



Full wwPDB EM Validation Report ⓘ

Dec 10, 2025 – 05:04 pm GMT

PDB ID : 6Q8Y / pdb_00006q8y
EMDB ID : EMD-4474
Title : Cryo-EM structure of the mRNA translating and degrading yeast 80S ribosome-Xrn1 nuclease complex
Authors : Tesina, P.; Heckel, E.; Cheng, J.; Buschauer, R.; Kater, L.; Berninghausen, O.; Becker, T.; Beckmann, R.
Deposited on : 2018-12-16
Resolution : 3.10 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:

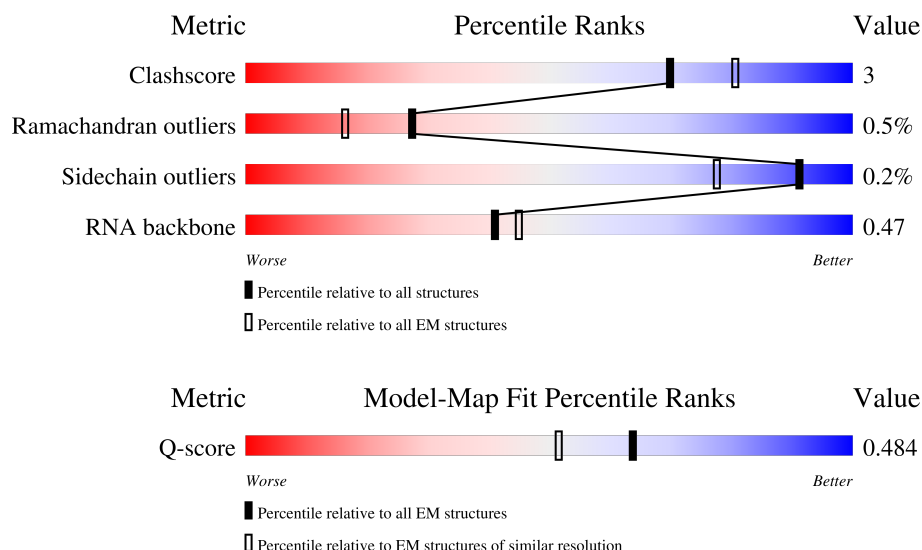
EMDB validation analysis : 0.0.1.dev129
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

1 Overall quality at a glance

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

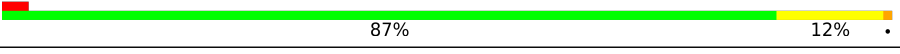
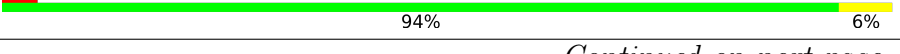
The reported resolution of this entry is 3.10 Å.

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.



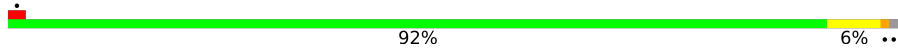
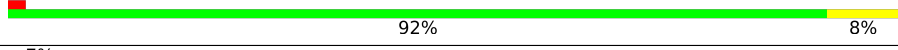
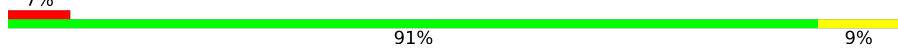
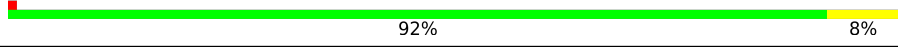
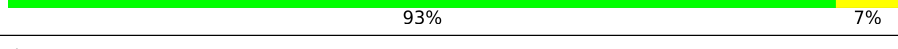
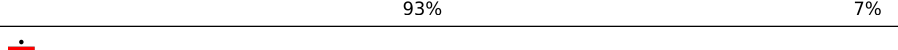
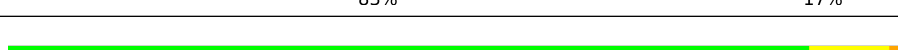
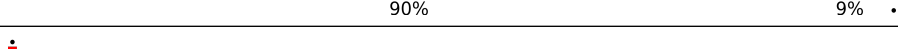
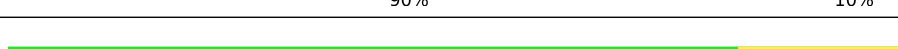
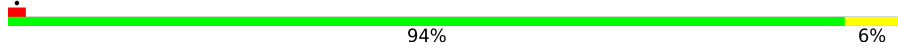
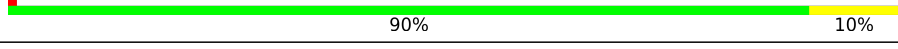
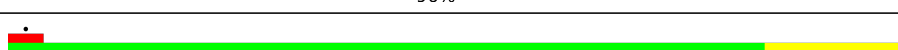
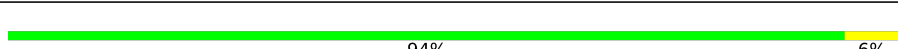
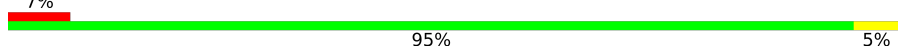
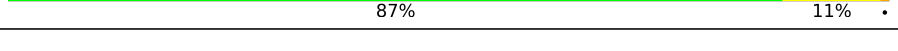
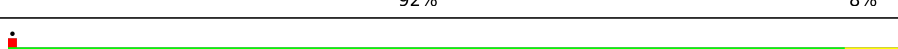
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	14724 (2.60 - 3.60)

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	2	1797	 62% 28% 8% .
2	AA	233	 87% 12% .
3	AB	136	 94% 6%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	AC	100	 92% 6% ..
5	AD	191	 92% 8%
6	AE	67	 91% 9% 7%
7	AF	87	 92% 8%
8	AG	169	 93% 7%
9	AH	121	 93% 7%
10	AI	77	 83% 17%
11	AJ	193	 90% 9% .
12	AK	126	 90% 10%
13	AL	50	 82% 18%
14	AM	136	 90% 10%
15	AN	135	 88% 12%
16	AO	52	 94% 6%
17	AP	105	 90% 10%
18	AQ	203	 88% 12%
19	AR	148	 89% 10% .
20	AS	25	 96% .
21	AT	91	 85% 15%
22	AU	197	 94% 6%
23	AV	58	 95% 5% 7%
24	AW	252	 88% 12%
25	AX	183	 89% 11% 5%
26	a	87	 87% 11% .
27	b	129	 92% 8%
28	c	144	 94% 6%

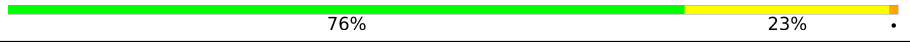
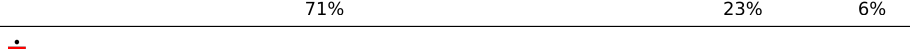
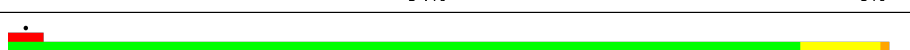
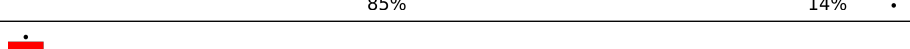
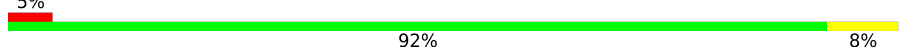
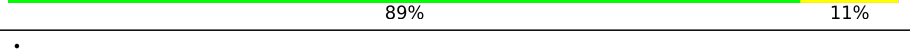
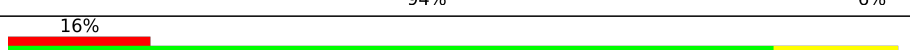
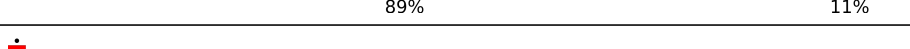
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
29	d	132	
30	e	97	
31	f	81	
32	g	60	
33	z	916	
34	l	17	
35	n	76	
36	m	75	
37	AY	97	
38	BA	386	
39	BB	185	
40	BC	109	
41	BD	220	
42	BE	361	
43	BF	188	
44	BG	127	
45	BH	172	
46	BI	296	
47	BJ	159	
48	BK	106	
49	BL	100	
50	BM	175	
51	BN	112	
52	BO	222	
53	BP	119	

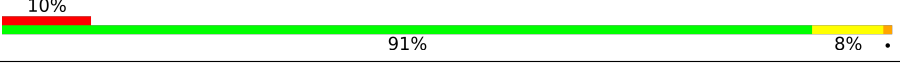
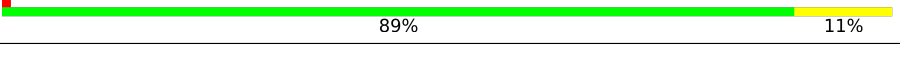
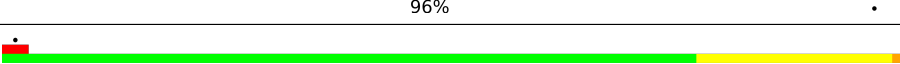
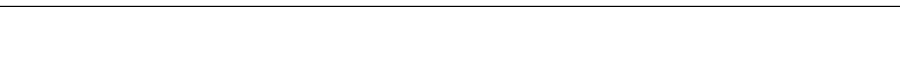
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
54	BQ	3396	
55	BR	121	
56	BS	158	
57	A	223	
58	B	206	
59	C	96	
60	D	121	
61	E	121	
62	F	141	
63	G	125	
64	H	139	
65	J	107	
66	K	70	
67	L	63	
68	M	53	
69	N	51	
70	O	318	
71	P	219	
72	Q	214	
73	R	220	
74	S	260	
75	T	226	
76	U	184	
77	V	199	
78	W	178	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
79	X	155	 10% 91% 8% .
80	Y	150	 89% 11% .
81	Z	127	 96% .
82	I	143	 78% 22% .

2 Entry composition

There are 84 unique types of molecules in this entry. The entry contains 209410 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 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	1767	Total	C	N	O	P	0	0
			37645	16830	6656	12392	1767		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	1570	G	A	conflict	GB 1329886537

- Molecule 2 is a protein called 60S ribosomal protein L8-A.

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

- Molecule 3 is a protein called 60S ribosomal protein L23-A.

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

- Molecule 4 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	AC	99	Total	C	N	O	S	0	0
			771	481	156	132	2		

- Molecule 5 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AD	191	Total	C	N	O	S	0	0
			1518	963	274	277	4		

- Molecule 6 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AE	67	Total	C	N	O	S	0	0
			543	349	106	87	1		

- Molecule 7 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AF	87	Total	C	N	O	S	0	0
			681	414	148	114	5		

- Molecule 8 is a protein called 60S ribosomal protein L11-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	AG	169	Total	C	N	O	S	0	0
			1353	847	253	249	4		

- Molecule 9 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AH	121	Total	C	N	O	S	0	0
			964	620	169	173	2		

- Molecule 10 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	AI	77	Total	C	N	O	0	0
			612	391	115	106		

- Molecule 11 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	AJ	193	Total	C	N	O	0	0
			1543	962	315	266		

- Molecule 12 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	AK	126	Total	C	N	O	0	0
			993	625	192	176		

- Molecule 13 is a protein called 60S ribosomal protein L39.

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

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

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

- Molecule 15 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AN	135	Total	C	N	O	S	0	0
			1092	710	202	180			

- Molecule 16 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AO	52	Total	C	N	O	S	0	0
			417	259	86	67	5		

- Molecule 17 is a protein called 60S ribosomal protein L42-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AP	105	Total	C	N	O	S	0	0
			847	534	170	138	5		

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

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

- Molecule 19 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AR	148	Total	C	N	O	S	0	0
			1173	749	231	190	3		

- Molecule 20 is a protein called 60S ribosomal protein L41-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AS	25	Total	C	N	O	S	0	0
			233	142	63	27	1		

- Molecule 21 is a protein called 60S ribosomal protein L43-A.

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

- Molecule 22 is a protein called 60S ribosomal protein L16-A.

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

- Molecule 23 is a protein called 60S ribosomal protein L29.

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

- Molecule 24 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AW	252	Total	C	N	O	S	0	0
			1914	1191	388	334	1		

- Molecule 25 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AX	183	Total	C	N	O		0	0
			1420	882	281	257			

- Molecule 26 is a protein called 40S ribosomal protein S21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	a	87	Total	C	N	O	S	0	0
			684	420	125	137	2		

- Molecule 27 is a protein called 40S ribosomal protein S22-A.

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

- Molecule 28 is a protein called 40S ribosomal protein S23-A.

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

- Molecule 29 is a protein called 40S ribosomal protein S24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	132	Total	C	N	O	S	0	0
			1060	669	206	185			

- Molecule 30 is a protein called 40S ribosomal protein S26-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	97	Total	C	N	O	S	0	0
			769	475	160	129	5		

- Molecule 31 is a protein called 40S ribosomal protein S27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	81	Total	C	N	O	S	0	0
			610	382	110	113	5		

- Molecule 32 is a protein called 40S ribosomal protein S30-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	60	Total	C	N	O	S	0	0
			473	297	98	77	1		

- Molecule 33 is a protein called 5'-3' exoribonuclease 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	z	874	Total	C	N	O	S	0	0
			7181	4639	1194	1320	28		

- Molecule 34 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	l	17	Total	C	N	O	P	0	0
			367	164	70	116	17		

- Molecule 35 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	n	76	Total	C	N	O	P	0	0
			1621	723	291	531	76		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	74	C	-	insertion	GB 1329886529
n	75	C	-	insertion	GB 1329886529
n	76	A	-	insertion	GB 1329886529

- Molecule 36 is a RNA chain called E-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	m	75	Total	C	N	O	P	0	0
			1589	710	279	525	75		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
m	11	C	U	conflict	GB 176418

- Molecule 37 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	AY	97	Total	C	N	O	S	0	0
			742	479	124	138	1		

- Molecule 38 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	BA	386	Total	C	N	O	S	0	0
			3075	1950	584	533	8		

- Molecule 39 is a protein called 60S ribosomal protein L18-A.

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

- Molecule 40 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	BC	109	Total	C	N	O	S	0	0
			876	556	167	152	1		

- Molecule 41 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	BD	220	Total	C	N	O	S	0	0
			1770	1121	335	307	7		

- Molecule 42 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	BE	361	Total	C	N	O	S	0	0
			2748	1729	522	494	3		

- Molecule 43 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	BF	188	Total	C	N	O	0	0
			1521	935	326	260		

- Molecule 44 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	BG	127	Total	C	N	O	S	0	0
			1020	647	205	167	1		

- Molecule 45 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	BH	172	Total	C	N	O	S	0	0
			1445	930	267	244	4		

- Molecule 46 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	BI	296	Total	C	N	O	S	0	0
			2375	1501	414	458	2		

- Molecule 47 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	BJ	159	Total	C	N	O	S	0	0
			1276	805	246	221	4		

- Molecule 48 is a protein called 60S ribosomal protein L33-A.

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

- Molecule 49 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	BL	100	Total	C	N	O	S	0	0
			796	516	131	149			

- Molecule 50 is a protein called 60S ribosomal protein L6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	BM	156	Total	C	N	O	S	0	0
			1239	800	222	216	1		

- Molecule 51 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	BN	112	Total	C	N	O	S	0	0
			880	545	179	152	4		

- Molecule 52 is a protein called 60S ribosomal protein L7-A.

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

- Molecule 53 is a protein called 60S ribosomal protein L35-A.

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

- Molecule 54 is a RNA chain called 25S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	BQ	3161	Total	C	N	O	P	0	0
			67610	30200	12186	22063	3161		

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

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

- Molecule 56 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	BS	158	Total	C	N	O	P	0	0
			3352	1500	586	1108	158		

- Molecule 57 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	A	223	Total	C	N	O	S	0	0
			1734	1101	313	314	6		

- Molecule 58 is a protein called Rps5p.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	B	206	Total	C	N	O	S	0	0
			1603	1004	297	299	3		

- Molecule 59 is a protein called 40S ribosomal protein S10-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	C	96	Total	C	N	O	S	0	0
			813	527	133	151	2		

- Molecule 60 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	D	121	Total	C	N	O	S	0	0
			877	552	153	170	2		

- Molecule 61 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	E	121	Total	C	N	O	S	0	0
			957	611	176	163	7		

- Molecule 62 is a protein called 40S ribosomal protein S16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	F	141	Total	C	N	O	S	0	0
			1099	704	202	193			

- Molecule 63 is a protein called 40S ribosomal protein S17-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	G	125	Total	C	N	O	S	0	0
			1001	625	188	186	2		

- Molecule 64 is a protein called 40S ribosomal protein S18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	H	139	Total	C	N	O	S	0	0
			1143	716	222	203	2		

- Molecule 65 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	J	107	Total	C	N	O	S	0	0
			855	539	156	159	1		

- Molecule 66 is a protein called 40S ribosomal protein S25-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	K	70	Total	C	N	O		0	0
			563	360	104	99			

- Molecule 67 is a protein called 40S ribosomal protein S28-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	L	63	Total	C	N	O	S	0	0
			497	306	99	91	1		

- Molecule 68 is a protein called 40S ribosomal protein S29-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	M	53	Total	C	N	O	S	0	0
			442	274	92	72	4		

- Molecule 69 is a protein called Ubiquitin-40S ribosomal protein S31.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	N	51	Total	C	N	O	S	0	0
			397	249	73	71	4		

- Molecule 70 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	O	318	Total	C	N	O	S	0	0
			2436	1541	418	469	8		

- Molecule 71 is a protein called 40S ribosomal protein S0-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	P	219	Total	C	N	O	S	0	0
			1691	1082	296	311	2		

- Molecule 72 is a protein called 40S ribosomal protein S1-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	Q	214	Total	C	N	O	S	0	0
			1709	1084	310	311	4		

- Molecule 73 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	R	220	Total	C	N	O	S	0	0
			1671	1072	297	300	2		

- Molecule 74 is a protein called 40S ribosomal protein S4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	S	260	Total	C	N	O	S	0	0
			2061	1309	389	360	3		

- Molecule 75 is a protein called 40S ribosomal protein S6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	T	226	Total	C	N	O	S	0	0
			1799	1129	346	321	3		

- Molecule 76 is a protein called 40S ribosomal protein S7-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
76	U	179	Total	C	N	O	0	0
			1442	926	259	257		

- Molecule 77 is a protein called 40S ribosomal protein S8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	V	188	Total	C	N	O	S	0	0
			1489	925	298	264	2		

- Molecule 78 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	W	178	Total	C	N	O	S	0	0
			1434	905	276	252	1		

- Molecule 79 is a protein called 40S ribosomal protein S11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	X	155	Total	C	N	O	S	0	0
			1213	774	230	206	3		

- Molecule 80 is a protein called 40S ribosomal protein S13.

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

- Molecule 81 is a protein called 40S ribosomal protein S14-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	Z	127	Total	C	N	O	S	0	0
			891	545	182	163	1		

- Molecule 82 is a protein called 40S ribosomal protein S19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	I	143	Total	C	N	O	S	0	0
			1101	688	204	207	2		

- Molecule 83 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
83	AF	1	Total	Zn	0
			1	1	
83	AO	1	Total	Zn	0
			1	1	
83	AP	1	Total	Zn	0
			1	1	
83	AT	1	Total	Zn	0
			1	1	
83	e	1	Total	Zn	0
			1	1	
83	BN	1	Total	Zn	0
			1	1	
83	M	1	Total	Zn	0
			1	1	
83	N	1	Total	Zn	0
			1	1	

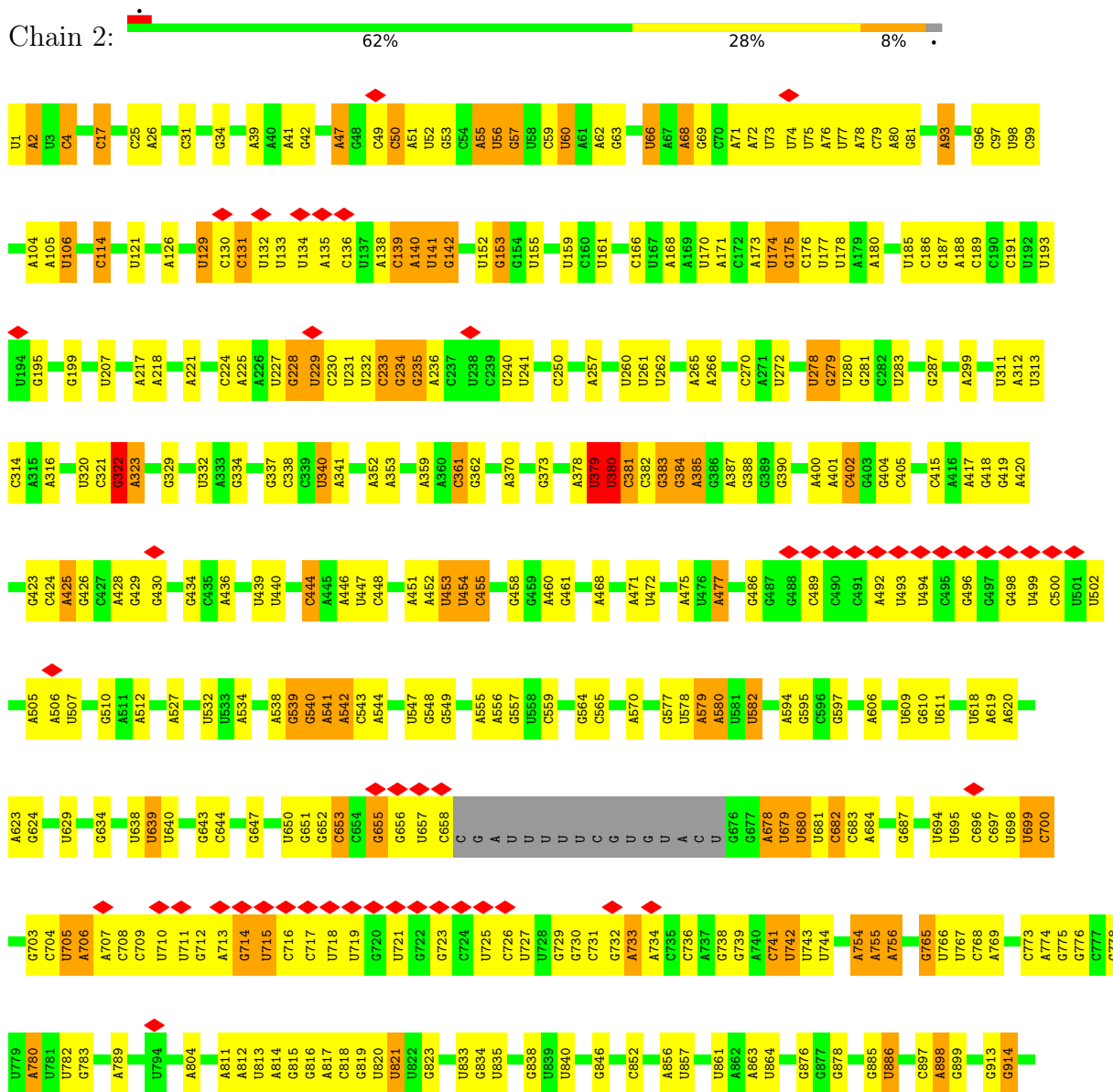
- Molecule 84 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

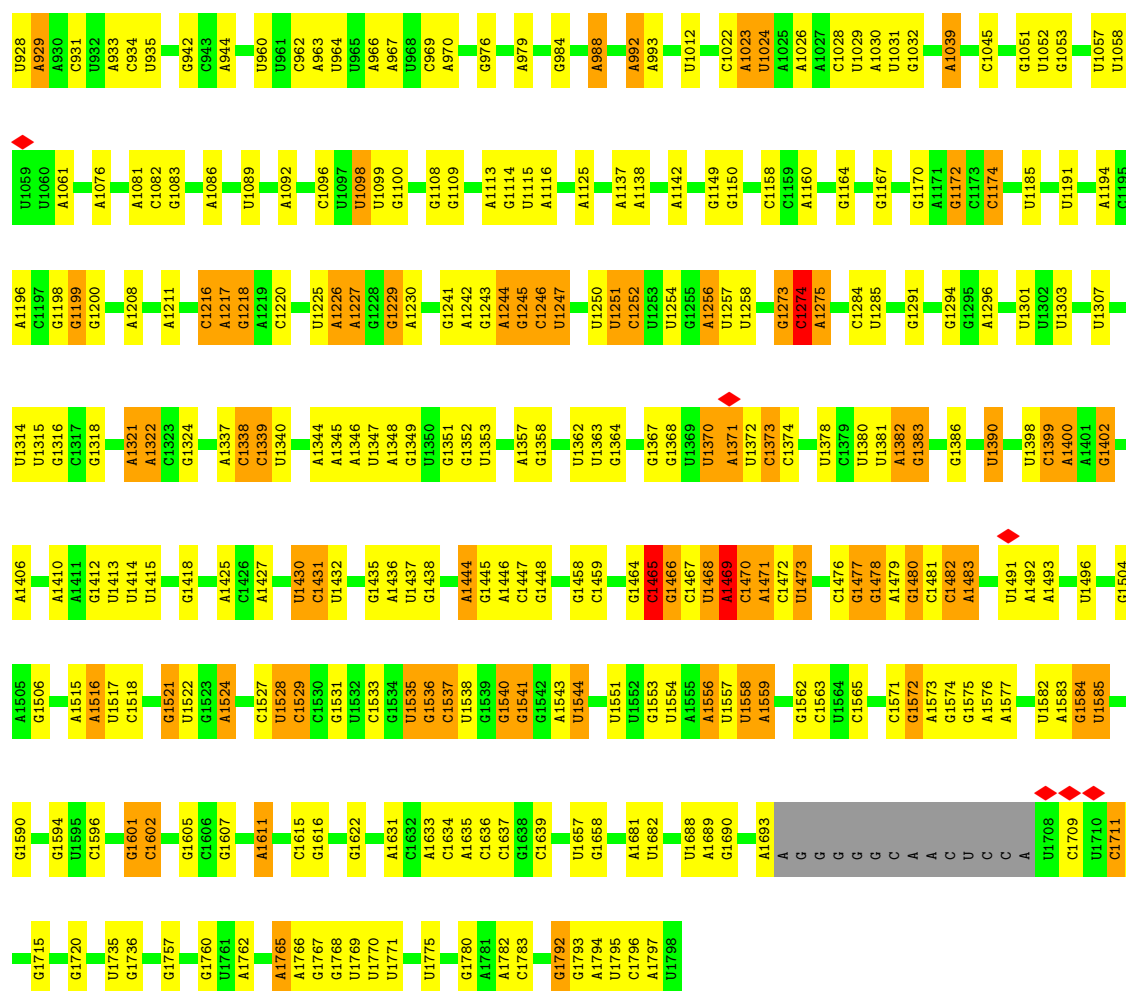
Mol	Chain	Residues	Atoms		AltConf
84	z	1	Total	Mg	0
			1	1	
84	l	1	Total	Mg	0
			1	1	

3 Residue-property plots

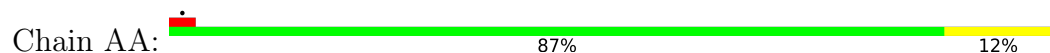
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 18S ribosomal RNA





- Molecule 2: 60S ribosomal protein L8-A



- Molecule 3: 60S ribosomal protein L23-A



- Molecule 4: 60S ribosomal protein L36-A





- Molecule 5: 60S ribosomal protein L9-A



- Molecule 6: 60S ribosomal protein L24-A



- Molecule 7: 60S ribosomal protein L37-A



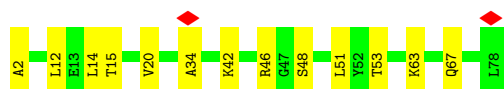
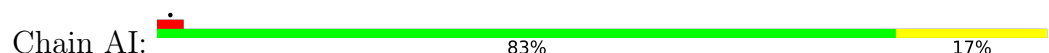
- Molecule 8: 60S ribosomal protein L11-B



- Molecule 9: 60S ribosomal protein L25

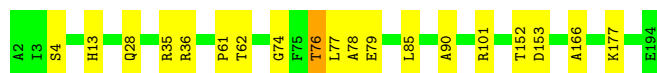


- Molecule 10: 60S ribosomal protein L38



- Molecule 11: 60S ribosomal protein L13-A

Chain AJ:  90% 9%



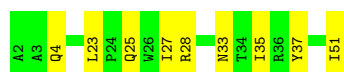
- Molecule 12: 60S ribosomal protein L26-A

Chain AK:  90% 10%



- Molecule 13: 60S ribosomal protein L39

Chain AL:  82% 18%



- Molecule 14: 60S ribosomal protein L14-A

Chain AM:  90% 10%

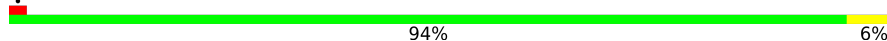


- Molecule 15: 60S ribosomal protein L27-A

Chain AN:  88% 12%



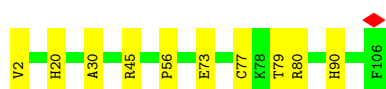
- Molecule 16: Ubiquitin-60S ribosomal protein L40

Chain AO:  94% 6%



- Molecule 17: 60S ribosomal protein L42-A

Chain AP:  90% 10%



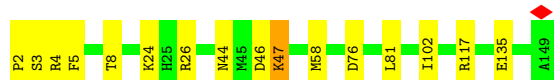
- Molecule 18: 60S ribosomal protein L15-A

Chain AQ:  88% 12%



- Molecule 19: 60S ribosomal protein L28

Chain AR:  89% 10%



- Molecule 20: 60S ribosomal protein L41-B

Chain AS:  96%

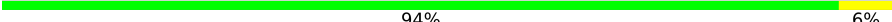


- Molecule 21: 60S ribosomal protein L43-A

Chain AT:  85% 15%



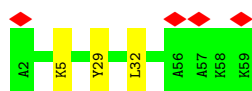
- Molecule 22: 60S ribosomal protein L16-A

Chain AU:  94% 6%



- Molecule 23: 60S ribosomal protein L29

Chain AV:  7% 95% 5%



- Molecule 24: 60S ribosomal protein L2-A

Chain AW:  88% 12%





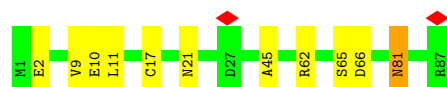
- Molecule 25: 60S ribosomal protein L17-A

Chain AX: 5% 89% 11%



- Molecule 26: 40S ribosomal protein S21-A

Chain a: 87% 11%



- Molecule 27: 40S ribosomal protein S22-A

Chain b: 92% 8%



- Molecule 28: 40S ribosomal protein S23-A

Chain c: 94% 6%



- Molecule 29: 40S ribosomal protein S24-A

Chain d: 10% 83% 14%



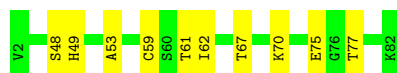
- Molecule 30: 40S ribosomal protein S26-B

Chain e: 9% 71% 25%



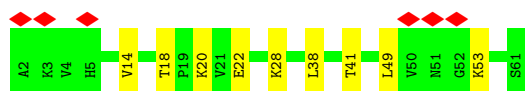
- Molecule 31: 40S ribosomal protein S27-A

Chain f:  88% 12%



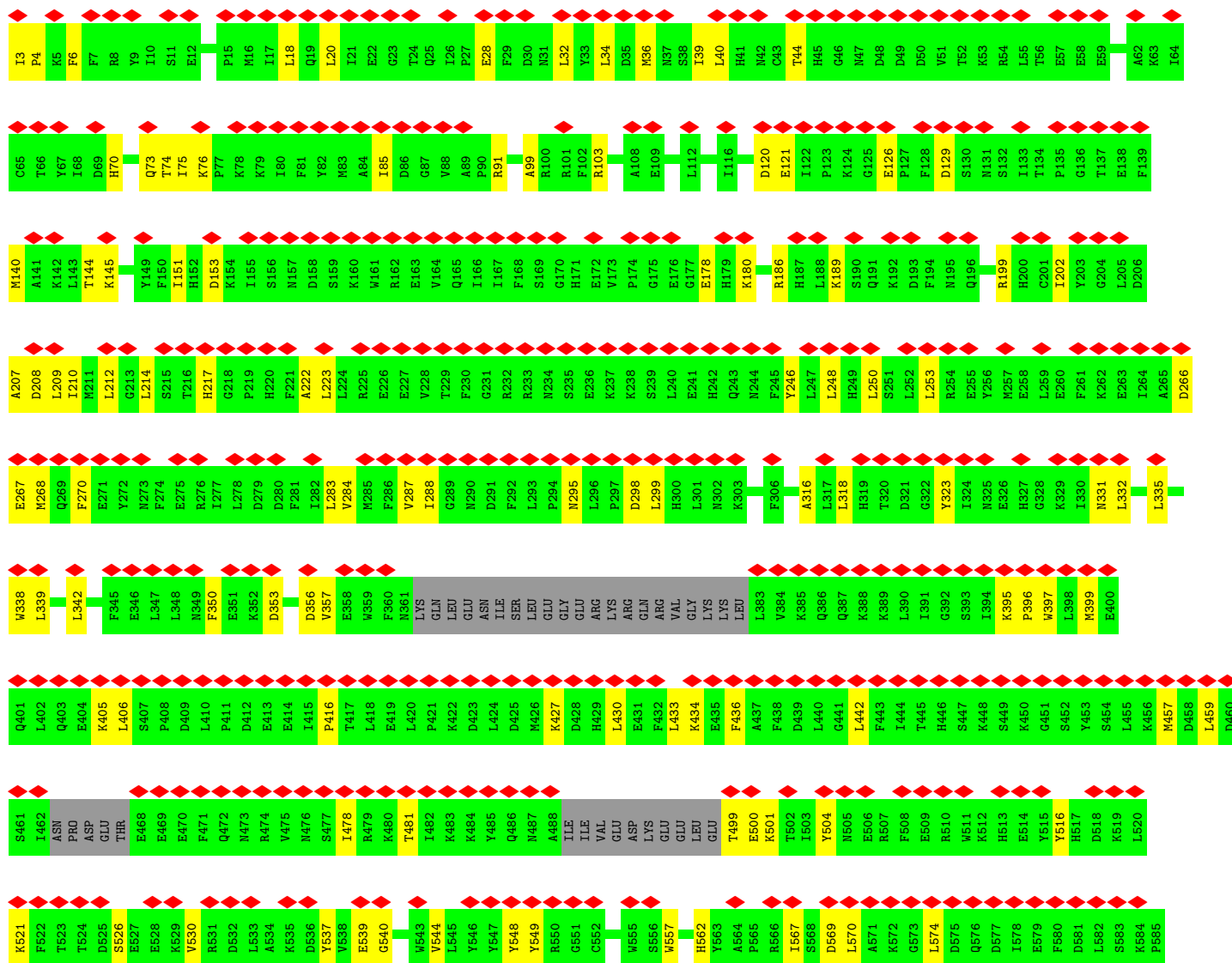
• Molecule 32: 40S ribosomal protein S30-A

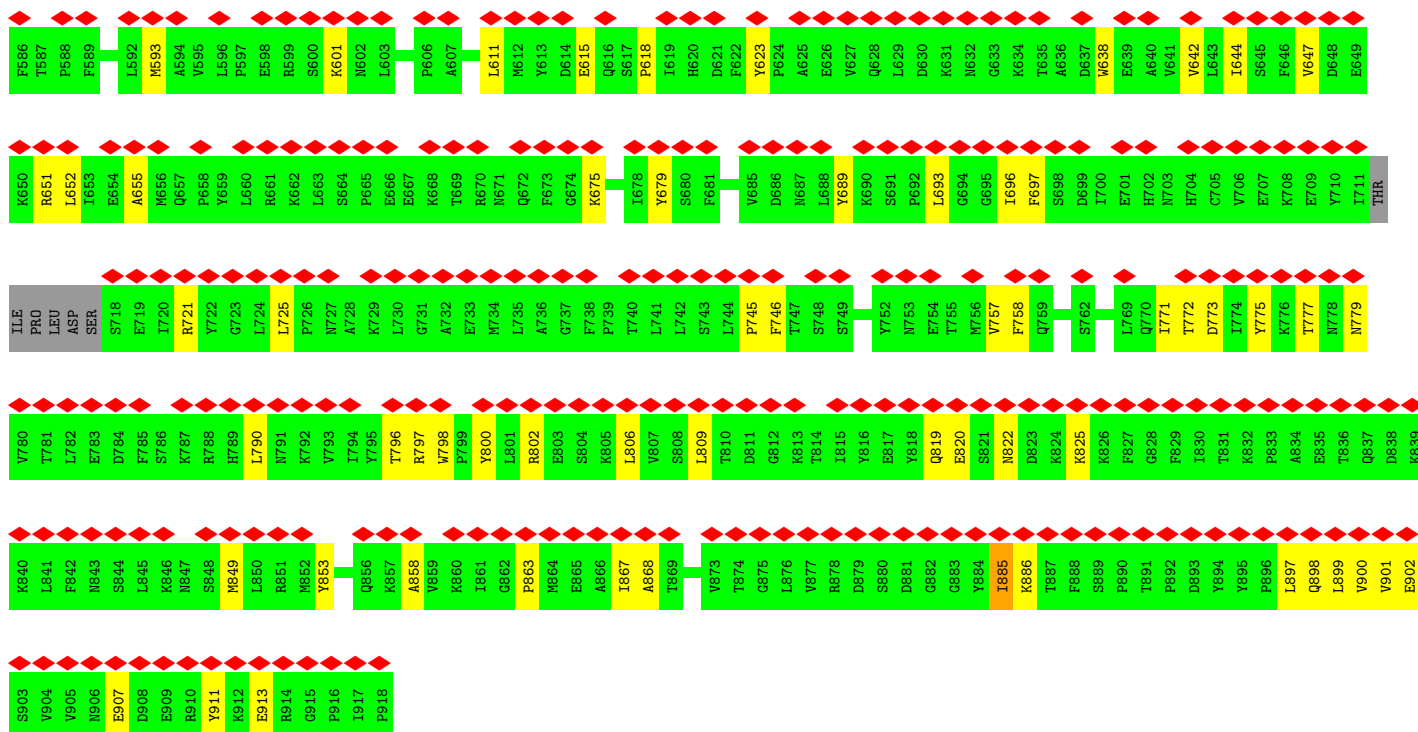
Chain g:  10% 85% 15%



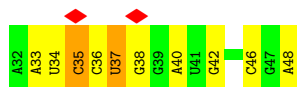
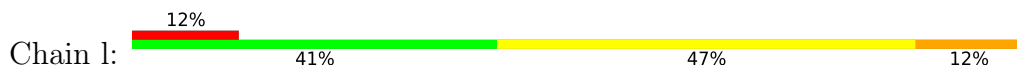
• Molecule 33: 5'-3' exoribonuclease 1

Chain z:  72% 77% 18% 5%

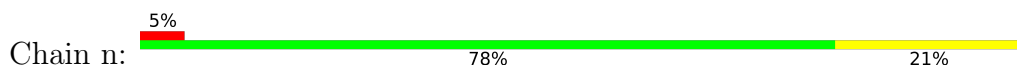




- Molecule 34: mRNA



- Molecule 35: P-site tRNA



- Molecule 36: E-site tRNA

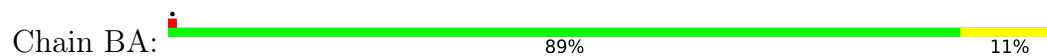


- Molecule 37: 60S ribosomal protein L30





- Molecule 38: 60S ribosomal protein L3



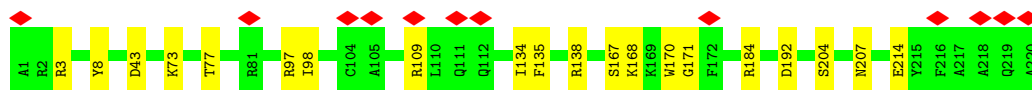
- Molecule 39: 60S ribosomal protein L18-A



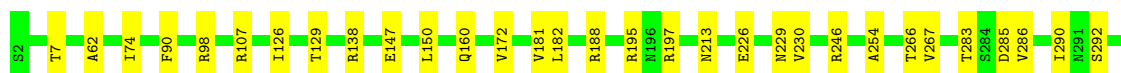
- Molecule 40: 60S ribosomal protein L31-A



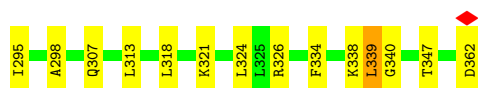
- Molecule 41: 60S ribosomal protein L10

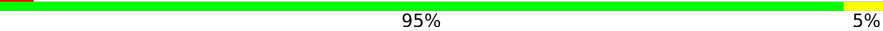


- Molecule 42: 60S ribosomal protein L4-A



- Molecule 43: 60S ribosomal protein L19-A

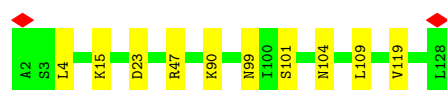


Chain BF:  95% 5%



- Molecule 44: 60S ribosomal protein L32

Chain BG:  92% 8%



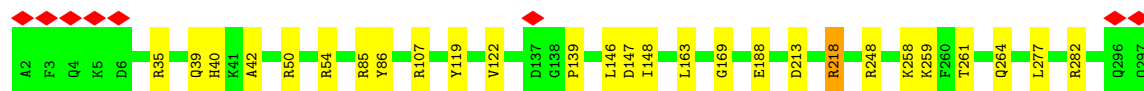
- Molecule 45: 60S ribosomal protein L20-A

Chain BH:  91% 9%



- Molecule 46: 60S ribosomal protein L5

Chain BI:  91% 9%



- Molecule 47: 60S ribosomal protein L21-A

Chain BJ:  87% 13%



- Molecule 48: 60S ribosomal protein L33-A

Chain BK:  86% 14%



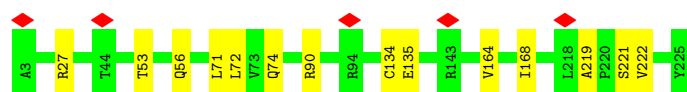
- Molecule 49: 60S ribosomal protein L22-A

Chain BL:  87% 13%

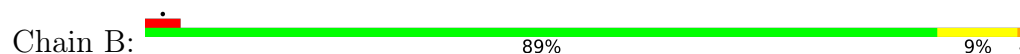


- | | | |
|---|---|------|
| U | G | G494 | G495 | A501 | G505 | U506 | U507 | U508 | U509 | G510 | U520 | A521 | A522 | A523 | U524 | C525 | A532 | A533 | G534 | U535 | C544 | U545 | C546 | C547 | G548 | U549 | A550 | A551 | U555 | U556 | A557 | U558 | A559 | A578 | G579 | G588 | A592 | G600 | G604 | A607 | A608 | G609 | U612 | U620 | A621 |
|---|---|------|

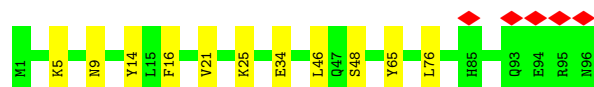
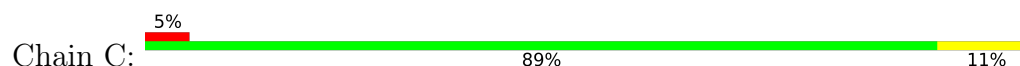
G2210	A622	G769	G934	A1047	C1192	A1271	G1392	U1554	U1682	A1835	G	G	G2210
A2243	C636	G770	A925	A1048	A1197	C1272	A1399	U1555	A1683	A1839	G	C	A2243
A2244	C637	A771	A926	C1049	A1200	A1273	G1400	U1556	A1683	U1840	C	G	A2244
G2249	C638	A775	C928	A1055	C1201	A1274	G1408	A1557	C1693	U1841	A	C	G2249
A2256	A649	U776	G934	A1064	C1275	U1276	G1417	A1559	G1713	A1842	U	U	A2256
C2257	A660	U777	G937	A1065	U1281	G1282	G1418	G1560	A1714	C1843	A	A	C2257
G2272	G661	A780	G938	G1072	G1285	G1282	A1419	C1562	U1721	C1844	C	U	G2272
U2273	U662	G781	U939	G1076	U1286	U1282	C1420	U1564	U1722	G1845	U	U	U2273
U2274	A784	G785	U942	U1077	U1287	U1287	G1421	G1565	A1723	C1846	C	A	U2274
A2281	G786	A784	U943	U1078	U1217	A1218	G1429	U1567	U1724	C1849	C	A	A2281
U2282	A800	A801	C944	U1081	U1219	U1218	G1434	U1568	A1729	A1850	C	C	U2282
G2283	A801	A801	C944	U1082	U1220	U1219	G1434	U1569	G1730	A1858	G	G	G2283
C2284	G673	A801	C944	U1082	U1221	U1220	G1434	U1570	A1731	C1866	C	A	C2284
G2307	G674	A801	C944	U1083	G1222	U1222	C1437	U1571	U1741	A1867	C	C	G2307
U2310	G675	A801	C944	U1084	A1225	A1301	G1443	U1572	A1741	G1868	C	C	U2310
A2312	G676	A801	C944	U1087	G1230	A1302	G1446	U1573	G1747	U1873	G	G	A2312
U2313	G677	A801	C944	U1087	G1233	A1303	G1447	G1576	G1748	U1879	C	C	U2313
G2315	G678	A801	C944	U1087	G1233	U1308	G1448	G1577	A1749	U1880	C	C	G2315
G2323	U681	A801	C944	U1087	G1233	U1309	A1449	G1579	G1750	U1886	C	C	G2323
A2324	G684	A801	C944	U1087	G1233	U1312	A1450	C1579	A1751	U1887	C	C	A2324
G2325	G685	A801	C944	U1087	G1233	G1313	G1456	C1580	A1752	U1888	C	C	G2325
U2334	G686	A801	C944	U1087	G1233	G1314	U1457	C1581	G1753	U1889	C	C	U2334
U2336	G687	A801	C944	U1087	G1233	G1315	U1458	C1582	A1760	U1890	C	C	U2336
U2340	A837	A801	C944	U1087	G1233	G1316	U1459	A1583	G1761	U1891	C	C	U2340
C2343	G838	A801	C944	U1087	G1233	G1317	U1475	A1587	C1762	U1900	C	C	C2343
G2355	C849	A801	C944	U1087	G1233	A1318	U1476	A1588	U1763	A1901	C	C	G2355
A2373	G853	A801	C944	U1087	G1233	U1325	U1479	A1593	U1764	U1906	C	C	A2373
C2374	G857	A801	C944	U1087	G1233	U1330	G1480	A1594	G1766	C1907	C	C	C2374
G2375	C861	A801	C944	U1087	G1233	U1331	A1481	U1595	U1770	U1913	C	C	G2375
U2377	U879	A801	C944	U1087	G1233	U1332	A1482	C1596	U1771	G1914	C	C	U2377
G2388	U885	A801	C944	U1087	G1233	U1333	U1484	C1597	U1772	U1920	C	C	G2388
C2392	A895	A801	C944	U1087	G1233	U1334	G1485	A1605	G1778	U1925	C	C	C2392
G2393	A896	A801	C944	U1087	G1233	U1335	G1486	U1620	C1779	C1926	C	C	G2393
A2397	C907	A801	C944	U1087	G1233	U1336	A1491	U1627	A1797	G1927	C	C	A2397
U2398	G908	A801	C944	U1087	G1233	U1337	A1503	U1629	G1808	U1930	C	C	U2398
A2402	G909	A801	C944	U1087	G1233	U1338	C1508	U1630	A1809	U1931	C	C	A2402
G2403	G914	A801	C944	U1087	G1233	U1339	U1523	C1631	U1813	A1932	C	C	G2403
A2404	A915	A801	C944	U1087	G1233	U1340	G1528	A1642	A1814	U1952	C	C	A2404
U2209	G916	A801	C944	U1087	G1233	U1341	U1533	A1643	U1815	G1953	C	C	U2209
	A917	A801	C944	U1087	G1233	U1342	G1536	C1644	A1816	U1954	C	C	
	G923	A801	C944	U1087	G1233	U1343	U1537	G1646	U1817	U1955	C	C	
		A801	C944	U1087	G1233	U1344	U1538	A1655	U1818	A	C	C	
		A801	C944	U1087	G1233	U1345	U1539	A1656	U1819	U	C	C	
		A801	C944	U1087	G1233	U1346	U1540	A1657	U1820	U	C	C	
		A801	C944	U1087	G1233	U1347	U1541	A1658	U1821	A	C	C	
		A801	C944	U1087	G1233	U1348	U1542	A1659	U1822	G	C	C	
		A801	C944	U1087	G1233	U1349	U1543	A1660	U1823	A	C	C	
		A801	C944	U1087	G1233	U1350	U1544	A1661	U1824	G	C	C	
		A801	C944	U1087	G1233	U1351	U1545	A1662	U1825	A	C	C	
		A801	C944	U1087	G1233	U1352	U1546	A1663	U1826	G	C	C	
		A801	C944	U1087	G1233	U1353	U1547	A1664	U1827	A	C	C	
		A801	C944	U1087	G1233	U1354	U1548	A1665	U1828	G	C	C	
		A801	C944	U1087	G1233	U1355	U1549	A1666	U1829	A	C	C	
		A801	C944	U1087	G1233	U1356	U1550	A1667	U1830	G	C	C	
		A801	C944	U1087	G1233	U1357	U1551	A1668	U1831	A	C	C	
		A801	C944	U1087	G1233	U1358	U1552	A1669	U1832	G	C	C	
		A801	C944	U1087	G1233	U1359	U1553	A1670	U1833	A	C	C	
		A801	C944	U1087	G1233	U1360	U1554	A1671	U1834	G	C	C	
		A801	C944	U1087	G1233	U1361	U1555	A1672	U1835	A	C	C	
		A801	C944	U1087	G1233	U1362	U1556	A1673	U1836	G	C	C	
		A801	C944	U1087	G1233	U1363	U1557	A1674	U1837	A	C	C	
		A801	C944	U1087	G1233	U1364	U1558	A1675	U1838	G	C	C	
		A801	C944	U1087	G1233	U1365	U1559	A1676	U1839	A	C	C	
		A801	C944	U1087	G1233	U1366	U1560	A1677	U1840	G	C	C	
		A801	C944	U1087	G1233	U1367	U1561	A1678	U1841	A	C	C	
		A801	C944	U1087	G1233	U1368	U1562	A1679	U1842	G	C	C	
		A801	C944	U1087	G1233	U1369	U1563	A1680	U1843	A	C	C	
		A801	C944	U1087	G1233	U1370	U1564	A1681	U1844	G	C	C	
		A801	C944	U1087	G1233	U1371	U1565	A1682	U1845	A	C	C	
		A801	C944	U1087	G1233	U1372	U1566	A1683	U1846	G	C	C	
		A801	C944	U1087	G1233	U1373	U1567	A1684	U1847	A	C	C	
		A801	C944	U1087	G1233	U1374	U1568	A1685	U1848	G	C	C	
		A801	C944	U1087	G1233	U1375	U1569	A1686	U1849	A	C	C	
		A801	C944	U1087	G1233	U1376	U1570	A1687	U1850	G	C	C	
		A801	C944	U1087	G1233	U1377	U1571	A1688	U1851	A	C	C	
		A801	C944	U1087	G1233	U1378	U1572	A1689	U1852	G	C	C	
		A801	C944	U1087	G1233	U1379	U1573	A1690	U1853	A	C	C	
		A801	C944	U1087	G1233	U1380	U1574	A1691	U1854	G	C	C	
		A801	C944	U1087	G1233	U1381	U1575	A1692	U1855	A	C	C	
		A801	C944	U1087	G1233	U1382	U1576	A1693	U1856	G	C	C	
		A801	C944	U1087	G1233	U1383	U1577	A1694	U1857	A	C	C	
		A801	C944	U1087	G1233	U1384	U1578	A1695	U1858	G	C	C	
		A801	C944	U1087	G1233	U1385	U1579	A1696	U1859	A	C	C	
		A801	C944	U1087	G1233	U1386	U1580	A1697	U1860	G	C	C	
		A801	C944	U1087	G1233	U1387	U1581	A1698	U1861	A	C	C	
		A801	C944	U1087	G1233	U1388	U1582	A1699	U1862	G	C	C	
		A801	C944	U1087	G1233	U1389	U1583	A1700	U1863	A	C	C	
		A801	C944	U1087	G1233	U1390	U1584	A1701	U1864	G	C	C	
		A801	C944	U1087	G1233	U1391	U1585	A1702	U1865	A	C	C	
		A801	C944	U1087	G1233	U1392	U1586	A1703	U1866	G	C	C	
		A801	C944	U1087	G1233	U1393	U1587	A1704	U1867	A	C	C	
		A801	C944	U1087	G1233	U1394	U1588	A1705	U1868	G	C	C	
		A801	C944	U1087	G1233	U1395	U1589	A1706	U1869	A	C	C	
		A801	C944	U1087	G1233	U1396	U1590	A1707	U1870	G	C	C	
		A801	C944	U1087	G1233	U1397	U1591	A1708	U1871	A	C	C	
		A801	C944	U1087	G1233	U1398	U1592	A1709	U1872	G	C	C	
		A801	C944	U1087	G1233	U1399	U1593	A1710	U1873	A	C	C	
		A801	C944	U1087	G1233	U1400	U1594	A1711	U1874	G	C	C	
		A801	C944	U1087	G1233	U1401	U1595	A1712	U1875	A	C	C	
		A801	C944	U1087	G1233	U1402	U1596	A1713	U1876	G	C	C	
		A801	C944	U1087	G1233	U1403	U1597	A1714	U1877	A	C	C	
		A801	C944	U1087	G1233	U1404	U1598	A1715	U1878	G	C	C	
		A801	C944	U1087	G1233	U1405	U1599	A1716	U1879	A	C	C	
		A801	C944	U1087	G1233	U1406	U1600	A1717	U1880	G	C	C	
		A801	C944	U1087	G1233	U1407	U1601	A1718	U1881	A	C	C	
		A801	C944	U1087	G1233	U1408	U1602	A1719	U1882	G	C	C	
		A801	C944	U1087	G1233	U1409	U1603	A1720	U1883	A	C	C	
		A801	C944	U1087	G1233	U1410	U1604	A1721	U1884	G	C	C	
		A801	C944	U1087	G1233	U1411	U1605	A1722	U1885	A	C	C	
		A801	C944	U1087	G1233	U1412	U1606	A1723	U1886	G			



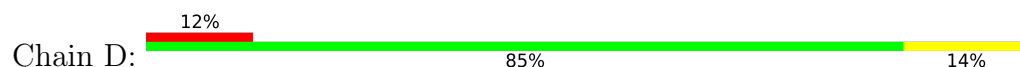
- Molecule 58: Rps5p



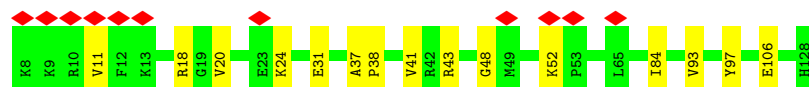
- Molecule 59: 40S ribosomal protein S10-A



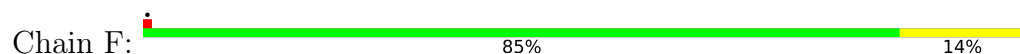
- Molecule 60: 40S ribosomal protein S12



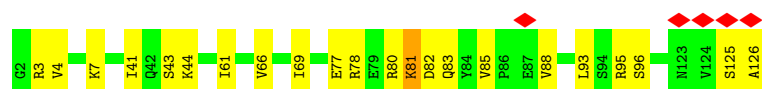
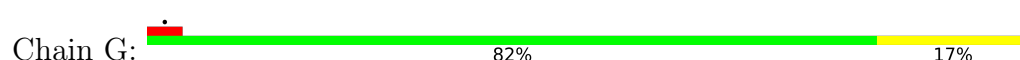
- Molecule 61: 40S ribosomal protein S15



- Molecule 62: 40S ribosomal protein S16-A

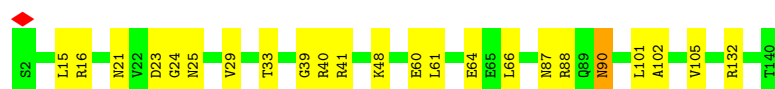


- Molecule 63: 40S ribosomal protein S17-A



- Molecule 64: 40S ribosomal protein S18-A

Chain H:  83% 16%



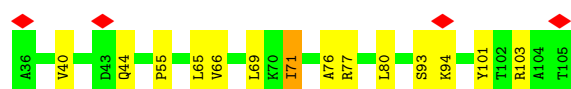
- Molecule 65: 40S ribosomal protein S20

Chain J:  5% 92% 8%



- Molecule 66: 40S ribosomal protein S25-A

Chain K:  6% 80% 19%

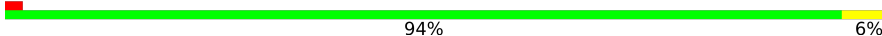


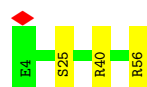
- Molecule 67: 40S ribosomal protein S28-A

Chain L:  6% 89% 11%



- Molecule 68: 40S ribosomal protein S29-A

Chain M:  94% 6%



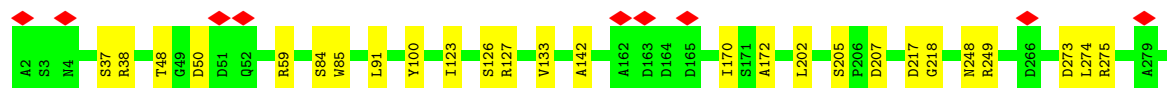
- Molecule 69: Ubiquitin-40S ribosomal protein S31

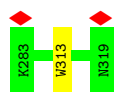
Chain N:  16% 86% 14%



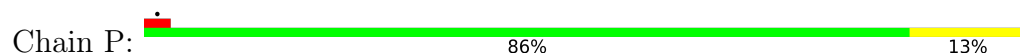
- Molecule 70: Guanine nucleotide-binding protein subunit beta-like protein

Chain O:  92% 8%

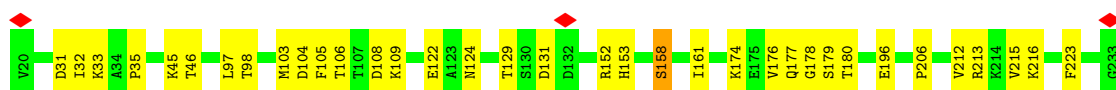
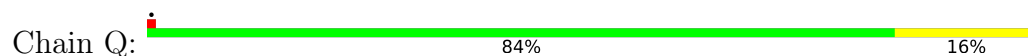




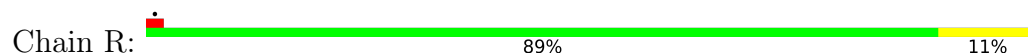
- Molecule 71: 40S ribosomal protein S0-A



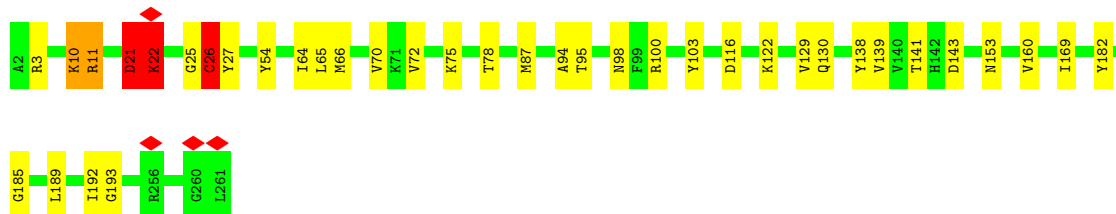
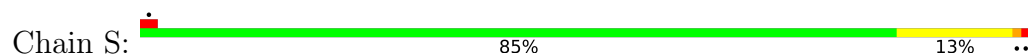
- Molecule 72: 40S ribosomal protein S1-A



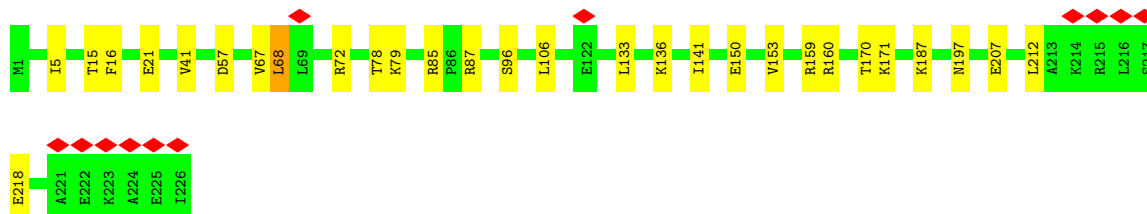
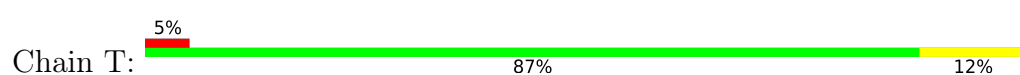
- Molecule 73: 40S ribosomal protein S2



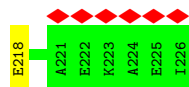
- Molecule 74: 40S ribosomal protein S4-A



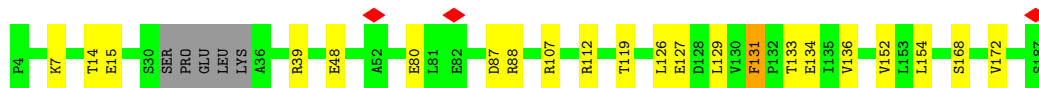
- Molecule 75: 40S ribosomal protein S6-A



- Molecule 76: 40S ribosomal protein S7-A

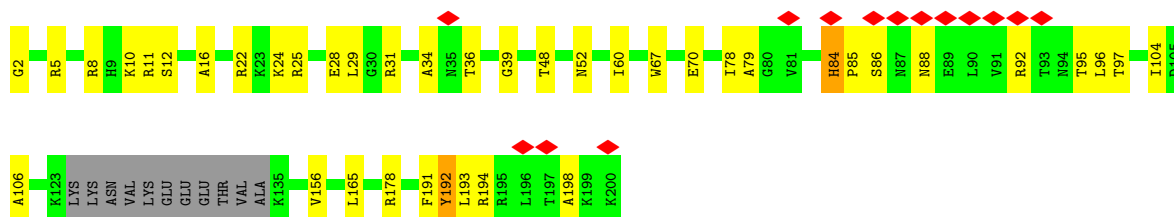


Chain U:  85% 11% ..



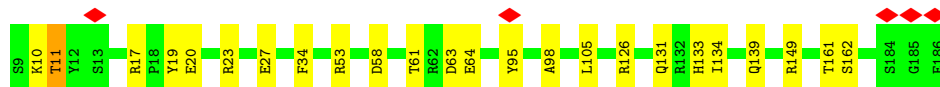
- Molecule 77: 40S ribosomal protein S8-A

Chain V:  74% 20% 6%

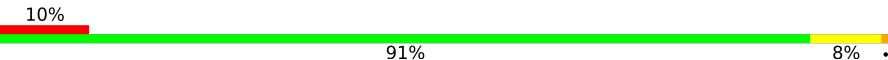


- Molecule 78: 40S ribosomal protein S9-A

Chain W:  87% 13% .



- Molecule 79: 40S ribosomal protein S11-A

Chain X:  91% 8% .

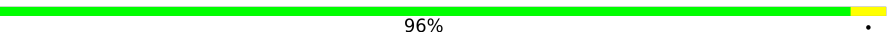


- Molecule 80: 40S ribosomal protein S13

Chain Y:  89% 11%



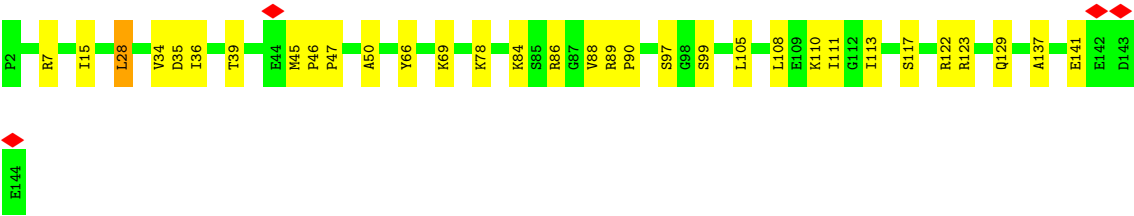
- Molecule 81: 40S ribosomal protein S14-B

Chain Z:  96% .



- Molecule 82: 40S ribosomal protein S19-A

Chain I:  78% 22% .



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	217000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	2.5	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.470	Depositor
Minimum map value	-0.232	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.04	Depositor
Map size ($\text{\AA}$)	433.6, 433.6, 433.6	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.084, 1.084, 1.084	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	2	0.50	0/42103	0.48	6/65603 (0.0%)
2	AA	0.57	0/1836	0.61	0/2481
3	AB	0.67	0/1018	0.62	0/1369
4	AC	0.53	0/778	0.57	0/1034
5	AD	0.51	0/1539	0.58	0/2073
6	AE	0.63	0/555	0.57	0/738
7	AF	0.81	0/696	0.85	0/923
8	AG	0.42	0/1374	0.57	0/1842
9	AH	0.63	0/979	0.61	0/1321
10	AI	0.51	0/618	0.55	0/826
11	AJ	0.67	0/1568	0.74	0/2106
12	AK	0.64	0/1004	0.58	0/1341
13	AL	0.79	0/443	0.73	0/588
14	AM	0.55	0/1068	0.57	0/1438
15	AN	0.59	0/1118	0.60	0/1497
16	AO	0.54	0/423	0.55	0/562
17	AP	0.64	0/860	0.58	0/1136
18	AQ	0.83	0/1757	0.75	1/2354 (0.0%)
19	AR	0.73	0/1204	0.74	2/1612 (0.1%)
20	AS	0.71	0/234	0.74	0/300
21	AT	0.68	0/701	0.76	0/934
22	AU	0.67	0/1585	0.58	0/2128
23	AV	0.57	0/473	0.59	0/629
24	AW	0.79	0/1948	0.76	1/2617 (0.0%)
25	AX	0.68	0/1443	0.66	0/1944
26	a	0.51	0/693	0.68	0/935
27	b	0.68	0/1038	0.57	0/1395
28	c	0.61	0/1139	0.66	0/1518
29	d	0.42	0/1074	0.66	1/1431 (0.1%)
30	e	0.66	0/782	1.01	5/1047 (0.5%)
31	f	0.50	0/620	0.54	0/838
32	g	0.40	0/481	0.59	0/640

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	z	0.32	0/7362	0.70	0/9944
34	l	0.33	0/411	0.47	0/639
35	n	0.34	0/1811	0.38	0/2821
36	m	0.26	0/1773	0.43	0/2759
37	AY	0.59	0/750	0.61	0/1008
38	BA	0.70	0/3146	0.66	0/4228
39	BB	0.67	0/1465	0.69	0/1965
40	BC	0.64	0/890	0.62	0/1196
41	BD	0.54	0/1807	0.62	0/2425
42	BE	0.70	0/2800	0.65	0/3790
43	BF	0.65	0/1538	0.67	0/2050
44	BG	0.68	0/1041	0.60	0/1394
45	BH	0.62	0/1481	0.60	0/1990
46	BI	0.49	0/2425	0.55	0/3271
47	BJ	0.61	0/1300	0.64	0/1743
48	BK	0.76	0/868	0.61	0/1168
49	BL	0.44	0/812	0.55	1/1099 (0.1%)
50	BM	0.50	0/1260	0.50	0/1694
51	BN	0.73	0/890	0.61	0/1189
52	BO	0.67	0/1821	0.62	0/2451
53	BP	0.60	0/978	0.65	0/1301
54	BQ	0.64	0/75679	0.52	13/117989 (0.0%)
55	BR	0.48	0/2883	0.42	0/4491
56	BS	0.66	0/3745	0.50	0/5829
57	A	0.40	0/1759	0.52	0/2368
58	B	0.41	0/1623	0.62	0/2195
59	C	0.30	0/833	0.53	0/1126
60	D	0.31	0/885	0.70	0/1202
61	E	0.31	0/978	0.65	0/1315
62	F	0.46	0/1119	0.66	0/1503
63	G	0.42	0/1011	0.67	0/1355
64	H	0.34	0/1162	0.58	0/1564
65	J	0.40	0/865	0.56	0/1169
66	K	0.36	0/571	0.71	0/768
67	L	0.39	0/499	0.53	0/670
68	M	0.46	0/452	0.51	0/600
69	N	0.27	0/404	0.59	0/542
70	O	0.30	0/2489	0.48	0/3389
71	P	0.46	0/1732	0.62	1/2371 (0.0%)
72	Q	0.49	0/1735	0.68	1/2335 (0.0%)
73	R	0.59	0/1702	0.60	0/2310
74	S	0.52	0/2102	0.66	6/2829 (0.2%)
75	T	0.39	0/1823	0.60	0/2439

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
76	U	0.42	0/1465	0.57	0/1971
77	V	0.60	0/1514	0.79	1/2021 (0.0%)
78	W	0.52	0/1456	0.72	0/1949
79	X	0.64	0/1239	0.62	0/1673
80	Y	0.59	0/1215	0.65	0/1638
81	Z	0.61	0/901	0.69	0/1217
82	I	0.41	0/1119	0.70	2/1504 (0.1%)
All	All	0.58	0/224741	0.56	41/329657 (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
2	AA	0	3
4	AC	0	2
5	AD	0	1
10	AI	0	1
11	AJ	0	1
18	AQ	0	1
19	AR	0	1
21	AT	0	1
26	a	0	1
27	b	0	1
29	d	0	3
30	e	0	7
33	z	0	5
40	BC	0	1
41	BD	0	3
42	BE	0	1
46	BI	0	1
52	BO	0	1
53	BP	0	2
57	A	0	1
58	B	0	2
61	E	0	1
64	H	0	1
66	K	0	1
71	P	0	2
72	Q	0	2
74	S	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
75	T	0	3
76	U	0	1
77	V	0	6
78	W	0	2
79	X	0	1
80	Y	0	1
All	All	0	62

There are no bond length outliers.

All (41) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	BQ	1303	A	C1'-C2'-O2'	-17.58	82.04	108.40
54	BQ	1307	G	C2'-C3'-O3'	9.39	123.59	109.50
1	2	1465	C	C2'-C3'-O3'	8.80	126.90	113.70
54	BQ	1580	A	C2'-C3'-O3'	7.55	120.83	109.50
54	BQ	1303	A	C4'-C3'-O3'	-7.17	102.25	113.00
18	AQ	177	GLY	N-CA-C	6.80	118.95	112.08
74	S	26	CYS	N-CA-C	6.79	125.25	110.80
30	e	61	GLU	CA-C-N	6.70	134.34	121.54
30	e	61	GLU	C-N-CA	6.70	134.34	121.54
1	2	1469	A	C2'-C3'-O3'	6.63	123.64	113.70
30	e	8	ASN	CB-CA-C	6.40	123.16	110.42
30	e	9	GLY	N-CA-C	6.35	122.56	111.14
54	BQ	925	A	C2'-C3'-O3'	6.28	118.92	109.50
54	BQ	1447	G	C2'-C3'-O3'	5.91	118.36	109.50
49	BL	27	VAL	N-CA-C	5.89	112.52	106.21
54	BQ	1580	A	C4'-C3'-O3'	5.86	118.19	109.40
74	S	22	LYS	N-CA-C	5.81	120.09	112.13
71	P	111	ILE	N-CA-C	5.71	121.21	109.34
54	BQ	3219	G	C2'-C3'-O3'	5.69	118.04	109.50
54	BQ	1303	A	N9-C1'-C2'	5.69	120.53	112.00
24	AW	9	ARG	NE-CZ-NH1	-5.65	115.85	121.50
54	BQ	154	U	C2'-C3'-O3'	5.57	117.85	109.50
1	2	379	U	C3'-C2'-O2'	5.55	122.93	114.60
29	d	34	ASN	N-CA-C	5.53	122.57	110.80
1	2	380	U	C4'-C3'-O3'	5.52	117.67	109.40
74	S	193	GLY	N-CA-C	5.33	125.81	113.18
77	V	192	TYR	N-CA-C	5.27	116.88	111.03
54	BQ	1303	A	C3'-C2'-O2'	-5.25	102.83	110.70
19	AR	47	LYS	CA-C-N	5.25	131.56	121.54
19	AR	47	LYS	C-N-CA	5.25	131.56	121.54

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
74	S	25	GLY	CA-C-N	5.19	131.44	121.54
74	S	25	GLY	C-N-CA	5.19	131.44	121.54
30	e	10	ARG	NE-CZ-NH2	5.18	123.86	119.20
1	2	1274	C	C2'-C3'-O3'	5.17	117.26	109.50
74	S	25	GLY	N-CA-C	-5.17	108.55	115.32
1	2	322	G	C2'-C3'-O3'	5.17	117.25	109.50
72	Q	178	GLY	N-CA-C	-5.14	105.53	110.21
54	BQ	406	G	O4'-C1'-N9	5.08	115.82	108.20
54	BQ	1447	G	P-O3'-C3'	5.05	127.78	120.20
82	I	28	LEU	CA-C-N	5.02	131.13	121.54
82	I	28	LEU	C-N-CA	5.02	131.13	121.54

There are no chirality outliers.

All (62) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
57	A	219	ALA	Peptide
2	AA	156	ASP	Peptide
2	AA	74	THR	Peptide
2	AA	76	ALA	Peptide
4	AC	26	ILE	Peptide
4	AC	32	ALA	Peptide
5	AD	22	SER	Peptide
10	AI	34	ALA	Peptide
11	AJ	74	GLY	Peptide
18	AQ	92	LEU	Peptide
19	AR	2	PRO	Peptide
21	AT	49	ARG	Peptide
58	B	57	SER	Peptide
58	B	65	ARG	Peptide
40	BC	6	ASP	Peptide
41	BD	109	ARG	Peptide
41	BD	170	TRP	Peptide
41	BD	171	GLY	Peptide
42	BE	318	LEU	Peptide
46	BI	258	LYS	Peptide
52	BO	232	ARG	Peptide
53	BP	83	LYS	Peptide
53	BP	91	ALA	Peptide
61	E	11	VAL	Peptide
64	H	90	ASN	Peptide
66	K	44	GLN	Peptide

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
71	P	110	TYR	Peptide
71	P	157	ASP	Peptide
72	Q	152	ARG	Peptide
72	Q	223	PHE	Peptide
74	S	22	LYS	Peptide
75	T	150	GLU	Peptide
75	T	197	ASN	Peptide
75	T	212	LEU	Peptide
76	U	131	PHE	Peptide
77	V	191	PHE	Peptide
77	V	34	ALA	Peptide
77	V	79	ALA	Peptide
77	V	84	HIS	Peptide
77	V	86	SER	Peptide
77	V	92	ARG	Peptide
78	W	11	THR	Peptide
78	W	133	HIS	Peptide
79	X	6	THR	Peptide
80	Y	150	VAL	Peptide
26	a	81	ASN	Peptide
27	b	54	ASP	Peptide
29	d	119	PHE	Peptide
29	d	51	GLU	Peptide
29	d	52	LYS	Peptide
30	e	10	ARG	Peptide
30	e	15	ARG	Peptide
30	e	34	LYS	Peptide
30	e	61	GLU	Peptide
30	e	62	TYR	Peptide
30	e	7	SER	Peptide
30	e	84	VAL	Peptide
33	z	20	LEU	Peptide
33	z	267	GLU	Peptide
33	z	427	LYS	Peptide
33	z	675	LYS	Peptide
33	z	885	ILE	Peptide

5.2 Too-close contacts

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	2	37645	0	18939	248	0
2	AA	1804	0	1877	16	0
3	AB	1003	0	1048	8	0
4	AC	771	0	849	3	0
5	AD	1518	0	1587	10	0
6	AE	543	0	564	4	0
7	AF	681	0	683	5	0
8	AG	1353	0	1383	9	0
9	AH	964	0	1025	8	0
10	AI	612	0	682	7	0
11	AJ	1543	0	1608	13	0
12	AK	993	0	1081	10	0
13	AL	436	0	475	7	0
14	AM	1053	0	1149	9	0
15	AN	1092	0	1155	12	0
16	AO	417	0	455	2	0
17	AP	847	0	914	7	0
18	AQ	1720	0	1779	16	0
19	AR	1173	0	1215	11	0
20	AS	233	0	284	1	0
21	AT	694	0	734	11	0
22	AU	1555	0	1659	9	0
23	AV	462	0	491	3	0
24	AW	1914	0	1981	27	0
25	AX	1420	0	1437	14	0
26	a	684	0	672	7	0
27	b	1021	0	1060	6	0
28	c	1121	0	1196	5	0
29	d	1060	0	1123	14	0
30	e	769	0	814	17	0
31	f	610	0	633	6	0
32	g	473	0	518	5	0
33	z	7181	0	7071	99	0
34	l	367	0	185	3	0
35	n	1621	0	822	3	0
36	m	1589	0	810	12	0
37	AY	742	0	797	8	0
38	BA	3075	0	3142	31	0
39	BB	1441	0	1543	18	0
40	BC	876	0	912	5	0
41	BD	1770	0	1808	9	0
42	BE	2748	0	2859	29	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
43	BF	1521	0	1617	7	0
44	BG	1020	0	1090	7	0
45	BH	1445	0	1487	11	0
46	BI	2375	0	2325	25	0
47	BJ	1276	0	1323	13	0
48	BK	850	0	880	11	0
49	BL	796	0	812	9	0
50	BM	1239	0	1326	14	0
51	BN	880	0	941	9	0
52	BO	1784	0	1862	15	0
53	BP	969	0	1078	1	0
54	BQ	67610	0	33962	262	0
55	BR	2579	0	1304	5	0
56	BS	3352	0	1695	15	0
57	A	1734	0	1817	8	0
58	B	1603	0	1664	16	0
59	C	813	0	800	7	0
60	D	877	0	883	13	0
61	E	957	0	981	9	0
62	F	1099	0	1151	19	0
63	G	1001	0	1063	15	0
64	H	1143	0	1168	23	0
65	J	855	0	917	6	0
66	K	563	0	603	8	0
67	L	497	0	535	7	0
68	M	442	0	429	3	0
69	N	397	0	397	7	0
70	O	2436	0	2386	16	0
71	P	1691	0	1673	15	0
72	Q	1709	0	1784	22	0
73	R	1671	0	1768	16	0
74	S	2061	0	2135	27	0
75	T	1799	0	1879	23	0
76	U	1442	0	1529	16	0
77	V	1489	0	1525	25	0
78	W	1434	0	1511	16	0
79	X	1213	0	1257	10	0
80	Y	1192	0	1255	10	0
81	Z	891	0	883	4	0
82	I	1101	0	1102	39	0
83	AF	1	0	0	0	0
83	AO	1	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
83	AP	1	0	0	0	0
83	AT	1	0	0	0	0
83	BN	1	0	0	0	0
83	M	1	0	0	0	0
83	N	1	0	0	0	0
83	e	1	0	0	0	0
84	l	1	0	0	0	0
84	z	1	0	0	0	0
All	All	209410	0	155816	1211	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 3.

All (1211) 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)
46:BI:218:ARG:HB2	46:BI:218:ARG:HH11	1.19	1.03
1:2:992:A:H2	1:2:1012:U:H3	0.97	0.96
33:z:406:LEU:HD11	33:z:459:LEU:HD11	1.49	0.95
1:2:384:G:H5'	1:2:384:G:H8	1.35	0.91
46:BI:218:ARG:HH11	46:BI:218:ARG:CB	1.88	0.87
1:2:380:U:OP2	1:2:380:U:H3'	1.74	0.86
70:O:172:ALA:HB2	70:O:202:LEU:HD23	1.60	0.83
1:2:992:A:H2	1:2:1012:U:N3	1.77	0.82
24:AW:68:LYS:NZ	54:BQ:1579:C:C5'	2.44	0.81
1:2:228:G:C6	1:2:835:U:O2	2.34	0.80
1:2:1524:A:OP1	82:I:78:LYS:HG3	1.81	0.79
1:2:1601:G:OP1	82:I:86:ARG:NH1	2.16	0.78
79:X:33:ARG:NH1	79:X:53:TYR:O	2.16	0.78
76:U:7:LYS:NZ	76:U:39:ARG:O	2.17	0.78
1:2:1537:C:O2	1:2:1541:G:N2	2.17	0.77
15:AN:55:LYS:NZ	54:BQ:2564:G:OP2	2.17	0.77
54:BQ:3216:G:O2'	54:BQ:3219:G:O2'	2.00	0.77
38:BA:266:ARG:NH2	54:BQ:2392:C:O2'	2.18	0.77
33:z:593:MET:O	33:z:623:TYR:OH	2.02	0.77
54:BQ:1285:G:O2'	54:BQ:1286:A:O4'	2.01	0.77
24:AW:68:LYS:NZ	54:BQ:1579:C:H5''	1.99	0.77
38:BA:10:ARG:NH2	38:BA:263:SER:O	2.18	0.76
1:2:1601:G:OP1	82:I:86:ARG:NH2	2.17	0.76
5:AD:166:ARG:NH2	54:BQ:3108:G:O2'	2.18	0.76
36:m:57:A:O2'	36:m:59:U:OP2	2.02	0.76

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1321:A:N6	71:P:135:GLU:OE2	2.17	0.76
54:BQ:3353:G:O2'	54:BQ:3354:U:O4'	2.03	0.76
23:AV:5:LYS:NZ	54:BQ:1118:C:OP2	2.18	0.76
79:X:33:ARG:NH2	79:X:48:ALA:O	2.19	0.76
33:z:430:LEU:O	33:z:434:LYS:N	2.19	0.76
54:BQ:1392:G:O2'	54:BQ:1418:A:N6	2.18	0.76
6:AE:17:ARG:NH1	38:BA:368:GLY:O	2.19	0.76
54:BQ:2523:A:O2'	54:BQ:2524:A:O5'	2.03	0.76
24:AW:8:GLN:O	54:BQ:2163:C:O2'	2.03	0.75
54:BQ:2822:U:O2'	54:BQ:2942:C:OP2	2.01	0.75
1:2:66:U:OP1	75:T:136:LYS:NZ	2.18	0.75
38:BA:244:ARG:NH2	54:BQ:2948:C:OP1	2.19	0.75
62:F:31:VAL:C	62:F:33:GLY:H	1.94	0.75
54:BQ:2761:G:O2'	54:BQ:2800:G:N2	2.18	0.75
1:2:754:A:O2'	1:2:755:A:OP1	2.04	0.75
33:z:775:TYR:OH	33:z:900:VAL:O	2.03	0.75
54:BQ:1246:G:OP2	54:BQ:1263:A:O2'	2.03	0.75
14:AM:124:ARG:NH2	54:BQ:3212:C:OP2	2.20	0.75
71:P:162:CYS:SG	71:P:163:ASN:N	2.59	0.74
39:BB:69:ARG:NH1	54:BQ:720:A:OP1	2.20	0.74
17:AP:2:VAL:N	17:AP:90:HIS:O	2.21	0.74
46:BI:107:ARG:NH2	46:BI:169:GLY:O	2.20	0.74
33:z:288:ILE:O	33:z:295:ASN:ND2	2.20	0.74
46:BI:50:ARG:NH1	46:BI:147:ASP:OD2	2.21	0.74
49:BL:90:ARG:NH1	54:BQ:1682:U:O4	2.19	0.74
54:BQ:533:A:N7	54:BQ:555:U:O2	2.21	0.74
79:X:7:VAL:HG13	79:X:8:GLN:HG2	1.69	0.74
29:d:64:PHE:O	78:W:139:GLN:NE2	2.21	0.74
74:S:11:ARG:CG	74:S:21:ASP:O	2.35	0.74
59:C:5:LYS:O	59:C:9:ASN:ND2	2.20	0.74
12:AK:2:ALA:N	54:BQ:212:G:OP2	2.20	0.74
1:2:1594:G:OP2	1:2:1596:C:N4	2.21	0.74
35:n:58:A:O2'	35:n:60:U:OP2	2.04	0.74
1:2:1220:C:OP1	59:C:48:SER:OG	2.06	0.73
1:2:1296:A:OP1	71:P:138:TYR:OH	2.04	0.73
54:BQ:637:C:O2'	54:BQ:638:C:O5'	2.05	0.73
62:F:31:VAL:O	62:F:67:VAL:O	2.06	0.73
75:T:85:ARG:O	75:T:87:ARG:NH1	2.21	0.73
52:BO:158:LYS:NZ	54:BQ:1104:G:OP2	2.20	0.73
38:BA:10:ARG:NH1	38:BA:11:HIS:O	2.21	0.73
25:AX:13:LYS:NZ	25:AX:154:GLU:OE1	2.21	0.73

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:BA:185:GLY:O	38:BA:191:LYS:NZ	2.18	0.73
24:AW:68:LYS:NZ	54:BQ:1579:C:H5'	2.04	0.73
1:2:1109:G:OP1	30:e:4:LYS:NZ	2.21	0.72
54:BQ:1350:A:N6	54:BQ:1353:U:OP2	2.21	0.72
78:W:17:ARG:O	78:W:23:ARG:NH2	2.22	0.72
1:2:1528:U:OP2	58:B:109:LYS:NZ	2.18	0.72
1:2:1584:G:N2	1:2:1611:A:OP2	2.22	0.72
54:BQ:1778:G:O2'	54:BQ:1780:G:OP2	2.08	0.72
1:2:1371:A:O2'	1:2:1373:C:OP1	2.06	0.72
15:AN:81:LEU:HD11	51:BN:90:ILE:HD13	1.70	0.72
80:Y:137:PRO:O	80:Y:138:ASN:ND2	2.22	0.72
54:BQ:3092:C:O2'	54:BQ:3094:A:OP2	2.08	0.72
42:BE:126:ILE:O	42:BE:129:THR:OG1	2.06	0.72
64:H:41:ARG:HD2	82:I:46:PRO:HD3	1.71	0.72
1:2:539:G:O2'	1:2:540:G:O5'	2.06	0.72
48:BK:97:SER:OG	54:BQ:3174:A:OP1	2.06	0.71
54:BQ:1479:U:O2'	54:BQ:1484:U:OP1	2.07	0.71
54:BQ:93:C:OP2	54:BQ:2764:C:O2'	2.06	0.71
54:BQ:775:A:O2'	54:BQ:777:U:OP2	2.07	0.71
1:2:618:U:O2'	1:2:1142:A:OP1	2.07	0.71
1:2:1735:U:OP1	3:AB:32:ARG:NH1	2.22	0.71
47:BJ:41:ASP:OD1	47:BJ:61:THR:OG1	2.05	0.71
54:BQ:1627:U:O2	54:BQ:1817:G:N2	2.18	0.71
76:U:14:THR:OG1	76:U:15:GLU:OE1	2.05	0.71
54:BQ:2208:A:O2'	54:BQ:2209:U:OP1	2.08	0.71
1:2:1081:A:O2'	1:2:1083:G:N7	2.23	0.71
13:AL:25:GLN:OE1	13:AL:28:ARG:NH2	2.24	0.71
63:G:77:GLU:OE2	63:G:80:ARG:NH1	2.24	0.71
1:2:1023:A:O2'	1:2:1024:U:OP2	2.06	0.71
1:2:55:A:O2'	1:2:56:U:O5'	2.08	0.71
1:2:680:U:O4	1:2:682:C:N4	2.24	0.71
15:AN:17:ARG:NH2	15:AN:18:TYR:OH	2.24	0.71
24:AW:68:LYS:HZ1	54:BQ:1579:C:C5'	2.03	0.71
42:BE:7:THR:OG1	42:BE:147:GLU:OE2	2.07	0.71
47:BJ:35:LYS:NZ	54:BQ:1084:A:OP1	2.24	0.71
71:P:110:TYR:O	71:P:112:THR:N	2.24	0.70
17:AP:56:PRO:O	36:m:74:C:O2'	2.09	0.70
18:AQ:68:ARG:NH2	54:BQ:292:U:OP2	2.23	0.70
33:z:775:TYR:O	33:z:779:ASN:HA	1.91	0.70
54:BQ:1447:G:O2'	54:BQ:1448:U:OP2	2.07	0.70
1:2:1524:A:H5''	82:I:78:LYS:HE2	1.73	0.70

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:g:20:LYS:NZ	32:g:22:GLU:OE1	2.24	0.70
33:z:773:ASP:O	33:z:777:THR:HG23	1.91	0.70
54:BQ:2185:G:O2'	54:BQ:2314:U:OP2	2.08	0.70
74:S:11:ARG:HG3	74:S:21:ASP:O	1.91	0.70
32:g:49:LEU:N	32:g:53:LYS:O	2.23	0.70
54:BQ:1481:A:O2'	54:BQ:1858:A:N3	2.25	0.70
1:2:1464:G:C2	1:2:1465:C:C5	2.79	0.70
64:H:16:ARG:NH1	64:H:21:ASN:OD1	2.25	0.70
1:2:1504:G:OP1	82:I:97:SER:OG	2.10	0.70
1:2:1535:U:O2'	1:2:1536:G:O5'	2.09	0.70
54:BQ:1628:C:O4'	54:BQ:1814:A:N6	2.25	0.70
1:2:1585:U:OP1	62:F:125:GLU:N	2.25	0.70
33:z:819:GLN:NE2	33:z:820:GLU:O	2.25	0.70
16:AO:100:TYR:O	54:BQ:2895:G:O2'	2.10	0.69
18:AQ:93:LYS:O	54:BQ:289:A:O2'	2.05	0.69
13:AL:4:GLN:OE1	54:BQ:1588:A:O2'	2.10	0.69
63:G:81:LYS:O	63:G:83:GLN:N	2.26	0.69
1:2:656:G:O6	1:2:679:U:O2	2.11	0.69
33:z:721:ARG:NH1	33:z:725:LEU:HD13	2.08	0.69
77:V:22:ARG:NH2	77:V:28:GLU:OE2	2.25	0.69
1:2:695:U:O2'	1:2:697:C:OP1	2.10	0.69
13:AL:37:TYR:O	54:BQ:351:A:N6	2.25	0.69
29:d:15:ASN:ND2	74:S:54:TYR:O	2.24	0.69
33:z:797:ARG:NE	33:z:800:TYR:O	2.23	0.69
45:BH:73:LYS:NZ	45:BH:97:VAL:O	2.26	0.69
52:BO:211:SER:OG	54:BQ:508:U:OP1	2.10	0.69
54:BQ:1646:G:O2'	54:BQ:1809:A:N6	2.25	0.69
45:BH:90:MET:HE1	45:BH:114:HIS:NE2	2.08	0.69
1:2:1353:U:H3	1:2:1372:U:H3	1.40	0.69
1:2:129:U:O2'	1:2:131:C:N4	2.26	0.68
74:S:98:ASN:ND2	74:S:116:ASP:OD1	2.26	0.68
54:BQ:1093:A:O2'	54:BQ:1094:U:O4'	2.09	0.68
1:2:228:G:C5	1:2:835:U:O2	2.47	0.68
1:2:1390:U:O4'	63:G:3:ARG:NH2	2.25	0.68
54:BQ:1558:A:O2'	54:BQ:1559:A:OP1	2.09	0.68
42:BE:98:ARG:NH2	54:BQ:804:C:OP1	2.26	0.68
50:BM:60:ASP:OD1	50:BM:62:THR:OG1	2.12	0.68
65:J:71:PRO:O	68:M:40:ARG:NH2	2.26	0.68
1:2:703:G:O2'	75:T:218:GLU:OE2	2.09	0.68
41:BD:192:ASP:OD2	54:BQ:1010:G:N2	2.27	0.68
10:AI:63:LYS:O	10:AI:67:GLN:NE2	2.26	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:BS:83:C:O2'	56:BS:85:G:N2	2.26	0.67
1:2:1471:A:OP1	1:2:1572:G:O2'	2.12	0.67
33:z:853:TYR:O	33:z:858:ALA:N	2.27	0.67
52:BO:94:LYS:NZ	54:BQ:1155:C:OP2	2.27	0.67
1:2:1558:U:OP2	1:2:1559:A:O2'	2.07	0.67
3:AB:90:GLY:HA3	38:BA:73:VAL:HG21	1.76	0.67
14:AM:20:VAL:O	14:AM:66:THR:OG1	2.10	0.67
36:m:15:A:N6	36:m:47:C:O2	2.24	0.67
1:2:93:A:O2'	74:S:3:ARG:O	2.09	0.67
1:2:428:A:N3	1:2:440:U:O2'	2.26	0.67
79:X:2:SER:OG	79:X:116:ARG:NH2	2.28	0.67
1:2:402:C:OP1	74:S:3:ARG:NH1	2.27	0.67
33:z:539:GLU:OE1	33:z:557:TRP:NE1	2.28	0.66
54:BQ:282:G:O2'	54:BQ:283:G:OP2	2.10	0.66
58:B:49:GLU:O	58:B:51:VAL:N	2.28	0.66
1:2:699:U:O2'	1:2:700:C:O5'	2.12	0.66
1:2:1373:C:H5''	1:2:1373:C:H6	1.57	0.66
1:2:1563:C:OP1	82:I:84:LYS:NZ	2.17	0.66
38:BA:240:ARG:NH2	54:BQ:1907:C:O2	2.28	0.66
54:BQ:764:U:O2'	54:BQ:765:C:OP1	2.10	0.66
72:Q:158:SER:HA	72:Q:161:ILE:HD12	1.78	0.66
39:BB:36:LEU:O	39:BB:40:THR:OG1	2.05	0.66
53:BP:76:GLN:O	53:BP:81:ARG:NE	2.28	0.66
48:BK:99:ARG:NH2	54:BQ:3175:U:O4	2.28	0.66
1:2:461:G:H4'	74:S:26:CYS:SG	2.36	0.66
1:2:1430:U:O2'	1:2:1431:C:OP1	2.13	0.66
52:BO:48:ASN:ND2	52:BO:182:ASP:OD2	2.28	0.66
2:AA:50:VAL:HG12	9:AH:30:ALA:HA	1.78	0.66
54:BQ:2375:G:O2'	54:BQ:2377:G:OP2	2.13	0.66
67:L:58:GLU:N	67:L:58:GLU:OE1	2.29	0.66
62:F:30:LYS:CB	62:F:34:SER:O	2.44	0.65
56:BS:85:G:O2'	56:BS:86:U:OP1	2.12	0.65
1:2:17:C:O2'	1:2:1137:A:N1	2.25	0.65
1:2:384:G:H5'	1:2:384:G:C8	2.25	0.65
54:BQ:1250:G:N2	54:BQ:1251:A:N7	2.45	0.65
54:BQ:2501:U:O2'	54:BQ:2502:A:OP1	2.12	0.65
70:O:123:ILE:HG22	70:O:133:VAL:HG22	1.79	0.65
60:D:74:LEU:HD21	69:N:106:TYR:CD1	2.31	0.65
1:2:1029:U:O3'	30:e:11:ASN:ND2	2.30	0.65
1:2:1149:G:N3	1:2:1765:A:O2'	2.29	0.65
41:BD:204:SER:OG	41:BD:207:ASN:ND2	2.30	0.65

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
64:H:40:ARG:HB3	82:I:45:MET:HE1	1.78	0.64
73:R:53:ILE:CD1	73:R:73:LEU:HD22	2.27	0.64
74:S:153:ASN:ND2	75:T:207:GLU:OE2	2.29	0.64
44:BG:23:ASP:OD2	54:BQ:424:G:O2'	2.13	0.64
54:BQ:3375:A:O2'	54:BQ:3376:A:O4'	2.14	0.64
1:2:1544:U:O5'	64:H:132:ARG:NH2	2.30	0.64
46:BI:54:ARG:NH1	46:BI:148:ILE:O	2.31	0.64
67:L:44:VAL:HG21	67:L:48:VAL:HG21	1.79	0.64
17:AP:45:ARG:NH2	54:BQ:283:G:OP1	2.23	0.64
43:BF:115:ILE:HG13	43:BF:119:LEU:HD23	1.78	0.64
45:BH:22:PRO:O	47:BJ:146:ASN:ND2	2.30	0.64
58:B:92:ARG:NH2	58:B:169:ASN:OD1	2.30	0.64
70:O:126:SER:OG	70:O:127:ARG:N	2.28	0.64
60:D:79:ALA:O	60:D:86:VAL:HG12	1.98	0.64
77:V:2:GLY:O	77:V:24:LYS:NZ	2.28	0.64
1:2:141:U:O2'	1:2:266:A:N3	2.31	0.64
1:2:512:A:O2'	78:W:131:GLN:OE1	2.08	0.64
1:2:1418:G:O2'	68:M:56:ARG:O	2.10	0.64
18:AQ:182:ASN:OD1	54:BQ:280:U:O2'	2.16	0.64
48:BK:31:LYS:NZ	48:BK:78:SER:O	2.29	0.64
54:BQ:2307:G:O2'	54:BQ:2310:U:OP2	2.14	0.64
54:BQ:3042:U:OP2	54:BQ:3092:C:N4	2.28	0.64
1:2:1524:A:C5'	82:I:78:LYS:HE2	2.28	0.64
15:AN:2:ALA:N	37:AY:63:SER:O	2.31	0.64
33:z:516:TYR:OH	33:z:569:ASP:OD2	2.09	0.64
54:BQ:1580:A:OP2	54:BQ:1580:A:H8	1.81	0.64
72:Q:32:ILE:HD11	72:Q:46:THR:HG23	1.80	0.64
2:AA:157:VAL:HG13	54:BQ:147:U:C4	2.33	0.64
46:BI:122:VAL:O	46:BI:248:ARG:NH2	2.31	0.63
54:BQ:250:U:OP2	54:BQ:251:G:O2'	2.08	0.63
1:2:139:C:O2'	1:2:177:U:O2	2.16	0.63
1:2:967:A:OP2	80:Y:124:ARG:NH2	2.29	0.63
54:BQ:1124:U:O2'	54:BQ:2635:A:OP1	2.16	0.63
46:BI:218:ARG:HB2	46:BI:218:ARG:NH1	2.03	0.63
80:Y:142:GLU:OE1	80:Y:142:GLU:N	2.31	0.63
42:BE:313:LEU:HD21	54:BQ:505:G:H4'	1.80	0.63
76:U:126:LEU:HD21	76:U:152:VAL:HG21	1.81	0.63
77:V:70:GLU:OE2	79:X:24:LYS:NZ	2.31	0.63
1:2:228:G:O2'	1:2:229:U:O5'	2.17	0.63
33:z:40:LEU:O	33:z:44:THR:OG1	2.05	0.63
39:BB:63:SER:OG	54:BQ:785:G:OP2	2.16	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:z:209:LEU:HD21	33:z:223:LEU:HD21	1.79	0.63
54:BQ:2899:C:O2'	54:BQ:2901:G:OP2	2.12	0.63
82:I:34:VAL:O	82:I:36:ILE:HG13	1.99	0.63
63:G:88:VAL:O	63:G:95:ARG:NH1	2.30	0.63
11:AJ:4:SER:O	19:AR:44:ASN:ND2	2.32	0.63
33:z:91:ARG:NH2	33:z:647:VAL:O	2.32	0.63
74:S:103:TYR:O	74:S:182:TYR:OH	2.16	0.63
30:e:82:ARG:O	30:e:85:ARG:NH1	2.32	0.62
38:BA:376:LYS:NZ	54:BQ:3330:A:OP2	2.31	0.62
1:2:1225:U:O2	1:2:1230:A:O2'	2.14	0.62
24:AW:95:SER:OG	24:AW:97:ASN:OD1	2.18	0.62
21:AT:75:ALA:O	21:AT:79:VAL:HG23	1.98	0.62
24:AW:225:ILE:HD12	24:AW:234:LYS:HA	1.79	0.62
54:BQ:1246:G:O2'	54:BQ:1265:U:OP1	2.15	0.62
24:AW:68:LYS:HZ2	54:BQ:1579:C:C5'	2.12	0.62
25:AX:82:ARG:NH2	54:BQ:1448:U:OP1	2.32	0.62
74:S:11:ARG:HG2	74:S:21:ASP:O	1.99	0.62
25:AX:175:ARG:NH2	54:BQ:3277:U:OP2	2.32	0.62
54:BQ:760:G:O2'	54:BQ:771:A:N6	2.32	0.62
70:O:205:SER:OG	70:O:207:ASP:OD1	2.14	0.62
1:2:362:G:C6	1:2:383:G:C6	2.87	0.62
54:BQ:1808:G:O2'	54:BQ:1809:A:OP2	2.17	0.62
1:2:1284:C:OP1	73:R:91:ARG:NH1	2.31	0.62
11:AJ:166:ALA:N	19:AR:135:GLU:OE2	2.33	0.62
1:2:765:G:O6	78:W:149:ARG:NH1	2.33	0.62
52:BO:90:LYS:NZ	54:BQ:1157:G:OP1	2.32	0.62
33:z:339:LEU:HD11	33:z:570:LEU:HB3	1.81	0.61
62:F:30:LYS:HA	62:F:34:SER:O	2.00	0.61
33:z:145:LYS:NZ	33:z:689:TYR:OH	2.33	0.61
60:D:74:LEU:HD21	69:N:106:TYR:CG	2.34	0.61
1:2:1373:C:H5''	1:2:1373:C:C6	2.34	0.61
25:AX:126:ARG:NH2	25:AX:140:GLU:OE2	2.34	0.61
60:D:97:LEU:CD2	60:D:118:ALA:HB3	2.31	0.61
70:O:273:ASP:OD1	70:O:275:ARG:NH1	2.33	0.61
1:2:1467:C:H5'	1:2:1602:C:OP1	1.99	0.61
34:l:34:U:O2'	34:l:35:C:OP1	2.13	0.61
54:BQ:1188:U:OP1	54:BQ:1210:U:O2'	2.10	0.61
1:2:898:A:N6	1:2:914:G:O2'	2.34	0.61
4:AC:28:TYR:OH	54:BQ:315:C:OP2	2.18	0.61
24:AW:68:LYS:HZ1	54:BQ:1579:C:H5'	1.62	0.61
62:F:30:LYS:CA	62:F:34:SER:O	2.49	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1565:C:OP1	64:H:41:ARG:NH1	2.32	0.61
1:2:773:C:OP1	74:S:21:ASP:HB2	2.01	0.61
1:2:1274:C:O2'	1:2:1275:A:OP2	2.14	0.61
21:AT:75:ALA:O	21:AT:78:THR:OG1	2.18	0.61
27:b:81:VAL:O	27:b:122:SER:OG	2.09	0.61
1:2:341:A:OP1	77:V:88:ASN:ND2	2.34	0.61
54:BQ:2434:U:N3	54:BQ:2594:C:OP2	2.32	0.61
54:BQ:3156:U:O2'	54:BQ:3157:U:OP1	2.15	0.61
1:2:1218:G:O4'	1:2:1444:A:N6	2.33	0.60
1:2:1797:A:N6	30:e:84:VAL:O	2.34	0.60
39:BB:64:VAL:HG22	39:BB:96:PHE:CE1	2.36	0.60
1:2:878:G:O2'	80:Y:108:ASP:OD1	2.15	0.60
2:AA:74:THR:O	2:AA:77:GLN:NE2	2.35	0.60
12:AK:2:ALA:O	54:BQ:228:U:O2'	2.20	0.60
31:f:53:ALA:HB1	31:f:62:ILE:HD11	1.83	0.60
33:z:537:TYR:CD2	33:z:570:LEU:HD11	2.36	0.60
71:P:215:ALA:O	71:P:219:THR:HG23	2.01	0.60
39:BB:21:SER:OG	54:BQ:673:U:OP1	2.07	0.60
74:S:94:ALA:O	74:S:95:THR:OG1	2.17	0.60
33:z:74:THR:O	33:z:76:LYS:NZ	2.32	0.60
44:BG:47:ARG:NH2	48:BK:22:VAL:HG22	2.17	0.60
1:2:31:C:O2'	1:2:547:U:OP1	2.19	0.60
18:AQ:44:ARG:NH1	54:BQ:269:G:OP1	2.34	0.60
24:AW:54:ARG:HH11	24:AW:58:LEU:HD21	1.67	0.60
33:z:223:LEU:O	33:z:248:LEU:N	2.33	0.60
33:z:618:PRO:O	33:z:651:ARG:NH2	2.33	0.60
62:F:30:LYS:HB3	62:F:34:SER:O	2.01	0.60
39:BB:57:ILE:HD12	54:BQ:671:U:OP2	2.02	0.60
77:V:85:PRO:HG3	77:V:198:ALA:HB2	1.84	0.60
2:AA:107:GLU:O	2:AA:110:THR:OG1	2.20	0.60
42:BE:334:PHE:HA	42:BE:339:LEU:HD12	1.83	0.60
48:BK:99:ARG:NH1	54:BQ:3275:U:O2'	2.34	0.60
59:C:14:TYR:OH	59:C:34:GLU:OE1	2.20	0.60
1:2:1601:G:OP1	82:I:86:ARG:CZ	2.50	0.59
37:AY:99:ASP:O	37:AY:103:THR:HG23	2.01	0.59
1:2:1351:G:O2'	1:2:1352:G:H5'	2.02	0.59
47:BJ:101:CYS:SG	47:BJ:102:ARG:N	2.75	0.59
48:BK:13:HIS:ND1	48:BK:93:THR:O	2.34	0.59
74:S:66:MET:SD	74:S:78:THR:OG1	2.60	0.59
5:AD:120:ASP:OD2	5:AD:124:ARG:NH2	2.34	0.59
72:Q:122:GLU:OE2	72:Q:213:ARG:NH2	2.35	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
77:V:39:GLY:N	77:V:60:ILE:O	2.35	0.59
22:AU:83:ALA:O	54:BQ:1312:C:O2'	2.21	0.59
33:z:886:LYS:NZ	33:z:911:TYR:O	2.34	0.59
46:BI:218:ARG:HH11	46:BI:218:ARG:CG	2.14	0.59
64:H:41:ARG:CD	82:I:46:PRO:HD3	2.31	0.59
13:AL:27:ILE:O	13:AL:33:ASN:ND2	2.35	0.59
50:BM:70:LYS:NZ	54:BQ:3266:G:OP2	2.34	0.59
46:BI:50:ARG:NH2	55:BR:6:C:O2'	2.36	0.59
59:C:16:PHE:HB2	59:C:76:LEU:HD23	1.85	0.59
1:2:114:C:HO2'	79:X:65:SER:HG	1.50	0.59
1:2:780:A:O2'	29:d:9:THR:O	2.21	0.59
22:AU:133:ARG:HG3	54:BQ:1316:C:OP2	2.03	0.59
41:BD:214:GLU:N	41:BD:214:GLU:OE1	2.36	0.59
45:BH:77:VAL:HG11	45:BH:106:LEU:HD13	1.83	0.59
1:2:707:A:N6	1:2:733:A:OP1	2.36	0.59
1:2:1172:G:H21	82:I:88:VAL:CG2	2.14	0.59
24:AW:19:HIS:O	24:AW:23:ARG:NH1	2.36	0.59
77:V:48:THR:OG1	77:V:52:ASN:O	2.19	0.59
3:AB:104:ASN:OD1	3:AB:108:GLU:N	2.35	0.59
78:W:58:ASP:O	78:W:61:THR:OG1	2.18	0.59
63:G:93:LEU:O	63:G:96:SER:C	2.46	0.58
79:X:27:THR:O	79:X:30:ARG:NH2	2.35	0.58
1:2:861:U:O2'	27:b:56:HIS:O	2.21	0.58
1:2:1198:G:OP1	1:2:1199:G:O2'	2.08	0.58
18:AQ:187:ARG:NH2	54:BQ:31:C:OP2	2.36	0.58
61:E:41:VAL:HG13	61:E:84:ILE:HD13	1.84	0.58
69:N:146:SER:O	69:N:149:LYS:NZ	2.31	0.58
17:AP:20:HIS:ND1	54:BQ:2741:C:O2'	2.27	0.58
36:m:35:U:O2'	36:m:36:C:O5'	2.21	0.58
61:E:18:ARG:NH1	64:H:90:ASN:O	2.36	0.58
73:R:41:LEU:HD21	73:R:61:LEU:HD13	1.84	0.58
1:2:1435:G:N7	59:C:25:LYS:NZ	2.52	0.58
54:BQ:1751:G:O2'	54:BQ:1752:A:OP1	2.22	0.58
1:2:1524:A:OP1	82:I:78:LYS:CG	2.51	0.58
66:K:71:ILE:HD12	66:K:76:ALA:HA	1.86	0.58
1:2:1468:U:H5''	1:2:1469:A:OP2	2.03	0.58
46:BI:261:THR:N	46:BI:264:GLN:OE1	2.37	0.58
1:2:378:A:H2'	1:2:379:U:H5'	1.86	0.58
54:BQ:3219:G:O2'	54:BQ:3220:G:OP2	2.22	0.58
71:P:9:LEU:HD21	71:P:14:ALA:HB2	1.85	0.58
17:AP:30:ALA:O	54:BQ:2767:U:O2'	2.20	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:BA:135:ALA:O	38:BA:138:ALA:HB2	2.03	0.58
64:H:48:LYS:HD3	82:I:35:ASP:HB2	1.86	0.58
70:O:37:SER:OG	70:O:38:ARG:N	2.36	0.58
1:2:475:A:OP1	78:W:126:ARG:NE	2.36	0.57
1:2:821:U:N3	1:2:852:C:C2	2.72	0.57
12:AK:13:ARG:NH1	56:BS:25:G:N7	2.51	0.57
56:BS:126:A:O2'	56:BS:128:U:OP2	2.19	0.57
58:B:61:TYR:OH	67:L:52:ASP:OD2	2.21	0.57
1:2:59:C:O2'	1:2:60:U:O4'	2.22	0.57
10:AI:46:ARG:NH2	10:AI:48:SER:O	2.37	0.57
30:e:32:LYS:O	30:e:37:LYS:NZ	2.37	0.57
58:B:161:ASP:OD1	67:L:42:ARG:NH2	2.38	0.57
64:H:87:ASN:OD1	64:H:88:ARG:N	2.37	0.57
73:R:139:ILE:HD13	73:R:191:ALA:HB1	1.85	0.57
11:AJ:13:HIS:NE2	54:BQ:98:G:N7	2.48	0.57
14:AM:77:ARG:NH2	54:BQ:524:U:OP1	2.37	0.57
1:2:1382:A:O2'	1:2:1383:G:OP1	2.18	0.57
31:f:75:GLU:O	31:f:77:THR:HG23	2.05	0.57
33:z:863:PRO:O	33:z:898:GLN:NE2	2.38	0.57
74:S:141:THR:OG1	74:S:143:ASP:OD1	2.11	0.57
1:2:1572:G:O2'	58:B:185:ARG:NH2	2.38	0.57
36:m:9:A:O2'	36:m:10:G:N7	2.38	0.57
11:AJ:152:THR:OG1	11:AJ:153:ASP:OD1	2.23	0.57
19:AR:76:ASP:HB2	39:BB:92:ARG:HG2	1.85	0.57
1:2:114:C:O2'	79:X:65:SER:OG	2.21	0.57
12:AK:56:VAL:HG21	12:AK:104:LEU:HD13	1.87	0.57
63:G:125:SER:OG	63:G:126:ALA:N	2.38	0.57
66:K:80:LEU:HD22	66:K:101:TYR:CD2	2.39	0.57
25:AX:64:ASN:O	25:AX:80:LYS:NZ	2.32	0.57
33:z:103:ARG:NH2	33:z:638:TRP:O	2.36	0.57
54:BQ:520:U:O2'	54:BQ:521:A:OP2	2.21	0.57
33:z:34:LEU:HD12	33:z:39:ILE:HD11	1.86	0.57
35:n:22:C:OP2	35:n:46:A:N6	2.38	0.57
24:AW:54:ARG:NH2	54:BQ:2176:U:OP1	2.38	0.56
5:AD:36:LYS:NZ	5:AD:152:GLU:OE2	2.37	0.56
7:AF:68:LYS:NZ	56:BS:57:C:OP2	2.38	0.56
30:e:44:ILE:O	81:Z:99:GLN:NE2	2.37	0.56
46:BI:188:GLU:N	46:BI:188:GLU:OE1	2.39	0.56
68:M:25:SER:O	68:M:25:SER:OG	2.23	0.56
1:2:454:U:O2'	1:2:455:C:OP1	2.23	0.56
18:AQ:96:ARG:NH2	18:AQ:160:GLU:O	2.37	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:BB:99:THR:O	39:BB:99:THR:OG1	2.15	0.56
42:BE:338:LYS:O	42:BE:340:GLY:N	2.38	0.56
47:BJ:2:GLY:N	54:BQ:2629:U:O4	2.38	0.56
47:BJ:88:ARG:O	54:BQ:2722:U:O2'	2.21	0.56
50:BM:77:ARG:NH2	54:BQ:3273:A:OP2	2.39	0.56
51:BN:40:THR:OG1	54:BQ:1655:G:OP1	2.20	0.56
52:BO:144:ILE:HD12	52:BO:189:ILE:HD12	1.87	0.56
54:BQ:637:C:O2'	54:BQ:638:C:O4'	2.23	0.56
54:BQ:3242:G:O2'	54:BQ:3243:A:O5'	2.22	0.56
1:2:477:A:OP2	32:g:28:LYS:NZ	2.38	0.56
5:AD:44:THR:OG1	54:BQ:3186:A:N3	2.37	0.56
33:z:696:ILE:HG23	33:z:697:PHE:CD1	2.40	0.56
58:B:57:SER:OG	58:B:57:SER:O	2.22	0.56
78:W:34:PHE:CD2	78:W:105:LEU:HD23	2.41	0.56
1:2:1515:A:O2'	1:2:1517:U:OP2	2.16	0.56
64:H:64:GLU:OE2	64:H:64:GLU:N	2.39	0.56
1:2:655:G:N3	1:2:678:A:N6	2.53	0.56
40:BC:19:ARG:NH1	54:BQ:3324:C:OP1	2.38	0.56
37:AY:13:LYS:HE3	37:AY:103:THR:HG21	1.88	0.56
46:BI:35:ARG:NH2	54:BQ:2661:G:OP1	2.39	0.56
21:AT:5:THR:OG1	54:BQ:837:A:OP1	2.21	0.56
33:z:202:ILE:HG23	33:z:223:LEU:HD23	1.88	0.56
37:AY:26:GLY:O	37:AY:30:THR:HG23	2.06	0.56
54:BQ:2495:C:O2'	54:BQ:2496:C:OP1	2.21	0.56
64:H:15:LEU:HD12	64:H:15:LEU:O	2.05	0.56
1:2:68:A:OP1	75:T:160:ARG:NH2	2.39	0.55
2:AA:47:SER:OG	54:BQ:2585:G:N7	2.30	0.55
29:d:55:VAL:HG22	29:d:75:VAL:HG23	1.88	0.55
33:z:806:LEU:HD21	33:z:809:LEU:HD11	1.87	0.55
1:2:362:G:C6	1:2:383:G:O6	2.59	0.55
45:BH:81:TYR:CE1	45:BH:90:MET:HE3	2.41	0.55
1:2:897:C:O2'	1:2:898:A:O5'	2.23	0.55
1:2:992:A:C2	1:2:1012:U:N3	2.53	0.55
8:AG:51:ARG:NH2	54:BQ:2681:U:O5'	2.37	0.55
17:AP:73:GLU:OE2	17:AP:80:ARG:NH2	2.39	0.55
33:z:28:GLU:O	33:z:199:ARG:NH1	2.40	0.55
33:z:849:MET:HE1	33:z:867:ILE:HD11	1.88	0.55
49:BL:103:TYR:OH	54:BQ:1677:G:OP2	2.12	0.55
1:2:647:G:H22	1:2:687:G:H1	1.53	0.55
33:z:796:THR:O	33:z:802:ARG:N	2.39	0.55
48:BK:37:THR:OG1	48:BK:40:ASP:OD2	2.24	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:AU:126:VAL:O	45:BH:154:HIS:NE2	2.38	0.55
25:AX:18:ARG:NH2	25:AX:147:GLU:OE1	2.40	0.55
33:z:478:ILE:O	33:z:481:THR:OG1	2.22	0.55
58:B:50:GLU:OE2	58:B:50:GLU:N	2.39	0.55
62:F:31:VAL:C	62:F:67:VAL:O	2.50	0.55
25:AX:25:SER:OG	54:BQ:1447:G:N7	2.35	0.55
75:T:141:ILE:HG21	75:T:153:VAL:HG13	1.88	0.55
1:2:447:U:O2'	74:S:27:TYR:O	2.24	0.55
1:2:541:A:O2'	1:2:542:A:OP1	2.25	0.55
50:BM:26:ARG:NH2	54:BQ:607:A:OP1	2.40	0.55
76:U:80:GLU:OE1	76:U:80:GLU:N	2.40	0.55
1:2:334:G:O6	77:V:5:ARG:NH2	2.40	0.55
47:BJ:22:HIS:ND1	54:BQ:2701:U:OP2	2.31	0.55
56:BS:16:G:O2'	56:BS:17:A:O5'	2.23	0.55
57:A:221:SER:OG	57:A:222:VAL:N	2.39	0.55
77:V:84:HIS:CD2	77:V:97:THR:HG1	2.23	0.55
78:W:19:TYR:O	78:W:23:ARG:NH2	2.40	0.55
43:BF:185:LEU:HD23	43:BF:185:LEU:O	2.07	0.55
1:2:1211:A:N3	61:E:97:TYR:OH	2.40	0.55
1:2:1303:U:O2'	1:2:1322:A:OP2	2.24	0.55
64:H:25:ASN:HB2	66:K:40:VAL:HG21	1.89	0.55
33:z:499:THR:OG1	33:z:500:GLU:OE1	2.26	0.54
36:m:15:A:N1	36:m:47:C:N3	2.55	0.54
64:H:60:GLU:OE1	64:H:60:GLU:N	2.39	0.54
1:2:381:C:O2	1:2:381:C:H2'	2.07	0.54
31:f:48:SER:HG	31:f:49:HIS:CE1	2.25	0.54
33:z:268:MET:HB3	33:z:318:LEU:HD12	1.89	0.54
36:m:37:A:O2'	36:m:38:C:O4'	2.26	0.54
73:R:38:VAL:HG22	73:R:39:THR:H	1.72	0.54
56:BS:39:G:O2'	56:BS:105:A:N1	2.38	0.54
4:AC:76:ARG:O	54:BQ:293:C:O2'	2.23	0.54
33:z:745:PRO:O	33:z:772:THR:OG1	2.22	0.54
42:BE:283:THR:HG22	42:BE:285:ASP:H	1.71	0.54
54:BQ:268:A:O2'	54:BQ:269:G:O5'	2.25	0.54
54:BQ:1693:C:HO2'	54:BQ:1772:U:HO2'	1.47	0.54
72:Q:33:LYS:O	72:Q:98:THR:HG22	2.08	0.54
74:S:182:TYR:CE2	74:S:192:ILE:HD11	2.43	0.54
8:AG:137:ARG:NH2	55:BR:44:C:OP2	2.40	0.54
38:BA:187:SER:O	38:BA:190:GLU:N	2.41	0.54
46:BI:146:LEU:HD22	46:BI:163:LEU:CD1	2.37	0.54
51:BN:8:ARG:NH2	54:BQ:1597:C:OP2	2.40	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
66:K:55:PRO:O	66:K:103:ARG:NH2	2.40	0.54
3:AB:108:GLU:N	3:AB:108:GLU:OE1	2.41	0.54
28:c:141:GLU:OE2	28:c:141:GLU:N	2.39	0.54
1:2:278:U:OP2	1:2:279:G:N2	2.40	0.54
18:AQ:136:ASP:OD1	18:AQ:138:GLN:NE2	2.41	0.54
24:AW:202:VAL:HG12	24:AW:217:GLN:HG2	1.89	0.54
54:BQ:2945:G:O2'	54:BQ:2948:C:OP2	2.19	0.54
1:2:1023:A:HO2'	1:2:1024:U:P	2.26	0.54
12:AK:43:TYR:O	12:AK:125:LYS:N	2.40	0.54
19:AR:117:ARG:NH2	54:BQ:718:G:OP1	2.41	0.54
22:AU:187:GLU:O	22:AU:192:LYS:NZ	2.40	0.54
31:f:48:SER:HG	31:f:49:HIS:HD1	1.53	0.54
33:z:806:LEU:HD11	33:z:868:ALA:HB1	1.90	0.54
73:R:38:VAL:O	73:R:39:THR:OG1	2.18	0.54
74:S:122:LYS:NZ	74:S:143:ASP:OD2	2.38	0.54
74:S:185:GLY:H	74:S:189:LEU:HD13	1.72	0.54
1:2:362:G:O6	1:2:383:G:O6	2.26	0.53
72:Q:106:THR:OG1	72:Q:108:ASP:OD1	2.18	0.53
30:e:37:LYS:O	30:e:38:ARG:NH1	2.40	0.53
54:BQ:2523:A:HO2'	54:BQ:2524:A:P	2.29	0.53
42:BE:150:LEU:HD21	42:BE:172:VAL:HG13	1.91	0.53
72:Q:176:VAL:HG12	72:Q:177:GLN:H	1.73	0.53
1:2:687:G:OP1	27:b:118:ARG:NH2	2.41	0.53
1:2:1477:G:H4'	82:I:47:PRO:HA	1.90	0.53
22:AU:22:VAL:HG21	22:AU:120:VAL:HG11	1.88	0.53
37:AY:99:ASP:OD1	37:AY:99:ASP:N	2.40	0.53
8:AG:137:ARG:NH1	55:BR:28:C:OP1	2.40	0.53
38:BA:97:ARG:NH2	54:BQ:3244:A:OP1	2.41	0.53
39:BB:99:THR:O	39:BB:101:VAL:HG23	2.08	0.53
45:BH:90:MET:HE1	45:BH:114:HIS:CE1	2.43	0.53
33:z:342:LEU:HD12	33:z:567:ILE:HG21	1.90	0.53
42:BE:62:ALA:HB3	42:BE:90:PHE:CE2	2.44	0.53
54:BQ:362:U:HO2'	54:BQ:928:C:HO2'	1.55	0.53
50:BM:68:PRO:HG3	50:BM:145:LEU:HD23	1.91	0.53
1:2:1540:G:O2'	1:2:1541:G:OP1	2.24	0.53
2:AA:254:ASP:OD1	2:AA:254:ASP:N	2.40	0.53
30:e:22:ARG:NH2	81:Z:131:GLY:O	2.41	0.53
1:2:976:G:N2	1:2:1023:A:O2'	2.42	0.53
33:z:537:TYR:HD2	33:z:570:LEU:HD11	1.73	0.53
39:BB:31:LYS:O	39:BB:34:THR:OG1	2.26	0.53
73:R:142:GLY:N	73:R:153:SER:O	2.42	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:z:266:ASP:OD1	33:z:266:ASP:N	2.42	0.52
41:BD:167:SER:OG	41:BD:168:LYS:N	2.42	0.52
46:BI:277:LEU:HD23	46:BI:282:ARG:HG3	1.89	0.52
60:D:63:VAL:HG23	60:D:66:VAL:CG2	2.38	0.52
11:AJ:36:ARG:NH2	54:BQ:687:U:OP2	2.38	0.52
33:z:342:LEU:HD12	33:z:567:ILE:HD13	1.90	0.52
43:BF:62:ARG:NH2	54:BQ:3070:A:OP1	2.42	0.52
52:BO:172:ASN:C	52:BO:173:LEU:HD12	2.34	0.52
82:I:66:TYR:HE1	82:I:129:GLN:HG3	1.74	0.52
24:AW:54:ARG:NH1	24:AW:58:LEU:HD21	2.25	0.52
1:2:1464:G:H2'	1:2:1465:C:H5''	1.90	0.52
6:AE:63:ILE:HG23	6:AE:64:THR:H	1.73	0.52
14:AM:23:ILE:O	14:AM:30:GLY:N	2.40	0.52
25:AX:56:ARG:NH1	25:AX:75:GLU:OE2	2.41	0.52
33:z:406:LEU:HD11	33:z:459:LEU:CD1	2.31	0.52
1:2:47:A:N7	1:2:98:U:O2'	2.42	0.52
64:H:48:LYS:HE2	82:I:50:ALA:HB1	1.91	0.52
76:U:131:PHE:O	76:U:133:THR:N	2.42	0.52
1:2:451:A:N6	1:2:453:U:O2	2.42	0.52
1:2:886:U:OP2	72:Q:216:LYS:NZ	2.43	0.52
33:z:798:TRP:HB2	33:z:899:LEU:HD12	1.91	0.52
42:BE:347:THR:OG1	54:BQ:520:U:O4	2.22	0.52
54:BQ:2838:A:N6	54:BQ:2850:G:O2'	2.43	0.52
75:T:78:THR:HG22	75:T:79:LYS:H	1.73	0.52
77:V:78:ILE:HG22	77:V:104:ILE:HG22	1.92	0.52
25:AX:155:GLU:N	25:AX:155:GLU:OE1	2.42	0.52
60:D:89:ILE:HG22	60:D:91:VAL:HG23	1.91	0.52
1:2:1216:C:O2'	1:2:1217:A:O5'	2.12	0.52
33:z:178:GLU:OE1	33:z:208:ASP:OD2	2.28	0.52
49:BL:33:TYR:CE1	49:BL:80:THR:HG22	2.45	0.52
54:BQ:1047:A:N3	54:BQ:2633:U:O2'	2.42	0.52
54:BQ:1572:U:O2'	54:BQ:1573:G:O5'	2.26	0.52
77:V:5:ARG:NH1	77:V:29:LEU:O	2.42	0.52
6:AE:12:LYS:O	6:AE:32:GLN:NE2	2.42	0.51
7:AF:4:GLY:O	7:AF:7:SER:OG	2.23	0.51
36:m:10:G:O6	36:m:45:G:N2	2.32	0.51
54:BQ:1564:U:N3	54:BQ:1576:G:C6	2.78	0.51
54:BQ:1839:A:O2'	54:BQ:1840:U:O5'	2.22	0.51
71:P:195:TRP:O	71:P:197:ILE:N	2.40	0.51
1:2:755:A:O2'	1:2:756:A:OP1	2.27	0.51
23:AV:29:TYR:OH	54:BQ:1087:G:OP1	2.18	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:BL:9:GLN:OE1	49:BL:9:GLN:N	2.43	0.51
54:BQ:1220:U:O4'	54:BQ:1286:A:N6	2.43	0.51
1:2:1351:G:H2'	1:2:1352:G:C8	2.45	0.51
36:m:74:C:O2'	36:m:75:A:OP1	2.28	0.51
42:BE:107:ARG:NH2	54:BQ:1429:G:OP2	2.41	0.51
54:BQ:939:U:O2'	54:BQ:2402:A:N1	2.34	0.51
54:BQ:3350:C:O2'	54:BQ:3351:U:O5'	2.26	0.51
1:2:1338:C:C2'	1:2:1339:C:O5'	2.59	0.51
1:2:1368:G:H5''	82:I:69:LYS:HG2	1.92	0.51
18:AQ:15:GLN:NE2	54:BQ:294:U:OP2	2.42	0.51
33:z:18:LEU:HD12	33:z:246:TYR:HB3	1.92	0.51
38:BA:124:LYS:NZ	54:BQ:3297:U:O4	2.44	0.51
66:K:93:SER:OG	66:K:94:LYS:N	2.40	0.51
10:AI:2:ALA:N	10:AI:51:LEU:O	2.44	0.51
11:AJ:76:THR:O	11:AJ:79:GLU:N	2.41	0.51
26:a:17:CYS:O	26:a:21:ASN:N	2.43	0.51
41:BD:43:ASP:OD2	41:BD:184:ARG:NH2	2.44	0.51
72:Q:129:THR:OG1	72:Q:131:ASP:OD1	2.09	0.51
79:X:4:GLU:OE1	79:X:4:GLU:N	2.44	0.51
33:z:516:TYR:O	33:z:521:LYS:N	2.42	0.51
1:2:821:U:O4	1:2:852:C:N3	2.44	0.51
5:AD:134:ILE:HG21	5:AD:144:ILE:HD11	1.93	0.51
33:z:433:LEU:HA	33:z:436:PHE:HB3	1.92	0.51
77:V:67:TRP:CH2	77:V:156:VAL:HG11	2.46	0.51
36:m:35:U:HO2'	36:m:36:C:P	2.33	0.51
1:2:741:C:O2'	76:U:107:ARG:NH2	2.44	0.51
1:2:979:A:N3	1:2:1775:U:O2'	2.42	0.51
19:AR:58:MET:SD	54:BQ:2786:G:N2	2.76	0.51
21:AT:79:VAL:HG22	24:AW:112:ILE:HD13	1.93	0.51
36:m:22:U:OP2	36:m:46:A:N6	2.44	0.51
80:Y:56:ASP:OD1	80:Y:57:ALA:N	2.44	0.51
1:2:1316:G:OP1	63:G:7:LYS:N	2.44	0.50
42:BE:188:ARG:NE	42:BE:197:ARG:O	2.40	0.50
44:BG:4:LEU:HD12	44:BG:90:LYS:HB3	1.93	0.50
62:F:31:VAL:O	62:F:33:GLY:N	2.43	0.50
67:L:12:VAL:HG13	67:L:28:VAL:HG13	1.92	0.50
70:O:172:ALA:HB2	70:O:202:LEU:CD2	2.39	0.50
1:2:1244:A:O2'	1:2:1245:G:OP1	2.28	0.50
1:2:1537:C:O2	1:2:1541:G:C2	2.63	0.50
55:BR:72:A:O2'	55:BR:74:C:OP1	2.24	0.50
70:O:133:VAL:HB	70:O:142:ALA:HB3	1.92	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:P:205:ARG:NH2	71:P:213:GLN:OE1	2.44	0.50
11:AJ:153:ASP:OD1	11:AJ:153:ASP:N	2.43	0.50
54:BQ:1491:A:HO2'	54:BQ:1843:C:HO2'	1.57	0.50
61:E:20:VAL:HG13	61:E:24:LYS:HE3	1.93	0.50
1:2:1582:U:O2'	1:2:1583:A:O5'	2.29	0.50
2:AA:157:VAL:HG13	54:BQ:147:U:N3	2.27	0.50
33:z:3:ILE:HG12	33:z:207:ALA:HB3	1.93	0.50
42:BE:160:GLN:NE2	42:BE:213:ASN:O	2.45	0.50
64:H:40:ARG:NH1	82:I:45:MET:SD	2.85	0.50
71:P:17:LEU:HD13	71:P:50:VAL:HG13	1.93	0.50
5:AD:163:GLN:NE2	54:BQ:3109:G:O2'	2.44	0.50
33:z:442:LEU:HD22	33:z:457:MET:HG3	1.93	0.50
37:AY:13:LYS:CE	37:AY:103:THR:HG21	2.42	0.50
54:BQ:835:G:H2'	54:BQ:857:G:H22	1.75	0.50
54:BQ:2373:A:N3	54:BQ:2824:G:O2'	2.40	0.50
25:AX:127:ARG:NH2	54:BQ:1508:C:OP1	2.44	0.50
46:BI:85:ARG:NH1	46:BI:86:TYR:OH	2.44	0.50
64:H:33:THR:HG22	64:H:39:GLY:C	2.36	0.50
1:2:1464:G:N1	1:2:1465:C:C5	2.80	0.50
2:AA:33:ASN:O	2:AA:39:ALA:HB3	2.12	0.50
12:AK:121:ARG:NH1	56:BS:70:G:OP1	2.45	0.50
32:g:38:LEU:O	32:g:41:THR:OG1	2.29	0.50
37:AY:13:LYS:HB3	37:AY:100:ILE:HG22	1.92	0.50
78:W:95:TYR:HA	78:W:98:ALA:HB3	1.93	0.50
1:2:322:G:O2'	1:2:323:A:OP2	2.19	0.50
19:AR:8:THR:HG21	54:BQ:662:U:OP1	2.11	0.50
26:a:9:VAL:HG22	26:a:10:GLU:H	1.77	0.50
33:z:202:ILE:HG23	33:z:223:LEU:CD2	2.42	0.50
45:BH:109:ASP:OD1	45:BH:113:ARG:NH1	2.43	0.50
49:BL:16:THR:OG1	49:BL:102:GLU:OE1	2.21	0.50
1:2:1615:C:OP1	58:B:81:ARG:NH2	2.43	0.49
39:BB:44:PHE:CD1	39:BB:139:ILE:HD11	2.47	0.49
41:BD:134:ILE:HG22	41:BD:135:PHE:CD1	2.46	0.49
54:BQ:2282:U:OP1	54:BQ:2973:G:O2'	2.27	0.49
54:BQ:2343:C:H1'	54:BQ:3055:U:H5''	1.94	0.49
54:BQ:3054:U:O2'	54:BQ:3055:U:H5'	2.12	0.49
77:V:11:ARG:O	79:X:133:LYS:NZ	2.40	0.49
1:2:1:U:O4	78:W:53:ARG:NH2	2.44	0.49
11:AJ:76:THR:HG22	11:AJ:101:ARG:HG3	1.93	0.49
74:S:129:VAL:HG22	74:S:139:VAL:HG12	1.94	0.49
33:z:356:ASP:OD1	33:z:357:VAL:N	2.45	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:BM:37:GLY:N	50:BM:54:TYR:O	2.43	0.49
50:BM:157:GLN:N	50:BM:157:GLN:OE1	2.45	0.49
54:BQ:1831:U:O2'	56:BS:114:G:OP1	2.26	0.49
60:D:45:LEU:O	60:D:49:THR:HG23	2.12	0.49
1:2:579:A:N6	1:2:1438:G:O2'	2.46	0.49
1:2:1406:A:OP2	58:B:80:LYS:NZ	2.44	0.49
3:AB:12:ARG:NH1	54:BQ:3041:U:OP1	2.42	0.49
12:AK:59:VAL:O	12:AK:64:LYS:NZ	2.39	0.49
29:d:15:ASN:O	29:d:19:ALA:N	2.45	0.49
50:BM:43:LEU:HD21	50:BM:85:ILE:HD12	1.95	0.49
1:2:1039:A:OP1	26:a:62:ARG:NH2	2.46	0.49
1:2:1051:G:O2'	1:2:1052:U:OP1	2.27	0.49
1:2:1553:G:N1	1:2:1556:A:OP2	2.45	0.49
4:AC:34:SER:OG	4:AC:37:THR:N	2.40	0.49
26:a:66:ASP:OD1	71:P:56:LYS:NZ	2.27	0.49
44:BG:99:ASN:O	54:BQ:1388:U:O2'	2.25	0.49
47:BJ:8:ARG:O	47:BJ:11:THR:OG1	2.30	0.49
47:BJ:126:VAL:HG23	47:BJ:127:GLN:H	1.77	0.49
60:D:66:VAL:O	60:D:67:THR:OG1	2.26	0.49
64:H:101:LEU:HD12	64:H:101:LEU:O	2.12	0.49
70:O:84:SER:OG	70:O:85:TRP:N	2.45	0.49
9:AH:107:VAL:HG12	9:AH:108:LEU:O	2.13	0.49
69:N:108:VAL:HG23	69:N:114:VAL:HG22	1.95	0.49
71:P:182:LEU:O	71:P:186:GLY:HA3	2.13	0.49
33:z:907:GLU:OE2	33:z:907:GLU:N	2.45	0.49
1:2:804:A:N3	27:b:105:THR:HG22	2.27	0.49
2:AA:240:ASN:OD1	2:AA:241:LYS:N	2.45	0.49
14:AM:135:LEU:O	14:AM:135:LEU:HD23	2.12	0.49
30:e:78:ALA:O	30:e:82:ARG:N	2.45	0.49
54:BQ:952:A:N3	54:BQ:1114:U:O2'	2.45	0.49
77:V:12:SER:HB3	77:V:16:ALA:HB3	1.94	0.49
81:Z:89:THR:HG21	81:Z:126:THR:O	2.13	0.49
18:AQ:41:ARG:NH1	54:BQ:9:U:OP1	2.45	0.49
19:AR:46:ASP:OD1	39:BB:176:ARG:NH1	2.45	0.49
29:d:122:GLY:O	29:d:125:LEU:HD13	2.12	0.49
62:F:99:GLU:OE2	62:F:103:ASN:ND2	2.46	0.49
1:2:1089:U:OP1	30:e:89:ARG:NH2	2.46	0.49
1:2:1464:G:C2	1:2:1465:C:C6	3.01	0.49
19:AR:81:LEU:HD12	19:AR:102:ILE:CG2	2.43	0.49
33:z:298:ASP:C	33:z:299:LEU:HD22	2.37	0.49
33:z:611:LEU:HD22	33:z:655:ALA:HB1	1.94	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:BM:109:GLU:N	50:BM:109:GLU:OE1	2.46	0.49
54:BQ:1000:C:O2	54:BQ:1046:A:N6	2.45	0.49
54:BQ:1055:A:N3	55:BR:81:U:O2'	2.45	0.49
62:F:50:GLU:OE1	62:F:82:ARG:NH2	2.44	0.49
77:V:36:THR:O	77:V:96:LEU:N	2.44	0.49
1:2:452:A:O2'	1:2:453:U:OP1	2.20	0.48
1:2:1504:G:P	82:I:99:SER:CB	3.01	0.48
1:2:1611:A:O2'	58:B:95:ASN:O	2.30	0.48
11:AJ:177:LYS:NZ	54:BQ:2780:A:OP1	2.46	0.48
15:AN:81:LEU:CD1	51:BN:90:ILE:HD13	2.40	0.48
21:AT:59:CYS:SG	21:AT:60:CYS:N	2.85	0.48
43:BF:20:ARG:NH2	54:BQ:1873:U:OP2	2.46	0.48
1:2:458:G:OP1	29:d:109:LYS:NZ	2.30	0.48
1:2:1504:G:P	82:I:99:SER:HB3	2.53	0.48
2:AA:160:ILE:O	2:AA:164:VAL:HG13	2.12	0.48
15:AN:15:ARG:NH2	51:BN:83:ASN:OD1	2.45	0.48
33:z:99:ALA:HB1	33:z:642:VAL:HG11	1.94	0.48
50:BM:2:SER:N	54:BQ:1385:C:O2	2.45	0.48
51:BN:35:VAL:HG12	51:BN:36:LYS:O	2.13	0.48
62:F:33:GLY:O	82:I:7:ARG:HD3	2.12	0.48
76:U:127:GLU:OE2	80:Y:21:ASN:ND2	2.46	0.48
1:2:1482:C:OP2	1:2:1521:G:N1	2.46	0.48
10:AI:14:LEU:O	10:AI:20:VAL:HG21	2.14	0.48
54:BQ:1721:U:O2'	54:BQ:1723:A:N7	2.41	0.48
1:2:742:U:O2'	76:U:107:ARG:NE	2.46	0.48
22:AU:59:ARG:O	22:AU:59:ARG:HG2	2.12	0.48
24:AW:104:LEU:HD22	24:AW:158:ILE:HD11	1.94	0.48
33:z:140:MET:O	33:z:144:THR:HG23	2.13	0.48
63:G:61:ILE:HD11	63:G:69:ILE:CD1	2.43	0.48
78:W:162:SER:OG	78:W:162:SER:O	2.22	0.48
33:z:268:MET:HE1	33:z:270:PHE:CE1	2.48	0.48
59:C:21:VAL:HG11	59:C:46:LEU:HD11	1.95	0.48
63:G:78:ARG:O	63:G:81:LYS:N	2.46	0.48
82:I:137:ALA:O	82:I:141:GLU:HB2	2.12	0.48
58:B:113:ILE:O	58:B:117:THR:OG1	2.24	0.48
62:F:97:VAL:HG12	62:F:98:ASP:H	1.79	0.48
1:2:472:U:O2'	1:2:769:A:N3	2.46	0.48
12:AK:16:ARG:NH1	54:BQ:216:G:OP1	2.46	0.48
46:BI:119:TYR:OH	46:BI:139:PRO:O	2.32	0.48
1:2:340:U:O2'	77:V:88:ASN:N	2.46	0.48
1:2:1098:U:OP2	73:R:168:ARG:NE	2.40	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:AM:55:ARG:NH1	14:AM:76:ALA:O	2.46	0.48
54:BQ:1587:A:O2'	54:BQ:1588:A:OP2	2.22	0.48
1:2:1370:U:H1'	1:2:1372:U:OP1	2.14	0.48
1:2:1480:G:H22	1:2:1482:C:N4	2.11	0.48
10:AI:53:THR:HG21	54:BQ:1747:G:O3'	2.13	0.48
31:f:67:THR:OG1	31:f:70:LYS:O	2.31	0.48
38:BA:17:LEU:HD11	38:BA:233:TRP:HH2	1.77	0.48
54:BQ:154:U:O2'	54:BQ:155:G:OP2	2.26	0.48
11:AJ:28:GLN:OE1	18:AQ:201:ARG:NE	2.42	0.48
46:BI:39:GLN:OE1	46:BI:40:HIS:N	2.47	0.48
70:O:170:ILE:HD12	70:O:202:LEU:HD13	1.94	0.48
72:Q:108:ASP:OD1	72:Q:109:LYS:N	2.47	0.48
82:I:105:LEU:HD13	82:I:122:ARG:HD3	1.96	0.48
1:2:4:C:O2'	78:W:17:ARG:NH1	2.46	0.47
29:d:57:VAL:HG22	29:d:60:PHE:CE2	2.49	0.47
50:BM:76:LEU:N	50:BM:138:GLN:OE1	2.42	0.47
74:S:130:GLN:OE1	74:S:138:TYR:OH	2.24	0.47
1:2:1478:G:OP1	82:I:39:THR:OG1	2.18	0.47
24:AW:37:ARG:NH2	54:BQ:2526:C:OP1	2.45	0.47
30:e:41:ILE:HG22	30:e:68:TYR:CD1	2.49	0.47
33:z:126:GLU:OE2	33:z:129:ASP:N	2.47	0.47
39:BB:69:ARG:NH2	54:BQ:720:A:N3	2.61	0.47
61:E:48:GLY:O	61:E:52:LYS:NZ	2.43	0.47
1:2:329:G:O2'	77:V:84:HIS:NE2	2.48	0.47
1:2:332:U:OP1	77:V:31:ARG:NE	2.46	0.47
30:e:58:VAL:HG22	30:e:59:TYR:H	1.79	0.47
42:BE:362:ASP:OD1	45:BH:28:ARG:NH2	2.47	0.47
82:I:117:SER:HB2	82:I:123:ARG:HB2	1.96	0.47
1:2:1529:C:OP1	58:B:112:ARG:NH1	2.47	0.47
26:a:2:GLU:O	73:R:147:ASN:ND2	2.46	0.47
33:z:396:PRO:HA	33:z:399:MET:HE2	1.95	0.47
38:BA:115:LYS:NZ	38:BA:129:ALA:O	2.47	0.47
46:BI:218:ARG:NH1	46:BI:218:ARG:CG	2.73	0.47
54:BQ:1317:A:O2'	54:BQ:1318:A:H2'	2.14	0.47
1:2:1216:C:HO2'	1:2:1217:A:P	2.36	0.47
29:d:34:ASN:ND2	29:d:35:VAL:HG12	2.30	0.47
62:F:35:PRO:HG2	62:F:38:LEU:HD12	1.96	0.47
62:F:125:GLU:OE1	62:F:135:ARG:NH2	2.47	0.47
1:2:152:U:O2'	75:T:15:THR:HG23	2.14	0.47
5:AD:134:ILE:CG2	5:AD:144:ILE:HD11	2.45	0.47
33:z:822:ASN:O	33:z:825:LYS:NZ	2.33	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
80:Y:27:LYS:C	80:Y:28:LEU:HD23	2.39	0.47
1:2:382:C:H2'	1:2:383:G:H5'	1.95	0.47
1:2:1246:C:O2'	1:2:1247:U:OP1	2.28	0.47
1:2:1357:A:H2'	1:2:1358:G:C8	2.50	0.47
2:AA:185:ARG:O	2:AA:188:THR:OG1	2.27	0.47
33:z:207:ALA:HA	33:z:210:ILE:HD12	1.95	0.47
34:l:48:A:H61	35:n:34:A:H61	1.61	0.47
42:BE:150:LEU:HD21	42:BE:172:VAL:CG1	2.45	0.47
49:BL:33:TYR:HE1	49:BL:80:THR:HG22	1.80	0.47
54:BQ:1564:U:C2	54:BQ:1576:G:N1	2.83	0.47
65:J:106:ILE:HG23	65:J:107:THR:HG23	1.97	0.47
77:V:193:LEU:HD23	77:V:193:LEU:O	2.15	0.47
3:AB:90:GLY:CA	38:BA:73:VAL:HG21	2.45	0.47
1:2:1229:G:H21	1:2:1256:A:H62	1.62	0.47
11:AJ:76:THR:O	11:AJ:78:ALA:N	2.48	0.47
77:V:192:TYR:O	77:V:194:ARG:N	2.44	0.47
1:2:639:U:OP2	76:U:119:THR:HG23	2.15	0.47
1:2:1227:A:OP1	1:2:1229:G:O2'	2.17	0.47
14:AM:128:ARG:NH1	54:BQ:3214:U:OP2	2.48	0.47
18:AQ:62:TYR:OH	56:BS:141:C:O3'	2.32	0.47
33:z:186:ARG:NH1	33:z:549:TYR:O	2.48	0.47
72:Q:103:MET:HE1	72:Q:212:VAL:HG23	1.95	0.47
77:V:95:THR:OG1	77:V:96:LEU:N	2.48	0.47
1:2:564:G:N2	1:2:577:G:OP1	2.46	0.46
2:AA:90:THR:HA	2:AA:214:LEU:HD21	1.96	0.46
33:z:323:TYR:O	33:z:331:ASN:ND2	2.41	0.46
46:BI:146:LEU:HD22	46:BI:163:LEU:HD12	1.96	0.46
82:I:86:ARG:NH1	82:I:90:PRO:O	2.49	0.46
9:AH:105:VAL:HG11	9:AH:126:LEU:HD22	1.95	0.46
33:z:4:PRO:O	33:z:6:PHE:N	2.46	0.46
54:BQ:3350:C:HO2'	54:BQ:3351:U:C5'	2.28	0.46
1:2:1473:U:H1'	58:B:113:ILE:HD11	1.98	0.46
1:2:1792:G:H5'	30:e:10:ARG:HG3	1.96	0.46
15:AN:13:VAL:O	15:AN:20:GLY:N	2.47	0.46
28:c:97:ASP:N	28:c:100:ASP:OD2	2.47	0.46
33:z:757:VAL:HG23	33:z:758:PHE:HD2	1.79	0.46
38:BA:10:ARG:NH2	38:BA:14:LEU:HD21	2.31	0.46
1:2:1551:U:OP2	61:E:43:ARG:NH1	2.48	0.46
1:2:1681:A:H2	1:2:1720:G:H21	1.64	0.46
1:2:1690:G:N2	1:2:1711:C:OP2	2.48	0.46
72:Q:104:ASP:OD1	72:Q:105:PHE:N	2.49	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:AQ:43:THR:OG1	18:AQ:131:GLU:OE2	2.23	0.46
38:BA:362:ALA:O	38:BA:364:LYS:NZ	2.41	0.46
40:BC:68:GLU:OE1	40:BC:68:GLU:N	2.48	0.46
42:BE:138:ARG:NH2	54:BQ:1383:G:O3'	2.48	0.46
1:2:142:G:H22	1:2:173:A:H2	1.63	0.46
1:2:1252:C:OP1	69:N:118:ARG:NH1	2.48	0.46
10:AI:12:LEU:O	10:AI:15:THR:OG1	2.31	0.46
33:z:746:PHE:HB3	33:z:771:ILE:HA	1.96	0.46
64:H:40:ARG:HB3	82:I:45:MET:CE	2.44	0.46
76:U:48:GLU:OE2	76:U:88:ARG:NE	2.49	0.46
1:2:705:U:O2'	1:2:706:A:O5'	2.28	0.46
8:AG:140:ARG:NH2	54:BQ:2684:C:OP1	2.49	0.46
22:AU:43:ILE:HD11	22:AU:138:LEU:CD1	2.45	0.46
33:z:70:HIS:O	33:z:74:THR:HG23	2.15	0.46
54:BQ:2618:G:O2'	54:BQ:2865:U:OP1	2.28	0.46
64:H:102:ALA:O	64:H:105:VAL:HG12	2.16	0.46
1:2:1291:G:H22	1:2:1324:G:H22	1.63	0.46
25:AX:141:SER:OG	54:BQ:2355:G:OP1	2.32	0.46
33:z:397:TRP:NE1	33:z:416:PRO:O	2.48	0.46
60:D:74:LEU:HD12	69:N:108:VAL:HG11	1.96	0.46
63:G:61:ILE:HD11	63:G:69:ILE:HD12	1.97	0.46
65:J:70:THR:OG1	65:J:72:ASN:OD1	2.34	0.46
1:2:988:A:OP1	24:AW:249:SER:OG	2.26	0.46
54:BQ:874:U:N3	54:BQ:2978:U:OP1	2.45	0.46
61:E:93:VAL:HG22	61:E:106:GLU:HB3	1.98	0.46
63:G:85:VAL:HG23	63:G:85:VAL:O	2.16	0.46
52:BO:64:GLN:NE2	52:BO:68:ASP:OD1	2.49	0.46
52:BO:186:HIS:O	52:BO:190:THR:OG1	2.28	0.46
54:BQ:2323:G:O2'	54:BQ:2325:G:OP2	2.27	0.46
41:BD:3:ARG:CZ	41:BD:98:ILE:HG22	2.46	0.45
54:BQ:3242:G:HO2'	54:BQ:3243:A:P	2.37	0.45
57:A:71:LEU:HD23	57:A:74:GLN:NE2	2.31	0.45
1:2:647:G:N2	1:2:687:G:H22	2.13	0.45
16:AO:79:GLU:O	16:AO:81:SER:N	2.49	0.45
38:BA:151:ILE:O	38:BA:155:ALA:HB3	2.16	0.45
42:BE:62:ALA:HB3	42:BE:90:PHE:HE2	1.81	0.45
54:BQ:400:G:O2'	54:BQ:401:U:O5'	2.24	0.45
54:BQ:1308:A:H8	54:BQ:1308:A:OP2	1.99	0.45
1:2:420:A:OP1	75:T:96:SER:OG	2.25	0.45
1:2:540:G:N2	1:2:542:A:H62	2.14	0.45
46:BI:213:ASP:OD1	46:BI:213:ASP:N	2.48	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:BO:94:LYS:NZ	54:BQ:1156:C:OP2	2.47	0.45
57:A:134:CYS:SG	57:A:135:GLU:N	2.89	0.45
73:R:165:VAL:HG11	73:R:210:THR:HA	1.98	0.45
78:W:63:ASP:OD1	78:W:64:GLU:N	2.49	0.45
1:2:380:U:H3'	1:2:380:U:P	2.57	0.45
1:2:821:U:C4	1:2:852:C:N3	2.84	0.45
10:AI:42:LYS:NZ	54:BQ:1748:G:OP2	2.49	0.45
15:AN:26:VAL:HG12	15:AN:89:VAL:HG21	1.98	0.45
33:z:85:ILE:O	33:z:180:LYS:NZ	2.49	0.45
42:BE:74:ILE:HG22	54:BQ:804:C:O2'	2.16	0.45
44:BG:101:SER:OG	44:BG:104:ASN:OD1	2.34	0.45
54:BQ:649:A:OP2	54:BQ:2868:U:O2'	2.34	0.45
54:BQ:784:A:O2'	54:BQ:785:G:O5'	2.32	0.45
54:BQ:1144:U:O2'	54:BQ:1145:G:OP2	2.32	0.45
65:J:103:ILE:HA	65:J:106:ILE:HG22	1.97	0.45
71:P:30:GLN:N	71:P:30:GLN:OE1	2.46	0.45
27:b:6:VAL:HG12	27:b:34:ILE:HD11	1.99	0.45
54:BQ:3054:U:C2'	54:BQ:3055:U:H5'	2.46	0.45
1:2:629:U:OP2	1:2:969:C:N4	2.44	0.45
1:2:1045:C:OP1	72:Q:153:HIS:NE2	2.42	0.45
29:d:88:THR:O	29:d:92:VAL:HG23	2.17	0.45
38:BA:19:ARG:NH2	54:BQ:3045:G:OP1	2.48	0.45
42:BE:181:VAL:O	42:BE:182:LEU:HB2	2.17	0.45
48:BK:56:SER:O	48:BK:63:LYS:NZ	2.46	0.45
54:BQ:720:A:O2'	54:BQ:784:A:OP2	2.22	0.45
70:O:274:LEU:HD21	70:O:313:TRP:CD1	2.51	0.45
80:Y:5:HIS:HD2	80:Y:121:ARG:HE	1.62	0.45
46:BI:146:LEU:HD22	46:BI:163:LEU:HD13	1.99	0.45
50:BM:52:VAL:HG21	50:BM:65:ILE:HD12	1.99	0.45
61:E:37:ALA:HB1	61:E:38:PRO:HD2	1.99	0.45
1:2:57:G:OP1	29:d:112:LYS:NZ	2.50	0.45
19:AR:24:LYS:NZ	54:BQ:942:U:O4	2.50	0.45
54:BQ:63:A:N3	54:BQ:78:U:O2'	2.36	0.45
1:2:106:U:OP1	77:V:8:ARG:NH1	2.49	0.45
1:2:233:C:O2'	1:2:234:G:N2	2.40	0.45
9:AH:24:LEU:HD21	56:BS:151:C:C5	2.52	0.45
19:AR:24:LYS:O	19:AR:26:ARG:HG2	2.16	0.45
24:AW:230:VAL:HG11	54:BQ:2424:A:N1	2.31	0.45
42:BE:229:ASN:OD1	42:BE:230:VAL:N	2.49	0.45
54:BQ:1308:A:OP2	54:BQ:1308:A:C8	2.70	0.45
54:BQ:1528:G:O2'	54:BQ:1588:A:N3	2.46	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:A:53:THR:O	57:A:90:ARG:NH2	2.50	0.45
70:O:217:ASP:OD1	70:O:218:GLY:N	2.50	0.45
78:W:10:LYS:O	78:W:11:THR:OG1	2.30	0.45
2:AA:146:LYS:HE2	2:AA:173:MET:HE3	1.99	0.45
33:z:189:LYS:O	33:z:721:ARG:NH2	2.50	0.45
33:z:316:ALA:HB2	33:z:338:TRP:HD1	1.82	0.45
40:BC:56:ASN:ND2	54:BQ:1458:U:O2	2.47	0.45
1:2:1273:G:H4'	1:2:1274:C:H3'	1.99	0.44
1:2:1351:G:H2'	1:2:1352:G:H8	1.80	0.44
21:AT:46:THR:OG1	21:AT:57:CYS:SG	2.74	0.44
31:f:59:CYS:O	31:f:61:THR:N	2.50	0.44
33:z:284:VAL:HG22	33:z:338:TRP:CH2	2.52	0.44
42:BE:266:THR:OG1	42:BE:267:VAL:N	2.50	0.44
76:U:133:THR:OG1	76:U:154:LEU:HD12	2.18	0.44
78:W:23:ARG:NH1	78:W:27:GLU:OE2	2.47	0.44
15:AN:48:ARG:NH2	54:BQ:1631:C:OP2	2.51	0.44
18:AQ:73:ARG:NH1	18:AQ:88:GLY:O	2.48	0.44
54:BQ:2445:A:O2'	54:BQ:2446:U:OP1	2.29	0.44
58:B:149:VAL:HG13	58:B:155:ALA:HB1	1.98	0.44
75:T:170:THR:OG1	75:T:171:LYS:N	2.51	0.44
1:2:96:G:OP1	74:S:10:LYS:HE2	2.17	0.44
1:2:1399:C:O2'	1:2:1400:A:O5'	2.29	0.44
54:BQ:3055:U:O2'	54:BQ:3057:U:OP1	2.35	0.44
66:K:65:LEU:HD13	66:K:71:ILE:HD11	1.98	0.44
72:Q:103:MET:HB3	72:Q:215:VAL:HG12	1.98	0.44
76:U:87:ASP:O	76:U:88:ARG:NH1	2.44	0.44
2:AA:201:THR:OG1	2:AA:202:GLU:N	2.51	0.44
33:z:284:VAL:O	33:z:287:VAL:HG12	2.18	0.44
33:z:526:SER:O	33:z:530:VAL:HG23	2.18	0.44
38:BA:25:ILE:HG23	38:BA:272:TYR:OH	2.18	0.44
38:BA:77:THR:HG23	38:BA:326:GLY:O	2.18	0.44
57:A:164:VAL:HG13	57:A:168:ILE:HD11	1.99	0.44
75:T:5:ILE:HD12	75:T:16:PHE:CD1	2.52	0.44
1:2:1601:G:O4'	82:I:90:PRO:HD2	2.17	0.44
44:BG:109:LEU:HD21	44:BG:119:VAL:HG11	2.00	0.44
54:BQ:83:U:HO2'	54:BQ:700:C:HO2'	1.62	0.44
54:BQ:770:G:O2'	54:BQ:771:A:O4'	2.36	0.44
54:BQ:907:G:O2'	54:BQ:926:A:N7	2.46	0.44
73:R:90:THR:OG1	73:R:93:GLY:O	2.36	0.44
82:I:36:ILE:HG22	82:I:36:ILE:O	2.18	0.44
1:2:166:C:O2'	75:T:133:LEU:O	2.34	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1226:A:O2'	1:2:1227:A:O5'	2.22	0.44
1:2:1338:C:H2'	1:2:1339:C:O5'	2.18	0.44
8:AG:35:LYS:O	8:AG:39:GLN:NE2	2.51	0.44
22:AU:43:ILE:HD11	22:AU:138:LEU:HD13	1.99	0.44
48:BK:71:VAL:HG13	48:BK:81:VAL:HG13	2.00	0.44
57:A:56:GLN:OE1	57:A:56:GLN:N	2.50	0.44
1:2:1251:U:O2'	1:2:1252:C:OP1	2.32	0.44
8:AG:17:LEU:HD13	8:AG:129:VAL:HG22	1.98	0.44
33:z:36:MET:O	33:z:40:LEU:HD13	2.18	0.44
33:z:901:VAL:HG12	33:z:902:GLU:H	1.83	0.44
50:BM:40:LEU:HD11	50:BM:54:TYR:HB2	2.00	0.44
54:BQ:65:A:N1	54:BQ:109:A:O2'	2.46	0.44
1:2:56:U:O2'	1:2:57:G:OP2	2.29	0.44
7:AF:17:THR:HG22	7:AF:18:LEU:H	1.83	0.44
54:BQ:36:C:N4	54:BQ:47:C:O2'	2.51	0.44
64:H:40:ARG:CZ	82:I:45:MET:SD	3.06	0.44
82:I:110:LYS:HE3	82:I:110:LYS:HB2	1.85	0.44
1:2:444:C:OP2	29:d:108:ARG:NH2	2.45	0.43
1:2:1516:A:OP2	65:J:61:LYS:NZ	2.36	0.43
28:c:96:VAL:HG12	28:c:127:VAL:HG11	2.00	0.43
33:z:395:LYS:NZ	33:z:399:MET:SD	2.91	0.43
33:z:696:ILE:HG23	33:z:697:PHE:HD1	1.81	0.43
38:BA:250:ALA:HB1	54:BQ:2947:G:N3	2.33	0.43
74:S:65:LEU:HD23	74:S:70:VAL:CG1	2.48	0.43
82:I:108:LEU:HA	82:I:111:ILE:HG22	2.00	0.43
1:2:1537:C:C2	1:2:1541:G:N2	2.72	0.43
22:AU:189:ASP:OD1	22:AU:190:VAL:N	2.51	0.43
26:a:11:LEU:O	73:R:222:TYR:OH	2.35	0.43
33:z:208:ASP:O	33:z:212:LEU:HD23	2.18	0.43
33:z:540:GLY:O	33:z:544:VAL:HG23	2.17	0.43
33:z:615:GLU:N	33:z:615:GLU:OE1	2.50	0.43
39:BB:71:LEU:CD1	39:BB:99:THR:HG22	2.48	0.43
41:BD:8:TYR:OH	41:BD:97:ARG:O	2.21	0.43
42:BE:195:ARG:NH1	54:BQ:340:C:OP2	2.43	0.43
44:BG:15:LYS:NZ	54:BQ:426:G:OP1	2.32	0.43
52:BO:130:ILE:O	52:BO:134:VAL:HG22	2.18	0.43
62:F:95:LYS:O	70:O:59:ARG:NH1	2.51	0.43
75:T:21:GLU:OE1	75:T:21:GLU:N	2.47	0.43
1:2:1254:U:OP2	60:D:46:ARG:NH1	2.49	0.43
1:2:1380:U:OP1	62:F:12:LYS:NZ	2.47	0.43
32:g:14:VAL:O	32:g:18:THR:HG23	2.18	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:AJ:85:LEU:CD1	11:AJ:90:ALA:HB2	2.48	0.43
13:AL:23:LEU:HD11	13:AL:35:ILE:HG22	2.00	0.43
45:BH:152:LEU:HD12	45:BH:172:TYR:OH	2.18	0.43
46:BI:218:ARG:HA	46:BI:218:ARG:HD3	1.56	0.43
46:BI:277:LEU:HD23	46:BI:282:ARG:CG	2.48	0.43
49:BL:76:LEU:O	49:BL:80:THR:HG23	2.19	0.43
54:BQ:494:G:OP2	54:BQ:494:G:C4	2.72	0.43
54:BQ:1713:G:N2	54:BQ:1731:A:OP2	2.51	0.43
1:2:1098:U:OP1	73:R:159:THR:OG1	2.23	0.43
1:2:1174:C:C2	1:2:1466:G:N2	2.86	0.43
14:AM:24:LYS:NZ	14:AM:61:GLY:O	2.43	0.43
15:AN:54:THR:OG1	15:AN:55:LYS:N	2.51	0.43
24:AW:14:SER:OG	24:AW:15:ILE:N	2.51	0.43
40:BC:80:ASN:OD1	40:BC:81:GLU:N	2.51	0.43
42:BE:307:GLN:OE1	54:BQ:1345:G:N2	2.51	0.43
52:BO:53:LYS:O	52:BO:57:THR:HG23	2.18	0.43
72:Q:32:ILE:CD1	72:Q:46:THR:HG23	2.48	0.43
72:Q:174:LYS:NZ	72:Q:196:GLU:OE2	2.49	0.43
82:I:111:ILE:HG23	82:I:113:ILE:HG12	1.99	0.43
5:AD:161:LEU:CD2	5:AD:179:ILE:HG21	2.49	0.43
25:AX:71:ALA:HB1	54:BQ:3298:C:H5'	2.01	0.43
74:S:87:MET:SD	74:S:100:ARG:NH1	2.91	0.43
78:W:161:THR:O	78:W:162:SER:OG	2.33	0.43
80:Y:87:ASP:OD1	80:Y:87:ASP:N	2.51	0.43
1:2:1402:G:OP1	63:G:4:VAL:HG13	2.18	0.43
1:2:1469:A:H2'	1:2:1470:C:C6	2.54	0.43
24:AW:68:LYS:HZ2	54:BQ:1579:C:H5'	1.77	0.43
71:P:139:VAL:HG13	71:P:141:ILE:HD12	1.99	0.43
73:R:116:LYS:HG2	73:R:127:ALA:HB3	2.00	0.43
1:2:228:G:O2'	1:2:229:U:O4'	2.26	0.43
9:AH:24:LEU:HD21	56:BS:151:C:H5	1.83	0.43
13:AL:27:ILE:HD13	56:BS:52:A:H62	1.83	0.43
24:AW:62:VAL:HG21	24:AW:71:LEU:HD23	1.99	0.43
39:BB:123:THR:OG1	39:BB:125:ASP:OD1	2.34	0.43
63:G:66:VAL:HB	63:G:69:ILE:HD11	2.00	0.43
24:AW:128:ARG:HA	24:AW:169:ILE:CD1	2.48	0.43
24:AW:182:ALA:HB2	54:BQ:2148:U:O2'	2.18	0.43
33:z:501:LYS:HA	33:z:504:TYR:HB3	2.01	0.43
37:AY:30:THR:HG21	37:AY:89:VAL:HG22	2.01	0.43
54:BQ:495:G:N2	54:BQ:620:U:O4	2.48	0.43
1:2:382:C:C2'	1:2:383:G:H5'	2.48	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:418:G:O3'	75:T:72:ARG:NH2	2.51	0.43
1:2:1483:A:OP2	1:2:1521:G:N2	2.51	0.43
33:z:70:HIS:O	33:z:73:GLN:NE2	2.52	0.43
52:BO:89:ILE:HD12	52:BO:214:TRP:CZ3	2.54	0.43
54:BQ:2274:U:OP2	54:BQ:2311:G:N1	2.42	0.43
1:2:97:C:O2	1:2:425:A:O2'	2.33	0.42
9:AH:63:ILE:HD11	9:AH:102:LEU:CD1	2.50	0.42
12:AK:127:GLU:OE1	12:AK:127:GLU:N	2.44	0.42
33:z:350:PHE:O	33:z:353:ASP:N	2.52	0.42
47:BJ:116:ARG:NH2	54:BQ:1096:U:OP2	2.49	0.42
48:BK:67:MET:SD	48:BK:89:LEU:HD23	2.59	0.42
54:BQ:1564:U:C4	54:BQ:1576:G:O6	2.72	0.42
60:D:43:ARG:N	60:D:47:GLU:OE1	2.48	0.42
1:2:1351:G:H2'	1:2:1352:G:O4'	2.18	0.42
6:AE:34:SER:OG	54:BQ:3085:G:OP1	2.32	0.42
33:z:562:HIS:NE2	33:z:644:ILE:O	2.49	0.42
38:BA:334:ARG:NH1	54:BQ:3304:U:O2'	2.47	0.42
61:E:31:GLU:OE1	61:E:31:GLU:N	2.52	0.42
62:F:31:VAL:C	62:F:33:GLY:N	2.61	0.42
72:Q:35:PRO:HA	72:Q:97:LEU:HD11	2.01	0.42
72:Q:124:ASN:OD1	72:Q:124:ASN:N	2.51	0.42
11:AJ:35:ARG:NE	54:BQ:685:G:OP1	2.47	0.42
14:AM:19:ARG:HB3	14:AM:35:ILE:HD12	2.00	0.42
18:AQ:188:ARG:NH1	54:BQ:50:U:OP2	2.52	0.42
23:AV:32:LEU:HD12	54:BQ:749:C:H5''	2.01	0.42
27:b:30:SER:OG	27:b:31:SER:N	2.53	0.42
33:z:151:ILE:HD11	33:z:679:TYR:CE1	2.54	0.42
33:z:209:LEU:CD2	33:z:223:LEU:HD21	2.46	0.42
38:BA:180:GLU:OE2	54:BQ:3002:C:O2'	2.35	0.42
39:BB:66:ARG:NH2	54:BQ:785:G:OP1	2.52	0.42
43:BF:102:LEU:HD22	43:BF:138:LEU:HD13	2.01	0.42
46:BI:148:ILE:HD12	54:BQ:2746:A:C6	2.54	0.42
70:O:91:LEU:O	70:O:100:TYR:N	2.52	0.42
77:V:106:ALA:HB2	77:V:165:LEU:HG	2.00	0.42
80:Y:128:TYR:O	80:Y:131:THR:OG1	2.33	0.42
1:2:1479:A:H4'	82:I:15:ILE:HG21	2.02	0.42
45:BH:77:VAL:HG13	45:BH:126:VAL:HG22	2.01	0.42
67:L:12:VAL:HG13	67:L:28:VAL:CG1	2.49	0.42
1:2:714:G:O2'	1:2:715:U:OP1	2.29	0.42
1:2:1022:C:O2'	1:2:1125:A:N1	2.47	0.42
9:AH:105:VAL:CG1	9:AH:126:LEU:HD22	2.49	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:BF:62:ARG:NH1	54:BQ:3068:U:OP2	2.48	0.42
48:BK:71:VAL:HG13	48:BK:81:VAL:CG1	2.50	0.42
64:H:29:VAL:O	64:H:33:THR:HG23	2.18	0.42
74:S:160:VAL:HG13	74:S:169:ILE:HG23	2.02	0.42
1:2:207:U:O2	77:V:178:ARG:NH1	2.52	0.42
1:2:580:A:O2'	1:2:582:U:OP2	2.31	0.42
1:2:1464:G:C6	1:2:1465:C:C5	3.08	0.42
1:2:1533:C:OP2	66:K:77:ARG:NH2	2.47	0.42
12:AK:83:ASP:OD1	12:AK:84:LYS:N	2.53	0.42
15:AN:97:SER:N	15:AN:100:THR:OG1	2.50	0.42
51:BN:41:ARG:HG2	51:BN:56:THR:HG22	2.02	0.42
71:P:164:ASN:OD1	71:P:165:ARG:NH1	2.53	0.42
1:2:639:U:OP1	76:U:112:ARG:NH2	2.53	0.42
1:2:962:C:H2'	1:2:963:A:O4'	2.20	0.42
33:z:120:ASP:OD1	33:z:121:GLU:N	2.52	0.42
33:z:214:LEU:O	33:z:217:HIS:ND1	2.53	0.42
54:BQ:1724:U:H1'	54:BQ:1725:C:C6	2.55	0.42
60:D:67:THR:HG22	60:D:68:GLU:HB2	2.01	0.42
62:F:48:VAL:HG11	62:F:81:ILE:HD11	2.01	0.42
1:2:1273:G:O2'	1:2:1274:C:OP2	2.33	0.42
1:2:1291:G:H1	1:2:1324:G:H22	1.67	0.42
5:AD:73:SER:OG	54:BQ:3113:A:OP1	2.31	0.42
7:AF:18:LEU:HD11	13:AL:51:ILE:HG21	2.02	0.42
21:AT:8:VAL:O	21:AT:11:THR:HG22	2.20	0.42
42:BE:295:ILE:O	42:BE:298:ALA:N	2.52	0.42
43:BF:132:PHE:CD2	43:BF:138:LEU:HD12	2.55	0.42
72:Q:31:ASP:OD2	72:Q:45:LYS:NZ	2.46	0.42
72:Q:32:ILE:HD11	72:Q:46:THR:CG2	2.50	0.42
75:T:159:ARG:NH2	75:T:170:THR:HG23	2.34	0.42
1:2:1504:G:P	82:I:99:SER:HB2	2.60	0.42
2:AA:108:ARG:NH2	2:AA:112:GLU:OE1	2.49	0.42
64:H:23:ASP:OD1	64:H:24:GLY:N	2.52	0.42
1:2:570:A:N6	28:c:116:ASP:OD1	2.44	0.42
1:2:1250:U:O2	69:N:135:HIS:ND1	2.53	0.42
29:d:34:ASN:OD1	29:d:62:THR:HG21	2.20	0.42
54:BQ:59:G:H2'	56:BS:33:A:H2'	2.02	0.42
54:BQ:1315:U:H4'	54:BQ:1317:A:C1'	2.50	0.42
72:Q:131:ASP:OD1	72:Q:131:ASP:N	2.49	0.42
75:T:57:ASP:HB3	75:T:106:LEU:HD23	2.01	0.42
1:2:235:G:N2	1:2:236:A:N7	2.69	0.41
30:e:35:ALA:O	30:e:37:LYS:HG3	2.19	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:BQ:1078:U:N3	54:BQ:1081:U:OP2	2.49	0.41
54:BQ:3332:U:H2'	54:BQ:3333:G:O4'	2.20	0.41
60:D:70:ASN:O	60:D:74:LEU:HD13	2.20	0.41
1:2:885:G:H21	81:Z:123:SER:HB2	1.85	0.41
1:2:1291:G:H22	1:2:1324:G:N2	2.18	0.41
2:AA:83:ASP:OD1	2:AA:84:ARG:N	2.53	0.41
5:AD:41:ILE:HD11	5:AD:67:ALA:HB1	2.01	0.41
33:z:202:ILE:HG22	33:z:222:ALA:O	2.20	0.41
42:BE:321:LYS:HD3	42:BE:324:LEU:HD23	2.01	0.41
54:BQ:532:A:N6	54:BQ:555:U:O2'	2.53	0.41
54:BQ:1713:G:HO2'	54:BQ:1714:A:P	2.43	0.41
54:BQ:3121:U:C4	54:BQ:3124:G:O6	2.74	0.41
17:AP:77:CYS:SG	17:AP:79:THR:HG22	2.60	0.41
21:AT:2:ALA:N	54:BQ:853:G:O6	2.53	0.41
26:a:65:SER:OG	71:P:156:VAL:O	2.39	0.41
38:BA:86:VAL:HG22	38:BA:162:VAL:HG12	2.03	0.41
47:BJ:91:LEU:HD12	47:BJ:96:ILE:HD11	2.02	0.41
47:BJ:130:ARG:O	54:BQ:1098:A:O2'	2.38	0.41
67:L:12:VAL:HG22	67:L:28:VAL:HG11	2.01	0.41
75:T:67:VAL:HG12	75:T:67:VAL:O	2.19	0.41
33:z:32:LEU:HD22	33:z:75:ILE:HG21	2.02	0.41
33:z:332:LEU:HA	33:z:335:LEU:HD21	2.02	0.41
33:z:885:ILE:HG22	33:z:913:GLU:OE1	2.20	0.41
73:R:111:VAL:HG22	73:R:139:ILE:HD11	2.03	0.41
76:U:168:SER:O	76:U:172:VAL:HG23	2.21	0.41
1:2:929:A:OP1	1:2:931:C:N4	2.53	0.41
1:2:1386:G:OP2	63:G:44:LYS:NZ	2.47	0.41
8:AG:22:SER:OG	54:BQ:2676:A:N1	2.51	0.41
25:AX:7:THR:HB	25:AX:9:THR:HG22	2.03	0.41
25:AX:67:ILE:HD12	25:AX:82:ARG:HE	1.84	0.41
33:z:212:LEU:HD22	33:z:548:TYR:CE2	2.54	0.41
33:z:250:LEU:HD23	33:z:253:LEU:HD21	2.02	0.41
36:m:36:C:O2'	36:m:37:A:OP1	2.30	0.41
49:BL:50:LEU:HD22	49:BL:54:VAL:CG2	2.50	0.41
54:BQ:494:G:O4'	54:BQ:494:G:P	2.79	0.41
57:A:72:LEU:HD22	59:C:65:TYR:HD2	1.85	0.41
74:S:21:ASP:OD2	74:S:22:LYS:N	2.53	0.41
1:2:140:A:OP1	75:T:187:LYS:NZ	2.41	0.41
1:2:361:C:N3	1:2:384:G:C2	2.88	0.41
1:2:1436:A:OP2	57:A:27:ARG:NH2	2.48	0.41
30:e:44:ILE:HD12	30:e:44:ILE:H	1.86	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:BA:250:ALA:HB1	54:BQ:2947:G:C2	2.55	0.41
52:BO:87:VAL:HG11	52:BO:243:MET:HE1	2.01	0.41
54:BQ:394:G:N1	54:BQ:397:A:OP2	2.50	0.41
75:T:141:ILE:HG21	75:T:153:VAL:CG1	2.51	0.41
76:U:134:GLU:O	76:U:136:VAL:HG23	2.21	0.41
9:AH:34:LEU:N	54:BQ:1558:A:O2'	2.54	0.41
21:AT:4:ARG:NH2	54:BQ:837:A:OP2	2.51	0.41
38:BA:269:GLN:NE2	54:BQ:3306:U:OP1	2.46	0.41
39:BB:141:ARG:NH2	54:BQ:977:C:OP2	2.53	0.41
42:BE:226:GLU:OE1	42:BE:246:ARG:NH1	2.50	0.41
49:BL:89:LEU:HB3	49:BL:93:ILE:HD12	2.03	0.41
54:BQ:3375:A:O2'	54:BQ:3376:A:O5'	2.38	0.41
56:BS:83:C:H1'	56:BS:85:G:H21	1.84	0.41
1:2:1562:G:OP1	82:I:89:ARG:NH2	2.54	0.41
28:c:69:ARG:NH2	28:c:116:ASP:OD2	2.52	0.41
38:BA:244:ARG:NH1	54:BQ:2981:U:OP2	2.54	0.41
51:BN:37:LYS:NZ	54:BQ:1656:A:OP2	2.53	0.41
54:BQ:358:G:N2	54:BQ:361:A:OP2	2.44	0.41
1:2:68:A:OP1	75:T:171:LYS:NZ	2.45	0.41
1:2:385:A:H5''	77:V:25:ARG:NH2	2.36	0.41
1:2:1584:G:HO2'	1:2:1585:U:P	2.44	0.41
3:AB:15:LEU:HD13	3:AB:51:ALA:HB3	2.01	0.41
8:AG:51:ARG:NH1	54:BQ:2680:A:O3'	2.47	0.41
18:AQ:66:VAL:HG21	18:AQ:98:LEU:HB3	2.02	0.41
29:d:17:LEU:HD12	74:S:64:ILE:HG23	2.03	0.41
39:BB:2:GLY:N	54:BQ:1159:A:O5'	2.54	0.41
42:BE:286:VAL:HG12	42:BE:290:ILE:HD12	2.01	0.41
46:BI:40:HIS:CD2	46:BI:42:ALA:HB3	2.56	0.41
47:BJ:76:ILE:HG22	47:BJ:77:ASN:N	2.36	0.41
54:BQ:1293:U:H2'	54:BQ:1294:A:O4'	2.21	0.41
54:BQ:2885:C:H2'	54:BQ:2886:U:O4'	2.21	0.41
64:H:61:LEU:HB2	64:H:66:LEU:HD21	2.03	0.41
65:J:28:SER:OG	65:J:29:THR:N	2.54	0.41
72:Q:212:VAL:HG23	72:Q:212:VAL:O	2.20	0.41
75:T:68:LEU:HD12	75:T:68:LEU:H	1.86	0.41
76:U:129:LEU:HD21	76:U:172:VAL:HG11	2.03	0.41
1:2:1116:A:OP1	20:AS:17:ARG:NH1	2.54	0.41
19:AR:3:SER:O	19:AR:5:PHE:N	2.54	0.41
24:AW:127:ALA:O	24:AW:169:ILE:HD12	2.21	0.41
50:BM:82:ARG:NH2	54:BQ:501:A:OP1	2.53	0.41
51:BN:36:LYS:NZ	54:BQ:1595:U:OP2	2.53	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:BQ:1925:U:O2'	54:BQ:1927:G:N7	2.53	0.41
74:S:72:VAL:N	74:S:75:LYS:O	2.51	0.41
1:2:153:G:H4'	75:T:15:THR:HG21	2.02	0.40
1:2:1229:G:H21	1:2:1256:A:N6	2.19	0.40
15:AN:24:VAL:HG11	15:AN:87:LEU:HD23	2.03	0.40
54:BQ:1693:C:O2'	54:BQ:1772:U:O2'	2.20	0.40
54:BQ:3139:A:H2'	54:BQ:3140:G:O4'	2.21	0.40
63:G:41:ILE:HG22	63:G:43:SER:H	1.86	0.40
8:AG:114:ILE:HG22	8:AG:115:LYS:O	2.22	0.40
21:AT:66:GLY:O	24:AW:170:ALA:HB1	2.21	0.40
40:BC:88:PRO:C	40:BC:89:LEU:HD12	2.46	0.40
42:BE:230:VAL:CG2	42:BE:254:ALA:HB1	2.52	0.40
70:O:248:ASN:OD1	70:O:249:ARG:N	2.54	0.40
1:2:50:C:N4	1:2:428:A:N7	2.67	0.40
1:2:1172:G:H21	82:I:88:VAL:HG22	1.86	0.40
24:AW:211:HIS:CD2	24:AW:219:ILE:HG23	2.57	0.40
30:e:50:VAL:HG21	34:l:37:U:O4	2.20	0.40
33:z:145:LYS:HB3	33:z:693:LEU:HD11	2.02	0.40
33:z:757:VAL:HG23	33:z:758:PHE:CD2	2.55	0.40
38:BA:81:THR:HG21	38:BA:205:VAL:HG11	2.02	0.40
41:BD:73:LYS:O	41:BD:77:THR:HG23	2.21	0.40
58:B:53:VAL:HG11	58:B:59:VAL:HG22	2.02	0.40
72:Q:179:SER:OG	72:Q:180:THR:N	2.54	0.40
1:2:2:A:C2	73:R:170:ILE:HD13	2.56	0.40
1:2:653:C:H41	1:2:680:U:H3	1.70	0.40
3:AB:46:LEU:HD22	38:BA:8:ALA:HB2	2.03	0.40
18:AQ:119:TYR:OH	18:AQ:131:GLU:OE1	2.31	0.40
21:AT:4:ARG:NH1	54:BQ:838:G:O6	2.47	0.40
33:z:574:LEU:H	33:z:574:LEU:HD23	1.86	0.40
33:z:798:TRP:CB	33:z:899:LEU:HD12	2.50	0.40
42:BE:326:ARG:O	52:BO:41:ARG:NH2	2.54	0.40
54:BQ:1730:G:O2'	54:BQ:1731:A:OP2	2.38	0.40
70:O:48:THR:HG21	70:O:50:ASP:OD2	2.21	0.40
75:T:41:VAL:HG12	75:T:41:VAL:O	2.21	0.40
1:2:174:U:O2'	1:2:175:G:OP1	2.38	0.40
7:AF:5:THR:HG23	7:AF:6:PRO:HD3	2.04	0.40
30:e:44:ILE:HD13	30:e:65:PRO:HG2	2.03	0.40
66:K:66:VAL:O	66:K:69:LEU:N	2.53	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	AA	231/233 (99%)	204 (88%)	25 (11%)	2 (1%)	14	45
3	AB	134/136 (98%)	129 (96%)	5 (4%)	0	100	100
4	AC	97/100 (97%)	90 (93%)	5 (5%)	2 (2%)	5	25
5	AD	189/191 (99%)	175 (93%)	13 (7%)	1 (0%)	25	58
6	AE	65/67 (97%)	61 (94%)	4 (6%)	0	100	100
7	AF	85/87 (98%)	77 (91%)	8 (9%)	0	100	100
8	AG	167/169 (99%)	154 (92%)	12 (7%)	1 (1%)	22	53
9	AH	119/121 (98%)	115 (97%)	4 (3%)	0	100	100
10	AI	75/77 (97%)	69 (92%)	6 (8%)	0	100	100
11	AJ	191/193 (99%)	168 (88%)	19 (10%)	4 (2%)	5	25
12	AK	124/126 (98%)	123 (99%)	1 (1%)	0	100	100
13	AL	48/50 (96%)	45 (94%)	3 (6%)	0	100	100
14	AM	134/136 (98%)	121 (90%)	13 (10%)	0	100	100
15	AN	133/135 (98%)	117 (88%)	16 (12%)	0	100	100
16	AO	50/52 (96%)	47 (94%)	3 (6%)	0	100	100
17	AP	103/105 (98%)	92 (89%)	11 (11%)	0	100	100
18	AQ	201/203 (99%)	184 (92%)	16 (8%)	1 (0%)	25	58
19	AR	146/148 (99%)	125 (86%)	19 (13%)	2 (1%)	9	34
20	AS	23/25 (92%)	23 (100%)	0	0	100	100
21	AT	89/91 (98%)	81 (91%)	8 (9%)	0	100	100
22	AU	195/197 (99%)	188 (96%)	7 (4%)	0	100	100
23	AV	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
24	AW	250/252 (99%)	238 (95%)	12 (5%)	0	100	100
25	AX	181/183 (99%)	174 (96%)	7 (4%)	0	100	100
26	a	85/87 (98%)	70 (82%)	13 (15%)	2 (2%)	5	22

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
27	b	127/129 (98%)	123 (97%)	4 (3%)	0	100	100
28	c	142/144 (99%)	125 (88%)	16 (11%)	1 (1%)	19	51
29	d	130/132 (98%)	112 (86%)	16 (12%)	2 (2%)	8	33
30	e	95/97 (98%)	73 (77%)	21 (22%)	1 (1%)	12	39
31	f	79/81 (98%)	69 (87%)	10 (13%)	0	100	100
32	g	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
33	z	864/916 (94%)	783 (91%)	80 (9%)	1 (0%)	48	79
37	AY	95/97 (98%)	94 (99%)	1 (1%)	0	100	100
38	BA	384/386 (100%)	354 (92%)	30 (8%)	0	100	100
39	BB	183/185 (99%)	169 (92%)	14 (8%)	0	100	100
40	BC	107/109 (98%)	97 (91%)	9 (8%)	1 (1%)	14	45
41	BD	218/220 (99%)	198 (91%)	19 (9%)	1 (0%)	25	58
42	BE	359/361 (99%)	322 (90%)	35 (10%)	2 (1%)	22	53
43	BF	186/188 (99%)	173 (93%)	12 (6%)	1 (0%)	25	58
44	BG	125/127 (98%)	122 (98%)	3 (2%)	0	100	100
45	BH	170/172 (99%)	159 (94%)	11 (6%)	0	100	100
46	BI	294/296 (99%)	271 (92%)	22 (8%)	1 (0%)	37	68
47	BJ	157/159 (99%)	140 (89%)	15 (10%)	2 (1%)	10	36
48	BK	104/106 (98%)	97 (93%)	7 (7%)	0	100	100
49	BL	98/100 (98%)	87 (89%)	11 (11%)	0	100	100
50	BM	152/175 (87%)	144 (95%)	8 (5%)	0	100	100
51	BN	110/112 (98%)	105 (96%)	5 (4%)	0	100	100
52	BO	220/222 (99%)	206 (94%)	13 (6%)	1 (0%)	25	58
53	BP	117/119 (98%)	110 (94%)	5 (4%)	2 (2%)	7	30
57	A	221/223 (99%)	205 (93%)	16 (7%)	0	100	100
58	B	204/206 (99%)	167 (82%)	34 (17%)	3 (2%)	8	33
59	C	94/96 (98%)	79 (84%)	15 (16%)	0	100	100
60	D	119/121 (98%)	81 (68%)	37 (31%)	1 (1%)	16	48
61	E	119/121 (98%)	98 (82%)	21 (18%)	0	100	100
62	F	139/141 (99%)	120 (86%)	16 (12%)	3 (2%)	5	24
63	G	123/125 (98%)	103 (84%)	18 (15%)	2 (2%)	8	31

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
64	H	137/139 (99%)	117 (85%)	20 (15%)	0	100	100
65	J	105/107 (98%)	94 (90%)	11 (10%)	0	100	100
66	K	68/70 (97%)	56 (82%)	11 (16%)	1 (2%)	8	33
67	L	61/63 (97%)	55 (90%)	6 (10%)	0	100	100
68	M	51/53 (96%)	50 (98%)	1 (2%)	0	100	100
69	N	49/51 (96%)	38 (78%)	11 (22%)	0	100	100
70	O	316/318 (99%)	294 (93%)	22 (7%)	0	100	100
71	P	217/219 (99%)	191 (88%)	23 (11%)	3 (1%)	9	34
72	Q	212/214 (99%)	179 (84%)	32 (15%)	1 (0%)	25	58
73	R	218/220 (99%)	196 (90%)	21 (10%)	1 (0%)	25	58
74	S	258/260 (99%)	225 (87%)	31 (12%)	2 (1%)	16	48
75	T	224/226 (99%)	199 (89%)	24 (11%)	1 (0%)	30	63
76	U	175/184 (95%)	160 (91%)	15 (9%)	0	100	100
77	V	184/199 (92%)	158 (86%)	25 (14%)	1 (0%)	25	58
78	W	176/178 (99%)	144 (82%)	30 (17%)	2 (1%)	12	39
79	X	153/155 (99%)	140 (92%)	12 (8%)	1 (1%)	19	51
80	Y	148/150 (99%)	138 (93%)	10 (7%)	0	100	100
81	Z	125/127 (98%)	112 (90%)	13 (10%)	0	100	100
82	I	141/143 (99%)	131 (93%)	9 (6%)	1 (1%)	19	51
All	All	11782/12024 (98%)	10635 (90%)	1093 (9%)	54 (0%)	27	58

All (54) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	AA	156	ASP
2	AA	157	VAL
11	AJ	62	THR
42	BE	339	LEU
53	BP	91	ALA
58	B	50	GLU
58	B	58	LEU
63	G	82	ASP
71	P	110	TYR
71	P	111	ILE
11	AJ	77	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
26	a	81	ASN
29	d	35	VAL
30	e	63	ALA
62	F	32	ASN
73	R	40	LYS
74	S	21	ASP
74	S	26	CYS
78	W	134	ILE
4	AC	33	ALA
11	AJ	61	PRO
19	AR	47	LYS
26	a	45	ALA
42	BE	292	SER
47	BJ	125	ALA
53	BP	90	ARG
62	F	31	VAL
72	Q	158	SER
5	AD	23	ARG
11	AJ	76	THR
19	AR	4	ARG
41	BD	138	ARG
46	BI	259	LYS
58	B	49	GLU
71	P	196	SER
77	V	10	LYS
4	AC	34	SER
8	AG	172	LEU
18	AQ	94	TYR
28	c	90	ASP
29	d	52	LYS
33	z	601	LYS
40	BC	7	VAL
47	BJ	18	ASP
52	BO	164	SER
60	D	67	THR
63	G	81	LYS
66	K	71	ILE
75	T	68	LEU
78	W	20	GLU
82	I	28	LEU
43	BF	131	ALA
62	F	39	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
79	X	7	VAL

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	
2	AA	187/191 (98%)	185 (99%)	2 (1%)	70	84
3	AB	104/104 (100%)	104 (100%)	0	100	100
4	AC	81/82 (99%)	81 (100%)	0	100	100
5	AD	171/171 (100%)	171 (100%)	0	100	100
6	AE	56/59 (95%)	56 (100%)	0	100	100
7	AF	70/70 (100%)	70 (100%)	0	100	100
8	AG	147/147 (100%)	147 (100%)	0	100	100
9	AH	104/105 (99%)	104 (100%)	0	100	100
10	AI	68/68 (100%)	68 (100%)	0	100	100
11	AJ	154/154 (100%)	154 (100%)	0	100	100
12	AK	109/109 (100%)	109 (100%)	0	100	100
13	AL	45/45 (100%)	45 (100%)	0	100	100
14	AM	107/107 (100%)	107 (100%)	0	100	100
15	AN	115/115 (100%)	115 (100%)	0	100	100
16	AO	47/47 (100%)	47 (100%)	0	100	100
17	AP	90/90 (100%)	90 (100%)	0	100	100
18	AQ	175/175 (100%)	175 (100%)	0	100	100
19	AR	118/118 (100%)	118 (100%)	0	100	100
20	AS	23/23 (100%)	23 (100%)	0	100	100
21	AT	71/71 (100%)	71 (100%)	0	100	100
22	AU	160/160 (100%)	160 (100%)	0	100	100
23	AV	46/46 (100%)	46 (100%)	0	100	100
24	AW	193/194 (100%)	192 (100%)	1 (0%)	86	92

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
25	AX	140/145 (97%)	139 (99%)	1 (1%)	81	90
26	a	74/74 (100%)	74 (100%)	0	100	100
27	b	110/110 (100%)	110 (100%)	0	100	100
28	c	119/119 (100%)	119 (100%)	0	100	100
29	d	111/111 (100%)	111 (100%)	0	100	100
30	e	83/83 (100%)	82 (99%)	1 (1%)	67	83
31	f	70/70 (100%)	70 (100%)	0	100	100
32	g	50/51 (98%)	50 (100%)	0	100	100
33	z	783/842 (93%)	777 (99%)	6 (1%)	79	89
37	AY	81/81 (100%)	81 (100%)	0	100	100
38	BA	320/322 (99%)	317 (99%)	3 (1%)	75	88
39	BB	150/150 (100%)	150 (100%)	0	100	100
40	BC	92/96 (96%)	92 (100%)	0	100	100
41	BD	184/186 (99%)	184 (100%)	0	100	100
42	BE	288/288 (100%)	288 (100%)	0	100	100
43	BF	153/153 (100%)	153 (100%)	0	100	100
44	BG	109/109 (100%)	109 (100%)	0	100	100
45	BH	156/156 (100%)	156 (100%)	0	100	100
46	BI	244/244 (100%)	243 (100%)	1 (0%)	89	94
47	BJ	136/136 (100%)	136 (100%)	0	100	100
48	BK	90/90 (100%)	90 (100%)	0	100	100
49	BL	87/87 (100%)	87 (100%)	0	100	100
50	BM	134/152 (88%)	134 (100%)	0	100	100
51	BN	95/95 (100%)	95 (100%)	0	100	100
52	BO	186/186 (100%)	185 (100%)	1 (0%)	86	92
53	BP	104/104 (100%)	104 (100%)	0	100	100
57	A	182/182 (100%)	182 (100%)	0	100	100
58	B	172/173 (99%)	172 (100%)	0	100	100
59	C	88/89 (99%)	88 (100%)	0	100	100
60	D	89/98 (91%)	88 (99%)	1 (1%)	70	84
61	E	100/103 (97%)	100 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
62	F	115/117 (98%)	114 (99%)	1 (1%)	75	88
63	G	113/113 (100%)	113 (100%)	0	100	100
64	H	124/124 (100%)	124 (100%)	0	100	100
65	J	100/100 (100%)	100 (100%)	0	100	100
66	K	61/61 (100%)	61 (100%)	0	100	100
67	L	56/56 (100%)	56 (100%)	0	100	100
68	M	47/47 (100%)	47 (100%)	0	100	100
69	N	43/43 (100%)	43 (100%)	0	100	100
70	O	259/261 (99%)	259 (100%)	0	100	100
71	P	177/184 (96%)	175 (99%)	2 (1%)	70	84
72	Q	191/191 (100%)	190 (100%)	1 (0%)	86	92
73	R	180/180 (100%)	180 (100%)	0	100	100
74	S	219/221 (99%)	215 (98%)	4 (2%)	54	76
75	T	188/193 (97%)	188 (100%)	0	100	100
76	U	160/165 (97%)	160 (100%)	0	100	100
77	V	150/160 (94%)	150 (100%)	0	100	100
78	W	152/152 (100%)	152 (100%)	0	100	100
79	X	129/136 (95%)	129 (100%)	0	100	100
80	Y	127/127 (100%)	127 (100%)	0	100	100
81	Z	81/96 (84%)	81 (100%)	0	100	100
82	I	112/115 (97%)	112 (100%)	0	100	100
All	All	10005/10178 (98%)	9980 (100%)	25 (0%)	91	96

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	AA	71	VAL
2	AA	190	VAL
24	AW	68	LYS
25	AX	78	VAL
30	e	62	TYR
33	z	153	ASP
33	z	283	LEU
33	z	405	LYS
33	z	652	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
33	z	790	LEU
33	z	897	LEU
38	BA	90	VAL
38	BA	104	THR
38	BA	221	THR
46	BI	218	ARG
52	BO	93	ASN
60	D	139	HIS
62	F	31	VAL
71	P	109	ASN
71	P	202	TYR
72	Q	206	PRO
74	S	10	LYS
74	S	11	ARG
74	S	21	ASP
74	S	26	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (92) such sidechains are listed below:

Mol	Chain	Res	Type
5	AD	163	GLN
8	AG	6	GLN
8	AG	39	GLN
9	AH	111	ASN
10	AI	67	GLN
11	AJ	103	ASN
12	AK	110	HIS
14	AM	126	GLN
15	AN	29	HIS
15	AN	122	HIS
16	AO	109	ASN
16	AO	117	HIS
17	AP	22	GLN
17	AP	59	HIS
17	AP	102	GLN
18	AQ	138	GLN
23	AV	12	GLN
24	AW	139	HIS
24	AW	205	ASN
24	AW	211	HIS
24	AW	215	ASN
25	AX	34	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
25	AX	55	GLN
25	AX	133	HIS
26	a	81	ASN
27	b	15	ASN
27	b	64	GLN
27	b	120	HIS
28	c	89	ASN
33	z	41	HIS
33	z	171	HIS
33	z	200	HIS
33	z	349	ASN
33	z	401	GLN
33	z	513	HIS
33	z	703	ASN
33	z	837	GLN
33	z	856	GLN
33	z	906	ASN
37	AY	75	ASN
38	BA	11	HIS
38	BA	177	HIS
39	BB	158	HIS
40	BC	15	ASN
40	BC	21	HIS
41	BD	72	ASN
41	BD	122	HIS
41	BD	207	ASN
42	BE	48	GLN
42	BE	59	GLN
42	BE	196	ASN
42	BE	291	ASN
43	BF	58	HIS
44	BG	49	ASN
44	BG	52	GLN
45	BH	62	ASN
45	BH	88	HIS
45	BH	138	GLN
46	BI	40	HIS
47	BJ	5	HIS
47	BJ	131	GLN
49	BL	9	GLN
50	BM	167	ASN
52	BO	112	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	BO	200	ASN
53	BP	16	GLN
53	BP	99	GLN
59	C	47	GLN
60	D	139	HIS
61	E	70	ASN
62	F	32	ASN
63	G	62	GLN
64	H	8	GLN
65	J	48	HIS
68	M	37	ASN
70	O	139	GLN
70	O	182	ASN
70	O	268	GLN
71	P	28	ASN
71	P	131	GLN
73	R	110	HIS
74	S	157	ASN
74	S	231	GLN
76	U	29	ASN
76	U	89	HIS
78	W	139	GLN
79	X	14	GLN
79	X	127	GLN
80	Y	5	HIS
80	Y	58	HIS
82	I	23	GLN
82	I	101	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1762/1797 (98%)	510 (28%)	66 (3%)
34	l	16/17 (94%)	8 (50%)	0
35	n	75/76 (98%)	13 (17%)	0
36	m	74/75 (98%)	22 (29%)	0
54	BQ	3158/3396 (92%)	648 (20%)	92 (2%)
55	BR	120/121 (99%)	22 (18%)	3 (2%)
56	BS	157/158 (99%)	37 (23%)	4 (2%)
All	All	5362/5640 (95%)	1260 (23%)	165 (3%)

All (1260) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	4	C
1	2	17	C
1	2	25	C
1	2	26	A
1	2	34	G
1	2	39	A
1	2	41	A
1	2	42	G
1	2	47	A
1	2	49	C
1	2	50	C
1	2	51	A
1	2	52	U
1	2	53	G
1	2	55	A
1	2	56	U
1	2	57	G
1	2	60	U
1	2	62	A
1	2	63	G
1	2	66	U
1	2	68	A
1	2	69	G
1	2	71	A
1	2	72	A
1	2	73	U
1	2	74	U
1	2	75	U
1	2	76	A
1	2	78	A
1	2	79	C
1	2	81	G
1	2	93	A
1	2	99	C
1	2	104	A
1	2	105	A
1	2	106	U
1	2	114	C
1	2	121	U
1	2	126	A
1	2	129	U
1	2	130	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	131	C
1	2	133	U
1	2	134	U
1	2	135	A
1	2	136	C
1	2	138	A
1	2	140	A
1	2	141	U
1	2	142	G
1	2	153	G
1	2	155	U
1	2	159	U
1	2	161	U
1	2	168	A
1	2	171	A
1	2	174	U
1	2	175	G
1	2	176	C
1	2	178	U
1	2	180	A
1	2	185	U
1	2	186	C
1	2	187	G
1	2	188	A
1	2	189	C
1	2	191	C
1	2	193	U
1	2	195	G
1	2	199	G
1	2	218	A
1	2	221	A
1	2	225	A
1	2	227	U
1	2	228	G
1	2	229	U
1	2	230	C
1	2	231	U
1	2	232	U
1	2	233	C
1	2	234	G
1	2	235	G
1	2	240	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	241	U
1	2	250	C
1	2	257	A
1	2	260	U
1	2	262	U
1	2	265	A
1	2	270	C
1	2	272	U
1	2	279	G
1	2	280	U
1	2	281	G
1	2	283	U
1	2	287	G
1	2	299	A
1	2	311	U
1	2	313	U
1	2	314	C
1	2	316	A
1	2	320	U
1	2	321	C
1	2	322	G
1	2	323	A
1	2	337	G
1	2	338	C
1	2	340	U
1	2	352	A
1	2	353	A
1	2	359	A
1	2	361	C
1	2	370	A
1	2	373	G
1	2	379	U
1	2	380	U
1	2	381	C
1	2	383	G
1	2	384	G
1	2	385	A
1	2	387	A
1	2	388	G
1	2	390	G
1	2	400	A
1	2	401	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	402	C
1	2	404	G
1	2	405	C
1	2	415	C
1	2	417	A
1	2	419	G
1	2	423	G
1	2	424	C
1	2	425	A
1	2	426	G
1	2	429	G
1	2	430	G
1	2	434	G
1	2	436	A
1	2	439	U
1	2	444	C
1	2	446	A
1	2	448	C
1	2	453	U
1	2	454	U
1	2	455	C
1	2	460	A
1	2	468	A
1	2	471	A
1	2	477	A
1	2	486	G
1	2	489	C
1	2	492	A
1	2	493	U
1	2	494	U
1	2	496	G
1	2	498	G
1	2	499	U
1	2	500	C
1	2	502	U
1	2	505	A
1	2	506	A
1	2	507	U
1	2	510	G
1	2	527	A
1	2	532	U
1	2	534	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	538	A
1	2	540	G
1	2	541	A
1	2	542	A
1	2	543	C
1	2	544	A
1	2	548	G
1	2	549	G
1	2	555	A
1	2	556	A
1	2	557	G
1	2	559	C
1	2	565	C
1	2	578	U
1	2	579	A
1	2	580	A
1	2	582	U
1	2	594	A
1	2	595	G
1	2	597	G
1	2	606	A
1	2	610	G
1	2	611	U
1	2	619	A
1	2	620	A
1	2	623	A
1	2	624	G
1	2	634	G
1	2	638	U
1	2	639	U
1	2	640	U
1	2	643	G
1	2	644	C
1	2	650	U
1	2	651	G
1	2	652	G
1	2	653	C
1	2	655	G
1	2	657	U
1	2	658	C
1	2	678	A
1	2	679	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	680	U
1	2	681	U
1	2	682	C
1	2	683	C
1	2	684	A
1	2	694	U
1	2	696	C
1	2	698	U
1	2	699	U
1	2	700	C
1	2	704	C
1	2	705	U
1	2	706	A
1	2	708	C
1	2	709	C
1	2	710	U
1	2	711	U
1	2	712	G
1	2	713	A
1	2	714	G
1	2	715	U
1	2	716	C
1	2	717	C
1	2	718	U
1	2	719	U
1	2	721	U
1	2	723	G
1	2	725	U
1	2	726	C
1	2	727	U
1	2	729	G
1	2	730	G
1	2	731	C
1	2	732	G
1	2	733	A
1	2	734	A
1	2	736	C
1	2	738	G
1	2	739	G
1	2	741	C
1	2	742	U
1	2	743	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	744	U
1	2	754	A
1	2	755	A
1	2	756	A
1	2	765	G
1	2	766	U
1	2	767	U
1	2	768	C
1	2	774	A
1	2	775	G
1	2	776	G
1	2	778	G
1	2	780	A
1	2	782	U
1	2	783	G
1	2	789	A
1	2	811	A
1	2	812	A
1	2	813	U
1	2	814	A
1	2	815	G
1	2	816	G
1	2	817	A
1	2	818	C
1	2	820	U
1	2	821	U
1	2	823	G
1	2	833	U
1	2	834	G
1	2	838	G
1	2	840	U
1	2	846	G
1	2	856	A
1	2	857	U
1	2	863	A
1	2	864	U
1	2	876	G
1	2	886	U
1	2	898	A
1	2	899	G
1	2	913	G
1	2	914	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	928	U
1	2	929	A
1	2	933	A
1	2	934	C
1	2	935	U
1	2	942	G
1	2	944	A
1	2	960	U
1	2	964	U
1	2	966	A
1	2	970	A
1	2	984	G
1	2	988	A
1	2	992	A
1	2	993	A
1	2	1024	U
1	2	1026	A
1	2	1028	C
1	2	1030	A
1	2	1031	U
1	2	1032	G
1	2	1039	A
1	2	1053	G
1	2	1057	U
1	2	1058	U
1	2	1061	A
1	2	1076	A
1	2	1082	C
1	2	1086	A
1	2	1092	A
1	2	1096	C
1	2	1098	U
1	2	1099	U
1	2	1100	G
1	2	1113	A
1	2	1114	G
1	2	1115	U
1	2	1138	A
1	2	1150	G
1	2	1158	C
1	2	1160	A
1	2	1164	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1167	G
1	2	1170	G
1	2	1172	G
1	2	1174	C
1	2	1185	U
1	2	1191	U
1	2	1194	A
1	2	1196	A
1	2	1199	G
1	2	1200	G
1	2	1208	A
1	2	1217	A
1	2	1218	G
1	2	1227	A
1	2	1229	G
1	2	1241	G
1	2	1242	A
1	2	1243	G
1	2	1244	A
1	2	1245	G
1	2	1246	C
1	2	1247	U
1	2	1251	U
1	2	1252	C
1	2	1256	A
1	2	1257	U
1	2	1258	U
1	2	1273	G
1	2	1274	C
1	2	1275	A
1	2	1285	U
1	2	1294	G
1	2	1301	U
1	2	1307	U
1	2	1314	U
1	2	1315	U
1	2	1318	G
1	2	1321	A
1	2	1322	A
1	2	1337	A
1	2	1338	C
1	2	1339	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1340	U
1	2	1344	A
1	2	1345	A
1	2	1346	A
1	2	1347	U
1	2	1348	A
1	2	1349	G
1	2	1362	U
1	2	1363	U
1	2	1364	G
1	2	1367	G
1	2	1370	U
1	2	1371	A
1	2	1373	C
1	2	1374	C
1	2	1378	U
1	2	1381	U
1	2	1382	A
1	2	1383	G
1	2	1390	U
1	2	1398	U
1	2	1399	C
1	2	1400	A
1	2	1402	G
1	2	1410	A
1	2	1412	G
1	2	1414	U
1	2	1415	U
1	2	1425	A
1	2	1427	A
1	2	1431	C
1	2	1432	U
1	2	1437	U
1	2	1444	A
1	2	1445	G
1	2	1446	A
1	2	1447	C
1	2	1448	G
1	2	1458	G
1	2	1459	C
1	2	1465	C
1	2	1466	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1468	U
1	2	1469	A
1	2	1470	C
1	2	1471	A
1	2	1472	C
1	2	1473	U
1	2	1476	C
1	2	1477	G
1	2	1478	G
1	2	1480	G
1	2	1481	C
1	2	1482	C
1	2	1483	A
1	2	1491	U
1	2	1492	A
1	2	1493	A
1	2	1496	U
1	2	1506	G
1	2	1516	A
1	2	1518	C
1	2	1521	G
1	2	1522	U
1	2	1524	A
1	2	1527	C
1	2	1528	U
1	2	1529	C
1	2	1531	G
1	2	1535	U
1	2	1536	G
1	2	1537	C
1	2	1538	U
1	2	1540	G
1	2	1541	G
1	2	1543	A
1	2	1544	U
1	2	1554	U
1	2	1557	U
1	2	1558	U
1	2	1559	A
1	2	1571	C
1	2	1572	G
1	2	1574	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1575	G
1	2	1576	A
1	2	1577	A
1	2	1584	G
1	2	1585	U
1	2	1590	G
1	2	1601	G
1	2	1602	C
1	2	1605	G
1	2	1607	G
1	2	1611	A
1	2	1616	G
1	2	1622	G
1	2	1631	A
1	2	1634	C
1	2	1635	A
1	2	1637	C
1	2	1639	C
1	2	1657	U
1	2	1658	G
1	2	1682	U
1	2	1688	U
1	2	1689	A
1	2	1693	A
1	2	1709	C
1	2	1711	C
1	2	1712	A
1	2	1715	G
1	2	1736	G
1	2	1757	G
1	2	1760	G
1	2	1762	A
1	2	1765	A
1	2	1766	A
1	2	1767	G
1	2	1768	G
1	2	1769	U
1	2	1770	U
1	2	1771	U
1	2	1780	G
1	2	1782	A
1	2	1783	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1792	G
1	2	1793	G
1	2	1794	A
1	2	1795	U
1	2	1796	C
34	l	33	A
34	l	35	C
34	l	36	C
34	l	37	U
34	l	38	G
34	l	40	A
34	l	42	G
34	l	46	C
35	n	16	U
35	n	17	G
35	n	19	U
35	n	24	G
35	n	32	C
35	n	41	A
35	n	42	G
35	n	47	U
35	n	48	U
35	n	58	A
35	n	59	G
35	n	73	G
35	n	76	A
36	m	16	C
36	m	17	G
36	m	18	G
36	m	19	C
36	m	21	A
36	m	28	C
36	m	29	A
36	m	33	U
36	m	34	U
36	m	35	U
36	m	36	C
36	m	37	A
36	m	38	C
36	m	39	C
36	m	42	G
36	m	43	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
36	m	45	G
36	m	46	A
36	m	55	C
36	m	59	U
36	m	72	G
36	m	75	A
54	BQ	13	A
54	BQ	14	U
54	BQ	26	A
54	BQ	30	G
54	BQ	40	A
54	BQ	43	A
54	BQ	45	A
54	BQ	49	A
54	BQ	59	G
54	BQ	60	A
54	BQ	65	A
54	BQ	66	A
54	BQ	73	C
54	BQ	77	A
54	BQ	83	U
54	BQ	85	A
54	BQ	86	G
54	BQ	87	U
54	BQ	92	G
54	BQ	111	C
54	BQ	119	U
54	BQ	120	G
54	BQ	122	A
54	BQ	134	U
54	BQ	135	C
54	BQ	136	G
54	BQ	146	U
54	BQ	147	U
54	BQ	148	G
54	BQ	155	G
54	BQ	156	G
54	BQ	157	A
54	BQ	161	G
54	BQ	165	A
54	BQ	166	C
54	BQ	168	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	187	A
54	BQ	188	U
54	BQ	189	G
54	BQ	190	U
54	BQ	191	U
54	BQ	200	C
54	BQ	206	G
54	BQ	210	U
54	BQ	211	A
54	BQ	212	G
54	BQ	213	A
54	BQ	218	G
54	BQ	219	A
54	BQ	221	A
54	BQ	222	A
54	BQ	234	G
54	BQ	240	U
54	BQ	241	G
54	BQ	244	G
54	BQ	249	U
54	BQ	251	G
54	BQ	252	U
54	BQ	253	A
54	BQ	269	G
54	BQ	270	U
54	BQ	283	G
54	BQ	286	U
54	BQ	295	A
54	BQ	298	U
54	BQ	311	C
54	BQ	323	A
54	BQ	329	U
54	BQ	330	G
54	BQ	334	A
54	BQ	346	C
54	BQ	352	A
54	BQ	375	A
54	BQ	376	G
54	BQ	395	A
54	BQ	398	A
54	BQ	399	A
54	BQ	401	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	402	A
54	BQ	403	C
54	BQ	421	G
54	BQ	422	A
54	BQ	429	U
54	BQ	440	A
54	BQ	495	G
54	BQ	507	U
54	BQ	510	G
54	BQ	521	A
54	BQ	523	A
54	BQ	525	C
54	BQ	533	A
54	BQ	535	G
54	BQ	544	C
54	BQ	546	C
54	BQ	547	G
54	BQ	548	G
54	BQ	549	U
54	BQ	550	A
54	BQ	551	A
54	BQ	556	U
54	BQ	557	A
54	BQ	559	A
54	BQ	578	A
54	BQ	579	G
54	BQ	592	A
54	BQ	600	G
54	BQ	604	G
54	BQ	609	G
54	BQ	612	U
54	BQ	620	U
54	BQ	621	A
54	BQ	622	A
54	BQ	636	C
54	BQ	637	C
54	BQ	649	A
54	BQ	660	A
54	BQ	667	C
54	BQ	671	U
54	BQ	675	C
54	BQ	677	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	678	G
54	BQ	681	U
54	BQ	684	G
54	BQ	690	A
54	BQ	691	A
54	BQ	692	A
54	BQ	705	A
54	BQ	712	G
54	BQ	715	A
54	BQ	716	A
54	BQ	719	U
54	BQ	720	A
54	BQ	735	A
54	BQ	758	C
54	BQ	764	U
54	BQ	765	C
54	BQ	766	U
54	BQ	767	U
54	BQ	768	C
54	BQ	777	U
54	BQ	780	A
54	BQ	781	G
54	BQ	784	A
54	BQ	785	G
54	BQ	786	A
54	BQ	800	G
54	BQ	801	A
54	BQ	806	A
54	BQ	816	A
54	BQ	817	A
54	BQ	830	A
54	BQ	849	C
54	BQ	861	C
54	BQ	867	G
54	BQ	874	U
54	BQ	879	U
54	BQ	885	U
54	BQ	895	A
54	BQ	896	A
54	BQ	907	G
54	BQ	908	G
54	BQ	914	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	916	G
54	BQ	917	A
54	BQ	923	C
54	BQ	926	A
54	BQ	934	G
54	BQ	937	G
54	BQ	944	C
54	BQ	953	G
54	BQ	959	C
54	BQ	960	U
54	BQ	974	G
54	BQ	980	A
54	BQ	981	U
54	BQ	993	G
54	BQ	994	G
54	BQ	995	U
54	BQ	1001	G
54	BQ	1005	G
54	BQ	1010	G
54	BQ	1015	U
54	BQ	1016	C
54	BQ	1017	C
54	BQ	1018	G
54	BQ	1028	U
54	BQ	1029	G
54	BQ	1030	A
54	BQ	1032	C
54	BQ	1036	A
54	BQ	1041	U
54	BQ	1047	A
54	BQ	1049	C
54	BQ	1065	A
54	BQ	1072	G
54	BQ	1076	C
54	BQ	1081	U
54	BQ	1082	U
54	BQ	1083	G
54	BQ	1093	A
54	BQ	1095	U
54	BQ	1096	U
54	BQ	1097	G
54	BQ	1098	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	1103	A
54	BQ	1104	G
54	BQ	1117	G
54	BQ	1131	G
54	BQ	1135	A
54	BQ	1144	U
54	BQ	1145	G
54	BQ	1153	A
54	BQ	1155	C
54	BQ	1159	A
54	BQ	1180	A
54	BQ	1181	U
54	BQ	1191	U
54	BQ	1192	C
54	BQ	1197	A
54	BQ	1200	A
54	BQ	1201	C
54	BQ	1202	A
54	BQ	1206	G
54	BQ	1217	A
54	BQ	1219	C
54	BQ	1221	A
54	BQ	1222	G
54	BQ	1225	A
54	BQ	1230	G
54	BQ	1233	G
54	BQ	1235	U
54	BQ	1236	G
54	BQ	1237	G
54	BQ	1238	C
54	BQ	1239	C
54	BQ	1241	U
54	BQ	1245	A
54	BQ	1246	G
54	BQ	1248	C
54	BQ	1250	G
54	BQ	1252	A
54	BQ	1253	U
54	BQ	1254	C
54	BQ	1257	C
54	BQ	1260	A
54	BQ	1262	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	1263	A
54	BQ	1264	G
54	BQ	1265	U
54	BQ	1266	G
54	BQ	1268	G
54	BQ	1270	A
54	BQ	1271	A
54	BQ	1272	C
54	BQ	1274	A
54	BQ	1276	U
54	BQ	1281	G
54	BQ	1282	G
54	BQ	1286	A
54	BQ	1287	A
54	BQ	1294	A
54	BQ	1301	A
54	BQ	1303	A
54	BQ	1307	G
54	BQ	1308	A
54	BQ	1309	U
54	BQ	1313	G
54	BQ	1315	U
54	BQ	1316	C
54	BQ	1325	U
54	BQ	1330	A
54	BQ	1331	U
54	BQ	1345	G
54	BQ	1348	U
54	BQ	1350	A
54	BQ	1351	U
54	BQ	1352	A
54	BQ	1355	A
54	BQ	1356	U
54	BQ	1357	G
54	BQ	1380	G
54	BQ	1386	A
54	BQ	1392	G
54	BQ	1399	A
54	BQ	1400	G
54	BQ	1408	G
54	BQ	1418	A
54	BQ	1419	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	1421	G
54	BQ	1434	G
54	BQ	1437	C
54	BQ	1443	G
54	BQ	1446	A
54	BQ	1447	G
54	BQ	1448	U
54	BQ	1450	G
54	BQ	1456	A
54	BQ	1475	A
54	BQ	1481	A
54	BQ	1482	A
54	BQ	1483	G
54	BQ	1484	U
54	BQ	1485	G
54	BQ	1487	G
54	BQ	1503	A
54	BQ	1508	C
54	BQ	1523	U
54	BQ	1528	G
54	BQ	1533	U
54	BQ	1536	G
54	BQ	1542	G
54	BQ	1554	U
54	BQ	1555	U
54	BQ	1556	C
54	BQ	1557	A
54	BQ	1559	A
54	BQ	1560	G
54	BQ	1561	G
54	BQ	1563	C
54	BQ	1565	G
54	BQ	1566	A
54	BQ	1567	U
54	BQ	1568	U
54	BQ	1569	U
54	BQ	1570	U
54	BQ	1571	A
54	BQ	1572	U
54	BQ	1573	G
54	BQ	1576	G
54	BQ	1579	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	1580	A
54	BQ	1581	C
54	BQ	1582	C
54	BQ	1583	A
54	BQ	1588	A
54	BQ	1589	A
54	BQ	1593	A
54	BQ	1605	A
54	BQ	1620	U
54	BQ	1629	U
54	BQ	1630	U
54	BQ	1631	C
54	BQ	1642	A
54	BQ	1643	A
54	BQ	1645	U
54	BQ	1646	G
54	BQ	1657	C
54	BQ	1683	A
54	BQ	1714	A
54	BQ	1724	U
54	BQ	1729	A
54	BQ	1730	G
54	BQ	1741	A
54	BQ	1750	A
54	BQ	1751	G
54	BQ	1752	A
54	BQ	1760	A
54	BQ	1762	C
54	BQ	1763	U
54	BQ	1765	U
54	BQ	1766	G
54	BQ	1770	G
54	BQ	1780	G
54	BQ	1797	A
54	BQ	1809	A
54	BQ	1813	A
54	BQ	1814	A
54	BQ	1815	U
54	BQ	1816	A
54	BQ	1817	G
54	BQ	1818	U
54	BQ	1819	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	1820	U
54	BQ	1821	U
54	BQ	1835	A
54	BQ	1839	A
54	BQ	1840	U
54	BQ	1841	A
54	BQ	1845	G
54	BQ	1846	C
54	BQ	1849	C
54	BQ	1850	A
54	BQ	1866	C
54	BQ	1868	G
54	BQ	1879	A
54	BQ	1880	U
54	BQ	1885	U
54	BQ	1886	A
54	BQ	1893	A
54	BQ	1900	A
54	BQ	1901	A
54	BQ	1906	G
54	BQ	1913	A
54	BQ	1914	G
54	BQ	1920	U
54	BQ	1930	A
54	BQ	1932	A
54	BQ	1952	G
54	BQ	1953	G
54	BQ	1954	G
54	BQ	2094	C
54	BQ	2101	C
54	BQ	2102	U
54	BQ	2107	A
54	BQ	2111	G
54	BQ	2112	U
54	BQ	2113	A
54	BQ	2114	C
54	BQ	2121	G
54	BQ	2122	G
54	BQ	2131	A
54	BQ	2139	A
54	BQ	2158	A
54	BQ	2159	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	2169	G
54	BQ	2170	U
54	BQ	2179	C
54	BQ	2188	A
54	BQ	2197	C
54	BQ	2201	G
54	BQ	2205	U
54	BQ	2206	G
54	BQ	2209	U
54	BQ	2210	G
54	BQ	2243	A
54	BQ	2244	A
54	BQ	2249	G
54	BQ	2256	A
54	BQ	2257	C
54	BQ	2272	G
54	BQ	2273	G
54	BQ	2274	U
54	BQ	2281	A
54	BQ	2282	U
54	BQ	2284	C
54	BQ	2307	G
54	BQ	2310	U
54	BQ	2313	A
54	BQ	2314	U
54	BQ	2315	G
54	BQ	2334	U
54	BQ	2336	U
54	BQ	2340	U
54	BQ	2373	A
54	BQ	2374	C
54	BQ	2375	G
54	BQ	2376	G
54	BQ	2388	U
54	BQ	2393	G
54	BQ	2397	A
54	BQ	2398	A
54	BQ	2402	A
54	BQ	2403	G
54	BQ	2404	A
54	BQ	2411	U
54	BQ	2419	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	2434	U
54	BQ	2435	G
54	BQ	2437	G
54	BQ	2439	A
54	BQ	2444	C
54	BQ	2446	U
54	BQ	2451	G
54	BQ	2496	C
54	BQ	2498	U
54	BQ	2501	U
54	BQ	2502	A
54	BQ	2513	U
54	BQ	2514	U
54	BQ	2515	A
54	BQ	2522	G
54	BQ	2523	A
54	BQ	2524	A
54	BQ	2530	G
54	BQ	2531	C
54	BQ	2538	U
54	BQ	2540	A
54	BQ	2541	U
54	BQ	2542	U
54	BQ	2549	G
54	BQ	2552	C
54	BQ	2553	U
54	BQ	2554	A
54	BQ	2560	C
54	BQ	2562	A
54	BQ	2570	U
54	BQ	2571	U
54	BQ	2572	C
54	BQ	2585	G
54	BQ	2586	G
54	BQ	2593	A
54	BQ	2594	C
54	BQ	2606	G
54	BQ	2607	G
54	BQ	2619	G
54	BQ	2627	C
54	BQ	2635	A
54	BQ	2652	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	2656	A
54	BQ	2666	C
54	BQ	2674	A
54	BQ	2677	G
54	BQ	2679	A
54	BQ	2680	A
54	BQ	2681	U
54	BQ	2689	A
54	BQ	2691	A
54	BQ	2694	A
54	BQ	2703	A
54	BQ	2704	A
54	BQ	2714	G
54	BQ	2716	U
54	BQ	2727	A
54	BQ	2728	G
54	BQ	2729	U
54	BQ	2737	C
54	BQ	2740	A
54	BQ	2742	C
54	BQ	2753	G
54	BQ	2762	A
54	BQ	2772	C
54	BQ	2777	G
54	BQ	2778	G
54	BQ	2800	G
54	BQ	2801	A
54	BQ	2802	A
54	BQ	2804	A
54	BQ	2810	C
54	BQ	2816	G
54	BQ	2817	A
54	BQ	2842	U
54	BQ	2845	A
54	BQ	2847	A
54	BQ	2860	U
54	BQ	2867	C
54	BQ	2871	G
54	BQ	2872	A
54	BQ	2887	A
54	BQ	2888	U
54	BQ	2889	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	2894	C
54	BQ	2898	G
54	BQ	2911	A
54	BQ	2912	G
54	BQ	2914	G
54	BQ	2915	U
54	BQ	2923	U
54	BQ	2928	C
54	BQ	2935	U
54	BQ	2936	A
54	BQ	2938	G
54	BQ	2941	A
54	BQ	2942	C
54	BQ	2945	G
54	BQ	2947	G
54	BQ	2971	A
54	BQ	2972	G
54	BQ	2977	G
54	BQ	2978	U
54	BQ	2979	U
54	BQ	2983	C
54	BQ	2990	G
54	BQ	2996	U
54	BQ	2997	G
54	BQ	3012	A
54	BQ	3022	G
54	BQ	3023	U
54	BQ	3049	A
54	BQ	3055	U
54	BQ	3056	U
54	BQ	3058	U
54	BQ	3078	U
54	BQ	3080	G
54	BQ	3086	A
54	BQ	3092	C
54	BQ	3117	C
54	BQ	3128	G
54	BQ	3130	A
54	BQ	3131	U
54	BQ	3141	A
54	BQ	3142	A
54	BQ	3143	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	3151	U
54	BQ	3152	U
54	BQ	3153	U
54	BQ	3154	C
54	BQ	3156	U
54	BQ	3157	U
54	BQ	3158	G
54	BQ	3170	A
54	BQ	3172	A
54	BQ	3174	A
54	BQ	3176	G
54	BQ	3179	U
54	BQ	3180	A
54	BQ	3181	C
54	BQ	3186	A
54	BQ	3187	A
54	BQ	3206	C
54	BQ	3207	U
54	BQ	3208	G
54	BQ	3210	A
54	BQ	3217	C
54	BQ	3218	A
54	BQ	3220	G
54	BQ	3224	G
54	BQ	3241	G
54	BQ	3242	G
54	BQ	3243	A
54	BQ	3245	A
54	BQ	3247	G
54	BQ	3259	U
54	BQ	3260	G
54	BQ	3263	G
54	BQ	3268	A
54	BQ	3270	U
54	BQ	3271	G
54	BQ	3272	C
54	BQ	3276	G
54	BQ	3277	U
54	BQ	3279	A
54	BQ	3287	U
54	BQ	3289	G
54	BQ	3294	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	3295	A
54	BQ	3304	U
54	BQ	3313	U
54	BQ	3316	A
54	BQ	3318	G
54	BQ	3319	U
54	BQ	3345	G
54	BQ	3346	U
54	BQ	3347	A
54	BQ	3348	G
54	BQ	3349	C
54	BQ	3351	U
54	BQ	3352	U
54	BQ	3353	G
54	BQ	3354	U
54	BQ	3355	U
54	BQ	3356	G
54	BQ	3369	G
54	BQ	3375	A
54	BQ	3378	C
54	BQ	3382	U
54	BQ	3383	G
54	BQ	3386	G
54	BQ	3390	G
55	BR	7	G
55	BR	11	A
55	BR	13	A
55	BR	22	A
55	BR	29	C
55	BR	33	U
55	BR	42	A
55	BR	49	G
55	BR	50	U
55	BR	55	A
55	BR	65	G
55	BR	74	C
55	BR	76	A
55	BR	77	G
55	BR	78	U
55	BR	79	A
55	BR	87	G
55	BR	91	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
55	BR	102	A
55	BR	104	A
55	BR	112	G
55	BR	121	U
56	BS	17	A
56	BS	22	U
56	BS	23	U
56	BS	34	U
56	BS	35	C
56	BS	52	A
56	BS	53	A
56	BS	59	A
56	BS	60	U
56	BS	62	C
56	BS	63	G
56	BS	71	A
56	BS	80	A
56	BS	82	U
56	BS	83	C
56	BS	84	C
56	BS	85	G
56	BS	86	U
56	BS	90	U
56	BS	91	C
56	BS	95	G
56	BS	97	A
56	BS	102	U
56	BS	104	A
56	BS	105	A
56	BS	106	C
56	BS	112	U
56	BS	113	U
56	BS	116	G
56	BS	125	U
56	BS	126	A
56	BS	129	C
56	BS	144	G
56	BS	148	G
56	BS	151	C
56	BS	152	G
56	BS	157	U

All (165) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	52	U
1	2	68	A
1	2	77	U
1	2	80	A
1	2	132	U
1	2	139	C
1	2	170	U
1	2	174	U
1	2	217	A
1	2	224	C
1	2	228	G
1	2	261	U
1	2	278	U
1	2	312	A
1	2	313	U
1	2	321	C
1	2	322	G
1	2	352	A
1	2	380	U
1	2	387	A
1	2	400	A
1	2	423	G
1	2	454	U
1	2	539	G
1	2	541	A
1	2	555	A
1	2	609	U
1	2	639	U
1	2	705	U
1	2	711	U
1	2	714	G
1	2	754	A
1	2	755	A
1	2	765	G
1	2	766	U
1	2	819	G
1	2	863	A
1	2	928	U
1	2	1023	A
1	2	1108	G
1	2	1114	G
1	2	1216	C
1	2	1217	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	2	1226	A
1	2	1244	A
1	2	1245	G
1	2	1246	C
1	2	1251	U
1	2	1256	A
1	2	1273	G
1	2	1274	C
1	2	1344	A
1	2	1373	C
1	2	1382	A
1	2	1399	C
1	2	1413	U
1	2	1430	U
1	2	1465	C
1	2	1469	A
1	2	1535	U
1	2	1540	G
1	2	1556	A
1	2	1573	A
1	2	1584	G
1	2	1633	A
1	2	1636	C
54	BQ	13	A
54	BQ	40	A
54	BQ	86	G
54	BQ	154	U
54	BQ	155	G
54	BQ	211	A
54	BQ	221	A
54	BQ	269	G
54	BQ	282	G
54	BQ	297	G
54	BQ	374	A
54	BQ	400	G
54	BQ	520	U
54	BQ	547	G
54	BQ	588	G
54	BQ	677	A
54	BQ	764	U
54	BQ	767	U
54	BQ	784	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	800	G
54	BQ	896	A
54	BQ	916	G
54	BQ	925	A
54	BQ	979	U
54	BQ	993	G
54	BQ	1064	A
54	BQ	1095	U
54	BQ	1103	A
54	BQ	1144	U
54	BQ	1307	G
54	BQ	1315	U
54	BQ	1355	A
54	BQ	1417	G
54	BQ	1447	G
54	BQ	1481	A
54	BQ	1483	G
54	BQ	1553	U
54	BQ	1554	U
54	BQ	1558	A
54	BQ	1572	U
54	BQ	1580	A
54	BQ	1642	A
54	BQ	1657	C
54	BQ	1713	G
54	BQ	1729	A
54	BQ	1751	G
54	BQ	1808	G
54	BQ	1815	U
54	BQ	1816	A
54	BQ	1820	U
54	BQ	1839	A
54	BQ	1840	U
54	BQ	1900	A
54	BQ	1913	A
54	BQ	2101	C
54	BQ	2112	U
54	BQ	2138	A
54	BQ	2178	A
54	BQ	2208	A
54	BQ	2273	G
54	BQ	2281	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
54	BQ	2283	G
54	BQ	2434	U
54	BQ	2445	A
54	BQ	2495	C
54	BQ	2500	A
54	BQ	2501	U
54	BQ	2513	U
54	BQ	2514	U
54	BQ	2523	A
54	BQ	2541	U
54	BQ	2593	A
54	BQ	2665	U
54	BQ	2680	A
54	BQ	2727	A
54	BQ	2816	G
54	BQ	2941	A
54	BQ	2971	A
54	BQ	3022	G
54	BQ	3140	G
54	BQ	3156	U
54	BQ	3175	U
54	BQ	3219	G
54	BQ	3242	G
54	BQ	3243	A
54	BQ	3269	U
54	BQ	3293	U
54	BQ	3345	G
54	BQ	3350	C
54	BQ	3353	G
54	BQ	3355	U
54	BQ	3382	U
55	BR	41	G
55	BR	77	G
55	BR	86	U
56	BS	16	G
56	BS	22	U
56	BS	85	G
56	BS	105	A

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 10 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

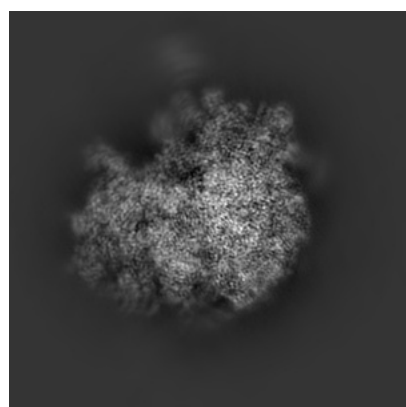
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4474. These allow visual inspection of the internal detail of the map and identification of artifacts.

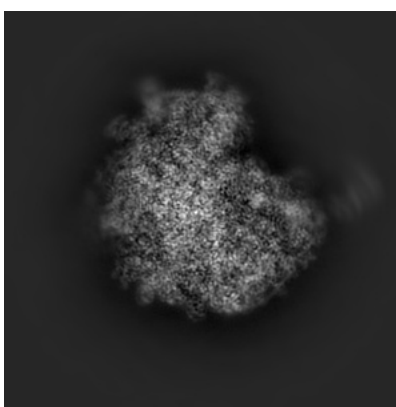
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

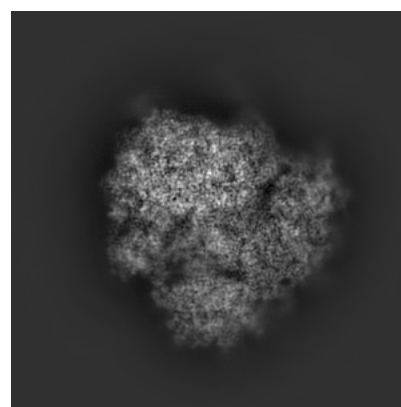
6.1.1 Primary map



X



Y

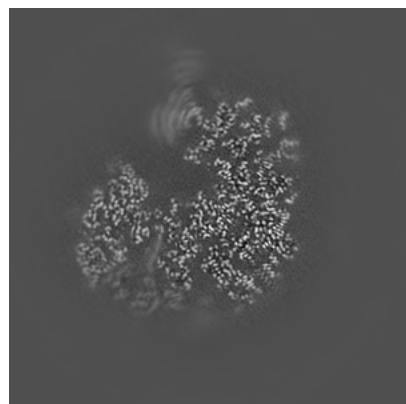


Z

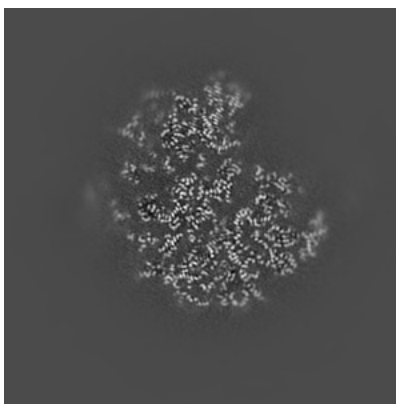
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

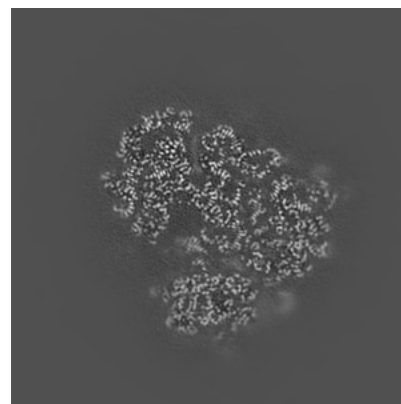
6.2.1 Primary map



X Index: 200



Y Index: 200

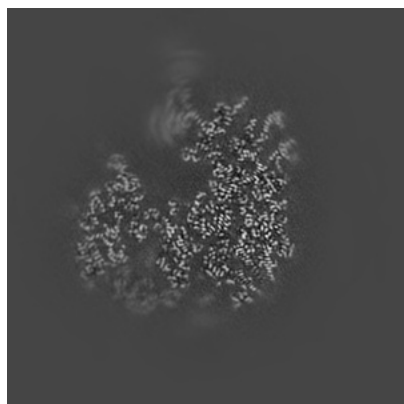


Z Index: 200

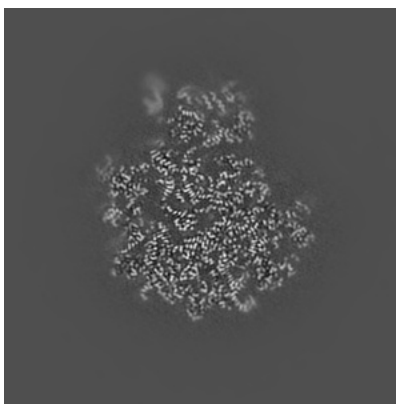
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

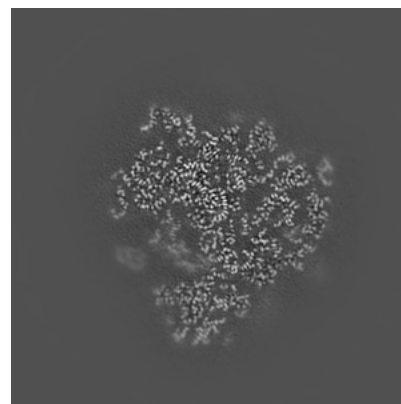
6.3.1 Primary map



X Index: 203



Y Index: 226

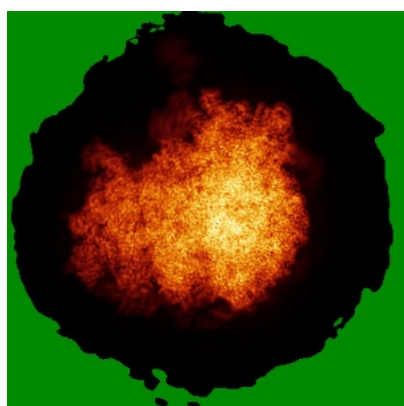


Z Index: 180

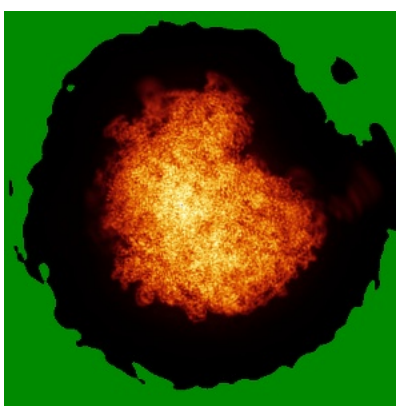
The images above show the largest variance slices of the map in three orthogonal directions.

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

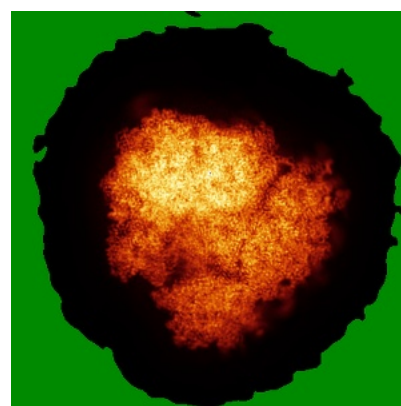
6.4.1 Primary map



X



Y

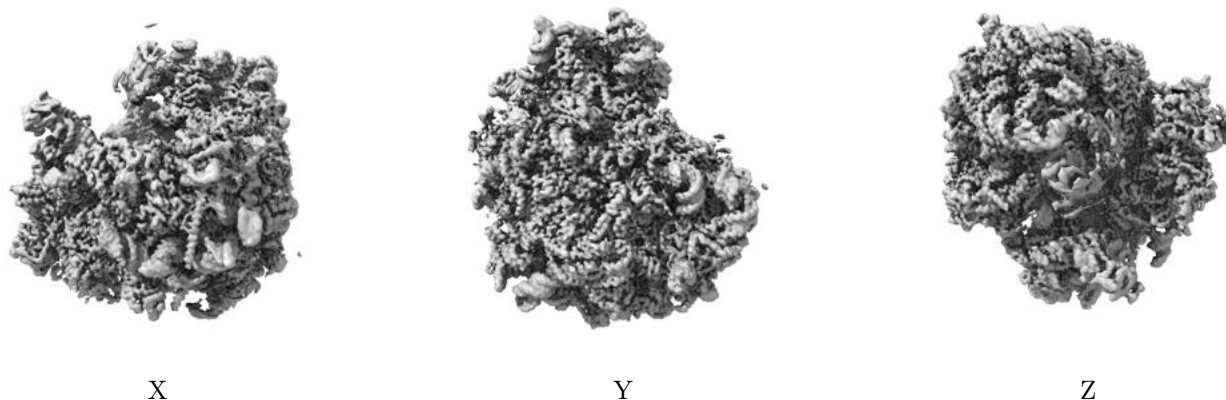


Z

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 0.04. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

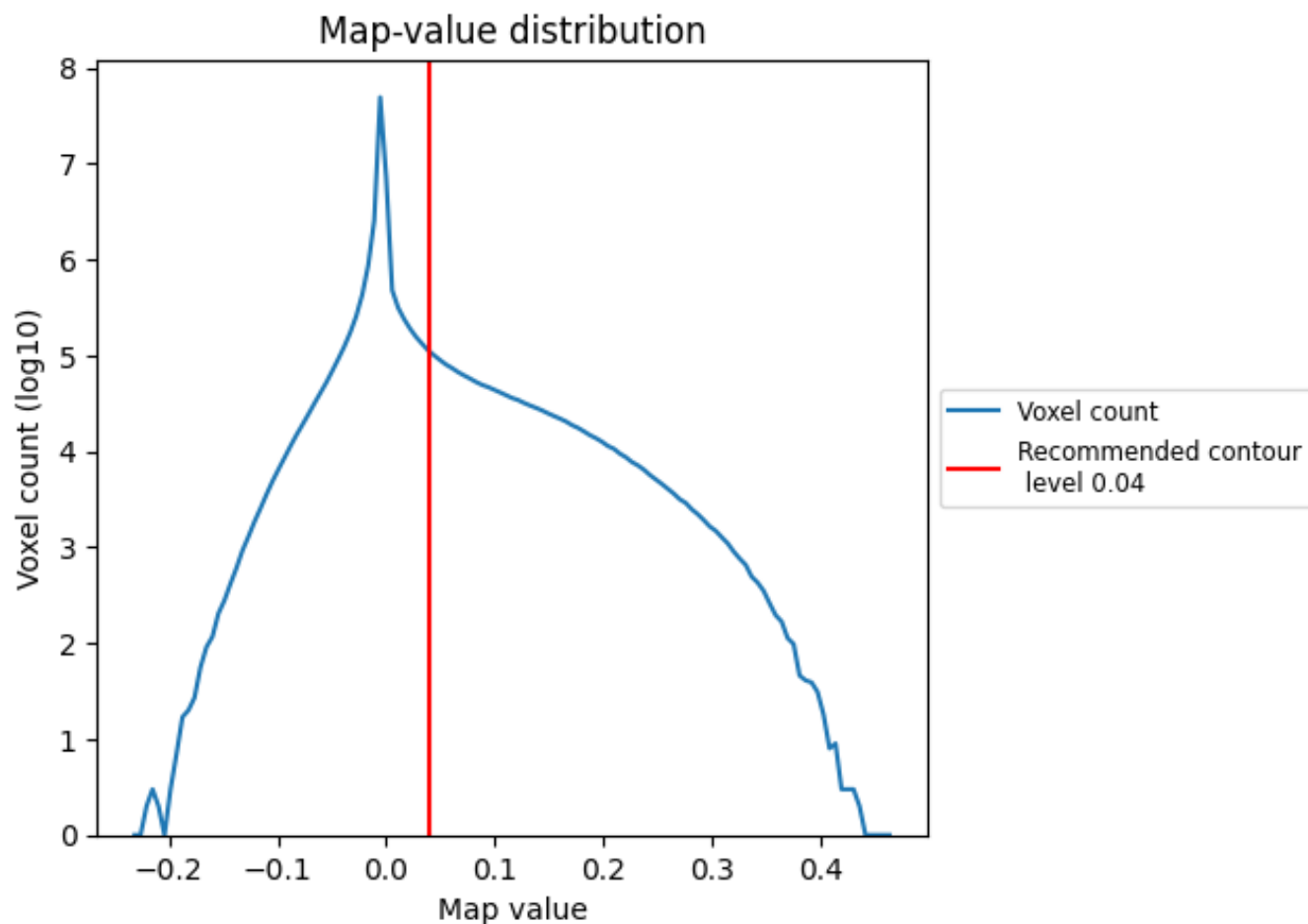
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

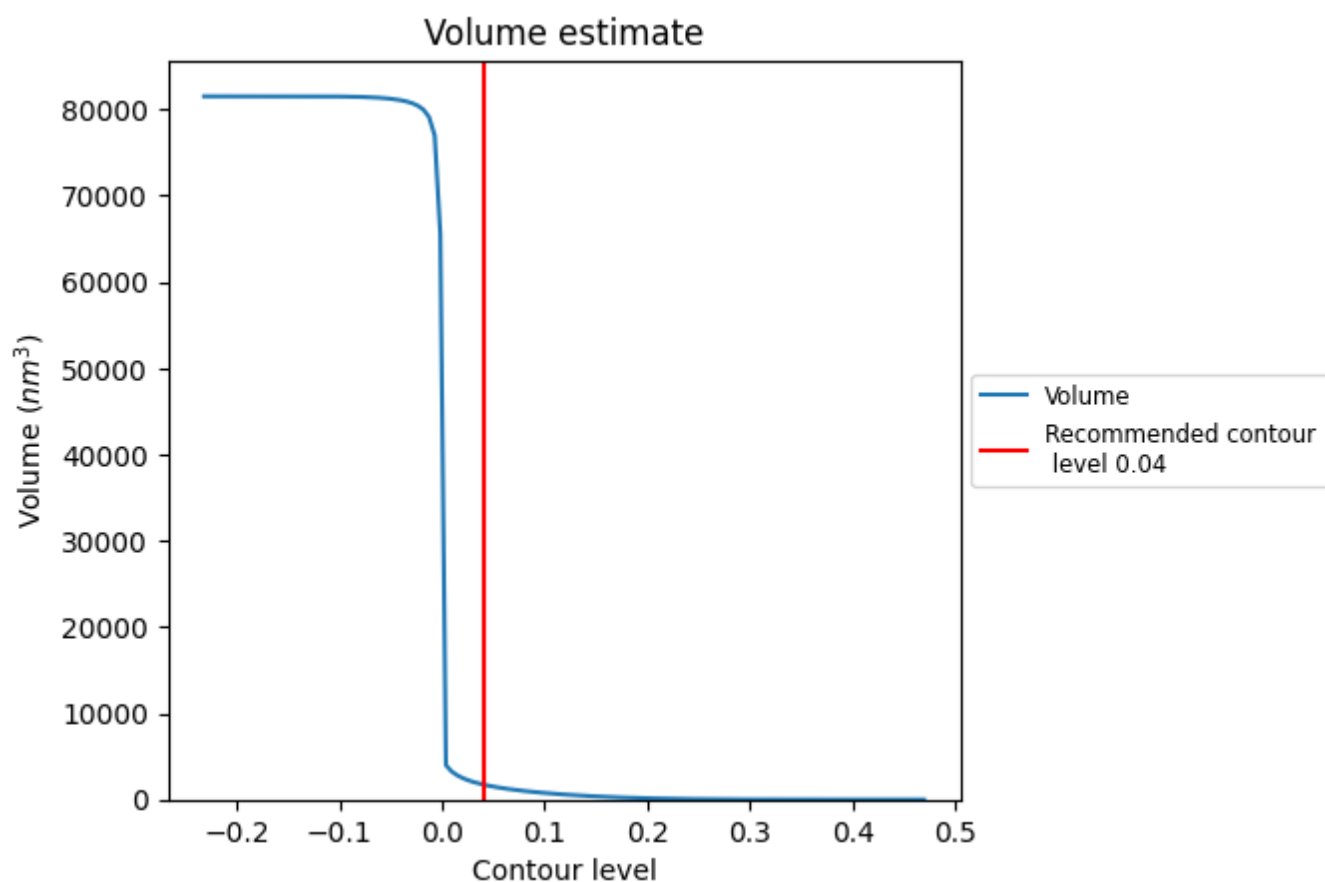
This section contains the results of statistical analysis of the map.

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.

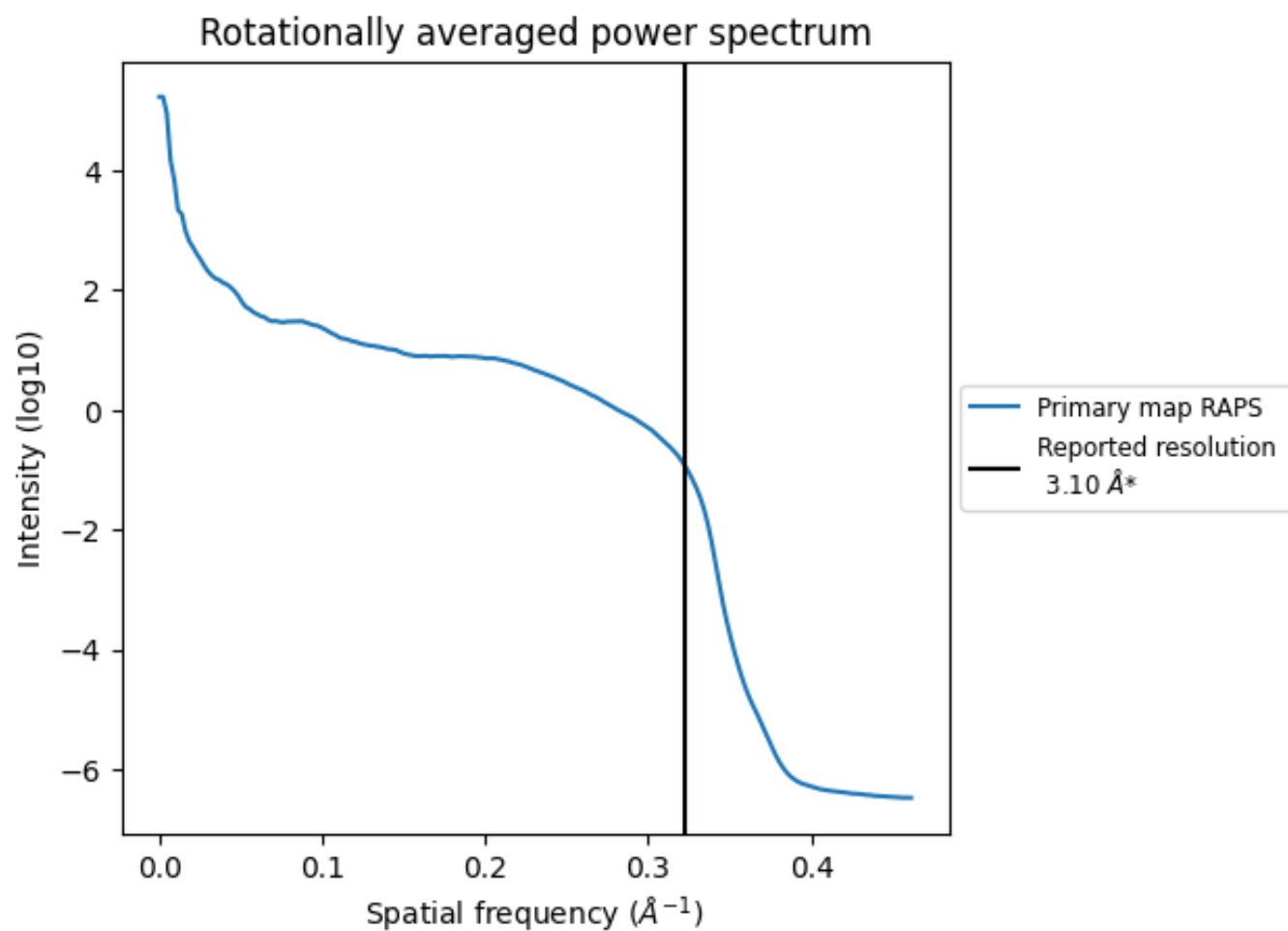
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1744 nm³; this corresponds to an approximate mass of 1575 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 ⓘ

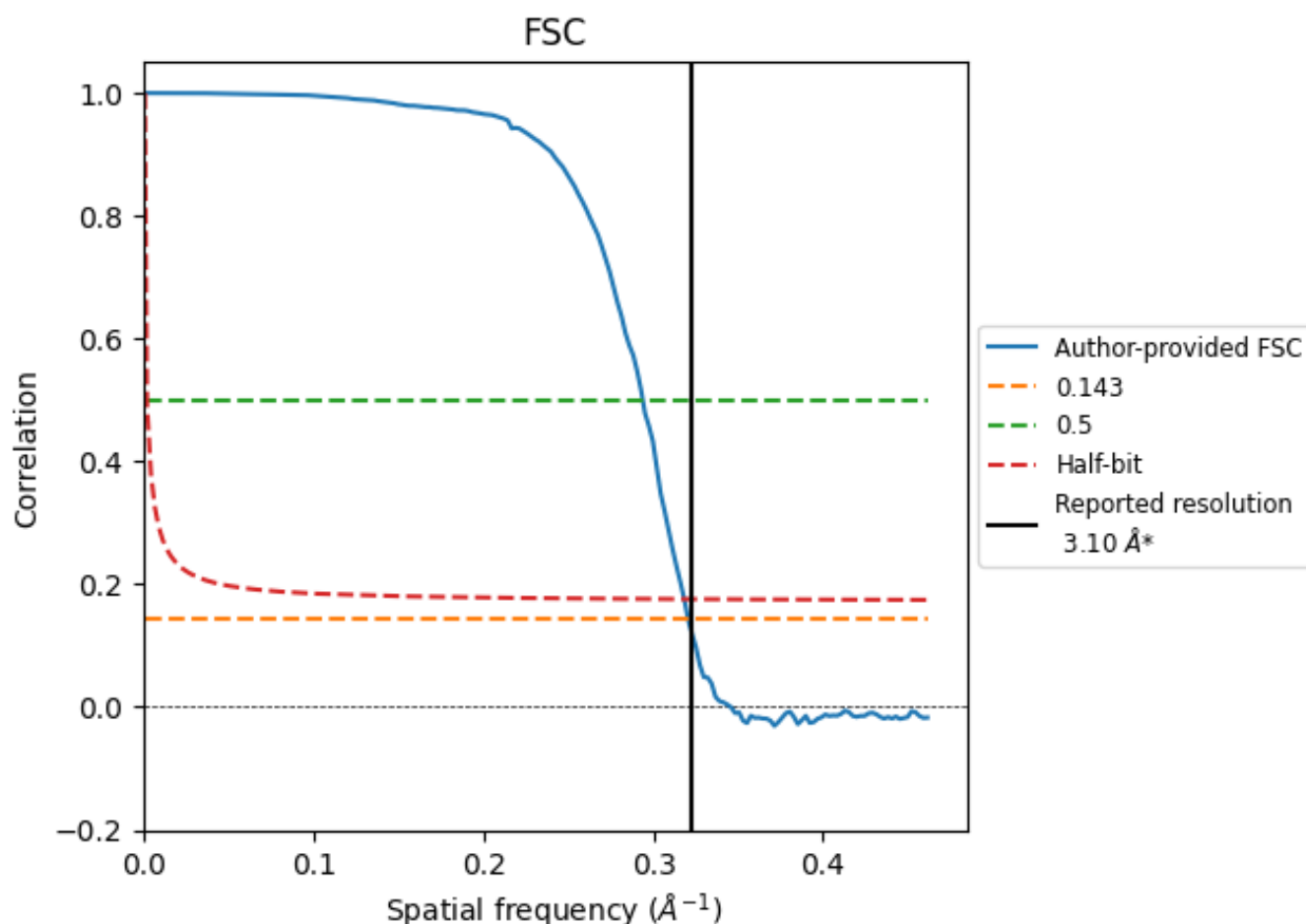


*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

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 0.323 Å⁻¹

8.2 Resolution estimates [i](#)

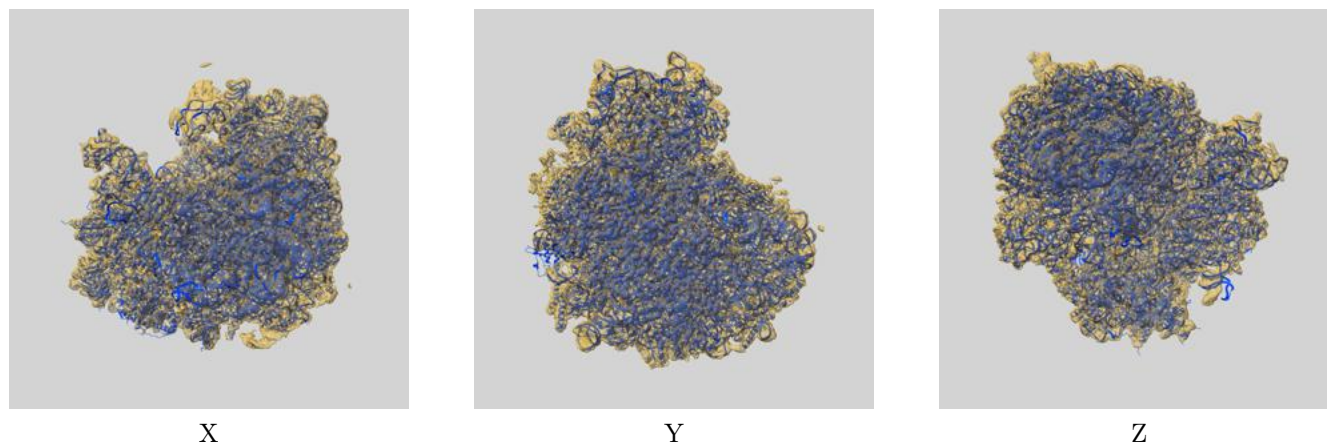
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.12	3.40	3.14
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

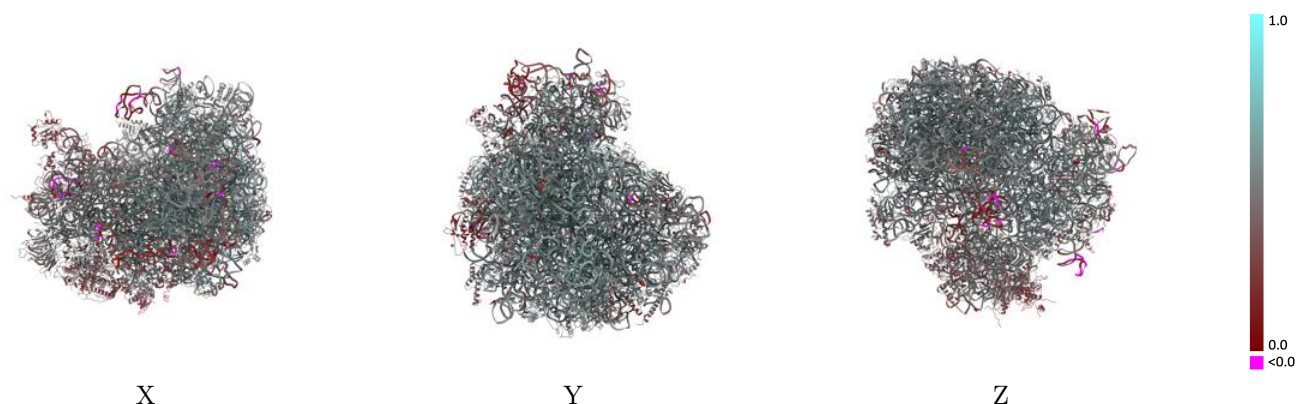
This section contains information regarding the fit between EMDB map EMD-4474 and PDB model 6Q8Y. Per-residue inclusion information can be found in section 3 on page 20.

9.1 Map-model overlay [i](#)



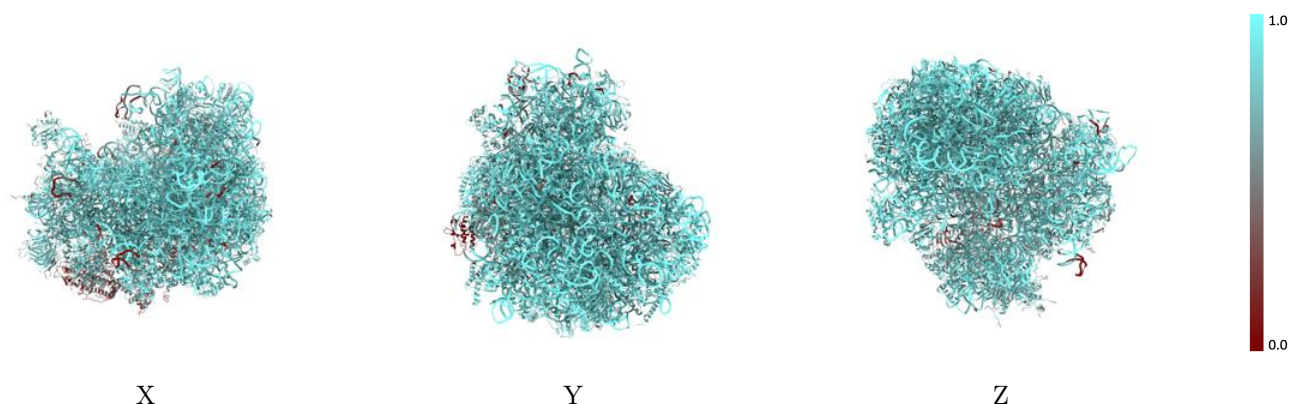
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



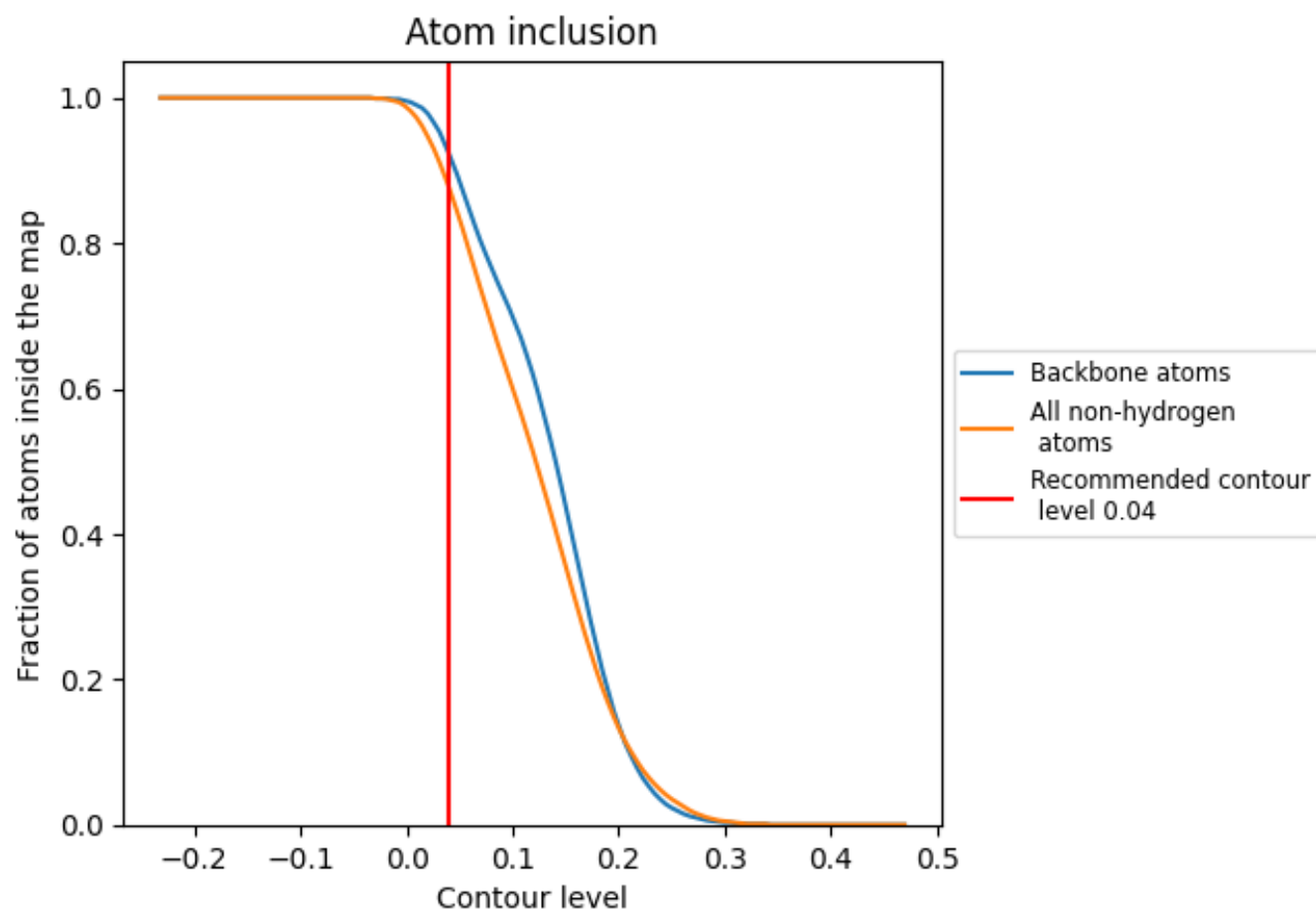
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.04).

9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 88% 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 (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8770	 0.4840
2	 0.9310	 0.4700
A	 0.8000	 0.4360
AA	 0.8540	 0.4920
AB	 0.8430	 0.5260
AC	 0.8460	 0.4920
AD	 0.8400	 0.4890
AE	 0.8330	 0.5120
AF	 0.8980	 0.5580
AG	 0.8160	 0.4490
AH	 0.8720	 0.5240
AI	 0.8100	 0.4740
AJ	 0.8720	 0.5100
AK	 0.8760	 0.5100
AL	 0.8720	 0.5360
AM	 0.8700	 0.4830
AN	 0.8760	 0.5090
AO	 0.8490	 0.5030
AP	 0.8340	 0.5250
AQ	 0.8770	 0.5510
AR	 0.8810	 0.5320
AS	 0.7920	 0.5220
AT	 0.8390	 0.5320
AU	 0.8670	 0.5120
AV	 0.8030	 0.4750
AW	 0.8750	 0.5530
AX	 0.8690	 0.5180
AY	 0.8640	 0.5170
B	 0.7710	 0.4210
BA	 0.8840	 0.5280
BB	 0.8820	 0.5210
BC	 0.8530	 0.5110
BD	 0.8040	 0.4710
BE	 0.8830	 0.5210
BF	 0.8230	 0.4880



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
BG	 0.8650	 0.5330
BH	 0.8520	 0.5090
BI	 0.8420	 0.4480
BJ	 0.8500	 0.5060
BK	 0.8870	 0.5440
BL	 0.8630	 0.4760
BM	 0.8620	 0.4890
BN	 0.8700	 0.5320
BO	 0.8740	 0.5020
BP	 0.8670	 0.5070
BQ	 0.9600	 0.5200
BR	 0.9820	 0.4980
BS	 0.9720	 0.5500
C	 0.7510	 0.3850
D	 0.6740	 0.2640
E	 0.7540	 0.3870
F	 0.8240	 0.4640
G	 0.7890	 0.4330
H	 0.7920	 0.4120
I	 0.8080	 0.4130
J	 0.7360	 0.4070
K	 0.8010	 0.3730
L	 0.7500	 0.4470
M	 0.8770	 0.4910
N	 0.7090	 0.2760
O	 0.7880	 0.4260
P	 0.8280	 0.4600
Q	 0.8230	 0.4760
R	 0.8310	 0.4910
S	 0.8350	 0.4980
T	 0.7900	 0.4180
U	 0.8130	 0.4330
V	 0.7850	 0.4590
W	 0.8120	 0.4480
X	 0.8110	 0.5070
Y	 0.8390	 0.5020
Z	 0.8820	 0.5040
a	 0.8360	 0.4730
b	 0.8700	 0.5270
c	 0.8270	 0.5180
d	 0.7740	 0.4190
e	 0.7590	 0.4340

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
f	 0.8450	 0.4920
g	 0.7830	 0.4470
l	 0.6680	 0.3580
m	 0.8190	 0.3660
n	 0.9080	 0.4430
z	 0.2310	 0.2590