
1:5:1756:U:H2'	1:5:1757:U:C6	2.39	0.57
34:e:67:LYS:O	34:e:75:ARG:NH1	2.36	0.57
1:5:2657:G:O6	32:c:32:LYS:NZ	2.36	0.57
1:5:4637:G:H2'	1:5:4638:U:C6	2.39	0.57
1:5:1411(B):C:H2'	1:5:1411(C):C:C6	2.40	0.56
1:5:2004:U:O2	1:5:2016:C:H1'	2.04	0.56
1:5:2708:U:H2'	1:5:2709:C:C6	2.40	0.56
1:5:3923:A:H2'	1:5:3924:C:C6	2.40	0.56
1:5:4927:G:H3'	1:5:4928:C:O2	2.05	0.56
17:N:178:HIS:HA	17:N:181:HIS:NE2	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:1440:U:H2'	1:5:1441:C:C6	2.40	0.56
4:9:1822:A:H2'	4:9:1823:A:H5"	1.87	0.56
54:II:155:ASN:O	57:LL:21:LYS:NZ	2.38	0.56
1:5:216:C:H2'	1:5:217:C:H3'	1.86	0.56
1:5:4395:U:H6	1:5:4395:U:H5'	1.70	0.56
1:5:4693:C:OP1	11:H:64:ARG:NH1	2.38	0.56
4:9:1845:A:H2'	4:9:1846:G:C8	2.40	0.56
81:13:20:A:O2'	81:13:21:A:OP2	2.18	0.56
1:5:4274:A:H2'	1:5:4275:G:H8	1.70	0.56
4:9:928:G:H1	4:9:1013:U:H3	1.51	0.56
4:9:1274:G:C8	56:KK:43:LEU:HD11	2.41	0.56
80:12:63:C:H2'	80:12:64:A:C8	2.40	0.56
1:5:4966:A:OP2	6:B:126:LYS:NZ	2.34	0.56
80:12:67:A:H2'	80:12:68:U:C6	2.40	0.56
1:5:2758:G:O2'	1:5:2765:A:N3	2.27	0.56
4:9:107:A:H2'	4:9:108:G:C8	2.41	0.56
1:5:231:U:O2	28:Y:103:LYS:NZ	2.39	0.56
7:C:29:LYS:HB2	7:C:267:TRP:CH2	2.40	0.56
59:NN:54:LEU:HB3	59:NN:60:VAL:HB	1.88	0.56
4:9:1228:A:H2'	4:9:1229:G:C8	2.40	0.56
60:OO:95:ILE:HD11	60:OO:126:ILE:HD12	1.87	0.56
81:13:4:C:H2'	81:13:5:A:H8	1.70	0.56
1:5:1190:C:H2'	1:5:1191:C:C6	2.41	0.56
1:5:1734:G:N2	1:5:1735:U:O4	2.33	0.56
4:9:928:G:H2'	4:9:929:G:C8	2.41	0.56
4:9:1113:A:H2'	4:9:1114:U:C6	2.41	0.56
4:9:1692:U:H2'	4:9:1693:G:C8	2.40	0.56
6:B:74:GLU:OE1	6:B:285:TYR:OH	2.15	0.56
48:CC:76:LYS:NZ	48:CC:80:GLU:OE2	2.35	0.56
80:12:69:U:H2'	80:12:70:C:C6	2.41	0.56
1:5:280:G:H5"	17:N:14:LYS:HE2	1.88	0.55
1:5:1846:G:H2'	1:5:1847:C:C6	2.41	0.55
29:Z:100:VAL:HG13	29:Z:107:LYS:HA	1.87	0.55
81:11:9:U:H3	81:11:15:A:H62	1.54	0.55
1:5:978:G:N2	1:5:1277:G:H1	2.04	0.55
1:5:2503:G:C8	1:5:2503:G:H5"	2.41	0.55
1:5:4862:G:H2'	1:5:4863:G:C8	2.41	0.55
4:9:1395:C:O2'	4:9:1396:A:OP1	2.19	0.55
1:5:156:G:N2	1:5:157:U:O4	2.39	0.55
1:5:2520:C:H2'	1:5:2521:G:C8	2.40	0.55
4:9:552:G:H2'	4:9:553:U:C6	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:H:92:MET:HE2	11:H:179:ILE:HG22	1.88	0.55
1:5:4058:U:H2'	1:5:4059:C:C6	2.41	0.55
1:5:4925:U:H4'	1:5:4926:C:H5"	1.89	0.55
78:gg:11:LEU:HB3	78:gg:307:VAL:HB	1.89	0.55
4:9:693:A:H61	4:9:733:C:N4	2.02	0.55
6:B:189:THR:HG23	6:B:192:GLU:H	1.71	0.55
68:WW:6:VAL:HG12	68:WW:34:ILE:HD11	1.88	0.55
48:CC:169:TYR:OH	48:CC:175:GLY:O	2.21	0.55
62:QQ:16:LYS:NZ	62:QQ:123:ASP:OD2	2.38	0.55
1:5:2647:A:H62	1:5:2686:G:H8	1.53	0.55
78:gg:178:ASN:HB3	78:gg:183:LYS:HG3	1.89	0.55
1:5:2566:G:H2'	1:5:2567:G:C8	2.41	0.55
4:9:792:C:H2'	4:9:793:G:C8	2.41	0.55
4:9:792:C:H2'	4:9:793:G:H8	1.72	0.55
21:R:39:GLN:OE1	21:R:42:ARG:NH1	2.37	0.55
1:5:724:C:OP1	7:C:350:ARG:NH1	2.35	0.55
1:5:1198:G:H2'	1:5:1199:G:H8	1.69	0.55
1:5:2478:C:N4	1:5:2479:G:O6	2.40	0.54
4:9:1462:U:H2'	4:9:1464:C:C5	2.42	0.54
1:5:1475:G:H2'	1:5:1476:C:C6	2.43	0.54
1:5:4099:G:N2	1:5:4109:G:H1	2.04	0.54
4:9:942:G:H2'	4:9:943:U:C6	2.41	0.54
28:Y:54:GLU:OE1	28:Y:108:ARG:NH1	2.34	0.54
50:EE:100:ARG:HH21	50:EE:118:GLU:HG2	1.72	0.54
1:5:1970:A:H1'	1:5:2017:A:H61	1.72	0.54
1:5:3611:A:H2	1:5:5016:A:H8	1.55	0.54
4:9:549:C:H5"	4:9:550:C:OP2	2.08	0.54
4:9:945:U:H2'	4:9:946:U:C6	2.43	0.54
68:WW:11:LEU:HD22	68:WW:72:CYS:SG	2.47	0.54
4:9:1310:U:H2'	4:9:1311:C:C6	2.43	0.54
4:9:1667:U:H2'	4:9:1668:U:C6	2.43	0.54
81:11:5:A:H2'	81:11:6:G:H8	1.72	0.54
4:9:527:C:H2'	4:9:528:A:H8	1.73	0.54
1:5:1188:C:H2'	1:5:1189:G:C8	2.43	0.54
2:7:3:C:H2'	2:7:4:U:C6	2.43	0.54
4:9:907:G:H2'	4:9:908:A:C8	2.43	0.54
1:5:2478:C:H2'	1:5:2479:G:H8	1.72	0.54
1:5:2566:G:H2'	1:5:2567:G:H8	1.73	0.54
1:5:4413:C:H5	1:5:4429:C:H42	1.54	0.54
4:9:72:C:H41	52:GG:170:ARG:HH12	1.54	0.54
51:FF:126:THR:HG21	74:cc:27:CYS:SG	2.47	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:1317:U:OP1	30:a:21:ARG:NH2	2.35	0.54
17:N:155:VAL:O	17:N:162:ARG:NH2	2.40	0.54
58:MM:75:ASN:HB3	58:MM:128:PHE:CZ	2.42	0.54
1:5:1758:G:H2'	1:5:1759:G:C8	2.42	0.54
6:B:80:GLU:OE1	6:B:323:TYR:OH	2.24	0.54
9:E:185:ASN:ND2	9:E:274:LEU:O	2.37	0.54
1:5:3938:G:N2	1:5:4171:C:OP2	2.41	0.54
4:9:1404:U:OP1	66:UU:21:ARG:NH2	2.39	0.54
32:c:31:TYR:OH	32:c:59:GLU:OE1	2.21	0.54
1:5:1238:A:O2'	1:5:1239:C:OP1	2.24	0.53
1:5:2412:A:H2'	1:5:2413:U:H6	1.73	0.53
1:5:4648:A:OP1	21:R:62:ARG:NH2	2.41	0.53
4:9:1227:G:C2	4:9:1228:A:C8	2.96	0.53
74:cc:43:ILE:HG22	74:cc:65:ALA:HB3	1.89	0.53
81:11:71:C:H2'	81:11:72:U:C6	2.42	0.53
1:5:264:C:H5"	1:5:265:C:OP2	2.08	0.53
1:5:2088:A:H5"	1:5:2089:G:H3'	1.90	0.53
4:9:1563:G:OP1	65:TT:121:ARG:NH1	2.42	0.53
4:9:1597:C:H4'	4:9:1603:G:O6	2.09	0.53
1:5:4260:U:H2'	1:5:4261:C:C6	2.42	0.53
60:OO:113:GLN:NE2	72:aa:44:ILE:O	2.42	0.53
78:gg:73:SER:OG	78:gg:117:ASN:ND2	2.33	0.53
1:5:3707:U:H2'	1:5:3708:C:C6	2.44	0.53
1:5:4233:A:OP2	43:o:97:LYS:NZ	2.38	0.53
4:9:881:G:H2'	4:9:882:U:H6	1.73	0.53
18:O:12:ARG:O	22:S:171:ARG:NH2	2.41	0.53
62:QQ:146:ARG:NH1	81:13:35:A:OP2	2.41	0.53
78:gg:83:TRP:HA	78:gg:107:ASP:OD1	2.08	0.53
1:5:1450:C:O2'	1:5:2104:A:H1'	2.08	0.53
4:9:223:C:H2'	4:9:224:A:C8	2.44	0.53
4:9:871:U:OP1	57:LL:153:LYS:NZ	2.31	0.53
4:9:952:G:OP1	47:BB:56:LYS:NZ	2.32	0.53
64:SS:30:ILE:HG22	64:SS:36:VAL:HG11	1.89	0.53
1:5:1772:C:H2'	1:5:1773:U:O4'	2.09	0.53
1:5:3717:A:OP2	1:5:3735:G:N2	2.42	0.53
1:5:3948:C:H5"	1:5:3949:A:OP2	2.09	0.53
1:5:4188:U:H2'	1:5:4189:U:C6	2.44	0.53
4:9:56:G:OP2	70:YY:115:LYS:NZ	2.33	0.53
4:9:878:G:H22	4:9:908:A:H2	1.56	0.53
15:L:28:GLN:OE1	17:N:202:ARG:NH1	2.39	0.53
80:12:52:U:H2'	80:12:53:G:H8	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:115:U:H2'	4:9:116:U:C6	2.44	0.53
4:9:164:A:H3'	4:9:165:G:H21	1.74	0.53
4:9:730:C:H2'	4:9:731:G:H8	1.72	0.53
4:9:804:U:H2'	4:9:805:U:C6	2.44	0.53
62:QQ:86:GLN:HE22	62:QQ:122:ALA:HA	1.73	0.53
1:5:134:G:C8	1:5:134:G:H5'	2.44	0.53
1:5:1686:C:OP1	31:b:19:ASN:ND2	2.40	0.53
1:5:1992:U:O2'	1:5:2002:A:OP1	2.15	0.53
1:5:2632:U:H2'	1:5:2633:U:C6	2.43	0.53
4:9:64:A:H2	4:9:83:A:H62	1.57	0.53
4:9:692:G:H2'	4:9:693:A:C8	2.44	0.53
4:9:1736:G:H2'	4:9:1737:G:H8	1.74	0.53
4:9:1834:A:H2	4:9:1837:G:N1	2.07	0.53
1:5:1947:U:C4	41:m:82:VAL:HG21	2.43	0.53
4:9:1845:A:H2'	4:9:1846:G:H8	1.73	0.53
1:5:3904:G:O2'	1:5:3905:A:OP1	2.26	0.53
74:cc:7:GLN:N	74:cc:7:GLN:OE1	2.42	0.53
1:5:424:U:H2'	1:5:425:U:H6	1.74	0.52
11:H:173:ARG:NH1	41:m:99:LYS:O	2.38	0.52
55:JJ:155:LYS:HE2	55:JJ:156:HIS:CE1	2.44	0.52
1:5:164:G:H2'	1:5:165:A:C8	2.44	0.52
1:5:1353:G:N7	20:Q:104:ARG:NH2	2.57	0.52
4:9:894:G:H2'	4:9:895:G:H8	1.75	0.52
22:S:132:ILE:HG23	22:S:136:LYS:HB2	1.92	0.52
52:GG:48:TYR:OH	52:GG:119:LYS:O	2.26	0.52
81:13:4:C:H2'	81:13:5:A:C8	2.45	0.52
1:5:63:G:OP1	17:N:169:ARG:NH2	2.32	0.52
1:5:2570:U:H2'	1:5:2571:C:C6	2.44	0.52
4:9:1736:G:H2'	4:9:1737:G:C8	2.43	0.52
58:MM:81:ASP:OD2	58:MM:84:LYS:NZ	2.37	0.52
1:5:164:G:H2'	1:5:165:A:H8	1.74	0.52
1:5:3865:A:H61	1:5:3881:G:H1	1.57	0.52
1:5:4537:C:H2'	1:5:4538:G:C8	2.44	0.52
3:8:71:A:OP2	28:Y:50:ARG:NH1	2.42	0.52
78:gg:231:ASP:OD1	78:gg:231:ASP:N	2.43	0.52
81:11:5:A:H2'	81:11:6:G:C8	2.44	0.52
1:5:3799:A:OP1	25:V:64:THR:HG21	2.09	0.52
41:m:68:MET:HG2	41:m:79:PRO:HA	1.91	0.52
47:BB:126:ASP:OD1	47:BB:136:ARG:HD3	2.09	0.52
60:OO:95:ILE:HB	60:OO:129:ILE:HG23	1.91	0.52
1:5:2543:A:H5'	3:8:127:U:O2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:H:14:GLU:OE2	11:H:53:LYS:NZ	2.41	0.52
47:BB:25:PHE:HA	47:BB:28:LYS:HG2	1.91	0.52
48:CC:253:PRO:HA	48:CC:256:TRP:CE2	2.45	0.52
58:MM:31:LEU:HD13	58:MM:89:VAL:HG13	1.91	0.52
78:gg:294:ASP:OD1	78:gg:296:GLN:N	2.42	0.52
1:5:1308:C:H2'	1:5:1309:C:C6	2.45	0.52
4:9:1809:A:H2'	4:9:1810:U:C6	2.45	0.52
4:9:1854:U:OP1	60:OO:150:ARG:NH2	2.38	0.52
81:13:23:C:H2'	81:13:24:G:H8	1.72	0.52
1:5:2055:G:O6	22:S:156:HIS:ND1	2.43	0.52
1:5:3932:U:H2'	1:5:3933:G:H8	1.75	0.52
4:9:1253:A:H4'	4:9:1254:C:H5"	1.90	0.52
1:5:1:C:H42	3:8:156:U:H3	1.57	0.52
1:5:3823:G:O5'	1:5:3823:G:H8	1.92	0.52
4:9:1776:G:H2'	4:9:1777:G:H8	1.74	0.52
12:I:66:GLU:OE1	12:I:69:ARG:NH1	2.43	0.52
24:U:80:LYS:HG2	24:U:110:TYR:CE2	2.45	0.52
4:9:1611:G:OP2	64:SS:121:ARG:NH2	2.33	0.52
39:k:37:ARG:HD3	39:k:38:CYS:O	2.10	0.52
47:BB:46:LYS:HE2	60:OO:19:PRO:HB2	1.91	0.52
1:5:4400:G:H2'	1:5:4401:G:C5'	2.41	0.51
1:5:1975:G:N2	1:5:1983:A:OP1	2.43	0.51
1:5:2490:U:H2'	1:5:2491:C:C6	2.45	0.51
1:5:4695:C:P	11:H:71:ARG:HH22	2.33	0.51
4:9:564:A:N6	4:9:586:G:O2'	2.34	0.51
4:9:695:C:H2'	4:9:696:G:C8	2.46	0.51
4:9:1248:U:H2'	4:9:1249:C:C6	2.45	0.51
4:9:1279:C:H2'	4:9:1280:G:H8	1.75	0.51
70:YY:86:GLU:OE2	70:YY:90:ARG:NH1	2.28	0.51
78:gg:107:ASP:OD2	78:gg:125:ARG:NH1	2.41	0.51
1:5:4233:A:C8	1:5:4235:G:C8	2.98	0.51
4:9:178:C:H2'	4:9:179:C:C6	2.44	0.51
4:9:1101:U:H2'	4:9:1102:G:C8	2.45	0.51
1:5:86:U:H2'	1:5:87:A:C8	2.45	0.51
1:5:2004:U:C2	1:5:2016:C:H1'	2.45	0.51
2:7:55:A:H4'	13:J:155:HIS:HB2	1.92	0.51
4:9:200:G:H2'	4:9:201:C:C6	2.44	0.51
4:9:880:G:H2'	4:9:881:G:C8	2.46	0.51
18:O:80:PHE:O	18:O:83:THR:HG22	2.10	0.51
21:R:99:MET:HE1	21:R:127:VAL:HG12	1.92	0.51
48:CC:102:LEU:HG	48:CC:130:ILE:HG12	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:11:9:U:O4	81:11:15:A:N7	2.43	0.51
1:5:2653:C:P	36:g:54:ARG:HH21	2.34	0.51
68:WW:80:ASP:OD1	68:WW:124:LYS:NZ	2.28	0.51
1:5:1771:U:H2'	1:5:1772:C:C6	2.45	0.51
1:5:4481:U:H2'	1:5:4482:U:C6	2.46	0.51
3:8:155:C:OP1	10:G:142:ARG:NE	2.32	0.51
1:5:1191:C:H2'	1:5:1192:C:C6	2.45	0.51
1:5:4051:C:H2'	1:5:4052:C:C6	2.46	0.51
1:5:4400:G:H2'	1:5:4401:G:H5"	1.93	0.51
1:5:2622:G:OP2	24:U:84:LYS:NZ	2.32	0.51
4:9:522:A:H5"	55:JJ:145:PRO:HD2	1.92	0.51
4:9:1679:A:C2	51:FF:60:ARG:HA	2.46	0.51
4:9:1797:U:H2'	4:9:1798:C:C6	2.46	0.51
1:5:1922:G:H2'	1:5:1923:A:H5'	1.92	0.51
1:5:4950:U:O2'	1:5:4951:G:OP1	2.22	0.51
4:9:106:C:OP1	4:9:431:G:O2'	2.24	0.51
4:9:996:A:H2'	4:9:997:A:C8	2.46	0.51
1:5:1693:U:OP1	20:Q:143:ARG:NH2	2.43	0.51
57:LL:48:LYS:NZ	57:LL:52:GLU:OE2	2.40	0.51
80:12:19:G:C5	80:12:57:G:C2	2.99	0.51
4:9:1407:U:H2'	4:9:1408:U:C6	2.46	0.50
4:9:1488:C:O2'	4:9:1490:G:OP2	2.23	0.50
14:K:148:SER:HA	14:K:244:ARG:HH22	1.76	0.50
57:LL:18:GLN:HG3	57:LL:33:LEU:HD22	1.92	0.50
1:5:76:A:OP2	15:L:74:ARG:NH1	2.41	0.50
1:5:1368:A:H1'	28:Y:1:MET:HE2	1.94	0.50
1:5:3710:G:H1'	1:5:3712:A:N6	2.26	0.50
1:5:4638:U:H2'	1:5:4639:G:N3	2.26	0.50
4:9:212:C:H2'	4:9:213:G:C8	2.46	0.50
78:gg:178:ASN:HD22	78:gg:183:LYS:HD3	1.76	0.50
1:5:4635:A:H8	1:5:5048:A:N6	2.07	0.50
1:5:4759:C:H2'	1:5:4760:G:C8	2.46	0.50
4:9:533:A:H2'	4:9:534:G:H8	1.76	0.50
81:13:74:C:O2'	81:13:75:C:OP1	2.21	0.50
1:5:271:C:H2'	1:5:272:U:H6	1.74	0.50
1:5:2594:C:OP1	5:A:70:LYS:NZ	2.41	0.50
49:DD:123:LEU:HD11	49:DD:152:PHE:CB	2.41	0.50
50:EE:199:GLU:OE2	50:EE:209:HIS:NE2	2.28	0.50
1:5:655:C:P	7:C:268:ARG:HE	2.33	0.50
1:5:978:G:H22	1:5:1277:G:H1	1.60	0.50
1:5:1437:C:N4	31:b:106:ARG:HH11	2.08	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:2415:U:H2'	1:5:2416:G:C8	2.47	0.50
1:5:2517:A:N3	1:5:2539:C:O2'	2.43	0.50
1:5:2540:C:H2'	1:5:2541:G:H8	1.77	0.50
2:7:40:U:O2	13:J:75:ARG:NH1	2.44	0.50
4:9:754:G:H2'	4:9:755:C:C6	2.46	0.50
21:R:44:LEU:HD22	21:R:49:LEU:HD12	1.93	0.50
80:12:42:G:H2'	80:12:43:G:H8	1.76	0.50
1:5:1468:C:H2'	1:5:1469:C:C6	2.47	0.50
1:5:1976:G:OP1	1:5:1984:A:H4'	2.12	0.50
4:9:1588:A:H2'	4:9:1589:A:C8	2.46	0.50
1:5:295:A:OP2	43:o:39:ARG:NH1	2.41	0.50
1:5:4626:A:OP2	6:B:224:LYS:NZ	2.33	0.50
1:5:4694:G:N3	1:5:4694:G:H2'	2.27	0.50
4:9:1864:U:OP2	72:aa:4:LYS:NZ	2.33	0.50
5:A:27:ALA:O	5:A:128:ARG:NH2	2.41	0.50
23:T:41:ASP:OD1	23:T:99:SER:OG	2.27	0.50
45:r:103:HIS:ND1	45:r:105:ASP:OD1	2.44	0.50
80:12:22:G:H2'	80:12:23:A:H8	1.77	0.50
81:11:69:U:H2'	81:11:70:G:C8	2.46	0.50
1:5:2300:A:N7	7:C:143:ARG:NH1	2.60	0.50
1:5:2900:U:H2'	1:5:2901:G:C8	2.47	0.50
1:5:3599:A:H2'	1:5:3600:G:C8	2.47	0.50
4:9:164:A:H3'	4:9:165:G:N2	2.26	0.50
4:9:344:U:H2'	4:9:345:U:C6	2.46	0.50
47:BB:153:THR:HB	47:BB:155:TYR:CE2	2.46	0.50
81:13:58:A:H1'	81:13:60:A:N7	2.27	0.50
1:5:2503:G:H5"	1:5:2503:G:H8	1.74	0.50
49:DD:35:SER:HA	49:DD:99:ILE:HD11	1.94	0.50
1:5:100:C:H2'	1:5:101:A:H8	1.77	0.49
1:5:4459:U:H2'	1:5:4460:U:C6	2.46	0.49
1:5:4574:U:H3'	1:5:4575:G:H5"	1.94	0.49
1:5:4944:C:OP1	1:5:4944:C:H4'	2.12	0.49
1:5:5066:U:H2'	1:5:5067:U:C6	2.46	0.49
52:GG:58:LYS:HA	52:GG:107:SER:HB2	1.93	0.49
1:5:1468:C:H2'	1:5:1469:C:H6	1.77	0.49
1:5:86:U:H2'	1:5:87:A:H8	1.76	0.49
1:5:1354:A:OP1	20:Q:108:ARG:NH1	2.45	0.49
1:5:2466:G:O5'	1:5:2466:G:H8	1.94	0.49
1:5:4481:U:H2'	1:5:4482:U:H6	1.76	0.49
55:JJ:178:ALA:O	55:JJ:182:GLN:HG2	2.12	0.49
58:MM:53:ALA:HA	58:MM:79:VAL:O	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:708:G:OP1	35:f:89:ARG:NH2	2.41	0.49
1:5:1444:G:H21	1:5:2110:G:H1	1.60	0.49
1:5:1472:C:H2'	1:5:1473:U:H6	1.75	0.49
4:9:894:G:H2'	4:9:895:G:C8	2.46	0.49
4:9:1017:U:H2'	4:9:1018:U:C6	2.47	0.49
4:9:1375:G:H2'	4:9:1376:A:C8	2.47	0.49
4:9:1397:U:O4	62:QQ:12:VAL:HA	2.12	0.49
4:9:1776:G:H2'	4:9:1777:G:C8	2.47	0.49
5:A:29:LEU:O	5:A:123:ARG:NH1	2.43	0.49
50:EE:198:ARG:NH2	50:EE:206:ASP:OD2	2.35	0.49
69:XX:107:ARG:HG2	69:XX:107:ARG:HH11	1.77	0.49
1:5:2864:A:H2'	1:5:2865:U:H6	1.78	0.49
1:5:4305:G:N3	1:5:4305:G:H2'	2.27	0.49
2:7:105:C:OP2	12:I:203:ARG:NH1	2.45	0.49
3:8:125:C:H1'	3:8:126:C:H3'	1.93	0.49
4:9:1536:G:H2'	4:9:1537:A:C8	2.47	0.49
27:X:148:ASP:OD2	27:X:152:LYS:NZ	2.40	0.49
46:AA:142:LEU:O	67:VV:60:ARG:NH2	2.46	0.49
1:5:424:U:OP1	19:P:34:GLN:NE2	2.34	0.49
1:5:1312:A:O2'	34:e:44:ARG:NH2	2.46	0.49
4:9:1351:G:O2'	4:9:1378:A:N1	2.45	0.49
1:5:2090:U:OP2	7:C:307:LYS:NZ	2.45	0.49
1:5:2440:U:O2'	1:5:2441:C:OP1	2.29	0.49
4:9:527:C:H2'	4:9:528:A:C8	2.47	0.49
4:9:1201:U:H2'	4:9:1202:U:C6	2.47	0.49
4:9:1620:A:OP1	61:PP:115:TYR:OH	2.16	0.49
10:G:212:HIS:CE1	10:G:213:ASP:HB3	2.48	0.49
59:NN:55:ARG:NH1	59:NN:56:ASP:OD1	2.46	0.49
1:5:4038:C:H2'	1:5:4039:G:H8	1.78	0.49
4:9:651:U:H2'	4:9:652:U:C6	2.48	0.49
46:AA:155:ARG:HG2	46:AA:156:TYR:CD2	2.48	0.49
48:CC:60:TRP:O	48:CC:71:LYS:NZ	2.34	0.49
78:gg:174:VAL:HB	78:gg:188:HIS:HB2	1.95	0.49
81:11:25:U:C2	81:11:26:G:C8	3.00	0.49
1:5:1435:G:O2'	1:5:2105:A:N1	2.40	0.49
1:5:1961:G:O2'	1:5:2025:A:N6	2.46	0.49
1:5:2411:C:H2'	1:5:2412:A:H8	1.78	0.49
1:5:2438:A:O2'	1:5:2440:U:OP2	2.28	0.49
1:5:4919:G:C6	1:5:4920:C:N4	2.81	0.49
4:9:533:A:H2'	4:9:534:G:C8	2.47	0.49
4:9:1781:A:H2'	4:9:1782:G:C8	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:c:47:ILE:HD12	32:c:94:LEU:HD12	1.94	0.49
47:BB:171:ILE:HG12	47:BB:174:ARG:NH2	2.27	0.49
62:QQ:53:GLU:OE1	62:QQ:85:ARG:NH1	2.41	0.49
1:5:660:G:H2'	1:5:661:C:C6	2.48	0.48
1:5:907:C:H2'	1:5:908:G:H8	1.77	0.48
3:8:8:U:H2'	3:8:9:A:C8	2.48	0.48
4:9:1865:C:OP1	72:aa:87:ARG:NH1	2.38	0.48
7:C:13:GLU:OE1	7:C:161:TYR:OH	2.18	0.48
62:QQ:34:VAL:HB	62:QQ:42:ILE:HD11	1.95	0.48
4:9:196:C:H2'	4:9:197:U:C6	2.49	0.48
48:CC:134:ASN:OD1	48:CC:167:ARG:NH2	2.46	0.48
81:13:35:A:H2'	81:13:36:U:C6	2.48	0.48
1:5:460:C:H2'	1:5:461:G:H8	1.78	0.48
1:5:2756:G:O6	29:Z:51:ARG:NH2	2.35	0.48
4:9:67:C:H41	52:GG:163:ASN:HA	1.78	0.48
78:gg:116:ASP:OD1	78:gg:118:ARG:NH1	2.42	0.48
1:5:932:A:H2'	1:5:939:G:O6	2.12	0.48
1:5:2708:U:H2'	1:5:2709:C:C5	2.48	0.48
1:5:4942:C:H4'	1:5:4943:A:OP1	2.14	0.48
4:9:1230:C:H2'	4:9:1231:C:C6	2.48	0.48
4:9:1489:A:H4'	4:9:1490:G:OP2	2.13	0.48
80:12:28:C:H2'	80:12:29:A:C8	2.48	0.48
1:5:233:U:H3'	1:5:234:G:H5"	1.94	0.48
1:5:3969:G:H2'	1:5:3970:G:C8	2.48	0.48
4:9:17:C:H2'	4:9:18:C:C6	2.48	0.48
4:9:669:A:H5'	4:9:669:A:H8	1.78	0.48
4:9:987:A:OP1	72:aa:32:LYS:NZ	2.34	0.48
4:9:1308:U:H1'	77:ff:135:HIS:CE1	2.49	0.48
7:C:335:MET:O	7:C:339:THR:HG23	2.13	0.48
1:5:484:U:O2'	1:5:485:C:OP1	2.30	0.48
1:5:4772:C:H41	1:5:4863:G:H1	1.60	0.48
17:N:124:ASP:OD1	17:N:125:SER:N	2.44	0.48
60:OO:43:HIS:CD2	60:OO:52:THR:HG1	2.25	0.48
1:5:1604:G:H2'	1:5:1605:G:C8	2.48	0.48
4:9:377:G:OP1	54:II:98:LYS:NZ	2.40	0.48
4:9:1399:C:OP1	78:gg:100:ARG:NH1	2.46	0.48
52:GG:7:PHE:HB2	52:GG:113:ILE:HD12	1.96	0.48
78:gg:191:HIS:CG	78:gg:195:LEU:HD21	2.49	0.48
1:5:4870:G:H2'	16:M:91:TRP:CZ2	2.48	0.48
1:5:4967:A:H2'	1:5:4968:A:C8	2.49	0.48
3:8:93:C:OP1	82:j:76:HIS:HE1	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:13:12:C:H2'	81:13:13:G:C8	2.48	0.48
81:13:58:A:H5'	81:13:58:A:C8	2.49	0.48
1:5:181:C:N4	1:5:182:G:O6	2.46	0.48
1:5:2583:C:OP2	36:g:76:ARG:NH1	2.37	0.48
1:5:3692:A:N6	1:5:3823:G:H21	2.02	0.48
2:7:7:G:OP1	8:D:33:ARG:NE	2.40	0.48
22:S:45:TRP:CZ2	22:S:61:ILE:HG13	2.48	0.48
50:EE:43:PRO:HD2	50:EE:46:ILE:HD12	1.96	0.48
1:5:67:C:OP2	1:5:312:G:N2	2.47	0.48
1:5:1440:U:H2'	1:5:1441:C:C5	2.48	0.48
1:5:1890:G:N2	1:5:1939:A:H61	2.12	0.48
3:8:75:G:OP2	28:Y:74:TYR:OH	2.26	0.48
3:8:86:U:O2'	3:8:87:G:OP1	2.32	0.48
4:9:903:A:H2'	4:9:904:A:C8	2.49	0.48
4:9:1354:G:N2	4:9:1357:A:OP2	2.35	0.48
14:K:218:GLY:O	14:K:245:ARG:NH2	2.37	0.48
55:JJ:170:PRO:O	55:JJ:175:ARG:NH1	2.44	0.48
70:YY:86:GLU:CD	70:YY:87:PRO:HD2	2.39	0.48
81:13:47:U:H3'	81:13:48:C:H5'	1.96	0.48
1:5:1179:U:H5'	1:5:1179:U:C6	2.49	0.47
1:5:1380:G:H4'	1:5:1381:U:O2	2.14	0.47
1:5:1558:A:H2'	1:5:1559:G:H8	1.79	0.47
1:5:2361:G:C5	19:P:25:HIS:CE1	3.02	0.47
1:5:2520:C:O2	1:5:2640:G:N2	2.47	0.47
1:5:2683:C:H2'	1:5:2684:C:C6	2.49	0.47
1:5:4508:C:N3	1:5:4512:U:H5	2.11	0.47
4:9:1404:U:P	66:UU:21:ARG:HH22	2.37	0.47
68:WW:3:ARG:HD3	68:WW:6:VAL:HG22	1.95	0.47
1:5:1170:G:N1	1:5:1192:C:N3	2.63	0.47
1:5:4174:U:H2'	1:5:4175:G:H8	1.79	0.47
1:5:4500:U:H2'	1:5:4501:U:C6	2.49	0.47
3:8:6:C:H2'	3:8:7:U:C6	2.49	0.47
4:9:880:G:H2'	4:9:881:G:H8	1.78	0.47
81:11:47:U:H3'	81:11:48:C:H5'	1.97	0.47
1:5:2404:A:H61	1:5:2787:A:H61	1.61	0.47
1:5:2458:C:OP1	17:N:67:ARG:NH1	2.42	0.47
10:G:111:PRO:HD2	10:G:114:ILE:HD12	1.96	0.47
1:5:52:G:H4'	1:5:1529:G:H4'	1.95	0.47
1:5:2664:G:H4'	1:5:2677:G:H4'	1.97	0.47
1:5:4915:G:N1	1:5:4916:G:C5	2.83	0.47
4:9:367:U:H4'	4:9:371:A:C8	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:1613:G:OP1	64:SS:88:LYS:NZ	2.40	0.47
4:9:1653:U:H2'	4:9:1654:G:C8	2.49	0.47
56:KK:32:HIS:CE1	56:KK:34:GLU:HB3	2.49	0.47
58:MM:92:CYS:SG	58:MM:103:VAL:HG13	2.54	0.47
63:RR:21:TYR:CE1	63:RR:58:MET:HE1	2.49	0.47
80:12:49:C:H2'	80:12:50:U:C6	2.49	0.47
1:5:268:G:H2'	1:5:269:G:H8	1.79	0.47
1:5:922(A):G:H2'	1:5:922(B):C:C6	2.50	0.47
1:5:1344:C:H2'	1:5:1345:A:C8	2.49	0.47
4:9:1396:A:O2'	4:9:1397:U:OP1	2.32	0.47
7:C:218:VAL:HA	7:C:229:LEU:CD1	2.44	0.47
9:E:219:TYR:OH	9:E:249:ARG:HD3	2.14	0.47
25:V:87:SER:HA	25:V:97:TYR:HB3	1.97	0.47
69:XX:63:ASN:HD22	69:XX:114:ASP:CG	2.18	0.47
1:5:1346:C:H2'	1:5:1347:G:H8	1.80	0.47
1:5:1405:C:H2'	1:5:1406:G:C8	2.48	0.47
1:5:1483:C:H5"	1:5:1483:C:O2	2.14	0.47
1:5:1855:G:OP1	31:b:4:SER:HB2	2.14	0.47
1:5:1973:G:H2'	1:5:1974:U:C5	2.49	0.47
1:5:2601:A:N6	1:5:2744:A:OP2	2.46	0.47
1:5:3770:U:H2'	1:5:3771:C:C6	2.50	0.47
4:9:583:A:OP2	55:JJ:162:ARG:NH2	2.47	0.47
4:9:1448:A:OP1	66:UU:30:LYS:NZ	2.47	0.47
4:9:1614:A:H2'	4:9:1615:U:H6	1.80	0.47
6:B:137:TRP:O	6:B:143:LYS:NZ	2.46	0.47
9:E:205:ASP:O	9:E:263:LYS:NZ	2.37	0.47
11:H:129:ARG:HG2	11:H:157:SER:HB3	1.97	0.47
71:ZZ:79:ILE:HB	71:ZZ:83:LEU:HD23	1.97	0.47
81:13:57:G:H2'	81:13:58:A:H5"	1.95	0.47
1:5:260:C:H2'	1:5:261:G:C8	2.49	0.47
1:5:671:G:H2'	1:5:672:C:C6	2.50	0.47
1:5:746:A:H2'	1:5:913:U:O4	2.14	0.47
1:5:1884:C:H4'	1:5:2070:U:C4	2.50	0.47
1:5:1960:A:H4'	1:5:1961:G:OP2	2.15	0.47
1:5:3947:A:H2'	1:5:3948:C:C6	2.50	0.47
1:5:4049:U:H3'	1:5:4050:A:H8	1.79	0.47
1:5:4258:C:H5'	13:J:68:ILE:HD11	1.97	0.47
2:7:28:C:H5'	13:J:141:ILE:HD11	1.97	0.47
4:9:887:U:H5	4:9:900:C:N4	2.12	0.47
4:9:1314:U:H3'	4:9:1315:U:O2	2.15	0.47
4:9:1520:G:H2'	4:9:1520:G:N3	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:B:291:TYR:HB3	6:B:298:LEU:HD11	1.96	0.47
20:Q:85:THR:HG22	20:Q:104:ARG:HB2	1.96	0.47
59:NN:25:TRP:CG	73:bb:82:LYS:HE2	2.49	0.47
1:5:288:G:H2'	1:5:289:C:C6	2.50	0.47
1:5:1405:C:H2'	1:5:1406:G:H8	1.79	0.47
1:5:3932:U:H2'	1:5:3933:G:C8	2.50	0.47
48:CC:94:ILE:HD13	48:CC:159:LYS:O	2.14	0.47
56:KK:32:HIS:HE1	56:KK:34:GLU:HB3	1.80	0.47
78:gg:153:CYS:HB3	78:gg:198:VAL:HG12	1.97	0.47
1:5:457:G:H2'	1:5:458:C:C6	2.49	0.47
1:5:1890:G:H22	1:5:1939:A:H61	1.63	0.47
1:5:1964:A:H3'	1:5:1965:G:H8	1.80	0.47
1:5:2083:C:OP2	20:Q:14:ARG:NH2	2.48	0.47
1:5:2411:C:H2'	1:5:2412:A:C8	2.50	0.47
1:5:2695:A:OP1	39:k:35:LYS:NZ	2.42	0.47
1:5:3695:U:H2'	1:5:3696:C:O4'	2.15	0.47
3:8:94:G:H1'	82:j:82:THR:O	2.15	0.47
4:9:212:C:H2'	4:9:213:G:H8	1.80	0.47
4:9:453:C:C2'	4:9:454:U:H5'	2.42	0.47
4:9:1117:C:O2'	4:9:1118:C:O4'	2.33	0.47
4:9:1228:A:H2'	4:9:1229:G:H8	1.79	0.47
5:A:108:PRO:HD3	44:p:90:LYS:HD3	1.97	0.47
14:K:148:SER:HA	14:K:244:ARG:NH2	2.30	0.47
27:X:92:ASP:C	27:X:93:ASN:HD22	2.23	0.47
1:5:516:C:H2'	1:5:517:C:C6	2.50	0.47
1:5:1176:C:H2'	1:5:1177:U:H6	1.80	0.47
1:5:1246:G:H2'	1:5:1247:U:C6	2.50	0.47
1:5:1538:U:H2'	1:5:1539:G:H8	1.79	0.47
1:5:2088:A:C5'	1:5:2089:G:H3'	2.44	0.47
1:5:4070:U:H2'	1:5:4071:U:C6	2.50	0.47
4:9:908:A:OP1	21:R:172:ARG:NH2	2.45	0.47
20:Q:16:LYS:O	20:Q:33:ARG:NH2	2.48	0.47
34:e:84:GLU:CD	45:r:20:ARG:HH22	2.23	0.47
70:YY:37:LYS:HD2	70:YY:57:VAL:HG23	1.97	0.47
1:5:983:C:C6	9:E:73:ARG:HD3	2.50	0.46
4:9:171:A:OP2	52:GG:137:ARG:NH2	2.31	0.46
4:9:1269:G:H2'	4:9:1270:G:C8	2.50	0.46
29:Z:89:ILE:HD12	29:Z:90:PRO:HD2	1.97	0.46
1:5:135:G:O2'	1:5:136:C:OP1	2.24	0.46
1:5:966:A:H5"	1:5:967:C:C6	2.50	0.46
1:5:4568:A:N3	19:P:69:ARG:NH2	2.63	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:4737:G:H5'	1:5:5069:U:C4	2.50	0.46
4:9:845:G:H2'	4:9:846:G:C8	2.50	0.46
4:9:1462:U:O2	4:9:1464:C:N4	2.49	0.46
71:ZZ:50:PHE:CZ	71:ZZ:58:LEU:HD11	2.50	0.46
1:5:396:A:H2'	1:5:397:G:C8	2.51	0.46
1:5:3625:G:O2'	1:5:3626:G:OP1	2.31	0.46
3:8:1:C:H2'	3:8:2:G:H5'	1.97	0.46
4:9:1138:C:OP1	46:AA:155:ARG:NH1	2.42	0.46
4:9:1206:G:N2	4:9:1835:A:OP1	2.48	0.46
7:C:138:MET:HG2	7:C:144:ILE:HD11	1.97	0.46
13:J:28:GLU:OE2	13:J:32:ARG:HG3	2.15	0.46
35:f:48:ALA:HB2	35:f:71:TRP:CZ3	2.50	0.46
78:gg:199:THR:HG23	78:gg:241:PHE:CE2	2.51	0.46
1:5:1989:G:C2	1:5:1990:A:C5	3.03	0.46
1:5:3611:A:C2	1:5:5016:A:H8	2.31	0.46
9:E:69:ALA:HA	9:E:71:TYR:CE2	2.50	0.46
78:gg:114:SER:HA	78:gg:156:PHE:CG	2.50	0.46
81:11:43:G:H2'	81:11:44:A:C8	2.49	0.46
1:5:1811:G:H2'	1:5:1812:C:C6	2.51	0.46
1:5:1986:U:H4'	1:5:1987:C:OP1	2.14	0.46
1:5:3911:C:H2'	1:5:3912:U:C6	2.48	0.46
4:9:546:G:H2'	4:9:547:G:C8	2.50	0.46
4:9:1010:G:H2'	4:9:1011:A:C8	2.50	0.46
1:5:494:C:H2'	1:5:495:C:C6	2.51	0.46
1:5:2001:G:O5'	1:5:2001:G:C8	2.68	0.46
1:5:2539:C:H2'	1:5:2540:C:C6	2.49	0.46
1:5:3653:A:H4'	5:A:179:ILE:O	2.15	0.46
4:9:1698:C:O2'	4:9:1699:A:OP1	2.33	0.46
1:5:2673:G:N3	1:5:2673:G:H5'	2.30	0.46
4:9:164:A:H2'	4:9:165:G:N3	2.31	0.46
49:DD:29:LEU:HB2	49:DD:34:TYR:HB2	1.97	0.46
80:12:19:G:C8	80:12:57:G:N2	2.84	0.46
88:13:102:MET:N	88:13:102:MET:SD	2.89	0.46
1:5:1298:C:H2'	1:5:1299:G:C8	2.50	0.46
1:5:2491:C:H2'	1:5:2492:C:C6	2.51	0.46
1:5:3732:A:H2'	1:5:3733:A:H8	1.80	0.46
4:9:1181:A:H2'	4:9:1182:A:C8	2.51	0.46
5:A:234:LYS:HG2	5:A:238:ILE:HD12	1.97	0.46
33:d:92:ARG:HA	33:d:102:LEU:HD23	1.97	0.46
46:AA:30:LEU:HD21	46:AA:35:GLU:HA	1.97	0.46
49:DD:16:ILE:HD11	75:dd:36:LEU:HD12	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:HH:170:VAL:HG13	53:HH:187:PHE:HB2	1.98	0.46
81:11:43:G:H2'	81:11:44:A:H8	1.81	0.46
81:11:53:G:H2'	81:11:54:A:C8	2.39	0.46
1:5:6:C:H2'	1:5:7:C:C6	2.51	0.46
1:5:197:A:N3	1:5:222:C:O2'	2.44	0.46
1:5:388:A:H1'	1:5:403:G:N2	2.31	0.46
1:5:2265:G:OP2	45:r:33:LYS:NZ	2.49	0.46
1:5:2361:G:N7	19:P:25:HIS:CE1	2.84	0.46
1:5:2431:A:OP1	40:l:41:ARG:NH1	2.44	0.46
1:5:4305:G:H22	23:T:87:LYS:CD	2.28	0.46
1:5:4573:G:H2'	1:5:4574:U:C6	2.51	0.46
4:9:1866:A:N6	72:aa:84:VAL:HB	2.30	0.46
9:E:287:HIS:ND1	35:f:38:GLU:OE1	2.48	0.46
1:5:150:U:H4'	1:5:151:G:OP2	2.16	0.46
1:5:1401:C:H2'	1:5:1402:C:C6	2.51	0.46
1:5:4967:A:H2'	1:5:4968:A:H8	1.80	0.46
45:r:58:LYS:HE3	45:r:83:ASN:HD21	1.80	0.46
53:HH:125:VAL:O	53:HH:129:ILE:HG12	2.16	0.46
70:YY:88:LYS:HD2	70:YY:97:TYR:CZ	2.51	0.46
1:5:278:G:C5'	17:N:8:GLN:HE22	2.29	0.45
1:5:1567:U:H2'	1:5:1568:C:C6	2.52	0.45
1:5:3960:A:O2'	1:5:4044:U:H4'	2.16	0.45
4:9:448:A:H62	54:II:29:LEU:HD13	1.80	0.45
4:9:1507:G:O6	77:ff:88:PRO:HA	2.16	0.45
4:9:1700:C:C2	4:9:1834:A:N6	2.85	0.45
19:P:29:THR:HA	19:P:32:THR:HG22	1.97	0.45
51:FF:20:PHE:HE2	51:FF:109:LEU:HD11	1.80	0.45
51:FF:80:GLY:HA2	51:FF:83:ASN:ND2	2.31	0.45
53:HH:46:THR:HG23	53:HH:65:PRO:HD3	1.98	0.45
82:j:67:LEU:HG	82:j:71:TYR:CZ	2.51	0.45
1:5:136:C:H41	37:h:79:LYS:HE3	1.81	0.45
1:5:1447:C:H2'	1:5:1448:G:O4'	2.16	0.45
1:5:2792:C:O2	82:j:9:GLY:HA2	2.16	0.45
1:5:2822:G:N7	21:R:20:LYS:NZ	2.59	0.45
55:JJ:33:GLY:HA3	76:ee:111:TYR:CG	2.50	0.45
59:NN:38:TYR:CE1	59:NN:78:LYS:HG3	2.51	0.45
61:PP:22:LEU:HA	61:PP:25:LEU:HD12	1.99	0.45
80:12:42:G:H2'	80:12:43:G:C8	2.52	0.45
81:11:26:G:H1	81:11:44:A:H61	1.64	0.45
1:5:1080:C:H2'	1:5:1081:C:C6	2.50	0.45
1:5:2409:U:H5	1:5:2783:A:N1	2.14	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:189:U:OP1	54:II:152:ARG:NH2	2.47	0.45
4:9:1301:A:OP2	75:dd:2:GLY:N	2.49	0.45
58:MM:36:ARG:HA	58:MM:36:ARG:HD2	1.83	0.45
69:XX:61:GLN:NE2	79:10:20:U:O2'	2.49	0.45
80:12:54:U:H2'	80:12:55:U:O4'	2.16	0.45
1:5:1075:G:H22	1:5:1235:G:N2	2.14	0.45
1:5:4076:G:OP1	10:G:126:ARG:NH1	2.35	0.45
1:5:4896:G:OP1	16:M:132:ARG:NH2	2.50	0.45
4:9:649:U:H2'	4:9:650:A:C8	2.51	0.45
4:9:1239:U:H5"	61:PP:124:LYS:HD3	1.96	0.45
81:11:9:U:H5'	81:11:49:G:H5'	1.99	0.45
1:5:217:C:O2'	1:5:218:A:OP2	2.26	0.45
1:5:460:C:H2'	1:5:461:G:C8	2.52	0.45
1:5:1075:G:H1	1:5:1235:G:H22	1.60	0.45
1:5:3944:G:H1	1:5:4069:U:H3	1.63	0.45
1:5:5053:U:H5'	1:5:5054:C:C5	2.52	0.45
4:9:520:A:H5"	55:JJ:12:THR:HG23	1.98	0.45
4:9:1303:C:H2'	4:9:1304:U:C6	2.51	0.45
17:N:94:PHE:CE2	17:N:96:ARG:HB2	2.51	0.45
58:MM:49:LEU:HB2	58:MM:111:VAL:HG12	1.98	0.45
81:13:62:C:H2'	81:13:63:A:H8	1.81	0.45
1:5:755:C:H2'	1:5:756:G:H8	1.82	0.45
1:5:1384:C:O2'	1:5:1505:C:OP1	2.31	0.45
1:5:2335:C:H2'	1:5:2336:G:H8	1.81	0.45
3:8:148:A:H2	10:G:113:TYR:OH	2.00	0.45
4:9:28:U:H2'	4:9:29:G:H8	1.81	0.45
4:9:649:U:H2'	4:9:650:A:H8	1.82	0.45
50:EE:211:LYS:NZ	50:EE:215:GLY:O	2.45	0.45
1:5:738(A):C:O2'	1:5:740:G:OP2	2.22	0.45
1:5:2007:G:C2	1:5:2013:A:N6	2.85	0.45
1:5:4572:U:H2'	1:5:4573:G:H8	1.82	0.45
4:9:183:G:O2'	4:9:184:G:O4'	2.35	0.45
4:9:1240:A:N6	61:PP:98:ASN:O	2.50	0.45
4:9:1397:U:H2'	4:9:1397:U:O2	2.15	0.45
4:9:1614:A:H2'	4:9:1615:U:C6	2.51	0.45
48:CC:191:VAL:HG11	48:CC:236:PHE:HA	1.99	0.45
70:YY:86:GLU:OE2	70:YY:90:ARG:HD2	2.17	0.45
1:5:109:G:OP2	15:L:74:ARG:NH2	2.44	0.45
1:5:4507:A:H2'	1:5:4508:C:C6	2.52	0.45
1:5:510:U:H5"	30:a:86:THR:HG22	1.99	0.45
1:5:956:A:C8	1:5:957:G:C8	3.01	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:4748:U:H5”	35:f:54:LYS:HE2	1.98	0.45
1:5:4909:A:OP1	18:O:163:LYS:NZ	2.43	0.45
3:8:6:C:H2’	3:8:7:U:H6	1.82	0.45
4:9:1597:C:OP2	71:ZZ:85:ARG:NH2	2.42	0.45
24:U:80:LYS:HE2	24:U:110:TYR:CZ	2.52	0.45
29:Z:29:ILE:HG22	29:Z:31:ASP:O	2.16	0.45
80:12:22:G:N7	80:12:46:G:N2	2.56	0.45
1:5:1369:C:OP2	1:5:1370:G:O2’	2.30	0.45
1:5:2029:A:H2’	1:5:2030:A:C8	2.52	0.45
1:5:2287:G:O6	30:a:10:LYS:HE2	2.17	0.45
4:9:215:G:H2’	4:9:216:C:C6	2.52	0.45
4:9:1114:U:H5”	4:9:1115:U:OP2	2.17	0.45
47:BB:25:PHE:HA	47:BB:28:LYS:CG	2.47	0.45
53:HH:18:GLU:O	53:HH:21:SER:OG	2.31	0.45
58:MM:95:ASP:OD2	58:MM:101:ARG:NE	2.50	0.45
1:5:4317:A:H2’	1:5:4318:C:C6	2.52	0.44
4:9:419:G:N2	4:9:661:U:O2	2.50	0.44
4:9:1738:C:OP1	52:GG:92:ARG:NH2	2.31	0.44
29:Z:10:VAL:O	29:Z:83:THR:HG22	2.17	0.44
58:MM:92:CYS:SG	58:MM:103:VAL:HG22	2.56	0.44
1:5:260:C:H2’	1:5:261:G:H8	1.81	0.44
1:5:262:G:H2’	1:5:263:G:H8	1.81	0.44
1:5:318:A:H2’	1:5:319:A:C8	2.53	0.44
1:5:417:G:N3	3:8:16:G:C2	2.86	0.44
1:5:1662:C:H2’	1:5:1663:C:C6	2.52	0.44
28:Y:31:SER:HA	28:Y:48:PRO:HA	2.00	0.44
80:12:55:U:O2	80:12:57:G:H3’	2.17	0.44
1:5:2303:C:OP1	34:e:107:ASN:ND2	2.44	0.44
3:8:8:U:H2’	3:8:9:A:H8	1.82	0.44
4:9:145:G:H2’	4:9:146:G:C8	2.53	0.44
4:9:170:A:OP2	52:GG:140:ARG:NH2	2.41	0.44
4:9:1286:G:O6	58:MM:37:GLU:HG2	2.17	0.44
4:9:1866:A:N1	72:aa:87:ARG:HD2	2.32	0.44
50:EE:54:TYR:OH	50:EE:97:GLU:OE1	2.27	0.44
52:GG:137:ARG:HD3	52:GG:178:ARG:NH2	2.33	0.44
58:MM:61:TYR:OH	58:MM:108:CYS:HB2	2.17	0.44
81:13:74:C:HO2’	81:13:75:C:P	2.37	0.44
1:5:2276:A:H2’	1:5:2277:C:O4’	2.18	0.44
4:9:162:C:H5”	52:GG:87:ARG:NH2	2.33	0.44
4:9:634:A:H2’	4:9:635:G:H8	1.82	0.44
4:9:641:A:O2’	4:9:645:C:OP1	2.32	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:1097:G:H4'	46:AA:32:PHE:CD1	2.52	0.44
9:E:157:THR:HG23	9:E:158:GLY:N	2.31	0.44
18:O:113:ASP:HB2	18:O:160:ARG:HD2	1.98	0.44
1:5:462:G:H2'	1:5:463:A:C8	2.52	0.44
1:5:1194:G:C2	1:5:1195:G:H1'	2.53	0.44
1:5:1391:A:OP1	20:Q:181:ARG:NH2	2.44	0.44
4:9:183:G:O2'	4:9:184:G:O5'	2.35	0.44
43:o:67:VAL:HG11	43:o:82:MET:HE3	1.99	0.44
46:AA:128:ARG:HH12	46:AA:151:ASP:CG	2.25	0.44
47:BB:153:THR:HB	47:BB:155:TYR:CD2	2.52	0.44
50:EE:246:LEU:HD13	50:EE:254:LYS:HD2	2.00	0.44
57:LL:119:ASP:OD2	57:LL:147:LYS:NZ	2.43	0.44
61:PP:98:ASN:OD1	61:PP:122:THR:HA	2.17	0.44
1:5:456:C:H2'	1:5:457:G:H8	1.83	0.44
1:5:2771:G:H2'	1:5:2772:C:O4'	2.18	0.44
1:5:3751:G:N2	1:5:3775:A:H8	2.09	0.44
1:5:5016:A:H5"	1:5:5017:G:OP2	2.18	0.44
4:9:908:A:H2'	4:9:909:G:O4'	2.18	0.44
45:r:90:LEU:HG	45:r:111:ILE:HG23	1.99	0.44
45:r:105:ASP:OD1	45:r:105:ASP:N	2.51	0.44
1:5:1345:A:H2'	1:5:1346:C:C6	2.52	0.44
1:5:4065:G:H2'	1:5:4066:U:C6	2.53	0.44
1:5:4537:C:H2'	1:5:4538:G:H8	1.83	0.44
1:5:4978:G:H2'	1:5:4979:A:H5"	1.98	0.44
4:9:581:U:H4'	70:YY:66:GLY:CA	2.48	0.44
4:9:1409:A:OP1	62:QQ:26:LYS:NZ	2.47	0.44
15:L:77:SER:N	15:L:80:GLU:OE1	2.40	0.44
1:5:1847:C:H4'	20:Q:152:PHE:CZ	2.53	0.44
1:5:1931:C:N4	1:5:2040:A:O2'	2.47	0.44
1:5:2465:C:H1'	1:5:3672:G:N2	2.28	0.44
4:9:182:C:H4'	4:9:183:G:O5'	2.18	0.44
4:9:1286:G:OP2	77:ff:99:LYS:HD3	2.17	0.44
4:9:1426:U:P	62:QQ:69:ARG:HH21	2.38	0.44
4:9:1711:U:H2'	4:9:1712:A:C8	2.53	0.44
51:FF:76:MET:HB3	51:FF:89:THR:CG2	2.47	0.44
70:YY:5:VAL:HA	70:YY:28:LEU:O	2.18	0.44
81:13:3:G:C8	87:13:101:ATP:C2	3.06	0.44
1:5:150:U:H3	10:G:216:PRO:HD2	1.83	0.44
1:5:481(A):C:H1'	1:5:483:G:O2'	2.17	0.44
1:5:941:C:OP2	14:K:241:ARG:NE	2.44	0.44
1:5:1444:G:H2'	1:5:1445:U:C5	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:1558:A:H2'	1:5:1559:G:C8	2.53	0.44
1:5:2489:C:HO2'	1:5:2491:C:H42	1.60	0.44
3:8:77:A:C6	3:8:78:G:C6	3.06	0.44
4:9:1232:U:H2'	4:9:1233:G:C8	2.53	0.44
47:BB:129:THR:OG1	47:BB:131:ASP:OD1	2.34	0.44
61:PP:34:MET:O	61:PP:42:ARG:HG2	2.18	0.44
80:12:66:A:H2'	80:12:67:A:O4'	2.17	0.44
1:5:257:C:H2'	1:5:258:G:C8	2.52	0.43
1:5:473:C:H2'	1:5:474:C:C6	2.52	0.43
1:5:1069:G:H5"	1:5:1070:G:OP2	2.17	0.43
1:5:3642:A:C4	82:j:3:LYS:HB3	2.52	0.43
3:8:135:C:OP1	27:X:63:LYS:NZ	2.50	0.43
54:II:38:ILE:HA	54:II:60:LEU:O	2.18	0.43
1:5:495:C:C2	1:5:496:G:C8	3.06	0.43
1:5:2517:A:O2'	36:g:66:ARG:NH2	2.50	0.43
1:5:2634:C:H2'	1:5:2635:U:H6	1.83	0.43
1:5:3958:G:O6	81:11:19:G:N1	2.50	0.43
1:5:4169:G:H4'	1:5:4171:C:C2	2.53	0.43
1:5:4520:G:H2'	1:5:4521:U:O4'	2.18	0.43
3:8:67:U:H2'	3:8:68:G:H8	1.82	0.43
4:9:1706:G:H5'	42:n:1:MET:HG3	1.99	0.43
6:B:14:LEU:HA	6:B:17:LEU:HD13	2.00	0.43
36:g:15:THR:HG22	36:g:16:ALA:N	2.34	0.43
1:5:966:A:H1'	1:5:968:C:N4	2.33	0.43
1:5:1072:C:O2'	1:5:1073:G:O5'	2.25	0.43
1:5:1362:G:OP1	15:L:39:ARG:NH2	2.50	0.43
1:5:4918:C:H2'	1:5:4919:G:C8	2.53	0.43
4:9:155:G:H4'	52:GG:15:LEU:HD13	1.99	0.43
4:9:494:C:N4	4:9:509:G:H21	2.16	0.43
4:9:1782:G:H5"	4:9:1783:C:OP2	2.18	0.43
7:C:2:ALA:O	7:C:29:LYS:NZ	2.32	0.43
7:C:264:TYR:HB3	7:C:279:LEU:HD21	2.00	0.43
7:C:328:LEU:HD13	14:K:186:MET:SD	2.58	0.43
13:J:112:HIS:CE1	13:J:125:ILE:HA	2.53	0.43
80:12:72:C:N4	85:12:101:GTP:O6	2.39	0.43
1:5:446:C:H2'	1:5:447:C:C6	2.53	0.43
1:5:974:C:H41	1:5:1281:G:N2	2.16	0.43
1:5:1307:A:H2'	1:5:1308:C:C6	2.53	0.43
1:5:1590:C:H4'	1:5:2857:A:H5'	2.00	0.43
1:5:2020:U:H2'	1:5:2021:G:H8	1.82	0.43
1:5:2474:G:O2'	1:5:2475:G:OP1	2.31	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:3969:G:H2'	1:5:3970:G:H8	1.81	0.43
1:5:4232:U:H4'	1:5:4233:A:O5'	2.18	0.43
1:5:4504:C:H2'	1:5:4505:C:C6	2.54	0.43
4:9:118:C:H1'	4:9:445:A:C5	2.53	0.43
22:S:78:PHE:O	22:S:96:GLU:HA	2.18	0.43
46:AA:85:ARG:NH2	63:RR:82:ASP:O	2.41	0.43
55:JJ:59:GLU:OE2	55:JJ:69:ARG:NH2	2.46	0.43
72:aa:21:ILE:HD12	72:aa:72:HIS:CG	2.53	0.43
1:5:123:C:H2'	1:5:124:C:C6	2.53	0.43
1:5:1244:G:O5'	1:5:1244:G:H8	2.02	0.43
1:5:2559:G:C6	1:5:2569:G:C6	3.07	0.43
1:5:3827:G:O2'	1:5:3829:G:OP2	2.32	0.43
1:5:3949:A:H2'	1:5:3950:U:C6	2.53	0.43
1:5:4591:U:H2'	1:5:4592:C:C6	2.54	0.43
2:7:85:G:OP1	14:K:221:LYS:NZ	2.32	0.43
4:9:506:G:OP1	70:YY:108:LYS:NZ	2.48	0.43
4:9:1083:A:H4'	4:9:1085:C:C4	2.53	0.43
6:B:19:ARG:NH1	6:B:234:ARG:O	2.51	0.43
8:D:62:CYS:HB3	8:D:105:LEU:HD22	2.00	0.43
22:S:90:THR:HG23	23:T:156:TYR:CD2	2.53	0.43
80:12:18:G:C6	80:12:58:A:C5	3.06	0.43
81:11:73:A:O2'	81:11:74:C:O5'	2.34	0.43
1:5:1693:U:P	20:Q:143:ARG:HH22	2.42	0.43
1:5:1757:U:H2'	1:5:1758:G:H8	1.84	0.43
1:5:1987:C:H6	1:5:1987:C:H5'	1.84	0.43
1:5:4174:U:H2'	1:5:4175:G:C8	2.54	0.43
4:9:62:G:H4'	4:9:172:U:C5	2.54	0.43
4:9:791:C:H2'	4:9:792:C:H6	1.78	0.43
52:GG:59:GLN:OE1	52:GG:72:ARG:NH2	2.51	0.43
1:5:442:G:OP1	35:f:68:ARG:NH1	2.47	0.43
1:5:1382:G:OP1	15:L:66:TYR:OH	2.31	0.43
1:5:1444:G:O5'	1:5:1444:G:H8	2.01	0.43
1:5:2065:G:H2'	1:5:2066:C:O4'	2.18	0.43
1:5:2313:A:HO2'	1:5:2314:G:P	2.38	0.43
1:5:2479:G:H2'	1:5:2480:G:H8	1.82	0.43
1:5:3861:A:H2'	1:5:3862:A:C8	2.54	0.43
1:5:3873:G:H2'	1:5:3874:G:C8	2.54	0.43
1:5:4247:G:H5'	8:D:4:VAL:HG21	1.99	0.43
1:5:4925:U:H4'	1:5:4926:C:H5'	1.97	0.43
1:5:5053:U:O2'	1:5:5054:C:OP1	2.36	0.43
4:9:441:C:H2'	4:9:442:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:643:A:OP1	55:JJ:41:ARG:NH2	2.50	0.43
4:9:1142:G:N2	4:9:1145:A:OP2	2.47	0.43
4:9:1232:U:H2'	4:9:1233:G:H8	1.83	0.43
4:9:1518:C:OP1	4:9:1519:U:H2'	2.19	0.43
23:T:28:ALA:HA	23:T:31:MET:HG2	2.00	0.43
43:o:14:LYS:HB3	43:o:77:CYS:SG	2.59	0.43
70:YY:125:VAL:HG12	70:YY:125:VAL:O	2.19	0.43
1:5:48:G:H5'	17:N:192:TRP:NE1	2.34	0.43
1:5:1209:U:O2'	1:5:1211:G:H5'	2.19	0.43
1:5:1802:A:H5"	1:5:1803:G:H5'	2.00	0.43
1:5:2275:G:H2'	1:5:2276:A:C8	2.52	0.43
1:5:3641:U:C5	1:5:3646:A:N7	2.84	0.43
1:5:4305:G:N2	23:T:87:LYS:HZ3	2.17	0.43
4:9:104:A:H62	4:9:356:C:H5	1.65	0.43
4:9:634:A:H2'	4:9:635:G:C8	2.54	0.43
4:9:1274:G:N7	56:KK:43:LEU:HD21	2.34	0.43
4:9:1410:C:H2'	4:9:1411:G:H8	1.83	0.43
4:9:1839:U:H1'	4:9:1863:A:H2	1.84	0.43
5:A:180:LEU:HD23	5:A:180:LEU:HA	1.85	0.43
13:J:32:ARG:HD2	13:J:35:ARG:NH2	2.33	0.43
51:FF:73:THR:O	51:FF:89:THR:HG21	2.19	0.43
1:5:308:G:OP2	1:5:308:G:N2	2.39	0.43
1:5:668:C:H4'	7:C:6:PRO:HB3	2.01	0.43
1:5:1564:A:H2'	1:5:1565:A:C8	2.54	0.43
1:5:1908:A:H2'	1:5:1909:G:O4'	2.19	0.43
1:5:1962:A:C5	1:5:1963:C:C5	3.07	0.43
1:5:2295:C:H2'	1:5:2296:G:H8	1.83	0.43
4:9:986:G:C8	60:OO:137:SER:O	2.72	0.43
4:9:1010:G:H2'	4:9:1011:A:H8	1.83	0.43
4:9:1128:C:H2'	4:9:1129:G:H8	1.83	0.43
4:9:1550:G:H3'	4:9:1579:A:H61	1.82	0.43
10:G:217:ILE:O	10:G:221:VAL:HG13	2.18	0.43
67:VV:15:ARG:NH1	67:VV:33:GLN:HB2	2.34	0.43
1:5:223:G:H4'	1:5:225:G:N7	2.34	0.43
1:5:385:A:N3	1:5:387:G:H5"	2.34	0.43
1:5:1959:U:C2	1:5:1961:G:C2	3.06	0.43
1:5:1990:A:C6	1:5:1991:A:C5	3.06	0.43
1:5:3611:A:H2	1:5:5016:A:C8	2.34	0.43
1:5:3723:A:H2'	1:5:3724:A:H8	1.84	0.43
1:5:4524:G:N3	6:B:252:ALA:HB1	2.34	0.43
4:9:561:A:H2'	4:9:562:U:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:N:68:ARG:NH1	17:N:124:ASP:O	2.39	0.43
33:d:36:VAL:HG21	33:d:44:ARG:HG2	2.00	0.43
44:p:3:LYS:HE2	44:p:5:THR:O	2.19	0.43
81:13:35:A:H2'	81:13:36:U:H6	1.83	0.43
81:11:20:A:N1	81:11:57:G:O2'	2.51	0.43
1:5:275:C:H2'	1:5:276:C:C6	2.53	0.42
1:5:1344:C:H2'	1:5:1345:A:H8	1.83	0.42
1:5:1617:G:H1'	1:5:2513:A:N6	2.33	0.42
1:5:2474:G:N2	1:5:2502:A:H2'	2.34	0.42
1:5:3959:U:O2'	1:5:3960:A:C8	2.67	0.42
4:9:441:C:OP2	54:II:2:GLY:N	2.52	0.42
22:S:41:LYS:HG2	22:S:61:ILE:HD13	2.01	0.42
81:11:10:G:C2	81:11:45:G:C5	3.06	0.42
1:5:19:G:P	37:h:93:ARG:HE	2.42	0.42
1:5:201:C:H2'	1:5:202:C:C6	2.54	0.42
1:5:746:A:O2'	1:5:747:A:H5'	2.19	0.42
1:5:1198:G:C2	1:5:1199:G:C6	3.07	0.42
1:5:1875:C:H2'	1:5:1876:U:C6	2.54	0.42
1:5:1962:A:C4	1:5:1963:C:C5	3.07	0.42
1:5:2653:C:OP1	36:g:54:ARG:NH2	2.52	0.42
1:5:3758:U:H2'	1:5:3765:G:N2	2.33	0.42
4:9:1279:C:H2'	4:9:1280:G:C8	2.53	0.42
15:L:64:VAL:HA	15:L:67:HIS:CE1	2.53	0.42
49:DD:45:ARG:NH1	49:DD:47:GLU:HB2	2.34	0.42
72:aa:59:PHE:HB2	72:aa:62:TYR:HB2	2.02	0.42
1:5:406:C:HO2'	1:5:407:A:P	2.41	0.42
1:5:748:G:O6	22:S:98:ARG:NH2	2.40	0.42
1:5:3727:A:H2'	1:5:3728:A:C8	2.54	0.42
4:9:1269:G:H2'	4:9:1270:G:H8	1.83	0.42
46:AA:44:ASP:OD1	63:RR:128:PHE:HB3	2.19	0.42
55:JJ:35:TYR:CD2	55:JJ:106:LEU:HD23	2.53	0.42
78:gg:4:GLN:HB2	78:gg:268:ASP:OD2	2.20	0.42
1:5:433:A:C2	1:5:3867:A:H4'	2.55	0.42
1:5:4134:C:H2'	1:5:4135:G:C8	2.54	0.42
1:5:4935:C:H2'	1:5:4936:G:C8	2.54	0.42
4:9:862:A:C8	68:WW:107:SER:HA	2.55	0.42
39:k:24:LYS:HA	39:k:67:LYS:O	2.19	0.42
1:5:397:G:C5	1:5:398:A:H1'	2.54	0.42
1:5:910:G:C6	1:5:911:U:C4	3.07	0.42
1:5:1428:U:H5"	20:Q:42:THR:HB	2.01	0.42
1:5:1450:C:H2'	1:5:1451:G:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:1726:U:H2'	1:5:1727:U:H6	1.85	0.42
1:5:1942:A:H2'	1:5:1943:A:C8	2.55	0.42
1:5:4906:C:N3	1:5:4916:G:N1	2.68	0.42
4:9:643:A:OP1	55:JJ:38:ARG:NH1	2.52	0.42
4:9:1749:G:H2'	4:9:1750:C:C6	2.55	0.42
6:B:35:ASP:HB3	6:B:186:ASN:CG	2.44	0.42
78:gg:20:GLN:HG2	78:gg:69:VAL:H	1.84	0.42
1:5:2540:C:H2'	1:5:2541:G:C8	2.55	0.42
1:5:2899:C:H2'	1:5:2900:U:C6	2.54	0.42
1:5:3723:A:H2'	1:5:3724:A:C8	2.54	0.42
1:5:4239:A:H2'	1:5:4240:G:H8	1.81	0.42
3:8:127:U:H2'	3:8:128:C:O4'	2.19	0.42
4:9:916:A:C5	59:NN:73:ARG:HD3	2.54	0.42
4:9:1563:G:H2'	4:9:1564:C:C6	2.54	0.42
4:9:1848:U:H2'	4:9:1849:G:H5'	2.00	0.42
32:c:103:ASP:OD2	59:NN:43:LYS:NZ	2.44	0.42
63:RR:45:LYS:HB2	63:RR:45:LYS:HE3	1.90	0.42
1:5:4134:C:H2'	1:5:4135:G:H8	1.83	0.42
4:9:126:G:O2'	4:9:127:C:OP1	2.32	0.42
4:9:382:C:H2'	4:9:383:G:H5'	2.02	0.42
4:9:1552:G:C5	4:9:1557:C:C4	3.07	0.42
9:E:48:ARG:C	9:E:64:MET:HE1	2.45	0.42
10:G:134:ASN:ND2	10:G:291:GLY:HA3	2.34	0.42
23:T:74:ILE:O	23:T:88:ARG:HA	2.20	0.42
28:Y:50:ARG:HG2	28:Y:115:ARG:NH2	2.35	0.42
38:i:55:ARG:O	38:i:59:GLU:HG2	2.19	0.42
66:UU:26:SER:HB3	66:UU:32:LEU:HB2	2.01	0.42
1:5:116:G:H2'	1:5:117:C:C6	2.55	0.42
1:5:2083:C:P	20:Q:14:ARG:HH22	2.43	0.42
1:5:2347:A:O2'	1:5:2348:G:C8	2.73	0.42
1:5:2361:G:O6	19:P:25:HIS:CD2	2.72	0.42
1:5:2640:G:OP2	1:5:2693:G:N1	2.43	0.42
1:5:2730:U:H2'	1:5:2731:C:C6	2.55	0.42
4:9:465:A:H5"	4:9:466:G:C8	2.55	0.42
4:9:1310:U:C2	4:9:1311:C:C5	3.08	0.42
66:UU:21:ARG:HB3	66:UU:115:THR:HB	2.02	0.42
1:5:345:C:H2'	1:5:346:G:H8	1.85	0.42
1:5:2108:G:H5'	1:5:2108:G:H8	1.85	0.42
1:5:2404:A:H61	1:5:2787:A:N6	2.18	0.42
1:5:3930:U:H2'	1:5:3931:C:C6	2.54	0.42
4:9:459:C:H2'	4:9:460:A:C8	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:896:U:H2'	4:9:897:U:C6	2.55	0.42
4:9:1292:C:H4'	77:ff:145:CYS:SG	2.60	0.42
19:P:39:MET:O	19:P:114:ILE:HG22	2.20	0.42
22:S:3:ALA:O	22:S:111:ARG:NH2	2.52	0.42
32:c:85:CYS:SG	32:c:94:LEU:HD21	2.60	0.42
46:AA:85:ARG:HG3	63:RR:82:ASP:OD1	2.19	0.42
47:BB:30:TRP:CZ2	47:BB:48:LEU:HD13	2.55	0.42
53:HH:63:PHE:HA	53:HH:95:ILE:O	2.19	0.42
78:gg:270:LEU:HD13	78:gg:310:TRP:CD2	2.55	0.42
1:5:1811:G:H2'	1:5:1812:C:H6	1.85	0.42
1:5:3934:G:H2'	1:5:3935:C:C6	2.55	0.42
1:5:4524:G:C2	6:B:252:ALA:HB1	2.54	0.42
3:8:108:A:H2'	3:8:109:C:O4'	2.20	0.42
4:9:1017:U:H2'	4:9:1018:U:H6	1.84	0.42
4:9:1088:U:H4'	4:9:1089:G:OP2	2.20	0.42
4:9:1542:C:H4'	65:TT:11:GLN:HB2	2.02	0.42
25:V:90:ARG:NH1	25:V:92:ASP:OD2	2.51	0.42
37:h:80:PRO:HD2	37:h:83:LEU:HD12	2.02	0.42
47:BB:115:LYS:HE2	47:BB:115:LYS:HB3	1.82	0.42
50:EE:159:THR:HG21	50:EE:227:VAL:O	2.20	0.42
55:JJ:78:LEU:HB3	55:JJ:92:MET:HG3	2.01	0.42
58:MM:75:ASN:HB3	58:MM:128:PHE:CE1	2.55	0.42
74:cc:18:LEU:HD12	74:cc:29:GLN:HG2	2.01	0.42
1:5:1168:G:C2	1:5:1194:G:C6	3.07	0.41
1:5:1169:G:H2'	1:5:1170:G:H8	1.84	0.41
1:5:1591:U:OP2	6:B:243:LYS:HE3	2.19	0.41
1:5:3672:G:O5'	1:5:3672:G:C8	2.74	0.41
1:5:3965:A:H61	1:5:4045:G:H21	1.68	0.41
1:5:4233:A:C4	1:5:4235:G:N7	2.88	0.41
1:5:4457:U:H1'	6:B:252:ALA:HB3	2.02	0.41
4:9:1284:A:C2	58:MM:33:ARG:HD3	2.55	0.41
4:9:1454:A:C8	63:RR:3:ARG:HD2	2.55	0.41
6:B:301:ASN:OD1	6:B:311:ASP:HA	2.20	0.41
11:H:92:MET:HB3	11:H:181:VAL:HA	2.02	0.41
13:J:75:ARG:HH11	13:J:75:ARG:HG2	1.85	0.41
43:o:70:LEU:O	43:o:80:LYS:HA	2.20	0.41
58:MM:35:ILE:HD13	58:MM:61:TYR:HE1	1.85	0.41
1:5:100:C:H2'	1:5:101:A:C8	2.56	0.41
1:5:223:G:H4'	1:5:225:G:C8	2.55	0.41
1:5:1806:G:C6	1:5:1807:C:C4	3.07	0.41
1:5:2267:U:O2	1:5:2270:G:H4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:3648:A:H1'	1:5:3785:A:N6	2.35	0.41
4:9:846:G:OP1	50:EE:106:LYS:NZ	2.53	0.41
4:9:887:U:OP1	4:9:887:U:H4'	2.19	0.41
4:9:1706:G:H2'	4:9:1707:U:C6	2.55	0.41
5:A:205:ASN:HB3	5:A:206:PRO:HD2	2.03	0.41
53:HH:185:VAL:C	53:HH:186:ASN:HD22	2.28	0.41
54:II:6:ASP:HB2	54:II:8:TRP:CD1	2.55	0.41
59:NN:125:LEU:HD23	59:NN:125:LEU:HA	1.91	0.41
60:OO:103:ASN:HB3	60:OO:139:SER:OG	2.20	0.41
66:UU:40:ILE:HD11	66:UU:53:PRO:HD3	2.02	0.41
1:5:1398:A:OP1	30:a:136:LYS:NZ	2.53	0.41
1:5:1440:U:O2'	1:5:1441:C:P	2.78	0.41
1:5:2326:G:OP2	34:e:101:HIS:ND1	2.37	0.41
1:5:2862:G:N3	1:5:3624:A:H2'	2.35	0.41
1:5:3599:A:H2'	1:5:3600:G:H8	1.85	0.41
4:9:146:G:O2'	4:9:147:A:O5'	2.37	0.41
4:9:1128:C:H2'	4:9:1129:G:C8	2.55	0.41
4:9:1865:C:H5	72:aa:6:ARG:H	1.66	0.41
6:B:115:LYS:HA	6:B:118:PHE:CD2	2.55	0.41
10:G:139:VAL:HG11	10:G:238:LYS:HG2	2.03	0.41
40:l:51:LEU:C	82:j:14:LYS:HZ2	2.28	0.41
46:AA:211:GLU:OE2	63:RR:81:ARG:NH2	2.43	0.41
47:BB:38:MET:HE2	47:BB:38:MET:HA	2.01	0.41
54:II:174:CYS:HB2	54:II:190:LEU:HD11	2.01	0.41
78:gg:178:ASN:HB3	78:gg:183:LYS:CG	2.50	0.41
1:5:152:U:P	17:N:49:ARG:HH12	2.43	0.41
1:5:158:A:H5"	1:5:159:C:H2'	2.01	0.41
1:5:217:C:H4'	1:5:218:A:H5"	2.02	0.41
1:5:665:C:H5"	1:5:666:G:O5'	2.20	0.41
1:5:2404:A:OP2	40:l:2:SER:OG	2.28	0.41
2:7:57:C:H2'	2:7:58:A:H8	1.86	0.41
4:9:815:U:C2	4:9:816:A:C8	3.08	0.41
4:9:1236:G:H2'	4:9:1237:C:C6	2.55	0.41
4:9:1693:G:N2	4:9:1834:A:C8	2.84	0.41
32:c:78:ASN:ND2	32:c:90:ARG:HD3	2.35	0.41
38:i:43:MET:HE2	38:i:43:MET:HB2	1.98	0.41
47:BB:30:TRP:CZ2	60:OO:19:PRO:HD3	2.55	0.41
50:EE:21:ASP:OD2	50:EE:24:THR:HG23	2.21	0.41
53:HH:85:LYS:HB3	53:HH:85:LYS:HE2	1.92	0.41
78:gg:172:LYS:HG2	78:gg:193:GLY:C	2.45	0.41
80:12:25:C:C2	80:12:26:G:C8	3.08	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:13:21:A:O2'	81:13:22:G:O5'	2.35	0.41
81:11:37:A:H2'	81:11:38:A:O4'	2.21	0.41
1:5:149:A:H8	1:5:149:A:H5'	1.86	0.41
1:5:445:U:H2'	1:5:446:C:C6	2.56	0.41
1:5:1064:G:C8	1:5:1064:G:H5"	2.55	0.41
1:5:1281:G:OP1	7:C:316:LYS:NZ	2.43	0.41
1:5:4293:U:O2'	43:o:81:ARG:NH2	2.53	0.41
1:5:4627:U:H4'	6:B:373:LYS:HD2	2.02	0.41
4:9:1524:G:O2'	81:13:30:G:OP1	2.35	0.41
33:d:19:GLU:OE1	33:d:19:GLU:N	2.48	0.41
47:BB:171:ILE:HG12	47:BB:174:ARG:HH21	1.85	0.41
82:j:72:ARG:HH11	82:j:72:ARG:HG3	1.85	0.41
1:5:346:G:OP1	28:Y:8:THR:HB	2.20	0.41
1:5:1970:A:H1'	1:5:2017:A:N6	2.34	0.41
1:5:2299:G:H5"	1:5:2300:A:OP2	2.19	0.41
1:5:2431:A:P	40:l:41:ARG:HH12	2.42	0.41
1:5:4458:C:H2'	1:5:4459:U:C6	2.55	0.41
4:9:319:C:H4'	4:9:319:C:OP1	2.21	0.41
4:9:383:G:H5'	4:9:383:G:H8	1.85	0.41
4:9:1648:G:H22	4:9:1675:A:P	2.43	0.41
27:X:83:THR:O	27:X:87:MET:HG2	2.20	0.41
55:JJ:136:ARG:NH1	55:JJ:159:PHE:O	2.52	0.41
73:bb:37:CYS:HB2	73:bb:38:PRO:HD2	2.03	0.41
78:gg:172:LYS:HG2	78:gg:193:GLY:O	2.21	0.41
78:gg:291:TRP:CZ3	78:gg:298:LEU:HB2	2.55	0.41
81:11:63:A:H2'	81:11:64:U:C6	2.55	0.41
1:5:1298:C:H2'	1:5:1299:G:H8	1.84	0.41
1:5:4873:G:N7	18:O:179:LYS:HE3	2.36	0.41
4:9:633:C:H1'	76:ee:89:THR:HG21	2.03	0.41
4:9:1240:A:H2'	4:9:1241:A:C8	2.56	0.41
5:A:60:LYS:HB3	5:A:60:LYS:HE2	1.95	0.41
17:N:193:ARG:O	17:N:197:THR:HG23	2.21	0.41
19:P:61:ARG:NH2	19:P:76:TRP:O	2.54	0.41
49:DD:85:GLU:OE2	49:DD:87:TYR:OH	2.17	0.41
50:EE:18:TRP:HH2	50:EE:31:PRO:HD3	1.84	0.41
50:EE:252:ARG:NH1	50:EE:253:ASP:OD1	2.49	0.41
53:HH:39:GLN:HB3	53:HH:75:ILE:HD11	2.03	0.41
71:ZZ:42:ASP:CG	71:ZZ:43:LYS:H	2.27	0.41
78:gg:188:HIS:HB3	78:gg:219:TRP:CZ3	2.55	0.41
80:12:18:G:C5	80:12:58:A:C6	3.08	0.41
1:5:686:A:N3	1:5:686:A:H2'	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:690:C:H2'	1:5:691:C:C6	2.56	0.41
1:5:2079:G:H2'	1:5:2080:U:C6	2.56	0.41
1:5:2505:C:H5'	1:5:2505:C:O2	2.21	0.41
1:5:2638:G:H22	1:5:2697:A:N6	2.18	0.41
1:5:3867:A:H2'	1:5:3868:G:C8	2.56	0.41
1:5:4303:C:H2'	1:5:4305:G:C8	2.56	0.41
1:5:4452:U:H4'	1:5:4453:C:OP1	2.21	0.41
1:5:4524:G:OP2	1:5:4524:G:H4'	2.21	0.41
1:5:4944:C:H1'	35:f:69:VAL:HG21	2.03	0.41
4:9:15:U:H2'	4:9:16:G:O4'	2.20	0.41
4:9:635:G:H2'	4:9:636:C:C6	2.55	0.41
4:9:1260:A:C2	4:9:1620:A:C8	3.08	0.41
4:9:1863:A:H1'	72:aa:79:ILE:HD13	2.03	0.41
9:E:215:LEU:HD12	9:E:215:LEU:O	2.20	0.41
30:a:15:VAL:O	30:a:16:SER:OG	2.32	0.41
49:DD:226:GLN:OE1	78:gg:186:THR:HB	2.21	0.41
50:EE:137:PRO:HG2	50:EE:150:PRO:HD2	2.02	0.41
61:PP:37:TYR:HB3	61:PP:41:GLN:HB2	2.03	0.41
1:5:16:G:P	27:X:62:ARG:HH22	2.44	0.41
1:5:172:C:H2'	1:5:173:C:C6	2.55	0.41
1:5:295:A:N6	1:5:4362:A:H1'	2.36	0.41
1:5:424:U:C2	1:5:425:U:C5	3.09	0.41
1:5:1280:C:H2'	7:C:323:ARG:HH11	1.85	0.41
1:5:1765:A:HO2'	1:5:1766:A:H8	1.68	0.41
1:5:2015:U:H2'	1:5:2016:C:C6	2.56	0.41
1:5:2587:A:N3	1:5:2770:C:H1'	2.36	0.41
1:5:3917:A:H2'	1:5:3918:G:H8	1.85	0.41
1:5:4289:U:H2'	1:5:4290:U:C6	2.55	0.41
1:5:4578:G:H2'	1:5:4579:U:C6	2.56	0.41
1:5:4585:U:H2'	1:5:4586:G:H8	1.86	0.41
1:5:4633:G:O2'	1:5:4635:A:OP2	2.29	0.41
1:5:4746:C:H2'	1:5:4747:C:C6	2.56	0.41
1:5:4920:C:C2	1:5:4921:C:C5	3.09	0.41
1:5:4935:C:H2'	1:5:4936:G:H8	1.85	0.41
1:5:4960:G:H2'	1:5:4961:G:C8	2.56	0.41
4:9:71:G:C6	4:9:79:A:N7	2.89	0.41
4:9:1277:C:H2'	4:9:1278:A:H8	1.86	0.41
4:9:1353:A:OP1	46:AA:139:TYR:OH	2.33	0.41
4:9:1541:G:N3	65:TT:12:GLN:NE2	2.69	0.41
4:9:1656:G:H1	4:9:1668:U:H3	1.69	0.41
4:9:1679:A:H3'	51:FF:60:ARG:HD2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:9:1761:U:C2	4:9:1771:G:N2	2.89	0.41
5:A:10:LYS:HA	5:A:16:PHE:CD2	2.56	0.41
5:A:180:LEU:HD11	44:p:26:VAL:HG21	2.02	0.41
6:B:117:ARG:NH2	6:B:178:ALA:O	2.49	0.41
23:T:69:GLN:OE1	23:T:69:GLN:N	2.53	0.41
45:r:71:ARG:O	45:r:73:PRO:HD3	2.21	0.41
47:BB:116:LYS:HE2	47:BB:117:TRP:CH2	2.55	0.41
58:MM:50:CYS:HB3	58:MM:76:LEU:HA	2.03	0.41
62:QQ:105:LYS:HE3	62:QQ:105:LYS:HB3	1.92	0.41
65:TT:60:THR:HG23	65:TT:75:MET:HE2	2.02	0.41
71:ZZ:55:TYR:O	71:ZZ:58:LEU:HB2	2.21	0.41
76:ee:122:PHE:CG	76:ee:123:GLY:N	2.89	0.41
77:ff:126:CYS:SG	77:ff:143:LYS:HB3	2.61	0.41
80:12:34:G:H2'	80:12:35:A:C8	2.56	0.41
1:5:980:U:H3	1:5:1275:G:H1	1.68	0.41
1:5:1200:G:C6	1:5:1201:U:C4	3.08	0.41
1:5:1416:G:H2'	1:5:1417:C:C6	2.56	0.41
1:5:3603:G:O2'	1:5:3604:A:OP1	2.38	0.41
1:5:4704:C:H2'	1:5:4705:A:H8	1.86	0.41
1:5:4960:G:H2'	1:5:4961:G:H8	1.85	0.41
1:5:4975:G:H4'	1:5:4976:U:O5'	2.21	0.41
4:9:74:G:N7	52:GG:159:ARG:NH1	2.64	0.41
4:9:196:C:H2'	4:9:197:U:H6	1.86	0.41
4:9:466:G:H2'	4:9:467:G:O4'	2.21	0.41
4:9:533:A:C6	4:9:552:G:C6	3.09	0.41
4:9:904:A:H2'	4:9:905:C:C6	2.56	0.41
4:9:1144:A:H5'	4:9:1355:C:H41	1.84	0.41
4:9:1411:G:C6	4:9:1431:G:C6	3.09	0.41
4:9:1623:A:H5"	64:SS:133:GLY:HA3	2.03	0.41
6:B:47:LEU:HD12	6:B:47:LEU:HA	1.91	0.41
7:C:78:ARG:HA	7:C:89:GLN:O	2.21	0.41
10:G:196:VAL:HG21	10:G:254:THR:HG23	2.03	0.41
17:N:16:SER:HB2	38:i:48:CYS:HB2	2.03	0.41
18:O:120:VAL:HG22	22:S:167:PHE:HD1	1.86	0.41
30:a:89:ASN:O	30:a:93:ASN:N	2.54	0.41
51:FF:19:LEU:O	51:FF:22:LYS:N	2.52	0.41
81:11:16:G:O2'	81:11:17:C:OP1	2.36	0.41
1:5:1803:G:N7	1:5:1836:G:H2'	2.36	0.40
1:5:2056:G:C8	1:5:2058:G:C8	3.09	0.40
1:5:2479:G:H2'	1:5:2480:G:C8	2.56	0.40
1:5:3736:A:H2'	1:5:3737:A:C8	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:5:4303:C:H2'	1:5:4305:G:H8	1.86	0.40
1:5:4576:U:C4	1:5:4577:U:C4	3.09	0.40
1:5:5016:A:H2	1:5:5033:G:H21	1.63	0.40
4:9:96:C:H2'	4:9:97:U:C6	2.56	0.40
4:9:318:A:C2	4:9:333:G:C2	3.09	0.40
4:9:379:C:H4'	54:II:31:ARG:O	2.21	0.40
4:9:496:C:OP1	50:EE:49:ARG:NH2	2.42	0.40
4:9:1428:G:C8	4:9:1585:U:C4	3.09	0.40
4:9:1706:G:H2'	4:9:1707:U:H6	1.87	0.40
4:9:1747:C:H2'	4:9:1748:G:O4'	2.21	0.40
4:9:1801:A:H2'	4:9:1802:C:C6	2.57	0.40
46:AA:34:MET:HE1	46:AA:162:PRO:HB3	2.02	0.40
59:NN:62:GLN:HB2	59:NN:65:PHE:CD2	2.55	0.40
65:TT:34:VAL:HG23	65:TT:52:TRP:CZ2	2.56	0.40
81:13:12:C:H2'	81:13:13:G:H8	1.84	0.40
81:13:19:G:H4'	81:13:20:A:O5'	2.22	0.40
81:13:25:U:C2	81:13:26:G:C8	3.09	0.40
1:5:54:G:OP1	82:j:43:ARG:NH1	2.50	0.40
1:5:407:A:O2'	1:5:410:A:OP1	2.28	0.40
1:5:519:C:H2'	1:5:520:U:C6	2.56	0.40
1:5:1314:C:C2	1:5:1315:C:C5	3.09	0.40
1:5:1420:A:O5'	1:5:1420:A:H8	2.04	0.40
1:5:1798:G:H4'	1:5:4215:C:C4	2.56	0.40
1:5:2732:G:H2'	1:5:2733:C:C6	2.56	0.40
1:5:3801:U:O2	1:5:4497:U:H5'	2.22	0.40
4:9:379:C:H2'	4:9:380:G:C8	2.56	0.40
17:N:43:THR:OG1	17:N:131:GLU:OE2	2.37	0.40
1:5:1759:G:C2	1:5:1760:G:C5	3.09	0.40
1:5:2099:C:H4'	1:5:2100:G:OP2	2.20	0.40
1:5:2326:G:H5"	34:e:127:ALA:CB	2.52	0.40
1:5:2634:C:H2'	1:5:2635:U:C6	2.56	0.40
1:5:3726:A:H2'	1:5:3727:A:C8	2.57	0.40
1:5:4485:C:O2'	41:m:88:LYS:NZ	2.47	0.40
1:5:4903:G:C6	1:5:4919:G:N1	2.90	0.40
1:5:5000:G:OP2	6:B:394:LYS:NZ	2.53	0.40
4:9:191:A:H61	4:9:208:G:H1'	1.86	0.40
4:9:903:A:H2'	4:9:904:A:H8	1.85	0.40
4:9:1292:C:O2	77:ff:138:ARG:NE	2.39	0.40
4:9:1557:C:H3'	4:9:1558:C:H5'	2.04	0.40
8:D:68:ARG:HD3	8:D:68:ARG:HA	1.89	0.40
9:E:64:MET:HG3	9:E:68:LYS:HE2	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:V:29:ALA:O	25:V:118:THR:HG22	2.21	0.40
36:g:15:THR:HG22	36:g:16:ALA:H	1.85	0.40
1:5:268:G:H2'	1:5:269:G:C8	2.56	0.40
1:5:724:C:OP1	7:C:350:ARG:HD3	2.21	0.40
1:5:1468:C:OP1	30:a:132:ARG:NH2	2.53	0.40
1:5:1534:A:C8	82:j:15:THR:HG23	2.57	0.40
1:5:1768:C:O2'	1:5:1769:G:OP2	2.38	0.40
1:5:1990:A:H3'	1:5:1991:A:H5"	2.03	0.40
1:5:2674:A:N6	44:p:42:CYS:HA	2.37	0.40
1:5:4170:A:O2'	1:5:4171:C:OP2	2.37	0.40
4:9:696:G:N1	4:9:731:G:C6	2.90	0.40
4:9:731:G:H2'	4:9:732:U:C6	2.57	0.40
4:9:875:A:H1'	53:HH:114:GLN:HE21	1.86	0.40
4:9:1221:G:H2'	4:9:1222:G:C8	2.57	0.40
4:9:1566:G:N7	65:TT:101:ARG:NH2	2.70	0.40
8:D:41:LYS:NZ	23:T:30:TYR:O	2.34	0.40
19:P:54:LYS:HA	19:P:83:TRP:CD1	2.55	0.40
39:k:34:PHE:O	39:k:44:THR:HA	2.21	0.40
52:GG:212:LEU:O	52:GG:215:LYS:HB3	2.22	0.40
1:5:1199:G:C6	1:5:1200:G:C6	3.09	0.40
1:5:1406:G:H2'	1:5:1406(A):G:C8	2.57	0.40
1:5:1415:G:H2'	1:5:1416:G:H8	1.87	0.40
1:5:4099:G:N2	1:5:4109:G:N2	2.68	0.40
1:5:4389:C:H2'	1:5:4390:A:H8	1.86	0.40
2:7:32:A:O2'	2:7:41:G:N7	2.45	0.40
4:9:379:C:H5'	54:II:33:ALA:HA	2.03	0.40
4:9:1539:U:OP1	65:TT:44:GLU:N	2.53	0.40
8:D:33:ARG:HH11	23:T:27:LEU:HD12	1.87	0.40
11:H:6:SER:OG	11:H:67:LEU:HD22	2.22	0.40
55:JJ:87:LEU:HD12	55:JJ:91:LYS:HE3	2.04	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	
5	A	246/257 (96%)	239 (97%)	7 (3%)	0	100	100
6	B	392/403 (97%)	378 (96%)	14 (4%)	0	100	100
7	C	360/425 (85%)	351 (98%)	9 (2%)	0	100	100
8	D	291/297 (98%)	282 (97%)	9 (3%)	0	100	100
9	E	208/291 (72%)	198 (95%)	10 (5%)	0	100	100
10	G	229/319 (72%)	222 (97%)	7 (3%)	0	100	100
11	H	188/192 (98%)	185 (98%)	3 (2%)	0	100	100
12	I	201/214 (94%)	195 (97%)	6 (3%)	0	100	100
13	J	168/178 (94%)	165 (98%)	3 (2%)	0	100	100
14	K	223/247 (90%)	217 (97%)	6 (3%)	0	100	100
15	L	208/211 (99%)	205 (99%)	3 (1%)	0	100	100
16	M	136/218 (62%)	134 (98%)	2 (2%)	0	100	100
17	N	201/204 (98%)	197 (98%)	4 (2%)	0	100	100
18	O	197/203 (97%)	194 (98%)	3 (2%)	0	100	100
19	P	151/184 (82%)	147 (97%)	4 (3%)	0	100	100
20	Q	185/188 (98%)	178 (96%)	7 (4%)	0	100	100
21	R	178/196 (91%)	177 (99%)	1 (1%)	0	100	100
22	S	174/176 (99%)	169 (97%)	5 (3%)	0	100	100
23	T	157/160 (98%)	153 (98%)	4 (2%)	0	100	100
24	U	97/128 (76%)	94 (97%)	3 (3%)	0	100	100
25	V	127/140 (91%)	124 (98%)	3 (2%)	0	100	100
26	W	102/157 (65%)	101 (99%)	1 (1%)	0	100	100
27	X	116/156 (74%)	115 (99%)	1 (1%)	0	100	100
28	Y	132/145 (91%)	128 (97%)	4 (3%)	0	100	100
29	Z	133/136 (98%)	130 (98%)	3 (2%)	0	100	100
30	a	145/148 (98%)	138 (95%)	7 (5%)	0	100	100
31	b	94/245 (38%)	90 (96%)	4 (4%)	0	100	100
32	c	96/115 (84%)	95 (99%)	1 (1%)	0	100	100
33	d	105/125 (84%)	101 (96%)	4 (4%)	0	100	100
34	e	126/135 (93%)	123 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
35	f	107/110 (97%)	105 (98%)	2 (2%)	0	100	100
36	g	112/116 (97%)	108 (96%)	4 (4%)	0	100	100
37	h	120/123 (98%)	118 (98%)	2 (2%)	0	100	100
38	i	100/105 (95%)	98 (98%)	2 (2%)	0	100	100
39	k	67/70 (96%)	66 (98%)	1 (2%)	0	100	100
40	l	48/51 (94%)	48 (100%)	0	0	100	100
41	m	50/102 (49%)	48 (96%)	2 (4%)	0	100	100
42	n	23/25 (92%)	23 (100%)	0	0	100	100
43	o	102/106 (96%)	99 (97%)	3 (3%)	0	100	100
44	p	89/92 (97%)	85 (96%)	4 (4%)	0	100	100
45	r	122/137 (89%)	119 (98%)	3 (2%)	0	100	100
46	AA	215/295 (73%)	205 (95%)	10 (5%)	0	100	100
47	BB	211/264 (80%)	204 (97%)	7 (3%)	0	100	100
48	CC	219/293 (75%)	214 (98%)	5 (2%)	0	100	100
49	DD	222/243 (91%)	219 (99%)	3 (1%)	0	100	100
50	EE	260/263 (99%)	253 (97%)	7 (3%)	0	100	100
51	FF	180/204 (88%)	171 (95%)	9 (5%)	0	100	100
52	GG	235/249 (94%)	230 (98%)	5 (2%)	0	100	100
53	HH	181/194 (93%)	176 (97%)	5 (3%)	0	100	100
54	II	194/208 (93%)	190 (98%)	4 (2%)	0	100	100
55	JJ	179/194 (92%)	174 (97%)	5 (3%)	0	100	100
56	KK	94/165 (57%)	92 (98%)	2 (2%)	0	100	100
57	LL	139/158 (88%)	136 (98%)	3 (2%)	0	100	100
58	MM	108/132 (82%)	106 (98%)	2 (2%)	0	100	100
59	NN	147/151 (97%)	145 (99%)	2 (1%)	0	100	100
60	OO	134/168 (80%)	132 (98%)	2 (2%)	0	100	100
61	PP	127/145 (88%)	122 (96%)	5 (4%)	0	100	100
62	QQ	140/146 (96%)	137 (98%)	3 (2%)	0	100	100
63	RR	130/135 (96%)	129 (99%)	1 (1%)	0	100	100
64	SS	138/152 (91%)	134 (97%)	4 (3%)	0	100	100
65	TT	139/145 (96%)	139 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
66	UU	98/119 (82%)	95 (97%)	3 (3%)	0	100	100
67	VV	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
68	WW	127/130 (98%)	122 (96%)	5 (4%)	0	100	100
69	XX	138/143 (96%)	134 (97%)	4 (3%)	0	100	100
70	YY	122/130 (94%)	118 (97%)	4 (3%)	0	100	100
71	ZZ	73/125 (58%)	69 (94%)	4 (6%)	0	100	100
72	aa	99/115 (86%)	95 (96%)	4 (4%)	0	100	100
73	bb	81/84 (96%)	79 (98%)	2 (2%)	0	100	100
74	cc	60/69 (87%)	59 (98%)	1 (2%)	0	100	100
75	dd	53/56 (95%)	50 (94%)	3 (6%)	0	100	100
76	ee	55/133 (41%)	51 (93%)	4 (7%)	0	100	100
77	ff	66/156 (42%)	62 (94%)	4 (6%)	0	100	100
78	gg	311/317 (98%)	294 (94%)	17 (6%)	0	100	100
82	j	84/97 (87%)	82 (98%)	2 (2%)	0	100	100
All	All	11146/12891 (86%)	10840 (97%)	306 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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	
5	A	190/199 (96%)	190 (100%)	0	100	100
6	B	342/348 (98%)	342 (100%)	0	100	100
7	C	302/347 (87%)	302 (100%)	0	100	100
8	D	247/250 (99%)	247 (100%)	0	100	100
9	E	190/251 (76%)	190 (100%)	0	100	100
10	G	200/272 (74%)	200 (100%)	0	100	100
11	H	169/171 (99%)	169 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	I	175/181 (97%)	175 (100%)	0	100	100
13	J	143/149 (96%)	143 (100%)	0	100	100
14	K	196/215 (91%)	196 (100%)	0	100	100
15	L	175/176 (99%)	175 (100%)	0	100	100
16	M	117/161 (73%)	117 (100%)	0	100	100
17	N	171/172 (99%)	171 (100%)	0	100	100
18	O	171/173 (99%)	171 (100%)	0	100	100
19	P	134/163 (82%)	134 (100%)	0	100	100
20	Q	164/165 (99%)	164 (100%)	0	100	100
21	R	159/175 (91%)	159 (100%)	0	100	100
22	S	157/157 (100%)	157 (100%)	0	100	100
23	T	139/140 (99%)	139 (100%)	0	100	100
24	U	89/114 (78%)	89 (100%)	0	100	100
25	V	100/107 (94%)	100 (100%)	0	100	100
26	W	86/126 (68%)	86 (100%)	0	100	100
27	X	106/134 (79%)	106 (100%)	0	100	100
28	Y	124/135 (92%)	124 (100%)	0	100	100
29	Z	117/118 (99%)	117 (100%)	0	100	100
30	a	119/120 (99%)	119 (100%)	0	100	100
31	b	80/184 (44%)	80 (100%)	0	100	100
32	c	84/98 (86%)	84 (100%)	0	100	100
33	d	98/110 (89%)	98 (100%)	0	100	100
34	e	114/121 (94%)	114 (100%)	0	100	100
35	f	88/89 (99%)	88 (100%)	0	100	100
36	g	98/99 (99%)	98 (100%)	0	100	100
37	h	109/110 (99%)	109 (100%)	0	100	100
38	i	86/89 (97%)	86 (100%)	0	100	100
39	k	64/65 (98%)	64 (100%)	0	100	100
40	l	47/48 (98%)	47 (100%)	0	100	100
41	m	48/90 (53%)	48 (100%)	0	100	100
42	n	24/24 (100%)	24 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
43	o	92/94 (98%)	92 (100%)	0	100	100
44	p	74/75 (99%)	74 (100%)	0	100	100
45	r	108/121 (89%)	108 (100%)	0	100	100
46	AA	180/245 (74%)	180 (100%)	0	100	100
47	BB	194/231 (84%)	194 (100%)	0	100	100
48	CC	187/225 (83%)	186 (100%)	1 (0%)	81	89
49	DD	187/202 (93%)	187 (100%)	0	100	100
50	EE	224/225 (100%)	224 (100%)	0	100	100
51	FF	157/170 (92%)	157 (100%)	0	100	100
52	GG	207/218 (95%)	207 (100%)	0	100	100
53	HH	165/174 (95%)	165 (100%)	0	100	100
54	II	172/180 (96%)	172 (100%)	0	100	100
55	JJ	161/168 (96%)	161 (100%)	0	100	100
56	KK	87/136 (64%)	87 (100%)	0	100	100
57	LL	130/142 (92%)	130 (100%)	0	100	100
58	MM	94/108 (87%)	94 (100%)	0	100	100
59	NN	130/131 (99%)	130 (100%)	0	100	100
60	OO	106/130 (82%)	106 (100%)	0	100	100
61	PP	115/130 (88%)	115 (100%)	0	100	100
62	QQ	117/121 (97%)	117 (100%)	0	100	100
63	RR	119/121 (98%)	119 (100%)	0	100	100
64	SS	122/132 (92%)	122 (100%)	0	100	100
65	TT	111/115 (96%)	111 (100%)	0	100	100
66	UU	92/107 (86%)	92 (100%)	0	100	100
67	VV	67/67 (100%)	67 (100%)	0	100	100
68	WW	112/113 (99%)	112 (100%)	0	100	100
69	XX	112/115 (97%)	111 (99%)	1 (1%)	70	85
70	YY	107/112 (96%)	107 (100%)	0	100	100
71	ZZ	66/103 (64%)	66 (100%)	0	100	100
72	aa	88/98 (90%)	88 (100%)	0	100	100
73	bb	75/76 (99%)	75 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
74	cc	55/62 (89%)	55 (100%)	0	100	100
75	dd	48/49 (98%)	48 (100%)	0	100	100
76	ee	47/106 (44%)	47 (100%)	0	100	100
77	ff	61/140 (44%)	61 (100%)	0	100	100
78	gg	272/275 (99%)	272 (100%)	0	100	100
82	j	73/80 (91%)	73 (100%)	0	100	100
All	All	9736/10943 (89%)	9734 (100%)	2 (0%)	100	100

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
48	CC	248	TYR
69	XX	105	PHE

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

Mol	Chain	Res	Type
5	A	216	HIS
6	B	109	HIS
6	B	167	GLN
6	B	204	GLN
6	B	236	HIS
6	B	289	GLN
7	C	89	GLN
7	C	212	ASN
7	C	346	ASN
7	C	347	HIS
8	D	225	GLN
8	D	244	HIS
9	E	170	GLN
9	E	185	ASN
9	E	194	GLN
9	E	253	GLN
10	G	134	ASN
10	G	194	ASN
11	H	15	ASN
11	H	78	GLN
11	H	169	ASN
11	H	189	GLN

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Mol	Chain	Res	Type
12	I	59	GLN
12	I	100	ASN
13	J	71	HIS
13	J	98	ASN
14	K	23	ASN
14	K	79	ASN
14	K	199	HIS
17	N	8	GLN
17	N	37	HIS
17	N	109	HIS
17	N	117	ASN
18	O	26	GLN
18	O	50	ASN
19	P	25	HIS
19	P	56	GLN
19	P	116	HIS
20	Q	7	HIS
20	Q	57	ASN
21	R	34	ASN
21	R	143	HIS
22	S	50	GLN
23	T	66	ASN
23	T	98	HIS
24	U	44	GLN
25	V	77	HIS
26	W	17	HIS
26	W	59	HIS
26	W	63	GLN
27	X	93	ASN
30	a	14	HIS
30	a	19	HIS
30	a	28	HIS
30	a	60	HIS
30	a	120	GLN
32	c	72	HIS
35	f	20	ASN
36	g	18	ASN
39	k	31	ASN
41	m	94	ASN
43	o	105	GLN
45	r	23	GLN
45	r	45	HIS

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Mol	Chain	Res	Type
45	r	83	ASN
46	AA	132	GLN
47	BB	158	HIS
47	BB	179	ASN
48	CC	277	HIS
49	DD	159	HIS
51	FF	137	GLN
51	FF	203	ASN
52	GG	163	ASN
53	HH	12	ASN
53	HH	73	GLN
53	HH	162	GLN
53	HH	165	ASN
53	HH	186	ASN
55	JJ	124	HIS
56	KK	28	HIS
57	LL	11	GLN
57	LL	19	ASN
58	MM	19	GLN
58	MM	48	HIS
59	NN	105	ASN
60	OO	94	HIS
61	PP	114	HIS
61	PP	128	HIS
62	QQ	48	GLN
62	QQ	80	GLN
62	QQ	86	GLN
64	SS	11	HIS
64	SS	101	ASN
64	SS	105	ASN
66	UU	100	GLN
68	WW	15	ASN
68	WW	91	ASN
69	XX	46	HIS
69	XX	61	GLN
70	YY	15	ASN
70	YY	94	HIS
72	aa	17	HIS
72	aa	43	ASN
73	bb	84	HIS
74	cc	7	GLN
78	gg	56	GLN

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Mol	Chain	Res	Type
78	gg	117	ASN
78	gg	143	GLN
78	gg	226	HIS
82	j	48	ASN
82	j	76	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	5	3580/3601 (99%)	561 (15%)	178 (4%)
2	7	118/120 (98%)	6 (5%)	1 (0%)
3	8	149/156 (95%)	22 (14%)	4 (2%)
4	9	1685/1869 (90%)	248 (14%)	60 (3%)
79	10	10/185 (5%)	1 (10%)	0
80	12	74/76 (97%)	15 (20%)	6 (8%)
81	11	73/75 (97%)	13 (17%)	5 (6%)
81	13	73/75 (97%)	12 (16%)	5 (6%)
All	All	5762/6157 (93%)	878 (15%)	259 (4%)

All (878) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	5	13	U
1	5	15	A
1	5	25	A
1	5	39	A
1	5	42	A
1	5	43	U
1	5	58	G
1	5	59	A
1	5	65	A
1	5	74	G
1	5	91	G
1	5	109	G
1	5	119	G
1	5	120	A
1	5	122	U
1	5	126	C
1	5	134	G
1	5	135	G
1	5	136	C

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Mol	Chain	Res	Type
1	5	143	C
1	5	144	G
1	5	159	C
1	5	160	G
1	5	171	U
1	5	172	C
1	5	173	C
1	5	197	A
1	5	200	U
1	5	201	C
1	5	217	C
1	5	218	A
1	5	219	G
1	5	220	C
1	5	224	U
1	5	226	G
1	5	227	A
1	5	233	U
1	5	234	G
1	5	246	G
1	5	265	C
1	5	266	C
1	5	267	G
1	5	275	C
1	5	276	C
1	5	280	G
1	5	297	U
1	5	306	A
1	5	309	C
1	5	310	G
1	5	315	G
1	5	316	U
1	5	334	A
1	5	340	C
1	5	386	A
1	5	387	G
1	5	399	G
1	5	407	A
1	5	408	A
1	5	409	G
1	5	410	A
1	5	412	G

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Mol	Chain	Res	Type
1	5	413	G
1	5	431	G
1	5	432	U
1	5	449	C
1	5	450	G
1	5	452	A
1	5	453	G
1	5	454	U
1	5	468	U
1	5	480	C
1	5	481	G
1	5	482	G
1	5	483	G
1	5	484	U
1	5	485	C
1	5	486	C
1	5	492	U
1	5	493	G
1	5	497	G
1	5	499	G
1	5	505	G
1	5	661	C
1	5	666	G
1	5	683	C
1	5	685	C
1	5	696	C
1	5	697	G
1	5	704	C
1	5	705	G
1	5	730	G
1	5	731	G
1	5	738	C
1	5	747	A
1	5	748	G
1	5	749	G
1	5	758	G
1	5	913	U
1	5	914	U
1	5	915	A
1	5	916	C
1	5	917	A
1	5	923	C

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Mol	Chain	Res	Type
1	5	924	C
1	5	925	C
1	5	926	G
1	5	929	A
1	5	931	C
1	5	932	A
1	5	933	G
1	5	934	C
1	5	935	A
1	5	935(A)	G
1	5	936	C
1	5	937	U
1	5	943	A
1	5	944	A
1	5	945	U
1	5	955	G
1	5	956	A
1	5	959	G
1	5	960	A
1	5	961	G
1	5	967	C
1	5	969	C
1	5	972	C
1	5	983	C
1	5	1065	G
1	5	1070	G
1	5	1072	C
1	5	1073	G
1	5	1076	C
1	5	1079	C
1	5	1179	U
1	5	1195	G
1	5	1204	C
1	5	1211	G
1	5	1212	G
1	5	1214	C
1	5	1215	C
1	5	1234	G
1	5	1235	G
1	5	1236	C
1	5	1237	C
1	5	1238	A

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Mol	Chain	Res	Type
1	5	1239	C
1	5	1244	G
1	5	1248	C
1	5	1249	C
1	5	1250	C
1	5	1272	C
1	5	1273	G
1	5	1280	C
1	5	1284	G
1	5	1287	G
1	5	1292	C
1	5	1293	G
1	5	1294	A
1	5	1295	U
1	5	1296	G
1	5	1301	C
1	5	1304	C
1	5	1313	C
1	5	1326	A
1	5	1337	A
1	5	1354	A
1	5	1359	G
1	5	1370	G
1	5	1371	A
1	5	1377	G
1	5	1380	G
1	5	1381	U
1	5	1387	A
1	5	1394	G
1	5	1397	A
1	5	1398	A
1	5	1421	G
1	5	1437	C
1	5	1438	U
1	5	1440	U
1	5	1441	C
1	5	1445	U
1	5	1446	C
1	5	1455	G
1	5	1456	C
1	5	1478	C
1	5	1482	G

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Mol	Chain	Res	Type
1	5	1483	C
1	5	1484	G
1	5	1485	C
1	5	1486	C
1	5	1498	G
1	5	1502	G
1	5	1523	A
1	5	1534	A
1	5	1547	A
1	5	1566	C
1	5	1578	U
1	5	1591	U
1	5	1596	U
1	5	1612	G
1	5	1613	A
1	5	1614	C
1	5	1624	G
1	5	1625	G
1	5	1631	A
1	5	1633	G
1	5	1634	A
1	5	1654	G
1	5	1661	C
1	5	1676	C
1	5	1677	U
1	5	1691	G
1	5	1724	G
1	5	1733	G
1	5	1734	G
1	5	1741	G
1	5	1742	A
1	5	1750	G
1	5	1756	U
1	5	1760	G
1	5	1761	G
1	5	1764	G
1	5	1766	A
1	5	1768	C
1	5	1769	G
1	5	1773	U
1	5	1787	A
1	5	1805	A

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Mol	Chain	Res	Type
1	5	1819	G
1	5	1821	G
1	5	1822	U
1	5	1836	G
1	5	1837	A
1	5	1842	G
1	5	1855	G
1	5	1869	G
1	5	1897	A
1	5	1899	G
1	5	1918	U
1	5	1921	C
1	5	1922	G
1	5	1923	A
1	5	1931	C
1	5	1940	G
1	5	1948	G
1	5	1958	A
1	5	1959	U
1	5	1962	A
1	5	1964	A
1	5	1978	C
1	5	1980	U
1	5	1981	G
1	5	1984	A
1	5	1987	C
1	5	1991	A
1	5	1992	U
1	5	1993	C
1	5	2005	G
1	5	2008	U
1	5	2011	C
1	5	2023	C
1	5	2024	G
1	5	2026	A
1	5	2044	U
1	5	2048	U
1	5	2052	G
1	5	2055	G
1	5	2056	G
1	5	2069	A
1	5	2084	U

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Mol	Chain	Res	Type
1	5	2085	G
1	5	2089	G
1	5	2090	U
1	5	2092	G
1	5	2093	G
1	5	2094	C
1	5	2097	A
1	5	2098	G
1	5	2100	G
1	5	2102	G
1	5	2104	A
1	5	2106	G
1	5	2107	A
1	5	2108	G
1	5	2110	G
1	5	2259	G
1	5	2260	C
1	5	2262	G
1	5	2266	C
1	5	2267	U
1	5	2268	A
1	5	2279	A
1	5	2289	C
1	5	2300	A
1	5	2301	G
1	5	2313	A
1	5	2314	G
1	5	2332	A
1	5	2333	G
1	5	2348	G
1	5	2351	C
1	5	2395	A
1	5	2396	A
1	5	2397	G
1	5	2398	U
1	5	2399	G
1	5	2421	G
1	5	2422	C
1	5	2441	C
1	5	2447	U
1	5	2471	G
1	5	2475	G

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Mol	Chain	Res	Type
1	5	2488	C
1	5	2489	C
1	5	2491	C
1	5	2503	G
1	5	2504	C
1	5	2506	G
1	5	2507	A
1	5	2511	A
1	5	2513	A
1	5	2520	C
1	5	2546	G
1	5	2547	G
1	5	2553	A
1	5	2554	U
1	5	2555	G
1	5	2587	A
1	5	2652	G
1	5	2653	C
1	5	2669	C
1	5	2686	G
1	5	2687	U
1	5	2695	A
1	5	2696	A
1	5	2705	G
1	5	2708	U
1	5	2709	C
1	5	2711	G
1	5	2712	G
1	5	2719	C
1	5	2726	G
1	5	2735	G
1	5	2740	U
1	5	2743	A
1	5	2760	G
1	5	2761	U
1	5	2763	U
1	5	2764	A
1	5	2772	C
1	5	2787	A
1	5	2789	A
1	5	2790	U
1	5	2794	C

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Mol	Chain	Res	Type
1	5	2795	A
1	5	2826	U
1	5	2827	G
1	5	2828	U
1	5	2842	G
1	5	2855	G
1	5	3598	C
1	5	3604	A
1	5	3605	C
1	5	3614	G
1	5	3615	G
1	5	3625	G
1	5	3626	G
1	5	3635	A
1	5	3644	U
1	5	3662	A
1	5	3672	G
1	5	3673	C
1	5	3674	G
1	5	3711	A
1	5	3712	A
1	5	3714	G
1	5	3748	A
1	5	3753	G
1	5	3759	A
1	5	3760	A
1	5	3777	G
1	5	3783	A
1	5	3784	A
1	5	3811	G
1	5	3812	C
1	5	3814	U
1	5	3817	A
1	5	3819	G
1	5	3838	U
1	5	3839	G
1	5	3840	U
1	5	3877	A
1	5	3878	C
1	5	3879	G
1	5	3888	G
1	5	3889	G

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Mol	Chain	Res	Type
1	5	3897	G
1	5	3901	A
1	5	3905	A
1	5	3906	A
1	5	3907	G
1	5	3908	A
1	5	3915	U
1	5	3939	G
1	5	3949	A
1	5	3950	U
1	5	3952	A
1	5	3960	A
1	5	3963	A
1	5	3964	U
1	5	3966	A
1	5	3967	G
1	5	3969	G
1	5	3971	G
1	5	3972	A
1	5	3973	G
1	5	3976	C
1	5	4041	C
1	5	4042	G
1	5	4046	A
1	5	4047	A
1	5	4048	A
1	5	4049	U
1	5	4069	U
1	5	4070	U
1	5	4076	G
1	5	4085	A
1	5	4115	G
1	5	4116	C
1	5	4120	U
1	5	4121	G
1	5	4122	G
1	5	4127	A
1	5	4163	U
1	5	4170	A
1	5	4171	C
1	5	4183	G
1	5	4184	G

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Mol	Chain	Res	Type
1	5	4191	G
1	5	4203	A
1	5	4213	A
1	5	4229	U
1	5	4233	A
1	5	4234	A
1	5	4251	A
1	5	4255	A
1	5	4258	C
1	5	4266	G
1	5	4267	G
1	5	4268	A
1	5	4271	A
1	5	4273	A
1	5	4280	A
1	5	4281	A
1	5	4282	A
1	5	4291	G
1	5	4305	G
1	5	4306	U
1	5	4329	G
1	5	4330	G
1	5	4339	A
1	5	4349	C
1	5	4354	U
1	5	4355	G
1	5	4371	G
1	5	4373	G
1	5	4376	A
1	5	4377	G
1	5	4378	A
1	5	4379	A
1	5	4387	C
1	5	4394	A
1	5	4395	U
1	5	4396	A
1	5	4401	G
1	5	4422	A
1	5	4448	G
1	5	4449	A
1	5	4452	U
1	5	4453	C

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Mol	Chain	Res	Type
1	5	4464	A
1	5	4475	G
1	5	4476	C
1	5	4500	U
1	5	4512	U
1	5	4513	A
1	5	4519	C
1	5	4522	G
1	5	4524	G
1	5	4548	A
1	5	4549	G
1	5	4572	U
1	5	4573	G
1	5	4575	G
1	5	4590	A
1	5	4627	U
1	5	4635	A
1	5	4636	U
1	5	4637	G
1	5	4656	A
1	5	4670	C
1	5	4671	C
1	5	4672	A
1	5	4677	U
1	5	4678	G
1	5	4693	C
1	5	4709	U
1	5	4719	G
1	5	4720	C
1	5	4721	G
1	5	4736	C
1	5	4737	G
1	5	4745	G
1	5	4750	G
1	5	4754	G
1	5	4757	C
1	5	4758	U
1	5	4759	C
1	5	4765	G
1	5	4771	C
1	5	4870	G
1	5	4871	C

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Mol	Chain	Res	Type
1	5	4875	G
1	5	4882	U
1	5	4883	C
1	5	4885	U
1	5	4895	C
1	5	4909	A
1	5	4910	A
1	5	4913	G
1	5	4914	G
1	5	4915	G
1	5	4920	C
1	5	4921	C
1	5	4922	C
1	5	4926	C
1	5	4931	G
1	5	4937	C
1	5	4942	C
1	5	4943	A
1	5	4944	C
1	5	4945	G
1	5	4948	C
1	5	4951	G
1	5	4956	A
1	5	4958	C
1	5	4965	U
1	5	4966	A
1	5	4976	U
1	5	4988	U
1	5	4989	U
1	5	4990	C
1	5	4991	U
1	5	5017	G
1	5	5041	G
1	5	5047	C
1	5	5050	C
1	5	5054	C
1	5	5062	G
1	5	5069	U
2	7	7	G
2	7	42	A
2	7	53	U
2	7	64	G

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Mol	Chain	Res	Type
2	7	100	A
2	7	110	G
3	8	2	G
3	8	34	U
3	8	35	C
3	8	51	U
3	8	52	A
3	8	59	A
3	8	62	A
3	8	63	U
3	8	87	G
3	8	94	G
3	8	95	A
3	8	104	A
3	8	105	C
3	8	109	C
3	8	110	U
3	8	111	U
3	8	114	G
3	8	123	U
3	8	124	U
3	8	125	C
3	8	126	C
3	8	137	A
4	9	4	C
4	9	17	C
4	9	25	A
4	9	26	U
4	9	33	G
4	9	41	G
4	9	46	A
4	9	56	G
4	9	58	C
4	9	67	C
4	9	68	A
4	9	73	C
4	9	74	G
4	9	75	G
4	9	79	A
4	9	103	A
4	9	111	A
4	9	113	G

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Mol	Chain	Res	Type
4	9	115	U
4	9	126	G
4	9	127	C
4	9	130	G
4	9	143	U
4	9	147	A
4	9	161	U
4	9	162	C
4	9	180	G
4	9	181	A
4	9	183	G
4	9	184	G
4	9	188	C
4	9	192	C
4	9	215	G
4	9	294	U
4	9	312	G
4	9	319	C
4	9	347	G
4	9	362	C
4	9	364	A
4	9	369	C
4	9	370	G
4	9	383	G
4	9	384	U
4	9	385	G
4	9	386	C
4	9	400	C
4	9	408	A
4	9	409	C
4	9	417	C
4	9	418	A
4	9	428	U
4	9	448	A
4	9	449	A
4	9	450	C
4	9	452	G
4	9	454	U
4	9	465	A
4	9	466	G
4	9	472	C
4	9	474	G

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Mol	Chain	Res	Type
4	9	482	G
4	9	487	U
4	9	492	C
4	9	496	C
4	9	502	C
4	9	516	A
4	9	517	C
4	9	525	A
4	9	531	A
4	9	532	C
4	9	533	A
4	9	541	U
4	9	544	G
4	9	550	C
4	9	551	U
4	9	554	A
4	9	555	A
4	9	556	U
4	9	557	U
4	9	559	G
4	9	561	A
4	9	562	U
4	9	564	A
4	9	587	A
4	9	588	G
4	9	589	G
4	9	590	A
4	9	591	U
4	9	606	G
4	9	607	U
4	9	608	C
4	9	614	C
4	9	617	G
4	9	620	G
4	9	621	C
4	9	628	A
4	9	643	A
4	9	644	G
4	9	655	A
4	9	664	A
4	9	668	A
4	9	669	A

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Mol	Chain	Res	Type
4	9	671	A
4	9	672	A
4	9	673	G
4	9	690	G
4	9	691	G
4	9	752	G
4	9	753	C
4	9	754	G
4	9	797	C
4	9	799	U
4	9	811	A
4	9	821	G
4	9	822	U
4	9	830	A
4	9	847	A
4	9	859	G
4	9	867	G
4	9	868	G
4	9	869	A
4	9	870	A
4	9	872	A
4	9	873	G
4	9	874	G
4	9	875	A
4	9	876	C
4	9	887	U
4	9	888	U
4	9	889	U
4	9	890	U
4	9	891	G
4	9	892	U
4	9	913	A
4	9	914	U
4	9	920	A
4	9	922	A
4	9	933	G
4	9	943	U
4	9	990	A
4	9	992	A
4	9	999	G
4	9	1017	U
4	9	1023	A

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Mol	Chain	Res	Type
4	9	1062	A
4	9	1083	A
4	9	1085	C
4	9	1115	U
4	9	1116	C
4	9	1117	C
4	9	1138	C
4	9	1139	C
4	9	1153	C
4	9	1154	U
4	9	1195	A
4	9	1207	G
4	9	1208	A
4	9	1215	C
4	9	1216	C
4	9	1242	U
4	9	1251	A
4	9	1253	A
4	9	1254	C
4	9	1256	G
4	9	1257	G
4	9	1259	A
4	9	1274	G
4	9	1275	G
4	9	1285	G
4	9	1286	G
4	9	1293	A
4	9	1300	U
4	9	1301	A
4	9	1302	G
4	9	1303	C
4	9	1308	U
4	9	1309	C
4	9	1314	U
4	9	1371	U
4	9	1372	U
4	9	1378	A
4	9	1396	A
4	9	1397	U
4	9	1401	A
4	9	1406	G
4	9	1428	G

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Mol	Chain	Res	Type
4	9	1429	G
4	9	1454	A
4	9	1455	A
4	9	1462	U
4	9	1463	U
4	9	1476	A
4	9	1477	U
4	9	1490	G
4	9	1498	A
4	9	1509	U
4	9	1521	C
4	9	1522	A
4	9	1533	A
4	9	1548	G
4	9	1552	G
4	9	1555	U
4	9	1556	A
4	9	1557	C
4	9	1567	G
4	9	1579	A
4	9	1580	A
4	9	1581	C
4	9	1587	G
4	9	1588	A
4	9	1601	A
4	9	1621	U
4	9	1623	A
4	9	1637	A
4	9	1638	G
4	9	1639	G
4	9	1648	G
4	9	1654	G
4	9	1665	G
4	9	1666	C
4	9	1671	G
4	9	1680	G
4	9	1699	A
4	9	1721	U
4	9	1722	G
4	9	1753	C
4	9	1756	C
4	9	1757	G

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Mol	Chain	Res	Type
4	9	1758	G
4	9	1783	C
4	9	1785	C
4	9	1800	A
4	9	1823	A
4	9	1824	A
4	9	1829	G
4	9	1834	A
4	9	1835	A
4	9	1836	G
4	9	1837	G
4	9	1838	U
4	9	1849	G
4	9	1851	A
4	9	1852	C
4	9	1861	G
4	9	1862	G
4	9	1863	A
4	9	1865	C
4	9	1869	A
79	10	19	U
80	12	9	A
80	12	10	G
80	12	13	C
80	12	17	U
80	12	19	G
80	12	20	G
80	12	21	A
80	12	40	C
80	12	41	U
80	12	42	G
80	12	52	U
80	12	55	U
80	12	60	C
80	12	61	C
80	12	74	C
81	13	17	C
81	13	18	G
81	13	20	A
81	13	21	A
81	13	22	G
81	13	47	U

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Mol	Chain	Res	Type
81	13	48	C
81	13	58	A
81	13	59	A
81	13	74	C
81	13	75	C
81	13	76	A
81	11	10	G
81	11	11	G
81	11	17	C
81	11	18	G
81	11	20	A
81	11	22	G
81	11	47	U
81	11	48	C
81	11	58	A
81	11	59	A
81	11	74	C
81	11	75	C
81	11	76	A

All (259) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	5	42	A
1	5	64	A
1	5	125	C
1	5	134	G
1	5	172	C
1	5	217	C
1	5	218	A
1	5	226	G
1	5	245	C
1	5	262	G
1	5	263	G
1	5	265	C
1	5	266	C
1	5	275	C
1	5	385	A
1	5	406	C
1	5	408	A
1	5	432	U
1	5	449	C

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Mol	Chain	Res	Type
1	5	468	U
1	5	480	C
1	5	482	G
1	5	484	U
1	5	492	U
1	5	504	G
1	5	696	C
1	5	729	G
1	5	747	A
1	5	915	A
1	5	916	C
1	5	924	C
1	5	930	G
1	5	935(A)	G
1	5	936	C
1	5	955	G
1	5	959	G
1	5	960	A
1	5	966	A
1	5	971(A)	G
1	5	1064	G
1	5	1072	C
1	5	1179	U
1	5	1209	U
1	5	1211	G
1	5	1214	C
1	5	1237	C
1	5	1238	A
1	5	1249	C
1	5	1271	G
1	5	1283	G
1	5	1291	G
1	5	1294	A
1	5	1324	A
1	5	1325	C
1	5	1370	G
1	5	1377	G
1	5	1380	G
1	5	1387	A
1	5	1438	U
1	5	1440	U
1	5	1445	U

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Mol	Chain	Res	Type
1	5	1455	G
1	5	1477	C
1	5	1483	C
1	5	1485	C
1	5	1534	A
1	5	1613	A
1	5	1633	G
1	5	1678	C
1	5	1733	G
1	5	1741	G
1	5	1804	A
1	5	1818	G
1	5	1835	G
1	5	1836	G
1	5	1898	C
1	5	1920	C
1	5	1921	C
1	5	1947	U
1	5	1957	U
1	5	1958	A
1	5	1977	C
1	5	1979	A
1	5	1986	U
1	5	1992	U
1	5	2001	G
1	5	2010	A
1	5	2023	C
1	5	2088	A
1	5	2089	G
1	5	2093	G
1	5	2094	C
1	5	2106	G
1	5	2266	C
1	5	2267	U
1	5	2278	G
1	5	2313	A
1	5	2396	A
1	5	2398	U
1	5	2421	G
1	5	2428	A
1	5	2474	G
1	5	2502	A

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Mol	Chain	Res	Type
1	5	2503	G
1	5	2506	G
1	5	2529	A
1	5	2546	G
1	5	2553	A
1	5	2587	A
1	5	2652	G
1	5	2696	A
1	5	2761	U
1	5	2763	U
1	5	2794	C
1	5	3603	G
1	5	3604	A
1	5	3614	G
1	5	3625	G
1	5	3672	G
1	5	3673	C
1	5	3710	G
1	5	3711	A
1	5	3810	C
1	5	3876	A
1	5	3888	G
1	5	3904	G
1	5	3907	G
1	5	3949	A
1	5	3951	G
1	5	3959	U
1	5	3966	A
1	5	3968	U
1	5	3972	A
1	5	4041	C
1	5	4046	A
1	5	4047	A
1	5	4048	A
1	5	4069	U
1	5	4084	G
1	5	4115	G
1	5	4119	C
1	5	4121	G
1	5	4127	A
1	5	4170	A
1	5	4232	U

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Mol	Chain	Res	Type
1	5	4233	A
1	5	4254	G
1	5	4266	G
1	5	4281	A
1	5	4305	G
1	5	4348	A
1	5	4354	U
1	5	4376	A
1	5	4395	U
1	5	4448	G
1	5	4452	U
1	5	4475	G
1	5	4527	G
1	5	4548	A
1	5	4572	U
1	5	4626	A
1	5	4635	A
1	5	4677	U
1	5	4719	G
1	5	4736	C
1	5	4884	G
1	5	4909	A
1	5	4913	G
1	5	4920	C
1	5	4921	C
1	5	4925	U
1	5	4936	G
1	5	4942	C
1	5	4947	U
1	5	4965	U
1	5	4990	C
1	5	5013	C
1	5	5061	A
2	7	53	U
3	8	51	U
3	8	94	G
3	8	124	U
3	8	125	C
4	9	24	C
4	9	25	A
4	9	72	C
4	9	110	U

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Mol	Chain	Res	Type
4	9	126	G
4	9	160	U
4	9	180	G
4	9	369	C
4	9	383	G
4	9	400	C
4	9	448	A
4	9	465	A
4	9	516	A
4	9	532	C
4	9	550	C
4	9	553	U
4	9	555	A
4	9	561	A
4	9	591	U
4	9	606	G
4	9	620	G
4	9	655	A
4	9	690	G
4	9	752	G
4	9	821	G
4	9	858	A
4	9	867	G
4	9	869	A
4	9	872	A
4	9	875	A
4	9	891	G
4	9	919	A
4	9	1016	U
4	9	1061	U
4	9	1115	U
4	9	1137	U
4	9	1138	C
4	9	1153	C
4	9	1165	G
4	9	1215	C
4	9	1253	A
4	9	1274	G
4	9	1308	U
4	9	1313	A
4	9	1395	C
4	9	1396	A

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Mol	Chain	Res	Type
4	9	1428	G
4	9	1454	A
4	9	1476	A
4	9	1489	A
4	9	1580	A
4	9	1637	A
4	9	1638	G
4	9	1665	G
4	9	1679	A
4	9	1757	G
4	9	1835	A
4	9	1837	G
4	9	1863	A
4	9	1868	U
80	12	18	G
80	12	39	U
80	12	40	C
80	12	55	U
80	12	58	A
80	12	60	C
81	13	16	G
81	13	19	G
81	13	20	A
81	13	58	A
81	13	74	C
81	11	10	G
81	11	16	G
81	11	19	G
81	11	58	A
81	11	74	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 12 ligands modelled in this entry, 6 are monoatomic - leaving 6 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
83	SPD	5	5101	-	9,9,9	0.30	0	8,8,8	0.79	0
88	MET	13	102	81	6,7,8	0.51	0	2,7,9	0.41	0
87	ATP	13	101	81	32,33,33	0.34	0	48,52,52	0.48	0
85	GTP	12	101	80	33,34,34	1.01	3 (9%)	50,54,54	1.63	8 (16%)
87	ATP	11	101	81	32,33,33	0.32	0	48,52,52	0.53	0
86	PHE	12	102	80	10,11,12	0.43	0	8,13,15	0.15	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
83	SPD	5	5101	-	-	0/7/7/7	-
88	MET	13	102	81	-	1/5/6/8	-
87	ATP	13	101	81	-	2/22/38/38	0/3/3/3
85	GTP	12	101	80	-	2/22/38/38	0/3/3/3
87	ATP	11	101	81	-	2/22/38/38	0/3/3/3
86	PHE	12	102	80	-	0/5/6/8	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
85	12	101	GTP	C2-N3	2.31	1.38	1.33
85	12	101	GTP	C5-N7	-2.07	1.34	1.39
85	12	101	GTP	PB-O3A	2.01	1.61	1.59

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
85	12	101	GTP	C5-C4-N3	-5.29	119.96	128.39
85	12	101	GTP	C2-N3-C4	4.51	120.07	112.30
85	12	101	GTP	N9-C4-N3	3.48	132.92	125.95
85	12	101	GTP	C2-N1-C6	-3.13	119.44	125.11
85	12	101	GTP	O6-C6-C5	-2.66	119.52	126.53
85	12	101	GTP	C5-C6-N1	2.56	119.77	113.25
85	12	101	GTP	N9-C8-N7	-2.28	109.18	113.40
85	12	101	GTP	C8-N7-C5	2.27	108.30	104.26

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
85	12	101	GTP	C5'-O5'-PA-O3A
85	12	101	GTP	C5'-O5'-PA-O2A
88	13	102	MET	O-C-CA-CB
87	13	101	ATP	O4'-C4'-C5'-O5'
87	13	101	ATP	C3'-C4'-C5'-O5'
87	11	101	ATP	PG-O3B-PB-O1B
87	11	101	ATP	PG-O3B-PB-O2B

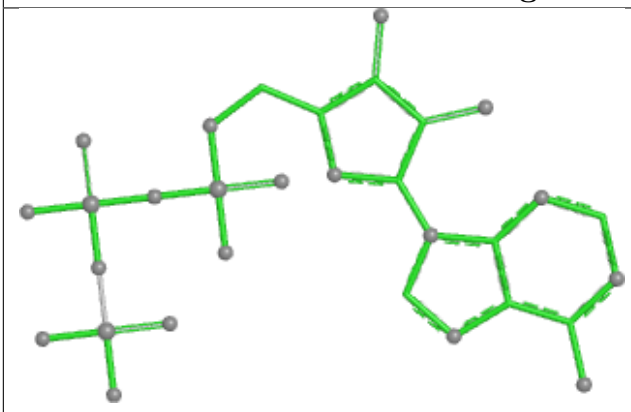
There are no ring outliers.

5 monomers are involved in 5 short contacts:

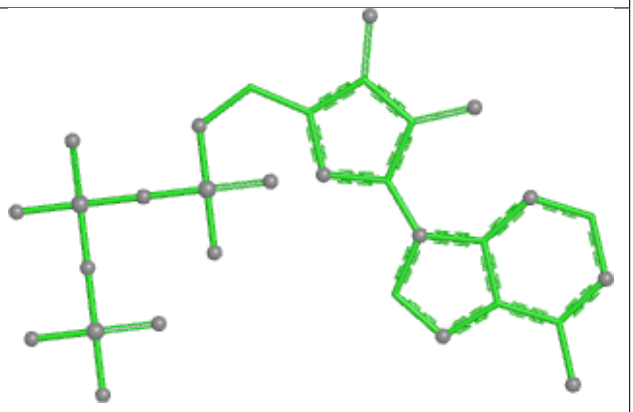
Mol	Chain	Res	Type	Clashes	Symm-Clashes
83	5	5101	SPD	1	0
88	13	102	MET	2	0
87	13	101	ATP	1	0
85	12	101	GTP	1	0
86	12	102	PHE	1	0

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

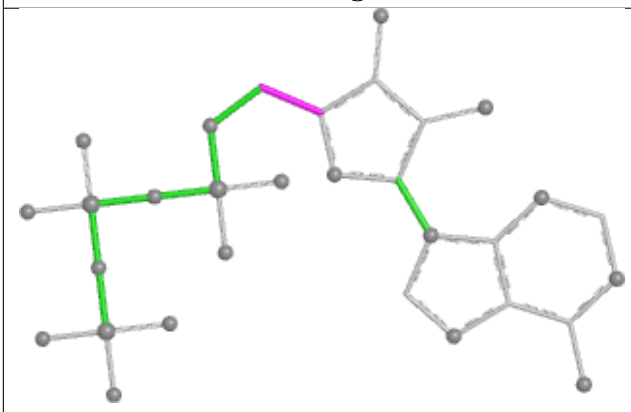
Ligand ATP 13 101



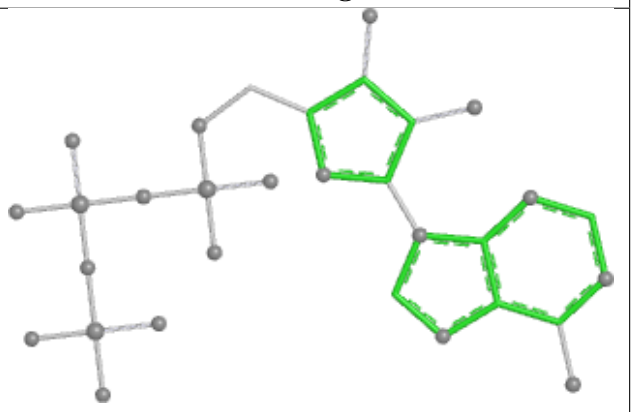
Bond lengths



Bond angles

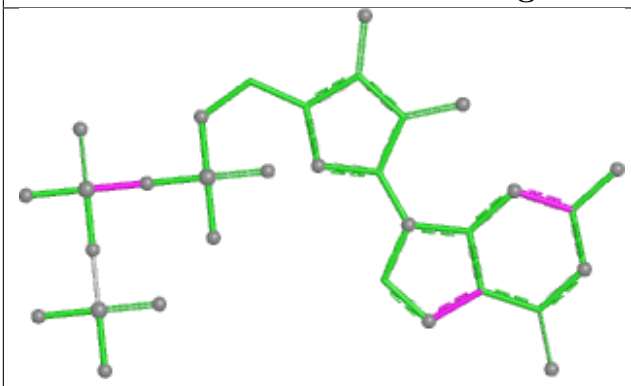


Torsions

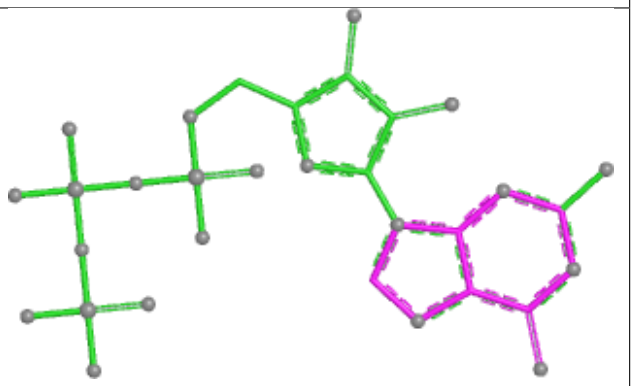


Rings

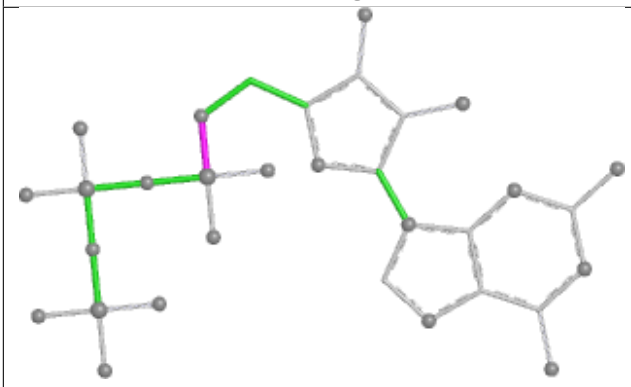
Ligand GTP 12 101



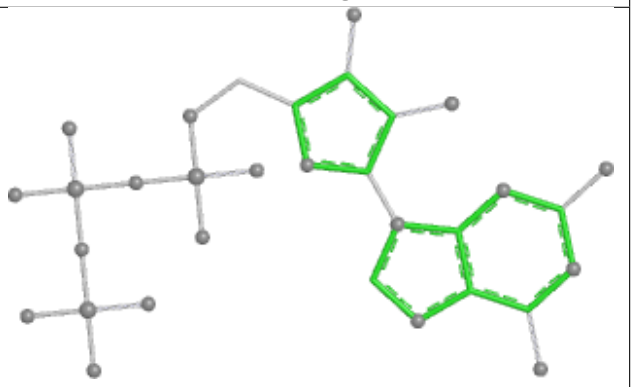
Bond lengths



Bond angles

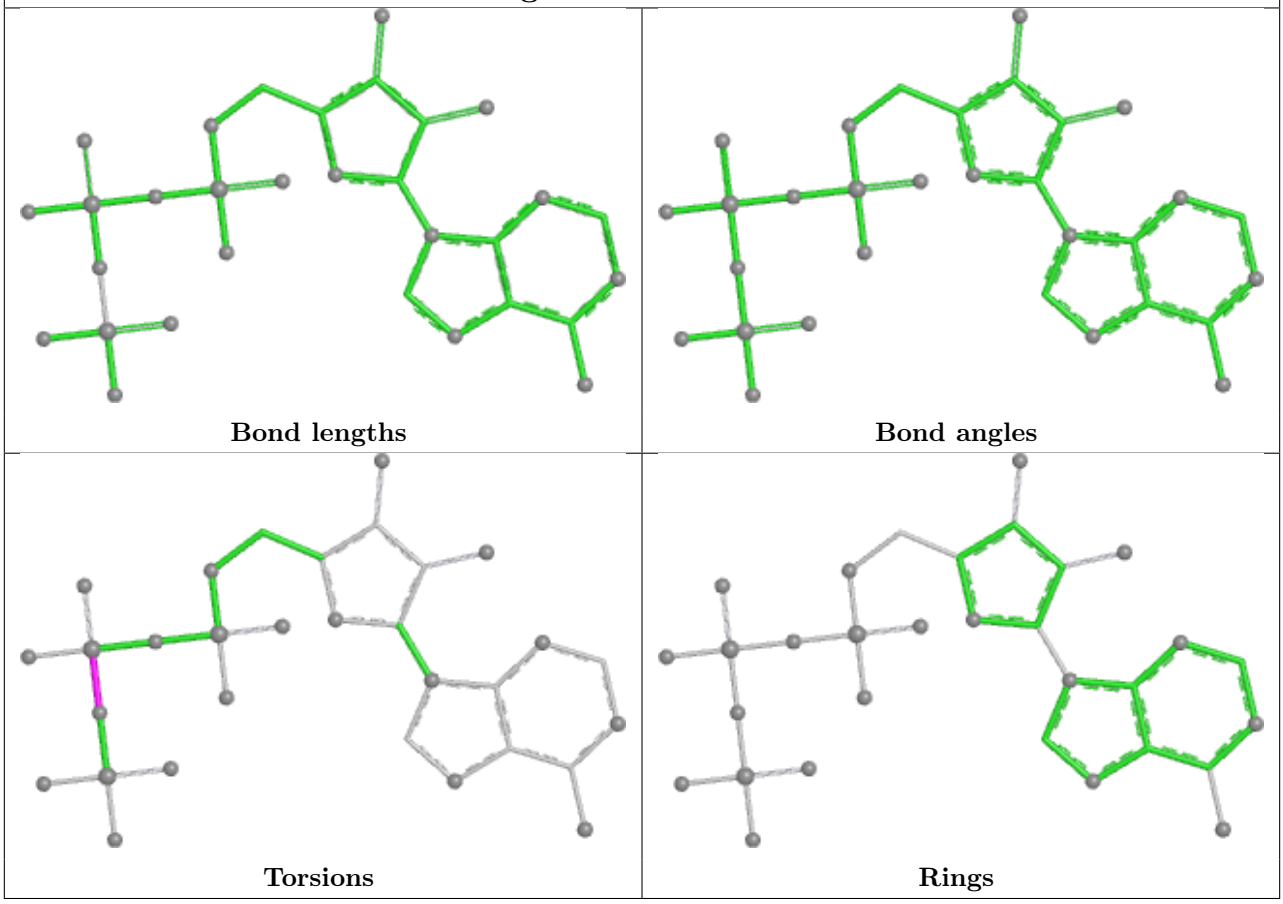


Torsions



Rings

Ligand ATP 11 101



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
1	5	23

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	2113:G	O3'	2258:C	P	40.85
1	5	1252:C	O3'	1271:G	P	35.70
1	5	1219:G	O3'	1233:G	P	20.96
1	5	3976:C	O3'	4035:G	P	18.46
1	5	523:C	O3'	638:G	P	17.48

Continued on next page...

Continued from previous page...

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	1406(C):G	O3'	1411:C	P	17.46
1	5	4101:C	O3'	4107:G	P	17.18
1	5	990:C	O3'	1064:G	P	16.87
1	5	4138:C	O3'	4146:G	P	16.84
1	5	4777:C	O3'	4859:C	P	16.83
1	5	760:G	O3'	904:C	P	15.97
1	5	1696:C	O3'	1720:C	P	14.94
1	5	5022:U	O3'	5028:G	P	14.28
1	5	1364:U	O3'	1368:A	P	14.26
1	5	2901:G	O3'	3597:G	P	13.13
1	5	182:G	O3'	189:G	P	11.25
1	5	1180:C	O3'	1183:C	P	10.44
1	5	4729:A	O3'	4735:G	P	9.63
1	5	512:U	O3'	515:C	P	7.63
1	5	4740:G	O3'	4743:G	P	5.93
1	5	1100:U	O3'	1168:G	P	4.98
1	5	500:G	O3'	504:G	P	4.93
1	5	4899:G	O3'	4902:C	P	4.89

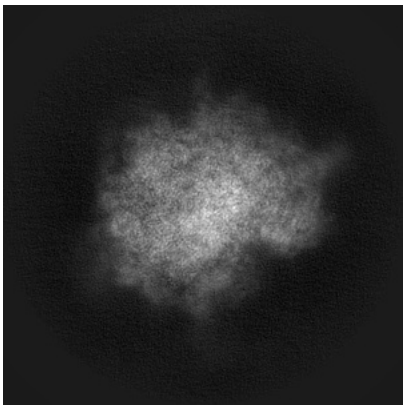
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-73314. These allow visual inspection of the internal detail of the map and identification of artifacts.

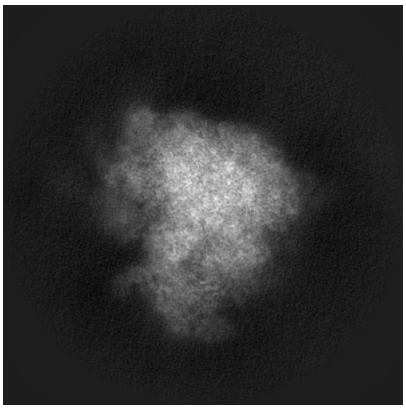
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

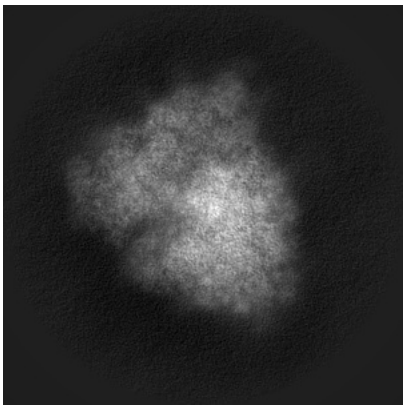
6.1.1 Primary map



X

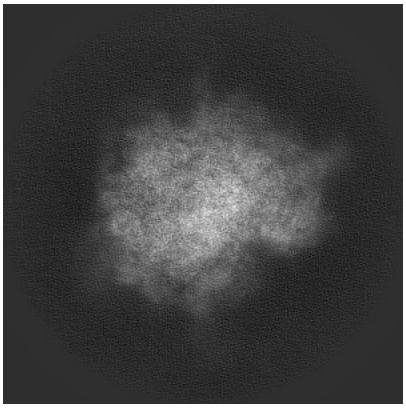


Y

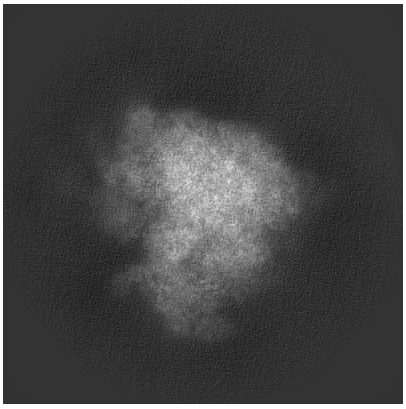


Z

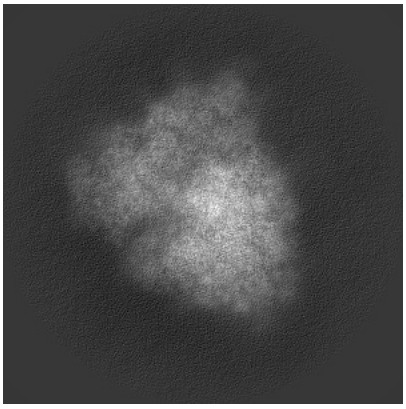
6.1.2 Raw map



X



Y

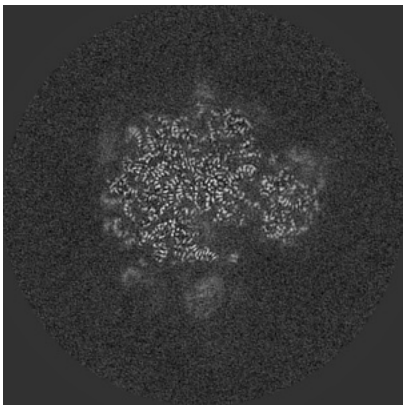


Z

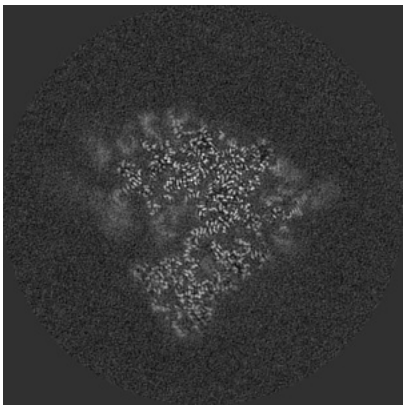
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

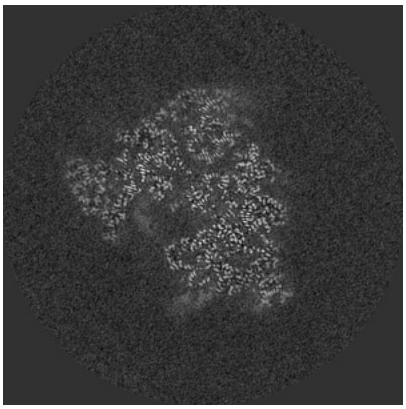
6.2.1 Primary map



X Index: 200

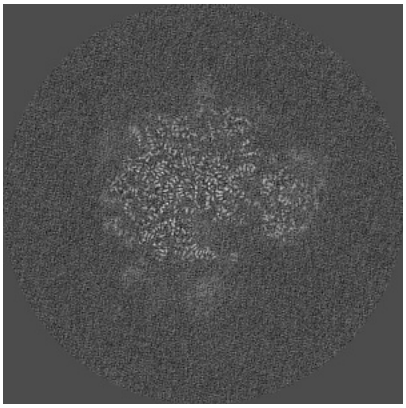


Y Index: 200

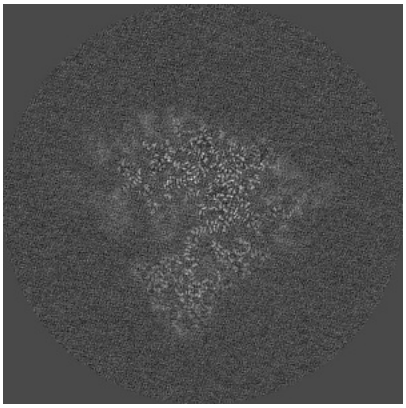


Z Index: 200

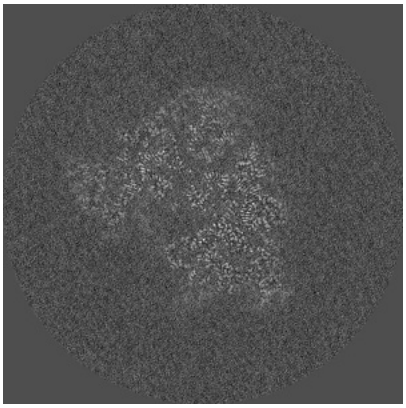
6.2.2 Raw map



X Index: 200



Y Index: 200

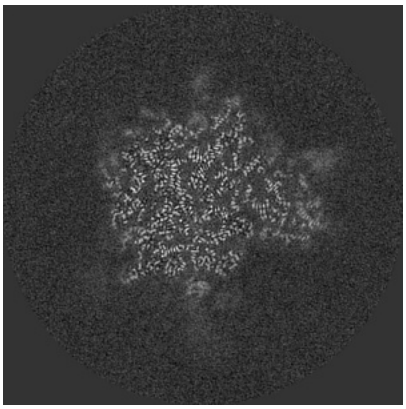


Z Index: 200

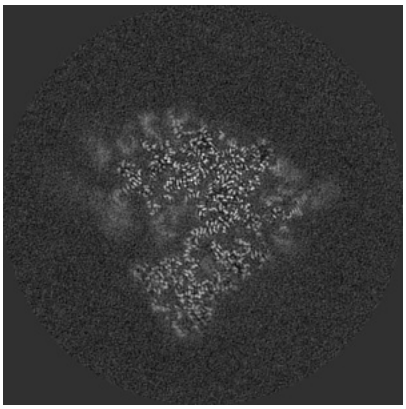
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

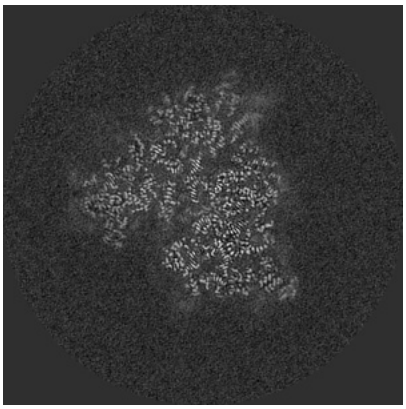
6.3.1 Primary map



X Index: 214

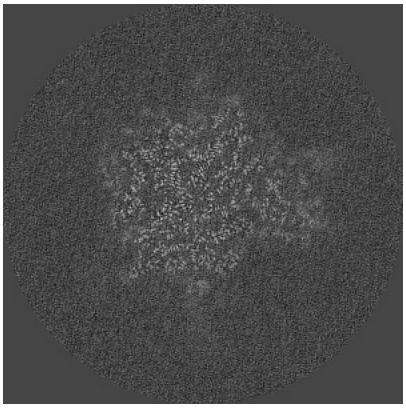


Y Index: 200

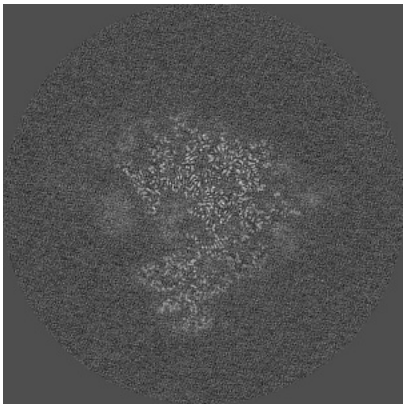


Z Index: 191

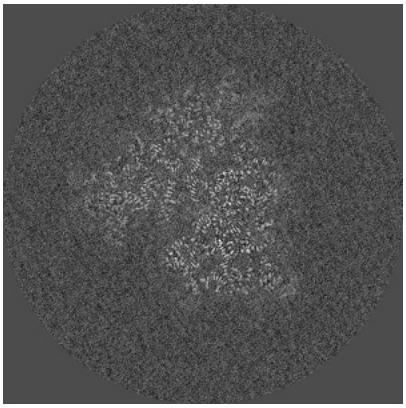
6.3.2 Raw map



X Index: 214



Y Index: 205

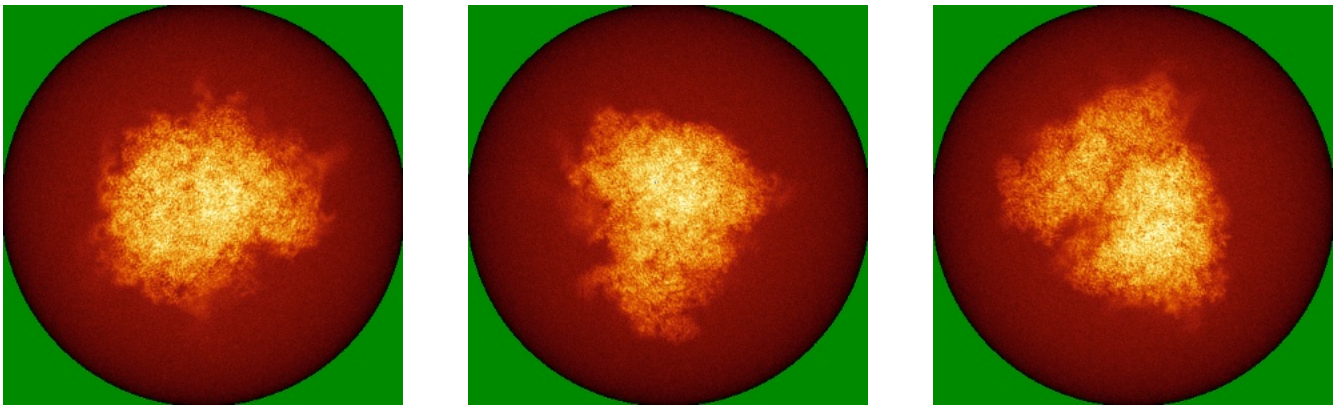


Z Index: 191

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

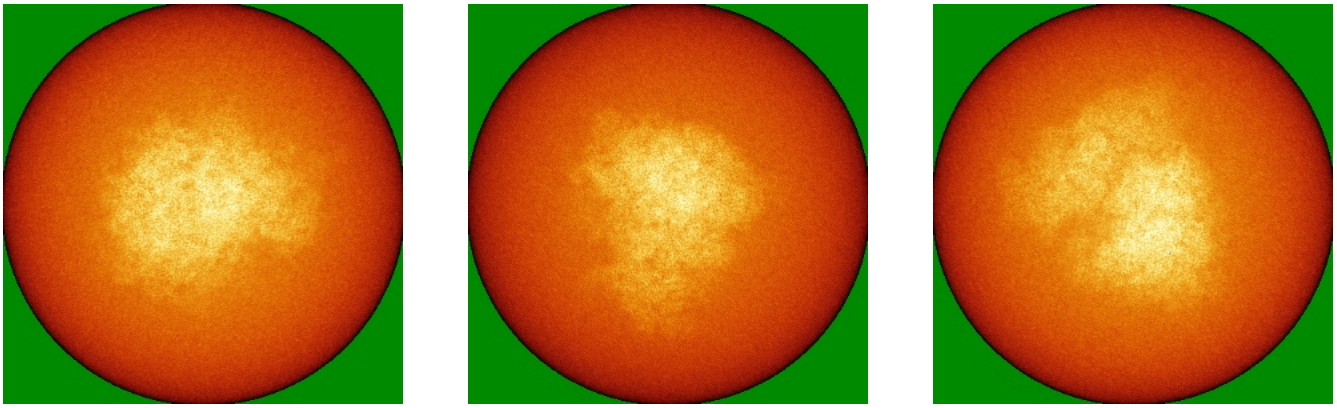
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



X Y Z

6.4.2 Raw map



X Y Z

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

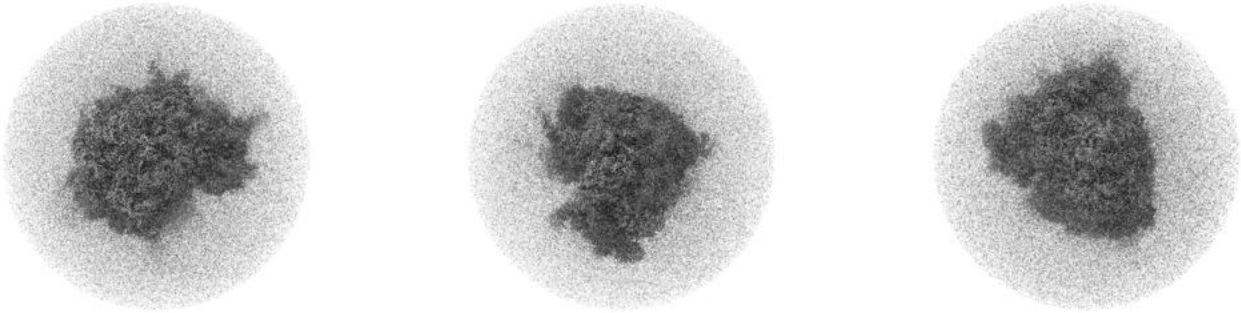
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

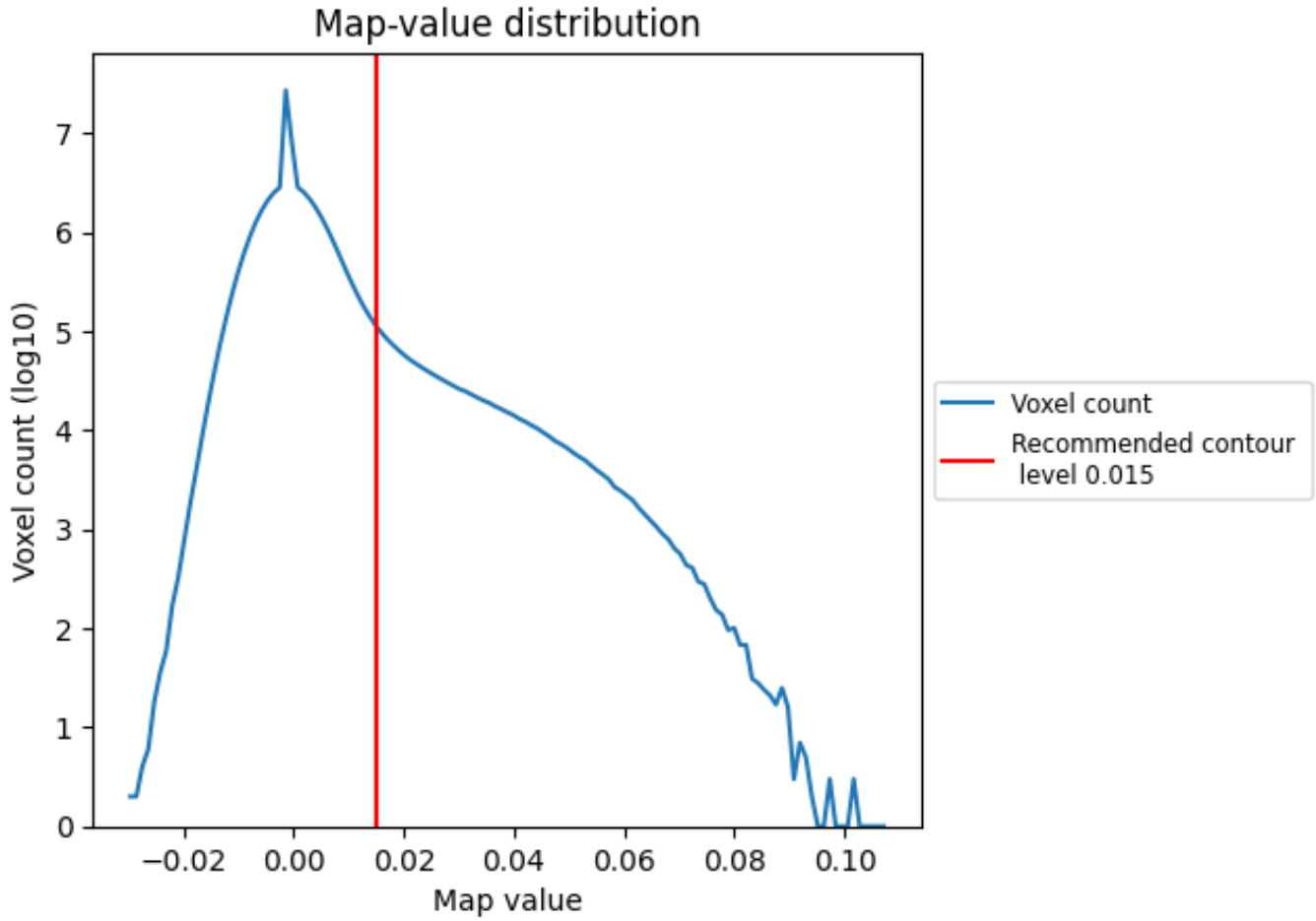
6.6 Mask visualisation (i)

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

7 Map analysis

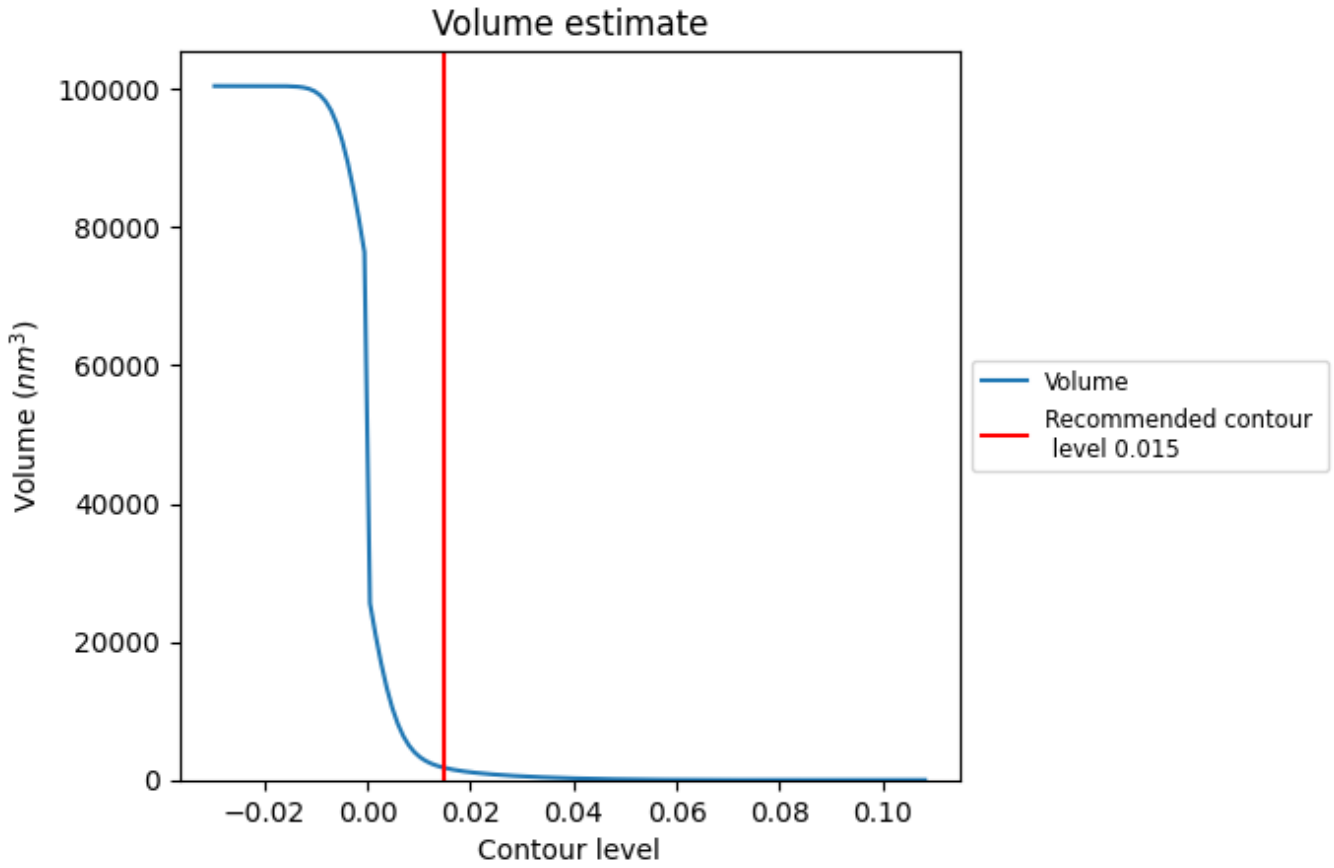
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

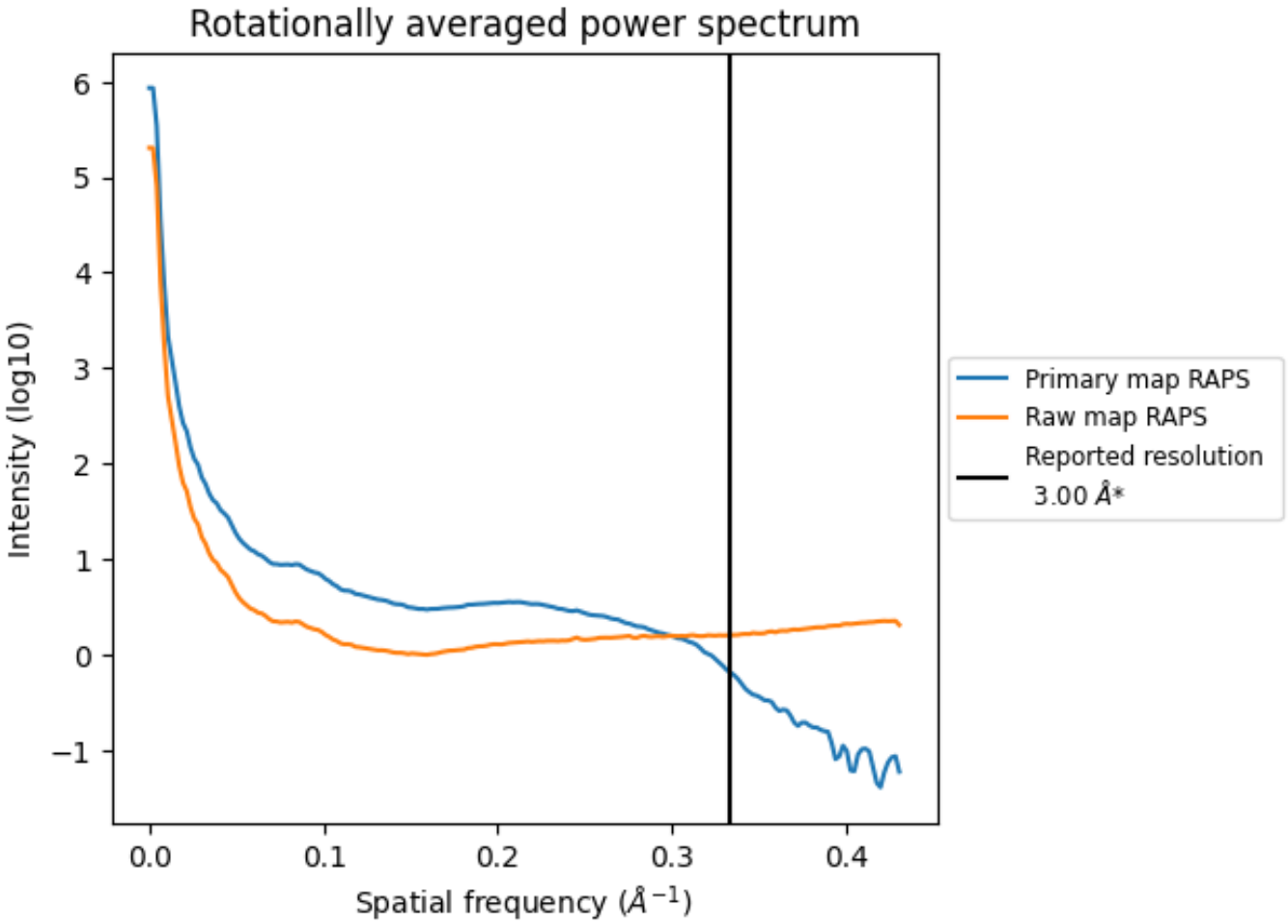
7.2 Volume estimate



The volume at the recommended contour level is 1759 nm^3; this corresponds to an approximate mass of 1589 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)

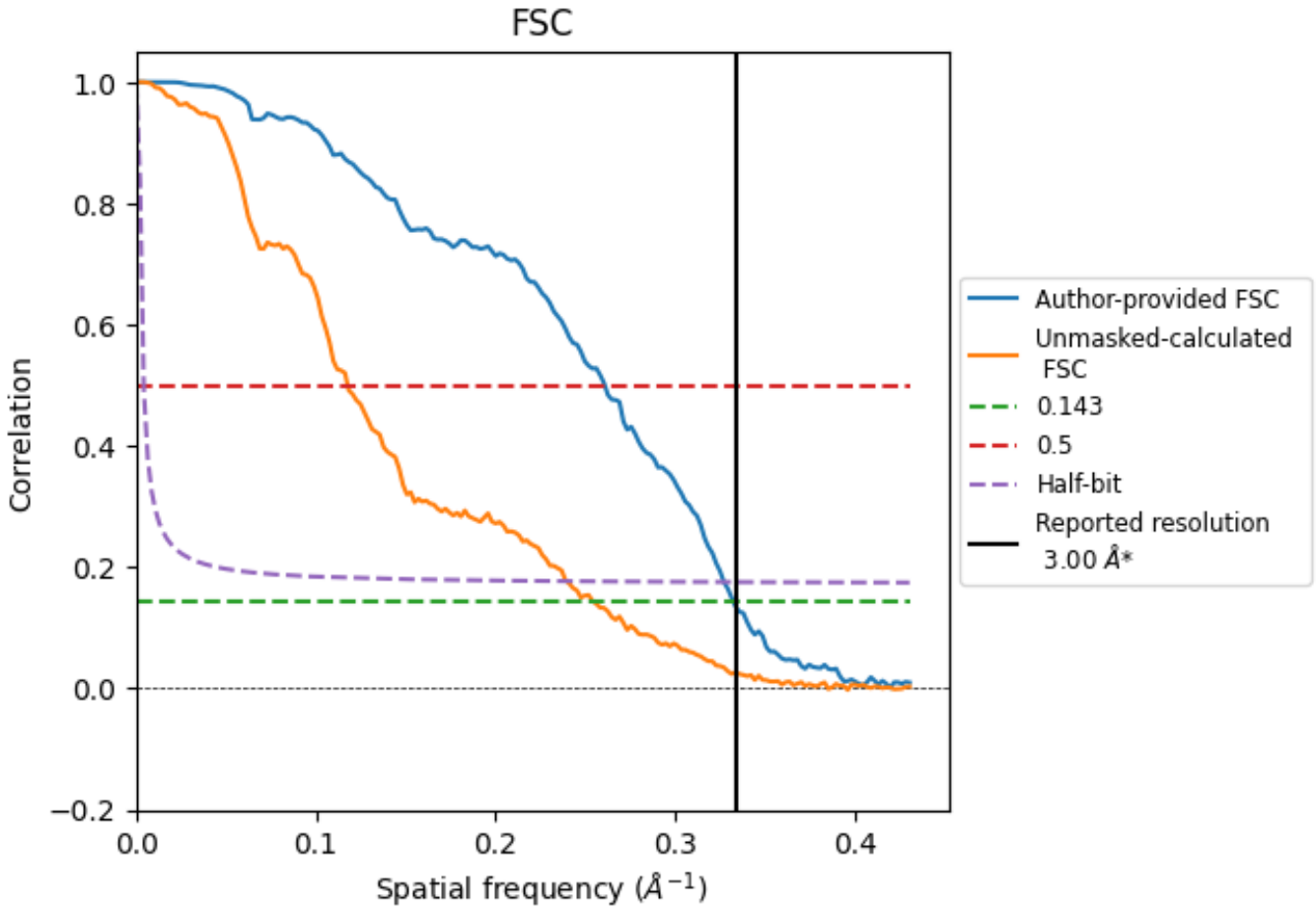


*Reported resolution corresponds to spatial frequency of 0.333 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.333 Å^{-1}

8.2 Resolution estimates (i)

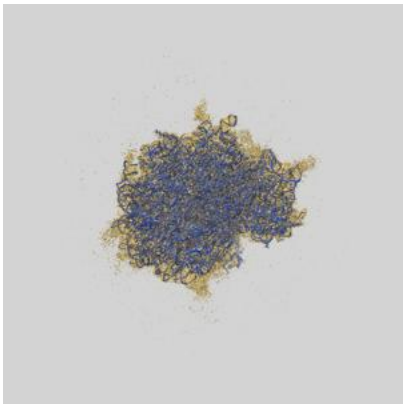
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	3.01	3.84	3.06
Unmasked-calculated*	3.93	8.50	4.18

*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 3.93 differs from the reported value 3.0 by more than 10 %

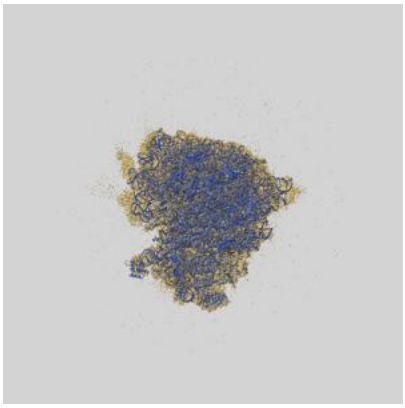
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-73314 and PDB model 9YPY. Per-residue inclusion information can be found in section 3 on page 28.

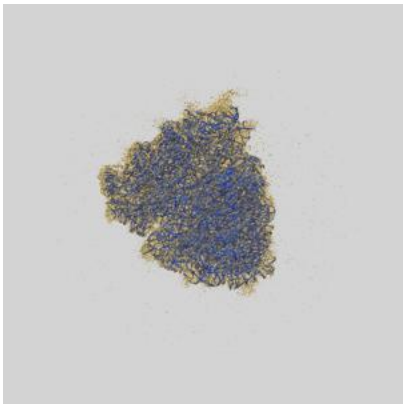
9.1 Map-model overlay



X



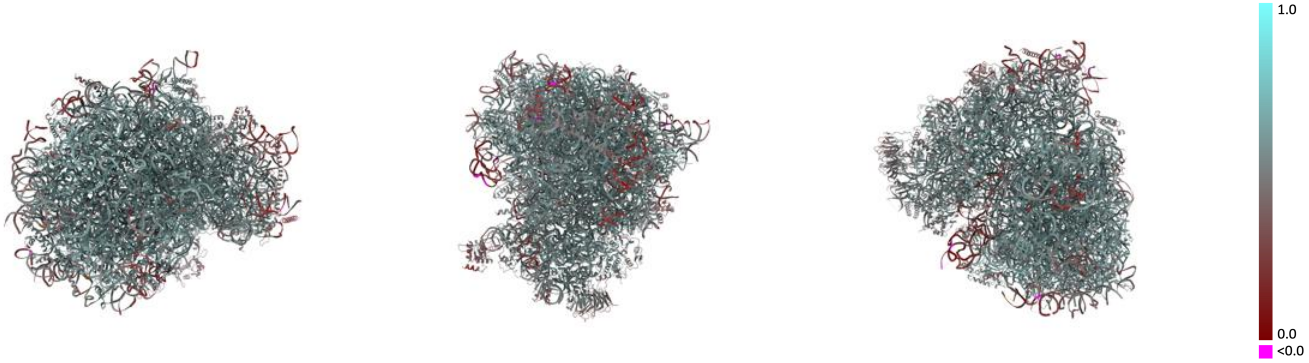
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.015 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.

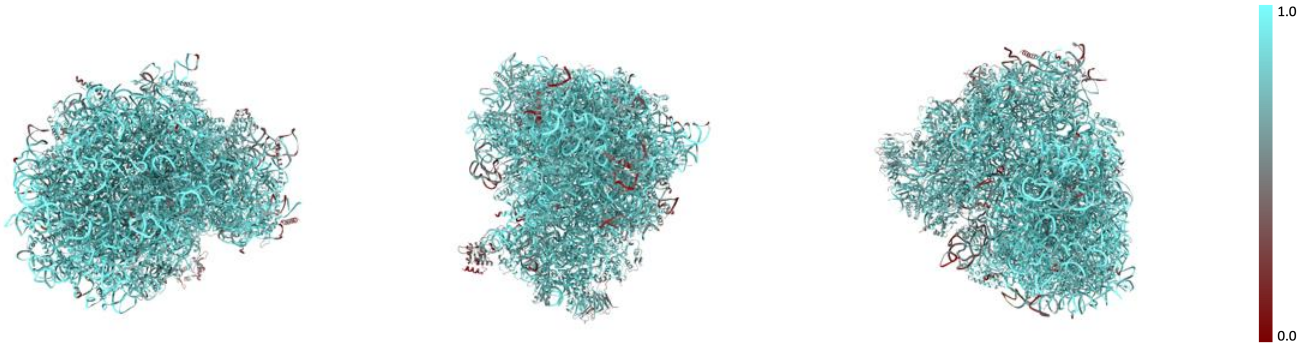
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

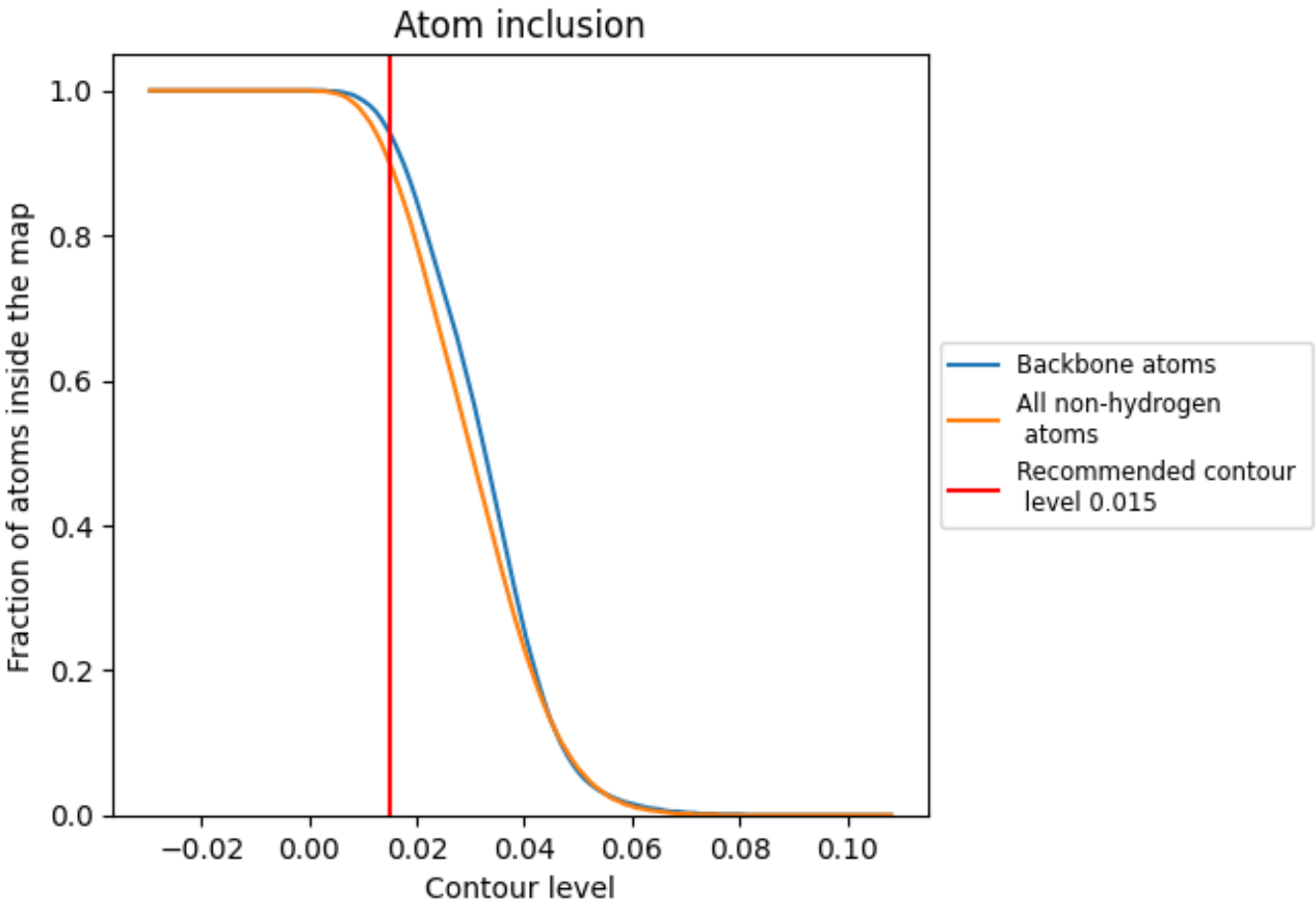
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.015).

9.4 Atom inclusion (i)



At the recommended contour level, 94% of all backbone atoms, 90% 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 (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8990	0.5450
10	0.9790	0.5780
11	0.5950	0.2740
12	0.8420	0.3880
13	0.9350	0.4910
5	0.9380	0.5480
7	0.9930	0.6000
8	0.9680	0.5740
9	0.9350	0.5400
A	0.9580	0.6120
AA	0.8320	0.5410
B	0.9080	0.5890
BB	0.8420	0.5500
C	0.9180	0.5910
CC	0.8810	0.5600
D	0.8750	0.5580
DD	0.7850	0.5190
E	0.8610	0.5490
EE	0.8420	0.5370
FF	0.8230	0.5260
G	0.8200	0.5420
GG	0.7380	0.4720
H	0.8650	0.5620
HH	0.6830	0.4780
I	0.9050	0.5820
II	0.8360	0.5270
J	0.8180	0.5300
JJ	0.8250	0.5270
K	0.9330	0.5990
KK	0.8170	0.5110
L	0.8660	0.5660
LL	0.8640	0.5590
M	0.8840	0.5650
MM	0.3210	0.3280
N	0.9670	0.6120

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Chain	Atom inclusion	Q-score
NN	0.8940	0.5640
O	0.9330	0.5900
OO	0.8580	0.5490
P	0.9200	0.5950
PP	0.7840	0.4950
Q	0.9390	0.6040
QQ	0.8420	0.5360
R	0.8830	0.5590
RR	0.7740	0.5120
S	0.9370	0.5990
SS	0.8010	0.4940
T	0.8770	0.5680
TT	0.8280	0.5140
U	0.7790	0.4960
UU	0.7480	0.4890
V	0.9290	0.5940
VV	0.8220	0.5420
W	0.7490	0.4910
WW	0.9090	0.5760
X	0.8730	0.5720
XX	0.8980	0.5820
Y	0.8690	0.5700
YY	0.8120	0.5130
Z	0.8570	0.5610
ZZ	0.7170	0.4660
a	0.9470	0.6000
aa	0.8960	0.5670
b	0.8340	0.5350
bb	0.7700	0.5240
c	0.8670	0.5700
cc	0.7910	0.5180
d	0.8890	0.5670
dd	0.9030	0.5510
e	0.9370	0.6020
ee	0.7410	0.4930
f	0.9430	0.6000
ff	0.4020	0.3790
g	0.8930	0.5770
gg	0.6850	0.4510
h	0.8640	0.5580
i	0.8570	0.5500
j	0.9640	0.6060

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Chain	Atom inclusion	Q-score
k	0.7760	0.5220
l	0.9370	0.5850
m	0.9110	0.5790
n	0.9590	0.5950
o	0.9040	0.5920
p	0.9060	0.5830
r	0.9140	0.5850