



Full wwPDB EM Validation Report ⓘ

Sep 21, 2026 – 12:14 PM EDT

PDB ID : 9YDC / pdb_00009ydc
EMDB ID : EMD-72800
Title : Eukaryotic 80S ribosome with A/P, P/E tRNAs from uL16 P-site loop mutants
in bypass condition
Authors : Guan, K.; Taylor, D.W.
Deposited on : 2025-09-22
Resolution : 3.02 Å(reported)

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

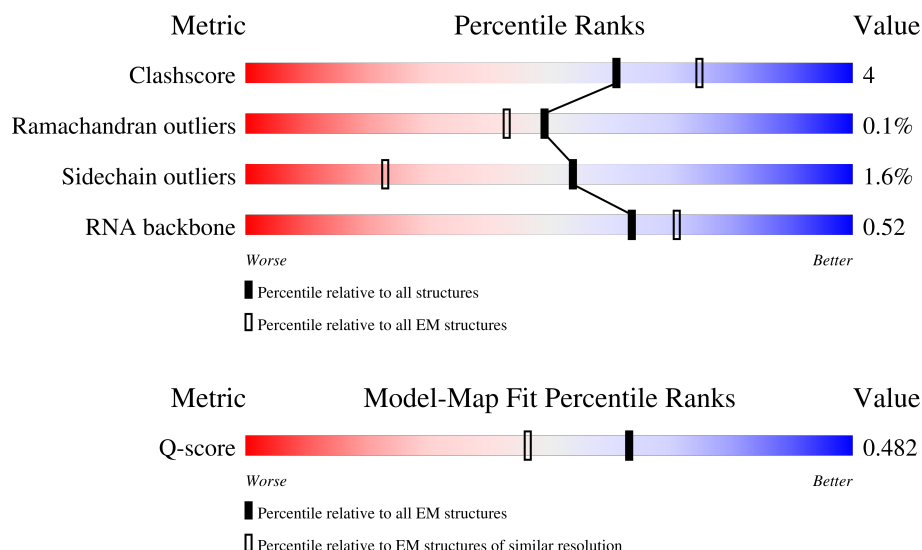
EMDB validation analysis : 0.0.1.dev133
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

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 3.02 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	13913 (2.52 - 3.52)

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

Mol	Chain	Length	Quality of chain
1	A	3396	
2	B	121	
3	C	158	

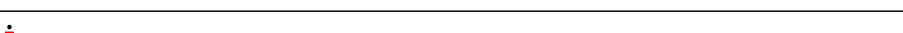
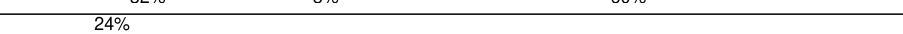
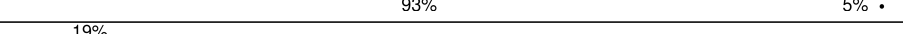
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Mol	Chain	Length	Quality of chain
4	D	10	
5	E	1800	
6	LD	254	
7	LE	387	
8	LF	362	
9	LG	297	
10	LH	176	
11	LI	244	
12	LJ	256	
13	LK	191	
14	LL	210	
15	LM	174	
16	LN	199	
17	LO	138	
18	LP	204	
19	LQ	199	
20	LR	184	
21	LS	186	
22	LT	189	
23	LU	172	
24	LV	160	
25	LW	121	
26	LX	137	
27	LY	155	
28	LZ	142	

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Mol	Chain	Length	Quality of chain
29	La	127	
30	Lb	136	
31	Lc	149	
32	Ld	59	
33	Le	105	
34	Lf	113	
35	Lg	130	
36	Lh	107	
37	Li	121	
38	Lj	120	
39	Lk	100	
40	Ll	88	
41	Lm	78	
42	Ln	51	
43	Lo	128	
44	Lp	25	
45	Lq	106	
46	Lr	92	
47	SA	240	
48	SB	225	
49	SC	105	
50	SD	143	
51	SE	142	
52	SF	143	
53	SG	136	

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Mol	Chain	Length	Quality of chain
54	SH	146	
55	SI	144	
56	SJ	121	
57	SK	108	
58	SL	67	
59	SM	56	
60	SN	152	
61	SO	319	
62	SP	252	
63	SQ	255	
64	SR	254	
65	SS	261	
66	ST	236	
67	SU	190	
68	SV	200	
69	SW	197	
70	SX	156	
71	SY	151	
72	SZ	138	
73	Sa	87	
74	Sb	130	
75	Sc	145	
76	Sd	135	
77	Se	119	
78	Sf	82	

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Mol	Chain	Length	Quality of chain
79	Sg	63	17% 70% 17% 13%
80	m	76	58% 39% 47% 13%
81	n	75	40% 23% 43% 23% 12%

2 Entry composition [i](#)

There are 81 unique types of molecules in this entry. The entry contains 194697 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 25S RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	3066	Total	C	N	O	P	0	0
			65590	29298	11836	21390	3066		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	493	U	G	conflict	GB 831416132

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	121	Total	C	N	O	P	0	0
			2579	1152	461	845	121		

- Molecule 3 is a RNA chain called 8S RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	158	Total	C	N	O	P	0	0
			3353	1500	586	1109	158		

- Molecule 4 is a RNA chain called messenger RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	10	Total	C	N	O	P	0	0
			218	98	44	66	10		

- Molecule 5 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	1582	Total	C	N	O	P	0	0
			33747	15086	6006	11073	1582		

- Molecule 6 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	LD	247	Total	C	N	O	S	0	0
			1878	1170	381	326	1		

- Molecule 7 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	LE	386	Total	C	N	O	S	0	0
			3079	1954	584	533	8		

- Molecule 8 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	LF	361	Total	C	N	O	S	0	0
			2749	1730	522	494	3		

- Molecule 9 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	LG	292	Total	C	N	O	S	0	0
			2341	1478	408	453	2		

- Molecule 10 is a protein called Large ribosomal subunit protein eL6B.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	LH	156	Total	C	N	O	0	0
			1243	803	222	218		

- Molecule 11 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	LI	222	Total	C	N	O	S	0	0
			1784	1151	324	308	1		

- Molecule 12 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	LJ	233	Total	C	N	O	S	0	0
			1804	1151	323	327	3		

- Molecule 13 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	LK	188	Total	C	N	O	S	0	0
			1493	948	271	270	4		

- Molecule 14 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	LL	207	Total	C	N	O	S	0	0
			1686	1071	319	291	5		

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
LL	?	-	MET	deletion	UNP P41805
LL	?	-	LEU	deletion	UNP P41805
LL	?	-	SER	deletion	UNP P41805
LL	?	-	CYS	deletion	UNP P41805
LL	?	-	ALA	deletion	UNP P41805
LL	?	-	GLY	deletion	UNP P41805
LL	?	-	ALA	deletion	UNP P41805
LL	?	-	ASP	deletion	UNP P41805
LL	?	-	ARG	deletion	UNP P41805
LL	?	-	LEU	deletion	UNP P41805
LL	?	-	GLN	deletion	UNP P41805

- Molecule 15 is a protein called Large ribosomal subunit protein uL5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	LM	168	Total	C	N	O	S	0	0
			1337	837	250	246	4		

- Molecule 16 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	LN	193	Total	C	N	O	S	0	0
			1543	962	315	266			

- Molecule 17 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	LO	136	Total	C	N	O	S	0	0
			1053	675	199	177	2		

- Molecule 18 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	LP	203	Total	C	N	O	S	0	0
			1720	1077	361	281	1		

- Molecule 19 is a protein called 60S ribosomal protein L16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	LQ	197	Total	C	N	O	S	0	0
			1555	1003	289	262	1		

- Molecule 20 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	LR	172	Total	C	N	O	0	0
			1361	846	273	242		

- Molecule 21 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LS	185	Total	C	N	O	S	0	0
			1441	908	290	241	2		

- Molecule 22 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	LT	183	Total	C	N	O	0	0
			1482	911	320	251		

- Molecule 23 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	LU	171	Total	C	N	O	S	0	0
			1437	925	266	243	3		

- Molecule 24 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	LV	159	Total	C	N	O	S	0	0
			1272	802	245	221	4		

- Molecule 25 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	LW	100	Total	C	N	O	0	0
			796	516	131	149		

- Molecule 26 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	LX	136	Total	C	N	O	S	0	0
			1003	628	189	179	7		

- Molecule 27 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	LY	62	Total	C	N	O	S	0	0
			513	330	101	81	1		

- Molecule 28 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	LZ	120	Total	C	N	O	S	0	0
			959	617	168	172	2		

- Molecule 29 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	La	125	Total	C	N	O	0	0
			984	620	191	173		

- Molecule 30 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	Lb	133	Total	C	N	O	0	0
			1066	692	196	178		

- Molecule 31 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Lc	148	Total	C	N	O	S	0	0
			1169	747	231	188	3		

- Molecule 32 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	Ld	58	Total	C	N	O	0	0
			462	289	100	73		

- Molecule 33 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Le	96	Total	C	N	O	S	0	0
			737	476	123	137	1		

- Molecule 34 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Lf	105	Total	C	N	O	S	0	0
			856	544	163	148	1		

- Molecule 35 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Lg	126	Total	C	N	O	S	0	0
			1008	638	203	166	1		

- Molecule 36 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	Lh	106	Total	C	N	O	S	0	0
			850	540	165	144	1		

- Molecule 37 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	Li	110	Total	C	N	O	S	0	0
			866	536	176	150	4		

- Molecule 38 is a protein called 60S ribosomal protein L35-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	Lj	119	Total	C	N	O	S	0	0
			969	615	186	167	1		

- Molecule 39 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	Lk	98	Total	C	N	O	S	0	0
			761	475	153	131	2		

- Molecule 40 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	Ll	81	Total	C	N	O	S	0	0
			645	393	141	106	5		

- Molecule 41 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Lm	77	Total	C	N	O	S	0	0
			608	388	114	106			

- Molecule 42 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Ln	50	Total	C	N	O	S	0	0
			436	272	97	65	2		

- Molecule 43 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Lo	51	Total	C	N	O	S	0	0
			409	253	85	66	5		

- Molecule 44 is a protein called 60S ribosomal protein L41-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Lp	24	Total	C	N	O	S	0	0
			224	136	61	26	1		

- Molecule 45 is a protein called 60S ribosomal protein L42-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Lq	100	Total	C	N	O	S	0	0
			805	506	163	131	5		

- Molecule 46 is a protein called 60S ribosomal protein L43-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	Lr	91	Total	C	N	O	S	0	0
			694	429	138	121	6		

- Molecule 47 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	SA	222	Total	C	N	O	S	0	0
			1729	1098	312	313	6		

- Molecule 48 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	SB	206	Total	C	N	O	S	0	0
			1605	1005	299	298	3		

- Molecule 49 is a protein called 40S ribosomal protein S10-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SC	83	Total	C	N	O	S	0	0
			708	461	113	132	2		

- Molecule 50 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	SD	97	Total	C	N	O	S	0	0
			736	466	127	141	2		

- Molecule 51 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SE	116	Total	C	N	O	S	0	0
			905	577	167	154	7		

- Molecule 52 is a protein called 40S ribosomal protein S16-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	SF	141	Total	C	N	O	0	0
			1095	702	199	194		

- Molecule 53 is a protein called 40S ribosomal protein S17-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SG	114	Total	C	N	O	S	0	0
			908	573	169	164	2		

- Molecule 54 is a protein called 40S ribosomal protein S18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SH	145	Total	C	N	O	S	0	0
			1188	741	237	208	2		

- Molecule 55 is a protein called 40S ribosomal protein S19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SI	143	Total	C	N	O	S	0	0
			1112	694	208	208	2		

- Molecule 56 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SJ	100	Total	C	N	O	S	0	0
			797	506	144	146	1		

- Molecule 57 is a protein called 40S ribosomal protein S25-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	SK	69	Total	C	N	O	0	0
			558	357	103	98		

- Molecule 58 is a protein called 40S ribosomal protein S28-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SL	62	Total	C	N	O	S	0	0
			486	300	95	90	1		

- Molecule 59 is a protein called 40S ribosomal protein S29-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	SM	53	Total	C	N	O	S	0	0
			443	275	92	72	4		

- Molecule 60 is a protein called Ubiquitin-40S ribosomal protein S31.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SN	56	Total	C	N	O	S	0	0
			429	271	84	70	4		

- Molecule 61 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	SO	311	Total	C	N	O	S	0	0
			2375	1509	408	451	7		

- Molecule 62 is a protein called 40S ribosomal protein S0-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	SP	205	Total	C	N	O	S	0	0
			1596	1025	283	286	2		

- Molecule 63 is a protein called Small ribosomal subunit protein eS1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	SQ	221	Total	C	N	O	S	0	0
			1759	1114	322	319	4		

- Molecule 64 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SR	216	Total	C	N	O	S	0	0
			1626	1042	287	295	2		

- Molecule 65 is a protein called 40S ribosomal protein S4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	SS	258	Total	C	N	O	S	0	0
			2056	1308	387	358	3		

- Molecule 66 is a protein called 40S ribosomal protein S6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	ST	218	Total	C	N	O	S	0	0
			1755	1102	337	313	3		

- Molecule 67 is a protein called 40S ribosomal protein S7-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
67	SU	180	Total	C	N	O		
			1451	932	259	260	0	0

- Molecule 68 is a protein called 40S ribosomal protein S8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	SV	186	Total	C	N	O	S		
			1471	913	294	262	2	0	0

- Molecule 69 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	SW	184	Total	C	N	O	S		
			1479	935	285	258	1	0	0

- Molecule 70 is a protein called 40S ribosomal protein S11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	SX	141	Total	C	N	O	S		
			1137	730	216	188	3	0	0

- Molecule 71 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	SY	150	Total	C	N	O	S		
			1192	759	224	207	2	0	0

- Molecule 72 is a protein called 40S ribosomal protein S14-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	SZ	127	Total	C	N	O	S		
			923	568	185	167	3	0	0

- Molecule 73 is a protein called 40S ribosomal protein S21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	Sa	87	Total	C	N	O	S		
			673	415	125	131	2	0	0

- Molecule 74 is a protein called 40S ribosomal protein S22-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	Sb	129	Total	C	N	O	S	0	0
			1021	650	188	180	3		

- Molecule 75 is a protein called 40S ribosomal protein S23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	Sc	144	Total	C	N	O	S	0	0
			1121	708	220	191	2		

- Molecule 76 is a protein called 40S ribosomal protein S24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	Sd	131	Total	C	N	O	S	0	0
			1016	642	192	182			

- Molecule 77 is a protein called Small ribosomal subunit protein eS26B.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	Se	97	Total	C	N	O	S	0	0
			765	473	160	127	5		

- Molecule 78 is a protein called 40S ribosomal protein S27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	Sf	74	Total	C	N	O	S	0	0
			562	353	101	105	3		

- Molecule 79 is a protein called 40S ribosomal protein S30-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Sg	55	Total	C	N	O	S	0	0
			437	276	89	71	1		

- Molecule 80 is a RNA chain called A site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	m	76	Total	C	N	O	P	0	0
			1611	721	281	534	75		

- Molecule 81 is a RNA chain called P site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	n	66	Total	C	N	O	P	0	0
			1407	627	254	460	66		

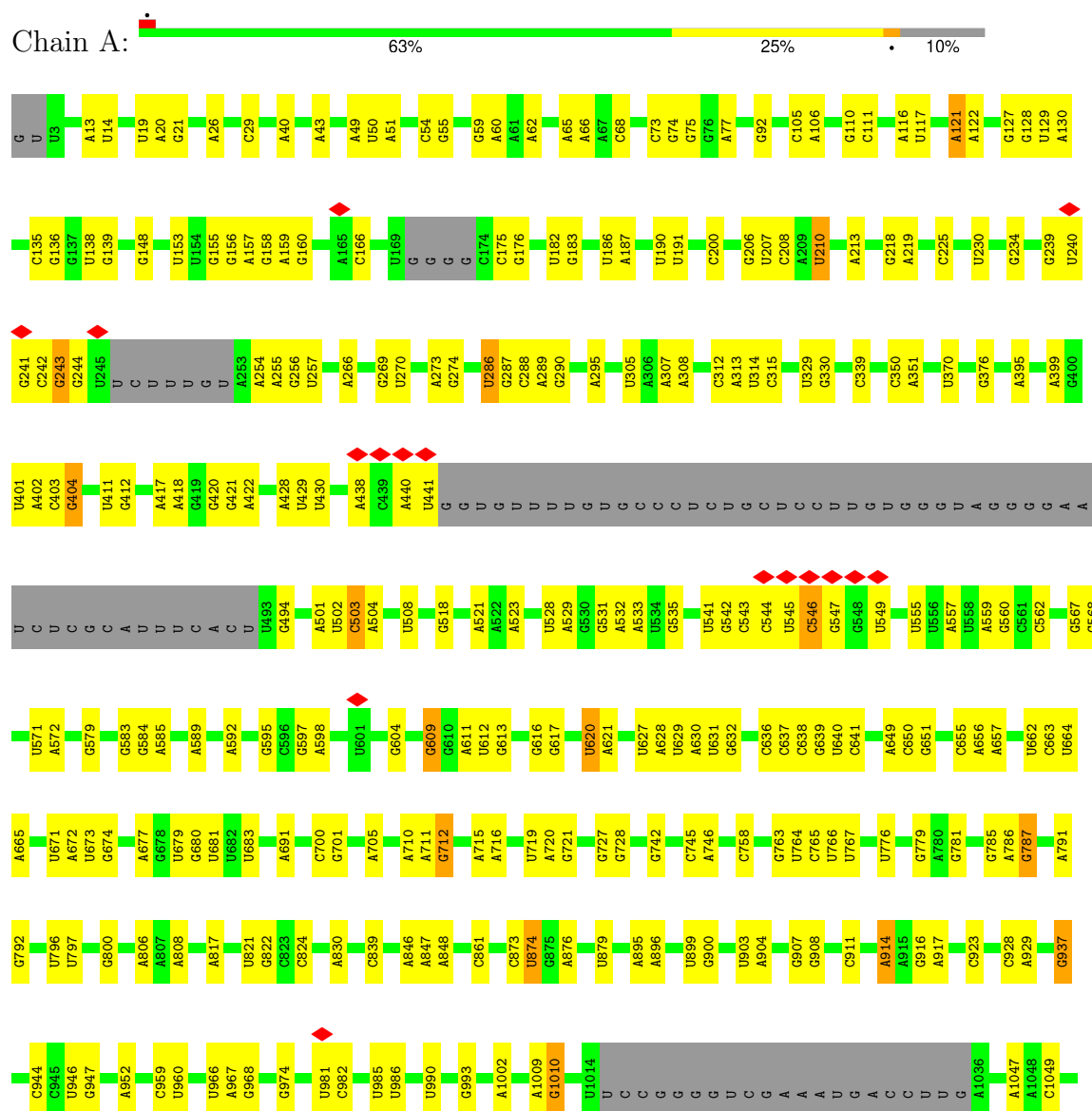
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	10	A	G	conflict	GB 176433

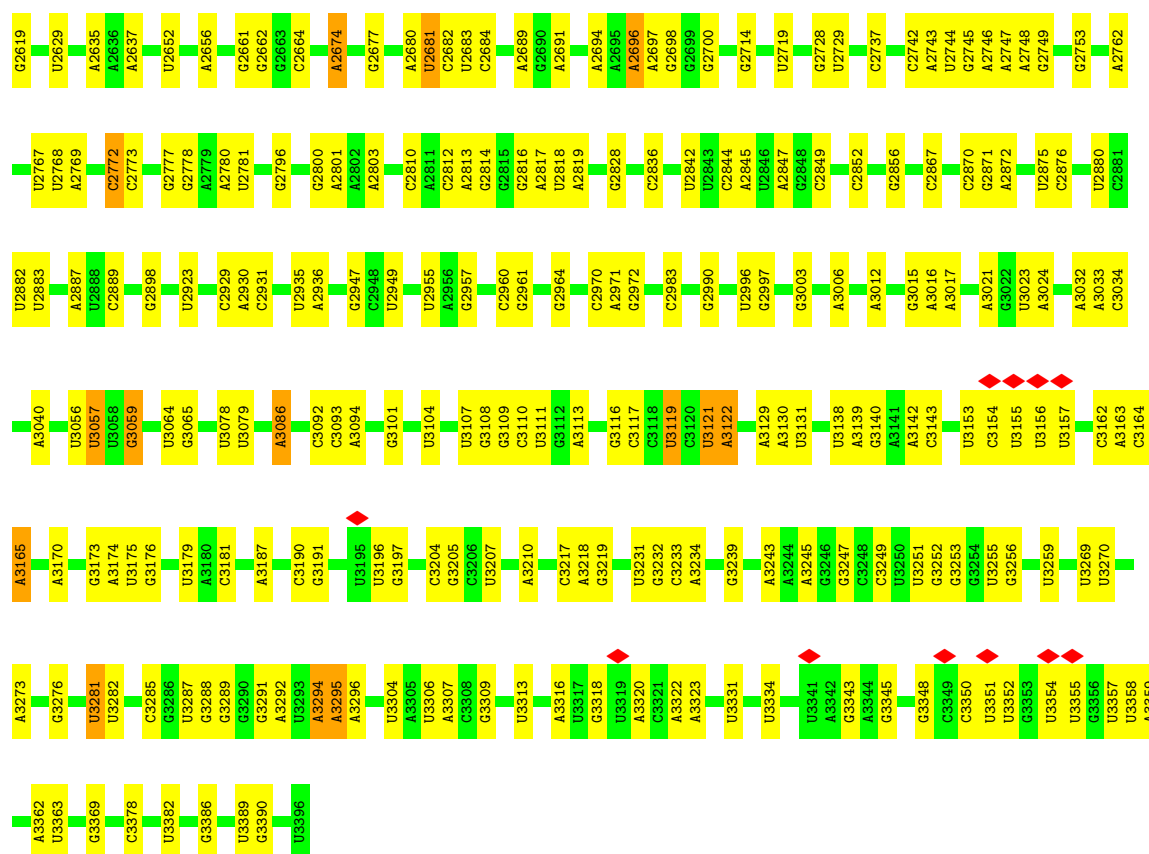
3 Residue-property plots

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

• Molecule 1: 25S RNA

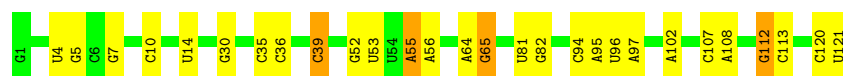


A1054	G1063	A1064	A1065	G1072	U1081	U1082	G1083	A1084	A1085	A1093	U1094	U1095	U1096	G1097	A1098	A1103	U1108	U1109	U1110	U1111	G1117	G1118	C1119	A1120	G1131	C1132	A1133	A1143	U1144	A1159	U1168	A1169	A1180	U1181	C1192	A1193	G1194	A1195	C1196	C1201	A1202	A1203	A1204	G1209				
U1210	U1211	A1212	G1213	A1217	U1220	A1221	G1222	A1223	C1224	C1227	C1228	G1229	G1230	A	C	G	G	U	U	G	G	A	A	A	G	U	C	C	A	U	U	C	C	A	A	G	G	U	U	U	U	A	A	C	A			
A	C	U	C	A	C1279	C1280	G1281	G1282	C1284	A1287	U1288	G1289	A1290	A1291	G1307	A1308	U1309	G1313	A1330	U1331	U1336	A1337	G1340	U1341	C1342	A1343	U1348	G1349	A1350	U1351	A1352	U1353	G1354	A1355	U1356	G1357	A1369	U1378	G1379	G1380	A1381	G1382	A1386	A1399	G1400	G1411		
G1412	A1575	G1576	G1577	A1580	C1581	C1582	A1583	A1589	C1596	C1597	G1598	U1606	C1615	U1616	G1617	U1620	A1621	U1629	C1639	A1643	C1644	U1645	C1657	C1660	G1661	G1662	C1663	G1664	C1665	G1666	A1667	G1668	G1680	U1681	U1682	A1683	U1688	U1694	U1695	A1696	A1697	U1717	G1718					
U1724	C1725	G1728	G1733	G1734	A1741	U1742	A1750	G1751	A1760	C	C	U	U	U	G1766	G1770	G1775	G1776	U1777	G1778	C1779	G1780	U1783	G1784	U1785	G1786	A1787	A1797	A1798	A1799	A1800	C1803	A1804	C1805	A1806	G1807	G1808	A1813	A	U	A	G1817	U1818	U1819	U1820	U1821		
A1839	U1840	A1841	A1842	C1846	C1849	C1866	A1867	A1879	U1880	A1881	G1882	U1890	A1893	A1896	G1906	C1943	U1944	A1945	A1946	G1949	G1953	C1964	U1965	A	C	U	U	G	A	A	G	G	C	C	U	U	U	U	A	A	G	A	C	C				
G	G	U	C	U	G	U	U	U	A	U	C	U	U	U	G	U	G	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U				
U	G	U	U	U	A	G	C	U	C	U	A	U	G	U	C	C	C	U	U	A	G	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
C2101	U2102	G2111	U2112	A2113	G2121	G2122	U2129	G2130	A2131	U2140	A2144	U2152	U2153	G2154	G2155	A2158	U2159	U2160	G2161	A2166	G2169	U2170	U2177	A2178	A2183	U2193	U2194	C2195	C2196	C2197	A2198	G2206	A2207	A2208	U2209	G2210	A2213	A2214	U2217	A2218	A2219	A2222	A2223					
A2228	A2229	G2236	A2242	G2251	A2252	G2253	U2254	A2255	A2256	C2257	U2258	A2259	U2260	G2261	A2262	C2263	C2265	U2268	U2269	A2270	A2271	G2272	C2273	A2281	U2282	G2307	U2310	A2313	U2314	G2315	U2318	G2325	U2334	G2335	U2336	C2337	C2338	C2339	U2344	A2345	U2351	A2352	A2357					
A2358	G2364	C2365	C2366	A2367	A2368	A2369	G2370	A2371	A2372	A2373	C2374	G2375	G2376	G2377	G2385	U2388	G2393	G2394	C2395	G2396	A2397	A2402	G2403	A2404	U2411	G2412	A2413	G2414	G2418	A2419	C2420	U2423	A2424	U2428	G2429	A2430	G2435	U2436	C2437	G2438	A2439	G2440	A2443	C2444	A2445	U2446	A2447	G2448
A2449	G2450	G2451	G2452	U	G	U	A	G	A	U	A	A	A	G	U	U	U	U	U	C	G	G	C	C	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U			
U2513	U2514	A2515	G2522	G2525	C2526	G2527	G2533	G2534	A2535	A2536	U	U	C	A	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
U2544	C2545	G2549	C2552	U2559	C2560	A2561	A2569	U2570	U2571	C2572	G2573	G2585	A2593	C2594	A2595	U2596	U2597	G2598	G2606	G2607	G2608	A2609	G2610	U2611	U2612	U2613	G2614	G2615	G2616																			



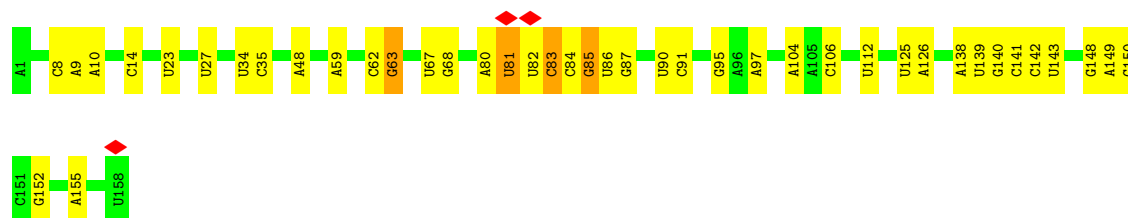
• Molecule 2: 5S RNA

Chain B: 77% 20% .



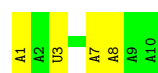
• Molecule 3: 8S RNA

Chain C: 73% 24% .



• Molecule 4: messenger RNA

Chain D: 60% 40%

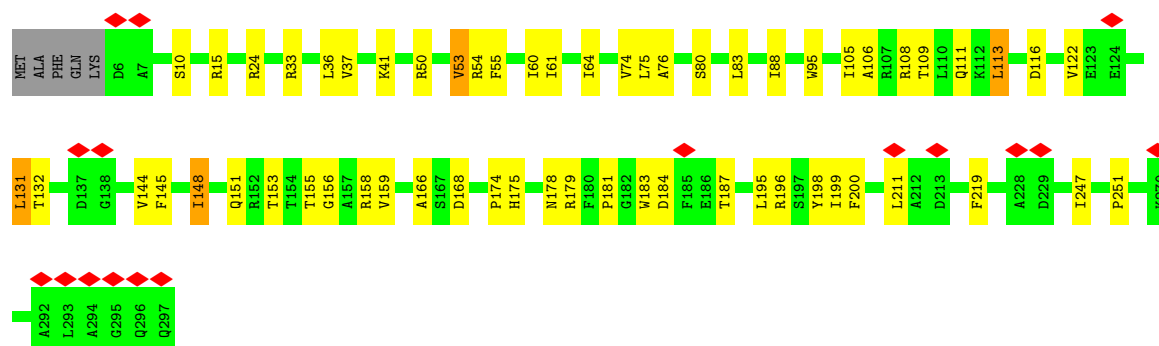
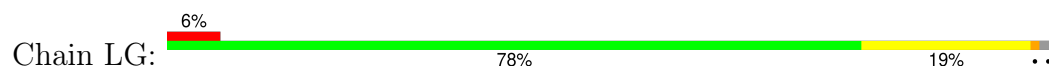


Chain E:

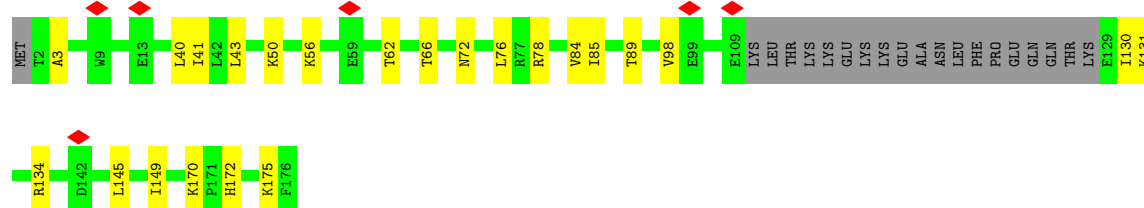
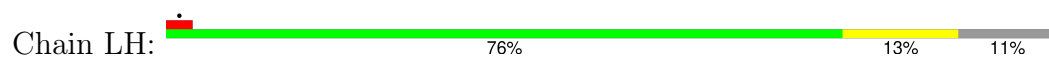




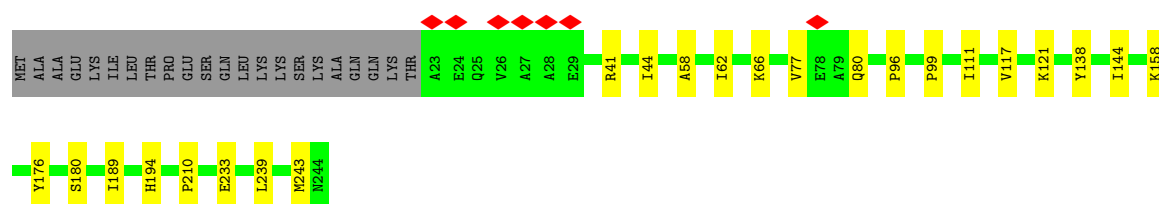
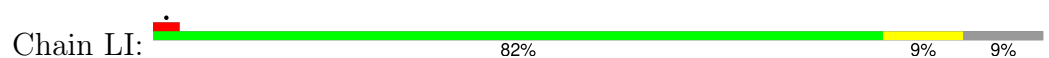
- Molecule 9: 60S ribosomal protein L5



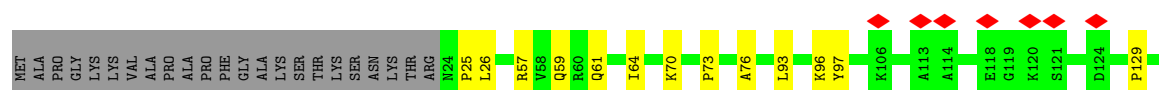
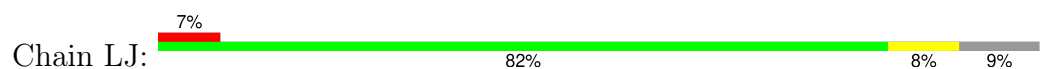
- Molecule 10: Large ribosomal subunit protein eL6B

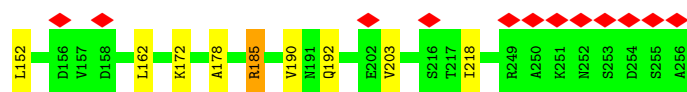


- Molecule 11: 60S ribosomal protein L7-A



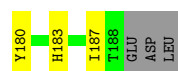
- Molecule 12: 60S ribosomal protein L8-A





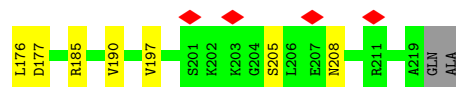
- Molecule 13: 60S ribosomal protein L9-A

Chain LK: 82% 15% ..



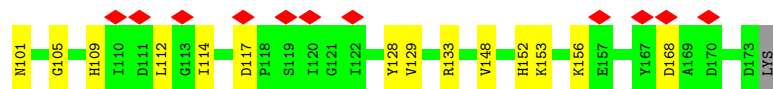
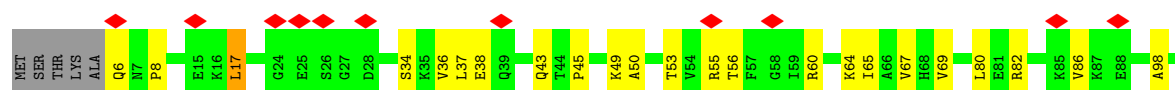
- Molecule 14: Large ribosomal subunit protein uL16

Chain LL: 80% 18% .



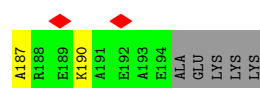
- Molecule 15: Large ribosomal subunit protein uL5B

Chain LM: 13% 75% 21% ..



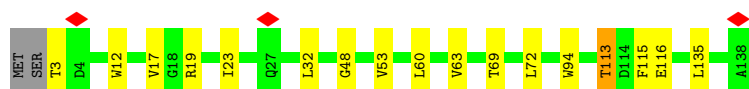
- Molecule 16: 60S ribosomal protein L13-A

Chain LN: 83% 13% ..



- Molecule 17: 60S ribosomal protein L14-A

Chain LO:  86% 12% ..



- Molecule 18: 60S ribosomal protein L15-A

Chain LP:  91% 8%



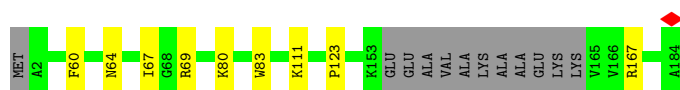
- Molecule 19: 60S ribosomal protein L16-A

Chain LQ:  89% 10% .



- Molecule 20: 60S ribosomal protein L17-A

Chain LR:  89% 5% 7%



- Molecule 21: 60S ribosomal protein L18-A

Chain LS:  88% 12% .



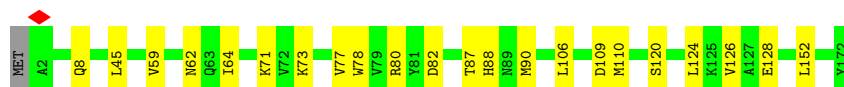
- Molecule 22: 60S ribosomal protein L19-A

Chain LT:  88% 8% ..

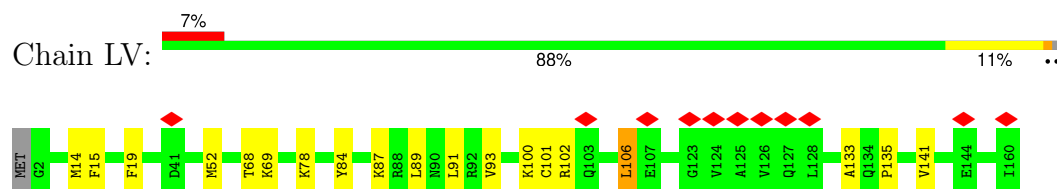


- Molecule 23: 60S ribosomal protein L20-A

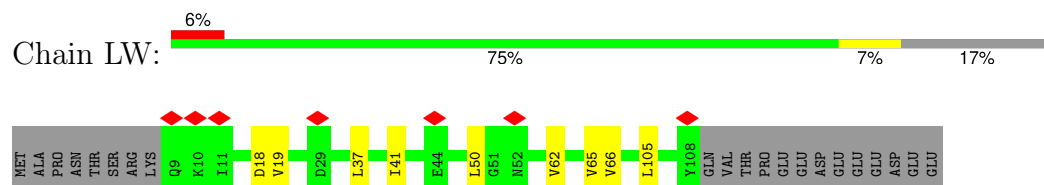
Chain LU:  87% 13% .



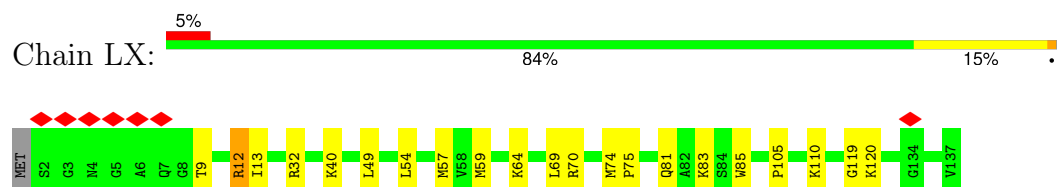
- Molecule 24: 60S ribosomal protein L21-A



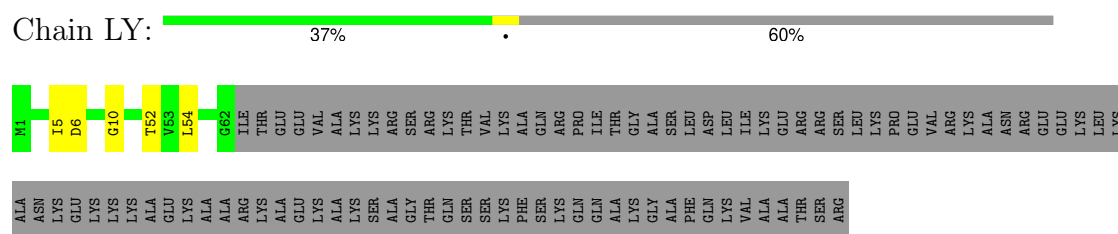
- Molecule 25: 60S ribosomal protein L22-A



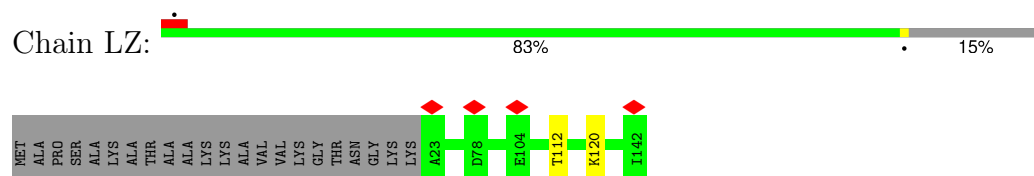
- Molecule 26: 60S ribosomal protein L23-A



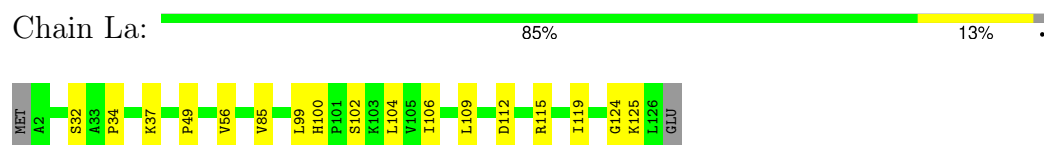
- Molecule 27: 60S ribosomal protein L24-A



- Molecule 28: 60S ribosomal protein L25



- Molecule 29: 60S ribosomal protein L26-A

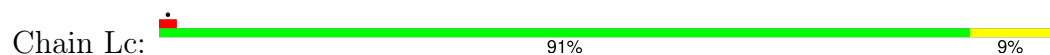


- Molecule 30: 60S ribosomal protein L27-A

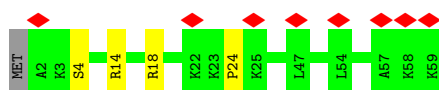




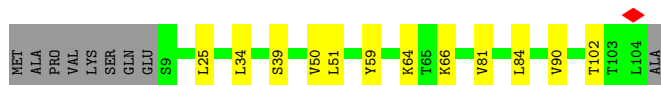
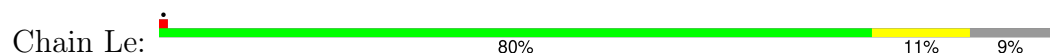
- Molecule 31: 60S ribosomal protein L28



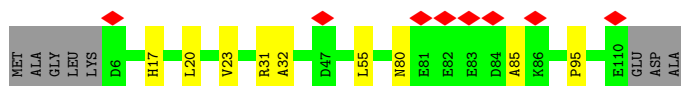
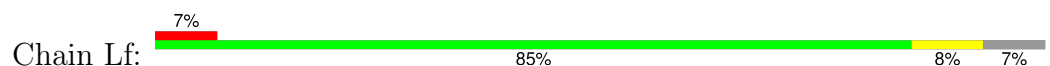
- Molecule 32: 60S ribosomal protein L29



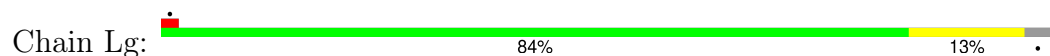
- Molecule 33: 60S ribosomal protein L30



- Molecule 34: 60S ribosomal protein L31-A



- Molecule 35: 60S ribosomal protein L32

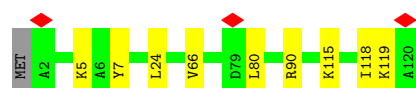


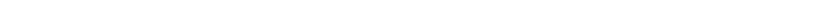
- Molecule 36: 60S ribosomal protein L33-A



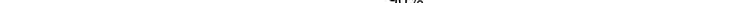
- Molecule 37: 60S ribosomal protein L34-A

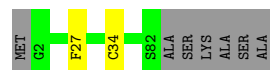
- Chain Lj: 92% 8%

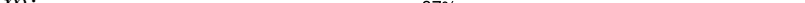


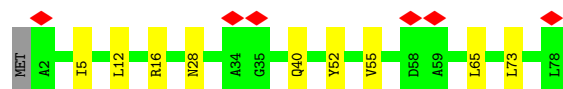
- Chain Lk:  85% 13%



- Chain Ll:  90% • 8%



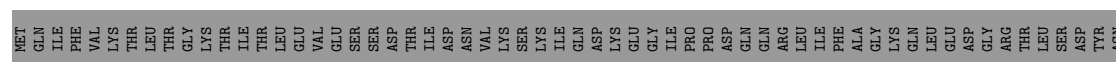
- Chain Lm: 

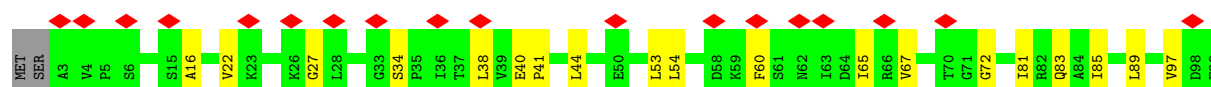


- Chain Ln: 92% 6%



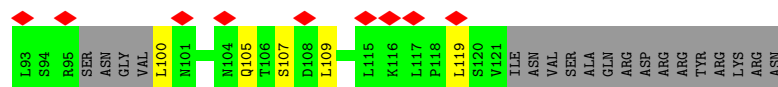
- Chain Lo: 32% 8% 60%



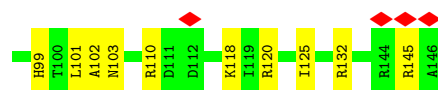
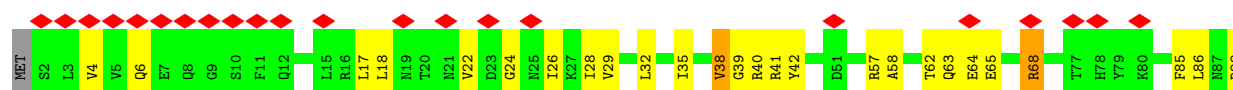
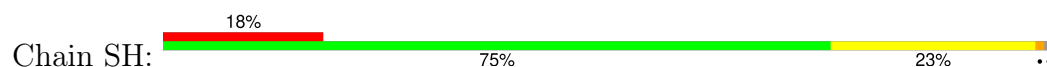




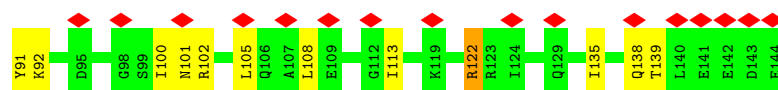
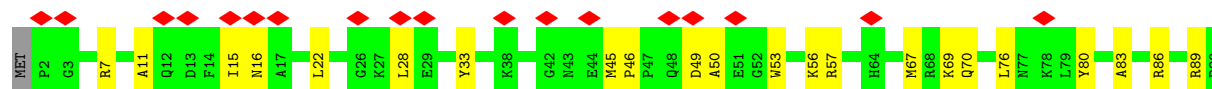
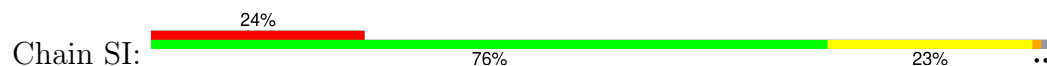
- Molecule 53: 40S ribosomal protein S17-B



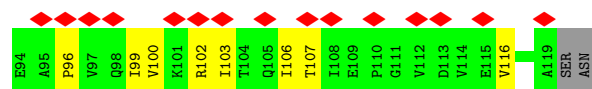
- Molecule 54: 40S ribosomal protein S18-A



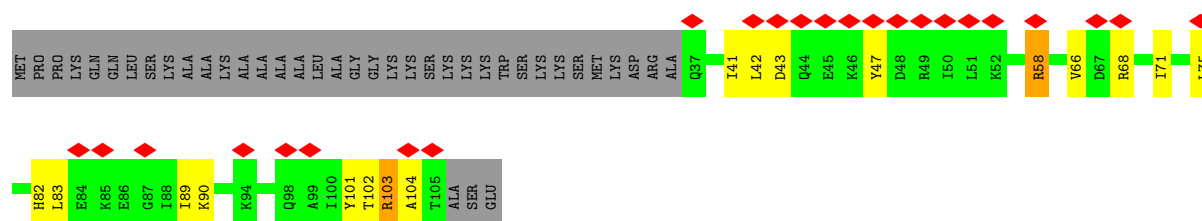
- Molecule 55: 40S ribosomal protein S19-A



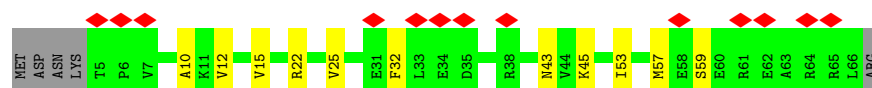
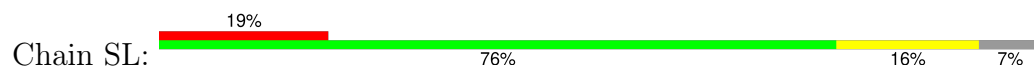
- Molecule 56: 40S ribosomal protein S20



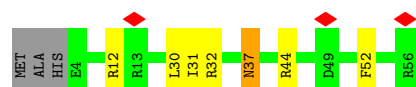
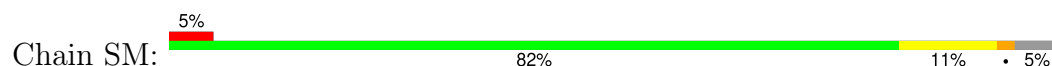
- Molecule 57: 40S ribosomal protein S25-A



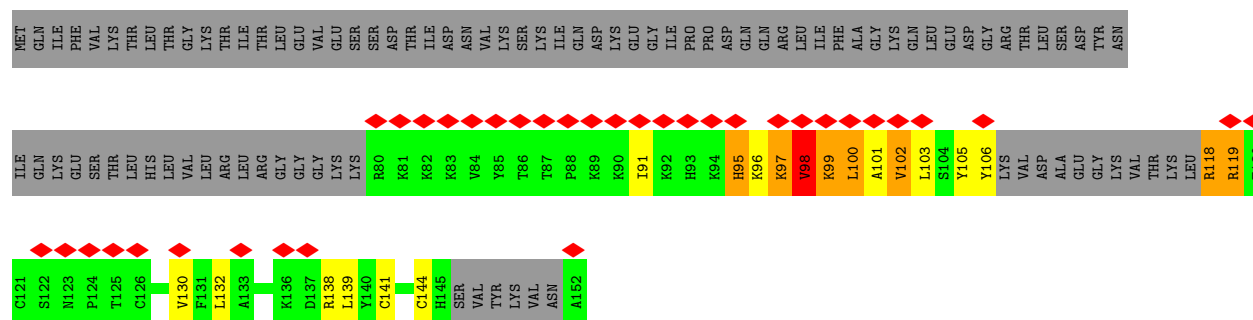
- Molecule 58: 40S ribosomal protein S28-A



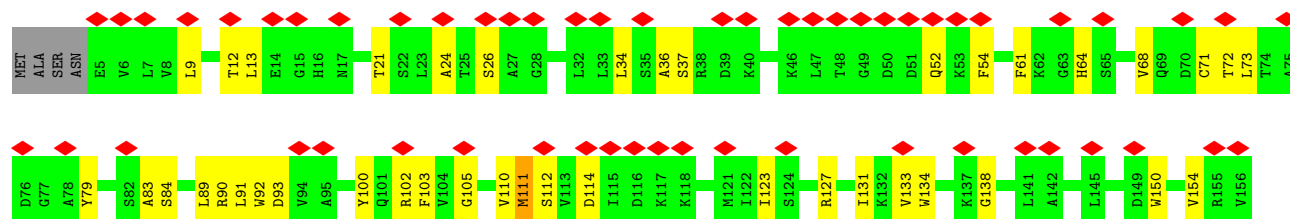
- Molecule 59: 40S ribosomal protein S29-A



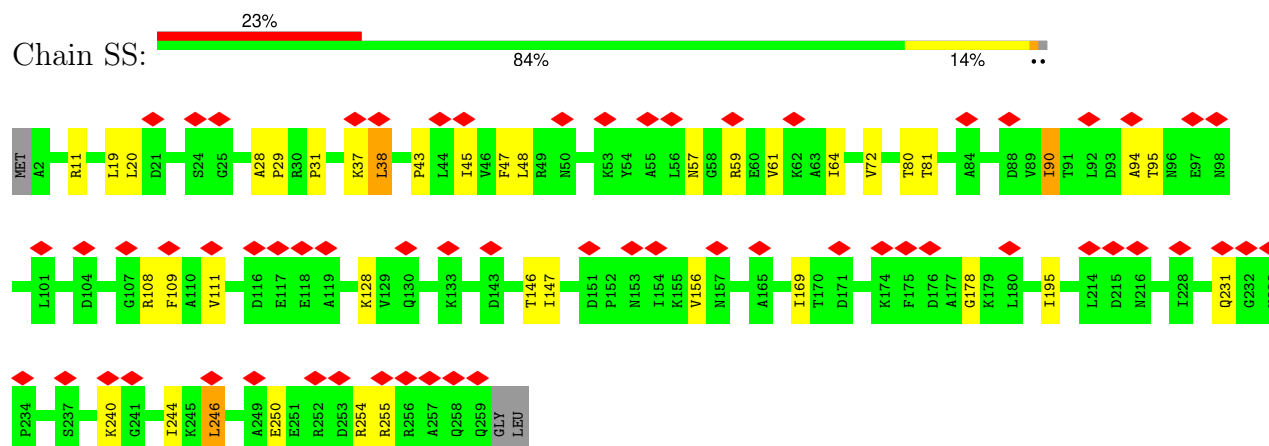
- Molecule 60: Ubiquitin-40S ribosomal protein S31



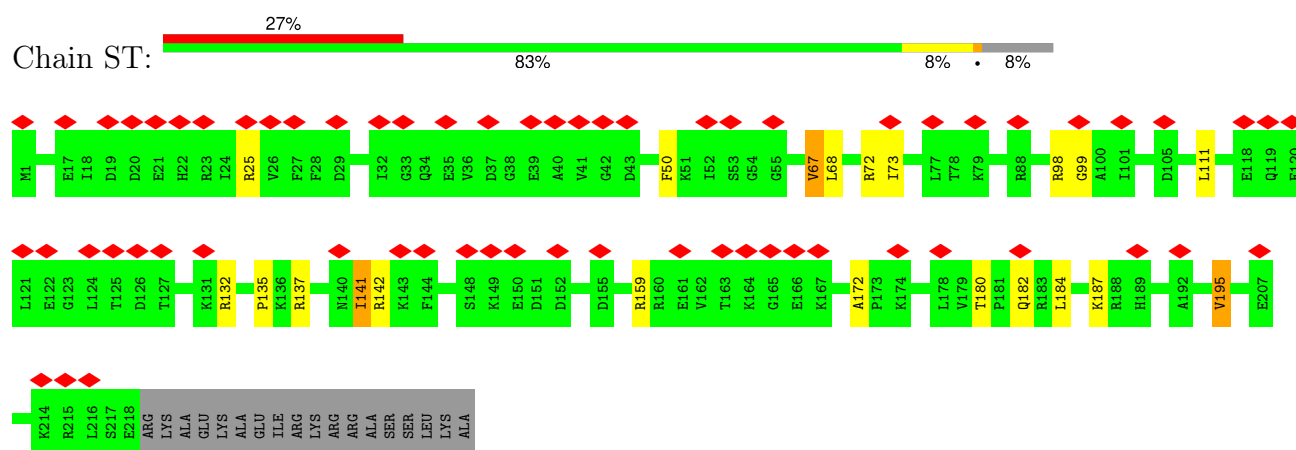
- Molecule 61: Guanine nucleotide-binding protein subunit beta-like protein



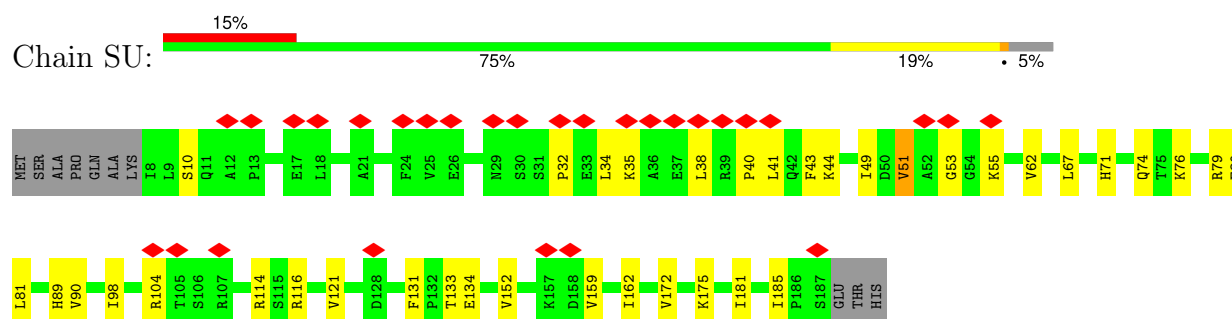
- Molecule 65: 40S ribosomal protein S4-A



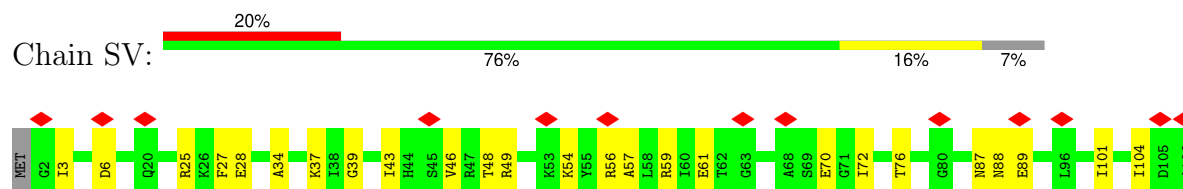
- Molecule 66: 40S ribosomal protein S6-A



- Molecule 67: 40S ribosomal protein S7-A



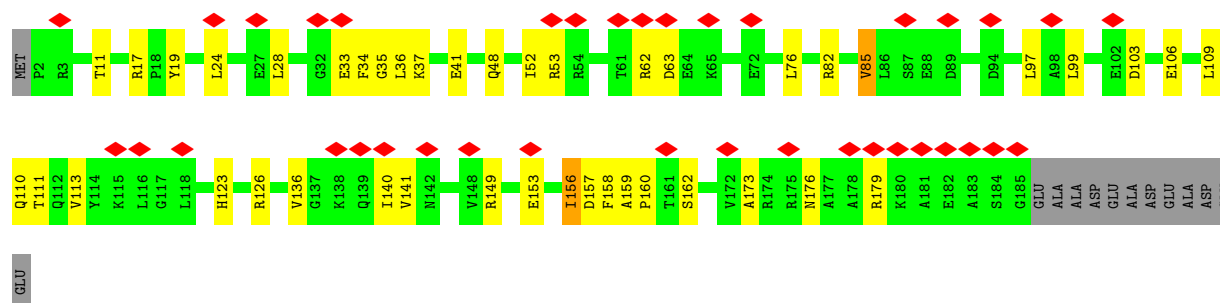
- Molecule 68: 40S ribosomal protein S8-A





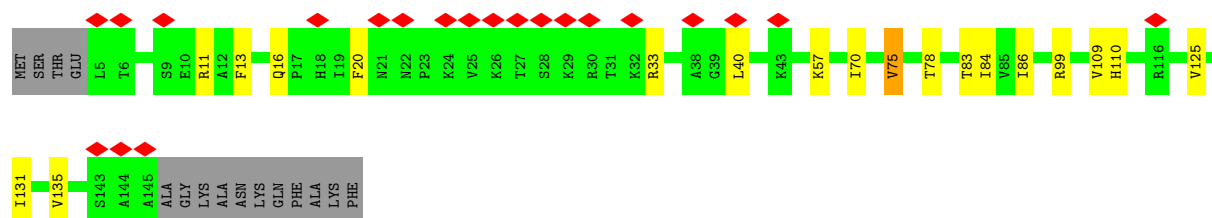
- Molecule 69: 40S ribosomal protein S9-A

Chain SW: 19% 72% 21% 7%



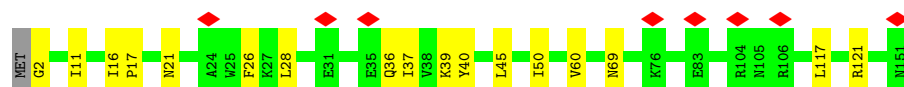
- Molecule 70: 40S ribosomal protein S11-A

Chain SX: 13% 78% 12% 10%



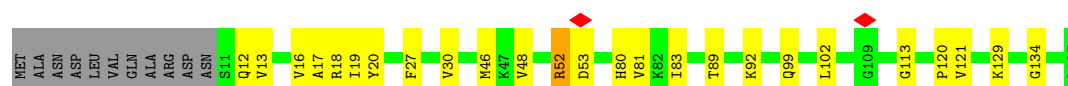
- Molecule 71: 40S ribosomal protein S13

Chain SY: 5% 88% 11%



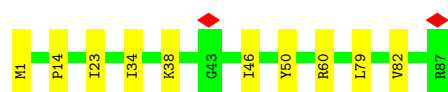
- Molecule 72: 40S ribosomal protein S14-B

Chain SZ: 74% 17% 8%

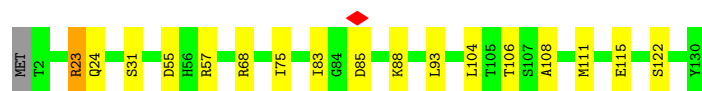
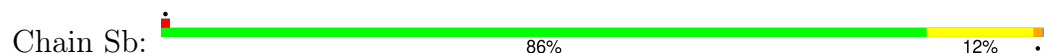


- Molecule 73: 40S ribosomal protein S21-A

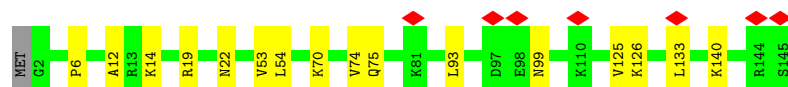
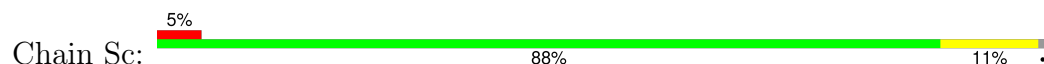
Chain Sa: 89% 11%



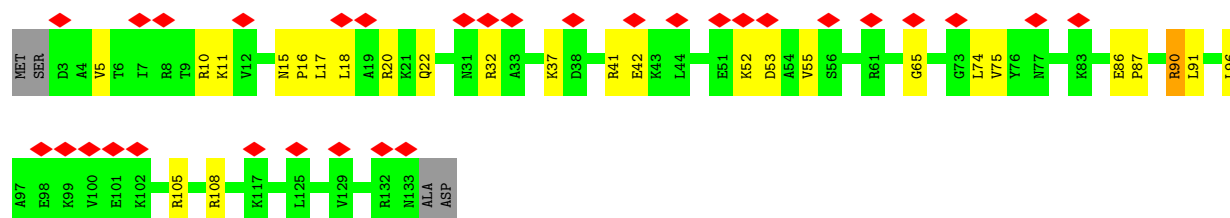
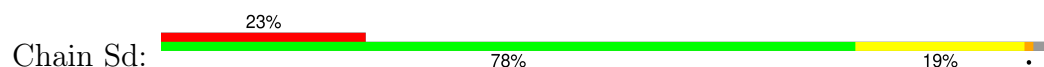
- Molecule 74: 40S ribosomal protein S22-A



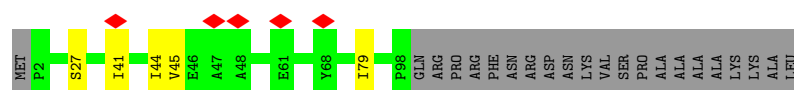
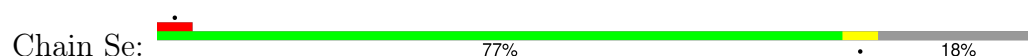
- Molecule 75: 40S ribosomal protein S23-A



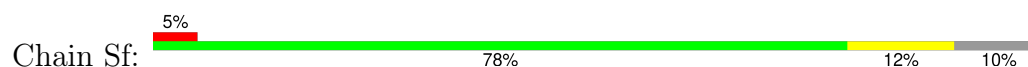
- Molecule 76: 40S ribosomal protein S24-A



- Molecule 77: Small ribosomal subunit protein eS26B



- Molecule 78: 40S ribosomal protein S27-A



- Molecule 79: 40S ribosomal protein S30-A

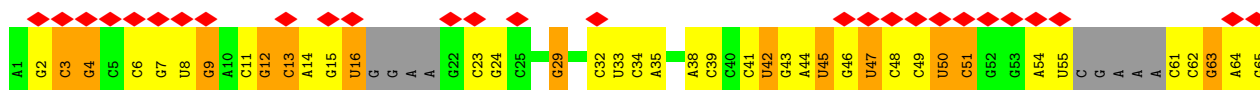
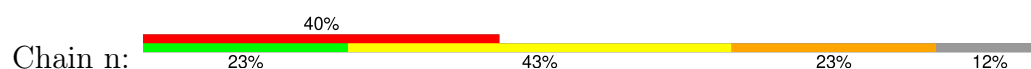




• Molecule 80: A site tRNA



• Molecule 81: P site tRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	15817	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 ($e^-/\text{\AA}^2$)	80	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.632	Depositor
Minimum map value	-0.300	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.031	Depositor
Recommended contour level	0.12	Depositor
Map size (Å)	499.91998, 499.91998, 499.91998	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8332, 0.8332, 0.8332	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.17	0/73414	0.38	0/114440
2	B	0.17	0/2883	0.36	0/4491
3	C	0.16	0/3746	0.36	0/5832
4	D	0.22	0/245	0.56	0/378
5	E	0.18	0/37747	0.42	0/58802
6	LD	0.22	0/1912	0.54	0/2569
7	LE	0.19	0/3150	0.49	0/4236
8	LF	0.19	0/2801	0.48	0/3792
9	LG	0.26	0/2390	0.68	0/3225
10	LH	0.24	0/1265	0.66	0/1706
11	LI	0.21	0/1821	0.51	0/2451
12	LJ	0.21	0/1836	0.56	0/2481
13	LK	0.26	0/1514	0.67	1/2039 (0.0%)
14	LL	0.23	0/1723	0.62	0/2312
15	LM	0.30	0/1358	0.79	0/1823
16	LN	0.22	0/1568	0.57	0/2106
17	LO	0.25	0/1068	0.58	0/1438
18	LP	0.18	0/1757	0.47	0/2354
19	LQ	0.22	0/1585	0.49	0/2128
20	LR	0.19	0/1383	0.49	0/1858
21	LS	0.22	0/1465	0.57	0/1965
22	LT	0.20	0/1499	0.54	0/1998
23	LU	0.21	0/1473	0.51	0/1980
24	LV	0.26	0/1296	0.65	0/1739
25	LW	0.26	0/812	0.68	0/1099
26	LX	0.22	0/1018	0.56	0/1369
27	LY	0.21	0/525	0.55	0/696
28	LZ	0.20	0/974	0.54	0/1314
29	La	0.19	0/995	0.47	0/1329
30	Lb	0.20	0/1092	0.56	0/1467
31	Lc	0.21	0/1200	0.54	0/1607
32	Ld	0.17	0/473	0.48	0/629
33	Le	0.22	0/745	0.61	0/1001
34	Lf	0.17	0/870	0.43	0/1168

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	Lg	0.19	0/1029	0.48	0/1379
36	Lh	0.20	0/868	0.52	0/1168
37	Li	0.22	0/876	0.55	0/1171
38	Lj	0.19	0/978	0.57	0/1301
39	Lk	0.22	0/767	0.62	0/1019
40	Ll	0.16	0/660	0.46	0/875
41	Lm	0.26	0/614	0.68	0/822
42	Ln	0.18	0/443	0.46	0/588
43	Lo	0.22	0/415	0.60	0/551
44	Lp	0.18	0/225	0.46	0/289
45	Lq	0.21	0/817	0.57	0/1078
46	Lr	0.18	0/701	0.48	0/934
47	SA	0.26	0/1754	0.68	0/2361
48	SB	0.31	0/1625	0.77	1/2197 (0.0%)
49	SC	0.33	0/725	0.83	0/978
50	SD	0.34	0/742	0.82	1/1005 (0.1%)
51	SE	0.32	0/925	0.77	0/1245
52	SF	0.26	0/1115	0.70	0/1499
53	SG	0.28	0/917	0.76	1/1229 (0.1%)
54	SH	0.31	0/1207	0.80	1/1623 (0.1%)
55	SI	0.29	0/1130	0.73	0/1517
56	SJ	0.28	0/807	0.73	0/1091
57	SK	0.32	0/566	0.87	0/761
58	SL	0.25	0/488	0.62	0/656
59	SM	0.25	0/453	0.65	0/602
60	SN	0.66	0/437	0.88	1/585 (0.2%)
61	SO	0.32	0/2428	0.85	7/3308 (0.2%)
62	SP	0.27	0/1636	0.72	1/2237 (0.0%)
63	SQ	0.27	0/1784	0.71	0/2398
64	SR	0.25	0/1656	0.65	0/2251
65	SS	0.26	0/2097	0.69	0/2823
66	ST	0.23	0/1779	0.62	0/2379
67	SU	0.29	0/1475	0.71	0/1987
68	SV	0.25	0/1496	0.64	0/1999
69	SW	0.25	0/1504	0.69	2/2016 (0.1%)
70	SX	0.23	0/1163	0.62	0/1568
71	SY	0.25	0/1215	0.65	0/1638
72	SZ	0.24	0/934	0.65	0/1257
73	Sa	0.26	0/682	0.65	0/921
74	Sb	0.24	0/1038	0.64	0/1395
75	Sc	0.24	0/1139	0.66	2/1518 (0.1%)
76	Sd	0.30	0/1030	0.73	0/1379
77	Se	0.26	0/778	0.70	0/1042

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
78	Sf	0.22	0/570	0.58	0/769
79	Sg	0.26	0/444	0.76	1/591 (0.2%)
80	m	0.25	0/1799	0.62	0/2801
81	n	0.27	0/1569	0.62	0/2439
All	All	0.21	0/209103	0.50	19/307062 (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
6	LD	0	1
9	LG	0	1
12	LJ	0	1
13	LK	0	1
14	LL	0	1
15	LM	0	1
16	LN	0	2
21	LS	0	1
22	LT	0	5
26	LX	0	2
47	SA	0	4
48	SB	0	1
49	SC	0	1
50	SD	0	1
51	SE	0	1
54	SH	0	3
55	SI	0	1
57	SK	0	2
59	SM	0	3
60	SN	0	1
64	SR	0	2
66	ST	0	1
67	SU	0	3
69	SW	0	1
72	SZ	0	1
74	Sb	0	2
76	Sd	0	3
All	All	0	47

There are no bond length outliers.

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	LK	105	GLU	CA-CB-CG	7.18	128.46	114.10
75	Sc	99	ASN	CA-CB-CG	6.71	119.31	112.60
61	SO	111	MET	CB-CG-SD	-6.59	92.94	112.70
61	SO	175	ASP	N-CA-CB	6.48	121.44	110.49
61	SO	174	ASN	CA-C-N	6.13	133.24	121.54
61	SO	174	ASN	C-N-CA	6.13	133.24	121.54
79	Sg	10	ARG	CA-CB-CG	5.97	126.04	114.10
61	SO	175	ASP	CB-CA-C	-5.71	99.06	110.42
60	SN	98	VAL	N-CA-C	-5.62	107.65	113.10
48	SB	80	LYS	CA-CB-CG	5.57	125.24	114.10
54	SH	63	GLN	CA-CB-CG	5.44	124.98	114.10
75	Sc	99	ASN	N-CA-CB	-5.38	103.97	112.63
53	SG	18	GLU	CA-CB-CG	5.35	124.80	114.10
50	SD	87	PRO	N-CA-C	5.33	123.44	112.47
61	SO	183	LEU	CA-CB-CG	5.15	134.31	116.30
61	SO	237	GLN	CA-CB-CG	5.07	124.25	114.10
69	SW	156	ILE	CA-C-N	5.07	135.03	125.66
69	SW	156	ILE	C-N-CA	5.07	135.03	125.66
62	SP	117	GLU	CA-CB-CG	5.03	124.16	114.10

There are no chirality outliers.

All (47) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	LD	241	ARG	Sidechain
9	LG	196	ARG	Sidechain
12	LJ	185	ARG	Sidechain
13	LK	23	ARG	Sidechain
14	LL	128	ARG	Sidechain
15	LM	133	ARG	Sidechain
16	LN	174	ARG	Sidechain
16	LN	67	ARG	Sidechain
21	LS	16	ARG	Sidechain
22	LT	151	ARG	Sidechain
22	LT	162	ARG	Sidechain
22	LT	163	ARG	Sidechain
22	LT	167	ARG	Sidechain
22	LT	170	ARG	Sidechain
26	LX	12	ARG	Sidechain
26	LX	70	ARG	Sidechain
47	SA	116	ARG	Sidechain

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Mol	Chain	Res	Type	Group
47	SA	117	ARG	Sidechain
47	SA	76	ARG	Sidechain
47	SA	90	ARG	Sidechain
48	SB	102	ARG	Sidechain
49	SC	8	ARG	Sidechain
50	SD	54	ARG	Sidechain
51	SE	77	ARG	Sidechain
54	SH	110	ARG	Sidechain
54	SH	68	ARG	Sidechain
54	SH	88	ARG	Sidechain
55	SI	122	ARG	Sidechain
57	SK	103	ARG	Sidechain
57	SK	58	ARG	Sidechain
59	SM	12	ARG	Sidechain
59	SM	32	ARG	Sidechain
59	SM	44	ARG	Sidechain
60	SN	119	ARG	Sidechain
64	SR	205	ARG	Sidechain
64	SR	95	ARG	Sidechain
66	ST	25	ARG	Sidechain
67	SU	114	ARG	Sidechain
67	SU	116	ARG	Sidechain
67	SU	79	ARG	Sidechain
69	SW	53	ARG	Sidechain
72	SZ	52	ARG	Sidechain
74	Sb	23	ARG	Sidechain
74	Sb	57	ARG	Sidechain
76	Sd	108	ARG	Sidechain
76	Sd	41	ARG	Sidechain
76	Sd	90	ARG	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	65590	0	32968	333	0
2	B	2579	0	1304	14	0
3	C	3353	0	1695	16	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	218	0	109	1	0
5	E	33747	0	16978	258	0
6	LD	1878	0	1946	31	0
7	LE	3079	0	3158	20	0
8	LF	2749	0	2863	26	0
9	LG	2341	0	2290	33	0
10	LH	1243	0	1327	15	0
11	LI	1784	0	1862	14	0
12	LJ	1804	0	1877	14	0
13	LK	1493	0	1566	17	0
14	LL	1686	0	1725	25	0
15	LM	1337	0	1357	23	0
16	LN	1543	0	1608	17	0
17	LO	1053	0	1149	10	0
18	LP	1720	0	1779	11	0
19	LQ	1555	0	1659	11	0
20	LR	1361	0	1398	7	0
21	LS	1441	0	1543	15	0
22	LT	1482	0	1578	7	0
23	LU	1437	0	1475	14	0
24	LV	1272	0	1312	14	0
25	LW	796	0	812	3	0
26	LX	1003	0	1048	12	0
27	LY	513	0	540	3	0
28	LZ	959	0	1023	1	0
29	La	984	0	1075	10	0
30	Lb	1066	0	1104	7	0
31	Lc	1169	0	1211	9	0
32	Ld	462	0	491	2	0
33	Le	737	0	792	8	0
34	Lf	856	0	904	5	0
35	Lg	1008	0	1068	9	0
36	Lh	850	0	880	3	0
37	Li	866	0	927	3	0
38	Lj	969	0	1078	7	0
39	Lk	761	0	842	10	0
40	Ll	645	0	649	1	0
41	Lm	608	0	671	4	0
42	Ln	436	0	475	1	0
43	Lo	409	0	448	8	0
44	Lp	224	0	271	2	0
45	Lq	805	0	877	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	Lr	694	0	738	5	0
47	SA	1729	0	1812	22	0
48	SB	1605	0	1669	42	0
49	SC	708	0	701	14	0
50	SD	736	0	771	15	0
51	SE	905	0	928	14	0
52	SF	1095	0	1144	15	0
53	SG	908	0	961	17	0
54	SH	1188	0	1218	20	0
55	SI	1112	0	1124	19	0
56	SJ	797	0	863	15	0
57	SK	558	0	598	12	0
58	SL	486	0	522	8	0
59	SM	443	0	436	3	0
60	SN	429	0	412	17	0
61	SO	2375	0	2323	47	0
62	SP	1596	0	1603	37	0
63	SQ	1759	0	1836	36	0
64	SR	1626	0	1715	24	0
65	SS	2056	0	2140	27	0
66	ST	1755	0	1846	13	0
67	SU	1451	0	1538	18	0
68	SV	1471	0	1499	25	0
69	SW	1479	0	1556	30	0
70	SX	1137	0	1207	14	0
71	SY	1192	0	1255	9	0
72	SZ	923	0	948	15	0
73	Sa	673	0	662	8	0
74	Sb	1021	0	1060	13	0
75	Sc	1121	0	1196	11	0
76	Sd	1016	0	1032	17	0
77	Se	765	0	811	5	0
78	Sf	562	0	582	7	0
79	Sg	437	0	484	6	0
80	m	1611	0	817	16	0
81	n	1407	0	719	16	0
All	All	194697	0	144438	1488	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 (1488) 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)
5:E:868:G:H1	5:E:960:U:H3	1.16	0.94
5:E:819:G:N7	5:E:853:G:C2	2.45	0.84
3:C:150:G:H21	12:LJ:59:GLN:HE22	1.25	0.84
54:SH:38:VAL:HG23	54:SH:101:LEU:HD21	1.61	0.83
81:n:29:G:H1	81:n:42:U:H3	1.26	0.82
63:SQ:149:GLN:HE22	63:SQ:154:SER:HB3	1.44	0.80
5:E:819:G:C8	5:E:853:G:N2	2.50	0.80
5:E:647:G:H22	5:E:687:G:H1	1.30	0.78
5:E:401:A:H3'	5:E:402:C:H4'	1.63	0.77
5:E:819:G:N7	5:E:853:G:N1	2.33	0.77
5:E:522:U:H5''	76:Sd:37:LYS:HG3	1.63	0.77
81:n:67:G:H3'	81:n:68:G:H4'	1.67	0.76
72:SZ:20:TYR:HB3	72:SZ:27:PHE:HB2	1.68	0.76
1:A:2448:G:H1	1:A:2498:U:H3	1.29	0.76
5:E:1292:G:H21	62:SP:111:ILE:HD11	1.51	0.75
76:Sd:15:ASN:HB2	76:Sd:22:GLN:HE22	1.53	0.73
5:E:174:U:H3	5:E:266:A:H62	1.37	0.73
55:SI:69:LYS:HD3	55:SI:70:GLN:HG2	1.70	0.72
1:A:2193:U:H5'	1:A:2194:G:H5'	1.71	0.72
1:A:1213:G:H4'	23:LU:90:MET:HG3	1.70	0.71
57:SK:90:LYS:HG2	57:SK:104:ALA:HA	1.73	0.70
23:LU:77:VAL:HG13	23:LU:126:VAL:HG12	1.72	0.69
48:SB:121:ILE:HG23	48:SB:199:ILE:HD11	1.74	0.69
51:SE:25:LEU:HA	51:SE:28:MET:HG3	1.74	0.69
65:SS:11:ARG:HE	65:SS:20:LEU:HB3	1.57	0.69
56:SJ:42:VAL:HG13	56:SJ:52:LYS:HE3	1.73	0.69
1:A:3165:A:H61	1:A:3285:C:H42	1.39	0.69
65:SS:246:LEU:HD13	65:SS:250:GLU:HG2	1.73	0.69
47:SA:70:THR:HG22	47:SA:86:LEU:HG	1.74	0.69
54:SH:41:ARG:HH21	55:SI:46:PRO:HG3	1.58	0.68
61:SO:54:PHE:HD2	61:SO:312:VAL:HG11	1.56	0.68
76:Sd:55:VAL:HG22	76:Sd:75:VAL:HG22	1.75	0.68
5:E:1165:G:H4'	48:SB:99:MET:HE2	1.76	0.68
60:SN:95:HIS:HB3	60:SN:97:LYS:HG2	1.76	0.67
5:E:905:A:H5''	72:SZ:52:ARG:HG2	1.77	0.67
18:LP:183:THR:HG22	18:LP:187:ARG:HG3	1.76	0.67
64:SR:53:ILE:HG22	64:SR:56:ILE:HD11	1.76	0.67
6:LD:65:ASP:HB2	6:LD:72:ARG:HE	1.59	0.67
30:Lb:103:GLN:HE21	30:Lb:105:SER:H	1.43	0.66
60:SN:132:LEU:HB3	60:SN:139:LEU:HB3	1.77	0.66
5:E:1231:U:H3	5:E:1254:U:H3	1.42	0.66
55:SI:83:ALA:HB1	55:SI:91:TYR:HB3	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:918:U:H4'	72:SZ:18:ARG:HD3	1.76	0.66
74:Sb:83:ILE:HD13	74:Sb:122:SER:HB3	1.77	0.66
81:n:3:C:H2'	81:n:4:G:C8	2.30	0.66
48:SB:22:PRO:HA	48:SB:34:GLN:HE21	1.60	0.66
68:SV:57:ALA:HB2	68:SV:177:GLY:HA2	1.77	0.65
3:C:155:A:H4'	12:LJ:185:ARG:HH21	1.61	0.65
5:E:1673:G:H1	5:E:1728:A:H2	1.41	0.65
17:LO:60:LEU:HD13	23:LU:152:LEU:HD11	1.77	0.65
50:SD:134:SER:HA	50:SD:137:MET:HE3	1.78	0.65
17:LO:48:GLY:HA3	17:LO:53:VAL:HB	1.79	0.65
1:A:3348:G:H1	1:A:3357:U:H3	1.44	0.65
23:LU:82:ASP:HB2	23:LU:120:SER:HB2	1.78	0.65
48:SB:57:SER:HA	58:SL:53:ILE:HB	1.78	0.65
60:SN:105:TYR:HB3	60:SN:118:ARG:HG2	1.77	0.65
5:E:1426:C:H3'	5:E:1427:A:H4'	1.78	0.65
81:n:42:U:H3'	81:n:43:G:H21	1.61	0.65
1:A:1627:U:H3	1:A:1817:G:H1	1.43	0.64
61:SO:266:ASP:HB3	61:SO:267:PRO:HD3	1.80	0.64
1:A:3109:G:H21	13:LK:156:GLN:HE22	1.45	0.64
9:LG:41:LYS:HE3	24:LV:93:VAL:HG11	1.79	0.64
65:SS:43:PRO:HB2	65:SS:45:ILE:HG22	1.80	0.64
5:E:1587:A:H2'	5:E:1588:G:H8	1.62	0.64
7:LE:152:LYS:HG2	7:LE:192:VAL:HG11	1.80	0.64
23:LU:80:ARG:HG2	23:LU:124:LEU:HD21	1.79	0.64
75:Sc:70:LYS:HB3	75:Sc:93:LEU:HD22	1.80	0.64
67:SU:32:PRO:HA	67:SU:35:LYS:HG3	1.80	0.64
5:E:1499:G:H1	5:E:1508:U:H3	1.45	0.63
81:n:9:G:H1'	81:n:45:U:H2'	1.80	0.63
50:SD:27:ALA:HB2	50:SD:135:MET:HE2	1.80	0.63
6:LD:149:ARG:HD3	6:LD:155:LYS:HZ2	1.62	0.63
1:A:655:C:H2'	1:A:656:A:H8	1.64	0.62
5:E:887:A:H5''	72:SZ:120:PRO:HB2	1.80	0.62
9:LG:156:GLY:HA2	9:LG:181:PRO:HG3	1.81	0.62
62:SP:183:ARG:HD3	62:SP:191:ARG:HG2	1.81	0.62
74:Sb:106:THR:HG21	74:Sb:111:MET:HE2	1.79	0.62
5:E:1673:G:O6	5:E:1728:A:N1	2.32	0.62
5:E:298:C:H5''	65:SS:38:LEU:HB2	1.79	0.62
63:SQ:27:LYS:HB3	63:SQ:47:LEU:HD11	1.80	0.62
15:LM:101:ASN:HB3	15:LM:128:TYR:HE1	1.64	0.62
63:SQ:144:ARG:HB3	63:SQ:208:GLN:HB3	1.81	0.62
62:SP:63:ILE:HD13	73:Sa:34:ILE:HD11	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
62:SP:148:ASP:HB2	62:SP:164:ASN:HB2	1.82	0.62
5:E:636:A:H5'	74:Sb:31:SER:HB3	1.82	0.61
15:LM:17:LEU:HD23	15:LM:129:VAL:HG22	1.81	0.61
62:SP:123:VAL:HG21	62:SP:133:ILE:HD11	1.81	0.61
5:E:343:C:H2'	5:E:344:A:H8	1.66	0.61
48:SB:121:ILE:HB	48:SB:129:PRO:HB3	1.80	0.61
16:LN:166:ALA:HB1	31:Lc:147:LEU:HD21	1.82	0.61
50:SD:26:ASP:HA	50:SD:29:LYS:HG2	1.82	0.61
63:SQ:164:ILE:HD12	63:SQ:207:LEU:HD11	1.82	0.61
5:E:1591:C:H2'	5:E:1592:A:H8	1.66	0.61
5:E:123:G:H21	65:SS:146:THR:HG21	1.64	0.61
39:Lk:34:SER:HB3	39:Lk:37:THR:HG23	1.83	0.61
1:A:2781:U:H4'	16:LN:185:LYS:HD2	1.83	0.61
45:Lq:23:HIS:HB3	45:Lq:72:LEU:HB3	1.83	0.61
5:E:480:G:H1	5:E:508:U:H3	1.46	0.60
55:SI:135:ILE:HA	55:SI:138:GLN:HG3	1.83	0.60
1:A:824:C:H5''	6:LD:21:ARG:HD3	1.82	0.60
1:A:2178:A:H3'	6:LD:132:ASN:HD21	1.66	0.60
5:E:1:U:H5'	64:SR:179:VAL:HG13	1.82	0.60
72:SZ:81:VAL:HG11	72:SZ:102:LEU:HD13	1.82	0.60
1:A:571:U:H2'	1:A:572:A:H8	1.66	0.60
5:E:29:U:H2'	5:E:30:G:H8	1.65	0.60
63:SQ:175:GLU:HG2	63:SQ:193:ILE:HD11	1.83	0.60
6:LD:70:ARG:CZ	6:LD:72:ARG:HH22	2.15	0.60
1:A:597:G:H2'	1:A:598:A:H8	1.65	0.60
1:A:2268:U:H3'	1:A:2269:U:H5''	1.84	0.60
31:Lc:89:GLN:HA	31:Lc:92:LYS:HE2	1.84	0.60
19:LQ:61:ALA:HA	19:LQ:70:PRO:HD2	1.83	0.60
1:A:1419:A:H5''	8:LF:193:LYS:HE2	1.83	0.60
16:LN:165:SER:HB3	16:LN:168:ARG:HB3	1.84	0.60
16:LN:187:ALA:HA	16:LN:190:LYS:HE2	1.83	0.60
51:SE:90:ILE:HD11	51:SE:109:PRO:HA	1.81	0.60
81:n:63:G:H2'	81:n:64:A:H8	1.67	0.60
12:LJ:162:LEU:HA	18:LP:7:LEU:HD21	1.83	0.60
47:SA:220:PRO:HA	61:SO:193:ILE:HD11	1.84	0.60
51:SE:20:VAL:HG13	51:SE:24:LYS:HZ3	1.67	0.60
1:A:745:C:H5''	21:LS:145:ASN:HD21	1.67	0.59
50:SD:45:LEU:HD21	60:SN:103:LEU:HD23	1.83	0.59
1:A:1694:U:H4'	37:Li:24:LYS:HE3	1.84	0.59
62:SP:146:LEU:HD11	62:SP:173:ILE:HG21	1.82	0.59
7:LE:90:VAL:HG22	7:LE:104:THR:HG23	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:LX:40:LYS:HG3	26:LX:57:MET:HG2	1.85	0.59
5:E:1586:A:H3'	5:E:1587:A:H8	1.66	0.59
5:E:1588:G:H1	5:E:1608:U:H3	1.50	0.59
71:SY:11:ILE:HD12	78:Sf:21:LEU:HD12	1.85	0.59
1:A:1639:C:H5'	37:Li:52:GLN:HG2	1.84	0.59
5:E:819:G:C8	5:E:853:G:C2	2.90	0.59
5:E:1229:G:H8	60:SN:100:LEU:HD12	1.68	0.59
1:A:1369:A:H4'	31:Lc:21:ARG:HG3	1.83	0.59
47:SA:93:ASP:HB3	47:SA:96:LEU:HD23	1.85	0.59
9:LG:106:ALA:HB2	9:LG:166:ALA:HA	1.84	0.59
17:LO:23:ILE:HD13	17:LO:63:VAL:HG12	1.85	0.59
48:SB:94:THR:HG22	48:SB:114:ILE:HG21	1.85	0.59
55:SI:22:LEU:HD21	55:SI:28:LEU:HD13	1.83	0.59
65:SS:80:THR:HG23	65:SS:81:THR:HG23	1.85	0.59
6:LD:51:ASP:HB3	6:LD:54:ARG:HB3	1.85	0.58
16:LN:76:THR:HG22	16:LN:101:ARG:HB3	1.85	0.58
23:LU:77:VAL:HG11	23:LU:106:LEU:HD22	1.85	0.58
52:SF:34:SER:HB3	52:SF:38:LEU:HD21	1.85	0.58
1:A:2747:A:H4'	9:LG:174:PRO:HB2	1.86	0.58
5:E:1344:A:H2'	5:E:1345:A:C8	2.39	0.58
14:LL:170:LYS:HA	14:LL:177:ASP:HA	1.85	0.58
15:LM:53:THR:HG23	15:LM:60:ARG:HA	1.86	0.58
6:LD:189:TYR:HA	6:LD:192:LYS:HB2	1.85	0.58
21:LS:67:ILE:HD12	21:LS:81:VAL:HG11	1.86	0.58
64:SR:40:LYS:HE3	64:SR:247:ALA:HB3	1.86	0.58
69:SW:126:ARG:HD3	79:Sg:33:ARG:HD3	1.85	0.58
1:A:990:U:H4'	24:LV:100:LYS:HB3	1.86	0.58
1:A:1103:A:H5''	11:LI:158:LYS:HD3	1.84	0.58
5:E:1108:G:H1	75:Sc:22:ASN:HD22	1.51	0.58
61:SO:249:ARG:HD2	61:SO:250:TYR:H	1.69	0.58
70:SX:78:THR:HA	70:SX:84:ILE:HG22	1.85	0.58
77:Se:44:ILE:HG23	77:Se:45:VAL:HG13	1.85	0.58
1:A:1411:C:H2'	1:A:1412:G:H8	1.69	0.58
5:E:990:C:H5''	72:SZ:129:LYS:HB2	1.85	0.58
47:SA:40:ARG:HB2	47:SA:47:GLU:HG3	1.85	0.58
57:SK:68:ARG:HH11	57:SK:68:ARG:HB2	1.67	0.58
61:SO:9:LEU:HA	61:SO:313:TRP:HD1	1.69	0.58
65:SS:64:ILE:HD12	76:Sd:17:LEU:HD23	1.85	0.58
1:A:2270:A:H2'	1:A:2271:A:C8	2.39	0.58
14:LL:50:VAL:HG12	14:LL:167:LEU:HA	1.86	0.57
47:SA:94:ARG:H	47:SA:94:ARG:HE	1.49	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:SD:66:VAL:HG11	50:SD:71:ILE:HB	1.86	0.57
8:LF:313:LEU:HD23	8:LF:315:LYS:HE2	1.85	0.57
68:SV:87:ASN:HD21	68:SV:89:GLU:HB2	1.69	0.57
72:SZ:99:GLN:HE22	77:Se:45:VAL:HA	1.70	0.57
50:SD:66:VAL:HG12	50:SD:72:ILE:HG12	1.86	0.57
55:SI:108:LEU:HD22	55:SI:113:ILE:HB	1.86	0.57
54:SH:42:TYR:HA	54:SH:85:PHE:HE1	1.69	0.57
61:SO:24:ALA:HB3	61:SO:34:LEU:HB3	1.84	0.57
5:E:1171:A:H2'	5:E:1172:G:C8	2.40	0.57
5:E:1795:U:H5'	77:Se:79:ILE:HD11	1.85	0.57
5:E:1171:A:H2'	5:E:1172:G:H8	1.69	0.57
5:E:1210:C:H2'	5:E:1211:A:H8	1.70	0.57
76:Sd:18:LEU:HB2	76:Sd:20:ARG:HD3	1.87	0.57
1:A:821:U:H2'	1:A:822:G:H8	1.70	0.57
5:E:513:U:H2'	5:E:514:G:H8	1.70	0.57
5:E:1684:U:H3	5:E:1717:G:H1	1.51	0.57
25:LW:37:LEU:O	25:LW:41:ILE:HD12	2.05	0.57
3:C:8:C:H2'	3:C:9:A:H8	1.70	0.56
6:LD:52:SER:HB3	6:LD:191:LEU:HD22	1.87	0.56
14:LL:205:SER:HB3	14:LL:208:ASN:HB2	1.87	0.56
19:LQ:46:GLU:HG3	19:LQ:134:LYS:HD2	1.85	0.56
43:Lo:97:ARG:HE	43:Lo:122:ARG:HB3	1.70	0.56
65:SS:19:LEU:HD21	65:SS:108:ARG:HD2	1.85	0.56
1:A:2828:G:H4'	14:LL:4:ARG:HH11	1.70	0.56
5:E:590:C:H2'	5:E:591:A:H8	1.71	0.56
8:LF:264:SER:HB3	8:LF:267:VAL:HG12	1.87	0.56
9:LG:64:ILE:HD12	9:LG:144:VAL:HG21	1.87	0.56
67:SU:98:ILE:HG12	67:SU:121:VAL:HG21	1.87	0.56
71:SY:17:PRO:HG3	78:Sf:28:PRO:HG3	1.87	0.56
62:SP:62:ARG:HH21	73:Sa:38:LYS:HA	1.70	0.56
63:SQ:32:ILE:HG22	63:SQ:96:LEU:HD13	1.88	0.56
5:E:1246:C:H2'	5:E:1247:U:C6	2.41	0.56
48:SB:84:LYS:HE2	48:SB:92:ARG:HH22	1.70	0.56
49:SC:31:LYS:HA	49:SC:38:LYS:HA	1.86	0.56
65:SS:254:ARG:HH11	65:SS:254:ARG:HB2	1.70	0.56
1:A:370:U:H4'	1:A:404:G:H5'	1.87	0.56
1:A:1497:C:H2'	1:A:1498:A:H8	1.71	0.56
9:LG:184:ASP:HB3	9:LG:187:THR:HG22	1.88	0.56
64:SR:175:GLY:HA3	69:SW:97:LEU:HB3	1.86	0.56
69:SW:140:ILE:HD13	76:Sd:65:GLY:HA3	1.86	0.56
1:A:1661:G:H2'	1:A:1662:G:C8	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2413:A:H2'	1:A:2414:G:H8	1.70	0.56
60:SN:119:ARG:HH21	60:SN:139:LEU:HD13	1.70	0.56
31:Lc:126:LYS:HB3	31:Lc:148:ILE:HD13	1.88	0.56
58:SL:10:ALA:HA	58:SL:32:PHE:HA	1.88	0.56
60:SN:105:TYR:O	60:SN:106:TYR:C	2.49	0.56
64:SR:78:ASP:HB3	64:SR:104:VAL:HG23	1.87	0.56
74:Sb:75:ILE:HD11	74:Sb:93:LEU:HD11	1.88	0.56
1:A:3358:U:H2'	1:A:3359:A:H8	1.71	0.55
8:LF:283:THR:HG21	8:LF:288:ARG:HH21	1.71	0.55
1:A:2351:U:H2'	1:A:2352:A:H8	1.72	0.55
5:E:297:U:H5''	65:SS:37:LYS:HD2	1.89	0.55
5:E:822:U:H3	5:E:851:U:H3	1.53	0.55
9:LG:148:ILE:HG23	9:LG:151:GLN:HB3	1.88	0.55
50:SD:86:VAL:H	50:SD:87:PRO:HD2	1.70	0.55
30:Lb:27:LYS:HB3	30:Lb:42:LEU:HD12	1.88	0.55
53:SG:10:LYS:HG3	53:SG:53:TYR:HE2	1.70	0.55
5:E:1785:U:H2'	5:E:1786:G:H8	1.72	0.55
23:LU:8:GLN:HE21	23:LU:62:ASN:HB2	1.72	0.55
48:SB:41:LYS:HB3	48:SB:67:PRO:HB2	1.87	0.55
54:SH:86:LEU:HD22	54:SH:99:HIS:HB2	1.87	0.55
61:SO:181:TRP:HA	61:SO:189:GLU:HG3	1.88	0.55
1:A:2960:C:H2'	1:A:2961:G:H8	1.72	0.55
5:E:142:G:H22	5:E:173:A:H2	1.55	0.55
5:E:480:G:N2	5:E:508:U:O2	2.36	0.55
47:SA:106:LYS:HG3	47:SA:175:VAL:HG13	1.89	0.55
48:SB:123:VAL:HG13	57:SK:102:THR:HG22	1.89	0.55
50:SD:93:ASP:HB3	50:SD:96:GLN:HG2	1.88	0.55
1:A:2357:A:H2'	1:A:2358:A:H8	1.72	0.55
2:B:94:C:H2'	2:B:95:A:H8	1.71	0.55
5:E:513:U:H2'	5:E:514:G:C8	2.41	0.55
5:E:884:A:H2'	5:E:885:G:C8	2.42	0.55
65:SS:48:LEU:HD12	65:SS:61:VAL:HG23	1.89	0.55
1:A:1805:C:H2'	1:A:1806:A:H8	1.70	0.54
1:A:2437:G:H1	1:A:2510:U:H3	1.55	0.54
51:SE:86:VAL:HG22	51:SE:89:MET:HE2	1.88	0.54
24:LV:84:TYR:HB2	32:Ld:24:PRO:HD3	1.90	0.54
53:SG:25:THR:H	53:SG:31:ASN:HD21	1.55	0.54
53:SG:71:PHE:HD1	53:SG:72:LYS:H	1.55	0.54
1:A:3015:G:H2'	1:A:3016:A:H8	1.72	0.54
1:A:937:G:H5''	31:Lc:29:PRO:HA	1.89	0.54
1:A:1168:U:H2'	1:A:1169:A:H8	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:LD:118:GLU:HB2	6:LD:125:ALA:HB3	1.88	0.54
54:SH:62:THR:HG23	54:SH:64:GLU:HG2	1.89	0.54
65:SS:94:ALA:HB3	76:Sd:17:LEU:HD12	1.89	0.54
5:E:1727:G:H2'	5:E:1728:A:C8	2.42	0.54
29:La:56:VAL:HG21	29:La:104:LEU:HD13	1.89	0.54
62:SP:155:PHE:HA	73:Sa:60:ARG:HE	1.72	0.54
5:E:1063:U:H2'	5:E:1064:G:H8	1.72	0.54
9:LG:131:LEU:HD21	9:LG:175:HIS:H	1.73	0.54
10:LH:131:LYS:HB3	10:LH:134:ARG:HG3	1.90	0.54
48:SB:187:ILE:HG12	57:SK:66:VAL:HG21	1.90	0.54
61:SO:172:ALA:HB2	61:SO:202:LEU:HD13	1.88	0.54
67:SU:10:SER:HB2	67:SU:44:LYS:HA	1.89	0.54
70:SX:99:ARG:HG3	75:Sc:12:ALA:HB2	1.88	0.54
1:A:68:C:H41	1:A:315:C:H5'	1.73	0.54
1:A:1336:U:H2'	1:A:1337:A:H8	1.73	0.54
1:A:1786:G:H2'	1:A:1787:A:C8	2.42	0.54
5:E:871:G:H2'	5:E:872:G:C8	2.43	0.54
1:A:312:C:H2'	1:A:313:A:H8	1.73	0.54
61:SO:79:TYR:HB3	61:SO:91:LEU:HD11	1.90	0.54
65:SS:95:THR:HG22	76:Sd:16:PRO:HD2	1.88	0.54
1:A:745:C:H5''	21:LS:145:ASN:ND2	2.22	0.53
1:A:1949:G:H1	1:A:2097:U:H3	1.56	0.53
21:LS:23:ASN:HB3	21:LS:26:LEU:HB3	1.90	0.53
63:SQ:61:LEU:HD12	63:SQ:91:VAL:HG21	1.90	0.53
74:Sb:106:THR:HG23	74:Sb:108:ALA:H	1.73	0.53
5:E:924:A:H2'	5:E:925:G:C8	2.43	0.53
15:LM:98:ALA:HA	15:LM:156:LYS:HB2	1.90	0.53
48:SB:143:ARG:HD2	58:SL:57:MET:HE2	1.89	0.53
64:SR:102:VAL:HG21	64:SR:129:ILE:HD13	1.90	0.53
55:SI:11:ALA:O	55:SI:15:ILE:HD12	2.07	0.53
67:SU:133:THR:HG22	67:SU:162:ILE:HD11	1.89	0.53
1:A:289:A:H2'	1:A:290:G:H8	1.73	0.53
9:LG:211:LEU:HB3	9:LG:219:PHE:HB2	1.91	0.53
14:LL:54:SER:HB2	14:LL:135:ILE:HD11	1.89	0.53
26:LX:54:LEU:HD21	26:LX:119:GLY:HA3	1.91	0.53
70:SX:83:THR:HG22	70:SX:110:HIS:HA	1.89	0.53
1:A:3309:G:H1'	20:LR:69:ARG:HD3	1.90	0.53
48:SB:42:LEU:HD23	48:SB:45:LYS:HA	1.90	0.53
1:A:655:C:H2'	1:A:656:A:C8	2.43	0.53
1:A:2597:U:H2'	1:A:2598:G:H8	1.73	0.53
13:LK:89:LYS:HG2	13:LK:145:VAL:HG22	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
64:SR:120:GLU:HG2	64:SR:123:GLY:H	1.74	0.53
13:LK:176:LEU:HD23	43:Lo:90:ASN:HD22	1.73	0.53
43:Lo:98:LYS:HG3	43:Lo:118:THR:HG21	1.91	0.53
45:Lq:9:LYS:HE2	45:Lq:22:GLN:HE22	1.74	0.53
49:SC:24:LYS:HG3	49:SC:63:TYR:CZ	2.44	0.53
50:SD:46:ARG:HG3	60:SN:103:LEU:HD21	1.91	0.53
61:SO:12:THR:HG22	61:SO:52:GLN:HE21	1.73	0.53
68:SV:76:THR:HG21	68:SV:104:ILE:HD12	1.89	0.53
68:SV:159:GLN:HE21	68:SV:166:TYR:H	1.56	0.53
1:A:700:C:H2'	1:A:701:G:H8	1.72	0.53
11:LI:121:LYS:HB2	24:LV:133:ALA:HB3	1.90	0.53
32:Ld:14:ARG:HG2	32:Ld:18:ARG:HH21	1.73	0.53
5:E:148:A:N6	5:E:166:C:N3	2.57	0.53
13:LK:31:ARG:HH12	13:LK:187:ILE:HD12	1.74	0.53
51:SE:72:LYS:HD3	51:SE:73:PRO:HD2	1.91	0.53
70:SX:16:GLN:HE22	70:SX:33:ARG:HD2	1.74	0.53
80:m:17:U:H2'	80:m:18:G:H3'	1.91	0.53
1:A:876:A:H5''	1:A:1890:U:H5''	1.90	0.53
5:E:445:A:H1'	5:E:525:A:H5'	1.91	0.53
14:LL:170:LYS:HE2	14:LL:177:ASP:HB3	1.91	0.53
54:SH:18:LEU:HD23	54:SH:102:ALA:HB2	1.91	0.53
57:SK:89:ILE:HB	57:SK:101:TYR:HB3	1.90	0.53
5:E:1606:C:H2'	5:E:1607:G:H8	1.74	0.52
14:LL:121:LYS:HD2	14:LL:122:PRO:HD2	1.91	0.52
49:SC:1:MET:HB2	49:SC:3:MET:HG3	1.91	0.52
1:A:3064:U:H2'	1:A:3065:G:H8	1.75	0.52
2:B:36:C:H4'	9:LG:155:THR:HB	1.91	0.52
16:LN:62:THR:HG23	16:LN:64:LYS:H	1.74	0.52
27:LY:6:ASP:HB3	27:LY:10:GLY:H	1.73	0.52
69:SW:34:PHE:HD2	69:SW:111:THR:HG21	1.74	0.52
72:SZ:17:ALA:HA	72:SZ:30:VAL:HG12	1.90	0.52
5:E:153:G:H2'	5:E:154:G:H8	1.74	0.52
12:LJ:152:LEU:HD13	12:LJ:178:ALA:HB3	1.91	0.52
26:LX:69:LEU:HD22	26:LX:74:MET:HE1	1.90	0.52
75:Sc:6:PRO:HG3	75:Sc:14:LYS:HG2	1.90	0.52
5:E:953:G:H2'	5:E:954:G:H8	1.75	0.52
52:SF:83:GLN:HE22	52:SF:119:ALA:HA	1.73	0.52
53:SG:84:TYR:HD2	62:SP:205:ARG:HD2	1.74	0.52
61:SO:90:ARG:HH12	61:SO:102:ARG:HE	1.56	0.52
64:SR:108:ASN:HB2	64:SR:141:ARG:HH12	1.74	0.52
54:SH:65:GLU:HG2	54:SH:68:ARG:HH22	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
61:SO:93:ASP:HB2	61:SO:100:TYR:HE1	1.75	0.52
63:SQ:134:VAL:HG22	63:SQ:219:LYS:HG2	1.89	0.52
1:A:2819:A:N6	1:A:2870:C:O2	2.42	0.52
5:E:1247:U:H4'	60:SN:91:ILE:O	2.10	0.52
63:SQ:33:LYS:HG2	63:SQ:95:ASN:HB2	1.92	0.52
69:SW:176:ASN:HA	69:SW:179:ARG:HE	1.73	0.52
1:A:1777:U:H2'	1:A:1778:G:C8	2.44	0.52
5:E:1606:C:H2'	5:E:1607:G:C8	2.45	0.52
63:SQ:48:VAL:HG11	63:SQ:61:LEU:HD21	1.90	0.52
1:A:1717:U:H2'	1:A:1718:G:C8	2.45	0.52
1:A:1799:A:H2'	1:A:1800:A:H8	1.74	0.52
1:A:2344:U:H2'	1:A:2345:A:H8	1.74	0.52
1:A:1203:A:H2'	1:A:1204:A:C8	2.44	0.52
5:E:394:C:H42	5:E:401:A:H62	1.56	0.52
5:E:1210:C:H2'	5:E:1211:A:C8	2.45	0.52
9:LG:76:ALA:HB3	9:LG:109:THR:HG22	1.92	0.52
10:LH:50:LYS:HE2	10:LH:72:ASN:HB2	1.90	0.52
59:SM:30:LEU:HD21	59:SM:37:ASN:HA	1.92	0.52
67:SU:49:ILE:HD12	67:SU:175:LYS:HG2	1.92	0.52
70:SX:40:LEU:HD13	70:SX:70:ILE:HD11	1.90	0.52
1:A:583:G:H4'	36:Lh:106:ASN:ND2	2.25	0.52
15:LM:101:ASN:HB3	15:LM:128:TYR:CE1	2.45	0.52
1:A:266:A:H2'	39:Lk:30:LYS:HE3	1.92	0.51
1:A:2571:U:H1'	1:A:2572:C:H2'	1.92	0.51
1:A:2674:A:H5''	15:LM:105:GLY:HA3	1.92	0.51
5:E:545:A:H2'	79:Sg:31:LYS:HE3	1.91	0.51
5:E:1587:A:H2'	5:E:1588:G:C8	2.43	0.51
5:E:1474:G:H2'	5:E:1475:A:H8	1.75	0.51
5:E:1501:C:H5	55:SI:102:ARG:HH22	1.57	0.51
16:LN:124:ILE:HB	38:Lj:119:LYS:HE3	1.91	0.51
19:LQ:32:LYS:HG2	19:LQ:101:ARG:HB3	1.92	0.51
54:SH:40:ARG:HG2	55:SI:45:MET:HE1	1.91	0.51
1:A:1083:G:H2'	1:A:1084:A:H8	1.75	0.51
5:E:1358:G:H2'	5:E:1359:C:C6	2.45	0.51
5:E:1524:A:H2'	5:E:1525:A:C8	2.45	0.51
6:LD:108:PRO:HG2	46:Lr:86:LEU:HD13	1.93	0.51
30:Lb:82:PRO:HD2	33:Le:59:TYR:HE1	1.76	0.51
54:SH:132:ARG:HH22	54:SH:145:ARG:HD3	1.75	0.51
65:SS:11:ARG:HD2	65:SS:28:ALA:HB2	1.92	0.51
67:SU:81:LEU:HD12	67:SU:90:VAL:HG11	1.92	0.51
1:A:1119:C:H2'	1:A:1120:A:H8	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:947:U:H2'	5:E:948:G:H8	1.74	0.51
1:A:307:A:H2'	1:A:308:A:C8	2.46	0.51
26:LX:69:LEU:HD21	26:LX:110:LYS:HE2	1.92	0.51
48:SB:108:LEU:HD11	52:SF:41:PRO:HG3	1.93	0.51
48:SB:148:ARG:HG3	58:SL:22:ARG:HE	1.75	0.51
50:SD:28:LEU:HB2	50:SD:100:TRP:HZ3	1.75	0.51
1:A:1378:U:H2'	1:A:1379:G:H8	1.74	0.51
11:LI:144:ILE:HD12	11:LI:189:ILE:HD12	1.92	0.51
57:SK:58:ARG:HG3	57:SK:103:ARG:HE	1.75	0.51
1:A:2960:C:H2'	1:A:2961:G:C8	2.46	0.51
1:A:3023:U:H2'	1:A:3024:A:H8	1.75	0.51
46:Lr:30:GLU:HA	46:Lr:33:GLN:HE21	1.76	0.51
5:E:448:C:H5'	65:SS:29:PRO:HB3	1.91	0.51
6:LD:150:LEU:HD11	6:LD:156:LYS:HD2	1.91	0.51
64:SR:140:ARG:HB3	64:SR:221:THR:HB	1.92	0.51
73:Sa:14:PRO:HG2	73:Sa:23:ILE:HD12	1.93	0.51
1:A:712:G:H5'	16:LN:174:ARG:NH1	2.26	0.51
1:A:3121:U:H1'	1:A:3122:A:H5''	1.93	0.51
5:E:553:G:H3'	5:E:554:C:H2'	1.92	0.51
1:A:631:U:H2'	1:A:632:G:C8	2.46	0.51
1:A:664:U:H2'	1:A:665:A:C8	2.46	0.51
1:A:985:U:H2'	1:A:986:U:H6	1.74	0.51
1:A:1662:G:H22	1:A:1787:A:H2	1.59	0.51
5:E:205:U:H2'	5:E:206:A:H8	1.76	0.51
30:Lb:25:ILE:HA	30:Lb:43:VAL:HG12	1.93	0.51
34:Lf:80:ASN:HD21	34:Lf:85:ALA:HB3	1.74	0.51
60:SN:99:LYS:O	60:SN:100:LEU:C	2.53	0.51
1:A:597:G:H2'	1:A:598:A:C8	2.46	0.50
29:La:100:HIS:CD2	29:La:102:SER:HB3	2.46	0.50
34:Lf:20:LEU:HD11	34:Lf:32:ALA:HB2	1.93	0.50
47:SA:72:LEU:HD21	49:SC:65:TYR:HB3	1.93	0.50
48:SB:118:LEU:HA	48:SB:121:ILE:HD12	1.92	0.50
64:SR:44:LEU:HD21	64:SR:247:ALA:HB2	1.92	0.50
6:LD:83:HIS:HB3	46:Lr:64:VAL:HG23	1.93	0.50
45:Lq:6:LYS:HD3	45:Lq:93:LEU:HD12	1.91	0.50
5:E:1331:A:H61	47:SA:161:GLY:HA2	1.75	0.50
11:LI:80:GLN:HB2	24:LV:135:PRO:HB2	1.93	0.50
13:LK:103:ILE:HD11	13:LK:110:LYS:HE2	1.92	0.50
39:Lk:64:SER:HB2	39:Lk:68:ARG:HD3	1.93	0.50
61:SO:231:MET:HG2	61:SO:232:TYR:CD1	2.46	0.50
64:SR:170:ILE:HB	64:SR:197:TYR:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1607:G:H2'	5:E:1608:U:C6	2.46	0.50
55:SI:86:ARG:HD2	55:SI:92:LYS:HB3	1.93	0.50
61:SO:13:LEU:HB2	61:SO:310:ILE:HB	1.93	0.50
62:SP:198:MET:HG3	62:SP:199:PRO:HD2	1.92	0.50
56:SJ:40:ASN:HD21	56:SJ:107:THR:HG21	1.77	0.50
1:A:899:U:H2'	1:A:900:G:H8	1.76	0.50
1:A:1553:U:H4'	1:A:1554:U:H5'	1.92	0.50
64:SR:165:VAL:HG21	64:SR:210:THR:HG22	1.94	0.50
1:A:54:C:H2'	1:A:55:G:H8	1.77	0.50
1:A:2424:A:H61	6:LD:230:VAL:HG11	1.77	0.50
10:LH:41:ILE:HB	10:LH:85:ILE:HG12	1.92	0.50
23:LU:73:LYS:HB3	23:LU:128:GLU:HG3	1.94	0.50
1:A:528:U:H2'	1:A:529:A:C8	2.46	0.50
5:E:29:U:H2'	5:E:30:G:C8	2.46	0.50
5:E:1041:G:H2'	5:E:1042:G:C8	2.47	0.50
7:LE:13:HIS:CD2	7:LE:15:GLY:H	2.29	0.50
53:SG:41:ILE:HG12	53:SG:50:ILE:HD11	1.93	0.50
62:SP:41:ARG:HG3	62:SP:42:PRO:HD2	1.94	0.50
74:Sb:23:ARG:HB2	78:Sf:4:VAL:HG12	1.93	0.50
74:Sb:24:GLN:HE22	78:Sf:4:VAL:HA	1.76	0.50
1:A:3016:A:H2'	1:A:3017:A:H8	1.77	0.50
3:C:63:G:H22	3:C:97:A:H2	1.60	0.50
5:E:329:G:H2'	5:E:330:G:H8	1.77	0.50
5:E:1672:G:H2'	5:E:1673:G:C8	2.47	0.50
12:LJ:61:GLN:HA	12:LJ:64:ILE:HB	1.94	0.50
18:LP:39:ALA:HB3	18:LP:61:ILE:HG22	1.93	0.50
48:SB:25:LEU:HD12	52:SF:27:GLY:HA3	1.94	0.50
61:SO:231:MET:HG2	61:SO:232:TYR:HD1	1.77	0.50
66:ST:67:VAL:HG13	66:ST:99:GLY:HA2	1.94	0.50
5:E:127:G:C2	66:ST:195:VAL:HB	2.47	0.49
5:E:819:G:C5	5:E:853:G:N1	2.80	0.49
12:LJ:25:PRO:HG2	12:LJ:26:LEU:HD22	1.93	0.49
15:LM:45:PRO:HB2	15:LM:67:VAL:HG22	1.94	0.49
27:LY:52:THR:HG22	27:LY:54:LEU:H	1.77	0.49
30:Lb:24:VAL:HG21	30:Lb:87:LEU:HB3	1.93	0.49
54:SH:24:GLY:HA2	54:SH:58:ALA:HB3	1.94	0.49
61:SO:83:ALA:HB1	61:SO:110:VAL:HG13	1.94	0.49
1:A:2552:C:H2'	33:Le:50:VAL:HG11	1.94	0.49
66:ST:135:PRO:HB2	66:ST:141:ILE:HG22	1.94	0.49
68:SV:101:ILE:HD11	68:SV:184:LEU:HD11	1.94	0.49
1:A:159:A:H2'	1:A:160:G:H8	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1666:G:H2'	1:A:1667:A:H8	1.77	0.49
48:SB:80:LYS:HB3	48:SB:83:ARG:HB2	1.94	0.49
1:A:800:G:H1	8:LF:104:LYS:HZ1	1.59	0.49
62:SP:74:VAL:HG12	62:SP:96:THR:HB	1.95	0.49
72:SZ:80:HIS:HD2	72:SZ:113:GLY:HA3	1.76	0.49
1:A:673:U:H2'	1:A:674:G:C8	2.48	0.49
2:B:64:A:H5'	2:B:65:G:H5''	1.95	0.49
3:C:8:C:H2'	3:C:9:A:C8	2.47	0.49
68:SV:37:LYS:H	68:SV:59:ARG:H	1.59	0.49
81:n:63:G:H2'	81:n:64:A:C8	2.46	0.49
1:A:631:U:H2'	1:A:632:G:H8	1.78	0.49
1:A:1497:C:H2'	1:A:1498:A:C8	2.48	0.49
5:E:514:G:H2'	5:E:515:A:H8	1.78	0.49
5:E:628:G:H21	5:E:971:A:H62	1.61	0.49
81:n:41:C:H2'	81:n:42:U:C6	2.47	0.49
5:E:406:U:H2'	5:E:407:A:C8	2.48	0.49
8:LF:283:THR:HG22	8:LF:285:ASP:H	1.78	0.49
15:LM:82:ARG:HH21	15:LM:112:LEU:HB3	1.78	0.49
1:A:2744:U:H2'	1:A:2745:G:C8	2.48	0.49
10:LH:40:LEU:HD13	10:LH:84:VAL:HG21	1.95	0.49
28:LZ:112:THR:HB	28:LZ:120:LYS:HD2	1.94	0.49
48:SB:37:GLN:HA	52:SF:53:LEU:HG	1.93	0.49
53:SG:77:GLU:HA	53:SG:80:ARG:HE	1.77	0.49
64:SR:68:ILE:HG22	64:SR:69:ILE:HD13	1.95	0.49
68:SV:70:GLU:HB2	68:SV:72:ILE:HG12	1.94	0.49
1:A:50:U:H2'	1:A:51:A:H8	1.78	0.49
1:A:2095:G:H2'	1:A:2096:A:H8	1.77	0.49
1:A:2697:A:H2'	1:A:2698:G:C8	2.47	0.49
5:E:554:C:H1'	5:E:555:A:C2	2.48	0.49
5:E:1566:U:H5'	54:SH:39:GLY:HA3	1.95	0.49
67:SU:152:VAL:HG23	67:SU:181:ILE:HD11	1.94	0.49
5:E:590:C:H2'	5:E:591:A:C8	2.48	0.48
5:E:890:C:H2'	5:E:891:A:H8	1.78	0.48
13:LK:57:VAL:HG12	13:LK:68:LEU:HD22	1.94	0.48
50:SD:60:VAL:HA	50:SD:122:VAL:HG22	1.95	0.48
63:SQ:104:ASP:HA	63:SQ:214:LYS:HB2	1.94	0.48
69:SW:176:ASN:N	69:SW:179:ARG:HH21	2.11	0.48
1:A:1576:G:H2'	1:A:1577:G:C8	2.48	0.48
1:A:3162:C:H2'	1:A:3163:A:C8	2.48	0.48
8:LF:23:PRO:HB3	8:LF:259:ASP:HB3	1.95	0.48
11:LI:44:ILE:HG12	11:LI:180:SER:HB3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:La:119:ILE:HG22	29:La:124:GLY:HA3	1.94	0.48
68:SV:39:GLY:HA2	68:SV:61:GLU:HB3	1.95	0.48
1:A:745:C:H2'	1:A:746:A:H8	1.78	0.48
8:LF:206:LEU:HB3	8:LF:248:VAL:HG22	1.95	0.48
14:LL:50:VAL:HG23	14:LL:138:VAL:HG13	1.95	0.48
31:Lc:104:THR:HG21	31:Lc:112:ILE:HD11	1.94	0.48
48:SB:90:ILE:HD11	48:SB:130:ILE:HD11	1.95	0.48
54:SH:4:VAL:HG13	57:SK:82:HIS:HD2	1.79	0.48
61:SO:89:LEU:HB2	61:SO:103:PHE:HB2	1.94	0.48
64:SR:182:PRO:HD3	69:SW:17:ARG:HH12	1.79	0.48
75:Sc:53:VAL:HG12	75:Sc:74:VAL:HG22	1.95	0.48
1:A:1798:A:H2'	1:A:1799:A:C8	2.48	0.48
13:LK:132:VAL:HG11	13:LK:157:ASN:HD22	1.77	0.48
25:LW:19:VAL:HG12	25:LW:105:LEU:HD22	1.94	0.48
62:SP:53:THR:HG22	62:SP:161:PRO:HG2	1.94	0.48
1:A:2681:U:H2'	1:A:2682:C:H6	1.78	0.48
3:C:81:U:H1'	3:C:83:C:H5''	1.95	0.48
5:E:1151:A:H2'	5:E:1152:A:H8	1.78	0.48
5:E:1591:C:H2'	5:E:1592:A:C8	2.46	0.48
33:Le:25:LEU:HD13	33:Le:90:VAL:HG23	1.95	0.48
36:Lh:72:THR:HG21	36:Lh:84:THR:HG23	1.95	0.48
57:SK:71:ILE:HD12	57:SK:75:LEU:HG	1.95	0.48
61:SO:36:ALA:HB2	61:SO:71:CYS:SG	2.53	0.48
72:SZ:16:VAL:HG22	72:SZ:18:ARG:HG3	1.95	0.48
73:Sa:79:LEU:HD13	73:Sa:82:VAL:HG21	1.95	0.48
81:n:50:U:H2'	81:n:51:C:C6	2.49	0.48
1:A:2844:C:H42	1:A:2898:G:H22	1.62	0.48
5:E:1657:U:H5'	5:E:1658:G:H4'	1.94	0.48
7:LE:80:ASP:HB2	7:LE:317:ILE:HD12	1.94	0.48
8:LF:233:LEU:HD13	8:LF:238:LEU:HD11	1.95	0.48
9:LG:60:ILE:HG12	9:LG:80:SER:HB2	1.95	0.48
14:LL:139:ARG:HG3	14:LL:172:GLY:HA2	1.96	0.48
15:LM:6:GLN:HB2	15:LM:8:PRO:HD3	1.95	0.48
60:SN:98:VAL:O	60:SN:99:LYS:C	2.56	0.48
1:A:567:G:H2'	1:A:568:G:C8	2.49	0.48
5:E:925:G:H2'	5:E:926:A:H8	1.77	0.48
5:E:1477:G:H2'	5:E:1478:G:H8	1.78	0.48
5:E:1799:U:H3	63:SQ:152:ARG:HH21	1.60	0.48
9:LG:33:ARG:HH21	9:LG:37:VAL:HG21	1.76	0.48
61:SO:68:VAL:HG12	61:SO:84:SER:HB2	1.96	0.48
64:SR:56:ILE:HG22	64:SR:61:LEU:HD12	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:105:C:H2'	1:A:106:A:H8	1.78	0.48
5:E:1789:G:H2'	5:E:1790:A:H8	1.78	0.48
61:SO:202:LEU:HD12	61:SO:211:ILE:HD11	1.95	0.48
69:SW:35:GLY:HA3	69:SW:110:GLN:HE22	1.78	0.48
1:A:3252:G:H2'	1:A:3253:G:C8	2.49	0.48
5:E:894:U:H2'	5:E:895:G:C8	2.49	0.48
5:E:1641:C:H2'	5:E:1642:G:C8	2.49	0.48
16:LN:126:PHE:HD2	38:Lj:115:LYS:HD2	1.79	0.48
24:LV:68:THR:HG22	24:LV:69:LYS:H	1.79	0.48
61:SO:167:VAL:HG13	61:SO:183:LEU:HD23	1.94	0.48
62:SP:84:ARG:NH1	62:SP:205:ARG:HG3	2.28	0.48
80:m:65:C:H2'	80:m:66:A:C8	2.49	0.48
81:n:2:G:H2'	81:n:3:C:C5	2.49	0.48
1:A:19:U:H5''	38:Lj:90:ARG:HD2	1.96	0.48
1:A:3006:A:H62	1:A:3140:G:H21	1.61	0.48
5:E:891:A:H2'	5:E:892:A:H8	1.77	0.48
5:E:1404:C:H2'	5:E:1405:G:H8	1.79	0.48
20:LR:111:LYS:HE2	20:LR:111:LYS:HB3	1.69	0.48
52:SF:16:ALA:HB2	52:SF:72:GLY:HA3	1.95	0.48
69:SW:36:LEU:HD13	69:SW:41:GLU:HB2	1.95	0.48
1:A:2129:U:H2'	1:A:2130:G:C8	2.49	0.47
1:A:2364:G:H22	1:A:2396:G:H1'	1.78	0.47
2:B:112:G:H2'	2:B:113:C:C6	2.48	0.47
5:E:1615:C:H2'	48:SB:81:ARG:HD3	1.95	0.47
5:E:1673:G:C6	5:E:1728:A:N1	2.82	0.47
61:SO:263:PHE:CE1	61:SO:270:LEU:HB3	2.49	0.47
1:A:411:U:H2'	1:A:412:G:H8	1.79	0.47
1:A:627:U:H2'	1:A:628:A:C8	2.50	0.47
1:A:3343:G:H21	1:A:3362:A:H2	1.62	0.47
8:LF:60:THR:HG21	8:LF:84:ARG:HH21	1.78	0.47
8:LF:132:ALA:HA	8:LF:148:ILE:HD11	1.95	0.47
10:LH:3:ALA:HB2	35:Lg:77:ALA:HB2	1.96	0.47
17:LO:135:LEU:HD11	19:LQ:178:VAL:HG22	1.97	0.47
35:Lg:115:LEU:HD23	35:Lg:117:ILE:HD11	1.96	0.47
63:SQ:30:PHE:HB3	63:SQ:96:LEU:HD11	1.95	0.47
5:E:340:U:H2'	5:E:341:A:H8	1.79	0.47
5:E:1549:C:H5''	51:SE:42:ARG:HH22	1.79	0.47
14:LL:185:ARG:HG3	14:LL:190:VAL:HG21	1.96	0.47
47:SA:40:ARG:HA	47:SA:40:ARG:NH1	2.29	0.47
54:SH:28:ILE:HG22	54:SH:58:ALA:HA	1.96	0.47
69:SW:85:VAL:HG12	69:SW:99:LEU:HD11	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
80:m:14:A:H3'	80:m:15:G:H8	1.78	0.47
1:A:2768:U:H2'	1:A:2769:A:H8	1.79	0.47
63:SQ:79:HIS:HE1	63:SQ:189:ILE:HG23	1.80	0.47
1:A:2160:G:H2'	1:A:2161:G:H8	1.79	0.47
1:A:2344:U:H2'	1:A:2345:A:C8	2.50	0.47
1:A:2609:A:H2'	1:A:2610:G:C8	2.49	0.47
3:C:9:A:H2'	3:C:10:A:C8	2.48	0.47
5:E:472:U:H5''	69:SW:11:THR:HG23	1.95	0.47
5:E:1253:U:H2'	5:E:1254:U:C6	2.50	0.47
5:E:1474:G:H2'	5:E:1475:A:C8	2.49	0.47
20:LR:67:ILE:HD11	20:LR:80:LYS:HB3	1.97	0.47
23:LU:8:GLN:HB3	23:LU:64:ILE:HD11	1.95	0.47
47:SA:74:GLN:HE22	47:SA:81:PRO:HA	1.77	0.47
48:SB:112:ARG:HD2	48:SB:116:HIS:CE1	2.49	0.47
54:SH:120:ARG:HH12	54:SH:125:ILE:HG12	1.78	0.47
56:SJ:82:TYR:HB3	59:SM:52:PHE:HB3	1.97	0.47
1:A:589:A:H1'	1:A:1337:A:H5''	1.97	0.47
5:E:477:A:H2'	5:E:478:A:H8	1.79	0.47
5:E:925:G:H2'	5:E:926:A:C8	2.50	0.47
5:E:1087:A:H2'	5:E:1088:A:C8	2.49	0.47
35:Lg:101:SER:HA	35:Lg:125:ARG:HH21	1.79	0.47
47:SA:66:ILE:O	47:SA:70:THR:HG23	2.14	0.47
80:m:30:G:H2'	80:m:31:A:H8	1.80	0.47
1:A:1083:G:H2'	1:A:1084:A:C8	2.49	0.47
1:A:2812:C:H2'	1:A:2813:A:C8	2.50	0.47
1:A:3313:U:H4'	7:LE:173:GLN:HG2	1.96	0.47
7:LE:45:SER:HB3	7:LE:181:ILE:HG23	1.96	0.47
9:LG:178:ASN:HA	9:LG:183:TRP:CD2	2.50	0.47
14:LL:12:GLN:HG2	14:LL:59:GLN:HG3	1.97	0.47
26:LX:59:MET:HE1	26:LX:75:PRO:HG3	1.97	0.47
35:Lg:101:SER:O	35:Lg:105:ARG:HG3	2.15	0.47
41:Lm:5:ILE:HG12	41:Lm:52:TYR:HB3	1.96	0.47
55:SI:76:LEU:HD12	55:SI:80:TYR:HE2	1.80	0.47
65:SS:195:ILE:HD12	65:SS:195:ILE:H	1.79	0.47
67:SU:134:GLU:HG3	71:SY:21:ASN:HD21	1.80	0.47
68:SV:138:ASN:HA	68:SV:141:ARG:HH21	1.78	0.47
69:SW:62:ARG:HG3	69:SW:63:ASP:H	1.80	0.47
70:SX:57:LYS:HD3	70:SX:131:ILE:HG23	1.96	0.47
76:Sd:42:GLU:HA	76:Sd:52:LYS:NZ	2.30	0.47
80:m:25:C:H2'	80:m:26:A:H8	1.79	0.47
1:A:2828:G:H4'	14:LL:4:ARG:HD3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1477:G:H2'	5:E:1478:G:C8	2.49	0.47
5:E:1650:U:H2'	5:E:1651:A:C8	2.49	0.47
14:LL:87:LEU:HD23	14:LL:138:VAL:HB	1.97	0.47
24:LV:89:LEU:HD23	24:LV:91:LEU:HD11	1.96	0.47
56:SJ:24:ILE:HG22	56:SJ:116:VAL:HG22	1.97	0.47
71:SY:40:TYR:HB3	71:SY:45:LEU:HD11	1.96	0.47
80:m:74:C:H2'	80:m:75:C:C6	2.50	0.47
5:E:250:C:H2'	5:E:251:A:H8	1.80	0.47
5:E:551:G:H2'	5:E:552:G:H8	1.79	0.47
5:E:1506:G:H2'	5:E:1507:G:H8	1.80	0.47
12:LJ:97:TYR:HE2	12:LJ:203:VAL:HG23	1.78	0.47
61:SO:26:SER:HB2	61:SO:73:LEU:HD21	1.97	0.47
62:SP:48:ILE:HG21	62:SP:161:PRO:HB2	1.96	0.47
65:SS:11:ARG:HA	65:SS:28:ALA:HB2	1.95	0.47
1:A:19:U:H2'	1:A:20:A:C8	2.49	0.47
1:A:508:U:H3	1:A:583:G:H1	1.62	0.47
1:A:2428:U:H2'	1:A:2429:G:H8	1.80	0.47
1:A:2526:C:H2'	1:A:2527:G:C8	2.50	0.47
5:E:784:C:H41	76:Sd:11:LYS:HE2	1.79	0.47
5:E:1291:G:H2'	5:E:1292:G:H8	1.80	0.47
5:E:1404:C:H2'	5:E:1405:G:C8	2.50	0.47
12:LJ:190:VAL:HG23	12:LJ:192:GLN:HG3	1.97	0.47
17:LO:19:ARG:HA	17:LO:69:THR:HG22	1.97	0.47
52:SF:67:VAL:HG11	52:SF:81:ILE:HG23	1.95	0.47
56:SJ:37:VAL:O	56:SJ:41:ILE:HG12	2.15	0.47
56:SJ:41:ILE:HD12	56:SJ:103:ILE:HG23	1.97	0.47
62:SP:55:GLU:HA	62:SP:58:VAL:HG22	1.97	0.47
1:A:1288:U:H2'	1:A:1289:G:H8	1.80	0.46
1:A:2218:G:H2'	1:A:2219:A:H8	1.80	0.46
5:E:1160:A:H2'	5:E:1161:C:C6	2.50	0.46
5:E:1776:A:H2'	5:E:1777:G:C8	2.50	0.46
6:LD:133:TYR:HB3	6:LD:168:VAL:HG12	1.96	0.46
1:A:627:U:H4'	1:A:1399:A:H1'	1.98	0.46
1:A:1054:A:H5''	1:A:2637:A:H61	1.81	0.46
1:A:1663:C:H2'	1:A:1664:G:H8	1.80	0.46
1:A:2154:U:H2'	1:A:2155:G:H8	1.80	0.46
1:A:2222:A:H2'	1:A:2223:A:C8	2.50	0.46
1:A:2536:A:H3'	63:SQ:230:ALA:HB2	1.96	0.46
1:A:3306:U:H2'	1:A:3307:A:H5''	1.96	0.46
5:E:800:U:H2'	5:E:801:G:H8	1.80	0.46
5:E:1437:U:H2'	5:E:1438:G:H8	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1592:A:H2'	5:E:1593:A:H8	1.80	0.46
9:LG:15:ARG:HH21	24:LV:19:PHE:HE1	1.63	0.46
10:LH:175:LYS:HE2	10:LH:175:LYS:HB2	1.77	0.46
15:LM:34:SER:O	15:LM:38:GLU:HG2	2.15	0.46
19:LQ:173:ALA:HA	19:LQ:176:LYS:HE2	1.96	0.46
21:LS:67:ILE:HG23	21:LS:81:VAL:HG21	1.98	0.46
54:SH:6:GLN:HA	57:SK:43:ASP:HA	1.97	0.46
55:SI:33:TYR:HE1	55:SI:100:ILE:HG22	1.80	0.46
1:A:791:A:H2'	1:A:792:G:H8	1.80	0.46
1:A:1799:A:H2'	1:A:1800:A:C8	2.49	0.46
1:A:2095:G:H2'	1:A:2096:A:C8	2.50	0.46
1:A:3234:A:H2	1:A:3253:G:H22	1.62	0.46
5:E:1739:C:H2'	5:E:1740:A:H8	1.80	0.46
7:LE:220:VAL:HG13	7:LE:334:ARG:HD3	1.96	0.46
48:SB:109:LYS:O	48:SB:113:ILE:HG13	2.15	0.46
49:SC:24:LYS:HZ3	49:SC:26:ASP:HB2	1.80	0.46
63:SQ:87:ARG:HB2	63:SQ:101:HIS:CD2	2.51	0.46
1:A:839:C:H4'	1:A:1724:U:H2'	1.97	0.46
1:A:1881:A:H2'	1:A:1882:G:H8	1.80	0.46
1:A:2772:C:H4'	1:A:2773:C:H5'	1.96	0.46
5:E:144:U:H5	66:ST:137:ARG:HH12	1.63	0.46
5:E:1247:U:H2'	5:E:1248:C:C6	2.50	0.46
7:LE:238:LEU:HD11	7:LE:250:ALA:HB2	1.98	0.46
8:LF:181:VAL:HG11	8:LF:224:GLY:HA3	1.98	0.46
14:LL:56:GLU:HG3	14:LL:162:GLN:H	1.80	0.46
15:LM:109:HIS:HB2	15:LM:114:ILE:HD11	1.98	0.46
16:LN:36:ARG:HG2	16:LN:39:ARG:HH21	1.79	0.46
16:LN:54:LEU:HD23	16:LN:95:ILE:HG12	1.96	0.46
26:LX:75:PRO:HG2	26:LX:105:PRO:HD3	1.97	0.46
61:SO:105:GLY:H	61:SO:134:TRP:HH2	1.62	0.46
67:SU:43:PHE:HB2	67:SU:62:VAL:HG12	1.95	0.46
1:A:873:C:H3'	1:A:874:U:H4'	1.98	0.46
1:A:1596:C:H2'	1:A:1597:C:C6	2.50	0.46
1:A:2444:C:H2'	1:A:2445:A:C8	2.51	0.46
4:D:1:A:C8	48:SB:152:GLY:HA3	2.51	0.46
5:E:479:C:H2'	5:E:480:G:H8	1.81	0.46
31:Lc:147:LEU:HB2	39:Lk:7:ILE:HG22	1.98	0.46
35:Lg:82:LEU:HD22	35:Lg:108:ILE:HG23	1.97	0.46
67:SU:49:ILE:HG21	67:SU:172:VAL:HA	1.96	0.46
1:A:728:G:H5''	21:LS:43:PRO:HB2	1.98	0.46
5:E:1108:G:H1	75:Sc:22:ASN:ND2	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1662:G:H2'	5:E:1663:G:H8	1.79	0.46
15:LM:82:ARG:NH2	15:LM:112:LEU:HB3	2.29	0.46
48:SB:129:PRO:O	48:SB:133:VAL:HG13	2.14	0.46
50:SD:42:ALA:HB2	50:SD:124:LYS:HE3	1.98	0.46
63:SQ:167:VAL:O	63:SQ:171:ILE:HG13	2.15	0.46
64:SR:142:GLY:HA2	73:Sa:1:MET:HE1	1.98	0.46
1:A:928:C:H2'	1:A:929:A:C8	2.51	0.46
2:B:94:C:H2'	2:B:95:A:C8	2.50	0.46
5:E:5:U:H2'	5:E:6:G:H8	1.81	0.46
5:E:1483:A:H4'	52:SF:72:GLY:H	1.80	0.46
42:Ln:23:LEU:HD12	42:Ln:24:PRO:HD2	1.97	0.46
65:SS:31:PRO:HG3	65:SS:43:PRO:HG3	1.98	0.46
80:m:40:C:H2'	80:m:41:A:C8	2.51	0.46
1:A:620:U:H4'	20:LR:167:ARG:HH22	1.80	0.46
1:A:650:C:H2'	1:A:651:G:C8	2.51	0.46
1:A:903:U:H2'	1:A:904:A:H8	1.81	0.46
1:A:2208:A:C2	1:A:2236:G:N1	2.84	0.46
2:B:39:C:O2'	15:LM:43:GLN:HB3	2.16	0.46
5:E:1382:A:H2'	5:E:1383:G:C8	2.50	0.46
29:La:32:SER:HA	29:La:49:PRO:HA	1.98	0.46
49:SC:4:PRO:HG2	49:SC:7:ASP:OD2	2.16	0.46
63:SQ:130:SER:HB2	63:SQ:180:THR:HG22	1.98	0.46
1:A:307:A:H2'	1:A:308:A:H8	1.80	0.46
1:A:629:U:H2'	1:A:630:A:C8	2.51	0.46
1:A:1576:G:H2'	1:A:1577:G:H8	1.79	0.46
1:A:1896:A:H61	1:A:2339:C:H42	1.62	0.46
5:E:12:U:H2'	5:E:13:C:C6	2.51	0.46
6:LD:68:LYS:HD3	6:LD:70:ARG:HG3	1.98	0.46
7:LE:57:VAL:HG22	7:LE:73:VAL:HG22	1.97	0.46
21:LS:30:VAL:O	21:LS:34:THR:HG23	2.15	0.46
52:SF:22:VAL:HG22	52:SF:65:ILE:HD12	1.98	0.46
52:SF:65:ILE:HG22	52:SF:67:VAL:HG23	1.98	0.46
54:SH:32:LEU:O	54:SH:35:ILE:HG12	2.16	0.46
63:SQ:79:HIS:CE1	63:SQ:189:ILE:HG23	2.50	0.46
69:SW:82:ARG:NE	69:SW:149:ARG:HD3	2.31	0.46
1:A:2661:G:H2'	1:A:2662:G:H8	1.80	0.46
1:A:3057:U:H5'	1:A:3086:A:H61	1.81	0.46
3:C:27:U:H4'	8:LF:51:ALA:HB3	1.97	0.46
5:E:333:A:H62	68:SV:27:PHE:HB2	1.80	0.46
5:E:765:G:C6	69:SW:149:ARG:HG3	2.51	0.46
5:E:851:U:H3'	22:LT:172:ARG:NH2	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1405:G:H2'	5:E:1406:A:H8	1.81	0.46
7:LE:37:ARG:HA	7:LE:37:ARG:HD3	1.78	0.46
9:LG:55:PHE:CE1	9:LG:158:ARG:HG3	2.51	0.46
45:Lq:9:LYS:HE2	45:Lq:22:GLN:NE2	2.30	0.46
61:SO:112:SER:HB3	61:SO:154:VAL:HG12	1.97	0.46
69:SW:110:GLN:CD	69:SW:126:ARG:HB2	2.41	0.46
1:A:671:U:H2'	1:A:672:A:H8	1.80	0.45
1:A:1108:U:H2'	1:A:1109:U:C6	2.51	0.45
1:A:2376:G:H2'	1:A:2377:G:C8	2.51	0.45
1:A:2812:C:H2'	1:A:2813:A:H8	1.80	0.45
14:LL:190:VAL:HB	14:LL:197:VAL:HG21	1.97	0.45
48:SB:80:LYS:HZ2	48:SB:81:ARG:H	1.64	0.45
62:SP:200:ASP:HA	62:SP:203:PHE:CD2	2.52	0.45
63:SQ:59:ASP:HA	63:SQ:62:LYS:HZ3	1.81	0.45
64:SR:41:LEU:HG	64:SR:68:ILE:HD13	1.98	0.45
68:SV:37:LYS:HB2	68:SV:59:ARG:HG3	1.98	0.45
1:A:417:A:H2'	1:A:418:A:C8	2.51	0.45
1:A:3015:G:H2'	1:A:3016:A:C8	2.51	0.45
3:C:139:U:H2'	3:C:140:G:H8	1.81	0.45
5:E:947:U:H2'	5:E:948:G:C8	2.51	0.45
5:E:1607:G:H2'	5:E:1608:U:H6	1.79	0.45
5:E:1684:U:O2	5:E:1717:G:N2	2.39	0.45
10:LH:56:LYS:HD3	10:LH:98:VAL:HG23	1.97	0.45
10:LH:89:THR:HG21	17:LO:115:PHE:HB2	1.97	0.45
11:LI:62:ILE:HG22	11:LI:66:LYS:HD2	1.98	0.45
16:LN:54:LEU:HG	16:LN:75:PHE:HE1	1.82	0.45
48:SB:98:MET:HE1	48:SB:107:LYS:HD2	1.98	0.45
53:SG:105:GLN:HE21	62:SP:41:ARG:HA	1.81	0.45
55:SI:50:ALA:HA	55:SI:53:TRP:HD1	1.81	0.45
63:SQ:169:SER:O	63:SQ:173:THR:HG23	2.17	0.45
5:E:609:U:H5''	5:E:610:G:C5	2.51	0.45
38:Lj:66:VAL:HG12	38:Lj:80:LEU:HD11	1.97	0.45
72:SZ:134:GLY:HA2	77:Se:27:SER:HB3	1.99	0.45
1:A:75:G:H5''	16:LN:58:VAL:HG13	1.98	0.45
1:A:2544:U:H2'	1:A:2545:C:C6	2.51	0.45
2:B:96:U:H2'	2:B:97:A:H8	1.81	0.45
5:E:211:U:H5''	70:SX:20:PHE:HB2	1.98	0.45
5:E:866:G:H5''	71:SY:2:GLY:HA3	1.99	0.45
5:E:1583:A:H1'	5:E:1585:U:C2	2.51	0.45
9:LG:41:LYS:HB2	24:LV:68:THR:O	2.16	0.45
54:SH:26:ILE:HA	54:SH:57:ARG:HH21	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:153:U:H4'	1:A:158:G:H4'	1.99	0.45
1:A:225:C:H5'	29:La:34:PRO:HD3	1.98	0.45
1:A:1785:U:H2'	1:A:1786:G:C8	2.51	0.45
1:A:2526:C:H2'	1:A:2527:G:H8	1.82	0.45
5:E:108:A:H2'	5:E:109:G:C8	2.52	0.45
15:LM:117:ASP:HA	54:SH:103:ASN:ND2	2.32	0.45
30:Lb:51:LEU:HB2	30:Lb:65:ARG:HB3	1.97	0.45
48:SB:118:LEU:HD13	48:SB:129:PRO:HB2	1.98	0.45
51:SE:28:MET:HE2	51:SE:28:MET:HB3	1.78	0.45
61:SO:93:ASP:HB2	61:SO:100:TYR:CE1	2.51	0.45
1:A:1084:A:H2'	1:A:1085:A:C8	2.52	0.45
5:E:153:G:H2'	5:E:154:G:C8	2.51	0.45
5:E:751:G:H2'	5:E:752:A:H8	1.81	0.45
5:E:1511:U:H2'	5:E:1512:G:C8	2.52	0.45
16:LN:85:LEU:HD13	16:LN:90:ALA:HB2	1.99	0.45
51:SE:57:MET:HE1	51:SE:86:VAL:HG21	1.98	0.45
64:SR:206:THR:O	64:SR:210:THR:HG23	2.17	0.45
70:SX:11:ARG:HE	70:SX:11:ARG:HB2	1.63	0.45
1:A:68:C:N4	1:A:315:C:H5'	2.32	0.45
1:A:656:A:H2'	1:A:657:A:H8	1.81	0.45
1:A:900:G:H1'	1:A:1589:A:N6	2.31	0.45
1:A:3016:A:H2'	1:A:3017:A:C8	2.52	0.45
5:E:319:U:H4'	5:E:323:A:C8	2.52	0.45
5:E:560:U:H2'	5:E:561:G:H8	1.82	0.45
7:LE:13:HIS:HD2	7:LE:15:GLY:H	1.62	0.45
10:LH:66:THR:HB	10:LH:76:LEU:HD23	1.99	0.45
47:SA:137:VAL:HG22	47:SA:185:LYS:HB3	1.97	0.45
1:A:3107:U:H2'	1:A:3108:G:C8	2.51	0.45
2:B:55:A:H5'	15:LM:8:PRO:HG2	1.98	0.45
5:E:874:C:H2'	5:E:875:G:C8	2.52	0.45
6:LD:44:ILE:HG22	6:LD:46:LYS:HD3	1.98	0.45
13:LK:38:LEU:O	13:LK:41:ILE:HG22	2.16	0.45
13:LK:112:ILE:HB	13:LK:126:VAL:HG13	1.99	0.45
49:SC:43:ILE:HD12	49:SC:43:ILE:H	1.81	0.45
63:SQ:27:LYS:HD3	63:SQ:47:LEU:HD11	1.99	0.45
67:SU:40:PRO:HG2	67:SU:41:LEU:HD12	1.98	0.45
69:SW:48:GLN:O	69:SW:52:ILE:HG13	2.17	0.45
1:A:314:U:H2'	1:A:315:C:C6	2.52	0.45
1:A:2262:A:H2'	1:A:2263:C:H5'	1.99	0.45
5:E:1142:A:H2'	5:E:1143:A:C8	2.52	0.45
5:E:1799:U:H3	63:SQ:152:ARG:HE	1.65	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:LE:215:ILE:HD13	7:LE:282:ILE:HD11	1.99	0.45
9:LG:178:ASN:OD1	9:LG:179:ARG:HG2	2.16	0.45
21:LS:122:ILE:HG23	21:LS:126:GLN:HB2	1.99	0.45
1:A:2228:A:H2'	1:A:2229:A:C8	2.52	0.45
5:E:68:A:N6	66:ST:132:ARG:HG2	2.31	0.45
13:LK:100:ASN:HB3	13:LK:115:ARG:HB2	1.97	0.45
61:SO:177:MET:HE2	61:SO:179:LYS:HE3	1.99	0.45
69:SW:158:PHE:CE1	69:SW:160:PRO:HG3	2.51	0.45
69:SW:159:ALA:HB1	69:SW:162:SER:HB3	1.98	0.45
1:A:1194:G:H2'	1:A:1195:A:C8	2.51	0.44
5:E:390:G:H2'	5:E:391:A:H8	1.82	0.44
5:E:862:A:H3'	71:SY:16:ILE:HD13	1.99	0.44
5:E:1117:U:H2'	5:E:1118:G:H8	1.82	0.44
5:E:1357:A:H2'	5:E:1358:G:C8	2.51	0.44
5:E:1650:U:H2'	5:E:1651:A:H8	1.82	0.44
6:LD:116:VAL:HB	6:LD:126:LEU:HB2	2.00	0.44
7:LE:117:ARG:HA	7:LE:175:LYS:HE3	1.99	0.44
11:LI:239:LEU:O	11:LI:243:MET:HG3	2.17	0.44
17:LO:17:VAL:HG12	17:LO:72:LEU:HB3	1.99	0.44
47:SA:79:TYR:HD2	47:SA:84:ILE:HB	1.82	0.44
48:SB:128:ASN:HB3	48:SB:131:GLN:HB2	1.98	0.44
69:SW:52:ILE:HG23	69:SW:76:LEU:HD11	2.00	0.44
74:Sb:104:LEU:HD13	74:Sb:122:SER:O	2.17	0.44
75:Sc:125:VAL:HG12	75:Sc:126:LYS:HG3	1.99	0.44
81:n:47:U:C2	81:n:50:U:H5''	2.52	0.44
1:A:148:G:H3'	18:LP:49:ARG:HH22	1.82	0.44
1:A:286:U:H2'	1:A:287:G:C8	2.52	0.44
1:A:541:U:H2'	1:A:542:G:C8	2.52	0.44
8:LF:150:LEU:HD23	8:LF:249:ILE:HG12	1.98	0.44
33:Le:51:LEU:HD11	37:Li:90:ILE:HG22	1.99	0.44
34:Lf:23:VAL:HG11	34:Lf:31:ARG:HD2	2.00	0.44
69:SW:103:ASP:O	69:SW:106:GLU:HG2	2.17	0.44
80:m:50:C:H2'	80:m:51:A:H8	1.81	0.44
1:A:656:A:H2'	1:A:657:A:C8	2.52	0.44
1:A:1110:U:H2'	1:A:1111:U:C6	2.53	0.44
1:A:1776:G:H2'	1:A:1777:U:C6	2.52	0.44
1:A:2748:A:H5'	9:LG:145:PHE:CE1	2.53	0.44
1:A:3033:A:H2'	1:A:3034:C:H6	1.82	0.44
5:E:591:A:H2'	5:E:592:A:C8	2.52	0.44
5:E:816:G:H2'	5:E:817:A:H8	1.83	0.44
6:LD:104:LEU:HD22	6:LD:136:ILE:HD11	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:LF:47:ARG:HH21	8:LF:109:TRP:HA	1.82	0.44
60:SN:91:ILE:HD12	60:SN:91:ILE:H	1.83	0.44
61:SO:302:PHE:HA	61:SO:312:VAL:HG23	1.99	0.44
78:Sf:55:THR:HG22	78:Sf:62:ILE:HA	1.98	0.44
1:A:312:C:H2'	1:A:313:A:C8	2.52	0.44
1:A:3107:U:H2'	1:A:3108:G:H8	1.82	0.44
1:A:3119:U:H4'	43:Lo:104:PRO:HG2	1.98	0.44
1:A:3322:A:H2'	1:A:3323:A:C8	2.52	0.44
5:E:923:A:H2'	5:E:924:A:C8	2.53	0.44
5:E:939:A:H2'	5:E:940:A:C8	2.51	0.44
1:A:2217:U:H2'	1:A:2218:G:H8	1.82	0.44
1:A:3113:A:H4'	13:LK:69:ARG:HG3	1.98	0.44
5:E:1280:C:H2'	5:E:1281:G:H8	1.82	0.44
8:LF:353:ALA:O	8:LF:357:GLU:HG3	2.18	0.44
16:LN:123:ILE:HG22	38:Lj:118:ILE:HG12	1.99	0.44
47:SA:211:PRO:HG3	53:SG:20:TYR:CE1	2.52	0.44
5:E:107:C:H2'	5:E:108:A:H8	1.82	0.44
5:E:406:U:H2'	5:E:407:A:H8	1.81	0.44
8:LF:141:ARG:HA	8:LF:141:ARG:HD3	1.90	0.44
8:LF:244:LEU:HD23	8:LF:244:LEU:HA	1.82	0.44
10:LH:145:LEU:O	10:LH:149:ILE:HG13	2.18	0.44
15:LM:49:LYS:HA	15:LM:64:LYS:HA	2.00	0.44
21:LS:180:ARG:HG3	21:LS:185:LYS:HB2	1.98	0.44
35:Lg:82:LEU:HD21	35:Lg:112:ALA:HB2	1.98	0.44
49:SC:29:GLN:HB3	49:SC:39:ASN:HB3	2.00	0.44
55:SI:105:LEU:HD23	55:SI:122:ARG:HD2	1.99	0.44
65:SS:255:ARG:HG2	65:SS:255:ARG:HH11	1.83	0.44
1:A:584:G:H2'	1:A:585:A:H8	1.82	0.44
1:A:2696:A:H2'	1:A:2697:A:C8	2.53	0.44
5:E:819:G:H8	5:E:820:U:C4	2.36	0.44
5:E:953:G:H2'	5:E:954:G:C8	2.51	0.44
5:E:1268:G:H1'	5:E:1448:G:H5''	1.98	0.44
9:LG:83:LEU:HD22	9:LG:88:ILE:HD12	2.00	0.44
12:LJ:73:PRO:HA	12:LJ:76:ALA:HB3	1.99	0.44
14:LL:38:LYS:HE3	14:LL:41:ALA:HB2	1.99	0.44
19:LQ:62:THR:HG23	19:LQ:69:GLY:HA2	1.99	0.44
49:SC:1:MET:HE3	49:SC:1:MET:HB3	1.72	0.44
56:SJ:96:PRO:O	56:SJ:100:VAL:HG23	2.17	0.44
1:A:612:U:H2'	1:A:613:G:H8	1.82	0.44
1:A:2429:G:H2'	1:A:2430:A:H8	1.83	0.44
1:A:2746:A:C2	9:LG:148:ILE:HD13	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2882:U:H2'	1:A:2883:U:C6	2.53	0.44
1:A:3231:U:H2'	1:A:3232:G:H8	1.82	0.44
5:E:447:U:H2'	5:E:448:C:O4'	2.18	0.44
5:E:767:U:H6	69:SW:141:VAL:HA	1.83	0.44
9:LG:36:LEU:HB3	9:LG:50:ARG:HD2	1.99	0.44
53:SG:85:VAL:HB	62:SP:198:MET:HE3	1.98	0.44
1:A:243:G:H2'	1:A:244:G:O4'	2.18	0.44
1:A:1472:U:H2'	1:A:1473:G:H8	1.82	0.44
1:A:2197:C:H4'	1:A:2198:A:H5'	1.99	0.44
1:A:3190:C:H2'	1:A:3191:G:H8	1.83	0.44
5:E:544:A:H4'	79:Sg:28:LYS:HZ1	1.83	0.44
9:LG:145:PHE:HE1	9:LG:174:PRO:HG2	1.83	0.44
12:LJ:178:ALA:HB2	12:LJ:218:ILE:HD12	2.00	0.44
14:LL:30:LYS:HG3	14:LL:63:GLU:HG3	1.98	0.44
18:LP:118:SER:HB3	18:LP:132:VAL:HG22	1.99	0.44
24:LV:52:MET:HE3	24:LV:52:MET:HB2	1.79	0.44
55:SI:49:ASP:O	55:SI:53:TRP:HB3	2.18	0.44
65:SS:59:ARG:NH2	76:Sd:87:PRO:HG3	2.33	0.44
67:SU:74:GLN:HG2	67:SU:131:PHE:HD2	1.83	0.44
1:A:1660:C:H2'	1:A:1661:G:H8	1.83	0.43
1:A:2429:G:H2'	1:A:2430:A:C8	2.53	0.43
1:A:3164:C:O2'	1:A:3165:A:H8	2.00	0.43
5:E:15:U:H2'	5:E:16:G:O4'	2.18	0.43
5:E:1045:C:H2'	5:E:1046:G:H8	1.83	0.43
5:E:1064:G:H2'	5:E:1065:A:H8	1.83	0.43
5:E:1592:A:H2'	5:E:1593:A:C8	2.53	0.43
10:LH:43:LEU:HD13	36:Lh:102:LEU:HB2	2.00	0.43
11:LI:138:TYR:HE2	11:LI:233:GLU:HG3	1.82	0.43
12:LJ:57:ARG:O	12:LJ:61:GLN:HG3	2.18	0.43
39:Lk:68:ARG:HE	39:Lk:68:ARG:HB3	1.65	0.43
48:SB:46:TRP:HZ2	48:SB:122:ASN:HD22	1.65	0.43
51:SE:98:ASN:HB3	51:SE:120:SER:HB2	2.00	0.43
52:SF:60:PHE:CZ	52:SF:89:LEU:HD22	2.53	0.43
68:SV:188:GLU:HG3	70:SX:13:PHE:CD2	2.53	0.43
73:Sa:38:LYS:HG3	73:Sa:46:ILE:HD13	2.00	0.43
1:A:155:G:H21	39:Lk:26:ILE:HD11	1.83	0.43
1:A:914:A:N1	6:LD:204:MET:HE2	2.33	0.43
1:A:1290:A:H2'	1:A:1291:A:C8	2.53	0.43
2:B:14:U:H5''	9:LG:24:ARG:HD3	2.00	0.43
5:E:119:A:H1'	5:E:397:A:C5	2.53	0.43
33:Le:34:LEU:HD23	33:Le:39:SER:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:Lg:66:LEU:HD23	35:Lg:72:LYS:HG2	1.99	0.43
46:Lr:30:GLU:HA	46:Lr:33:GLN:HG2	2.00	0.43
53:SG:105:GLN:HE21	62:SP:41:ARG:HD3	1.83	0.43
54:SH:17:LEU:HB2	54:SH:22:VAL:HG21	2.00	0.43
57:SK:68:ARG:HB2	57:SK:68:ARG:NH1	2.31	0.43
61:SO:260:ILE:HG12	61:SO:313:TRP:CZ3	2.52	0.43
63:SQ:134:VAL:HG23	63:SQ:218:LEU:HB2	2.00	0.43
1:A:911:C:H5''	6:LD:15:ILE:HD13	1.99	0.43
5:E:472:U:H2'	5:E:473:A:C8	2.53	0.43
5:E:992:A:H2	5:E:1012:U:H3	1.66	0.43
5:E:1232:U:H4'	49:SC:2:LEU:HD11	2.01	0.43
5:E:1488:G:H3'	5:E:1515:A:H61	1.84	0.43
11:LI:176:TYR:HB3	11:LI:194:HIS:CG	2.53	0.43
60:SN:138:ARG:HA	60:SN:138:ARG:HD2	1.81	0.43
64:SR:214:ALA:O	64:SR:218:ILE:HG22	2.17	0.43
76:Sd:53:ASP:HB3	76:Sd:96:LEU:HD21	1.99	0.43
80:m:71:C:H2'	80:m:72:C:C6	2.53	0.43
1:A:254:A:H2'	1:A:255:A:H8	1.84	0.43
1:A:273:A:H2'	1:A:274:G:H8	1.83	0.43
1:A:710:A:H2'	1:A:711:A:C8	2.53	0.43
1:A:786:A:H4'	1:A:787:G:H5'	2.00	0.43
1:A:1666:G:H2'	1:A:1667:A:C8	2.52	0.43
1:A:2196:C:H2'	1:A:2242:A:H61	1.82	0.43
1:A:2423:U:H2'	1:A:2424:A:H8	1.83	0.43
5:E:1063:U:H2'	5:E:1064:G:C8	2.52	0.43
22:LT:43:LYS:HE2	22:LT:43:LYS:HB2	1.59	0.43
23:LU:110:MET:HE3	23:LU:110:MET:HB3	1.86	0.43
26:LX:120:LYS:HA	26:LX:120:LYS:HD2	1.74	0.43
51:SE:85:ILE:HD13	51:SE:89:MET:HE3	2.00	0.43
53:SG:66:VAL:HG11	53:SG:69:ILE:HD12	2.01	0.43
58:SL:10:ALA:HB2	58:SL:32:PHE:HD1	1.83	0.43
61:SO:240:VAL:HB	61:SO:256:THR:HG22	2.01	0.43
63:SQ:35:PRO:HB3	63:SQ:232:HIS:CD2	2.54	0.43
69:SW:37:LYS:HB2	69:SW:37:LYS:HE3	1.72	0.43
72:SZ:92:LYS:HD3	72:SZ:121:VAL:HG12	1.99	0.43
1:A:254:A:H2'	1:A:255:A:C8	2.53	0.43
1:A:1616:U:H2'	1:A:1617:G:C8	2.53	0.43
1:A:2338:C:H1'	26:LX:49:LEU:HD12	2.00	0.43
5:E:340:U:H2'	5:E:341:A:C8	2.53	0.43
5:E:891:A:H2'	5:E:892:A:C8	2.51	0.43
5:E:1534:G:O2'	48:SB:187:ILE:HD13	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:LX:32:ARG:HB3	26:LX:64:LYS:HG3	2.00	0.43
39:Lk:98:ARG:HA	39:Lk:98:ARG:HD3	1.82	0.43
53:SG:24:LEU:HD22	53:SG:54:THR:HG21	2.00	0.43
61:SO:64:HIS:CE1	61:SO:90:ARG:HD2	2.53	0.43
62:SP:36:TYR:CD1	62:SP:161:PRO:HG3	2.54	0.43
62:SP:120:LEU:HD21	62:SP:144:ILE:HD12	2.01	0.43
1:A:2495:C:H2'	1:A:2496:C:O4'	2.18	0.43
1:A:2681:U:H2'	1:A:2682:C:C6	2.54	0.43
1:A:3251:U:H2'	1:A:3252:G:C8	2.54	0.43
1:A:3295:A:H2'	1:A:3296:A:C8	2.53	0.43
5:E:1162:C:H4'	58:SL:22:ARG:HD2	2.00	0.43
14:LL:52:LEU:HB3	14:LL:136:PHE:HB2	2.00	0.43
17:LO:32:LEU:HD11	17:LO:94:TRP:CD1	2.54	0.43
25:LW:18:ASP:HA	25:LW:62:VAL:HG12	2.00	0.43
47:SA:105:MET:HB3	47:SA:184:ILE:HD13	2.00	0.43
50:SD:61:VAL:HG22	50:SD:89:ILE:HB	2.01	0.43
61:SO:127:ARG:HD2	61:SO:150:TRP:CE3	2.52	0.43
1:A:1680:G:H2'	1:A:1681:U:H6	1.84	0.43
1:A:2697:A:H2'	1:A:2698:G:H8	1.82	0.43
1:A:3110:C:H2'	1:A:3111:U:C6	2.53	0.43
2:B:107:C:H2'	2:B:108:A:H8	1.83	0.43
5:E:143:G:H2'	5:E:144:U:C6	2.53	0.43
5:E:390:G:H2'	5:E:391:A:C8	2.54	0.43
5:E:511:A:H5''	69:SW:173:ALA:HB2	2.00	0.43
38:Lj:5:LYS:HD3	38:Lj:7:TYR:CZ	2.53	0.43
51:SE:77:ARG:HB3	51:SE:102:PHE:CD2	2.53	0.43
53:SG:60:ARG:HE	53:SG:66:VAL:HG23	1.83	0.43
57:SK:42:LEU:HD11	57:SK:47:TYR:HD1	1.83	0.43
65:SS:72:VAL:HG22	65:SS:90:ILE:HG22	2.01	0.43
66:ST:180:THR:HG22	66:ST:182:GLN:H	1.83	0.43
1:A:597:G:H5''	11:LI:41:ARG:HD2	2.00	0.43
1:A:1009:A:H2'	1:A:1010:G:C8	2.54	0.43
1:A:2351:U:H2'	1:A:2352:A:C8	2.53	0.43
1:A:3040:A:H5''	26:LX:12:ARG:HB3	2.00	0.43
5:E:918:U:H2'	5:E:919:A:H8	1.83	0.43
6:LD:46:LYS:HD2	6:LD:46:LYS:HA	1.88	0.43
18:LP:120:TRP:HZ2	18:LP:123:GLN:HG2	1.83	0.43
65:SS:240:LYS:H	65:SS:240:LYS:HG2	1.68	0.43
67:SU:55:LYS:HE3	67:SU:89:HIS:HE2	1.83	0.43
68:SV:43:ILE:HD12	68:SV:57:ALA:HA	2.01	0.43
1:A:158:G:H2'	1:A:159:A:H8	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:503:C:H2'	1:A:504:A:H8	1.83	0.43
1:A:1336:U:H2'	1:A:1337:A:C8	2.52	0.43
1:A:2661:G:H2'	1:A:2662:G:C8	2.54	0.43
2:B:56:A:H4'	15:LM:152:HIS:HB2	2.01	0.43
5:E:1486:G:H2'	5:E:1487:A:C8	2.54	0.43
10:LH:170:LYS:HB3	10:LH:172:HIS:CE1	2.54	0.43
35:Lg:122:PRO:HG2	35:Lg:123:LYS:HD3	1.99	0.43
48:SB:133:VAL:HG12	48:SB:198:LEU:HD13	2.01	0.43
51:SE:21:ASP:OD1	51:SE:24:LYS:HG3	2.19	0.43
51:SE:107:ILE:HA	51:SE:111:MET:SD	2.59	0.43
54:SH:101:LEU:HA	54:SH:101:LEU:HD23	1.67	0.43
70:SX:131:ILE:HB	70:SX:135:VAL:HG12	2.01	0.43
77:Se:41:ILE:HD12	77:Se:41:ILE:HA	1.91	0.43
80:m:33:U:C2	80:m:35:U:H5''	2.54	0.43
5:E:816:G:H22	5:E:855:A:H2	1.67	0.43
6:LD:47:GLN:HG3	6:LD:49:VAL:HG13	2.01	0.43
12:LJ:172:LYS:HE2	12:LJ:172:LYS:HB2	1.87	0.43
33:Le:64:LYS:HE2	33:Le:64:LYS:HB2	1.83	0.43
62:SP:98:ILE:HD11	62:SP:116:LYS:HD2	1.99	0.43
67:SU:67:LEU:HD22	67:SU:71:HIS:CE1	2.54	0.43
68:SV:87:ASN:ND2	68:SV:89:GLU:HB2	2.34	0.43
68:SV:101:ILE:HD12	68:SV:101:ILE:HA	1.79	0.43
69:SW:28:LEU:HD23	79:Sg:44:PHE:HE2	1.83	0.43
72:SZ:19:ILE:HG21	72:SZ:83:ILE:HD13	2.01	0.43
1:A:846:A:H2'	1:A:847:A:C8	2.54	0.42
1:A:1696:A:H2'	1:A:1697:A:C8	2.54	0.42
5:E:329:G:H2'	5:E:330:G:C8	2.54	0.42
5:E:849:C:H2'	5:E:850:A:C8	2.53	0.42
5:E:1358:G:H2'	5:E:1359:C:H6	1.84	0.42
18:LP:23:GLN:HE21	18:LP:23:GLN:HB3	1.67	0.42
47:SA:66:ILE:HD13	47:SA:66:ILE:HA	1.78	0.42
60:SN:100:LEU:O	60:SN:101:ALA:C	2.62	0.42
61:SO:72:THR:HG21	61:SO:114:ASP:HA	2.00	0.42
61:SO:294:TRP:CZ3	61:SO:301:LEU:HB2	2.54	0.42
79:Sg:49:LEU:HD22	79:Sg:58:PRO:HD3	2.01	0.42
1:A:127:G:H2'	1:A:128:G:H8	1.83	0.42
1:A:138:U:H2'	1:A:139:G:H8	1.84	0.42
1:A:528:U:H2'	1:A:529:A:H8	1.84	0.42
1:A:2369:G:H2'	1:A:2370:G:C8	2.54	0.42
1:A:3204:C:H2'	1:A:3205:G:C8	2.54	0.42
2:B:4:U:H2'	2:B:5:G:H8	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:270:C:H41	66:ST:182:GLN:HE22	1.66	0.42
5:E:778:G:H22	76:Sd:10:ARG:HG2	1.84	0.42
5:E:1579:U:H2'	5:E:1580:C:C6	2.55	0.42
6:LD:101:VAL:HG22	6:LD:165:VAL:HG22	2.01	0.42
22:LT:10:LEU:HD12	22:LT:10:LEU:HA	1.91	0.42
39:Lk:20:MET:HE3	39:Lk:20:MET:HB2	1.81	0.42
39:Lk:57:LEU:HD23	39:Lk:57:LEU:HA	1.86	0.42
56:SJ:65:ILE:HD12	59:SM:31:ILE:HD11	2.01	0.42
62:SP:89:PHE:HD1	62:SP:178:ALA:HB2	1.82	0.42
1:A:1340:G:H2'	1:A:1341:U:C6	2.54	0.42
1:A:1460:A:H2'	1:A:1461:A:H8	1.83	0.42
1:A:1667:A:H2'	1:A:1668:G:C8	2.53	0.42
1:A:1733:G:H2'	1:A:1734:G:H8	1.85	0.42
1:A:2423:U:H2'	1:A:2424:A:C8	2.54	0.42
1:A:2611:U:H2'	1:A:2612:U:C6	2.54	0.42
1:A:3021:A:H61	1:A:3032:A:H3'	1.84	0.42
3:C:67:U:H2'	3:C:68:G:H8	1.84	0.42
5:E:1151:A:H2'	5:E:1152:A:C8	2.54	0.42
6:LD:80:GLU:HG3	46:Lr:66:GLY:HA2	2.00	0.42
14:LL:69:ARG:HH11	14:LL:69:ARG:HG3	1.85	0.42
21:LS:131:ALA:HA	21:LS:135:GLN:HE21	1.83	0.42
22:LT:21:LYS:HA	22:LT:21:LYS:HD3	1.90	0.42
27:LY:5:ILE:HD13	27:LY:5:ILE:HA	1.88	0.42
68:SV:25:ARG:HB2	68:SV:28:GLU:HG2	2.01	0.42
1:A:182:U:H2'	1:A:183:G:H8	1.84	0.42
1:A:673:U:H2'	1:A:674:G:H8	1.84	0.42
1:A:1660:C:H2'	1:A:1661:G:C8	2.54	0.42
5:E:1018:U:H2'	5:E:1019:A:H8	1.84	0.42
6:LD:2:GLY:HA2	6:LD:207:VAL:HG23	2.01	0.42
9:LG:111:GLN:HA	9:LG:116:ASP:HB2	2.01	0.42
9:LG:247:ILE:O	9:LG:251:PRO:HG3	2.19	0.42
11:LI:210:PRO:HB3	11:LI:243:MET:HG2	2.02	0.42
15:LM:86:VAL:HG21	15:LM:112:LEU:HD23	2.01	0.42
15:LM:148:VAL:HG23	15:LM:153:LYS:HD3	2.02	0.42
19:LQ:27:LEU:HD13	19:LQ:27:LEU:HA	1.80	0.42
43:Lo:97:ARG:HH21	43:Lo:122:ARG:HB3	1.83	0.42
50:SD:62:LEU:HA	50:SD:120:VAL:HG22	2.01	0.42
74:Sb:55:ASP:HB2	78:Sf:25:VAL:HG23	2.01	0.42
1:A:946:U:H2'	1:A:947:G:H8	1.84	0.42
1:A:1534:A:H2'	1:A:1535:A:C8	2.54	0.42
1:A:3291:G:H2'	1:A:3292:A:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:17:C:H2'	5:E:18:C:C6	2.53	0.42
5:E:625:C:H2'	5:E:626:U:C6	2.54	0.42
8:LF:34:ILE:HD13	8:LF:34:ILE:HA	1.95	0.42
11:LI:96:PRO:HB2	11:LI:99:PRO:HD2	2.01	0.42
20:LR:60:PHE:HB3	20:LR:64:ASN:HB3	2.01	0.42
48:SB:40:ILE:HD12	48:SB:41:LYS:H	1.84	0.42
48:SB:41:LYS:HB2	48:SB:41:LYS:HE3	1.78	0.42
61:SO:21:THR:HG23	61:SO:37:SER:HA	2.01	0.42
62:SP:30:GLN:HE22	62:SP:149:LEU:HD22	1.85	0.42
63:SQ:198:GLU:HG2	63:SQ:210:ILE:HD12	2.00	0.42
65:SS:128:LYS:HA	65:SS:156:VAL:HG12	2.02	0.42
75:Sc:140:LYS:HD3	75:Sc:140:LYS:HA	1.84	0.42
76:Sd:20:ARG:HH12	76:Sd:74:LEU:HD21	1.84	0.42
76:Sd:86:GLU:OE2	76:Sd:90:ARG:HD2	2.20	0.42
1:A:121:A:C6	12:LJ:129:PRO:HG3	2.55	0.42
1:A:129:U:H2'	1:A:130:A:C8	2.55	0.42
1:A:2836:C:H5	1:A:2852:C:H42	1.68	0.42
1:A:2930:A:H2'	1:A:2931:C:C6	2.55	0.42
1:A:3138:U:H2'	1:A:3139:A:H8	1.85	0.42
5:E:333:A:C8	68:SV:49:ARG:HD2	2.55	0.42
5:E:922:G:H2'	5:E:923:A:C8	2.55	0.42
5:E:1776:A:H2'	5:E:1777:G:H8	1.84	0.42
6:LD:245:LEU:HD23	6:LD:245:LEU:HA	1.89	0.42
11:LI:77:VAL:HG22	23:LU:59:VAL:HA	2.01	0.42
52:SF:40:GLU:HG3	52:SF:41:PRO:HA	2.02	0.42
53:SG:71:PHE:HB3	53:SG:74:GLN:HB3	2.01	0.42
61:SO:131:ILE:HD11	61:SO:154:VAL:HG21	2.02	0.42
62:SP:11:PRO:O	62:SP:15:GLN:HG3	2.20	0.42
62:SP:176:LEU:HD13	62:SP:176:LEU:HA	1.94	0.42
63:SQ:89:ASP:HB2	63:SQ:228:LEU:HD22	2.00	0.42
64:SR:80:VAL:HG11	64:SR:125:ILE:HD12	2.01	0.42
68:SV:37:LYS:HD3	68:SV:37:LYS:HA	1.80	0.42
75:Sc:54:LEU:HD21	75:Sc:75:GLN:HB3	2.02	0.42
81:n:12:G:H3'	81:n:13:C:H6	1.84	0.42
1:A:562:C:H5''	23:LU:71:LYS:HD3	2.01	0.42
1:A:796:U:H2'	1:A:797:U:C6	2.54	0.42
1:A:952:A:H4'	1:A:968:G:N2	2.35	0.42
1:A:3255:U:H2'	1:A:3256:G:H8	1.85	0.42
1:A:3357:U:H2'	1:A:3358:U:C6	2.55	0.42
3:C:14:C:H5''	20:LR:123:PRO:HD3	2.01	0.42
5:E:333:A:N7	68:SV:49:ARG:HD2	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1253:U:H2'	5:E:1254:U:H6	1.85	0.42
9:LG:54:ARG:HD3	9:LG:54:ARG:HA	1.90	0.42
10:LH:62:THR:HG21	10:LH:78:ARG:HD2	2.01	0.42
14:LL:176:LEU:HD23	14:LL:176:LEU:HA	1.90	0.42
23:LU:78:TRP:HB3	23:LU:124:LEU:HD12	2.02	0.42
57:SK:83:LEU:HD23	57:SK:83:LEU:HA	1.90	0.42
58:SL:45:LYS:HE3	58:SL:45:LYS:HB2	1.77	0.42
61:SO:123:ILE:HG22	61:SO:133:VAL:HG12	2.00	0.42
61:SO:195:HIS:ND1	61:SO:199:ILE:HD11	2.35	0.42
63:SQ:52:THR:HG23	63:SQ:55:LYS:H	1.84	0.42
65:SS:47:PHE:HE1	65:SS:111:VAL:HG12	1.84	0.42
65:SS:244:ILE:HD13	65:SS:244:ILE:HA	1.88	0.42
68:SV:3:ILE:HD12	68:SV:3:ILE:H	1.85	0.42
1:A:1119:C:H2'	1:A:1120:A:C8	2.54	0.42
1:A:1386:A:H5''	8:LF:141:ARG:HH22	1.84	0.42
5:E:351:C:H5	5:E:631:G:H5''	1.85	0.42
5:E:849:C:H2'	5:E:850:A:H8	1.84	0.42
5:E:1628:U:H2'	5:E:1629:G:C8	2.55	0.42
5:E:1738:U:H2'	5:E:1739:C:C6	2.54	0.42
26:LX:81:GLN:HE21	26:LX:83:LYS:HB3	1.84	0.42
29:La:85:VAL:HG11	29:La:99:LEU:HD11	2.01	0.42
44:Lp:8:LYS:HB2	44:Lp:8:LYS:HE3	1.83	0.42
48:SB:46:TRP:HE1	48:SB:129:PRO:HD2	1.85	0.42
52:SF:127:LYS:HA	52:SF:134:ALA:HA	2.02	0.42
62:SP:135:GLU:O	62:SP:139:VAL:HG12	2.19	0.42
78:Sf:30:SER:HB3	78:Sf:49:HIS:CE1	2.54	0.42
81:n:23:C:H2'	81:n:24:G:C8	2.55	0.42
1:A:616:G:H2'	1:A:617:G:C8	2.55	0.42
1:A:662:U:H2'	1:A:663:C:C6	2.55	0.42
1:A:903:U:H2'	1:A:904:A:C8	2.55	0.42
1:A:2742:C:H2'	1:A:2743:A:H8	1.83	0.42
2:B:4:U:H2'	2:B:5:G:C8	2.55	0.42
5:E:868:G:N2	5:E:960:U:O2	2.35	0.42
5:E:1290:U:H2'	5:E:1291:G:N3	2.35	0.42
15:LM:50:ALA:HB2	15:LM:65:ILE:HD12	2.02	0.42
19:LQ:171:LYS:O	19:LQ:175:THR:HG23	2.19	0.42
21:LS:68:ALA:HA	21:LS:71:LEU:HD12	2.01	0.42
55:SI:57:ARG:HH21	55:SI:101:ASN:ND2	2.17	0.42
60:SN:99:LYS:O	60:SN:102:VAL:N	2.52	0.42
61:SO:157:VAL:CG2	61:SO:170:ILE:HG23	2.49	0.42
65:SS:178:GLY:HA3	65:SS:231:GLN:HE21	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
67:SU:76:LYS:O	67:SU:80:GLU:HG2	2.20	0.42
80:m:28:U:H2'	80:m:29:U:C6	2.55	0.42
1:A:127:G:H2'	1:A:128:G:C8	2.55	0.42
1:A:428:A:H2'	1:A:429:U:C6	2.55	0.42
1:A:671:U:H2'	1:A:672:A:C8	2.55	0.42
1:A:679:U:H2'	1:A:680:G:C8	2.55	0.42
1:A:1342:C:H2'	1:A:1343:A:H8	1.85	0.42
1:A:3281:U:H2'	1:A:3282:U:C6	2.54	0.42
5:E:899:G:H4'	72:SZ:46:MET:HG2	2.02	0.42
5:E:1357:A:H2'	5:E:1358:G:H8	1.85	0.42
5:E:1405:G:H2'	5:E:1406:A:C8	2.55	0.42
5:E:1410:A:H2'	5:E:1411:A:C8	2.55	0.42
5:E:1718:G:H2'	5:E:1719:A:H8	1.85	0.42
5:E:1739:C:H2'	5:E:1740:A:C8	2.54	0.42
13:LK:173:ARG:HE	43:Lo:126:LYS:HA	1.85	0.42
14:LL:51:HIS:HB3	14:LL:134:ILE:HG23	2.02	0.42
18:LP:11:GLN:HA	18:LP:19:LEU:HD21	2.02	0.42
38:Lj:24:LEU:HD23	38:Lj:24:LEU:HA	1.94	0.42
44:Lp:19:LYS:HB3	44:Lp:19:LYS:HE2	1.75	0.42
47:SA:94:ARG:H	47:SA:94:ARG:NE	2.16	0.42
48:SB:29:ILE:HD11	48:SB:34:GLN:HB2	2.02	0.42
61:SO:111:MET:HE3	61:SO:111:MET:HB2	1.67	0.42
62:SP:90:ALA:HB3	62:SP:97:PRO:HG3	2.02	0.42
71:SY:36:GLN:HA	71:SY:39:LYS:HG2	2.02	0.42
81:n:72:U:O2'	81:n:73:A:H5''	2.20	0.42
1:A:175:C:H2'	1:A:176:G:C8	2.54	0.41
1:A:501:A:H2'	1:A:502:U:C6	2.55	0.41
1:A:612:U:H2'	1:A:613:G:C8	2.55	0.41
1:A:640:U:H2'	1:A:641:C:C6	2.55	0.41
1:A:1803:C:H2'	1:A:1804:A:C8	2.55	0.41
1:A:2449:A:H2'	1:A:2450:G:C8	2.55	0.41
5:E:385:A:H2'	5:E:386:G:C8	2.55	0.41
5:E:646:C:H2'	5:E:647:G:C8	2.54	0.41
5:E:1484:G:H2'	5:E:1485:C:H6	1.85	0.41
7:LE:261:MET:HE1	19:LQ:63:ALA:HB1	2.01	0.41
8:LF:187:LEU:HD23	8:LF:187:LEU:HA	1.92	0.41
41:Lm:73:LEU:HD12	41:Lm:73:LEU:HA	1.92	0.41
47:SA:75:LYS:HE2	49:SC:21:VAL:HA	2.02	0.41
62:SP:89:PHE:CD1	62:SP:178:ALA:HB2	2.55	0.41
1:A:207:U:H2'	1:A:208:C:C6	2.56	0.41
1:A:1945:A:H2'	1:A:1946:A:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1042:G:H2'	5:E:1043:A:H8	1.85	0.41
9:LG:55:PHE:HE2	9:LG:159:VAL:HG23	1.85	0.41
9:LG:75:LEU:HD21	9:LG:113:LEU:HD21	2.02	0.41
61:SO:307:ASP:O	61:SO:309:VAL:HG13	2.20	0.41
63:SQ:158:SER:HA	63:SQ:161:ILE:HG13	2.02	0.41
66:ST:159:ARG:HD2	66:ST:172:ALA:HB2	2.02	0.41
75:Sc:14:LYS:HE2	75:Sc:14:LYS:HB2	1.90	0.41
80:m:23:A:H2'	80:m:24:G:H8	1.84	0.41
81:n:49:C:H2'	81:n:50:U:C6	2.55	0.41
1:A:990:U:H1'	24:LV:101:CYS:HB3	2.02	0.41
1:A:2213:A:H2'	1:A:2214:A:C8	2.56	0.41
1:A:2352:A:H5''	20:LR:83:TRP:O	2.20	0.41
1:A:2880:U:H1'	7:LE:250:ALA:HB3	2.01	0.41
2:B:81:U:H2'	2:B:82:G:H8	1.86	0.41
3:C:83:C:H1'	3:C:85:G:H21	1.84	0.41
7:LE:20:LYS:HE3	7:LE:20:LYS:HB2	1.89	0.41
13:LK:180:TYR:HB3	43:Lo:89:TYR:CD2	2.56	0.41
15:LM:37:LEU:HD22	15:LM:69:VAL:HG12	2.02	0.41
16:LN:42:ARG:O	16:LN:46:ILE:HG12	2.20	0.41
17:LO:113:THR:H	17:LO:116:GLU:HG3	1.85	0.41
56:SJ:102:ARG:H	56:SJ:102:ARG:HG3	1.50	0.41
61:SO:259:GLY:HA3	61:SO:275:ARG:HG2	2.02	0.41
62:SP:34:GLU:HB2	62:SP:36:TYR:HD2	1.85	0.41
66:ST:72:ARG:HG2	66:ST:98:ARG:HG3	2.01	0.41
69:SW:123:HIS:NE2	79:Sg:37:ARG:HB2	2.35	0.41
69:SW:153:GLU:HA	69:SW:156:ILE:HD11	2.02	0.41
81:n:16:U:H3'	81:n:61:C:H41	1.85	0.41
1:A:595:G:H1	1:A:609:G:H5''	1.86	0.41
5:E:803:A:C8	67:SU:104:ARG:HG3	2.56	0.41
5:E:1148:C:H2'	5:E:1149:G:H8	1.84	0.41
9:LG:53:VAL:HA	9:LG:61:ILE:O	2.21	0.41
10:LH:62:THR:HB	10:LH:78:ARG:HB2	2.02	0.41
18:LP:15:GLN:HB2	39:Lk:51:SER:HB2	2.03	0.41
47:SA:12:VAL:HG12	56:SJ:84:MET:HE3	2.02	0.41
48:SB:140:THR:HA	48:SB:214:LYS:HD3	2.03	0.41
50:SD:133:LEU:HA	50:SD:136:ILE:HD12	2.02	0.41
56:SJ:64:LYS:HE3	56:SJ:64:LYS:HB2	1.89	0.41
62:SP:144:ILE:HG12	62:SP:158:VAL:HB	2.01	0.41
63:SQ:61:LEU:O	63:SQ:64:ARG:HG2	2.21	0.41
64:SR:88:LYS:HG2	64:SR:89:GLN:H	1.85	0.41
65:SS:57:ASN:O	65:SS:61:VAL:HG12	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
66:ST:67:VAL:HG21	66:ST:73:ILE:HD11	2.02	0.41
68:SV:34:ALA:HB2	68:SV:56:ARG:HD2	2.03	0.41
70:SX:16:GLN:NE2	70:SX:33:ARG:HD2	2.34	0.41
70:SX:75:VAL:HA	70:SX:86:ILE:HA	2.01	0.41
76:Sd:5:VAL:HG11	76:Sd:32:ARG:HH21	1.86	0.41
1:A:207:U:H2'	1:A:208:C:H6	1.86	0.41
3:C:141:C:H2'	3:C:142:C:H6	1.85	0.41
5:E:848:C:H2'	5:E:849:C:C6	2.56	0.41
5:E:872:G:H2'	5:E:873:U:O4'	2.20	0.41
5:E:884:A:H2'	5:E:885:G:H8	1.84	0.41
6:LD:47:GLN:HE21	6:LD:60:LYS:HD2	1.85	0.41
13:LK:164:ILE:HD12	13:LK:164:ILE:HA	1.91	0.41
14:LL:91:VAL:HG22	14:LL:127:ALA:HB1	2.03	0.41
15:LM:80:LEU:HD12	15:LM:80:LEU:HA	1.90	0.41
22:LT:159:ALA:O	22:LT:163:ARG:HG3	2.21	0.41
51:SE:80:MET:HE2	51:SE:83:MET:HB3	2.01	0.41
60:SN:141:CYS:HB3	60:SN:144:CYS:HB2	2.01	0.41
62:SP:182:LEU:HD22	62:SP:187:ALA:HB3	2.01	0.41
1:A:20:A:H2'	1:A:21:G:C8	2.55	0.41
1:A:1597:C:H2'	1:A:1598:G:C8	2.56	0.41
1:A:1779:C:H1'	22:LT:93:VAL:HG21	2.02	0.41
1:A:2152:A:H2'	1:A:2153:U:H6	1.86	0.41
1:A:2154:U:H2'	1:A:2155:G:C8	2.56	0.41
5:E:449:C:H2'	5:E:450:U:C6	2.56	0.41
5:E:1247:U:H2'	5:E:1248:C:H6	1.85	0.41
5:E:1280:C:H2'	5:E:1281:G:C8	2.55	0.41
5:E:1374:C:H2'	5:E:1375:A:C8	2.56	0.41
8:LF:128:ALA:HB1	8:LF:134:LEU:HD12	2.02	0.41
8:LF:328:ASN:HD22	8:LF:331:ALA:HB2	1.86	0.41
21:LS:66:ARG:HG2	21:LS:140:LEU:HD13	2.01	0.41
29:La:106:ILE:HG21	29:La:109:LEU:HD23	2.01	0.41
41:Lm:12:LEU:HB3	41:Lm:16:ARG:NH2	2.36	0.41
55:SI:16:ASN:HD22	55:SI:56:LYS:NZ	2.18	0.41
56:SJ:45:ALA:HA	56:SJ:50:LEU:HD12	2.03	0.41
61:SO:103:PHE:CE2	61:SO:138:GLY:HA2	2.55	0.41
66:ST:50:PHE:HB3	66:ST:111:LEU:HD22	2.03	0.41
71:SY:37:ILE:HA	71:SY:50:ILE:HD11	2.03	0.41
1:A:29:C:H4'	1:A:62:A:H4'	2.03	0.41
1:A:286:U:H2'	1:A:287:G:H8	1.86	0.41
1:A:531:G:H2'	1:A:532:A:C8	2.55	0.41
1:A:1281:G:H2'	1:A:1282:G:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:333:A:H5'	68:SV:48:THR:HB	2.02	0.41
5:E:1132:A:H2'	5:E:1133:A:H8	1.85	0.41
5:E:1175:U:H2'	5:E:1176:G:H8	1.86	0.41
5:E:1235:C:H2'	5:E:1236:A:H8	1.85	0.41
5:E:1248:C:H2'	5:E:1249:U:C6	2.56	0.41
7:LE:56:ILE:HG22	7:LE:359:ILE:HG13	2.03	0.41
18:LP:178:HIS:CE1	18:LP:179:LYS:HG2	2.56	0.41
34:Lf:55:LEU:HB2	34:Lf:95:PRO:HD3	2.02	0.41
47:SA:187:LYS:HB2	47:SA:187:LYS:HE2	1.71	0.41
48:SB:116:HIS:O	48:SB:120:ILE:HG13	2.21	0.41
52:SF:41:PRO:HG2	52:SF:44:LEU:HB3	2.02	0.41
55:SI:7:ARG:HG2	55:SI:67:MET:HE1	2.03	0.41
62:SP:124:THR:HA	62:SP:146:LEU:HB2	2.01	0.41
74:Sb:106:THR:HG23	74:Sb:108:ALA:N	2.34	0.41
1:A:288:C:H2'	1:A:289:A:C8	2.56	0.41
1:A:429:U:H2'	1:A:430:U:H6	1.86	0.41
1:A:2183:A:H5''	6:LD:7:ASN:HB2	2.03	0.41
1:A:2218:G:H2'	1:A:2219:A:C8	2.56	0.41
1:A:2419:A:H2'	1:A:2420:C:C6	2.55	0.41
1:A:2683:U:H2'	1:A:2684:C:C6	2.56	0.41
5:E:17:C:H2'	5:E:18:C:H6	1.85	0.41
5:E:1064:G:H2'	5:E:1065:A:C8	2.56	0.41
5:E:1528:U:OP1	48:SB:109:LYS:HB2	2.21	0.41
7:LE:41:VAL:HA	7:LE:185:GLY:HA3	2.02	0.41
9:LG:122:VAL:HB	9:LG:168:ASP:HB3	2.03	0.41
10:LH:130:ILE:HD12	10:LH:130:ILE:HA	1.90	0.41
11:LI:58:ALA:O	11:LI:62:ILE:HD12	2.20	0.41
21:LS:122:ILE:HD13	21:LS:122:ILE:HA	1.92	0.41
24:LV:102:ARG:O	24:LV:106:LEU:HD22	2.21	0.41
26:LX:13:ILE:HD12	26:LX:85:TRP:CD1	2.56	0.41
30:Lb:26:VAL:HG11	30:Lb:96:VAL:HG13	2.03	0.41
35:Lg:97:ALA:HB3	35:Lg:100:ILE:HG12	2.02	0.41
52:SF:81:ILE:O	52:SF:85:ILE:HG13	2.20	0.41
63:SQ:88:VAL:HB	63:SQ:98:THR:HG22	2.03	0.41
67:SU:51:VAL:HG22	67:SU:53:GLY:H	1.86	0.41
68:SV:48:THR:HG21	68:SV:54:LYS:HE3	2.03	0.41
69:SW:156:ILE:HG22	69:SW:157:ASP:H	1.86	0.41
70:SX:109:VAL:HG21	70:SX:125:VAL:HG11	2.02	0.41
71:SY:26:PHE:CZ	71:SY:28:LEU:HB2	2.56	0.41
1:A:255:A:H2'	1:A:256:G:C8	2.56	0.41
1:A:546:C:H4'	1:A:547:G:C4	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:638:C:H2'	1:A:639:G:H8	1.85	0.41
1:A:985:U:H2'	1:A:986:U:C6	2.54	0.41
1:A:2609:A:H2'	1:A:2610:G:H8	1.86	0.41
1:A:3233:C:H2'	1:A:3234:A:C8	2.56	0.41
3:C:142:C:H2'	3:C:143:U:C6	2.56	0.41
5:E:844:A:H2'	5:E:845:G:H8	1.86	0.41
5:E:1018:U:H2'	5:E:1019:A:C8	2.55	0.41
5:E:1146:G:H2'	5:E:1147:A:C8	2.56	0.41
5:E:1322:A:H2'	5:E:1323:C:C6	2.56	0.41
5:E:1450:U:H2'	5:E:1451:C:C6	2.56	0.41
13:LK:89:LYS:HD3	13:LK:183:HIS:HB3	2.03	0.41
14:LL:36:LEU:HD21	14:LL:87:LEU:HD12	2.03	0.41
19:LQ:125:ARG:HG3	19:LQ:129:LEU:HD22	2.03	0.41
24:LV:78:LYS:HD3	24:LV:87:LYS:HZ2	1.86	0.41
29:La:112:ASP:H	29:La:115:ARG:HB2	1.86	0.41
48:SB:93:LEU:O	48:SB:97:LEU:HG	2.21	0.41
53:SG:105:GLN:NE2	62:SP:41:ARG:HA	2.35	0.41
56:SJ:21:LYS:HA	56:SJ:21:LYS:HD2	1.85	0.41
56:SJ:99:ILE:O	56:SJ:103:ILE:HD12	2.20	0.41
63:SQ:84:ILE:HD13	63:SQ:84:ILE:HA	1.95	0.41
63:SQ:138:PHE:HD2	63:SQ:214:LYS:HG2	1.86	0.41
69:SW:19:TYR:HA	69:SW:24:LEU:HD11	2.03	0.41
69:SW:52:ILE:HG13	69:SW:52:ILE:H	1.64	0.41
80:m:60:U:H5''	80:m:61:C:H5	1.85	0.41
1:A:664:U:H2'	1:A:665:A:H8	1.84	0.41
1:A:2366:C:H2'	1:A:2367:A:H8	1.84	0.41
5:E:610:G:H21	75:Sc:19:ARG:NH2	2.19	0.41
7:LE:261:MET:HB2	7:LE:264:VAL:HG23	2.03	0.41
13:LK:117:PHE:CE1	13:LK:165:CYS:HB3	2.56	0.41
23:LU:71:LYS:HE2	23:LU:71:LYS:HB3	1.92	0.41
47:SA:32:GLU:CD	47:SA:58:VAL:HG23	2.46	0.41
66:ST:187:LYS:HE3	66:ST:187:LYS:HB2	1.83	0.41
68:SV:188:GLU:HG3	70:SX:13:PHE:CG	2.56	0.41
1:A:255:A:H2'	1:A:256:G:H8	1.86	0.40
1:A:993:G:N3	1:A:2637:A:H2'	2.36	0.40
1:A:1381:A:H2'	1:A:1382:G:H8	1.87	0.40
1:A:1615:C:H2'	1:A:1616:U:C6	2.56	0.40
1:A:2177:G:H2'	6:LD:128:ARG:HD3	2.03	0.40
1:A:3059:G:H5''	34:Lf:17:HIS:CE1	2.57	0.40
5:E:443:C:OP2	76:Sd:105:ARG:HG3	2.20	0.40
5:E:1222:C:H2'	5:E:1223:A:C8	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:LG:105:ILE:HA	9:LG:108:ARG:HG2	2.01	0.40
21:LS:145:ASN:HB3	21:LS:150:VAL:HG11	2.03	0.40
33:Le:66:LYS:H	33:Le:66:LYS:HD2	1.86	0.40
40:Ll:27:PHE:HA	40:Ll:34:CYS:HA	2.03	0.40
58:SL:25:VAL:HG13	58:SL:43:ASN:HB3	2.03	0.40
61:SO:36:ALA:HB1	61:SO:68:VAL:HG23	2.02	0.40
61:SO:61:PHE:HB3	61:SO:92:TRP:CE3	2.56	0.40
66:ST:141:ILE:HG13	66:ST:142:ARG:N	2.34	0.40
1:A:129:U:H3	1:A:139:G:H1	1.68	0.40
1:A:210:U:C2	1:A:230:U:H4'	2.56	0.40
1:A:911:C:N4	6:LD:3:ARG:HD3	2.36	0.40
1:A:966:U:H2'	1:A:967:A:C8	2.57	0.40
1:A:2615:G:H2'	1:A:2616:C:H6	1.86	0.40
1:A:2949:U:H4'	7:LE:241:LYS:HD3	2.02	0.40
3:C:149:A:H2'	3:C:150:G:C8	2.56	0.40
5:E:751:G:H2'	5:E:752:A:C8	2.56	0.40
5:E:759:U:H2'	5:E:760:A:H8	1.86	0.40
5:E:1310:U:H2'	5:E:1311:U:C6	2.56	0.40
5:E:1382:A:OP1	56:SJ:60:THR:HG23	2.22	0.40
8:LF:65:TRP:HB3	8:LF:69:ARG:HD3	2.03	0.40
12:LJ:93:LEU:O	12:LJ:96:LYS:HG2	2.21	0.40
16:LN:159:VAL:HA	31:Lc:124:ILE:HD11	2.03	0.40
24:LV:14:MET:HG2	24:LV:15:PHE:HD1	1.85	0.40
43:Lo:127:LEU:HD13	43:Lo:128:LYS:NZ	2.36	0.40
49:SC:48:SER:O	49:SC:52:LYS:HG3	2.21	0.40
53:SG:107:SER:HB2	53:SG:119:LEU:HD22	2.02	0.40
62:SP:51:GLY:O	62:SP:55:GLU:HG3	2.21	0.40
67:SU:159:VAL:HG11	67:SU:185:ILE:HG21	2.04	0.40
72:SZ:48:VAL:HG11	72:SZ:53:ASP:HB2	2.03	0.40
1:A:1460:A:H2'	1:A:1461:A:C8	2.56	0.40
1:A:1783:U:H2'	1:A:1784:G:C8	2.57	0.40
1:A:2367:A:H2'	1:A:2368:A:C8	2.57	0.40
1:A:2413:A:H2'	1:A:2414:G:C8	2.54	0.40
1:A:3294:A:H2'	1:A:3295:A:O4'	2.21	0.40
3:C:9:A:H2'	3:C:10:A:H8	1.85	0.40
5:E:1222:C:H2'	5:E:1223:A:H8	1.86	0.40
5:E:1494:C:H2'	5:E:1495:C:C6	2.56	0.40
5:E:1613:U:H5''	48:SB:169:ASN:HB3	2.04	0.40
5:E:1787:C:H2'	5:E:1788:G:C8	2.57	0.40
5:E:1789:G:H2'	5:E:1790:A:C8	2.56	0.40
8:LF:170:LYS:HD2	8:LF:175:HIS:CD2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:LF:215:ILE:HD12	8:LF:215:ILE:HA	1.85	0.40
14:LL:4:ARG:HH21	14:LL:99:ILE:HG13	1.86	0.40
18:LP:192:LYS:HB2	18:LP:192:LYS:HE2	1.86	0.40
33:Le:25:LEU:HD11	33:Le:81:VAL:HG11	2.02	0.40
41:Lm:28:ASN:HD22	41:Lm:40:GLN:HG2	1.87	0.40
63:SQ:207:LEU:HB2	63:SQ:210:ILE:HD11	2.04	0.40
64:SR:79:GLU:OE1	64:SR:186:LYS:HG2	2.21	0.40
69:SW:109:LEU:O	69:SW:113:VAL:HG13	2.22	0.40
80:m:50:C:H2'	80:m:51:A:C8	2.57	0.40
1:A:1211:U:H2'	1:A:1212:A:C8	2.56	0.40
1:A:1222:G:H4'	1:A:1223:A:O5'	2.22	0.40
1:A:2097:U:H2'	1:A:2098:C:C6	2.56	0.40
1:A:2767:U:H2'	1:A:2768:U:C6	2.56	0.40
5:E:1273:G:H4'	5:E:1274:C:O5'	2.22	0.40
6:LD:97:ASN:HB2	6:LD:100:ASN:ND2	2.36	0.40
9:LG:153:THR:O	9:LG:179:ARG:HD2	2.21	0.40
13:LK:27:VAL:HG13	13:LK:82:VAL:HG21	2.02	0.40
14:LL:52:LEU:HD11	14:LL:163:GLN:HB3	2.02	0.40
15:LM:55:ARG:NH2	15:LM:56:THR:HA	2.36	0.40
29:La:37:LYS:HD3	29:La:37:LYS:HA	1.91	0.40
29:La:125:LYS:HB2	29:La:125:LYS:HE2	1.91	0.40
45:Lq:32:LYS:HE2	45:Lq:32:LYS:HA	2.03	0.40
47:SA:157:LEU:HD13	47:SA:187:LYS:HG2	2.02	0.40
48:SB:115:LYS:HD3	48:SB:115:LYS:HA	1.85	0.40
49:SC:16:PHE:CD2	49:SC:76:LEU:HG	2.57	0.40
53:SG:28:PHE:HA	53:SG:55:THR:HG21	2.02	0.40
55:SI:89:ARG:H	55:SI:89:ARG:HG3	1.64	0.40
60:SN:96:LYS:O	60:SN:97:LYS:C	2.64	0.40
61:SO:224:ASN:HD21	61:SO:229:LYS:HE2	1.86	0.40
63:SQ:97:LEU:HB3	63:SQ:232:HIS:ND1	2.36	0.40
63:SQ:141:ALA:HB1	63:SQ:207:LEU:HD13	2.03	0.40
68:SV:6:ASP:HB3	68:SV:28:GLU:OE2	2.21	0.40
74:Sb:111:MET:SD	74:Sb:115:GLU:HG2	2.62	0.40
80:m:23:A:H2'	80:m:24:G:C8	2.56	0.40
1:A:1132:C:H2'	1:A:1133:A:H8	1.87	0.40
1:A:1597:C:H2'	1:A:1598:G:H8	1.87	0.40
5:E:1246:C:H2'	5:E:1247:U:H6	1.84	0.40
5:E:1483:A:H2'	5:E:1484:G:C8	2.56	0.40
17:LO:60:LEU:HD23	17:LO:60:LEU:HA	1.91	0.40
19:LQ:10:ASP:HB2	19:LQ:117:ARG:HB3	2.04	0.40
21:LS:70:ALA:O	21:LS:73:GLN:HB2	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:LT:153:LYS:O	22:LT:157:GLU:HG3	2.22	0.40
31:Lc:132:LYS:O	31:Lc:136:GLU:HG2	2.22	0.40
48:SB:188:LYS:HD3	48:SB:196:GLU:OE2	2.22	0.40
49:SC:20:VAL:HG12	49:SC:67:THR:HA	2.03	0.40
61:SO:229:LYS:HE2	61:SO:229:LYS:HB3	1.97	0.40
62:SP:82:GLY:O	62:SP:86:VAL:HG12	2.21	0.40
64:SR:109:GLY:O	64:SR:139:ILE:HG12	2.22	0.40
64:SR:230:TRP:CE2	74:Sb:68:ARG:HB3	2.56	0.40
73:Sa:46:ILE:H	73:Sa:46:ILE:HD12	1.87	0.40
74:Sb:85:ASP:HA	74:Sb:88:LYS:HG3	2.02	0.40
80:m:27:G:H1	80:m:43:U:H3	1.69	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	
6	LD	245/254 (96%)	240 (98%)	5 (2%)	0	100	100
7	LE	384/387 (99%)	371 (97%)	13 (3%)	0	100	100
8	LF	359/362 (99%)	345 (96%)	14 (4%)	0	100	100
9	LG	290/297 (98%)	268 (92%)	19 (7%)	3 (1%)	12	43
10	LH	152/176 (86%)	145 (95%)	7 (5%)	0	100	100
11	LI	220/244 (90%)	216 (98%)	4 (2%)	0	100	100
12	LJ	231/256 (90%)	224 (97%)	7 (3%)	0	100	100
13	LK	186/191 (97%)	177 (95%)	9 (5%)	0	100	100
14	LL	205/210 (98%)	189 (92%)	16 (8%)	0	100	100
15	LM	166/174 (95%)	158 (95%)	8 (5%)	0	100	100
16	LN	191/199 (96%)	184 (96%)	6 (3%)	1 (0%)	24	59

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	LO	134/138 (97%)	132 (98%)	2 (2%)	0	100	100
18	LP	201/204 (98%)	196 (98%)	5 (2%)	0	100	100
19	LQ	195/199 (98%)	194 (100%)	1 (0%)	0	100	100
20	LR	168/184 (91%)	163 (97%)	5 (3%)	0	100	100
21	LS	183/186 (98%)	179 (98%)	4 (2%)	0	100	100
22	LT	181/189 (96%)	177 (98%)	4 (2%)	0	100	100
23	LU	169/172 (98%)	162 (96%)	7 (4%)	0	100	100
24	LV	157/160 (98%)	154 (98%)	3 (2%)	0	100	100
25	LW	98/121 (81%)	93 (95%)	5 (5%)	0	100	100
26	LX	134/137 (98%)	131 (98%)	3 (2%)	0	100	100
27	LY	60/155 (39%)	60 (100%)	0	0	100	100
28	LZ	118/142 (83%)	115 (98%)	3 (2%)	0	100	100
29	La	123/127 (97%)	123 (100%)	0	0	100	100
30	Lb	131/136 (96%)	128 (98%)	3 (2%)	0	100	100
31	Lc	146/149 (98%)	141 (97%)	5 (3%)	0	100	100
32	Ld	56/59 (95%)	54 (96%)	2 (4%)	0	100	100
33	Le	94/105 (90%)	93 (99%)	1 (1%)	0	100	100
34	Lf	103/113 (91%)	102 (99%)	1 (1%)	0	100	100
35	Lg	124/130 (95%)	123 (99%)	1 (1%)	0	100	100
36	Lh	104/107 (97%)	100 (96%)	4 (4%)	0	100	100
37	Li	108/121 (89%)	104 (96%)	4 (4%)	0	100	100
38	Lj	117/120 (98%)	116 (99%)	1 (1%)	0	100	100
39	Lk	96/100 (96%)	92 (96%)	4 (4%)	0	100	100
40	Ll	79/88 (90%)	77 (98%)	2 (2%)	0	100	100
41	Lm	75/78 (96%)	74 (99%)	1 (1%)	0	100	100
42	Ln	48/51 (94%)	47 (98%)	1 (2%)	0	100	100
43	Lo	49/128 (38%)	49 (100%)	0	0	100	100
44	Lp	22/25 (88%)	22 (100%)	0	0	100	100
45	Lq	98/106 (92%)	94 (96%)	4 (4%)	0	100	100
46	Lr	89/92 (97%)	83 (93%)	6 (7%)	0	100	100
47	SA	220/240 (92%)	215 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
48	SB	204/225 (91%)	191 (94%)	12 (6%)	1 (0%)	24	59
49	SC	81/105 (77%)	74 (91%)	7 (9%)	0	100	100
50	SD	93/143 (65%)	85 (91%)	6 (6%)	2 (2%)	5	24
51	SE	114/142 (80%)	110 (96%)	4 (4%)	0	100	100
52	SF	139/143 (97%)	134 (96%)	5 (4%)	0	100	100
53	SG	110/136 (81%)	105 (96%)	5 (4%)	0	100	100
54	SH	143/146 (98%)	136 (95%)	7 (5%)	0	100	100
55	SI	141/144 (98%)	138 (98%)	3 (2%)	0	100	100
56	SJ	98/121 (81%)	95 (97%)	3 (3%)	0	100	100
57	SK	67/108 (62%)	65 (97%)	2 (3%)	0	100	100
58	SL	60/67 (90%)	59 (98%)	1 (2%)	0	100	100
59	SM	51/56 (91%)	44 (86%)	6 (12%)	1 (2%)	6	26
60	SN	51/152 (34%)	41 (80%)	9 (18%)	1 (2%)	6	26
61	SO	309/319 (97%)	289 (94%)	19 (6%)	1 (0%)	36	68
62	SP	203/252 (81%)	198 (98%)	5 (2%)	0	100	100
63	SQ	217/255 (85%)	208 (96%)	9 (4%)	0	100	100
64	SR	214/254 (84%)	208 (97%)	6 (3%)	0	100	100
65	SS	256/261 (98%)	242 (94%)	14 (6%)	0	100	100
66	ST	216/236 (92%)	210 (97%)	6 (3%)	0	100	100
67	SU	178/190 (94%)	172 (97%)	6 (3%)	0	100	100
68	SV	182/200 (91%)	172 (94%)	9 (5%)	1 (0%)	24	59
69	SW	182/197 (92%)	172 (94%)	10 (6%)	0	100	100
70	SX	139/156 (89%)	134 (96%)	5 (4%)	0	100	100
71	SY	148/151 (98%)	144 (97%)	4 (3%)	0	100	100
72	SZ	125/138 (91%)	119 (95%)	6 (5%)	0	100	100
73	Sa	85/87 (98%)	82 (96%)	3 (4%)	0	100	100
74	Sb	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
75	Sc	142/145 (98%)	141 (99%)	1 (1%)	0	100	100
76	Sd	129/135 (96%)	126 (98%)	3 (2%)	0	100	100
77	Se	95/119 (80%)	92 (97%)	3 (3%)	0	100	100
78	Sf	70/82 (85%)	67 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
79	Sg	53/63 (84%)	44 (83%)	8 (15%)	1 (2%)	6	28
All	All	10731/11870 (90%)	10330 (96%)	389 (4%)	12 (0%)	49	79

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	LN	48	PRO
50	SD	87	PRO
61	SO	175	ASP
9	LG	132	THR
48	SB	45	LYS
68	SV	187	GLU
9	LG	200	PHE
50	SD	86	VAL
59	SM	37	ASN
60	SN	99	LYS
79	Sg	54	ARG
9	LG	199	ILE

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	LD	189/196 (96%)	189 (100%)	0	100	100
7	LE	321/323 (99%)	319 (99%)	2 (1%)	78	87
8	LF	288/289 (100%)	285 (99%)	3 (1%)	68	83
9	LG	241/245 (98%)	232 (96%)	9 (4%)	30	63
10	LH	136/155 (88%)	136 (100%)	0	100	100
11	LI	186/205 (91%)	184 (99%)	2 (1%)	65	82
12	LJ	187/208 (90%)	186 (100%)	1 (0%)	81	88
13	LK	168/171 (98%)	164 (98%)	4 (2%)	43	72
14	LL	177/179 (99%)	176 (99%)	1 (1%)	78	87

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	LM	144/151 (95%)	141 (98%)	3 (2%)	47	74
16	LN	154/159 (97%)	151 (98%)	3 (2%)	50	75
17	LO	107/109 (98%)	104 (97%)	3 (3%)	38	69
18	LP	175/176 (99%)	175 (100%)	0	100	100
19	LQ	160/162 (99%)	160 (100%)	0	100	100
20	LR	138/146 (94%)	138 (100%)	0	100	100
21	LS	150/151 (99%)	150 (100%)	0	100	100
22	LT	149/154 (97%)	145 (97%)	4 (3%)	39	70
23	LU	155/156 (99%)	151 (97%)	4 (3%)	40	71
24	LV	135/137 (98%)	133 (98%)	2 (2%)	57	79
25	LW	87/107 (81%)	84 (97%)	3 (3%)	32	64
26	LX	104/105 (99%)	103 (99%)	1 (1%)	68	83
27	LY	54/129 (42%)	54 (100%)	0	100	100
28	LZ	104/118 (88%)	104 (100%)	0	100	100
29	La	108/110 (98%)	108 (100%)	0	100	100
30	Lb	111/116 (96%)	110 (99%)	1 (1%)	70	84
31	Lc	117/119 (98%)	116 (99%)	1 (1%)	70	84
32	Ld	46/47 (98%)	45 (98%)	1 (2%)	45	73
33	Le	81/88 (92%)	79 (98%)	2 (2%)	42	71
34	Lf	92/97 (95%)	92 (100%)	0	100	100
35	Lg	107/111 (96%)	105 (98%)	2 (2%)	50	75
36	Lh	90/91 (99%)	88 (98%)	2 (2%)	45	73
37	Li	94/103 (91%)	93 (99%)	1 (1%)	65	82
38	Lj	104/105 (99%)	104 (100%)	0	100	100
39	Lk	80/82 (98%)	78 (98%)	2 (2%)	42	71
40	Ll	67/71 (94%)	67 (100%)	0	100	100
41	Lm	67/69 (97%)	65 (97%)	2 (3%)	36	68
42	Ln	45/46 (98%)	44 (98%)	1 (2%)	45	73
43	Lo	46/116 (40%)	46 (100%)	0	100	100
44	Lp	22/23 (96%)	22 (100%)	0	100	100
45	Lq	86/91 (94%)	86 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
46	Lr	71/72 (99%)	71 (100%)	0	100	100
47	SA	182/195 (93%)	179 (98%)	3 (2%)	55	78
48	SB	172/191 (90%)	169 (98%)	3 (2%)	53	77
49	SC	77/98 (79%)	73 (95%)	4 (5%)	21	53
50	SD	80/119 (67%)	78 (98%)	2 (2%)	42	71
51	SE	94/118 (80%)	92 (98%)	2 (2%)	47	74
52	SF	115/119 (97%)	113 (98%)	2 (2%)	53	77
53	SG	100/124 (81%)	96 (96%)	4 (4%)	28	60
54	SH	127/129 (98%)	124 (98%)	3 (2%)	43	72
55	SI	115/116 (99%)	114 (99%)	1 (1%)	70	84
56	SJ	93/114 (82%)	87 (94%)	6 (6%)	15	45
57	SK	61/89 (68%)	60 (98%)	1 (2%)	55	78
58	SL	55/60 (92%)	52 (94%)	3 (6%)	19	51
59	SM	47/49 (96%)	47 (100%)	0	100	100
60	SN	42/135 (31%)	35 (83%)	7 (17%)	2	11
61	SO	249/262 (95%)	241 (97%)	8 (3%)	34	66
62	SP	169/210 (80%)	166 (98%)	3 (2%)	51	76
63	SQ	195/224 (87%)	193 (99%)	2 (1%)	68	83
64	SR	175/205 (85%)	174 (99%)	1 (1%)	78	87
65	SS	220/222 (99%)	214 (97%)	6 (3%)	39	70
66	ST	187/201 (93%)	182 (97%)	5 (3%)	39	70
67	SU	162/170 (95%)	159 (98%)	3 (2%)	50	75
68	SV	148/161 (92%)	145 (98%)	3 (2%)	48	75
69	SW	156/166 (94%)	153 (98%)	3 (2%)	50	75
70	SX	126/137 (92%)	125 (99%)	1 (1%)	73	85
71	SY	127/128 (99%)	123 (97%)	4 (3%)	35	67
72	SZ	90/105 (86%)	87 (97%)	3 (3%)	33	65
73	Sa	71/74 (96%)	70 (99%)	1 (1%)	59	79
74	Sb	110/111 (99%)	110 (100%)	0	100	100
75	Sc	119/120 (99%)	118 (99%)	1 (1%)	73	85
76	Sd	101/113 (89%)	100 (99%)	1 (1%)	68	83

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
77	Se	82/100 (82%)	82 (100%)	0	100	100
78	Sf	64/71 (90%)	62 (97%)	2 (3%)	35	67
79	Sg	47/54 (87%)	45 (96%)	2 (4%)	26	59
All	All	9101/9978 (91%)	8951 (98%)	150 (2%)	54	78

All (150) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
7	LE	154	TYR
7	LE	160	VAL
8	LF	6	VAL
8	LF	8	VAL
8	LF	306	THR
9	LG	10	SER
9	LG	53	VAL
9	LG	74	VAL
9	LG	95	TRP
9	LG	113	LEU
9	LG	131	LEU
9	LG	148	ILE
9	LG	195	LEU
9	LG	198	TYR
11	LI	111	ILE
11	LI	117	VAL
12	LJ	70	LYS
13	LK	43	VAL
13	LK	82	VAL
13	LK	101	VAL
13	LK	126	VAL
14	LL	138	VAL
15	LM	17	LEU
15	LM	36	VAL
15	LM	168	ASP
16	LN	3	ILE
16	LN	58	VAL
16	LN	85	LEU
17	LO	3	THR
17	LO	12	TRP
17	LO	113	THR
22	LT	6	THR
22	LT	143	ILE

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Mol	Chain	Res	Type
22	LT	152	GLU
22	LT	156	ASN
23	LU	45	LEU
23	LU	87	THR
23	LU	88	HIS
23	LU	109	ASP
24	LV	106	LEU
24	LV	141	VAL
25	LW	50	LEU
25	LW	65	VAL
25	LW	66	VAL
26	LX	9	THR
30	Lb	96	VAL
31	Lc	145	VAL
32	Ld	4	SER
33	Le	84	LEU
33	Le	102	THR
35	Lg	10	VAL
35	Lg	63	THR
36	Lh	22	VAL
36	Lh	98	VAL
37	Li	95	ILE
39	Lk	21	THR
39	Lk	35	ASN
41	Lm	55	VAL
41	Lm	65	LEU
42	Ln	47	THR
47	SA	48	VAL
47	SA	66	ILE
47	SA	176	LEU
48	SB	29	ILE
48	SB	156	ARG
48	SB	190	ILE
49	SC	1	MET
49	SC	24	LYS
49	SC	31	LYS
49	SC	67	THR
50	SD	76	GLU
50	SD	85	LYS
51	SE	26	LEU
51	SE	93	VAL
52	SF	54	LEU

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Mol	Chain	Res	Type
52	SF	97	VAL
53	SG	18	GLU
53	SG	24	LEU
53	SG	100	LEU
53	SG	109	LEU
54	SH	29	VAL
54	SH	38	VAL
54	SH	118	LYS
55	SI	139	THR
56	SJ	52	LYS
56	SJ	62	VAL
56	SJ	70	THR
56	SJ	91	ILE
56	SJ	93	LEU
56	SJ	106	ILE
57	SK	41	ILE
58	SL	12	VAL
58	SL	15	VAL
58	SL	59	SER
60	SN	95	HIS
60	SN	97	LYS
60	SN	98	VAL
60	SN	100	LEU
60	SN	102	VAL
60	SN	118	ARG
60	SN	130	VAL
61	SO	169	ILE
61	SO	181	TRP
61	SO	223	TRP
61	SO	225	LEU
61	SO	237	GLN
61	SO	239	GLU
61	SO	274	LEU
61	SO	297	ASP
62	SP	8	ASP
62	SP	47	VAL
62	SP	169	SER
63	SQ	88	VAL
63	SQ	159	SER
64	SR	101	VAL
65	SS	38	LEU
65	SS	90	ILE

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Mol	Chain	Res	Type
65	SS	109	PHE
65	SS	147	ILE
65	SS	169	ILE
65	SS	246	LEU
66	ST	67	VAL
66	ST	68	LEU
66	ST	141	ILE
66	ST	184	LEU
66	ST	195	VAL
67	SU	34	LEU
67	SU	38	LEU
67	SU	51	VAL
68	SV	46	VAL
68	SV	88	ASN
68	SV	187	GLU
69	SW	33	GLU
69	SW	85	VAL
69	SW	136	VAL
70	SX	75	VAL
71	SY	60	VAL
71	SY	69	ASN
71	SY	117	LEU
71	SY	121	ARG
72	SZ	12	GLN
72	SZ	13	VAL
72	SZ	89	THR
73	Sa	50	TYR
75	Sc	133	LEU
76	Sd	91	LEU
78	Sf	67	THR
78	Sf	73	LEU
79	Sg	8	LEU
79	Sg	50	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (154) such sidechains are listed below:

Mol	Chain	Res	Type
6	LD	132	ASN
7	LE	11	HIS
7	LE	198	HIS
8	LF	140	HIS
9	LG	32	GLN

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Mol	Chain	Res	Type
9	LG	45	ASN
9	LG	175	HIS
9	LG	244	HIS
11	LI	166	ASN
11	LI	186	HIS
11	LI	194	HIS
11	LI	225	GLN
12	LJ	59	GLN
12	LJ	61	GLN
12	LJ	155	ASN
13	LK	49	ASN
13	LK	77	ASN
13	LK	156	GLN
13	LK	157	ASN
14	LL	51	HIS
14	LL	123	HIS
15	LM	43	GLN
15	LM	95	ASN
16	LN	19	GLN
16	LN	28	GLN
16	LN	103	ASN
16	LN	160	GLN
16	LN	162	ASN
17	LO	105	GLN
18	LP	23	GLN
18	LP	32	GLN
18	LP	138	GLN
20	LR	97	ASN
21	LS	145	ASN
22	LT	92	GLN
22	LT	134	HIS
22	LT	141	HIS
23	LU	46	GLN
23	LU	74	ASN
24	LV	90	ASN
24	LV	134	GLN
25	LW	87	ASN
26	LX	81	GLN
27	LY	42	GLN
29	La	81	GLN
29	La	120	GLN
30	Lb	103	GLN

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Mol	Chain	Res	Type
30	Lb	122	HIS
31	Lc	62	HIS
32	Ld	42	ASN
33	Le	11	ASN
35	Lg	35	GLN
35	Lg	78	ASN
36	Lh	39	GLN
37	Li	3	GLN
37	Li	52	GLN
37	Li	61	GLN
38	Lj	34	GLN
38	Lj	62	GLN
40	Ll	13	ASN
40	Ll	69	HIS
40	Ll	76	ASN
41	Lm	28	ASN
42	Ln	19	GLN
42	Ln	43	ASN
43	Lo	90	ASN
45	Lq	22	GLN
45	Lq	27	GLN
46	Lr	25	GLN
46	Lr	33	GLN
46	Lr	34	HIS
47	SA	159	HIS
47	SA	165	ASN
48	SB	34	GLN
48	SB	44	ASN
48	SB	63	GLN
48	SB	79	ASN
48	SB	116	HIS
49	SC	12	HIS
49	SC	28	ASN
49	SC	62	GLN
50	SD	80	ASN
51	SE	104	GLN
52	SF	93	HIS
53	SG	29	GLN
53	SG	31	ASN
53	SG	56	HIS
53	SG	83	GLN
53	SG	105	GLN

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Mol	Chain	Res	Type
54	SH	21	ASN
54	SH	25	ASN
54	SH	63	GLN
54	SH	104	ASN
55	SI	16	ASN
55	SI	43	ASN
55	SI	93	HIS
55	SI	106	GLN
56	SJ	87	HIS
57	SK	37	GLN
58	SL	43	ASN
61	SO	52	GLN
61	SO	153	GLN
61	SO	185	GLN
62	SP	15	GLN
63	SQ	40	ASN
63	SQ	42	ASN
63	SQ	74	GLN
63	SQ	79	HIS
63	SQ	118	GLN
63	SQ	148	ASN
63	SQ	149	GLN
63	SQ	194	ASN
64	SR	87	GLN
64	SR	94	GLN
64	SR	110	HIS
65	SS	69	HIS
65	SS	153	ASN
65	SS	231	GLN
66	ST	56	ASN
66	ST	139	ASN
66	ST	182	GLN
66	ST	197	ASN
67	SU	71	HIS
68	SV	32	GLN
68	SV	87	ASN
68	SV	111	GLN
68	SV	159	GLN
69	SW	74	ASN
69	SW	110	GLN
69	SW	124	HIS
69	SW	139	GLN

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Mol	Chain	Res	Type
70	SX	14	GLN
71	SY	21	ASN
71	SY	62	GLN
71	SY	69	ASN
71	SY	151	ASN
72	SZ	99	GLN
73	Sa	70	ASN
74	Sb	12	ASN
74	Sb	24	GLN
74	Sb	39	GLN
74	Sb	56	HIS
74	Sb	92	ASN
75	Sc	22	ASN
75	Sc	63	GLN
75	Sc	79	ASN
75	Sc	94	ASN
75	Sc	99	ASN
76	Sd	22	GLN
76	Sd	107	GLN
76	Sd	110	GLN
78	Sf	26	GLN
78	Sf	51	GLN
79	Sg	17	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	3054/3396 (89%)	502 (16%)	31 (1%)
2	B	120/121 (99%)	11 (9%)	2 (1%)
3	C	157/158 (99%)	26 (16%)	1 (0%)
4	D	9/10 (90%)	3 (33%)	1 (11%)
5	E	1570/1800 (87%)	346 (22%)	42 (2%)
80	m	75/76 (98%)	28 (37%)	0
81	n	63/75 (84%)	41 (65%)	0
All	All	5048/5636 (89%)	957 (18%)	77 (1%)

All (957) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	13	A
1	A	14	U

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Mol	Chain	Res	Type
1	A	26	A
1	A	40	A
1	A	43	A
1	A	49	A
1	A	59	G
1	A	60	A
1	A	65	A
1	A	66	A
1	A	74	G
1	A	77	A
1	A	92	G
1	A	110	G
1	A	111	C
1	A	116	A
1	A	117	U
1	A	121	A
1	A	122	A
1	A	135	C
1	A	136	G
1	A	156	G
1	A	157	A
1	A	166	C
1	A	187	A
1	A	190	U
1	A	191	U
1	A	200	C
1	A	206	G
1	A	210	U
1	A	213	A
1	A	218	G
1	A	219	A
1	A	234	G
1	A	239	G
1	A	240	U
1	A	241	G
1	A	242	C
1	A	243	G
1	A	257	U
1	A	269	G
1	A	270	U
1	A	286	U
1	A	295	A

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Mol	Chain	Res	Type
1	A	305	U
1	A	329	U
1	A	330	G
1	A	339	C
1	A	350	C
1	A	351	A
1	A	376	G
1	A	395	A
1	A	399	A
1	A	401	U
1	A	402	A
1	A	403	C
1	A	404	G
1	A	420	G
1	A	421	G
1	A	422	A
1	A	438	A
1	A	440	A
1	A	441	U
1	A	494	G
1	A	503	C
1	A	518	G
1	A	521	A
1	A	523	A
1	A	533	A
1	A	535	G
1	A	543	C
1	A	544	C
1	A	545	U
1	A	546	C
1	A	549	U
1	A	555	U
1	A	557	A
1	A	559	A
1	A	560	G
1	A	579	G
1	A	592	A
1	A	604	G
1	A	609	G
1	A	611	A
1	A	620	U
1	A	621	A

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Mol	Chain	Res	Type
1	A	637	C
1	A	649	A
1	A	677	A
1	A	681	U
1	A	683	U
1	A	691	A
1	A	705	A
1	A	712	G
1	A	715	A
1	A	716	A
1	A	719	U
1	A	720	A
1	A	721	G
1	A	727	G
1	A	742	G
1	A	758	C
1	A	764	U
1	A	765	C
1	A	766	U
1	A	767	U
1	A	776	U
1	A	779	G
1	A	781	G
1	A	785	G
1	A	787	G
1	A	806	A
1	A	808	A
1	A	817	A
1	A	830	A
1	A	848	A
1	A	861	C
1	A	874	U
1	A	879	U
1	A	895	A
1	A	896	A
1	A	907	G
1	A	908	G
1	A	914	A
1	A	916	G
1	A	917	A
1	A	923	C
1	A	937	G

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Mol	Chain	Res	Type
1	A	944	C
1	A	959	C
1	A	960	U
1	A	974	G
1	A	981	U
1	A	982	C
1	A	1002	A
1	A	1010	G
1	A	1047	A
1	A	1049	C
1	A	1063	G
1	A	1064	A
1	A	1065	A
1	A	1072	G
1	A	1081	U
1	A	1093	A
1	A	1094	U
1	A	1095	U
1	A	1097	G
1	A	1098	A
1	A	1103	A
1	A	1117	G
1	A	1131	G
1	A	1143	A
1	A	1144	U
1	A	1159	A
1	A	1180	A
1	A	1181	U
1	A	1192	C
1	A	1193	A
1	A	1196	C
1	A	1201	C
1	A	1202	A
1	A	1209	G
1	A	1217	A
1	A	1220	U
1	A	1222	G
1	A	1223	A
1	A	1224	C
1	A	1227	C
1	A	1230	G
1	A	1282	G

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Mol	Chain	Res	Type
1	A	1284	C
1	A	1287	A
1	A	1307	G
1	A	1308	A
1	A	1309	U
1	A	1313	G
1	A	1330	A
1	A	1331	U
1	A	1348	U
1	A	1349	G
1	A	1350	A
1	A	1352	A
1	A	1355	A
1	A	1356	U
1	A	1357	G
1	A	1386	A
1	A	1399	A
1	A	1400	G
1	A	1418	A
1	A	1419	A
1	A	1434	G
1	A	1437	C
1	A	1446	A
1	A	1450	G
1	A	1475	A
1	A	1481	A
1	A	1483	G
1	A	1503	A
1	A	1508	C
1	A	1527	C
1	A	1536	G
1	A	1546	A
1	A	1556	C
1	A	1560	G
1	A	1563	C
1	A	1564	U
1	A	1573	G
1	A	1574	C
1	A	1575	A
1	A	1576	G
1	A	1580	A
1	A	1583	A

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Mol	Chain	Res	Type
1	A	1589	A
1	A	1606	U
1	A	1620	U
1	A	1621	A
1	A	1627	U
1	A	1629	U
1	A	1639	C
1	A	1643	A
1	A	1645	U
1	A	1657	C
1	A	1683	A
1	A	1688	U
1	A	1696	A
1	A	1717	U
1	A	1724	U
1	A	1725	C
1	A	1728	G
1	A	1741	A
1	A	1742	U
1	A	1750	A
1	A	1751	G
1	A	1770	G
1	A	1775	G
1	A	1780	G
1	A	1797	A
1	A	1808	G
1	A	1819	U
1	A	1820	U
1	A	1821	U
1	A	1839	A
1	A	1840	U
1	A	1841	A
1	A	1842	A
1	A	1846	C
1	A	1849	C
1	A	1866	C
1	A	1867	A
1	A	1879	A
1	A	1880	U
1	A	1881	A
1	A	1893	A
1	A	1906	G

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Mol	Chain	Res	Type
1	A	1943	C
1	A	1953	G
1	A	1954	G
1	A	2094	C
1	A	2095	G
1	A	2100	A
1	A	2101	C
1	A	2102	U
1	A	2111	G
1	A	2112	U
1	A	2113	A
1	A	2121	G
1	A	2122	G
1	A	2131	A
1	A	2140	U
1	A	2144	A
1	A	2158	A
1	A	2166	A
1	A	2169	G
1	A	2170	U
1	A	2206	G
1	A	2207	A
1	A	2208	A
1	A	2209	U
1	A	2210	G
1	A	2223	A
1	A	2251	G
1	A	2252	A
1	A	2253	G
1	A	2254	U
1	A	2256	A
1	A	2257	C
1	A	2258	U
1	A	2260	U
1	A	2261	G
1	A	2262	A
1	A	2265	C
1	A	2268	U
1	A	2269	U
1	A	2270	A
1	A	2272	G
1	A	2273	G

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Mol	Chain	Res	Type
1	A	2281	A
1	A	2282	U
1	A	2307	G
1	A	2310	U
1	A	2313	A
1	A	2314	U
1	A	2315	G
1	A	2318	U
1	A	2325	G
1	A	2334	U
1	A	2335	G
1	A	2336	U
1	A	2372	A
1	A	2373	A
1	A	2374	C
1	A	2375	G
1	A	2385	G
1	A	2388	U
1	A	2393	G
1	A	2394	G
1	A	2397	A
1	A	2402	A
1	A	2403	G
1	A	2404	A
1	A	2411	U
1	A	2418	G
1	A	2419	A
1	A	2435	G
1	A	2437	G
1	A	2439	A
1	A	2440	G
1	A	2443	A
1	A	2445	A
1	A	2447	A
1	A	2448	G
1	A	2449	A
1	A	2451	G
1	A	2497	U
1	A	2498	U
1	A	2501	U
1	A	2502	A
1	A	2503	G

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Mol	Chain	Res	Type
1	A	2504	U
1	A	2505	U
1	A	2508	U
1	A	2513	U
1	A	2514	U
1	A	2515	A
1	A	2522	G
1	A	2526	C
1	A	2533	G
1	A	2534	G
1	A	2535	A
1	A	2536	A
1	A	2549	G
1	A	2552	C
1	A	2559	U
1	A	2561	A
1	A	2569	A
1	A	2570	U
1	A	2572	C
1	A	2573	G
1	A	2585	G
1	A	2593	A
1	A	2594	C
1	A	2595	A
1	A	2606	G
1	A	2607	G
1	A	2614	G
1	A	2619	G
1	A	2629	U
1	A	2635	A
1	A	2652	U
1	A	2656	A
1	A	2664	C
1	A	2674	A
1	A	2677	G
1	A	2681	U
1	A	2689	A
1	A	2691	A
1	A	2694	A
1	A	2696	A
1	A	2700	G
1	A	2714	G

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Mol	Chain	Res	Type
1	A	2719	U
1	A	2728	G
1	A	2729	U
1	A	2737	C
1	A	2749	G
1	A	2753	G
1	A	2762	A
1	A	2772	C
1	A	2777	G
1	A	2778	G
1	A	2780	A
1	A	2796	G
1	A	2800	G
1	A	2801	A
1	A	2803	A
1	A	2810	C
1	A	2814	G
1	A	2816	G
1	A	2817	A
1	A	2818	U
1	A	2842	U
1	A	2845	A
1	A	2847	A
1	A	2849	C
1	A	2856	G
1	A	2867	C
1	A	2871	G
1	A	2872	A
1	A	2875	U
1	A	2876	C
1	A	2887	A
1	A	2889	C
1	A	2923	U
1	A	2929	C
1	A	2935	U
1	A	2936	A
1	A	2947	G
1	A	2955	U
1	A	2957	G
1	A	2964	G
1	A	2971	A
1	A	2972	G

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Mol	Chain	Res	Type
1	A	2983	C
1	A	2990	G
1	A	2996	U
1	A	2997	G
1	A	3003	G
1	A	3012	A
1	A	3056	U
1	A	3057	U
1	A	3059	G
1	A	3078	U
1	A	3079	U
1	A	3086	A
1	A	3092	C
1	A	3093	C
1	A	3094	A
1	A	3101	G
1	A	3104	U
1	A	3116	G
1	A	3117	C
1	A	3119	U
1	A	3122	A
1	A	3129	A
1	A	3130	A
1	A	3131	U
1	A	3142	A
1	A	3143	C
1	A	3153	U
1	A	3154	C
1	A	3155	U
1	A	3156	U
1	A	3157	U
1	A	3165	A
1	A	3170	A
1	A	3173	G
1	A	3174	A
1	A	3175	U
1	A	3176	G
1	A	3179	U
1	A	3181	C
1	A	3187	A
1	A	3196	U
1	A	3197	G

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Mol	Chain	Res	Type
1	A	3207	U
1	A	3210	A
1	A	3217	C
1	A	3218	A
1	A	3219	G
1	A	3239	G
1	A	3243	A
1	A	3245	A
1	A	3247	G
1	A	3249	C
1	A	3259	U
1	A	3270	U
1	A	3273	A
1	A	3276	G
1	A	3281	U
1	A	3287	U
1	A	3288	G
1	A	3289	G
1	A	3294	A
1	A	3295	A
1	A	3304	U
1	A	3316	A
1	A	3318	G
1	A	3320	A
1	A	3331	U
1	A	3334	U
1	A	3345	G
1	A	3351	U
1	A	3352	U
1	A	3354	U
1	A	3355	U
1	A	3363	U
1	A	3369	G
1	A	3378	C
1	A	3382	U
1	A	3386	G
1	A	3389	U
1	A	3390	G
2	B	7	G
2	B	10	C
2	B	30	G
2	B	35	C

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Mol	Chain	Res	Type
2	B	39	C
2	B	53	U
2	B	55	A
2	B	65	G
2	B	102	A
2	B	112	G
2	B	121	U
3	C	23	U
3	C	34	U
3	C	35	C
3	C	48	A
3	C	59	A
3	C	62	C
3	C	63	G
3	C	80	A
3	C	81	U
3	C	82	U
3	C	83	C
3	C	84	C
3	C	85	G
3	C	86	U
3	C	87	G
3	C	90	U
3	C	91	C
3	C	95	G
3	C	104	A
3	C	106	C
3	C	112	U
3	C	125	U
3	C	126	A
3	C	138	A
3	C	148	G
3	C	152	G
4	D	3	U
4	D	7	A
4	D	8	A
5	E	2	A
5	E	4	C
5	E	25	C
5	E	26	A
5	E	43	A
5	E	45	U

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Mol	Chain	Res	Type
5	E	46	A
5	E	47	A
5	E	56	U
5	E	57	G
5	E	61	A
5	E	62	A
5	E	65	A
5	E	66	U
5	E	67	A
5	E	68	A
5	E	69	G
5	E	72	A
5	E	80	A
5	E	81	G
5	E	104	A
5	E	114	C
5	E	116	U
5	E	124	A
5	E	126	A
5	E	127	G
5	E	129	U
5	E	138	A
5	E	139	C
5	E	140	A
5	E	145	A
5	E	153	G
5	E	156	A
5	E	158	U
5	E	161	U
5	E	166	C
5	E	178	U
5	E	179	A
5	E	181	A
5	E	182	A
5	E	250	C
5	E	257	A
5	E	261	U
5	E	265	A
5	E	266	A
5	E	272	U
5	E	274	G
5	E	276	C

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Mol	Chain	Res	Type
5	E	278	U
5	E	279	G
5	E	280	U
5	E	281	G
5	E	287	G
5	E	299	A
5	E	313	U
5	E	314	C
5	E	316	A
5	E	321	C
5	E	322	G
5	E	323	A
5	E	330	G
5	E	333	A
5	E	337	G
5	E	338	C
5	E	352	A
5	E	353	A
5	E	359	A
5	E	361	C
5	E	370	A
5	E	373	G
5	E	385	A
5	E	387	A
5	E	388	G
5	E	395	U
5	E	400	A
5	E	401	A
5	E	402	C
5	E	404	G
5	E	416	A
5	E	417	A
5	E	418	G
5	E	419	G
5	E	423	G
5	E	424	C
5	E	425	A
5	E	426	G
5	E	428	A
5	E	434	G
5	E	435	C
5	E	439	U

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Mol	Chain	Res	Type
5	E	444	C
5	E	446	A
5	E	447	U
5	E	448	C
5	E	460	A
5	E	461	G
5	E	468	A
5	E	469	C
5	E	471	A
5	E	482	U
5	E	510	G
5	E	514	G
5	E	517	U
5	E	518	A
5	E	527	A
5	E	538	A
5	E	540	G
5	E	541	A
5	E	542	A
5	E	555	A
5	E	556	A
5	E	557	G
5	E	558	U
5	E	565	C
5	E	568	G
5	E	578	U
5	E	579	A
5	E	583	C
5	E	594	A
5	E	595	G
5	E	606	A
5	E	608	U
5	E	609	U
5	E	610	G
5	E	611	U
5	E	619	A
5	E	620	A
5	E	622	A
5	E	623	A
5	E	624	G
5	E	638	U
5	E	641	G

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Mol	Chain	Res	Type
5	E	687	G
5	E	694	U
5	E	745	U
5	E	753	A
5	E	756	A
5	E	765	G
5	E	766	U
5	E	774	A
5	E	775	G
5	E	780	A
5	E	782	U
5	E	783	G
5	E	789	A
5	E	802	G
5	E	803	A
5	E	804	A
5	E	812	A
5	E	813	U
5	E	814	A
5	E	815	G
5	E	816	G
5	E	820	U
5	E	821	U
5	E	823	G
5	E	847	A
5	E	850	A
5	E	851	U
5	E	852	C
5	E	854	U
5	E	856	A
5	E	863	A
5	E	873	U
5	E	876	G
5	E	881	A
5	E	886	U
5	E	898	A
5	E	899	G
5	E	902	G
5	E	904	G
5	E	912	U
5	E	913	G
5	E	929	A

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Mol	Chain	Res	Type
5	E	933	A
5	E	935	U
5	E	942	G
5	E	945	U
5	E	951	A
5	E	960	U
5	E	966	A
5	E	988	A
5	E	989	U
5	E	993	A
5	E	1004	U
5	E	1005	A
5	E	1023	A
5	E	1024	U
5	E	1025	A
5	E	1026	A
5	E	1028	C
5	E	1032	G
5	E	1039	A
5	E	1053	G
5	E	1066	C
5	E	1076	A
5	E	1081	A
5	E	1082	C
5	E	1092	A
5	E	1096	C
5	E	1097	U
5	E	1100	G
5	E	1113	A
5	E	1138	A
5	E	1150	G
5	E	1158	C
5	E	1160	A
5	E	1167	G
5	E	1170	G
5	E	1185	U
5	E	1186	U
5	E	1194	A
5	E	1199	G
5	E	1200	G
5	E	1208	A
5	E	1212	G

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Mol	Chain	Res	Type
5	E	1214	U
5	E	1217	A
5	E	1218	G
5	E	1227	A
5	E	1229	G
5	E	1231	U
5	E	1241	G
5	E	1244	A
5	E	1245	G
5	E	1246	C
5	E	1250	U
5	E	1251	U
5	E	1252	C
5	E	1255	G
5	E	1256	A
5	E	1257	U
5	E	1260	U
5	E	1263	G
5	E	1274	C
5	E	1276	U
5	E	1284	C
5	E	1285	U
5	E	1286	U
5	E	1301	U
5	E	1307	U
5	E	1308	G
5	E	1312	A
5	E	1314	U
5	E	1315	U
5	E	1316	G
5	E	1318	G
5	E	1321	A
5	E	1322	A
5	E	1344	A
5	E	1345	A
5	E	1346	A
5	E	1347	U
5	E	1348	A
5	E	1349	G
5	E	1361	U
5	E	1362	U
5	E	1363	U

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Mol	Chain	Res	Type
5	E	1370	U
5	E	1371	A
5	E	1372	U
5	E	1373	C
5	E	1382	A
5	E	1383	G
5	E	1390	U
5	E	1395	G
5	E	1398	U
5	E	1399	C
5	E	1400	A
5	E	1402	G
5	E	1413	U
5	E	1414	U
5	E	1415	U
5	E	1427	A
5	E	1431	C
5	E	1432	U
5	E	1433	G
5	E	1436	A
5	E	1446	A
5	E	1448	G
5	E	1458	G
5	E	1459	C
5	E	1460	A
5	E	1466	G
5	E	1469	A
5	E	1471	A
5	E	1472	C
5	E	1478	G
5	E	1496	U
5	E	1516	A
5	E	1520	U
5	E	1521	G
5	E	1523	G
5	E	1524	A
5	E	1527	C
5	E	1528	U
5	E	1535	U
5	E	1536	G
5	E	1537	C
5	E	1538	U

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Mol	Chain	Res	Type
5	E	1540	G
5	E	1543	A
5	E	1550	A
5	E	1557	U
5	E	1558	U
5	E	1559	A
5	E	1570	A
5	E	1572	G
5	E	1573	A
5	E	1574	G
5	E	1575	G
5	E	1577	A
5	E	1583	A
5	E	1584	G
5	E	1601	G
5	E	1608	U
5	E	1609	U
5	E	1615	C
5	E	1616	G
5	E	1619	C
5	E	1633	A
5	E	1634	C
5	E	1635	A
5	E	1637	C
5	E	1657	U
5	E	1658	G
5	E	1680	G
5	E	1681	A
5	E	1717	G
5	E	1718	G
5	E	1731	A
5	E	1755	A
5	E	1757	G
5	E	1760	G
5	E	1762	A
5	E	1766	A
5	E	1767	G
5	E	1769	U
5	E	1780	G
5	E	1782	A
5	E	1783	C
5	E	1792	G

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Mol	Chain	Res	Type
5	E	1793	G
5	E	1794	A
5	E	1796	C
5	E	1799	U
80	m	2	G
80	m	9	A
80	m	10	G
80	m	14	A
80	m	16	U
80	m	17	U
80	m	20	U
80	m	21	A
80	m	34	U
80	m	35	U
80	m	36	U
80	m	45	G
80	m	46	G
80	m	47	U
80	m	48	C
80	m	49	G
80	m	50	C
80	m	57	G
80	m	60	U
80	m	61	C
80	m	66	A
80	m	68	G
80	m	69	A
80	m	71	C
80	m	73	A
80	m	74	C
80	m	75	C
80	m	76	A
81	n	3	C
81	n	4	G
81	n	6	C
81	n	7	G
81	n	8	U
81	n	9	G
81	n	11	C
81	n	12	G
81	n	13	C
81	n	14	A

Continued on next page...

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Mol	Chain	Res	Type
81	n	15	G
81	n	16	U
81	n	29	G
81	n	32	C
81	n	33	U
81	n	34	C
81	n	35	A
81	n	38	A
81	n	39	C
81	n	42	U
81	n	44	A
81	n	45	U
81	n	46	G
81	n	47	U
81	n	48	C
81	n	50	U
81	n	51	C
81	n	54	A
81	n	55	U
81	n	62	C
81	n	63	G
81	n	65	G
81	n	66	C
81	n	67	G
81	n	68	G
81	n	70	G
81	n	72	U
81	n	73	A
81	n	74	C
81	n	75	C
81	n	76	A

All (77) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	13	A
1	A	73	C
1	A	186	U
1	A	636	C
1	A	763	G
1	A	916	G
1	A	1064	A

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Mol	Chain	Res	Type
1	A	1095	U
1	A	1097	G
1	A	1222	G
1	A	1348	U
1	A	1355	A
1	A	1562	C
1	A	1820	U
1	A	1821	U
1	A	2112	U
1	A	2269	U
1	A	2448	G
1	A	2501	U
1	A	2513	U
1	A	2525	G
1	A	2535	A
1	A	2680	A
1	A	2689	A
1	A	2970	C
1	A	2971	A
1	A	3078	U
1	A	3121	U
1	A	3218	A
1	A	3269	U
1	A	3350	C
2	B	52	G
2	B	120	C
3	C	85	G
4	D	7	A
5	E	65	A
5	E	68	A
5	E	80	A
5	E	139	C
5	E	313	U
5	E	321	C
5	E	322	G
5	E	352	A
5	E	539	G
5	E	541	A
5	E	609	U
5	E	640	U
5	E	802	G
5	E	803	A

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Mol	Chain	Res	Type
5	E	814	A
5	E	819	G
5	E	912	U
5	E	913	G
5	E	928	U
5	E	1023	A
5	E	1217	A
5	E	1226	A
5	E	1245	G
5	E	1249	U
5	E	1255	G
5	E	1256	A
5	E	1273	G
5	E	1344	A
5	E	1362	U
5	E	1382	A
5	E	1430	U
5	E	1471	A
5	E	1535	U
5	E	1536	G
5	E	1556	A
5	E	1557	U
5	E	1572	G
5	E	1573	A
5	E	1615	C
5	E	1633	A
5	E	1634	C
5	E	1636	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](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

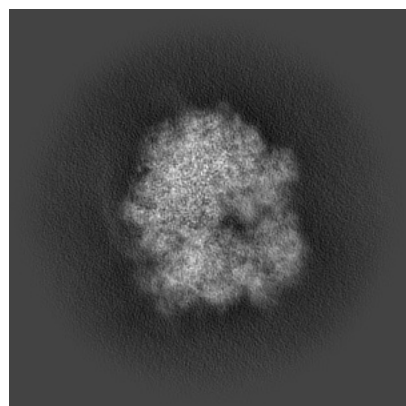
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-72800. These allow visual inspection of the internal detail of the map and identification of artifacts.

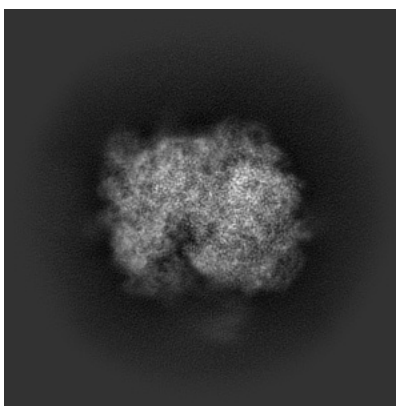
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

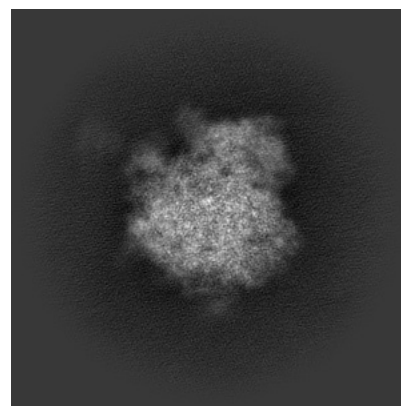
6.1.1 Primary map



X

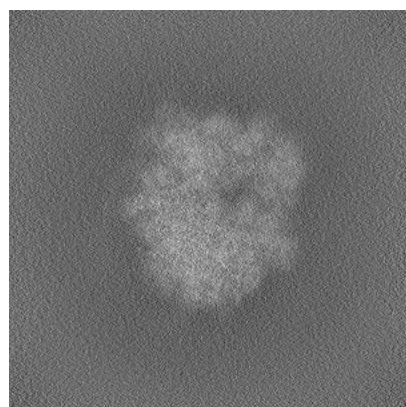


Y

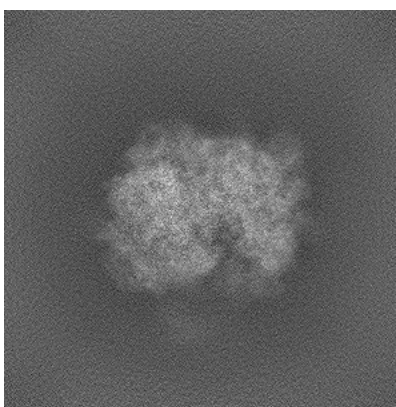


Z

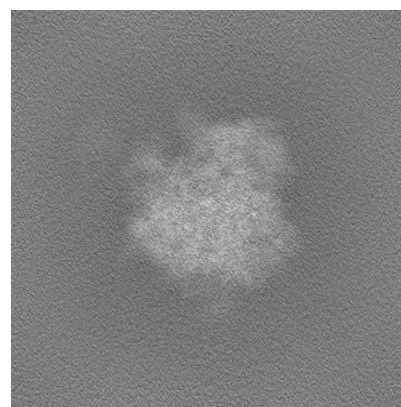
6.1.2 Raw map



X



Y

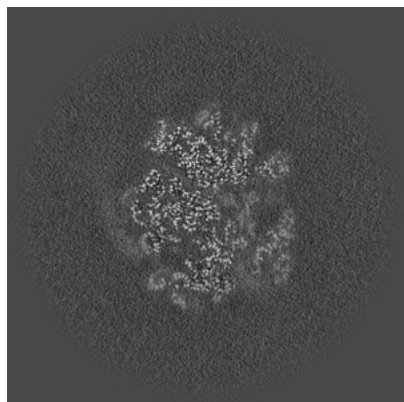


Z

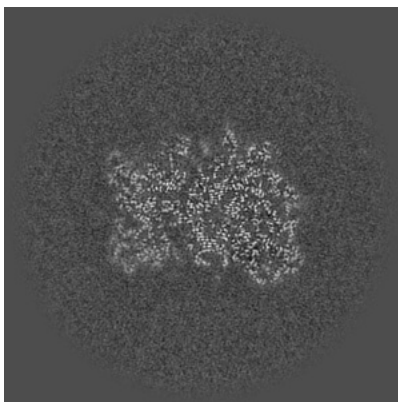
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

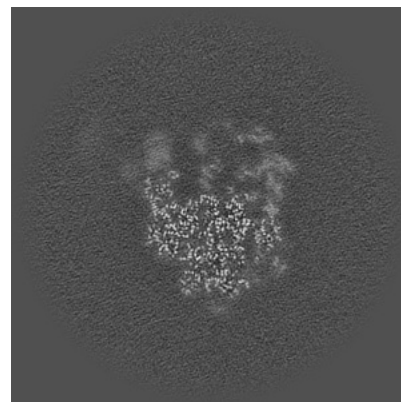
6.2.1 Primary map



X Index: 300

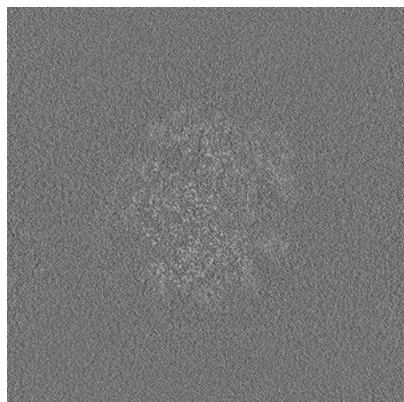


Y Index: 300

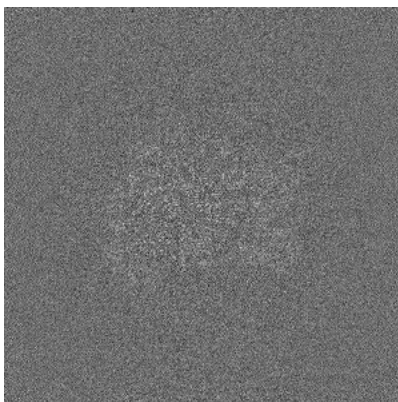


Z Index: 300

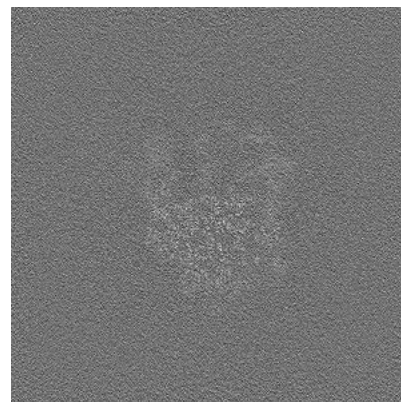
6.2.2 Raw map



X Index: 300



Y Index: 300

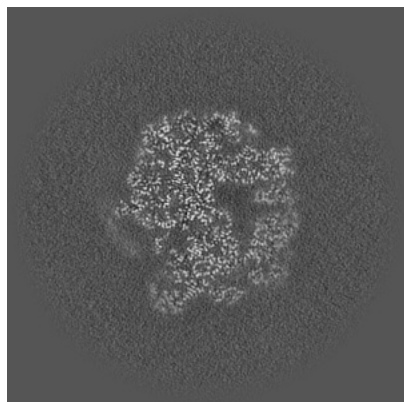


Z Index: 300

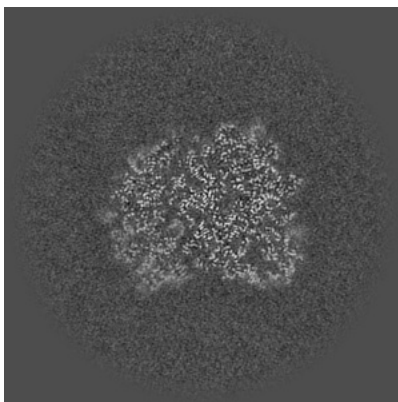
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

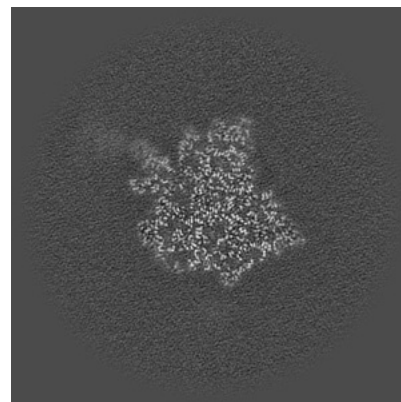
6.3.1 Primary map



X Index: 323

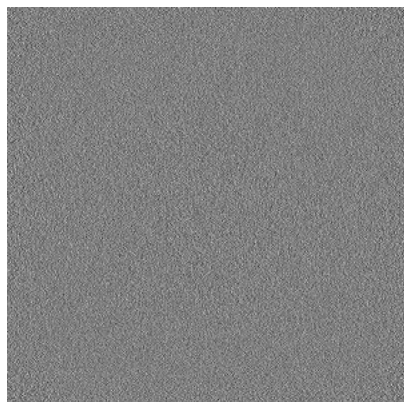


Y Index: 276

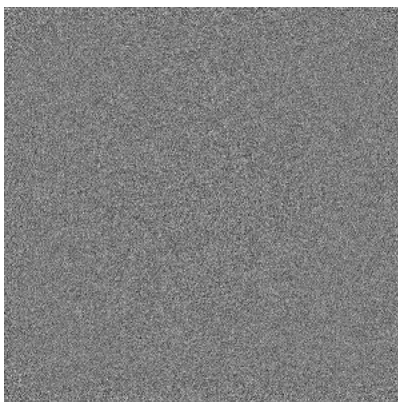


Z Index: 346

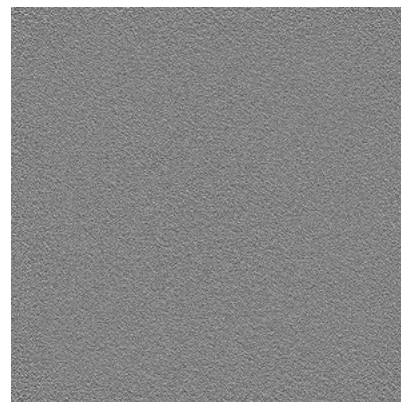
6.3.2 Raw map



X Index: 0



Y Index: 0

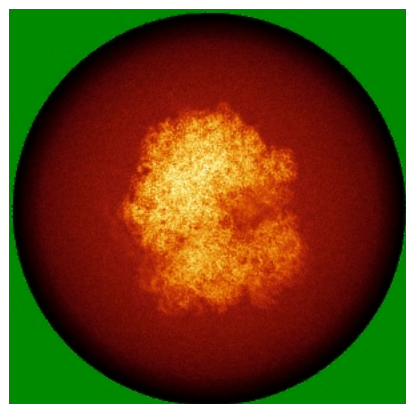


Z Index: 0

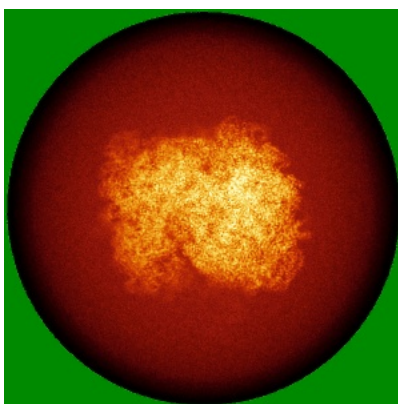
The images above show the largest variance slices of the map in three orthogonal directions.

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

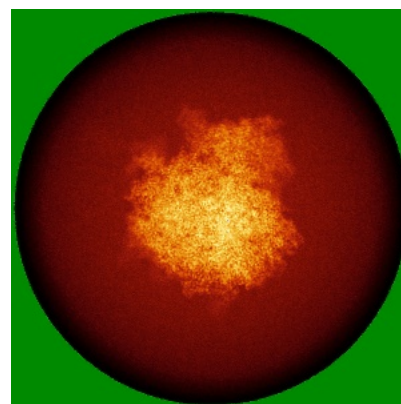
6.4.1 Primary map



X

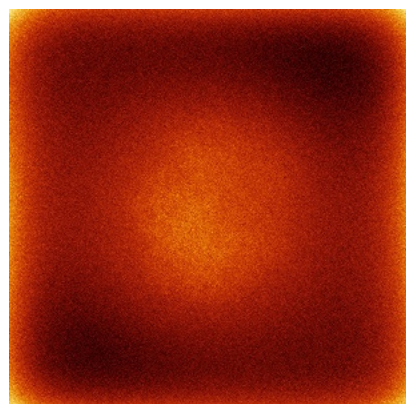


Y

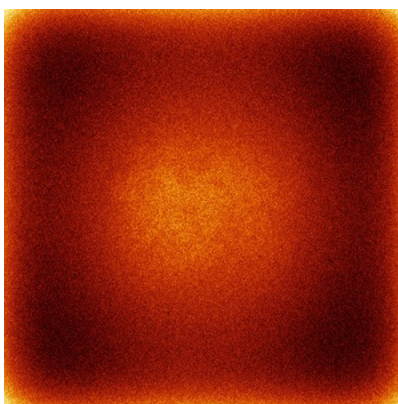


Z

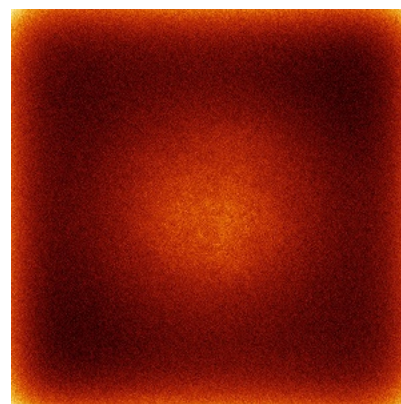
6.4.2 Raw map



X



Y

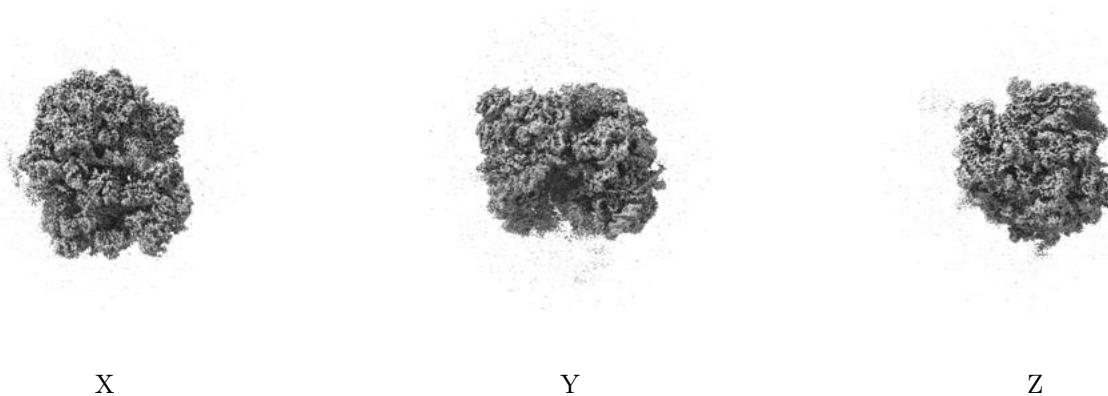


Z

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

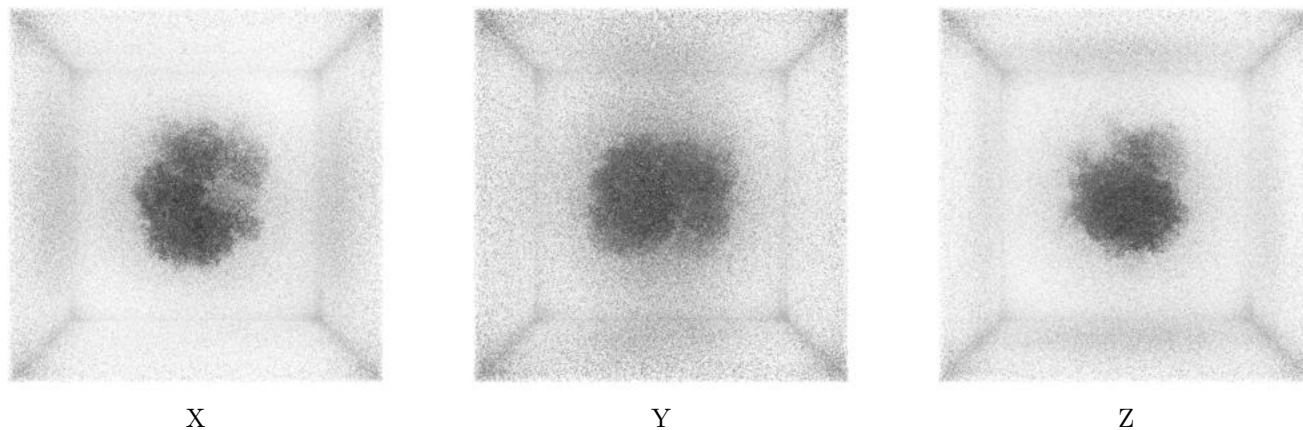
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.12. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

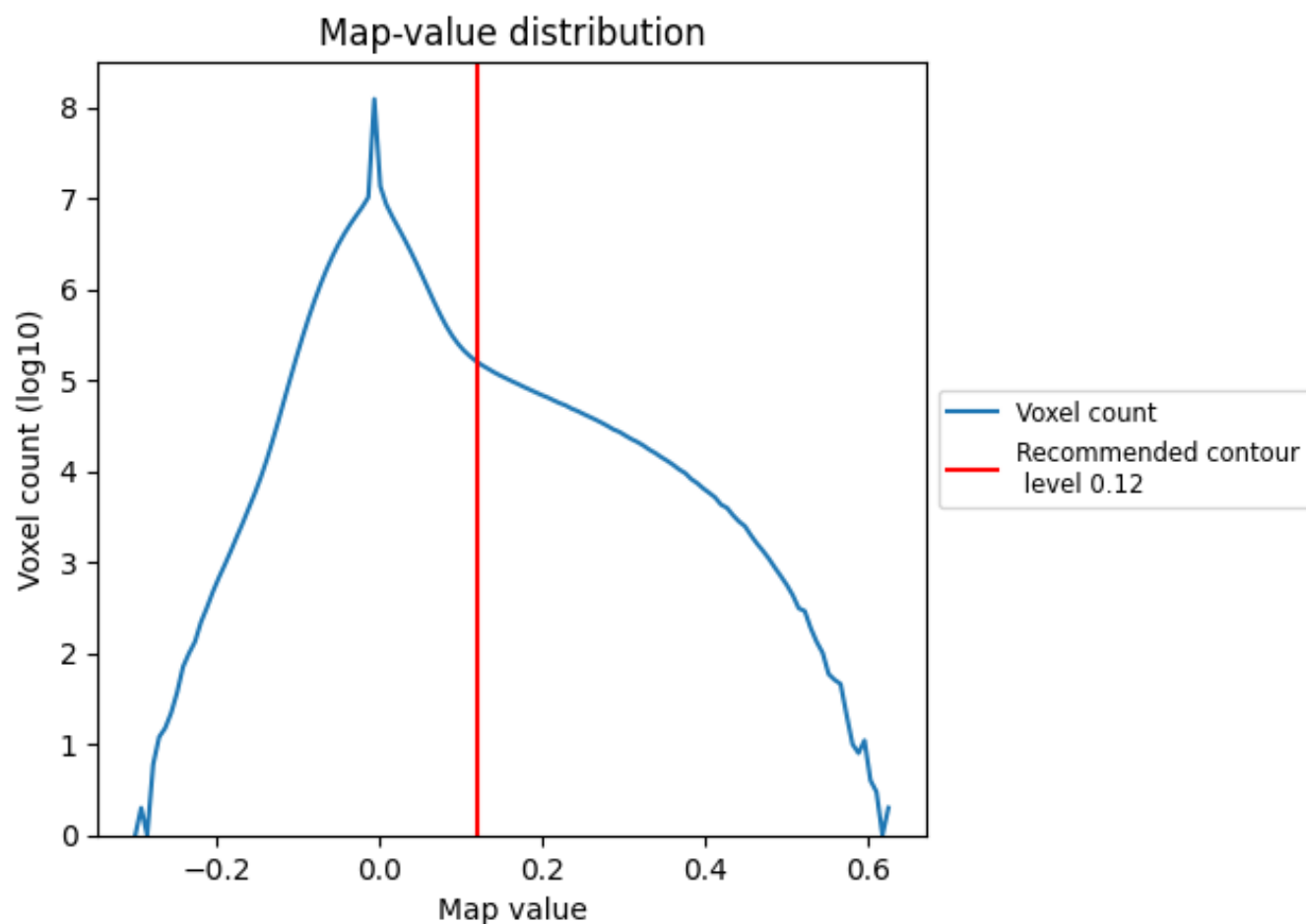
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

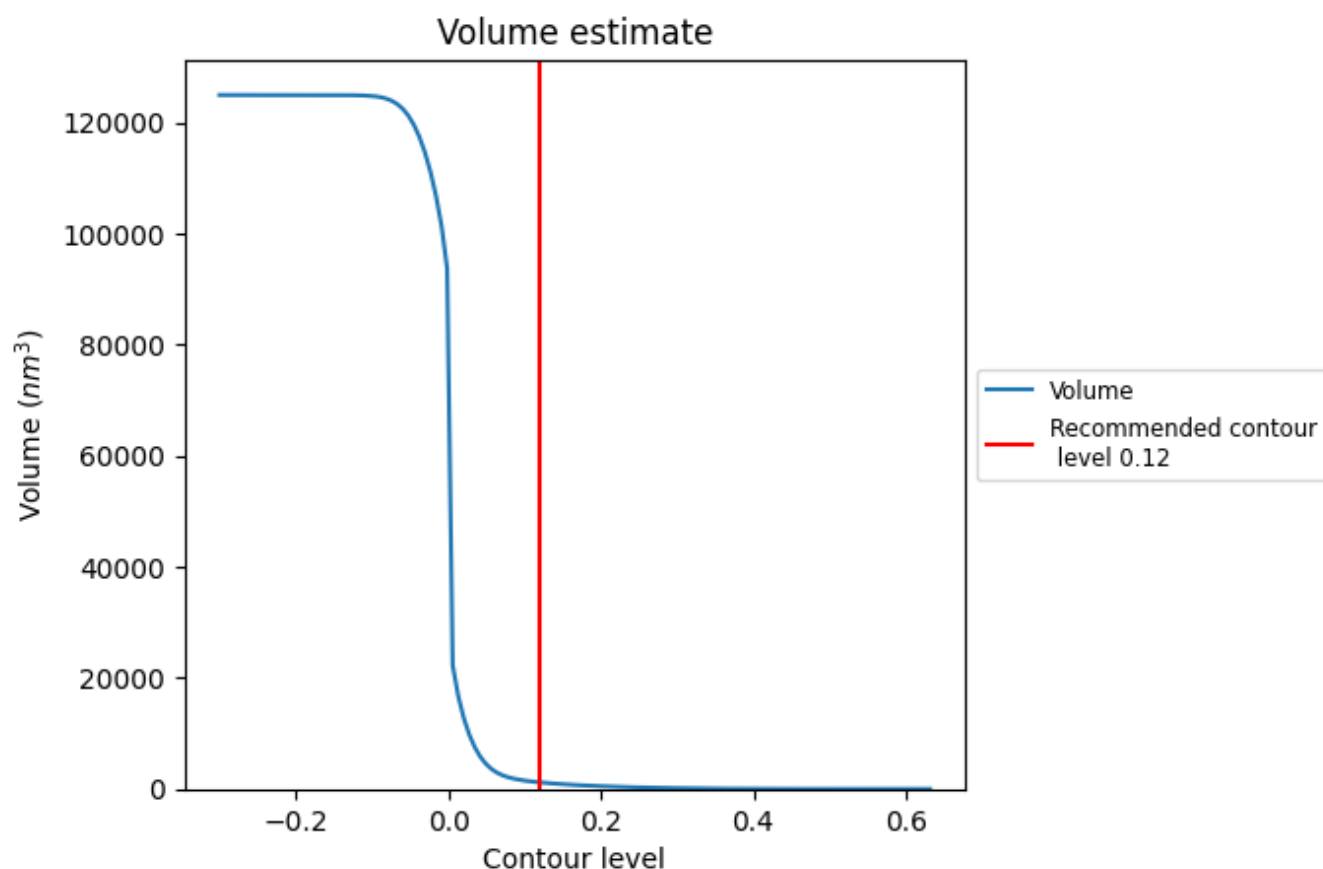
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

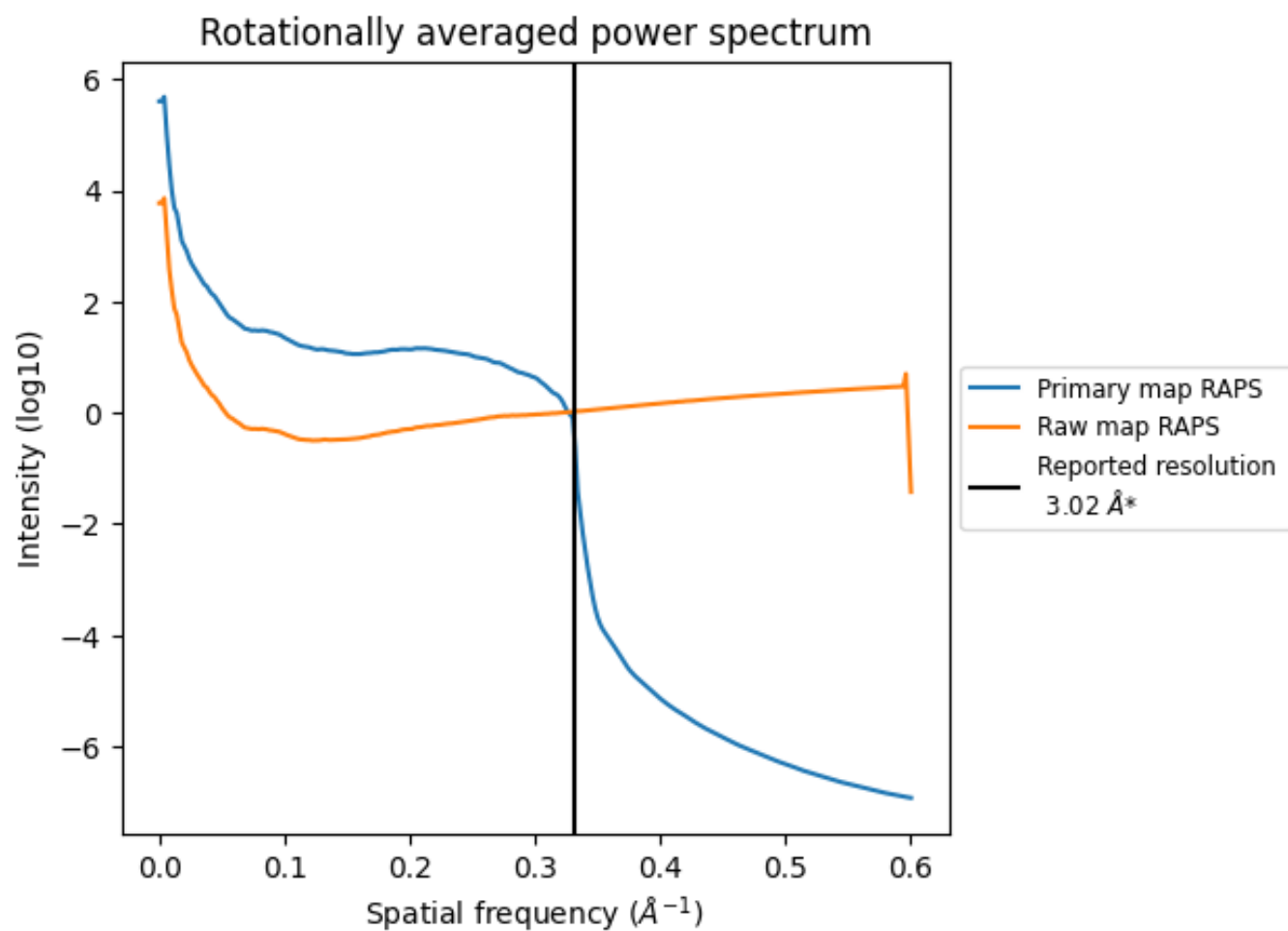
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1183 nm³; this corresponds to an approximate mass of 1068 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

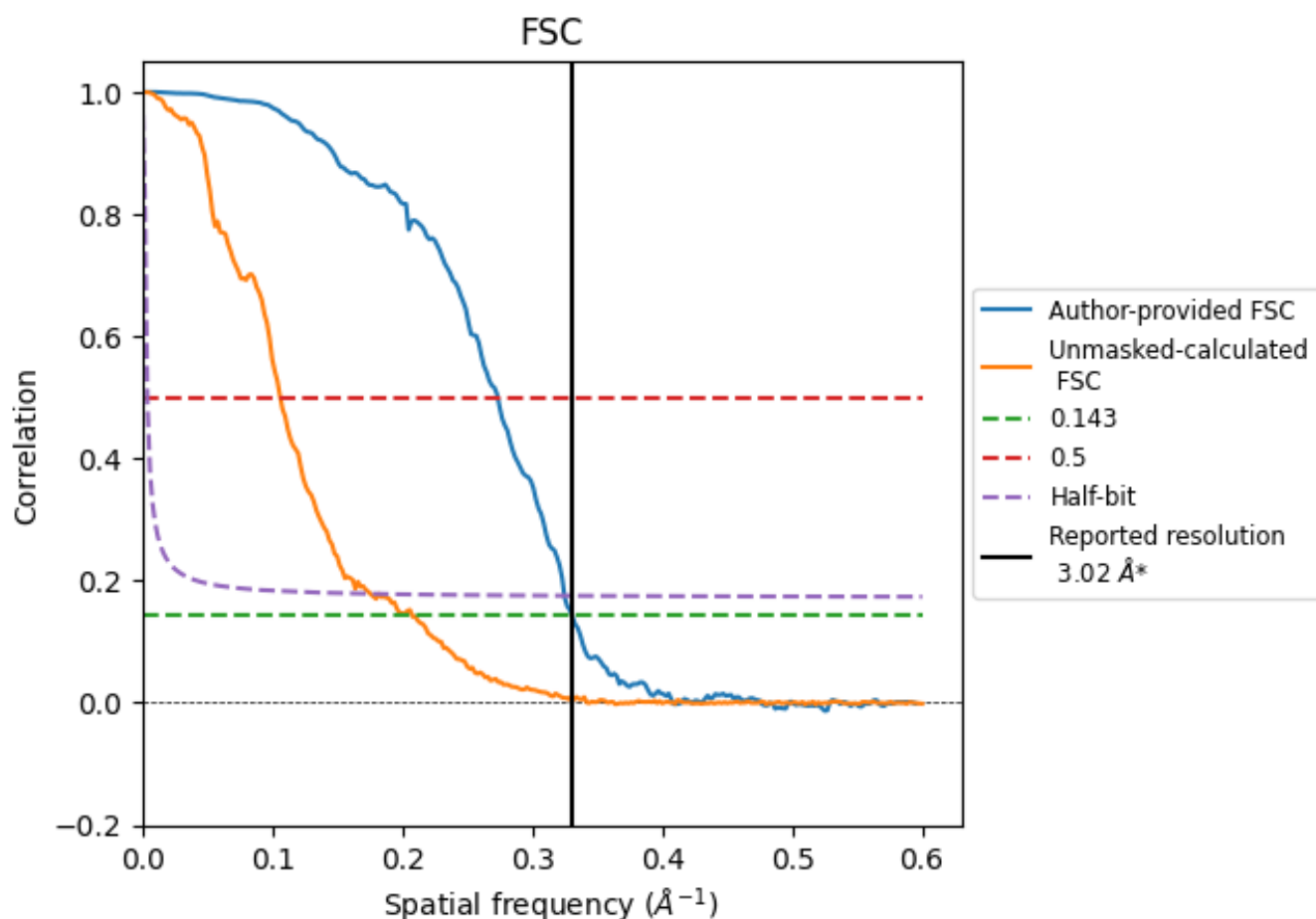


*Reported resolution corresponds to spatial frequency of 0.331 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.331 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

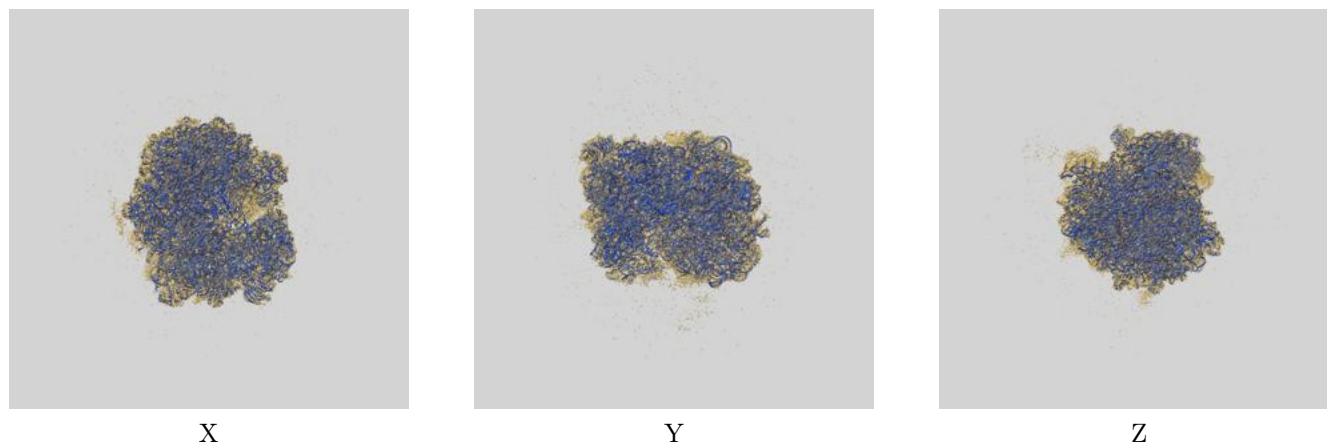
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.02	-	-
Author-provided FSC curve	3.02	3.65	3.08
Unmasked-calculated*	4.82	9.42	5.70

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.82 differs from the reported value 3.02 by more than 10 %

9 Map-model fit [i](#)

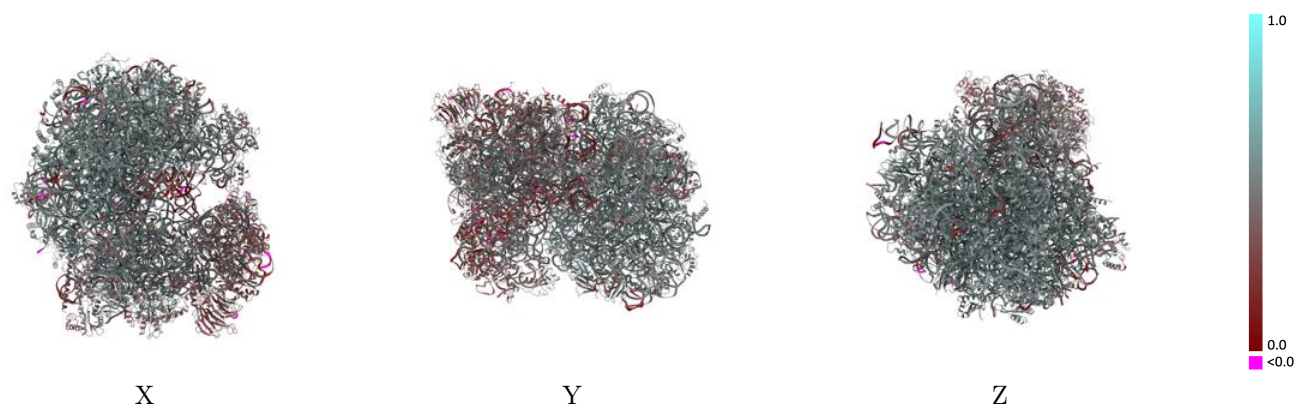
This section contains information regarding the fit between EMDB map EMD-72800 and PDB model 9YDC. Per-residue inclusion information can be found in section [3](#) on page [20](#).

9.1 Map-model overlay [i](#)



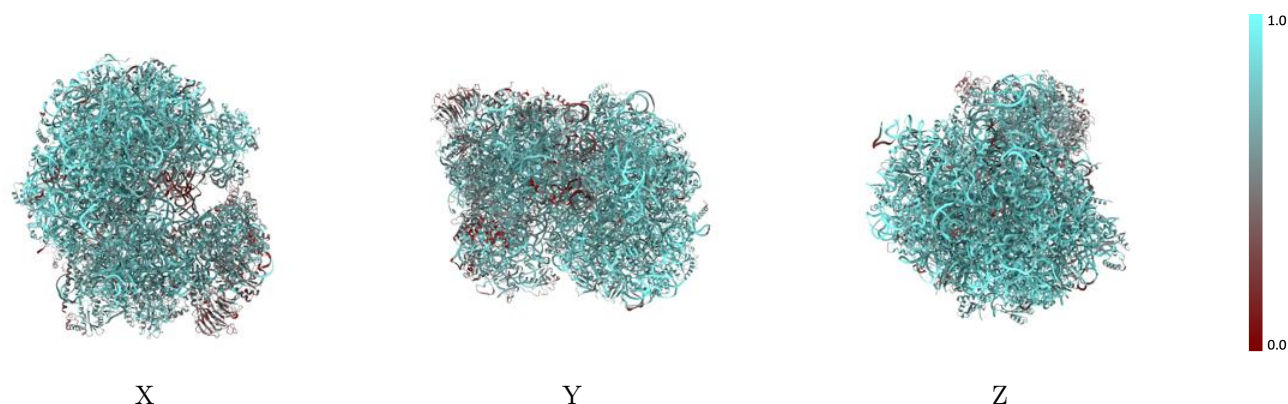
The images above show the 3D surface view of the map at the recommended contour level 0.12 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



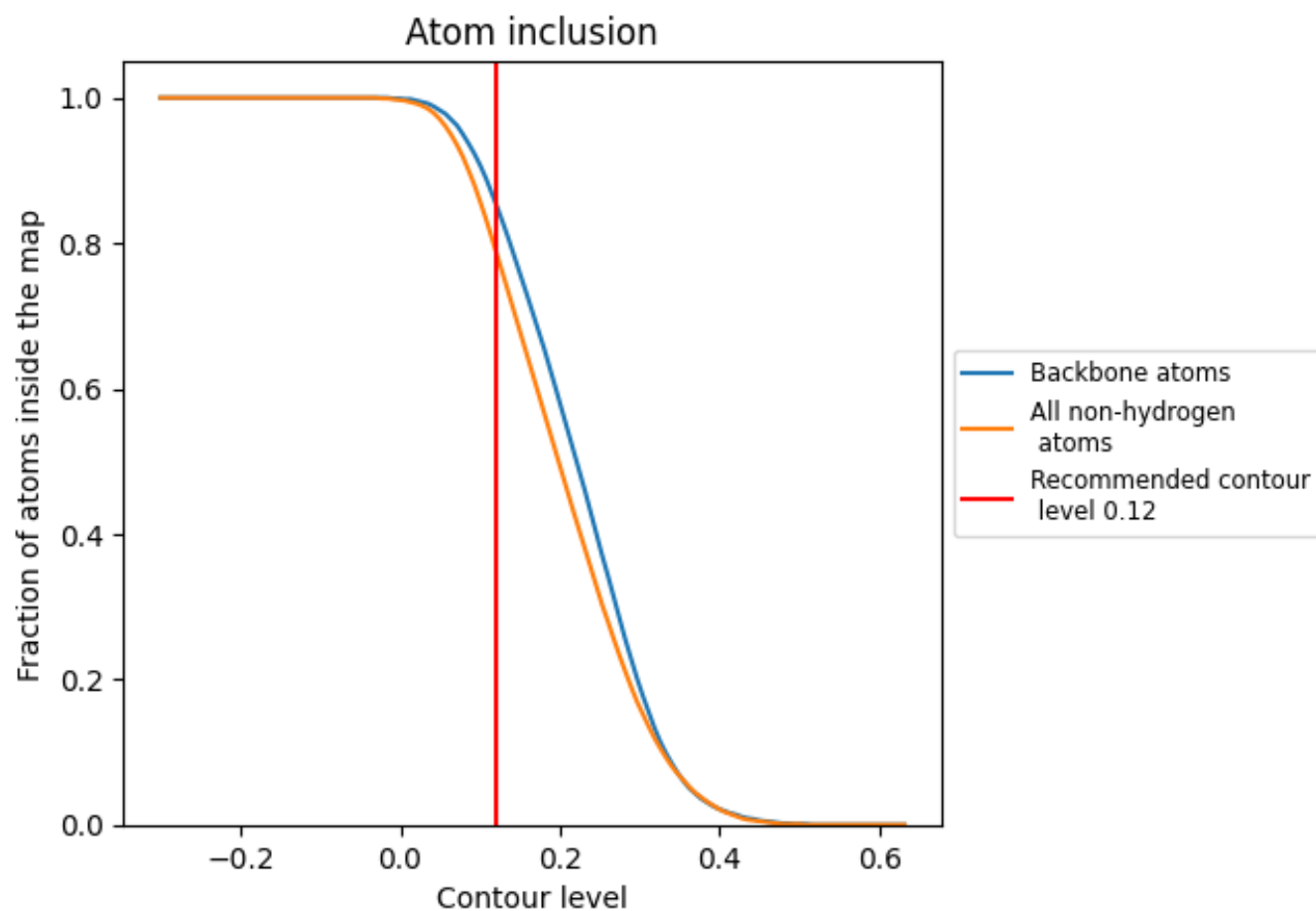
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.12).

9.4 Atom inclusion [i](#)



At the recommended contour level, 85% of all backbone atoms, 79% 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 (0.12) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7890	 0.4820
A	 0.8930	 0.5170
B	 0.8980	 0.4910
C	 0.9160	 0.5300
D	 0.7980	 0.4650
E	 0.8180	 0.4370
LD	 0.8040	 0.5600
LE	 0.8130	 0.5480
LF	 0.8150	 0.5380
LG	 0.7260	 0.4670
LH	 0.7510	 0.4930
LI	 0.7840	 0.5330
LJ	 0.7350	 0.4900
LK	 0.7540	 0.5120
LL	 0.7390	 0.5140
LM	 0.6500	 0.4460
LN	 0.7850	 0.5130
LO	 0.7920	 0.5120
LP	 0.8390	 0.5610
LQ	 0.8130	 0.5380
LR	 0.8370	 0.5540
LS	 0.8060	 0.5410
LT	 0.7660	 0.5160
LU	 0.7810	 0.5270
LV	 0.7490	 0.5110
LW	 0.7120	 0.4700
LX	 0.7320	 0.5340
LY	 0.8030	 0.5550
LZ	 0.7980	 0.5410
La	 0.8180	 0.5330
Lb	 0.7850	 0.5240
Lc	 0.8310	 0.5460
Ld	 0.7100	 0.4740
Le	 0.7710	 0.5270
Lf	 0.7950	 0.5360



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Chain	Atom inclusion	Q-score
Lg	 0.8090	 0.5490
Lh	 0.8270	 0.5620
Li	 0.8040	 0.5460
Lj	 0.7670	 0.5230
Lk	 0.7280	 0.4990
Ll	 0.8680	 0.5670
Lm	 0.7190	 0.4980
Ln	 0.8410	 0.5560
Lo	 0.7590	 0.5260
Lp	 0.6110	 0.4640
Lq	 0.7570	 0.5230
Lr	 0.7730	 0.5600
SA	 0.5630	 0.4080
SB	 0.5240	 0.4010
SC	 0.5400	 0.3620
SD	 0.2410	 0.2390
SE	 0.5440	 0.3790
SF	 0.5750	 0.4020
SG	 0.5850	 0.3860
SH	 0.5900	 0.4060
SI	 0.5710	 0.3820
SJ	 0.5100	 0.3830
SK	 0.5000	 0.3560
SL	 0.5260	 0.4300
SM	 0.6910	 0.4200
SN	 0.3550	 0.2840
SO	 0.4460	 0.3270
SP	 0.6900	 0.4430
SQ	 0.6650	 0.4520
SR	 0.7320	 0.5000
SS	 0.5590	 0.3900
ST	 0.5320	 0.3800
SU	 0.6060	 0.4190
SV	 0.6090	 0.4340
SW	 0.5930	 0.4000
SX	 0.6450	 0.4620
SY	 0.7230	 0.4890
SZ	 0.7470	 0.4930
Sa	 0.7270	 0.4880
Sb	 0.7700	 0.5280
Sc	 0.6930	 0.5000
Sd	 0.5500	 0.3410

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Chain	Atom inclusion	Q-score
Se	 0.7670	 0.4820
Sf	 0.6980	 0.4680
Sg	 0.5770	 0.4210
m	 0.3950	 0.3110
n	 0.4850	 0.2670