WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Feb 16, 2026 – 01:49 pm GMT

PDB ID	:	9T4R / pdb_00009t4r
EMDB ID	:	EMD-55526
Title	:	Staphylococcus aureus 70S initiation complex with a natural mRNA
Authors	:	Bahena Ceron, R.; Klaholz, B.; Marzi, S.
Deposited on	:	2025-10-30
Resolution	:	2.30 Å(reported)

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

EMDB validation analysis	:	0.0.1.dev131
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)	:	2.48

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 2.30 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.
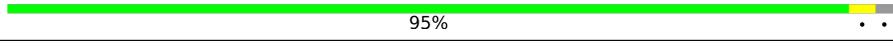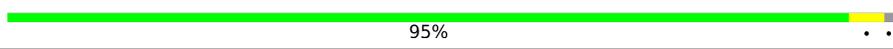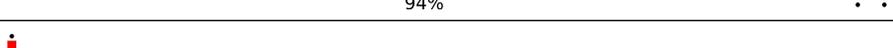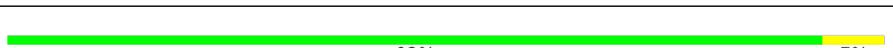
Metric	Percentile Ranks	Value
Clashscore		5
Ramachandran outliers		0.1%
Sidechain outliers		1.5%
RNA backbone		0.61

Worse   *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures

Metric	Model-Map Fit Percentile Ranks	Value
Q-score		0.648

Worse   *Better*

▮ Percentile relative to all EM structures
▯ Percentile relative to EM structures of similar resolution

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	4254 (1.80 - 2.80)

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

Mol	Chain	Length	Quality of chain
1	0	49	84% 16%
2	X	17	12% 24% 59% 18%
3	1	45	89% 9%

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Mol	Chain	Length	Quality of chain
4	Z	76	83% 16%
5	2	66	95%
6	a	2917	80% 17%
7	3	37	95% 5%
8	b	115	75% 23%
9	4	83	5% 88% 8%
10	c	277	95%
11	A	1548	49% 45% 6%
12	d	220	94%
13	B	255	82% 7% 12%
14	e	207	92% 7%
15	C	217	84% 9% 6%
16	f	179	89% 10%
17	D	200	70% 30%
18	g	176	83% 16%
19	E	166	88% 7% 5%
20	j	102	7% 82% 13%
21	F	98	90% 7%
22	k	146	92% 8%
23	G	155	86% 12%
24	l	144	92%
25	H	132	86% 13%
26	m	122	89% 9%
27	I	131	85% 12%
28	n	119	92% 6%
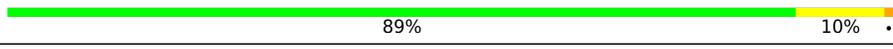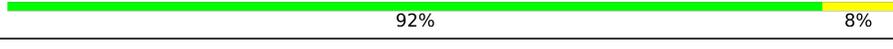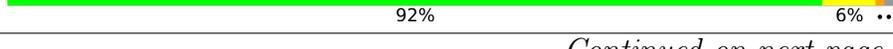
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Mol	Chain	Length	Quality of chain
29	J	145	92% 8%
30	o	116	88% 6% 6%
31	K	129	84% 6% 9%
32	p	118	94%
33	L	137	91% 8%
34	q	102	95% 5%
35	M	121	85% 12%
36	r	117	90% 6%
37	N	61	87% 11%
38	s	91	92% 5%
39	O	89	94%
40	t	90	84% 14%
41	P	91	86% 8%
42	u	217	42% 57%
43	Q	87	79% 14% 5%
44	v	94	82% 14%
45	R	80	74% 9% 18%
46	w	62	94% 5%
47	S	92	77% 13% 9%
48	x	69	84% 10% 6%
49	T	83	96%
50	y	59	92% 5%
51	U	122	92% 8%
52	z	57	86% 9% 5%
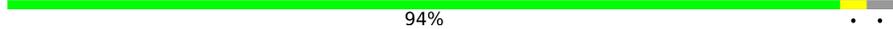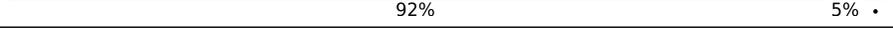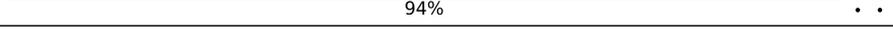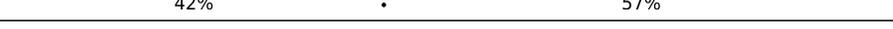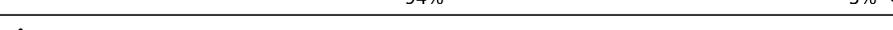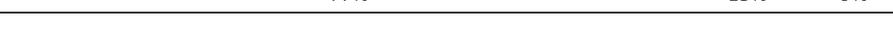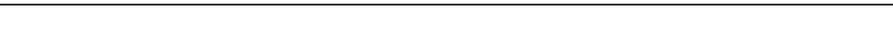
2 Entry composition ⓘ

There are 52 unique types of molecules in this entry. The entry contains 213800 atoms, of which 70874 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Large ribosomal subunit protein bL33B.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	0	49	Total	C	H	N	O	S	0	0
			775	243	369	82	76	5		

- Molecule 2 is a RNA chain called aur mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	X	17	Total	C	N	O	P	0	0
			375	167	76	115	17		

- Molecule 3 is a protein called Large ribosomal subunit protein bL34.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	1	44	Total	C	H	N	O	S	0	0
			751	228	378	90	54	1		

- Molecule 4 is a RNA chain called Methionine tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	Z	76	Total	C	H	N	O	P	0	0
			2448	723	825	294	530	76		

- Molecule 5 is a protein called Large ribosomal subunit protein bL35.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	2	65	Total	C	H	N	O	S	0	0
			1066	330	536	115	83	2		

- Molecule 6 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	a	2912	Total	C	H	N	O	P	0	0
			93441	27872	31011	11414	20232	2912		

- Molecule 7 is a protein called Large ribosomal subunit protein bL36.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	3	37	Total 605	C 186	H 309	N 60	O 45	S 5	0	0

- Molecule 8 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	b	115	Total 3309	C 1094	H 861	N 435	O 804	P 115	0	0

- Molecule 9 is a protein called Large ribosomal subunit protein bL31B.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	4	80	Total 1207	C 417	H 555	N 109	O 123	S 3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
4	?	-	ARG	deletion	UNP Q2FWD8

- Molecule 10 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	c	273	Total 4023	C 1297	H 1938	N 413	O 370	S 5	0	0

- Molecule 11 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	A	1548	Total 33149	C 14800	N 6040	O 10761	P 1548	0	0

- Molecule 12 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms						AltConf	Trace
12	d	215	Total 3092	C 1018	H 1464	N 299	O 306	S 5	0	0

- Molecule 13 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms						AltConf	Trace
13	B	225	Total 3465	C 1153	H 1655	N 316	O 334	S 7	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	206	ILE	ALA	conflict	UNP Q2FZ25
B	207	ALA	ILE	conflict	UNP Q2FZ25

- Molecule 14 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	e	206	Total 2997	C 986	H 1424	N 288	O 297	S 2	0	0

- Molecule 15 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	C	203	Total 3063	C 1007	H 1463	N 301	O 290	S 2	0	0

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

Mol	Chain	Residues	Atoms						AltConf	Trace
16	f	179	Total 2730	C 902	H 1310	N 245	O 265	S 8	0	0

- Molecule 17 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	D	199	Total 1615	C 1018	N 302	O 293	S 2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	25	ASP	GLU	conflict	UNP A7X3F0
D	26	VAL	LEU	conflict	UNP A7X3F0

- Molecule 18 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms						AltConf	Trace
18	g	175	Total 2601	C 850	H 1233	N 250	O 265	S 3	0	0

- Molecule 19 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms						AltConf	Trace
19	E	157	Total 2248	C 735	H 1080	N 214	O 217	S 2	0	0

- Molecule 20 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms						AltConf	Trace
20	j	98	Total 1517	C 494	H 734	N 143	O 145	S 1	0	0

- Molecule 21 is a protein called Small ribosomal subunit protein bS6.

Mol	Chain	Residues	Atoms						AltConf	Trace
21	F	95	Total 1484	C 498	H 695	N 138	O 150	S 3	0	0

- Molecule 22 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms						AltConf	Trace
22	k	146	Total 2100	C 680	H 1002	N 215	O 202	S 1	0	0

- Molecule 23 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms						AltConf	Trace
23	G	153	Total 2332	C 759	H 1111	N 236	O 222	S 4	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	?	-	VAL	deletion	UNP P48940

- Molecule 24 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms						AltConf	Trace
24	l	138	Total	C	H	N	O	S	0	0
			2140	706	1039	208	183	4		

- Molecule 25 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms						AltConf	Trace
25	H	131	Total	C	H	N	O	S	0	0
			1988	652	957	183	192	4		

- Molecule 26 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms						AltConf	Trace
26	m	119	Total	C	H	N	O	S	0	0
			1813	575	874	181	182	1		

- Molecule 27 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms						AltConf	Trace
27	I	127	Total	C	H	N	O	S	0	0
			1915	623	907	201	183	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	?	-	LYS	deletion	UNP Q2FW39

- Molecule 28 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms						AltConf	Trace
28	n	118	Total	C	H	N	O	S	0	0
			1751	564	844	173	169	1		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	62	ILE	ASP	conflict	UNP Q2FW22
n	63	ALA	ILE	conflict	UNP Q2FW22

- Molecule 29 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms						AltConf	Trace
29	J	145	Total 2157	C 717	H 1007	N 211	O 219	S 3	0	0

- Molecule 30 is a protein called Large ribosomal subunit protein bL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	o	109	Total 1718	C 552	H 841	N 176	O 149	0	0

- Molecule 31 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms						AltConf	Trace
31	K	117	Total 1644	C 537	H 777	N 163	O 164	S 3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	126	LYS	ARG	conflict	UNP Q2FW31

- Molecule 32 is a protein called Large ribosomal subunit protein bL20.

Mol	Chain	Residues	Atoms						AltConf	Trace
32	p	115	Total 1828	C 588	H 892	N 188	O 156	S 4	0	0

- Molecule 33 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms						AltConf	Trace
33	L	135	Total 2066	C 658	H 1004	N 218	O 184	S 2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	56	ARG	LYS	conflict	UNP P0A0H0
L	101	ARG	LYS	conflict	UNP P0A0H0

- Molecule 34 is a protein called Large ribosomal subunit protein bL21.

Mol	Chain	Residues	Atoms						AltConf	Trace
34	q	102	Total 1535	C 506	H 737	N 142	O 149	S 1	0	0

- Molecule 35 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms						AltConf	Trace
35	M	118	Total 1811	C 575	H 875	N 186	O 174	S 1	0	0

- Molecule 36 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms						AltConf	Trace
36	r	112	Total 1675	C 537	H 813	N 164	O 158	S 3	0	0

- Molecule 37 is a protein called Small ribosomal subunit protein uS14B.

Mol	Chain	Residues	Atoms						AltConf	Trace
37	N	60	Total 972	C 317	H 471	N 100	O 79	S 5	0	0

- Molecule 38 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms						AltConf	Trace
38	s	89	Total 1400	C 457	H 675	N 130	O 134	S 4	0	0

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

Mol	Chain	Residues	Atoms						AltConf	Trace
39	O	88	Total 1421	C 454	H 684	N 153	O 129	S 1	0	0

- Molecule 40 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms						AltConf	Trace
40	t	90	Total 1354	C 434	H 665	N 129	O 125	S 1	0	0

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	?	-	PRO	deletion	UNP A7X5E7
t	?	-	THR	deletion	UNP A7X5E7
t	?	-	GLN	deletion	UNP A7X5E7
t	?	-	LEU	deletion	UNP A7X5E7
t	53	ALA	PRO	conflict	UNP A7X5E7
t	54	GLN	GLU	conflict	UNP A7X5E7
t	?	-	GLY	deletion	UNP A7X5E7
t	?	-	ILE	deletion	UNP A7X5E7
t	56	ILE	LEU	conflict	UNP A7X5E7

- Molecule 41 is a protein called Small ribosomal subunit protein bS16.

Mol	Chain	Residues	Atoms						AltConf	Trace
41	P	87	Total	C	H	N	O	S	0	0
			1310	433	622	127	127	1		

- Molecule 42 is a protein called Large ribosomal subunit protein bL25.

Mol	Chain	Residues	Atoms						AltConf	Trace
42	u	93	Total	C	H	N	O	S	0	0
			1419	466	689	130	133	1		

- Molecule 43 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms						AltConf	Trace
43	Q	83	Total	C	H	N	O	S	0	0
			1325	432	641	123	128	1		

- Molecule 44 is a protein called Large ribosomal subunit protein bL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	v	81	Total	C	H	N	O	0	0
			1183	383	562	121	117		

- Molecule 45 is a protein called Small ribosomal subunit protein bS18.

Mol	Chain	Residues	Atoms						AltConf	Trace
45	R	66	Total	C	H	N	O	S	0	0
			1060	347	517	101	92	3		

- Molecule 46 is a protein called Large ribosomal subunit protein bL28.

Mol	Chain	Residues	Atoms						AltConf	Trace
46	w	61	Total 946	C 298	H 465	N 104	O 78	S 1	0	0

- Molecule 47 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms						AltConf	Trace
47	S	84	Total 1281	C 435	H 604	N 123	O 117	S 2	0	0

- Molecule 48 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	x	65	Total 1040	C 330	H 504	N 101	O 105	0	0

- Molecule 49 is a protein called Small ribosomal subunit protein bS20.

Mol	Chain	Residues	Atoms						AltConf	Trace
49	T	82	Total 1205	C 375	H 587	N 121	O 120	S 2	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	82	SER	ASN	conflict	UNP Q2FXY6

- Molecule 50 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	y	56	Total 856	C 271	H 420	N 82	O 83	0	0

- Molecule 51 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms						AltConf	Trace
51	U	122	Total 1783	C 572	H 864	N 174	O 169	S 4	0	0

- Molecule 52 is a protein called Large ribosomal subunit protein bL32.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
52	z	54	811	259	384	87	76	5	0	0

There is a discrepancy between the modelled and reference sequences:

| Chain	Residue	Modelled	Actual	Comment	Reference
z	?	-	ARG	deletion	UNP Q2FZF1

3 Residue-property plots ⓘ

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

• Molecule 1: Large ribosomal subunit protein bL33B
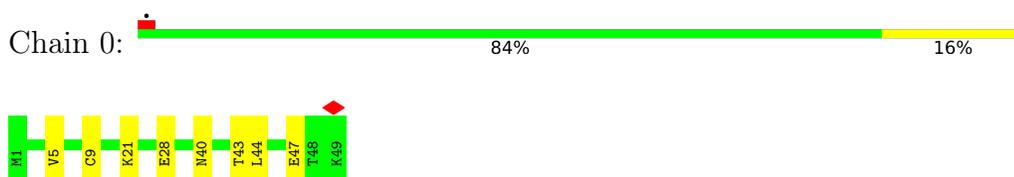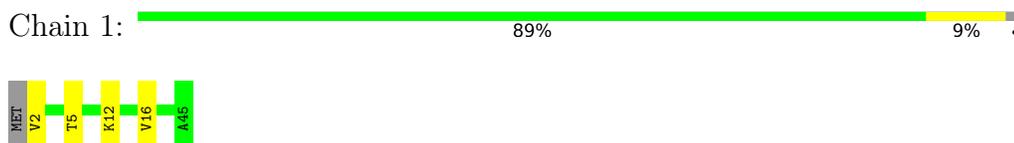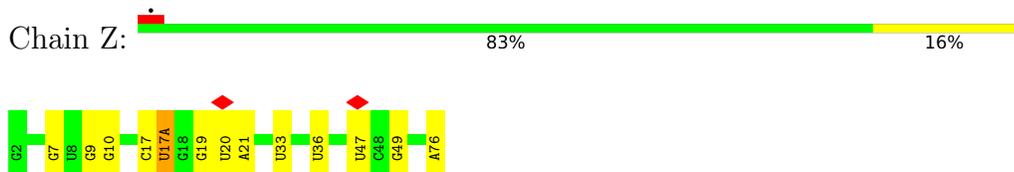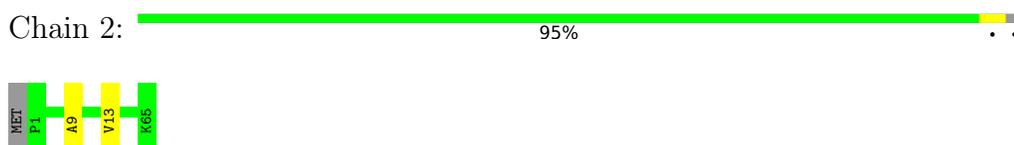
Chain 0:

• Molecule 2: aur mRNA
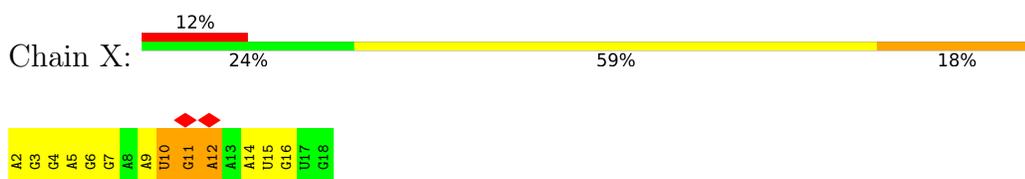
Chain X:

• Molecule 3: Large ribosomal subunit protein bL34

Chain 1:

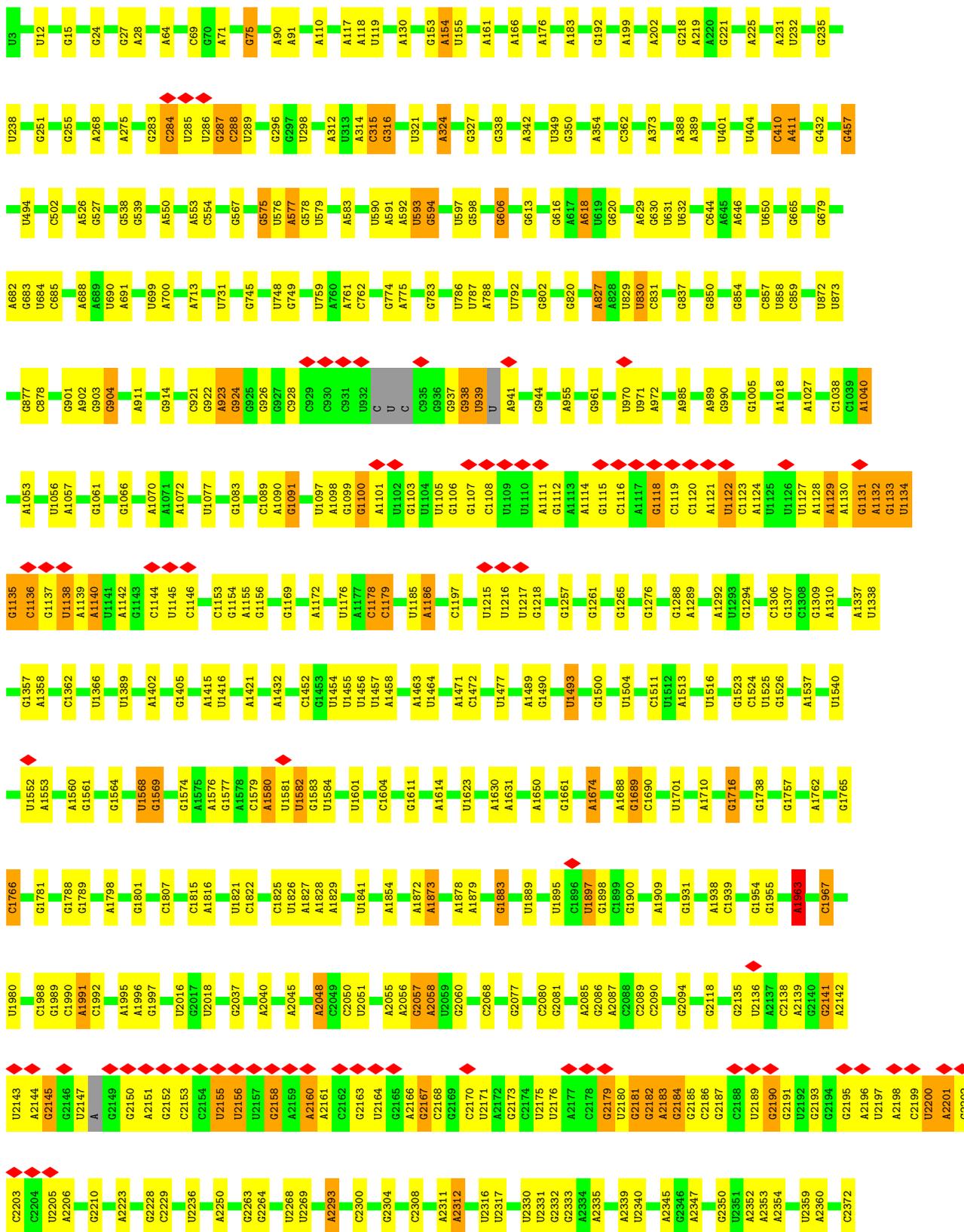• Molecule 4: Methionine tRNA

Chain Z:

• Molecule 5: Large ribosomal subunit protein bL35

Chain 2:

• Molecule 6: 23S rRNA

Chain a:

C2375 A2394 G2395 G2404 A2405 G2408 A2409 C2410 U2411 U2415 U2427 G2430 C2431 G2435 C2447 U2448 C2449 A2450 G2454 A2460 C2466 A2473 A2474 A2475 G2479 C2492 A2493 U2499 C2500 G2511 C2524 G2527 G2530 U2531 A2543 U2547 G2554

G2560 U2579 A2591 G2592 C2598 A2614 U2618 G2624 A2625 C2626 A2627 U2630 U2634 C2635 U2638 A2639 U2640 C2651 G2655 U2661 G2670 C2671 U2672 A2685 C2708 U2712 G2713 U2714 G2739 U2751 G2757 A2758 G2769 A2773 G2784 A2790

G2791 A2803 U2804 G2805 A2815 A2816 G2821 G2822 A2825 U2826 A2838 G2857 G2861 G2875 G2885 G2890 C2898 G2904 G2911 U2918

• Molecule 7: Large ribosomal subunit protein bL36

Chain 3:   95%   5%

M1 V7 V25 G37

• Molecule 8: 5S rRNA

Chain b: 75%   23%   •

U1 U10 A11 U12 U23 C24 U33 U38 G39 C40 A43 U54 A55 C58 U59 C60 C61 A64 G77 C83 U84 C87 G88 U94 A104 C105 G106 G109 C110 G114 C115

• Molecule 9: Large ribosomal subunit protein bL31B

Chain 4:   5%   88%   8%   •

M1 H10 S27 E38 D49 R61 D68 G69 V70 K80 SER ASN ASN

• Molecule 10: Large ribosomal subunit protein uL2

Chain c: 95%   • •

MET A1 I8 P28 L33 K70 V94 D97 K100 R174 M224 R260 R271 G272 R273 LYS LYS LYS

• Molecule 11: 16S rRNA

Chain A: 49%   45%   6%

U6 G7 G8 A9 G10 U18 C19 G22 G23 G29 A30 U31 G32 A33 A34 C35 G36 C37 U38 G39 G40 C41 G42 G43 C44 G45 U46 G47 C48 C49 U50 A51 A52 U57 G58 C59 U63 C64 C68 G69 A70 G73 G74 A75 C76 G77 A78 G79 A80 A81 G82 C83 U84

U85 G86 C87 U88 U89 C90 U91 C92 U93 G94 A95 U96 G97 U98 U99 A100 C105 G106 G107 A108 C109 G110 G111 G112 A119 C120 A121 G123 U124 G125 G126 A127 U128 C135 C136 A140 A141 G147 G148 A149 U150 A151 A152 C153 U154 U155 C156 G157 G158 G159 A160 A161 A162 C163

G1433 U1434 A1435 A1436 C1437 A1438 C1439 C1440 C1441 G1442 A1443 A1444 G1445 C1446 U1450 G1451 G1452 A1456 A1457 C1458 U1461 U1462 U1463 A1464 C1477 G1478 G1484 G1485 A1489 A1490 G1497 G1498 U1501 G1502 A1503 A1504 G1505 U1506 C1507 G1508 A1513 A1514 G1515 G1516 U1517 A1524 U1525 C1526 G1527 G1528

A1529 A1530 G1531 C1538 U1539 G1540 G1541 A1542 C1546 C1547 U1548 C1549 U1552 U1553

• Molecule 12: Large ribosomal subunit protein uL3

Chain d: 94%

MET T1 I48 Q49 V50 D54 K84 V93 M155 D188 N191 N199 K215 LYS GLY ASN LYS

• Molecule 13: Small ribosomal subunit protein uS2

Chain B: 82% 7% 12%

MET ALA V3 F32 T33 K58 R86 I117 E127 E136 L137 Y141 M157 A176 I183 I206 A209 D219 E223 Q226 G227 VAL SER ASN GLU GLU VAL ALA ALA GLU GLN ASN ILE ASP ASP GLU LYS GLU LYS SER GLU GLU THR GLU

ALA THR GLU GLU

• Molecule 14: Large ribosomal subunit protein uL4

Chain e: 92% 7%

MET A1 D9 G10 T11 S19 S57 P80 R83 V88 L122 D126 E131 T135 E158 I169 L191 E202 G206

• Molecule 15: Small ribosomal subunit protein uS3

Chain C: 84% 9% 6%

MET G2 I8 V12 W22 E25 K26 D35 N44 E48 S52 N61 S81 E82 I83 E84 K85 L90 T94 I100 D111 S168 K194 G204 GLU VAL LEU PRO THR LYS ASN THR SER GLY GLY GLY LYS

• Molecule 16: Large ribosomal subunit protein uL5

Chain f: 89% 10%

M1 Y22 S23 G41 D42 Q45 N46 V49 R80 M83 K119 R125 K133 E134 Q135 E140 D144 E164 E165 A166 R167 K179

• Molecule 17: Small ribosomal subunit protein uS4

Chain D: 70% 30%

MET A2 R3 W9 S12 L19 T22 G23 K24 D25 R29 P30 Y31 A32 P33 G34 G37 Q40 R41 K42 K43 L44 G48 L49 Q50 L51 Q55 E65 R66 K78 E84 M87 R93 L94 D95 A96 V97 V98 T106 A110 R111 D127

P135 T138 R142 E143 K144 S145 Q146 K147 L148 V152 V155 E156 I157 N158 N159 D170 S171 L172 F176 V177 R178 E181 R182 S183 E184 L185 P186 A187 E188 E191 E196 Y197 R200

• Molecule 18: Large ribosomal subunit protein uL6

Chain g:

83%   16%

MET S1 R2 I7 N21 H22 K26 G27 P28 K29 G30 E31 L32 S33 R34 T35 E38 E45 E46 N47 T48 I49 E50 S55 M74 S79 Q98 G99 V106 E117 E118 E138 E154 K157 I161 K174 T175

• Molecule 19: Small ribosomal subunit protein uS5

Chain E:

88%   7%   5%

MET ALA ARG ARG GLU GLU THR LYS E10 V16 V21 A22 K23 R29 V37 E58 V64 G108 G109 P110 S125 K148 N166

• Molecule 20: Small ribosomal subunit protein uS10

Chain j:

7%
82%   13%

MET ALA LYS GLN K5 E23 K24 T28 R31 S32 D35 K59 R62 E63 E66 Q67 T80 P81 D85 M88 G89 L90 S94 K101 L102
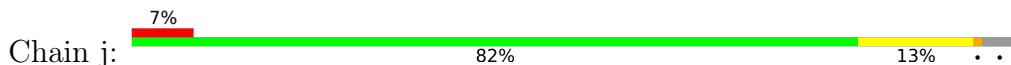
• Molecule 21: Small ribosomal subunit protein bS6

Chain F:

90%   7%

M1 M7 G28 T32 W43 E51 D68 N69 D95 GLU ASP LYS

• Molecule 22: Large ribosomal subunit protein uL15

Chain k:

92%   8%

M1 K7 T67 E73 N83 K84 F85 E86 T89 S107 S116 K119 I146

• Molecule 23: Small ribosomal subunit protein uS7

Chain G:

86%   12%
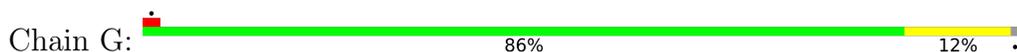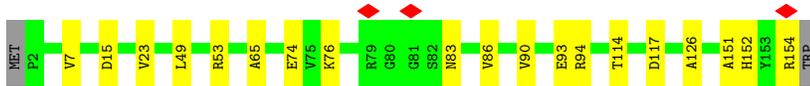
• Molecule 24: Large ribosomal subunit protein uL16

Chain l:

• Molecule 25: Small ribosomal subunit protein uS8

Chain H:
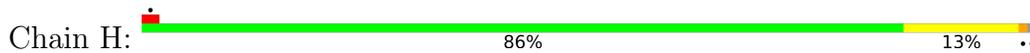
• Molecule 26: Large ribosomal subunit protein bL17
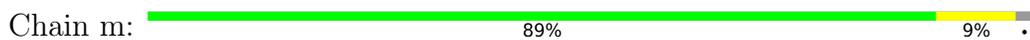
Chain m:

• Molecule 27: Small ribosomal subunit protein uS9
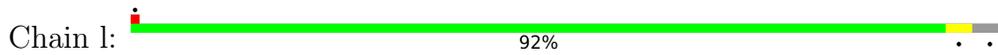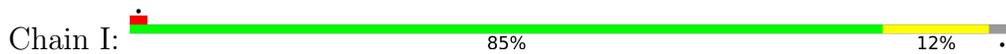
Chain I:

• Molecule 28: Large ribosomal subunit protein uL18

Chain n:

• Molecule 29: Large ribosomal subunit protein uL13

Chain J:

• Molecule 30: Large ribosomal subunit protein bL19

Chain o:

88%   6%   6%

MET T2 R41 R53 S67 V72 K93 R106 A110 ARG ILE GLN GLU ILE ARG
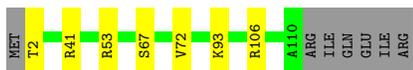
- Molecule 31: Small ribosomal subunit protein uS11

Chain K:

84%   6% · 9%

MET ALA ARG LYS GLN VAL SER ARG LYS ARG ARG VAL K13 E17 I23 S71 M75 L79 V82 V86 S95 N119 V129

- Molecule 32: Large ribosomal subunit protein bL20

Chain p:

94%   · ·

MET PRO R2 D48 R52 K92 E102 L116 LYS
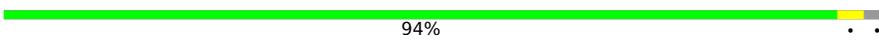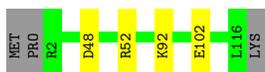
- Molecule 33: Small ribosomal subunit protein uS12

Chain L:

91%   8% ·

MET P2 S14 K18 A23 M53 R56 K64 N72 I76 Y79 L103 V111 K136 ASN

- Molecule 34: Large ribosomal subunit protein bL21

Chain q:

95%   5%

M1 V27 T61 V62 R67 R78 A102
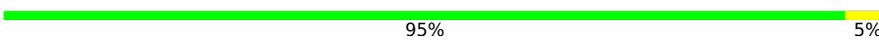
- Molecule 35: Small ribosomal subunit protein uS13

Chain M:

85%   12% ·

MET A2 A5 G6 V7 E12 I33 D51 R55 E58 V59 V60 D61 V65 E66 G67 D68 I77 S84 V113 K119 LYS LYS

- Molecule 36: Large ribosomal subunit protein uL22

Chain r:

90%   6% ·

M1 A7 R11 L38 V50 E78 S94 E112 GLU ALA LYS GLU ALA

- Molecule 37: Small ribosomal subunit protein uS14B

Chain N:
87%   11%

MET A2 Y16 A17 V18 R35 I42 E46 Y49 A59 S60 W61

• Molecule 38: Large ribosomal subunit protein uL23

Chain s:
92%   5%

MET E2 T13 S16 D30 V33 E84 F90 ASN

• Molecule 39: Small ribosomal subunit protein uS15

Chain O:
94%

MET A2 K8 K73 R88 R89

• Molecule 40: Large ribosomal subunit protein uL24

Chain t:
84%   14%

I3 V34 N39 I40 M41 Q54 E58 T59 E60 A61 A62 K74 V86 D87 G88 G98

• Molecule 41: Small ribosomal subunit protein bS16

Chain P:
86%   8%

MET A2 R6 R14 R32 I33 T43 S44 A45 N46 A47 K88 LYS ALA LYS

• Molecule 42: Large ribosomal subunit protein bL25

Chain u:
42%   57%

MET ALA S1 T34 I50 N93 MET SER GLU GLU ARG THR VAL GLU VAL PRO VAL GLN LEU VAL GLY GLU ALA VAL GLY ALA LYS GLU GLY GLY VAL VAL GLU GLN PRO LEU PHE ASN LEU GLU VAL THR ALA THR PRO ASP ASN ILE PRO GLU ILE GLU VAL ALA VAL ASP ILE THR

GLU LEU ASN ILE ASN ASP SER LEU THR VAL ALA ASP VAL LYS VAL THR GLY ASP PHE LYS ILE GLU ASN ASP SER ALA GLU GLU SER VAL VAL THR VAL VAL ALA PRO THR GLU GLU PRO THR GLU GLU GLU ILE GLU ALA MET GLU GLY GLU GLN GLN THR GLU GLU PRO GLU VAL VAL GLY

GLU SER LYS GLU ASP GLU LYS THR GLU GLU

• Molecule 43: Small ribosomal subunit protein uS17

Chain Q:
79%   14%   5%

MET SER E2 R3 R6 V14 S15 T23 V26 K46 R66 P67 L68 S69 A70 E82 S83 V84 ILE ILE

• Molecule 44: Large ribosomal subunit protein bL27

Chain v: 82%   ·   14%

MET LEU LYS LEU ASN LEU GLN PHE PHE ALA SER K1 G30 R38 D61 D72 V81 ALA GLU
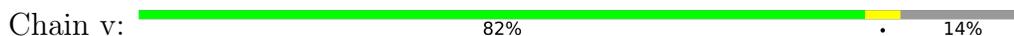
• Molecule 45: Small ribosomal subunit protein bS18

Chain R: 74%   9%   18%

MET ALA GLY GLY PRO ARG ARG GLY GLY ARG ARG ARG K13 K14 D27 Y28 S39 E40 S67 M70 E78 GLU GLN
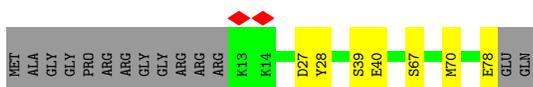
• Molecule 46: Large ribosomal subunit protein bL28

Chain w: 94%   5% ·

MET G1 V6 T7 T13 V61
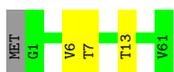
• Molecule 47: Small ribosomal subunit protein uS19

Chain S: 77%   13%   ·   9%

MET A2 E13 H14 Q22 E23 G24 S25 E26 K27 K28 Q29 R37 V60 Y61 V62 T63 E64 D65 M66 R78 A85 ASP LYS LYS THR ARG ARG

• Molecule 48: Large ribosomal subunit protein uL29

Chain x: 84%   10%   6%

MET K1 A2 K3 E4 T39 T44 K47 T48 K65 ALA ASN GLN
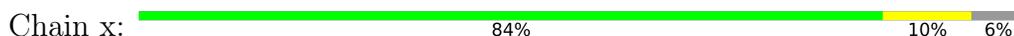
• Molecule 49: Small ribosomal subunit protein bS20

Chain T: 96%   ···

MET A2 E48 K83
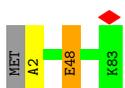
• Molecule 50: Large ribosomal subunit protein uL30

Chain y: 92%   ·   5%

MET ALA K2 T17 K48 E57 LYS

• Molecule 51: Large ribosomal subunit protein uL14

Chain U:

92% 8%

M1 V24 A33 N34 I35 D80 A103 R104 E105 E108 M112 E120 V121 L122

• Molecule 52: Large ribosomal subunit protein bL32

Chain z:

86% 9% 5%

MET A1 V2 S8 K9 T10 S22 M26 A54 ALA LYS
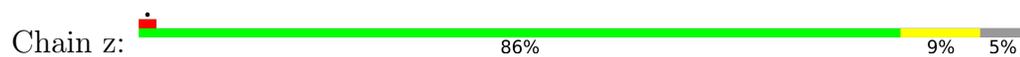
4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	316031	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	30	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2800	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.056	Depositor
Minimum map value	-0.324	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.027	Depositor
Recommended contour level	0.078	Depositor
Map size (Å)	437.4, 437.4, 437.4	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.729, 0.729, 0.729	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$>5	RMSZ	#$|Z|$>5
1	0	0.22	0/409	0.28	0/544
2	X	0.19	0/422	0.23	0/658
3	1	0.29	0/377	0.37	0/491
4	Z	0.22	0/1813	0.27	0/2825
5	2	0.27	0/535	0.37	0/701
6	a	0.42	28/69913 (0.0%)	0.37	24/109032 (0.0%)
7	3	0.25	0/299	0.35	0/393
8	b	0.25	0/2736	0.26	0/4261
9	4	0.17	0/669	0.38	0/897
10	c	0.25	0/2120	0.34	0/2847
11	A	0.25	0/37112	0.28	0/57874
12	d	0.26	0/1652	0.39	0/2216
13	B	0.18	0/1837	0.35	0/2465
14	e	0.24	0/1596	0.32	0/2155
15	C	0.18	0/1622	0.30	0/2178
16	f	0.19	0/1438	0.32	0/1928
17	D	0.18	0/1645	0.28	0/2209
18	g	0.18	0/1386	0.34	0/1865
19	E	0.22	0/1182	0.33	0/1595
20	j	0.18	0/795	0.36	0/1071
21	F	0.20	0/800	0.35	0/1073
22	k	0.25	0/1112	0.36	0/1482
23	G	0.17	0/1239	0.34	0/1665
24	l	0.26	0/1125	0.36	0/1509
25	H	0.21	0/1043	0.33	0/1401
26	m	0.26	0/942	0.35	0/1259
27	I	0.19	0/1024	0.35	0/1375
28	n	0.20	0/915	0.31	0/1224
29	J	0.26	0/1172	0.30	0/1578
30	o	0.24	0/889	0.33	0/1189
31	K	0.19	0/882	0.37	0/1190
32	p	0.26	0/947	0.35	0/1254
33	L	0.20	0/1079	0.33	0/1445
34	q	0.25	0/808	0.30	0/1080

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	M	0.19	0/943	0.35	0/1264
36	r	0.25	0/870	0.37	0/1171
37	N	0.21	0/511	0.33	0/678
38	s	0.24	0/733	0.31	0/978
39	O	0.20	0/746	0.34	0/996
40	t	0.24	0/695	0.39	0/926
41	P	0.20	0/699	0.45	0/942
42	u	0.19	0/738	0.28	0/990
43	Q	0.18	0/692	0.32	0/925
44	v	0.26	0/627	0.35	0/831
45	R	0.22	0/552	0.41	0/738
46	w	0.25	0/487	0.33	0/649
47	S	0.19	0/695	0.35	0/933
48	x	0.22	0/537	0.37	0/714
49	T	0.19	0/618	0.36	0/825
50	y	0.24	0/438	0.34	0/590
51	U	0.23	0/926	0.34	0/1243
52	z	0.27	0/434	0.34	0/578
All	All	0.33	28/155476 (0.0%)	0.34	24/232900 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
6	a	0	1
40	t	0	1
All	All	0	2

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	a	2625	A	P-OP1	-20.82	1.07	1.49
6	a	1967	C	P-OP2	-19.42	1.10	1.49
6	a	2618	U	P-OP1	-18.36	1.12	1.49
6	a	2625	A	P-OP2	-17.71	1.13	1.49
6	a	2630	U	P-OP2	-17.63	1.13	1.49
6	a	1967	C	P-OP1	-16.60	1.15	1.49
6	a	1991	A	P-OP1	-15.54	1.17	1.49
6	a	1963	A	P-O5'	-14.93	1.37	1.59
6	a	2618	U	P-OP2	-13.54	1.21	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	a	1990	C	P-OP2	-13.52	1.22	1.49
6	a	1991	A	P-OP2	-13.15	1.22	1.49
6	a	1990	C	P-OP1	-12.92	1.23	1.49
6	a	1989	G	P-OP2	-12.07	1.24	1.49
6	a	2614	A	P-OP2	-11.99	1.25	1.49
6	a	1963	A	P-OP1	-11.74	1.25	1.49
6	a	2630	U	P-O5'	-7.94	1.47	1.59
6	a	1989	G	P-OP1	-7.92	1.33	1.49
6	a	2630	U	P-OP1	-7.75	1.33	1.49
6	a	1991	A	O5'-C5'	-7.62	1.31	1.42
6	a	2614	A	P-O5'	-7.46	1.48	1.59
6	a	2618	U	P-O5'	-7.45	1.48	1.59
6	a	1989	G	P-O5'	-7.35	1.48	1.59
6	a	1963	A	O5'-C5'	-7.31	1.31	1.42
6	a	1991	A	P-O5'	-6.64	1.49	1.59
6	a	2614	A	P-OP1	-6.58	1.35	1.49
6	a	2625	A	P-O5'	-6.18	1.50	1.59
6	a	1990	C	P-O5'	-5.82	1.51	1.59
6	a	1963	A	P-OP2	-5.57	1.37	1.49

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	a	1990	C	O3'-P-O5'	20.21	134.31	104.00
6	a	1493	U	OP1-P-O3'	-9.57	79.28	108.00
6	a	1989	G	O3'-P-O5'	9.01	117.51	104.00
6	a	1990	C	C3'-C2'-O2'	8.64	123.67	110.70
6	a	1990	C	OP1-P-O3'	-7.60	85.19	108.00
6	a	1991	A	C4'-C3'-O3'	-7.49	98.16	109.40
6	a	2624	G	O3'-P-O5'	7.28	114.92	104.00
6	a	1990	C	C1'-C2'-O2'	-7.00	97.90	108.40
6	a	1989	G	C1'-C2'-O2'	-6.97	101.34	111.80
6	a	1493	U	OP2-P-O3'	-6.94	87.18	108.00
6	a	1963	A	OP2-P-O3'	6.64	127.93	108.00
6	a	2474	U	C4'-C3'-O3'	6.38	118.97	109.40
6	a	1988	C	O3'-P-O5'	-6.28	94.58	104.00
6	a	1967	C	P-O3'-C3'	6.28	129.62	120.20
6	a	1967	C	C3'-C2'-O2'	6.22	120.04	110.70
6	a	1963	A	P-O5'-C5'	6.19	130.18	120.90
6	a	161	A	O4'-C1'-N9	6.07	117.60	108.50
6	a	161	A	N9-C1'-C2'	6.00	121.00	112.00
6	a	2618	U	OP1-P-OP2	-5.72	102.45	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	a	2624	G	OP1-P-O3'	-5.69	90.94	108.00
6	a	1967	C	P-O5'-C5'	5.67	129.41	120.90
6	a	1523	G	C2'-C3'-O3'	5.15	121.43	113.70
6	a	1990	C	OP1-P-OP2	-5.11	104.26	119.60
6	a	1989	G	C2'-C3'-O3'	-5.03	101.95	109.50

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	a	1963	A	Sidechain
40	t	59	THR	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	0	406	369	416	5	0
2	X	375	0	185	10	0
3	1	373	378	420	2	0
4	Z	1623	825	825	5	0
5	2	530	536	601	1	0
6	a	62430	31011	31374	197	0
7	3	296	309	342	1	0
8	b	2448	861	1238	16	0
9	4	652	555	631	5	0
10	c	2085	1938	2195	8	0
11	A	33149	0	16689	645	0
12	d	1628	1464	1670	5	0
13	B	1810	1655	1872	9	0
14	e	1573	1424	1622	9	0
15	C	1600	1463	1662	14	0
16	f	1420	1310	1482	16	0
17	D	1615	0	1642	43	0
18	g	1368	1233	1402	19	0
19	E	1168	1080	1229	8	0
20	j	783	734	825	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
21	F	789	695	788	3	0
22	k	1098	1002	1142	5	0
23	G	1221	1111	1257	10	0
24	l	1101	1039	1169	5	0
25	H	1031	957	1082	11	0
26	m	939	874	993	8	0
27	I	1008	907	1026	12	0
28	n	907	844	960	4	0
29	J	1150	1007	1145	6	0
30	o	877	841	945	7	0
31	K	867	777	886	7	0
32	p	936	892	1006	4	0
33	L	1062	1004	1130	6	0
34	q	798	737	836	3	0
35	M	936	875	988	11	0
36	r	862	813	920	5	0
37	N	501	471	527	6	0
38	s	725	675	761	3	0
39	O	737	684	769	3	0
40	t	689	665	751	10	0
41	P	688	622	713	6	0
42	u	730	689	781	2	0
43	Q	684	641	722	11	0
44	v	621	562	643	3	0
45	R	543	517	580	5	0
46	w	481	465	526	2	0
47	S	677	604	682	11	0
48	x	536	504	570	4	0
49	T	618	587	667	2	0
50	y	436	420	473	1	0
51	U	919	864	981	8	0
52	z	427	384	436	3	0
All	All	142926	70874	95177	1121	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 5.

All (1121) 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)
6:a:1967:C:OP1	6:a:1967:C:P	1.15	1.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2625:A:P	6:a:2625:A:OP2	1.13	1.52
6:a:2630:U:P	6:a:2630:U:OP2	1.13	1.52
6:a:2618:U:P	6:a:2618:U:OP1	1.12	1.51
6:a:1967:C:P	6:a:1967:C:OP2	1.10	1.48
6:a:2625:A:P	6:a:2625:A:OP1	1.07	1.45
11:A:469:U:H3	11:A:480:G:H1	1.02	0.98
6:a:2625:A:OP2	6:a:2625:A:OP1	1.80	0.98
6:a:2618:U:OP1	6:a:2618:U:OP2	1.82	0.96
6:a:1967:C:OP1	6:a:1967:C:OP2	1.83	0.92
8:b:38:U:O2'	8:b:43:A:N6	2.03	0.91
11:A:158:G:H2'	11:A:159:G:H5"	1.54	0.90
35:M:12:GLU:OE2	35:M:12:GLU:N	2.05	0.90
6:a:923:A:O2'	6:a:924:G:O5'	1.88	0.89
6:a:2624:G:O3'	6:a:2625:A:OP1	1.89	0.89
11:A:1012:G:H1	11:A:1047:A:H2	1.17	0.88
11:A:724:A:O2'	31:K:119:ASN:OD1	1.90	0.88
6:a:1121:A:O2'	6:a:1122:U:O4'	1.94	0.85
4:Z:33:U:OP2	27:I:131:ARG:NH2	2.08	0.85
11:A:1296:U:H2'	11:A:1297:A:H5'	1.60	0.84
6:a:1829:A:OP2	10:c:260:ARG:NH2	2.11	0.84
6:a:1116:C:O2'	6:a:1118:G:OP2	1.95	0.83
11:A:18:U:H2'	11:A:19:C:C6	2.15	0.81
6:a:1516:U:H3	6:a:1564:G:H1	1.28	0.81
6:a:2815:A:O2'	6:a:2816:A:O5'	1.99	0.81
11:A:168:G:H2'	11:A:169:C:H5"	1.61	0.81
6:a:284:C:O2	6:a:287:G:N1	2.15	0.80
11:A:1039:U:O2'	11:A:1041:C:OP1	1.99	0.80
16:f:45:GLN:N	16:f:45:GLN:OE1	2.15	0.80
14:e:19:SER:N	14:e:202:GLU:OE2	2.14	0.79
11:A:1445:G:H2'	11:A:1446:C:C6	2.18	0.79
4:Z:17:C:OP2	4:Z:17(A):U:O2'	2.01	0.79
6:a:2182:G:O2'	6:a:2184:G:N7	2.16	0.78
6:a:275:A:H62	6:a:296:G:N2	1.82	0.78
6:a:788:A:O2'	6:a:1701:U:OP1	2.02	0.78
43:Q:2:GLU:N	43:Q:2:GLU:OE2	2.16	0.77
9:4:27:SER:OG	16:f:140:GLU:OE2	2.01	0.77
6:a:579:U:O2'	32:p:48:ASP:OD2	2.03	0.77
11:A:1269:C:H3'	11:A:1270:G:H5"	1.66	0.76
17:D:98:VAL:HG23	17:D:110:ALA:HB1	1.65	0.76
11:A:1456:A:O2'	11:A:1457:A:H5'	1.85	0.76
25:H:21:ARG:NH1	25:H:70:ASP:O	2.18	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:B:86:ARG:NH2	13:B:219:ASP:OD1	2.17	0.76
29:J:14:ARG:NH1	29:J:50:ASP:O	2.18	0.76
15:C:48:GLU:OE1	15:C:48:GLU:N	2.14	0.76
11:A:1006:U:H3	11:A:1054:G:H1	1.34	0.75
8:b:1:U:H3	8:b:114:G:H22	1.31	0.75
17:D:143:GLU:N	17:D:143:GLU:OE2	2.18	0.75
6:a:1106:G:O2'	6:a:1121:A:N6	2.19	0.75
11:A:1306:C:H4'	11:A:1312:U:O4	1.84	0.75
11:A:1033:U:H1'	11:A:1034:U:O5'	1.87	0.75
6:a:1129:A:O2'	6:a:1130:A:O4'	2.05	0.75
11:A:1006:U:H1'	11:A:1055:A:H61	1.50	0.75
11:A:73:G:N2	11:A:96:U:O4	2.18	0.74
6:a:1493:U:HO2'	6:a:1574:G:HO2'	1.23	0.74
20:j:23:GLU:OE1	20:j:23:GLU:N	2.20	0.74
6:a:2200:U:O2'	6:a:2201:A:OP2	2.04	0.74
17:D:145:SER:HA	17:D:148:LEU:HD13	1.69	0.74
11:A:75:A:N6	11:A:94:G:O2'	2.20	0.74
6:a:922:G:O2'	6:a:923:A:O5'	2.05	0.74
11:A:469:U:O4	11:A:480:G:O6	2.05	0.73
23:G:151:ALA:O	23:G:154:ARG:NE	2.22	0.73
11:A:201:U:H2'	11:A:202:C:H5"	1.69	0.73
11:A:1045:G:O2'	11:A:1046:G:H5'	1.88	0.73
11:A:955:A:H2'	11:A:956:G:C8	2.23	0.72
15:C:90:LEU:O	15:C:94:THR:HG22	1.90	0.72
11:A:39:G:H22	11:A:405:A:H5'	1.55	0.72
6:a:284:C:O2'	6:a:287:G:N2	2.22	0.72
6:a:1828:A:OP1	10:c:260:ARG:NH1	2.22	0.72
11:A:744:U:H2'	11:A:745:U:C6	2.25	0.72
11:A:401:A:OP1	41:P:14:ARG:NH2	2.23	0.72
13:B:58:LYS:NZ	13:B:223:GLU:OE2	2.22	0.72
11:A:1073:U:H2'	11:A:1074:C:C6	2.25	0.71
6:a:2630:U:OP2	6:a:2630:U:O5'	2.05	0.71
11:A:206:A:H2'	11:A:207:G:H8	1.56	0.71
11:A:1276:G:N2	11:A:1279:A:OP2	2.19	0.71
11:A:1288:A:N7	15:C:26:LYS:NZ	2.39	0.71
16:f:125:ARG:O	28:n:1:MET:N	2.24	0.71
17:D:84:GLU:HG3	17:D:182:ARG:HG2	1.73	0.71
11:A:1270:G:O2'	11:A:1271:A:OP2	2.08	0.71
18:g:26:LYS:NZ	18:g:27:GLY:O	2.16	0.71
11:A:1037:C:O2'	11:A:1038:C:H5'	1.90	0.71
14:e:131:GLU:OE1	14:e:131:GLU:N	2.19	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:I:27:GLU:N	27:I:27:GLU:OE2	2.24	0.71
11:A:685:U:H3	11:A:721:G:H22	1.39	0.70
11:A:1025:A:O2'	11:A:1227:U:O2'	2.04	0.70
11:A:1022:G:N2	11:A:1025:A:OP2	2.20	0.70
6:a:2708:C:OP1	30:o:53:ARG:NH2	2.24	0.70
6:a:593:U:O2'	6:a:594:G:OP1	2.08	0.70
11:A:438:A:OP1	17:D:9:TRP:HB2	1.91	0.70
21:F:28:GLY:O	21:F:32:THR:HG23	1.92	0.70
17:D:50:GLN:HB3	17:D:197:TYR:HB2	1.72	0.69
11:A:390:A:H2'	11:A:391:A:C8	2.28	0.69
6:a:2163:G:N1	6:a:2179:G:O6	2.25	0.69
11:A:641:U:H2'	11:A:641:U:O2	1.92	0.69
11:A:853:C:H2'	11:A:854:G:O4'	1.92	0.69
11:A:1366:G:H2'	11:A:1367:A:C8	2.28	0.69
11:A:1055:A:O5'	11:A:1056:C:H5"	1.92	0.69
30:o:93:LYS:H	30:o:93:LYS:HD3	1.57	0.69
3:1:2:VAL:N	6:a:1661:G:HO2'	1.91	0.69
11:A:470:A:H2'	11:A:471:A:C8	2.29	0.68
17:D:95:ASP:OD1	17:D:111:ARG:HA	1.93	0.68
18:g:1:SER:OG	18:g:2:ARG:N	2.17	0.68
11:A:672:G:H22	11:A:749:G:H1	1.40	0.68
11:A:1340:U:C2'	11:A:1341:G:H5'	2.23	0.68
17:D:178:ARG:NH2	17:D:184:GLU:OE2	2.27	0.68
11:A:281:A:O2'	11:A:282:A:H5'	1.93	0.68
11:A:1407:C:OP2	19:E:29:ARG:NH2	2.26	0.68
18:g:29:LYS:NZ	18:g:79:SER:O	2.27	0.68
11:A:1023:A:H2	11:A:1229:U:H1'	1.58	0.67
11:A:1036:C:H1'	11:A:1037:C:O5'	1.95	0.67
11:A:91:U:H2'	11:A:92:C:O4'	1.94	0.67
13:B:127:GLU:N	13:B:127:GLU:OE1	2.28	0.67
6:a:1112:G:N2	6:a:1140:A:O4'	2.28	0.67
11:A:992:A:H5"	11:A:993:C:OP2	1.95	0.67
11:A:1044:G:H2'	11:A:1045:G:C8	2.29	0.67
18:g:118:GLU:N	18:g:118:GLU:OE1	2.28	0.67
11:A:641:U:H3'	11:A:642:C:C5'	2.25	0.67
11:A:1043:G:H2'	11:A:1044:G:C8	2.30	0.67
16:f:22:TYR:OH	16:f:165:GLU:OE1	2.12	0.67
47:S:23:GLU:OE1	47:S:24:GLY:N	2.28	0.67
11:A:1048:C:H2'	11:A:1049:A:C8	2.31	0.66
6:a:1130:A:O2'	6:a:1131:G:N7	2.25	0.66
11:A:955:A:H2'	11:A:956:G:H8	1.60	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1023:A:C2	11:A:1229:U:H1'	2.30	0.66
13:B:157:MET:HE2	13:B:157:MET:HA	1.78	0.66
11:A:1012:G:N1	11:A:1047:A:C2	2.52	0.66
11:A:1053:U:H2'	11:A:1054:G:C8	2.30	0.66
19:E:148:LYS:NZ	25:H:75:THR:OG1	2.28	0.66
36:r:38:LEU:HD12	52:z:26:MET:HE2	1.76	0.66
11:A:481:C:H2'	11:A:482:A:H8	1.59	0.66
11:A:1151:U:O2'	11:A:1152:G:O4'	2.14	0.66
11:A:158:G:C2'	11:A:159:G:H5"	2.25	0.66
11:A:477:U:H3'	11:A:478:G:H8	1.61	0.66
11:A:1051:A:H2'	11:A:1052:G:C8	2.31	0.66
35:M:65:VAL:HG12	35:M:66:GLU:H	1.59	0.66
6:a:1137:G:H21	6:a:1142:A:H62	1.43	0.65
11:A:33:A:H2'	11:A:34:A:C8	2.31	0.65
19:E:58:GLU:N	19:E:58:GLU:OE1	2.28	0.65
6:a:2158:G:N2	6:a:2181:G:OP1	2.28	0.65
11:A:392:G:H2'	11:A:393:C:C6	2.32	0.65
11:A:1012:G:N1	11:A:1047:A:H2	1.93	0.65
11:A:1327:C:N4	37:N:16:TYR:OH	2.29	0.65
11:A:736:A:H2'	11:A:737:A:C8	2.32	0.65
11:A:1049:A:H2'	11:A:1050:A:H8	1.62	0.65
11:A:1135:G:N2	11:A:1136:U:O4	2.25	0.65
11:A:509:C:H2'	11:A:510:C:C6	2.32	0.65
11:A:1370:A:OP2	37:N:35:ARG:NH2	2.30	0.65
11:A:1007:C:H2'	11:A:1008:C:C6	2.32	0.65
29:J:18:VAL:HG23	29:J:138:PRO:HB2	1.76	0.65
11:A:1031:C:H2'	11:A:1032:C:O4'	1.97	0.64
11:A:1457:A:OP1	11:A:1458:C:N4	2.19	0.64
17:D:155:VAL:O	17:D:158:ASN:ND2	2.30	0.64
11:A:1336:U:H2'	11:A:1337:A:H8	1.63	0.64
6:a:2861:G:HO2'	30:o:2:THR:N	1.96	0.64
11:A:1001:U:H4'	11:A:1002:G:H5"	1.80	0.64
11:A:1299:A:H2'	11:A:1300:G:H5'	1.79	0.64
11:A:681:G:H2'	11:A:682:G:C8	2.32	0.64
11:A:1548:U:O2'	11:A:1549:C:H5'	1.97	0.64
11:A:189:G:O2'	11:A:190:A:H5'	1.96	0.64
2:X:9:A:O2'	2:X:10:U:H5'	1.97	0.64
6:a:1128:A:N7	6:a:1129:A:N6	2.47	0.63
11:A:206:A:H2'	11:A:207:G:C8	2.34	0.63
11:A:1043:G:H2'	11:A:1044:G:H8	1.63	0.63
11:A:892:C:O2'	11:A:893:U:H5'	1.98	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1013:A:O2'	11:A:1014:C:H5'	1.98	0.63
11:A:1420:A:H2'	11:A:1421:C:C6	2.32	0.63
40:t:39:ASN:O	40:t:61:ALA:HB3	1.99	0.63
11:A:262:G:OP1	43:Q:69:SER:OG	2.15	0.63
17:D:42:LYS:HD2	17:D:43:LYS:H	1.64	0.63
27:I:107:ARG:NH1	27:I:108:ASP:O	2.32	0.63
11:A:384:G:H5'	41:P:6:ARG:HB2	1.80	0.63
17:D:143:GLU:HA	17:D:146:GLN:HG3	1.78	0.63
24:l:137:LEU:CD2	42:u:50:ILE:HG21	2.29	0.63
6:a:1106:G:N7	6:a:1108:C:N4	2.44	0.63
11:A:74:G:H1'	11:A:95:A:H61	1.64	0.63
17:D:22:THR:OG1	17:D:24:LYS:HG3	1.99	0.63
11:A:985:G:OP2	11:A:1368:U:O2'	2.16	0.62
11:A:999:C:O2'	11:A:1000:U:H5'	1.99	0.62
28:n:68:THR:HG22	28:n:71:GLU:H	1.63	0.62
6:a:2167:G:O2'	6:a:2168:C:O4'	2.17	0.62
11:A:36:G:H2'	11:A:37:C:C6	2.34	0.62
11:A:410:G:O2'	11:A:411:C:H5'	1.99	0.62
25:H:68:GLN:NE2	25:H:69:ASN:OD1	2.32	0.62
6:a:2156:U:P	6:a:2182:G:H22	2.21	0.62
11:A:1036:C:H4'	11:A:1037:C:OP1	1.98	0.62
11:A:1319:G:H5'	35:M:77:ILE:HD11	1.80	0.62
11:A:150:U:O2'	11:A:151:A:H5'	1.98	0.62
11:A:547:A:H2'	11:A:548:G:C8	2.34	0.62
10:c:28:PRO:HG2	10:c:33:LEU:HD11	1.81	0.62
6:a:1362:C:OP1	6:a:1689:G:O2'	2.18	0.62
6:a:1579:C:H2'	6:a:1580:A:C1'	2.30	0.62
6:a:2499:U:O2'	6:a:2500:C:OP1	2.15	0.62
11:A:127:A:O2'	11:A:128:U:H5'	2.00	0.62
11:A:521:A:H2'	11:A:522:C:C6	2.35	0.62
35:M:5:ALA:HB1	35:M:65:VAL:HG11	1.82	0.62
11:A:32:G:H3'	11:A:33:A:H5"	1.82	0.62
11:A:1006:U:O2'	11:A:1007:C:H5'	2.00	0.62
6:a:1579:C:H3'	6:a:1580:A:C8	2.35	0.62
11:A:996:A:H2'	11:A:997:A:H8	1.65	0.62
22:k:86:GLU:O	22:k:89:THR:OG1	2.15	0.62
11:A:605:G:H2'	11:A:606:U:H5'	1.82	0.62
11:A:220:U:H1'	11:A:222:G:C6	2.34	0.61
29:J:126:TYR:HH	29:J:133:HIS:HE2	1.26	0.61
11:A:1524:A:H2'	11:A:1525:U:C6	2.35	0.61
11:A:1143:C:H2'	11:A:1144:A:C8	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1296:U:C2'	11:A:1297:A:H5'	2.30	0.61
6:a:494:U:O4'	14:e:83:ARG:NH1	2.33	0.61
6:a:275:A:H62	6:a:296:G:H21	1.46	0.61
11:A:74:G:H1'	11:A:95:A:N6	2.14	0.61
11:A:1034:U:O2'	11:A:1035:C:O5'	2.18	0.61
45:R:28:TYR:O	45:R:67:SER:OG	2.18	0.61
11:A:1013:A:H5"	11:A:1033:U:C5	2.35	0.61
14:e:135:THR:HG23	14:e:169:ILE:HD11	1.80	0.61
11:A:203:A:O2'	11:A:204:A:H5'	2.01	0.61
11:A:1010:U:H2'	11:A:1011:U:H6	1.65	0.61
11:A:532:G:H2'	11:A:533:C:C6	2.36	0.61
11:A:831:G:HO2'	25:H:2:THR:N	1.99	0.61
11:A:1283:C:H2'	11:A:1284:A:O4'	2.01	0.61
11:A:1331:U:O2'	47:S:78:ARG:NH1	2.33	0.61
11:A:99:U:H2'	11:A:100:A:N7	2.15	0.60
11:A:996:A:H2'	11:A:997:A:C8	2.35	0.60
11:A:1484:G:H2'	11:A:1485:G:C8	2.36	0.60
35:M:51:ASP:OD1	35:M:51:ASP:N	2.31	0.60
6:a:1306:C:H5	6:a:2037:G:H21	1.46	0.60
6:a:1581:U:H1'	6:a:1582:U:C2	2.36	0.60
11:A:68:C:H2'	11:A:69:G:C8	2.36	0.60
11:A:78:A:H2'	11:A:79:G:C8	2.37	0.60
11:A:331:U:H2'	11:A:332:G:O4'	2.01	0.60
11:A:1552:U:O2'	11:A:1553:U:H5'	2.01	0.60
11:A:151:A:C2	11:A:152:A:H1'	2.36	0.60
11:A:722:G:H2'	11:A:723:A:C8	2.36	0.60
11:A:57:U:H2'	11:A:58:G:C8	2.36	0.60
11:A:1097:U:H3	11:A:1110:G:H22	1.47	0.60
11:A:308:A:HO2'	11:A:572:U:H5	1.50	0.60
11:A:1010:U:H2'	11:A:1011:U:C6	2.37	0.60
11:A:1044:G:H2'	11:A:1045:G:H8	1.67	0.60
6:a:2135:G:O2'	6:a:2145:G:O5'	2.19	0.60
38:s:30:ASP:O	38:s:33:VAL:HG22	2.00	0.60
11:A:90:C:H2'	11:A:91:U:C6	2.37	0.60
11:A:187:U:O2'	11:A:188:U:H5'	2.02	0.60
12:d:54:ASP:OD1	12:d:84:LYS:NZ	2.27	0.59
6:a:315:C:HO2'	6:a:316:G:C5'	2.15	0.59
11:A:155:U:H2'	11:A:156:C:C6	2.37	0.59
11:A:195:C:H5	43:Q:6:ARG:HE	1.50	0.59
11:A:1256:A:O2'	11:A:1257:U:H5'	2.03	0.59
18:g:117:GLU:N	18:g:117:GLU:OE1	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2141:G:OP2	6:a:2191:G:O2'	2.20	0.59
6:a:923:A:N6	6:a:944:G:O2'	2.36	0.59
6:a:745:G:O2'	6:a:1674:A:N3	2.34	0.59
11:A:499:A:H2'	11:A:500:A:H8	1.68	0.59
11:A:624:G:O2'	11:A:625:G:H5'	2.01	0.59
11:A:1333:G:H2'	11:A:1334:A:C8	2.37	0.59
11:A:1401:U:H2'	11:A:1402:G:C8	2.37	0.59
11:A:1326:G:N1	11:A:1329:A:OP2	2.35	0.59
11:A:1497:G:H2'	11:A:1498:G:C8	2.37	0.59
20:j:88:MET:HE3	20:j:88:MET:HA	1.84	0.59
24:l:112:GLU:H	24:l:112:GLU:CD	2.10	0.59
4:Z:9:G:O2'	4:Z:10:G:N7	2.35	0.59
11:A:390:A:H2'	11:A:391:A:H8	1.67	0.59
11:A:931:G:H2'	11:A:932:A:C8	2.38	0.59
11:A:1018:U:H2'	11:A:1019:C:H6	1.67	0.59
11:A:551:G:O2'	11:A:552:G:H5'	2.02	0.59
46:w:6:VAL:HG22	46:w:7:THR:HG23	1.85	0.59
11:A:1377:U:OP1	20:j:62:ARG:NH2	2.36	0.58
40:t:86:VAL:O	40:t:88:GLY:N	2.35	0.58
11:A:160:A:H2'	11:A:161:A:O4'	2.04	0.58
11:A:563:C:H2'	11:A:564:C:C6	2.38	0.58
11:A:1049:A:H2'	11:A:1050:A:C8	2.38	0.58
6:a:1038:C:OP1	32:p:52:ARG:NH2	2.36	0.58
11:A:1132:U:O2'	11:A:1133:U:H5'	2.03	0.58
6:a:2300:C:O2'	24:l:84:GLY:O	2.21	0.58
11:A:57:U:H2'	11:A:58:G:H8	1.66	0.58
11:A:1235:A:H2'	11:A:1236:C:C5	2.38	0.58
11:A:392:G:H2'	11:A:393:C:H6	1.68	0.58
11:A:547:A:H2'	11:A:548:G:H8	1.67	0.58
11:A:1001:U:H4'	11:A:1002:G:C5'	2.34	0.58
11:A:1269:C:C3'	11:A:1270:G:H5"	2.33	0.58
17:D:44:LEU:HD22	17:D:48:GLY:HA3	1.85	0.58
6:a:287:G:O2'	6:a:288:C:O4'	2.21	0.58
11:A:213:G:H2'	11:A:214:A:C8	2.39	0.58
6:a:590:U:OP1	6:a:1257:G:O2'	2.22	0.58
11:A:398:C:H2'	11:A:399:G:C8	2.39	0.58
11:A:1012:G:O6	11:A:1047:A:N1	2.36	0.58
6:a:759:U:OP2	39:O:89:ARG:NH1	2.36	0.58
11:A:357:A:O2'	11:A:358:G:H5'	2.04	0.58
11:A:456:A:OP2	11:A:493:G:N2	2.29	0.58
6:a:2153:C:N4	6:a:2183:A:N7	2.52	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2625:A:OP2	6:a:2625:A:O5'	2.11	0.58
11:A:659:C:O2'	11:A:660:U:H5'	2.03	0.58
11:A:721:G:H2'	11:A:722:G:C8	2.39	0.58
11:A:1186:A:H2'	11:A:1187:G:C8	2.39	0.58
11:A:1385:A:H2'	11:A:1386:U:O4'	2.03	0.58
47:S:62:VAL:HA	47:S:66:MET:HE2	1.85	0.58
6:a:1135:G:H21	6:a:1144:C:H41	1.50	0.57
11:A:42:G:O2'	11:A:43:G:H5'	2.03	0.57
11:A:470:A:H2'	11:A:471:A:H8	1.69	0.57
11:A:85:U:H4'	11:A:86:G:H5'	1.85	0.57
11:A:1023:A:H2'	11:A:1024:G:C8	2.39	0.57
11:A:1366:G:H2'	11:A:1367:A:H8	1.67	0.57
6:a:592:A:N3	6:a:592:A:O2'	2.26	0.57
6:a:618:A:OP2	6:a:2524:C:O2'	2.20	0.57
11:A:429:U:H5'	11:A:430:C:H5	1.68	0.57
11:A:1450:U:H2'	11:A:1451:G:O4'	2.04	0.57
6:a:606:G:OP2	34:q:78:ARG:NH2	2.34	0.57
11:A:521:A:H2'	11:A:522:C:H6	1.70	0.57
6:a:1123:C:N4	6:a:1132:A:OP1	2.38	0.57
11:A:429:U:H5'	11:A:430:C:C5	2.40	0.57
11:A:509:C:H2'	11:A:510:C:H6	1.69	0.57
40:t:58:GLU:OE1	40:t:58:GLU:N	2.37	0.57
11:A:759:U:H2'	11:A:760:G:O4'	2.05	0.57
11:A:777:G:H4'	11:A:1524:A:H4'	1.85	0.57
11:A:1456:A:C2'	11:A:1457:A:H5'	2.34	0.57
11:A:469:U:OP1	11:A:469:U:H6	1.87	0.57
16:f:164:GLU:OE1	16:f:164:GLU:N	2.29	0.57
23:G:114:THR:HG23	23:G:117:ASP:H	1.69	0.57
16:f:135:GLN:OE1	16:f:135:GLN:N	2.35	0.57
17:D:98:VAL:CG2	17:D:110:ALA:HB1	2.35	0.57
11:A:1420:A:H2'	11:A:1421:C:H6	1.68	0.57
11:A:258:A:H4'	11:A:259:G:O5'	2.03	0.56
11:A:693:G:O2'	11:A:694:U:H5'	2.04	0.56
26:m:23:ILE:HD11	26:m:66:VAL:CG2	2.35	0.56
11:A:744:U:H2'	11:A:745:U:H6	1.67	0.56
2:X:6:G:O2'	2:X:7:G:H5'	2.05	0.56
11:A:409:C:OP2	17:D:66:ARG:NH1	2.39	0.56
11:A:1365:A:H2'	11:A:1366:G:C8	2.41	0.56
11:A:1440:C:O2'	11:A:1441:C:H5'	2.05	0.56
11:A:504:G:H21	11:A:505:A:H5"	1.70	0.56
2:X:11:G:O3'	2:X:12:A:H2'	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1159:C:H2'	11:A:1160:U:C6	2.39	0.56
11:A:469:U:H2'	11:A:470:A:H8	1.71	0.56
11:A:1238:C:H5'	35:M:113:VAL:CG1	2.36	0.56
11:A:345:G:H2'	11:A:346:A:C8	2.41	0.56
11:A:975:G:O2'	27:I:130:LYS:O	2.24	0.56
11:A:1244:C:O2'	11:A:1245:U:H5'	2.06	0.56
27:I:38:ARG:NH2	27:I:44:GLU:OE2	2.39	0.56
11:A:213:G:H2'	11:A:214:A:H8	1.69	0.56
17:D:87:MET:SD	17:D:182:ARG:NH1	2.78	0.56
11:A:188:U:O2'	11:A:189:G:H5'	2.06	0.56
11:A:1013:A:H2'	11:A:1014:C:O4'	2.06	0.56
11:A:1040:U:H4'	11:A:1041:C:C6	2.40	0.56
51:U:112:MET:HA	51:U:112:MET:HE3	1.87	0.56
9:4:49:ASP:OD1	9:4:49:ASP:N	2.34	0.55
11:A:445:U:O2'	11:A:446:G:H5'	2.06	0.55
11:A:771:G:H2'	11:A:772:C:C6	2.42	0.55
11:A:918:A:OP1	33:L:18:LYS:NZ	2.34	0.55
11:A:1039:U:O2'	11:A:1040:U:O5'	2.24	0.55
11:A:1365:A:H2'	11:A:1366:G:H8	1.71	0.55
16:f:144:ASP:OD1	16:f:144:ASP:N	2.36	0.55
11:A:208:U:O2'	11:A:209:G:H5'	2.06	0.55
11:A:397:A:H3'	11:A:398:C:H6	1.71	0.55
2:X:16:G:H1	4:Z:36:U:H3	1.55	0.55
6:a:1135:G:N2	6:a:1144:C:H41	2.04	0.55
9:4:70:VAL:HG23	47:S:64:GLU:OE2	2.07	0.55
11:A:635:G:O2'	11:A:636:G:H5'	2.06	0.55
11:A:641:U:H3'	11:A:642:C:H5"	1.88	0.55
11:A:555:A:H4'	11:A:556:G:O5'	2.06	0.55
11:A:645:U:O2'	11:A:646:G:H5'	2.06	0.55
11:A:995:A:H2'	11:A:996:A:C8	2.41	0.55
11:A:1010:U:O2'	11:A:1011:U:H5'	2.07	0.55
11:A:1047:A:O2'	11:A:1048:C:H5'	2.06	0.55
29:J:126:TYR:OH	29:J:133:HIS:NE2	2.24	0.55
14:e:169:ILE:H	14:e:169:ILE:HD12	1.71	0.55
17:D:188:GLU:N	17:D:188:GLU:OE1	2.39	0.55
11:A:179:A:H2'	11:A:180:U:C6	2.41	0.55
11:A:1301:U:O2'	11:A:1302:U:H5'	2.06	0.55
11:A:656:A:O2'	11:A:657:A:H5'	2.07	0.55
11:A:848:G:O2'	11:A:849:U:H5'	2.06	0.55
11:A:1005:A:H2'	11:A:1006:U:C6	2.42	0.55
11:A:1055:A:C5'	11:A:1056:C:H5"	2.36	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:123:G:H2'	11:A:124:U:C6	2.42	0.55
11:A:1112:A:H4'	11:A:1113:A:O5'	2.06	0.55
6:a:1134:U:O2'	6:a:1135:G:OP1	2.21	0.55
11:A:271:A:H2'	11:A:272:C:C5	2.42	0.55
11:A:1391:U:O2'	11:A:1392:C:H5'	2.07	0.55
15:C:61:ASN:O	15:C:61:ASN:ND2	2.39	0.55
15:C:82:GLU:OE2	15:C:85:LYS:NZ	2.39	0.55
26:m:21:LEU:HD23	26:m:41:VAL:HG21	1.88	0.55
40:t:74:LYS:NZ	40:t:98:GLY:O	2.40	0.55
6:a:1883:G:O2'	6:a:1909:A:N6	2.40	0.55
11:A:441:A:H2'	11:A:442:C:C6	2.41	0.55
11:A:1347:G:H5"	11:A:1348:G:OP1	2.06	0.54
6:a:1524:C:O2'	6:a:1525:U:H5'	2.08	0.54
11:A:197:U:O2	43:Q:66:ARG:NH1	2.40	0.54
11:A:828:U:H4'	11:A:829:G:OP2	2.06	0.54
11:A:929:U:H2'	11:A:930:U:C6	2.42	0.54
11:A:1293:C:O2'	11:A:1294:C:H5'	2.08	0.54
15:C:52:SER:OG	15:C:111:ASP:OD2	2.13	0.54
48:x:44:THR:O	48:x:48:THR:HG23	2.07	0.54
11:A:1030:G:O2'	11:A:1031:C:H5'	2.08	0.54
11:A:1132:U:H2'	11:A:1133:U:C6	2.42	0.54
11:A:755:U:O2'	11:A:756:A:H5'	2.08	0.54
11:A:852:C:H3'	11:A:853:C:O2	2.08	0.54
11:A:1143:C:H2'	11:A:1144:A:H8	1.73	0.54
11:A:74:G:N2	11:A:94:G:H2'	2.22	0.54
11:A:265:A:H2'	11:A:266:A:C8	2.42	0.54
11:A:588:C:H2'	11:A:589:G:O4'	2.08	0.54
15:C:8:ILE:O	15:C:12:VAL:HG23	2.08	0.54
6:a:315:C:O2'	6:a:316:G:O5'	2.23	0.54
11:A:467:U:H2'	11:A:468:G:O4'	2.07	0.54
6:a:620:G:O2'	6:a:1292:A:OP1	2.26	0.54
11:A:175:C:O2'	11:A:176:C:H5'	2.08	0.54
11:A:271:A:H2'	11:A:272:C:C6	2.43	0.54
6:a:1710:A:O2'	6:a:1716:G:N7	2.38	0.53
11:A:529:G:OP2	33:L:64:LYS:NZ	2.32	0.53
11:A:1033:U:H1'	11:A:1034:U:C5'	2.38	0.53
18:g:154:GLU:OE2	18:g:157:LYS:N	2.40	0.53
6:a:2430:G:O2'	6:a:2431:C:OP2	2.20	0.53
8:b:58:C:H2'	8:b:59:U:C6	2.43	0.53
11:A:354:G:OP1	30:o:41:ARG:NH2	2.35	0.53
11:A:417:U:H2'	11:A:418:G:O4'	2.07	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:682:G:H2'	11:A:683:A:H8	1.73	0.53
10:c:70:LYS:NZ	10:c:97:ASP:OD2	2.41	0.53
11:A:109:C:H2'	11:A:110:G:O4'	2.07	0.53
11:A:991:U:H4'	11:A:992:A:O5'	2.07	0.53
18:g:38:GLU:OE1	18:g:38:GLU:N	2.41	0.53
6:a:928:C:H41	6:a:938:G:H21	1.56	0.53
7:3:7:VAL:HG12	7:3:25:VAL:HG23	1.91	0.53
8:b:64:A:N6	8:b:104:A:H2'	2.23	0.53
11:A:168:G:C2'	11:A:169:C:H5"	2.37	0.53
11:A:555:A:H4'	11:A:555:A:OP1	2.07	0.53
11:A:1261:A:H2'	11:A:1262:A:C8	2.43	0.53
11:A:32:G:C8	11:A:314:A:H1'	2.44	0.53
11:A:1081:U:H2'	11:A:1082:C:C6	2.43	0.53
11:A:272:C:H2'	11:A:273:G:O4'	2.09	0.53
11:A:1167:A:H4'	11:A:1168:C:O5'	2.08	0.53
18:g:98:GLN:HG3	18:g:99:GLY:H	1.73	0.53
11:A:686:U:H2'	11:A:687:C:C6	2.43	0.53
11:A:1050:A:H2'	11:A:1051:A:C8	2.44	0.53
11:A:140:A:O2'	11:A:141:A:H5'	2.08	0.53
11:A:555:A:OP1	11:A:556:G:H4'	2.08	0.53
11:A:583:G:H4'	11:A:584:C:O5'	2.08	0.53
11:A:666:G:H5"	39:O:8:LYS:HE3	1.90	0.53
11:A:765:U:H2'	11:A:766:G:O4'	2.09	0.53
11:A:1389:G:O2'	11:A:1390:U:H5'	2.08	0.53
30:o:72:VAL:HG11	51:U:122:LEU:HD13	1.91	0.53
11:A:345:G:H2'	11:A:346:A:H8	1.74	0.53
16:f:1:MET:HE3	16:f:1:MET:N	2.24	0.53
6:a:2316:U:OP1	6:a:2405:A:O2'	2.26	0.53
11:A:86:G:H1'	11:A:87:C:C6	2.43	0.53
26:m:90:TYR:OH	26:m:119:VAL:N	2.42	0.53
8:b:58:C:H2'	8:b:59:U:H6	1.73	0.52
11:A:877:C:H2'	11:A:878:A:O4'	2.08	0.52
11:A:904:A:H2'	11:A:905:C:C6	2.44	0.52
11:A:921:C:O2'	11:A:922:A:H5'	2.09	0.52
11:A:1141:A:O2'	11:A:1142:U:H5'	2.08	0.52
11:A:1162:A:O2'	11:A:1163:G:H5'	2.08	0.52
11:A:196:A:H2'	11:A:197:U:H5'	1.91	0.52
11:A:435:C:OP2	11:A:436:G:O2'	2.27	0.52
11:A:648:A:O2'	11:A:649:A:H5'	2.08	0.52
11:A:1407:C:H4'	11:A:1408:A:OP2	2.09	0.52
6:a:2492:C:H2'	6:a:2493:A:O4'	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:771:G:H2'	11:A:772:C:H6	1.74	0.52
11:A:1006:U:C2'	11:A:1007:C:H5'	2.40	0.52
11:A:22:G:H2'	11:A:23:G:C8	2.44	0.52
6:a:939:U:O5'	6:a:941:A:N6	2.43	0.52
11:A:272:C:O2'	43:Q:67:PRO:O	2.25	0.52
11:A:379:G:H2'	11:A:380:C:O4'	2.10	0.52
11:A:1437:C:H2'	11:A:1438:A:C8	2.43	0.52
11:A:1477:C:H2'	11:A:1478:G:O4'	2.09	0.52
11:A:1538:C:O2'	11:A:1539:U:H5'	2.09	0.52
14:e:80:PRO:HB3	14:e:88:VAL:HG23	1.92	0.52
18:g:32:LEU:HD12	18:g:32:LEU:O	2.09	0.52
25:H:16:ASN:O	25:H:20:VAL:HG22	2.10	0.52
27:I:66:VAL:HG12	27:I:67:ASN:N	2.24	0.52
11:A:995:A:H2'	11:A:996:A:H8	1.74	0.52
11:A:1165:U:H2'	11:A:1166:G:O4'	2.09	0.52
17:D:78:LYS:NZ	17:D:78:LYS:HB3	2.25	0.52
6:a:1261:G:OP1	34:q:67:ARG:NH2	2.42	0.52
18:g:32:LEU:HD13	18:g:74:MET:HG2	1.92	0.52
6:a:1099:G:H2'	6:a:1100:G:C1'	2.40	0.52
6:a:2353:A:H2'	6:a:2354:A:C8	2.45	0.52
11:A:196:A:C2'	11:A:197:U:H5'	2.40	0.52
11:A:524:U:H2'	11:A:525:G:O4'	2.09	0.52
6:a:457:G:OP2	6:a:2431:C:O2'	2.25	0.51
6:a:1097:U:O4	6:a:1098:A:N6	2.43	0.51
11:A:388:G:N2	11:A:391:A:OP2	2.39	0.51
11:A:1365:A:O2'	11:A:1366:G:H5'	2.09	0.51
11:A:29:G:O2'	11:A:304:U:OP1	2.25	0.51
11:A:85:U:C4'	11:A:86:G:H5'	2.39	0.51
11:A:1018:U:H2'	11:A:1019:C:C6	2.46	0.51
11:A:1388:C:O2	23:G:76:LYS:NZ	2.44	0.51
51:U:35:ILE:HG21	51:U:103:ALA:HB3	1.93	0.51
11:A:34:A:H2'	11:A:35:C:C6	2.46	0.51
12:d:188:ASP:OD2	12:d:191:ASN:ND2	2.43	0.51
11:A:201:U:C2'	11:A:202:C:H5"	2.38	0.51
11:A:484:A:H2'	11:A:485:U:H6	1.76	0.51
11:A:1138:G:H5'	11:A:1290:A:O2'	2.11	0.51
11:A:1255:A:O2'	11:A:1256:A:H5'	2.10	0.51
18:g:31:GLU:N	18:g:31:GLU:OE1	2.43	0.51
8:b:77:G:H1	8:b:94:U:H3	1.57	0.51
11:A:1106:U:O2'	11:A:1107:C:H5'	2.10	0.51
11:A:1181:A:H2'	11:A:1182:C:C6	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1246:A:H2'	11:A:1247:C:C6	2.46	0.51
11:A:1452:G:H2'	11:A:1452:G:N3	2.26	0.51
1:0:9:CYS:SG	1:0:43:THR:HG21	2.50	0.51
8:b:60:C:H2'	8:b:61:C:H6	1.75	0.51
11:A:125:G:OP1	11:A:613:U:O2'	2.21	0.51
11:A:307:G:H2'	11:A:308:A:C8	2.45	0.51
11:A:1113:A:H2'	11:A:1114:C:C6	2.46	0.51
17:D:84:GLU:HG3	17:D:182:ARG:CG	2.39	0.51
11:A:85:U:H4'	11:A:86:G:C5'	2.41	0.51
11:A:703:A:H2'	11:A:704:A:C8	2.45	0.51
11:A:985:G:H5"	11:A:1368:U:O2'	2.11	0.51
5:2:9:ALA:O	5:2:13:VAL:HG22	2.10	0.51
11:A:1147:A:H2'	11:A:1148:A:O4'	2.11	0.51
17:D:29:ARG:HA	17:D:31:TYR:CE1	2.45	0.51
22:k:73:GLU:O	22:k:107:SER:OG	2.20	0.51
48:x:3:LYS:HA	48:x:3:LYS:HE2	1.92	0.51
11:A:33:A:H2'	11:A:34:A:H8	1.76	0.51
11:A:179:A:H2'	11:A:180:U:H6	1.75	0.51
11:A:230:U:H2'	11:A:231:U:C6	2.46	0.51
11:A:265:A:H2'	11:A:266:A:H8	1.76	0.51
11:A:854:G:O2'	11:A:855:C:H5'	2.11	0.51
27:I:59:THR:HG22	27:I:59:THR:O	2.10	0.51
6:a:1580:A:H8	6:a:1580:A:OP2	1.94	0.50
11:A:159:G:N2	11:A:162:A:OP2	2.39	0.50
11:A:1248:A:C8	11:A:1313:C:H1'	2.46	0.50
11:A:1373:A:H2'	11:A:1373:A:N3	2.26	0.50
6:a:75:G:O2'	48:x:47:LYS:NZ	2.42	0.50
6:a:1579:C:H2'	6:a:1580:A:H1'	1.93	0.50
8:b:114:G:O2'	8:b:115:C:H5'	2.11	0.50
31:K:17:GLU:OE1	31:K:17:GLU:N	2.36	0.50
31:K:79:LEU:HD21	31:K:82:VAL:CG1	2.41	0.50
2:X:10:U:H4'	2:X:11:G:OP1	2.09	0.50
6:a:1091:G:N2	6:a:1154:G:O2'	2.43	0.50
6:a:2187:G:OP1	6:a:2190:G:N1	2.45	0.50
11:A:398:C:H2'	11:A:399:G:H8	1.75	0.50
17:D:12:SER:OG	17:D:19:LEU:HG	2.11	0.50
2:X:3:G:O2'	2:X:4:G:H5'	2.11	0.50
6:a:2158:G:O2'	6:a:2180:U:OP2	2.23	0.50
11:A:723:A:H2'	11:A:724:A:C8	2.47	0.50
11:A:1138:G:H2'	11:A:1139:C:H6	1.75	0.50
11:A:1422:C:H2'	11:A:1423:A:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:D:87:MET:HE3	17:D:191:GLU:HB3	1.94	0.50
11:A:704:A:H2'	11:A:705:U:H6	1.75	0.50
11:A:58:G:H2'	11:A:59:C:C6	2.46	0.50
18:g:7:ILE:HD11	18:g:48:THR:OG1	2.12	0.50
11:A:481:C:O2'	11:A:482:A:H5'	2.11	0.50
11:A:1039:U:H1'	11:A:1040:U:C2	2.47	0.50
11:A:1228:U:H2'	11:A:1229:U:C6	2.46	0.50
11:A:1282:U:H2'	11:A:1283:C:C6	2.47	0.50
11:A:1325:U:H2'	11:A:1326:G:O4'	2.12	0.50
15:C:48:GLU:H	15:C:48:GLU:CD	2.13	0.50
11:A:36:G:H2'	11:A:37:C:H6	1.76	0.50
11:A:1034:U:H2'	11:A:1035:C:C6	2.46	0.50
11:A:1138:G:H2'	11:A:1139:C:C6	2.47	0.50
11:A:1297:A:H2'	11:A:1298:A:C8	2.46	0.50
17:D:51:LEU:O	17:D:55:GLN:HG2	2.11	0.50
26:m:23:ILE:HD11	26:m:66:VAL:HG21	1.93	0.50
35:M:5:ALA:HB1	35:M:65:VAL:CG1	2.42	0.50
11:A:190:A:O2'	11:A:191:A:H5'	2.12	0.50
11:A:553:C:H5'	17:D:65:GLU:HB2	1.94	0.50
11:A:759:U:O2'	11:A:760:G:H5'	2.11	0.50
11:A:1437:C:H2'	11:A:1438:A:H8	1.77	0.50
23:G:93:GLU:H	23:G:93:GLU:CD	2.20	0.50
24:l:137:LEU:HD22	42:u:50:ILE:HG12	1.94	0.50
6:a:2155:U:O3'	6:a:2182:G:N2	2.44	0.49
6:a:631:U:H2'	6:a:632:U:C6	2.47	0.49
9:4:61:ARG:NH2	35:M:61:ASP:OD1	2.45	0.49
23:G:49:LEU:HD13	23:G:53:ARG:NH1	2.27	0.49
11:A:1434:U:O2'	11:A:1435:A:H5'	2.12	0.49
11:A:191:A:H2'	11:A:192:C:C6	2.48	0.49
11:A:800:A:H4'	11:A:801:U:O5'	2.13	0.49
11:A:1016:A:H2'	11:A:1017:C:O4'	2.11	0.49
11:A:1024:G:H1'	11:A:1228:U:O2'	2.12	0.49
33:L:23:ALA:O	33:L:72:ASN:ND2	2.45	0.49
6:a:221:G:H22	6:a:238:U:H4'	1.76	0.49
11:A:9:A:N6	17:D:196:GLU:O	2.46	0.49
11:A:500:A:O2'	11:A:501:U:H5'	2.13	0.49
11:A:1082:C:H2'	11:A:1083:G:H8	1.78	0.49
9:4:68:ASP:OD1	9:4:69:GLY:N	2.46	0.49
11:A:1336:U:H2'	11:A:1337:A:C8	2.44	0.49
11:A:89:U:H2'	11:A:90:C:H5'	1.94	0.49
11:A:147:G:H2'	11:A:148:G:C8	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:f:119:LYS:O	16:f:167:ARG:NH1	2.46	0.49
11:A:810:A:H2'	11:A:811:G:O4'	2.12	0.49
11:A:1340:U:H2'	11:A:1341:G:H5'	1.94	0.49
25:H:26:GLU:OE2	25:H:61:ARG:NH1	2.41	0.49
30:o:106:ARG:NH2	51:U:80:ASP:OD1	2.45	0.49
11:A:636:G:O2'	11:A:637:A:H5'	2.13	0.49
11:A:1040:U:H5"	11:A:1041:C:O5'	2.13	0.49
11:A:1238:C:H5'	35:M:113:VAL:HG13	1.95	0.49
11:A:171:A:O2'	11:A:172:A:H5'	2.12	0.49
11:A:207:G:H2'	11:A:208:U:O2	2.13	0.49
11:A:1063:U:O2'	11:A:1066:A:OP2	2.22	0.49
11:A:1158:U:H2'	11:A:1159:C:O4'	2.13	0.49
11:A:1340:U:O2'	11:A:1341:G:H5'	2.13	0.49
6:a:27:G:O2'	6:a:28:A:OP2	2.30	0.48
8:b:1:U:H3	8:b:114:G:N2	2.06	0.48
11:A:284:G:H4'	43:Q:46:LYS:NZ	2.28	0.48
11:A:765:U:OP1	11:A:830:A:O2'	2.31	0.48
11:A:1379:C:H2'	11:A:1380:G:C8	2.48	0.48
11:A:1525:U:H2'	11:A:1526:C:C6	2.48	0.48
15:C:61:ASN:ND2	15:C:61:ASN:C	2.71	0.48
3:1:12:LYS:NZ	3:1:16:VAL:HG21	2.28	0.48
8:b:38:U:HO2'	8:b:43:A:N6	2.05	0.48
11:A:1366:G:O2'	11:A:1367:A:H5'	2.12	0.48
18:g:106:VAL:HG11	18:g:161:ILE:HD11	1.95	0.48
22:k:83:ASN:ND2	22:k:116:SER:O	2.43	0.48
11:A:495:A:H2'	11:A:496:C:O4'	2.14	0.48
28:n:72:LEU:O	28:n:76:VAL:HG23	2.14	0.48
6:a:75:G:H22	6:a:110:A:H2	1.61	0.48
11:A:63:U:H2'	11:A:64:C:C6	2.48	0.48
11:A:184:A:H2'	11:A:184:A:N3	2.27	0.48
11:A:278:A:H2'	11:A:279:C:C6	2.48	0.48
11:A:469:U:OP1	11:A:469:U:O4'	2.31	0.48
11:A:598:U:H2'	11:A:599:U:H6	1.77	0.48
15:C:90:LEU:HD12	15:C:100:ILE:HD11	1.96	0.48
6:a:2499:U:HO2'	6:a:2500:C:P	2.34	0.48
11:A:457:A:H2'	11:A:458:G:O4'	2.14	0.48
11:A:1414:C:H2'	11:A:1415:G:C8	2.49	0.48
47:S:27:LYS:HE3	47:S:27:LYS:HA	1.94	0.48
51:U:105:GLU:N	51:U:105:GLU:OE1	2.45	0.48
51:U:108:GLU:N	51:U:108:GLU:OE2	2.46	0.48
6:a:284:C:C2'	6:a:287:G:H22	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:1137:G:O2'	6:a:1138:U:O4'	2.27	0.48
11:A:407:G:H2'	11:A:408:C:C6	2.49	0.48
11:A:775:A:H2'	11:A:776:A:O4'	2.13	0.48
11:A:838:G:O2'	11:A:839:U:H5'	2.14	0.48
11:A:1260:A:H2'	11:A:1261:A:C8	2.49	0.48
11:A:1504:A:O2'	11:A:1505:G:H5'	2.14	0.48
40:t:34:VAL:HG22	40:t:62:ALA:HB2	1.96	0.48
6:a:629:A:N1	6:a:854:G:O2'	2.44	0.48
11:A:59:C:H2'	11:A:59:C:O2	2.14	0.48
11:A:1324:C:H2'	11:A:1325:U:C6	2.49	0.48
11:A:1441:C:H2'	11:A:1442:G:O4'	2.13	0.48
11:A:1037:C:O4'	11:A:1044:G:N2	2.46	0.48
11:A:1055:A:P	11:A:1056:C:H5"	2.54	0.48
11:A:1081:U:H2'	11:A:1082:C:H6	1.79	0.48
15:C:81:SER:OG	15:C:82:GLU:OE1	2.32	0.48
11:A:1014:C:O2'	11:A:1049:A:H5'	2.13	0.48
17:D:41:ARG:CZ	17:D:41:ARG:HA	2.44	0.48
40:t:40:ILE:HG23	40:t:59:THR:HB	1.95	0.48
6:a:904:G:O2'	6:a:961:G:O6	2.31	0.48
11:A:745:U:H2'	11:A:746:U:H6	1.79	0.48
47:S:13:GLU:OE2	47:S:13:GLU:HA	2.14	0.48
6:a:2167:G:O2'	6:a:2168:C:O5'	2.21	0.47
11:A:1220:C:O2'	11:A:1221:U:H5'	2.14	0.47
11:A:466:G:H2'	11:A:467:U:H6	1.79	0.47
11:A:686:U:H2'	11:A:687:C:H6	1.77	0.47
11:A:1083:G:H2'	11:A:1084:U:C6	2.48	0.47
11:A:1212:U:H2'	11:A:1213:C:H5'	1.95	0.47
11:A:1255:A:H2'	11:A:1256:A:H8	1.79	0.47
47:S:22:GLN:HE22	47:S:29:GLN:H	1.60	0.47
11:A:504:G:N2	11:A:505:A:H3'	2.29	0.47
11:A:901:A:H2'	11:A:902:C:C6	2.49	0.47
11:A:1292:C:O2'	11:A:1293:C:H5'	2.13	0.47
11:A:1324:C:H2'	11:A:1325:U:H6	1.79	0.47
33:L:53:MET:SD	33:L:103:LEU:HD22	2.54	0.47
6:a:1568:U:H5'	6:a:1569:G:C8	2.50	0.47
11:A:468:G:H2'	11:A:469:U:OP1	2.14	0.47
11:A:312:U:O2'	11:A:313:G:H5'	2.14	0.47
11:A:530:C:OP2	33:L:79:TYR:OH	2.25	0.47
11:A:873:A:H2'	11:A:874:A:C8	2.49	0.47
11:A:899:G:O2'	11:A:915:G:O6	2.20	0.47
11:A:1012:G:C6	11:A:1047:A:N1	2.82	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1431:U:O2'	11:A:1432:U:H5'	2.13	0.47
32:p:102:GLU:H	32:p:102:GLU:CD	2.23	0.47
40:t:86:VAL:HG22	40:t:87:ASP:H	1.79	0.47
6:a:1137:G:N2	6:a:1142:A:H62	2.12	0.47
6:a:315:C:O2'	6:a:316:G:P	2.72	0.47
6:a:2155:U:O2'	6:a:2182:G:N1	2.47	0.47
11:A:474:A:H2'	11:A:475:A:C8	2.50	0.47
11:A:622:A:H2'	11:A:623:C:C6	2.49	0.47
11:A:1264:G:O2'	11:A:1265:G:H5'	2.15	0.47
12:d:48:ILE:HG12	12:d:93:VAL:HG21	1.96	0.47
2:X:4:G:O2'	2:X:5:A:H5'	2.15	0.47
6:a:24:G:O2'	36:r:78:GLU:O	2.33	0.47
6:a:2857:G:O2'	26:m:42:GLU:OE1	2.25	0.47
11:A:469:U:H2'	11:A:470:A:C8	2.50	0.47
11:A:483:C:O2'	11:A:484:A:H5'	2.14	0.47
11:A:490:A:H2'	11:A:491:C:O4'	2.14	0.47
11:A:682:G:H2'	11:A:683:A:C8	2.50	0.47
11:A:1255:A:H2'	11:A:1256:A:C8	2.50	0.47
16:f:42:ASP:OD1	16:f:49:VAL:HG21	2.15	0.47
6:a:1524:C:C2'	6:a:1525:U:H5'	2.45	0.47
11:A:34:A:H2'	11:A:35:C:H6	1.78	0.47
11:A:98:U:H2'	11:A:99:U:O4'	2.15	0.47
11:A:259:G:H4'	11:A:260:U:O5'	2.15	0.47
11:A:1005:A:H2'	11:A:1006:U:H6	1.79	0.47
16:f:1:MET:HE3	16:f:1:MET:H3	1.79	0.47
6:a:759:U:OP2	39:O:88:ARG:NH2	2.48	0.47
11:A:85:U:H4'	11:A:86:G:O4'	2.15	0.47
11:A:605:G:C2'	11:A:606:U:H5'	2.45	0.47
4:Z:7:G:O2'	4:Z:49:G:OP2	2.31	0.46
6:a:759:U:O2'	6:a:761:A:N7	2.41	0.46
11:A:30:A:O2'	11:A:31:U:H5'	2.15	0.46
11:A:214:A:H2'	11:A:215:C:C6	2.51	0.46
26:m:23:ILE:HD13	26:m:68:ILE:HD11	1.97	0.46
45:R:39:SER:OG	45:R:40:GLU:N	2.48	0.46
1:0:5:VAL:HG13	1:0:47:GLU:HG3	1.97	0.46
6:a:1821:U:H2'	6:a:1822:C:C6	2.50	0.46
11:A:80:A:O2'	11:A:81:A:H5'	2.15	0.46
11:A:341:U:OP1	49:T:2:ALA:N	2.48	0.46
11:A:413:U:H5"	11:A:414:G:O5'	2.15	0.46
11:A:793:G:O2'	11:A:794:G:H5'	2.15	0.46
11:A:1353:G:H2'	11:A:1354:C:C6	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:D:157:ILE:HG22	17:D:157:ILE:O	2.14	0.46
30:o:67:SER:OG	51:U:120:GLU:OE2	2.30	0.46
6:a:2183:A:O2'	6:a:2185:G:N7	2.48	0.46
8:b:39:G:O2'	8:b:40:C:OP1	2.31	0.46
11:A:562:U:H2'	11:A:563:C:C6	2.50	0.46
31:K:79:LEU:HD21	31:K:82:VAL:HG13	1.98	0.46
11:A:6:U:H5'	11:A:7:G:OP1	2.15	0.46
11:A:308:A:O2'	11:A:572:U:H5	1.98	0.46
11:A:783:G:O2'	11:A:784:G:H5'	2.16	0.46
11:A:1489:A:H2'	11:A:1490:A:C8	2.51	0.46
13:B:176:ALA:HB3	13:B:183:ILE:HD11	1.98	0.46
17:D:148:LEU:O	17:D:152:VAL:HG23	2.14	0.46
11:A:217:G:O2'	11:A:218:U:H5'	2.16	0.46
11:A:419:A:H1'	11:A:420:U:O2'	2.16	0.46
11:A:482:A:H2'	11:A:483:C:H6	1.81	0.46
11:A:1151:U:HO2'	11:A:1152:G:H8	1.57	0.46
11:A:1337:A:H2'	11:A:1338:C:C6	2.51	0.46
17:D:95:ASP:O	17:D:98:VAL:HG22	2.16	0.46
11:A:222:G:H2'	11:A:223:C:C6	2.50	0.46
11:A:847:G:O2'	11:A:848:G:H5'	2.15	0.46
11:A:1035:C:O2'	11:A:1036:C:O5'	2.29	0.46
11:A:1337:A:H2'	11:A:1338:C:H6	1.80	0.46
17:D:32:ALA:O	17:D:37:GLY:HA3	2.16	0.46
26:m:49:LYS:NZ	26:m:93:ARG:O	2.48	0.46
41:P:44:SER:O	41:P:45:ALA:CB	2.63	0.46
48:x:1:LYS:N	48:x:4:GLU:OE2	2.41	0.46
11:A:86:G:H4'	11:A:87:C:OP1	2.16	0.46
11:A:107:G:H5''	11:A:108:A:H5''	1.98	0.46
11:A:212:A:H4'	11:A:213:G:OP1	2.16	0.46
11:A:561:A:H2'	11:A:562:U:C6	2.50	0.46
11:A:745:U:H2'	11:A:746:U:C6	2.50	0.46
11:A:1376:C:H2'	11:A:1377:U:C6	2.50	0.46
26:m:72:ASP:O	26:m:72:ASP:OD2	2.33	0.46
11:A:274:G:H3'	43:Q:70:ALA:HB2	1.97	0.46
11:A:679:G:O2'	11:A:680:U:H5'	2.16	0.46
11:A:783:G:C2'	11:A:784:G:H5'	2.46	0.46
11:A:1167:A:H5'	11:A:1168:C:C6	2.50	0.46
6:a:684:U:H2'	6:a:685:C:C6	2.51	0.46
11:A:502:C:O2'	11:A:504:G:H1'	2.15	0.46
11:A:885:A:H2'	11:A:886:C:C6	2.50	0.46
11:A:1038:C:H2'	11:A:1039:U:H5'	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1197:G:H5'	27:I:116:LYS:HE2	1.98	0.46
11:A:1326:G:H4'	37:N:18:VAL:HG11	1.97	0.46
13:B:136:GLU:OE1	13:B:137:LEU:N	2.49	0.46
16:f:80:ARG:H	16:f:83:MET:CE	2.29	0.46
38:s:84:GLU:OE1	38:s:84:GLU:N	2.48	0.46
6:a:787:U:H2'	6:a:788:A:C8	2.51	0.45
11:A:429:U:H4'	11:A:430:C:OP2	2.17	0.45
11:A:1152:G:H2'	11:A:1153:G:O4'	2.15	0.45
11:A:1220:C:C2'	11:A:1221:U:H5'	2.45	0.45
11:A:1236:C:H4'	11:A:1237:A:OP1	2.16	0.45
6:a:2160:A:O5'	6:a:2181:G:N2	2.49	0.45
11:A:276:U:H2'	11:A:277:U:C6	2.51	0.45
11:A:1145:U:O2'	11:A:1146:U:H5'	2.16	0.45
11:A:1212:U:C2'	11:A:1213:C:H5'	2.46	0.45
6:a:2163:G:O2'	6:a:2164:U:O4'	2.32	0.45
6:a:2670:G:H4'	6:a:2757:G:O2'	2.16	0.45
11:A:200:U:O2'	11:A:201:U:H5'	2.15	0.45
11:A:225:G:H2'	11:A:226:U:C6	2.52	0.45
11:A:590:U:H2'	11:A:591:A:C8	2.52	0.45
11:A:921:C:OP1	33:L:56:ARG:NH2	2.49	0.45
11:A:1033:U:H4'	11:A:1034:U:OP1	2.15	0.45
11:A:1040:U:H4'	11:A:1041:C:C5	2.52	0.45
11:A:1248:A:N3	11:A:1248:A:H2'	2.31	0.45
6:a:275:A:N6	6:a:296:G:H21	2.14	0.45
8:b:60:C:H2'	8:b:61:C:C6	2.52	0.45
11:A:194:G:O2'	43:Q:3:ARG:NH1	2.48	0.45
11:A:874:A:H5'	11:A:1089:U:O4	2.16	0.45
11:A:1085:G:O2'	11:A:1112:A:N1	2.45	0.45
17:D:93:ARG:O	17:D:97:VAL:HG23	2.16	0.45
17:D:135:PRO:HA	17:D:176:PHE:HD1	1.82	0.45
6:a:858:U:H2'	6:a:859:C:C6	2.52	0.45
6:a:2784:G:N2	18:g:138:GLU:OE2	2.31	0.45
11:A:42:G:H2'	11:A:43:G:H8	1.82	0.45
11:A:1010:U:H2'	11:A:1011:U:O4'	2.16	0.45
11:A:1130:G:H2'	11:A:1131:C:H6	1.82	0.45
23:G:90:VAL:HG13	23:G:94:ARG:HG2	1.97	0.45
6:a:2331:U:OP2	6:a:2332:G:O2'	2.34	0.45
11:A:222:G:H2'	11:A:223:C:H6	1.82	0.45
11:A:467:U:C2	11:A:468:G:C8	3.05	0.45
11:A:601:U:H2'	11:A:602:U:C6	2.52	0.45
11:A:1434:U:H2'	11:A:1435:A:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1501:U:O2'	11:A:1502:G:H5'	2.16	0.45
11:A:685:U:O2	11:A:785:A:O2'	2.34	0.45
20:j:24:LYS:NZ	20:j:90:LEU:HD11	2.32	0.45
2:X:2:A:O2'	2:X:3:G:H5'	2.17	0.45
6:a:1878:A:H2'	6:a:1879:A:C8	2.52	0.45
11:A:1438:A:H2'	11:A:1439:C:C6	2.52	0.45
6:a:192:G:OP2	46:w:13:THR:HG21	2.17	0.45
11:A:191:A:H2'	11:A:192:C:H6	1.81	0.45
11:A:466:G:H2'	11:A:467:U:C6	2.51	0.45
15:C:44:ASN:OD1	15:C:44:ASN:C	2.60	0.45
25:H:110:GLU:OE1	25:H:123:VAL:HG11	2.17	0.45
6:a:1568:U:H3'	6:a:1569:G:C5'	2.46	0.45
11:A:1343:A:H2'	11:A:1344:G:O4'	2.17	0.45
23:G:65:ALA:HB1	23:G:126:ALA:HB3	1.99	0.45
6:a:1581:U:O2	6:a:1582:U:N3	2.50	0.44
11:A:670:A:H2'	11:A:671:A:C8	2.52	0.44
11:A:917:A:H2'	11:A:918:A:C8	2.51	0.44
11:A:1215:U:H4'	15:C:194:LYS:HD3	1.99	0.44
11:A:1412:C:H2'	11:A:1413:C:O4'	2.17	0.44
14:e:131:GLU:H	14:e:131:GLU:CD	2.17	0.44
16:f:46:ASN:O	16:f:49:VAL:HG22	2.16	0.44
6:a:349:U:H2'	6:a:350:G:O4'	2.17	0.44
6:a:901:G:H2'	6:a:902:A:C8	2.52	0.44
11:A:10:G:H5'	19:E:108:GLY:HA3	1.99	0.44
11:A:189:G:C2'	11:A:190:A:H5'	2.47	0.44
11:A:477:U:H5'	11:A:478:G:OP2	2.18	0.44
11:A:508:G:H2'	11:A:509:C:C6	2.52	0.44
11:A:963:G:H2'	11:A:964:U:C6	2.52	0.44
11:A:1092:G:H5'	19:E:23:LYS:HG3	1.99	0.44
11:A:195:C:O2	11:A:195:C:H5'	2.16	0.44
11:A:458:G:H4'	41:P:43:THR:HG22	1.99	0.44
11:A:508:G:H2'	11:A:509:C:H6	1.83	0.44
25:H:53:GLU:OE1	25:H:54:ASP:N	2.50	0.44
11:A:312:U:C2'	11:A:313:G:H5'	2.47	0.44
11:A:1071:U:H2'	11:A:1072:G:H8	1.82	0.44
11:A:1156:A:H5'	11:A:1157:C:OP2	2.17	0.44
11:A:1161:A:HO2'	11:A:1162:A:H8	1.65	0.44
21:F:7:MET:HG2	45:R:70:MET:HE2	1.98	0.44
6:a:923:A:HO2'	6:a:924:G:H8	1.65	0.44
6:a:1185:U:H4'	6:a:1186:A:O4'	2.17	0.44
6:a:1889:U:OP1	6:a:2435:G:O2'	2.35	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2316:U:H2'	6:a:2317:U:C6	2.52	0.44
11:A:122:C:OP1	11:A:320:C:H5'	2.18	0.44
11:A:669:G:C2'	11:A:670:A:H5'	2.48	0.44
11:A:835:U:H2'	11:A:879:U:O4	2.17	0.44
11:A:1295:A:H4'	11:A:1296:U:C5	2.53	0.44
20:j:66:GLU:HB3	37:N:59:ALA:HB2	1.99	0.44
25:H:68:GLN:N	25:H:68:GLN:OE1	2.51	0.44
17:D:182:ARG:NH1	17:D:186:PRO:O	2.48	0.44
2:X:14:A:O2'	2:X:15:U:H5'	2.18	0.44
6:a:1872:A:O2'	6:a:1873:A:C8	2.68	0.44
11:A:369:G:H2'	11:A:370:G:O4'	2.18	0.44
11:A:1044:G:O2'	11:A:1045:G:H5'	2.17	0.44
17:D:185:LEU:HB3	17:D:186:PRO:HD2	2.00	0.44
47:S:64:GLU:OE2	47:S:64:GLU:HA	2.17	0.44
1:0:21:LYS:NZ	1:0:28:GLU:O	2.51	0.44
6:a:877:G:H2'	6:a:878:C:C6	2.53	0.44
6:a:1827:A:H2'	6:a:1828:A:C8	2.53	0.44
6:a:2040:A:C2	52:z:2:VAL:HG12	2.53	0.44
11:A:221:U:H4'	11:A:222:G:O5'	2.17	0.44
11:A:434:U:H4'	17:D:34:GLY:O	2.18	0.44
11:A:499:A:H2'	11:A:500:A:C8	2.50	0.44
11:A:1440:C:C2'	11:A:1441:C:H5'	2.47	0.44
11:A:1489:A:H2'	11:A:1490:A:H8	1.82	0.44
13:B:226:GLN:C	13:B:226:GLN:OE1	2.61	0.44
2:X:4:G:H2'	2:X:5:A:H8	1.83	0.44
6:a:12:U:O2	6:a:12:U:H2'	2.17	0.44
6:a:153:G:O2'	6:a:154:A:H8	2.01	0.44
6:a:2050:C:H2'	6:a:2051:U:C6	2.53	0.44
8:b:83:C:H2'	8:b:84:U:O4'	2.18	0.44
11:A:463:U:C2'	11:A:464:A:H5'	2.48	0.44
11:A:563:C:H2'	11:A:564:C:H6	1.80	0.44
11:A:1285:A:H2'	11:A:1286:G:O4'	2.18	0.44
18:g:21:ASN:ND2	18:g:35:THR:OG1	2.51	0.44
6:a:2037:G:OP1	36:r:11:ARG:NH2	2.48	0.43
11:A:185:U:H2'	11:A:186:U:C6	2.53	0.43
11:A:434:U:OP1	17:D:29:ARG:HD2	2.18	0.43
11:A:901:A:H2'	11:A:902:C:H6	1.83	0.43
23:G:15:ASP:OD2	23:G:23:VAL:HG11	2.18	0.43
41:P:32:ARG:O	41:P:33:ILE:HD12	2.17	0.43
6:a:1897:U:O2'	6:a:1898:G:OP2	2.31	0.43
6:a:2089:C:H2'	6:a:2090:C:C6	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:69:G:H2'	11:A:70:A:O4'	2.18	0.43
11:A:1038:C:C2'	11:A:1039:U:H5'	2.49	0.43
11:A:1340:U:H2'	11:A:1341:G:O4'	2.18	0.43
19:E:16:VAL:HG11	19:E:110:PRO:HB3	1.99	0.43
40:t:58:GLU:C	40:t:59:THR:HG23	2.43	0.43
6:a:153:G:O2'	6:a:154:A:OP2	2.30	0.43
11:A:503:A:H4'	11:A:504:G:O4'	2.18	0.43
11:A:1002:G:H2'	11:A:1004:C:H41	1.83	0.43
11:A:1156:A:H2'	11:A:1156:A:N3	2.32	0.43
27:I:66:VAL:HG12	27:I:68:VAL:HG13	2.00	0.43
11:A:507:A:H4'	11:A:508:G:OP1	2.18	0.43
11:A:1034:U:H2'	11:A:1035:C:H6	1.81	0.43
15:C:22:TRP:NE1	15:C:35:ASP:OD2	2.50	0.43
31:K:23:ILE:HB	31:K:86:VAL:HG12	1.99	0.43
40:t:41:MET:HG2	40:t:61:ALA:HB2	2.00	0.43
6:a:575:G:O2'	6:a:577:A:N7	2.45	0.43
6:a:1072:A:N3	6:a:2511:G:O2'	2.43	0.43
11:A:50:U:O2'	11:A:51:A:H2'	2.19	0.43
11:A:421:G:H21	11:A:436:G:H1'	1.83	0.43
11:A:1189:A:H2'	11:A:1190:A:O4'	2.18	0.43
6:a:575:G:N2	6:a:2048:A:OP1	2.52	0.43
6:a:593:U:O2'	6:a:594:G:P	2.76	0.43
6:a:1357:G:C2	6:a:1366:U:H5''	2.54	0.43
6:a:2058:A:O2'	6:a:2060:G:OP2	2.34	0.43
11:A:88:U:H6	11:A:88:U:O5'	2.01	0.43
11:A:347:C:H2'	11:A:348:U:C6	2.54	0.43
11:A:1009:U:O2'	11:A:1010:U:H5'	2.18	0.43
23:G:152:HIS:CD2	23:G:152:HIS:H	2.36	0.43
8:b:64:A:H61	8:b:104:A:H2'	1.83	0.43
19:E:37:VAL:HG11	19:E:64:VAL:HG22	2.01	0.43
36:r:112:GLU:OE1	36:r:112:GLU:N	2.51	0.43
51:U:24:VAL:HG13	51:U:33:ALA:HB2	2.00	0.43
6:a:650:U:C5	6:a:665:G:C5	3.06	0.43
6:a:1568:U:H3'	6:a:1569:G:H5'	2.00	0.43
6:a:2332:G:O6	16:f:41:GLY:N	2.51	0.43
11:A:135:C:H2'	11:A:136:C:H5'	2.01	0.43
11:A:178:G:O2'	11:A:179:A:H5'	2.18	0.43
11:A:485:U:H2'	11:A:486:C:H6	1.84	0.43
11:A:1260:A:N3	11:A:1380:G:O2'	2.49	0.43
38:s:13:THR:H	38:s:16:SER:HB3	1.84	0.43
50:y:17:THR:OG1	50:y:48:LYS:NZ	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:99:U:H2'	11:A:100:A:C8	2.53	0.43
11:A:418:G:H2'	11:A:437:U:C5	2.54	0.43
11:A:866:U:O2'	11:A:867:G:H5'	2.19	0.43
11:A:1433:G:O2'	11:A:1434:U:H5'	2.19	0.43
22:k:85:PHE:O	22:k:119:LYS:HD2	2.19	0.43
35:M:58:GLU:OE2	35:M:58:GLU:O	2.37	0.43
6:a:410:C:H5"	6:a:411:A:OP1	2.19	0.43
6:a:688:A:N1	6:a:2394:A:O2'	2.50	0.43
6:a:1560:A:H2'	6:a:1561:G:O4'	2.18	0.43
11:A:112:G:H1'	11:A:362:G:H5'	2.01	0.43
11:A:180:U:O2'	11:A:181:A:H5'	2.18	0.43
11:A:1185:G:O2'	11:A:1186:A:H5'	2.18	0.43
17:D:87:MET:HB3	17:D:185:LEU:HD13	2.01	0.43
29:J:60:ALA:HB1	29:J:102:ILE:HD12	2.01	0.43
6:a:827:A:N1	10:c:224:MET:HE2	2.34	0.42
6:a:1872:A:O2'	6:a:1873:A:P	2.76	0.42
11:A:328:A:H2'	11:A:329:A:C8	2.54	0.42
11:A:1037:C:H3'	11:A:1037:C:O2	2.19	0.42
17:D:181:GLU:O	17:D:185:LEU:HG	2.19	0.42
6:a:538:G:H2'	6:a:539:G:O4'	2.19	0.42
11:A:83:C:O2'	11:A:84:U:H5"	2.18	0.42
11:A:140:A:H2'	11:A:141:A:C8	2.54	0.42
11:A:203:A:C2'	11:A:204:A:H5'	2.49	0.42
11:A:477:U:O2	11:A:477:U:H2'	2.19	0.42
11:A:886:C:H5"	25:H:82:LYS:HD3	2.01	0.42
18:g:7:ILE:HD13	18:g:50:GLU:HG2	2.00	0.42
31:K:79:LEU:C	31:K:79:LEU:HD23	2.44	0.42
6:a:591:A:H4'	6:a:592:A:H5'	2.01	0.42
10:c:94:VAL:HG22	10:c:100:LYS:HD3	2.01	0.42
11:A:420:U:P	11:A:420:U:H3'	2.59	0.42
11:A:498:U:H2'	11:A:499:A:C8	2.54	0.42
11:A:704:A:H2'	11:A:705:U:C6	2.54	0.42
11:A:1055:A:H5'	11:A:1056:C:H5"	2.00	0.42
11:A:1191:G:H4'	11:A:1192:G:OP1	2.19	0.42
11:A:1208:A:H2'	11:A:1209:U:C6	2.54	0.42
11:A:1298:A:H2'	11:A:1299:A:O4'	2.19	0.42
43:Q:82:GLU:OE1	43:Q:83:SER:N	2.52	0.42
44:v:72:ASP:OD1	44:v:72:ASP:N	2.53	0.42
6:a:613:G:H2'	6:a:2055:A:N7	2.34	0.42
6:a:921:C:H2'	6:a:922:G:O4'	2.20	0.42
6:a:1630:A:H2'	6:a:1631:A:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2167:G:HO2'	6:a:2168:C:P	2.41	0.42
6:a:2311:A:H4'	6:a:2312:A:O4'	2.19	0.42
11:A:230:U:H2'	11:A:231:U:H6	1.81	0.42
11:A:416:G:H5"	17:D:106:THR:HG21	2.00	0.42
11:A:469:U:OP1	11:A:469:U:C6	2.71	0.42
11:A:787:C:O2'	11:A:788:A:H5'	2.19	0.42
16:f:1:MET:H3	16:f:1:MET:CE	2.32	0.42
18:g:22:HIS:NE2	18:g:33:SER:OG	2.50	0.42
6:a:283:G:C2'	6:a:284:C:OP1	2.68	0.42
6:a:2077:G:H4'	12:d:155:MET:O	2.18	0.42
8:b:109:G:H2'	8:b:110:C:C6	2.54	0.42
11:A:105:C:O2'	11:A:106:G:H5'	2.19	0.42
11:A:410:G:C2'	11:A:411:C:H5'	2.50	0.42
11:A:920:U:H2'	11:A:921:C:C6	2.54	0.42
11:A:1445:G:H2'	11:A:1446:C:H6	1.74	0.42
11:A:433:A:O2'	11:A:434:U:H5'	2.20	0.42
11:A:1244:C:C2'	11:A:1245:U:H5'	2.50	0.42
11:A:1357:G:C8	27:I:110:ARG:HB3	2.55	0.42
11:A:1457:A:O5'	11:A:1458:C:H5	2.03	0.42
44:v:30:GLY:N	44:v:61:ASP:OD1	2.47	0.42
11:A:927:A:H2'	11:A:928:A:C8	2.55	0.42
11:A:1175:U:C2'	11:A:1176:G:H5'	2.50	0.42
11:A:1271:A:H5'	11:A:1293:C:O3'	2.20	0.42
20:j:59:LYS:O	20:j:62:ARG:NE	2.52	0.42
20:j:63:GLU:OE2	37:N:49:TYR:OH	2.31	0.42
23:G:74:GLU:HG2	23:G:90:VAL:HG22	2.00	0.42
28:n:21:ASN:OD1	28:n:21:ASN:C	2.62	0.42
34:q:27:VAL:HG21	34:q:62:VAL:HG21	2.01	0.42
6:a:12:U:O2	6:a:2651:C:H4'	2.20	0.42
6:a:748:U:H2'	6:a:749:G:O4'	2.19	0.42
6:a:2685:A:N7	18:g:175:THR:HG21	2.34	0.42
11:A:223:C:H2'	11:A:224:U:O4'	2.19	0.42
11:A:1380:G:H5"	27:I:16:ASN:OD1	2.20	0.42
17:D:142:ARG:HG2	17:D:145:SER:OG	2.19	0.42
29:J:1:MET:O	32:p:92:LYS:NZ	2.40	0.42
41:P:46:ASN:O	41:P:47:ALA:HB3	2.20	0.42
6:a:1038:C:O2'	6:a:1040:A:OP1	2.30	0.42
11:A:9:A:C6	17:D:200:ARG:HG2	2.55	0.42
11:A:18:U:H2'	11:A:19:C:H6	1.73	0.42
11:A:154:U:O2'	11:A:155:U:H5'	2.20	0.42
11:A:471:A:H2'	11:A:472:G:C8	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1034:U:O2'	11:A:1035:C:O4'	2.27	0.42
11:A:1444:A:H2'	11:A:1445:G:O4'	2.20	0.42
6:a:786:U:H2'	6:a:787:U:O4'	2.20	0.42
11:A:175:C:H2'	11:A:176:C:H6	1.85	0.42
11:A:220:U:H3'	11:A:221:U:C6	2.55	0.42
11:A:598:U:H2'	11:A:599:U:C6	2.55	0.42
11:A:1091:A:H5"	19:E:21:VAL:HG11	2.01	0.42
13:B:117:ILE:HG21	13:B:141:TYR:HB2	2.02	0.42
14:e:126:ASP:N	14:e:126:ASP:OD1	2.52	0.42
16:f:80:ARG:H	16:f:83:MET:HE2	1.83	0.42
31:K:71:SER:O	31:K:75:MET:HG2	2.20	0.42
6:a:1765:G:C4	6:a:1766:C:C5	3.08	0.41
6:a:2339:A:H2'	6:a:2340:U:C6	2.55	0.41
6:a:2547:U:O2'	6:a:2672:U:OP1	2.26	0.41
10:c:174:ARG:NH2	11:A:721:G:OP1	2.48	0.41
11:A:90:C:H2'	11:A:91:U:C5	2.54	0.41
11:A:347:C:H2'	11:A:348:U:H6	1.85	0.41
11:A:736:A:H2'	11:A:737:A:H8	1.80	0.41
11:A:1325:U:O2	11:A:1370:A:H2	2.03	0.41
11:A:1546:C:H2'	11:A:1547:C:C6	2.55	0.41
12:d:48:ILE:HD12	12:d:50:VAL:HG23	2.01	0.41
6:a:324:A:N1	6:a:401:U:O2'	2.50	0.41
11:A:352:A:H4'	11:A:353:C:OP2	2.20	0.41
11:A:848:G:H2'	11:A:849:U:O4'	2.20	0.41
11:A:891:C:O2'	11:A:892:C:H5'	2.20	0.41
11:A:1167:A:C2	11:A:1191:G:C4	3.09	0.41
6:a:597:U:H2'	6:a:598:G:O4'	2.20	0.41
11:A:278:A:H2'	11:A:279:C:H6	1.84	0.41
11:A:855:C:H2'	11:A:856:C:H6	1.84	0.41
11:A:1110:G:H2'	11:A:1111:C:O4'	2.20	0.41
14:e:9:ASP:OD2	14:e:11:THR:OG1	2.29	0.41
36:r:7:ALA:HB2	36:r:50:VAL:HG22	2.02	0.41
6:a:1178:C:O2'	6:a:1179:C:P	2.79	0.41
6:a:1815:C:H2'	6:a:1816:A:C5	2.55	0.41
6:a:2045:A:H5'	52:z:8:SER:HB3	2.02	0.41
11:A:42:G:H2'	11:A:43:G:C8	2.55	0.41
11:A:381:A:O2'	11:A:382:A:H5'	2.21	0.41
11:A:1265:G:O2'	11:A:1268:G:H1'	2.20	0.41
22:k:1:MET:HE2	22:k:7:LYS:H	1.86	0.41
24:l:20:ARG:H	24:l:20:ARG:HD2	1.84	0.41
45:R:27:ASP:OD2	45:R:27:ASP:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:40:ASN:OD1	6:a:2395:G:O2'	2.38	0.41
1:0:43:THR:HG22	1:0:44:LEU:N	2.35	0.41
6:a:342:A:N3	6:a:362:C:O2'	2.47	0.41
6:a:1053:A:N3	6:a:1197:C:O2'	2.47	0.41
6:a:2175:U:H2'	6:a:2176:U:C6	2.55	0.41
11:A:432:G:O2'	11:A:433:A:H5'	2.21	0.41
11:A:523:G:H2'	11:A:524:U:O4'	2.20	0.41
11:A:554:A:H4'	11:A:555:A:OP1	2.20	0.41
11:A:554:A:HO2'	11:A:555:A:P	2.44	0.41
11:A:1317:U:H2'	11:A:1318:U:C6	2.56	0.41
43:Q:14:VAL:O	43:Q:14:VAL:HG12	2.19	0.41
47:S:64:GLU:OE2	47:S:64:GLU:CA	2.68	0.41
49:T:48:GLU:CD	49:T:48:GLU:H	2.28	0.41
6:a:1306:C:H2'	6:a:1307:G:O4'	2.20	0.41
11:A:469:U:O2'	11:A:470:A:H5'	2.20	0.41
11:A:561:A:H2'	11:A:562:U:H6	1.86	0.41
11:A:590:U:H2'	11:A:591:A:H8	1.85	0.41
11:A:1141:A:H2'	11:A:1142:U:O4'	2.20	0.41
11:A:1172:C:H2'	11:A:1173:G:H8	1.85	0.41
6:a:1072:A:N6	6:a:1169:G:H2'	2.36	0.41
6:a:1136:C:N4	6:a:1137:G:C2	2.88	0.41
6:a:2057:G:OP1	6:a:2479:G:O2'	2.32	0.41
11:A:86:G:H1'	11:A:87:C:C5	2.56	0.41
11:A:155:U:H2'	11:A:156:C:H6	1.83	0.41
11:A:381:A:C2	11:A:490:A:C6	3.09	0.41
11:A:691:G:O2'	11:A:692:U:H5'	2.20	0.41
11:A:709:C:OP1	11:A:710:A:O2'	2.20	0.41
11:A:815:A:H2'	11:A:816:C:C6	2.56	0.41
11:A:1515:G:H4'	11:A:1516:G:C4	2.56	0.41
11:A:1548:U:C2'	11:A:1549:C:H5'	2.50	0.41
13:B:206:ILE:HG23	13:B:209:ALA:HB3	2.03	0.41
6:a:69:C:H4'	6:a:75:G:N7	2.36	0.41
6:a:830:U:H2'	6:a:831:C:C6	2.56	0.41
6:a:2268:U:H2'	6:a:2269:U:C6	2.56	0.41
6:a:2712:U:H2'	6:a:2713:G:O4'	2.20	0.41
11:A:80:A:C2'	11:A:81:A:H5'	2.50	0.41
11:A:562:U:H2'	11:A:563:C:H6	1.86	0.41
11:A:1168:C:C5	11:A:1170:G:H1'	2.56	0.41
17:D:155:VAL:HG21	17:D:172:LEU:CD2	2.50	0.41
6:a:1576:A:O2'	6:a:1577:G:H5'	2.21	0.41
6:a:2352:A:H2'	6:a:2353:A:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:2411:U:O2	44:v:38:ARG:HG3	2.21	0.41
11:A:46:U:O2'	11:A:47:G:H5'	2.21	0.41
11:A:58:G:H2'	11:A:59:C:H6	1.85	0.41
11:A:182:A:H2'	11:A:183:U:C5'	2.51	0.41
11:A:329:A:O2'	11:A:330:C:H5'	2.21	0.41
11:A:716:A:H2'	11:A:717:U:C6	2.56	0.41
11:A:850:U:H4'	11:A:850:U:OP1	2.21	0.41
11:A:1034:U:O2	11:A:1034:U:H3'	2.21	0.41
11:A:1055:A:OP2	11:A:1056:C:H5"	2.20	0.41
11:A:1130:G:H2'	11:A:1131:C:C6	2.56	0.41
11:A:1221:U:H1'	11:A:1223:A:C2	2.56	0.41
11:A:1327:C:O2	47:S:37:ARG:NH2	2.54	0.41
11:A:1339:A:C2'	11:A:1340:U:H5'	2.50	0.41
11:A:1392:C:H2'	11:A:1393:C:H6	1.85	0.41
11:A:1507:C:H2'	11:A:1508:G:O4'	2.20	0.41
18:g:174:LYS:O	18:g:175:THR:C	2.63	0.41
27:I:57:THR:O	27:I:57:THR:HG22	2.21	0.41
37:N:42:ILE:O	37:N:46:GLU:HG3	2.21	0.41
6:a:923:A:O2'	6:a:924:G:H8	2.04	0.41
11:A:158:G:C3'	11:A:159:G:H5"	2.51	0.41
11:A:498:U:H2'	11:A:499:A:H8	1.86	0.41
11:A:954:G:H2'	11:A:954:G:N3	2.35	0.41
25:H:54:ASP:OD1	25:H:58:GLY:N	2.44	0.41
43:Q:69:SER:OG	43:Q:70:ALA:N	2.54	0.41
11:A:421:G:O2'	11:A:436:G:N2	2.54	0.40
11:A:800:A:H1'	11:A:802:A:N7	2.36	0.40
11:A:995:A:O2'	11:A:996:A:H5'	2.21	0.40
20:j:28:THR:O	20:j:32:SER:OG	2.36	0.40
20:j:31:ARG:HB2	20:j:31:ARG:NH1	2.36	0.40
10:c:271:ARG:HB2	10:c:271:ARG:CZ	2.51	0.40
11:A:1362:C:H2'	11:A:1363:G:C8	2.56	0.40
17:D:182:ARG:HD2	17:D:182:ARG:HA	1.79	0.40
40:t:86:VAL:HG13	40:t:87:ASP:N	2.35	0.40
45:R:78:GLU:C	45:R:78:GLU:OE2	2.64	0.40
6:a:1101:A:OP2	6:a:1133:G:N1	2.54	0.40
6:a:1560:A:H4'	6:a:1601:U:O2'	2.21	0.40
8:b:1:U:H3	8:b:114:G:H1	1.69	0.40
11:A:254:A:C2	11:A:290:A:C5	3.10	0.40
11:A:692:U:O2'	11:A:693:G:H5'	2.21	0.40
11:A:1106:U:H2'	11:A:1107:C:O4'	2.21	0.40
11:A:1335:C:O2'	11:A:1336:U:H5'	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:a:903:G:N3	6:a:2293:A:H2'	2.37	0.40
11:A:105:C:C2'	11:A:106:G:H5'	2.51	0.40
11:A:472:G:H2'	11:A:473:U:O4'	2.21	0.40
11:A:814:C:H2'	11:A:815:A:H8	1.86	0.40
11:A:1189:A:O2'	11:A:1190:A:H5'	2.21	0.40
35:M:55:ARG:O	35:M:59:VAL:HG23	2.21	0.40
47:S:60:VAL:O	47:S:60:VAL:HG23	2.21	0.40
11:A:232:A:O2'	11:A:233:U:H5'	2.20	0.40
11:A:546:U:H2'	11:A:547:A:H8	1.87	0.40
11:A:622:A:H2'	11:A:623:C:H6	1.86	0.40
11:A:1033:U:C4'	11:A:1034:U:OP1	2.69	0.40
11:A:1132:U:H2'	11:A:1133:U:H6	1.82	0.40
21:F:68:ASP:OD1	21:F:69:ASN:ND2	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	47/49 (96%)	46 (98%)	1 (2%)	0	100	100
3	1	42/45 (93%)	42 (100%)	0	0	100	100
5	2	63/66 (96%)	62 (98%)	1 (2%)	0	100	100
7	3	35/37 (95%)	35 (100%)	0	0	100	100
9	4	78/83 (94%)	76 (97%)	2 (3%)	0	100	100
10	c	271/277 (98%)	262 (97%)	9 (3%)	0	100	100
12	d	213/220 (97%)	201 (94%)	12 (6%)	0	100	100
13	B	223/255 (88%)	219 (98%)	4 (2%)	0	100	100
14	e	204/207 (99%)	197 (97%)	7 (3%)	0	100	100
15	C	201/217 (93%)	194 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	f	177/179 (99%)	168 (95%)	9 (5%)	0	100	100
17	D	197/200 (98%)	191 (97%)	6 (3%)	0	100	100
18	g	173/176 (98%)	160 (92%)	13 (8%)	0	100	100
19	E	155/166 (93%)	153 (99%)	2 (1%)	0	100	100
20	j	96/102 (94%)	91 (95%)	5 (5%)	0	100	100
21	F	93/98 (95%)	90 (97%)	3 (3%)	0	100	100
22	k	144/146 (99%)	139 (96%)	5 (4%)	0	100	100
23	G	151/155 (97%)	147 (97%)	4 (3%)	0	100	100
24	l	136/144 (94%)	131 (96%)	5 (4%)	0	100	100
25	H	129/132 (98%)	124 (96%)	5 (4%)	0	100	100
26	m	117/122 (96%)	112 (96%)	5 (4%)	0	100	100
27	I	125/131 (95%)	118 (94%)	7 (6%)	0	100	100
28	n	116/119 (98%)	112 (97%)	4 (3%)	0	100	100
29	J	143/145 (99%)	142 (99%)	1 (1%)	0	100	100
30	o	107/116 (92%)	105 (98%)	2 (2%)	0	100	100
31	K	115/129 (89%)	111 (96%)	3 (3%)	1 (1%)	14	17
32	p	113/118 (96%)	110 (97%)	3 (3%)	0	100	100
33	L	133/137 (97%)	127 (96%)	6 (4%)	0	100	100
34	q	100/102 (98%)	98 (98%)	2 (2%)	0	100	100
35	M	116/121 (96%)	112 (97%)	4 (3%)	0	100	100
36	r	110/117 (94%)	110 (100%)	0	0	100	100
37	N	58/61 (95%)	57 (98%)	1 (2%)	0	100	100
38	s	87/91 (96%)	87 (100%)	0	0	100	100
39	O	86/89 (97%)	85 (99%)	1 (1%)	0	100	100
40	t	88/90 (98%)	81 (92%)	7 (8%)	0	100	100
41	P	85/91 (93%)	80 (94%)	4 (5%)	1 (1%)	11	12
42	u	91/217 (42%)	89 (98%)	2 (2%)	0	100	100
43	Q	81/87 (93%)	77 (95%)	2 (2%)	2 (2%)	4	3
44	v	79/94 (84%)	74 (94%)	5 (6%)	0	100	100
45	R	64/80 (80%)	64 (100%)	0	0	100	100
46	w	59/62 (95%)	57 (97%)	2 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	S	82/92 (89%)	79 (96%)	3 (4%)	0	100	100
48	x	63/69 (91%)	62 (98%)	1 (2%)	0	100	100
49	T	80/83 (96%)	79 (99%)	1 (1%)	0	100	100
50	y	54/59 (92%)	52 (96%)	2 (4%)	0	100	100
51	U	120/122 (98%)	116 (97%)	4 (3%)	0	100	100
52	z	52/57 (91%)	50 (96%)	2 (4%)	0	100	100
All	All	5352/5755 (93%)	5174 (97%)	174 (3%)	4 (0%)	50	60

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
31	K	119	ASN
41	P	45	ALA
43	Q	26	VAL
43	Q	82	GLU

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	47/47 (100%)	47 (100%)	0	100	100
3	1	39/40 (98%)	38 (97%)	1 (3%)	41	58
5	2	56/57 (98%)	56 (100%)	0	100	100
7	3	35/35 (100%)	35 (100%)	0	100	100
9	4	71/74 (96%)	70 (99%)	1 (1%)	62	77
10	c	220/224 (98%)	219 (100%)	1 (0%)	86	93
12	d	173/177 (98%)	172 (99%)	1 (1%)	84	92
13	B	195/221 (88%)	193 (99%)	2 (1%)	73	85
14	e	168/169 (99%)	164 (98%)	4 (2%)	44	61
15	C	164/175 (94%)	160 (98%)	4 (2%)	44	61

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
16	f	158/158 (100%)	155 (98%)	3 (2%)	52	69
17	D	174/175 (99%)	167 (96%)	7 (4%)	27	40
18	g	153/154 (99%)	151 (99%)	2 (1%)	65	79
19	E	123/131 (94%)	122 (99%)	1 (1%)	79	89
20	j	88/91 (97%)	84 (96%)	4 (4%)	23	34
21	F	83/86 (96%)	81 (98%)	2 (2%)	44	61
22	k	112/112 (100%)	111 (99%)	1 (1%)	75	87
23	G	129/131 (98%)	126 (98%)	3 (2%)	45	63
24	l	114/119 (96%)	113 (99%)	1 (1%)	75	87
25	H	112/113 (99%)	109 (97%)	3 (3%)	40	57
26	m	100/102 (98%)	100 (100%)	0	100	100
27	I	105/108 (97%)	104 (99%)	1 (1%)	73	85
28	n	93/94 (99%)	90 (97%)	3 (3%)	34	50
29	J	123/123 (100%)	121 (98%)	2 (2%)	58	74
30	o	95/102 (93%)	95 (100%)	0	100	100
31	K	93/104 (89%)	92 (99%)	1 (1%)	70	83
32	p	95/98 (97%)	95 (100%)	0	100	100
33	L	117/119 (98%)	114 (97%)	3 (3%)	41	58
34	q	86/86 (100%)	85 (99%)	1 (1%)	67	81
35	M	101/104 (97%)	97 (96%)	4 (4%)	27	40
36	r	91/94 (97%)	90 (99%)	1 (1%)	70	83
37	N	52/53 (98%)	52 (100%)	0	100	100
38	s	80/82 (98%)	80 (100%)	0	100	100
39	O	80/81 (99%)	79 (99%)	1 (1%)	65	79
40	t	75/75 (100%)	74 (99%)	1 (1%)	65	79
41	P	74/77 (96%)	73 (99%)	1 (1%)	62	77
42	u	82/190 (43%)	81 (99%)	1 (1%)	67	81
43	Q	78/82 (95%)	74 (95%)	4 (5%)	20	29
44	v	64/75 (85%)	64 (100%)	0	100	100
45	R	59/68 (87%)	59 (100%)	0	100	100
46	w	51/52 (98%)	51 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
47	S	72/80 (90%)	70 (97%)	2 (3%)	38	55
48	x	59/62 (95%)	58 (98%)	1 (2%)	56	72
49	T	68/69 (99%)	67 (98%)	1 (2%)	60	76
50	y	51/53 (96%)	51 (100%)	0	100	100
51	U	100/100 (100%)	100 (100%)	0	100	100
52	z	48/50 (96%)	46 (96%)	2 (4%)	25	37
All	All	4606/4872 (94%)	4535 (98%)	71 (2%)	60	76

All (71) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	1	5	THR
9	4	10	HIS
10	c	8	ILE
12	d	199	ASN
13	B	32	PHE
13	B	33	THR
14	e	57	SER
14	e	122	LEU
14	e	158	GLU
14	e	191	LEU
15	C	25	GLU
15	C	61	ASN
15	C	83	ILE
15	C	168	SER
16	f	23	SER
16	f	119	LYS
16	f	133	LYS
17	D	3	ARG
17	D	25	ASP
17	D	127	ASP
17	D	138	THR
17	D	144	LYS
17	D	159	ASN
17	D	183	SER
18	g	32	LEU
18	g	55	SER
19	E	125	SER
20	j	62	ARG
20	j	67	GLN

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Mol	Chain	Res	Type
20	j	80	THR
20	j	94	SER
21	F	43	TRP
21	F	51	GLU
22	k	67	THR
23	G	7	VAL
23	G	83	ASN
23	G	86	VAL
24	l	1	MET
25	H	20	VAL
25	H	42	SER
25	H	55	ASP
27	I	98	SER
28	n	61	SER
28	n	68	THR
28	n	105	VAL
29	J	71	THR
29	J	112	SER
31	K	95	SER
33	L	14	SER
33	L	76	ILE
33	L	111	VAL
34	q	61	THR
35	M	7	VAL
35	M	33	ILE
35	M	68	ASP
35	M	84	SER
36	r	94	SER
39	O	73	LYS
40	t	54	GLN
41	P	33	ILE
42	u	34	THR
43	Q	15	SER
43	Q	23	THR
43	Q	69	SER
43	Q	82	GLU
47	S	14	HIS
47	S	23	GLU
48	x	39	THR
49	T	48	GLU
52	z	10	THR
52	z	22	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (43) such sidechains are listed below:

Mol	Chain	Res	Type
3	1	17	HIS
9	4	10	HIS
9	4	11	GLN
9	4	20	ASN
10	c	132	GLN
12	d	133	HIS
12	d	135	GLN
12	d	147	HIS
12	d	199	ASN
13	B	18	HIS
14	e	187	ASN
15	C	3	GLN
15	C	53	HIS
15	C	122	GLN
17	D	137	GLN
18	g	110	HIS
18	g	139	GLN
21	F	69	ASN
23	G	18	HIS
23	G	147	ASN
23	G	152	HIS
24	l	13	HIS
25	H	22	HIS
25	H	122	ASN
26	m	9	GLN
27	I	51	ASN
28	n	43	GLN
29	J	137	GLN
30	o	43	GLN
31	K	77	HIS
32	p	80	ASN
33	L	109	HIS
35	M	38	ASN
38	s	54	ASN
39	O	65	HIS
45	R	21	ASN
45	R	25	HIS
46	w	29	ASN
47	S	14	HIS
47	S	22	GLN
47	S	43	ASN

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Mol	Chain	Res	Type
48	x	35	GLN
50	y	31	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	A	1547/1548 (99%)	174 (11%)	6 (0%)
2	X	16/17 (94%)	2 (12%)	1 (6%)
4	Z	75/76 (98%)	6 (8%)	0
6	a	2905/2917 (99%)	379 (13%)	0
8	b	114/115 (99%)	12 (10%)	0
All	All	4657/4673 (99%)	573 (12%)	7 (0%)

All (573) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	X	11	G
2	X	12	A
4	Z	17(A)	U
4	Z	19	G
4	Z	20	U
4	Z	21	A
4	Z	47	U
4	Z	76	A
6	a	15	G
6	a	64	A
6	a	71	A
6	a	75	G
6	a	90	A
6	a	91	A
6	a	117	A
6	a	118	A
6	a	119	U
6	a	130	A
6	a	154	A
6	a	155	U
6	a	166	A
6	a	176	A
6	a	183	A
6	a	199	A
6	a	202	A

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Mol	Chain	Res	Type
6	a	218	G
6	a	219	A
6	a	225	A
6	a	231	A
6	a	232	U
6	a	235	G
6	a	251	G
6	a	255	G
6	a	268	A
6	a	284	C
6	a	285	U
6	a	286	U
6	a	287	G
6	a	288	C
6	a	289	U
6	a	298	U
6	a	312	A
6	a	314	A
6	a	315	C
6	a	316	G
6	a	321	U
6	a	324	A
6	a	327	G
6	a	338	G
6	a	354	A
6	a	373	A
6	a	388	A
6	a	389	A
6	a	404	U
6	a	410	C
6	a	411	A
6	a	432	G
6	a	457	G
6	a	502	C
6	a	526	A
6	a	527	G
6	a	550	A
6	a	553	A
6	a	554	C
6	a	567	G
6	a	575	G
6	a	576	U

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Mol	Chain	Res	Type
6	a	577	A
6	a	578	G
6	a	583	A
6	a	593	U
6	a	594	G
6	a	606	G
6	a	616	G
6	a	618	A
6	a	630	G
6	a	644	C
6	a	646	A
6	a	679	G
6	a	682	A
6	a	683	G
6	a	690	U
6	a	691	A
6	a	699	U
6	a	700	A
6	a	713	A
6	a	731	U
6	a	762	C
6	a	774	G
6	a	775	A
6	a	783	G
6	a	792	U
6	a	802	G
6	a	820	G
6	a	827	A
6	a	829	U
6	a	830	U
6	a	837	G
6	a	850	G
6	a	857	C
6	a	872	U
6	a	873	U
6	a	904	G
6	a	911	A
6	a	914	G
6	a	923	A
6	a	924	G
6	a	926	G
6	a	937	G

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Mol	Chain	Res	Type
6	a	938	G
6	a	939	U
6	a	955	A
6	a	970	U
6	a	971	U
6	a	972	A
6	a	985	A
6	a	989	A
6	a	990	G
6	a	1005	G
6	a	1018	A
6	a	1027	A
6	a	1040	A
6	a	1056	U
6	a	1057	A
6	a	1061	G
6	a	1066	G
6	a	1070	A
6	a	1077	U
6	a	1083	G
6	a	1089	C
6	a	1090	A
6	a	1091	G
6	a	1100	G
6	a	1103	G
6	a	1105	U
6	a	1107	G
6	a	1111	A
6	a	1114	A
6	a	1115	G
6	a	1118	G
6	a	1119	C
6	a	1120	C
6	a	1122	U
6	a	1124	A
6	a	1127	U
6	a	1129	A
6	a	1131	G
6	a	1132	A
6	a	1133	G
6	a	1134	U
6	a	1135	G

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Mol	Chain	Res	Type
6	a	1136	C
6	a	1138	U
6	a	1139	A
6	a	1140	A
6	a	1145	U
6	a	1146	C
6	a	1153	C
6	a	1155	A
6	a	1156	G
6	a	1172	A
6	a	1176	U
6	a	1178	C
6	a	1179	C
6	a	1186	A
6	a	1215	U
6	a	1216	U
6	a	1217	U
6	a	1218	G
6	a	1265	G
6	a	1276	G
6	a	1288	G
6	a	1289	A
6	a	1294	G
6	a	1309	G
6	a	1310	A
6	a	1337	A
6	a	1338	U
6	a	1358	A
6	a	1389	U
6	a	1402	A
6	a	1405	G
6	a	1415	A
6	a	1416	U
6	a	1421	A
6	a	1432	A
6	a	1452	C
6	a	1454	U
6	a	1455	U
6	a	1456	U
6	a	1457	U
6	a	1458	A
6	a	1463	A

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Mol	Chain	Res	Type
6	a	1464	U
6	a	1471	A
6	a	1472	C
6	a	1477	U
6	a	1489	A
6	a	1490	G
6	a	1500	G
6	a	1504	U
6	a	1511	C
6	a	1513	A
6	a	1526	G
6	a	1537	A
6	a	1540	U
6	a	1552	U
6	a	1553	A
6	a	1568	U
6	a	1569	G
6	a	1580	A
6	a	1582	U
6	a	1583	G
6	a	1584	U
6	a	1604	C
6	a	1611	G
6	a	1614	A
6	a	1623	U
6	a	1650	A
6	a	1674	A
6	a	1688	A
6	a	1689	G
6	a	1690	C
6	a	1716	G
6	a	1738	G
6	a	1757	G
6	a	1762	A
6	a	1766	C
6	a	1781	G
6	a	1788	G
6	a	1789	G
6	a	1798	A
6	a	1801	G
6	a	1807	C
6	a	1825	C

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Mol	Chain	Res	Type
6	a	1826	U
6	a	1841	U
6	a	1854	A
6	a	1873	A
6	a	1883	G
6	a	1895	U
6	a	1897	U
6	a	1900	G
6	a	1931	G
6	a	1938	A
6	a	1939	C
6	a	1954	G
6	a	1955	G
6	a	1963	A
6	a	1980	U
6	a	1991	A
6	a	1992	C
6	a	1995	A
6	a	1996	A
6	a	1997	G
6	a	2016	U
6	a	2018	U
6	a	2048	A
6	a	2056	A
6	a	2057	G
6	a	2058	A
6	a	2068	C
6	a	2080	C
6	a	2081	G
6	a	2085	A
6	a	2086	G
6	a	2087	A
6	a	2094	G
6	a	2118	G
6	a	2136	U
6	a	2138	C
6	a	2139	A
6	a	2141	G
6	a	2142	A
6	a	2143	U
6	a	2144	A
6	a	2145	G

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Mol	Chain	Res	Type
6	a	2147	U
6	a	2150	G
6	a	2151	A
6	a	2152	G
6	a	2155	U
6	a	2156	U
6	a	2158	G
6	a	2160	A
6	a	2161	A
6	a	2166	A
6	a	2167	G
6	a	2170	C
6	a	2171	U
6	a	2173	G
6	a	2179	G
6	a	2181	G
6	a	2182	G
6	a	2183	A
6	a	2184	G
6	a	2186	C
6	a	2189	U
6	a	2190	G
6	a	2193	G
6	a	2195	G
6	a	2196	A
6	a	2197	U
6	a	2198	A
6	a	2199	C
6	a	2200	U
6	a	2201	A
6	a	2202	C
6	a	2203	C
6	a	2205	U
6	a	2206	A
6	a	2210	G
6	a	2223	A
6	a	2228	G
6	a	2229	C
6	a	2236	U
6	a	2250	A
6	a	2263	G
6	a	2264	G

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Mol	Chain	Res	Type
6	a	2293	A
6	a	2304	G
6	a	2308	C
6	a	2312	A
6	a	2330	U
6	a	2333	G
6	a	2335	A
6	a	2345	A
6	a	2347	A
6	a	2350	G
6	a	2359	U
6	a	2360	A
6	a	2372	C
6	a	2375	C
6	a	2404	G
6	a	2408	G
6	a	2410	C
6	a	2415	U
6	a	2427	U
6	a	2431	C
6	a	2447	C
6	a	2448	U
6	a	2450	A
6	a	2454	G
6	a	2460	A
6	a	2466	C
6	a	2473	A
6	a	2475	A
6	a	2500	C
6	a	2527	G
6	a	2530	G
6	a	2531	U
6	a	2543	A
6	a	2554	G
6	a	2560	G
6	a	2579	U
6	a	2591	A
6	a	2592	G
6	a	2598	C
6	a	2627	A
6	a	2634	U
6	a	2635	C

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Mol	Chain	Res	Type
6	a	2638	U
6	a	2640	U
6	a	2655	G
6	a	2661	U
6	a	2714	U
6	a	2739	G
6	a	2751	U
6	a	2758	A
6	a	2769	G
6	a	2773	A
6	a	2790	A
6	a	2791	G
6	a	2803	A
6	a	2804	U
6	a	2805	G
6	a	2821	G
6	a	2822	G
6	a	2825	A
6	a	2826	U
6	a	2838	A
6	a	2875	G
6	a	2885	G
6	a	2890	G
6	a	2898	C
6	a	2904	G
6	a	2911	G
8	b	10	U
8	b	12	U
8	b	23	U
8	b	24	C
8	b	33	U
8	b	39	G
8	b	43	A
8	b	54	U
8	b	55	A
8	b	87	C
8	b	88	G
8	b	106	G
11	A	7	G
11	A	8	G
11	A	10	G
11	A	23	G

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Mol	Chain	Res	Type
11	A	32	G
11	A	33	A
11	A	40	G
11	A	44	C
11	A	45	G
11	A	48	C
11	A	49	C
11	A	51	A
11	A	52	A
11	A	80	A
11	A	83	C
11	A	84	U
11	A	89	U
11	A	94	G
11	A	99	U
11	A	107	G
11	A	119	A
11	A	120	C
11	A	159	G
11	A	163	C
11	A	169	C
11	A	183	U
11	A	195	C
11	A	202	C
11	A	210	A
11	A	213	G
11	A	219	C
11	A	220	U
11	A	221	U
11	A	222	G
11	A	253	U
11	A	255	G
11	A	259	G
11	A	274	G
11	A	275	C
11	A	297	G
11	A	329	A
11	A	336	C
11	A	337	A
11	A	360	C
11	A	362	G
11	A	375	U

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Mol	Chain	Res	Type
11	A	380	C
11	A	381	A
11	A	384	G
11	A	405	A
11	A	413	U
11	A	414	G
11	A	420	U
11	A	429	U
11	A	432	G
11	A	437	U
11	A	438	A
11	A	447	U
11	A	456	A
11	A	461	C
11	A	469	U
11	A	473	U
11	A	477	U
11	A	490	A
11	A	493	G
11	A	503	A
11	A	505	A
11	A	519	C
11	A	529	G
11	A	532	G
11	A	540	A
11	A	555	A
11	A	572	U
11	A	580	A
11	A	581	A
11	A	584	C
11	A	585	G
11	A	641	U
11	A	642	C
11	A	661	U
11	A	673	A
11	A	731	U
11	A	757	A
11	A	763	G
11	A	772	C
11	A	785	A
11	A	801	U
11	A	802	A

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Mol	Chain	Res	Type
11	A	823	A
11	A	825	C
11	A	836	A
11	A	850	U
11	A	851	U
11	A	881	A
11	A	935	G
11	A	943	C
11	A	944	A
11	A	969	U
11	A	977	A
11	A	978	A
11	A	980	G
11	A	981	C
11	A	984	A
11	A	985	G
11	A	992	A
11	A	1002	G
11	A	1013	A
11	A	1024	G
11	A	1033	U
11	A	1034	U
11	A	1035	C
11	A	1037	C
11	A	1038	C
11	A	1040	U
11	A	1041	C
11	A	1042	G
11	A	1043	G
11	A	1045	G
11	A	1046	G
11	A	1047	A
11	A	1055	A
11	A	1056	C
11	A	1057	A
11	A	1076	U
11	A	1096	U
11	A	1105	G
11	A	1106	U
11	A	1112	A
11	A	1141	A
11	A	1149	G

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Mol	Chain	Res	Type
11	A	1150	U
11	A	1152	G
11	A	1169	U
11	A	1178	C
11	A	1181	A
11	A	1193	U
11	A	1194	G
11	A	1206	A
11	A	1207	A
11	A	1222	U
11	A	1237	A
11	A	1248	A
11	A	1267	A
11	A	1290	A
11	A	1296	U
11	A	1297	A
11	A	1310	G
11	A	1312	U
11	A	1315	G
11	A	1327	C
11	A	1328	A
11	A	1330	C
11	A	1348	G
11	A	1356	A
11	A	1363	G
11	A	1408	A
11	A	1436	A
11	A	1452	G
11	A	1456	A
11	A	1457	A
11	A	1463	U
11	A	1464	A
11	A	1498	G
11	A	1503	A
11	A	1505	G
11	A	1513	A
11	A	1514	A
11	A	1517	U
11	A	1528	G
11	A	1530	A
11	A	1531	G
11	A	1540	G

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Mol	Chain	Res	Type
11	A	1541	G
11	A	1542	A

All (7) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	X	10	U
11	A	283	G
11	A	554	A
11	A	1033	U
11	A	1034	U
11	A	1036	C
11	A	1407	C

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-55526. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections (i)

6.1.1 Primary map
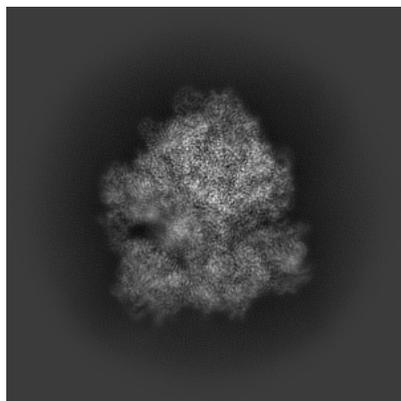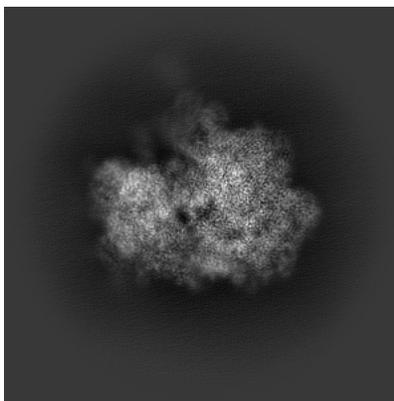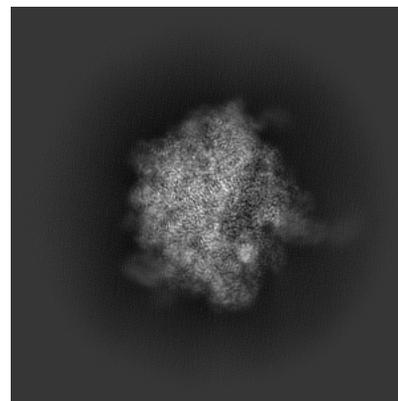
| X | Y | Z |

6.1.2 Raw map

| X | Y | Z |
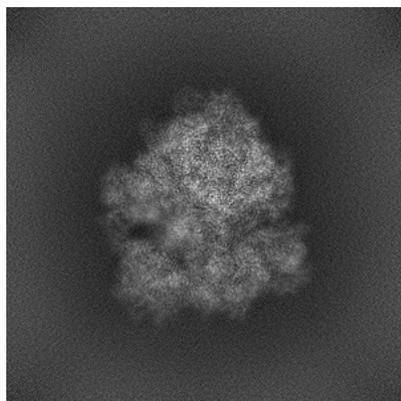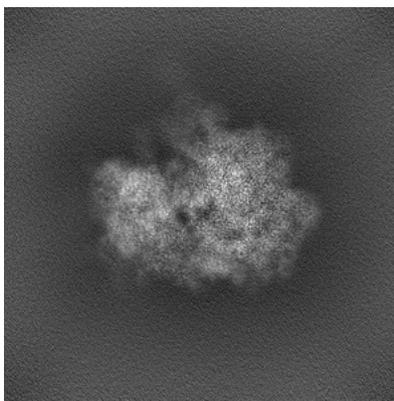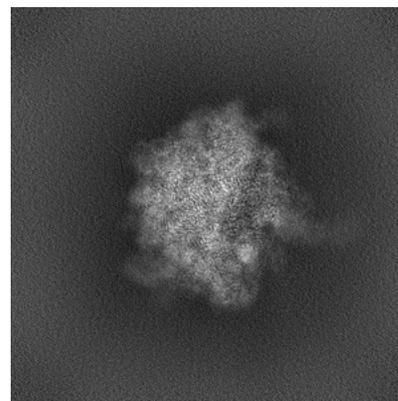
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
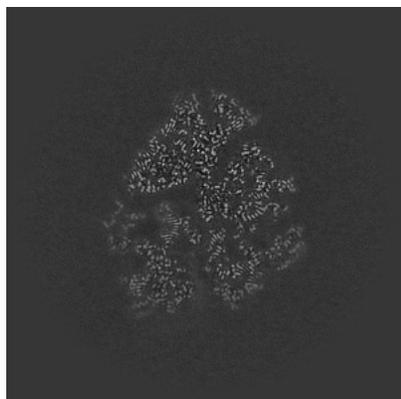
6.2.1 Primary map

X Index: 300
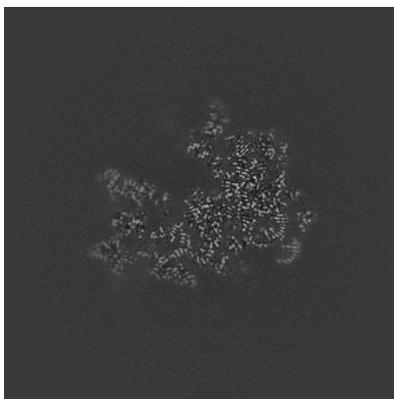
Y Index: 300
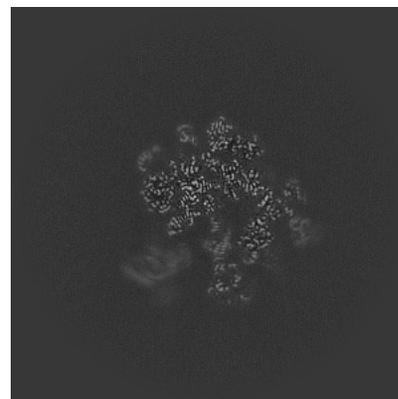
Z Index: 300

6.2.2 Raw map
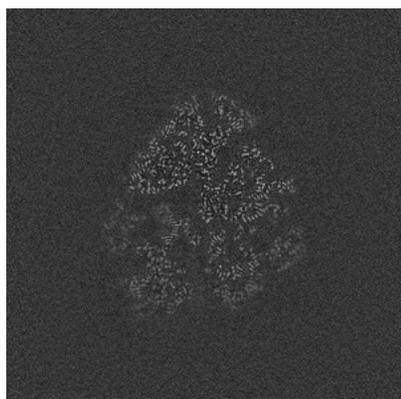
X Index: 300
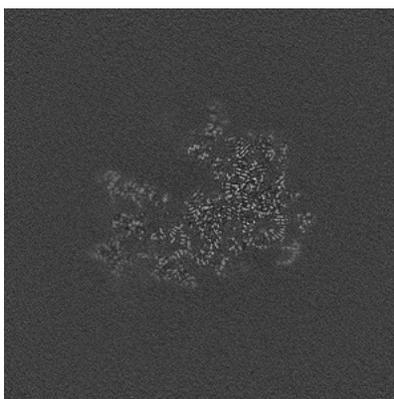
Y Index: 300

Z Index: 300

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

6.3 Largest variance slices (i)

6.3.1 Primary map
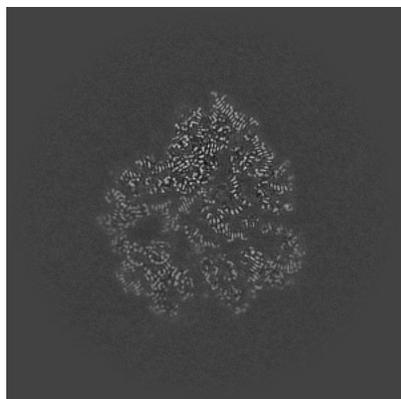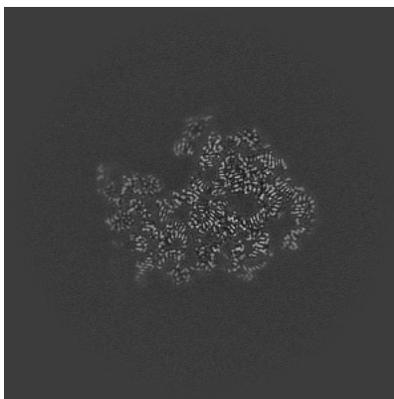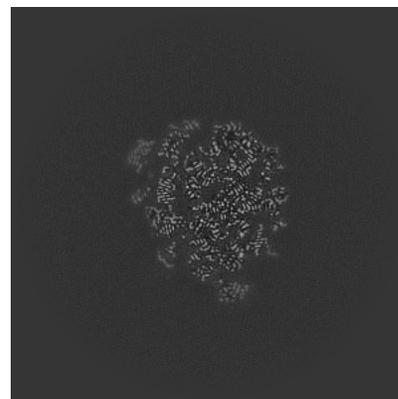
| X Index: 311 | Y Index: 324 | Z Index: 354 |

6.3.2 Raw map
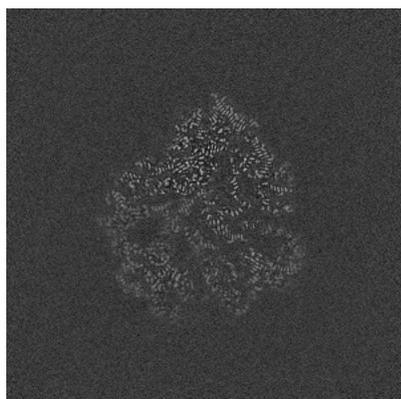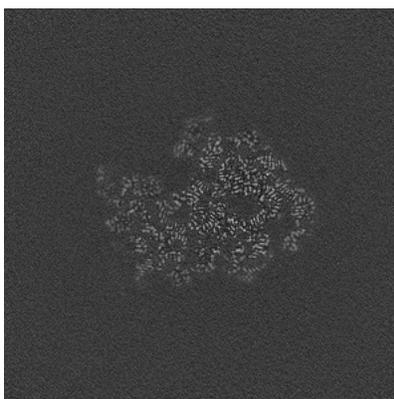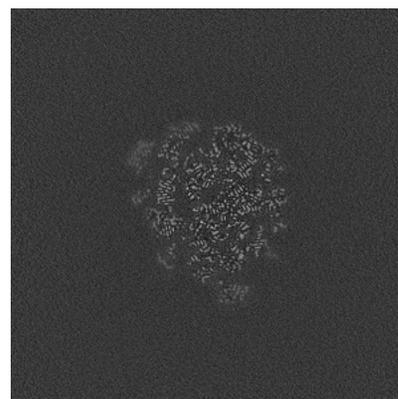
| X Index: 311 | Y Index: 324 | Z Index: 354 |

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

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

6.4.1 Primary map

X   Y   Z

6.4.2 Raw map

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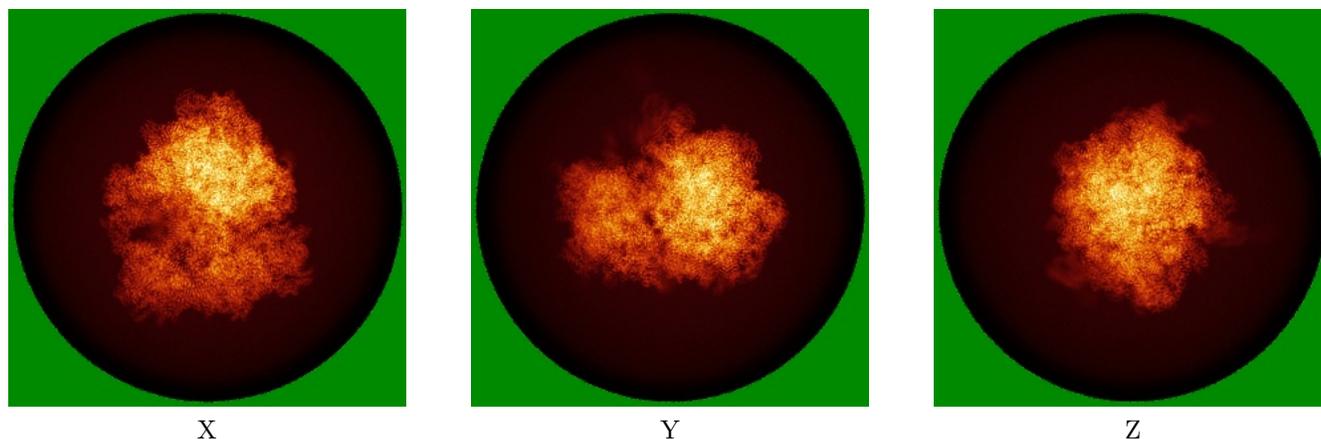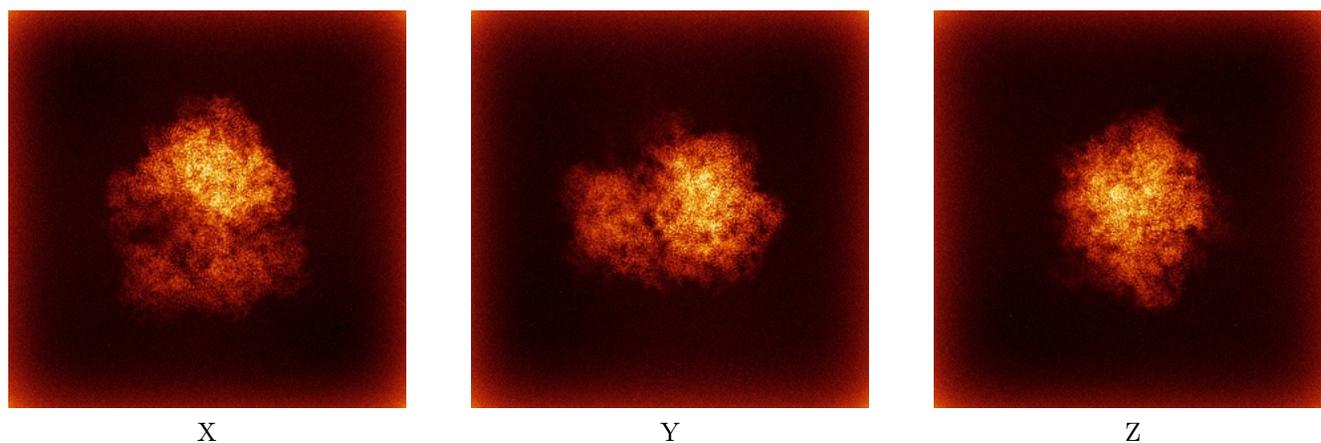
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

| X | Y | Z |
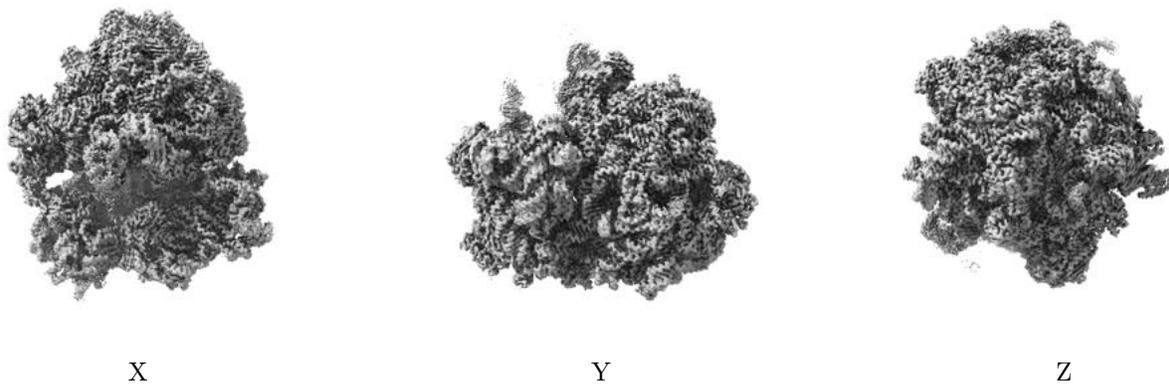
The images above show the 3D surface view of the map at the recommended contour level 0.078. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

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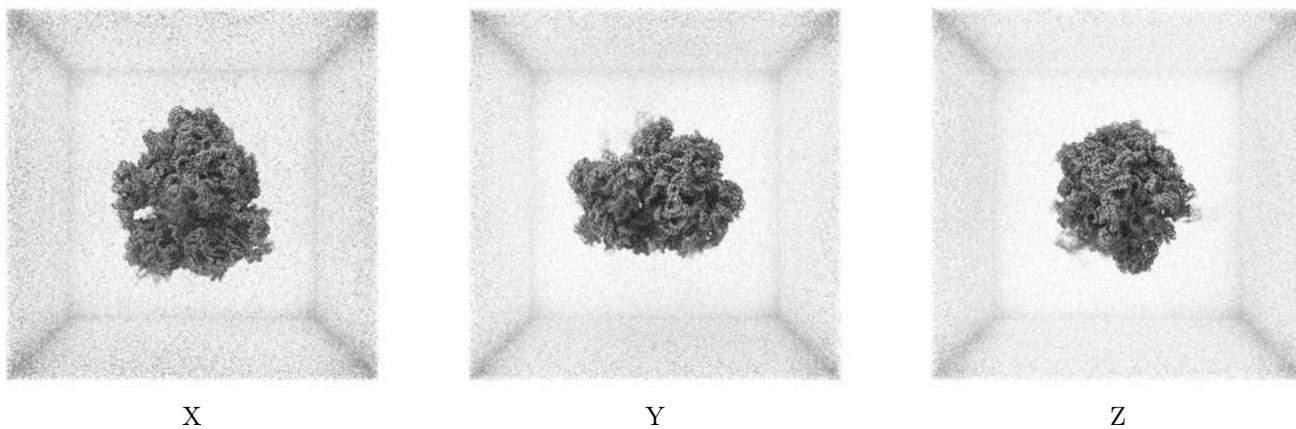
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

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

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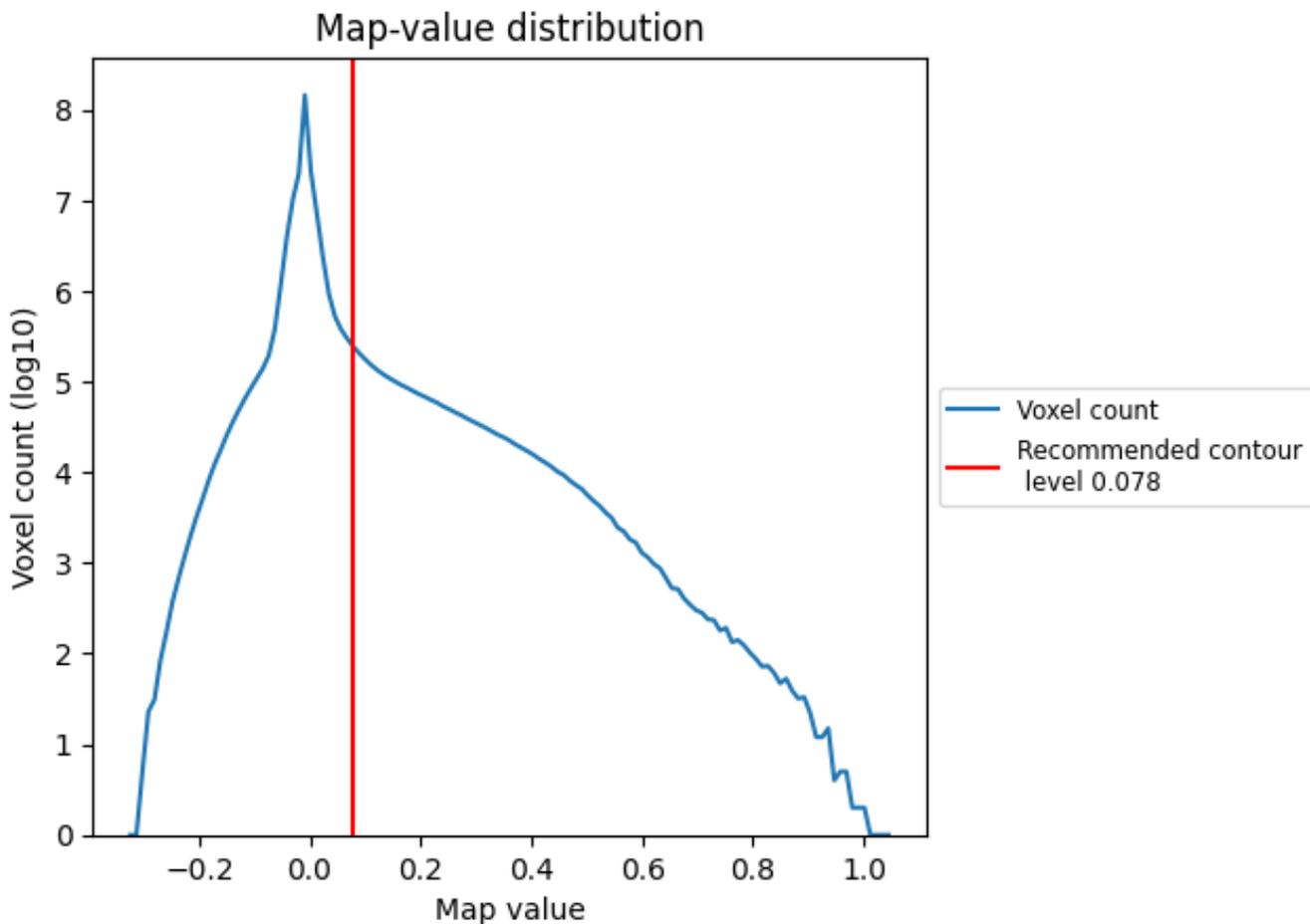
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
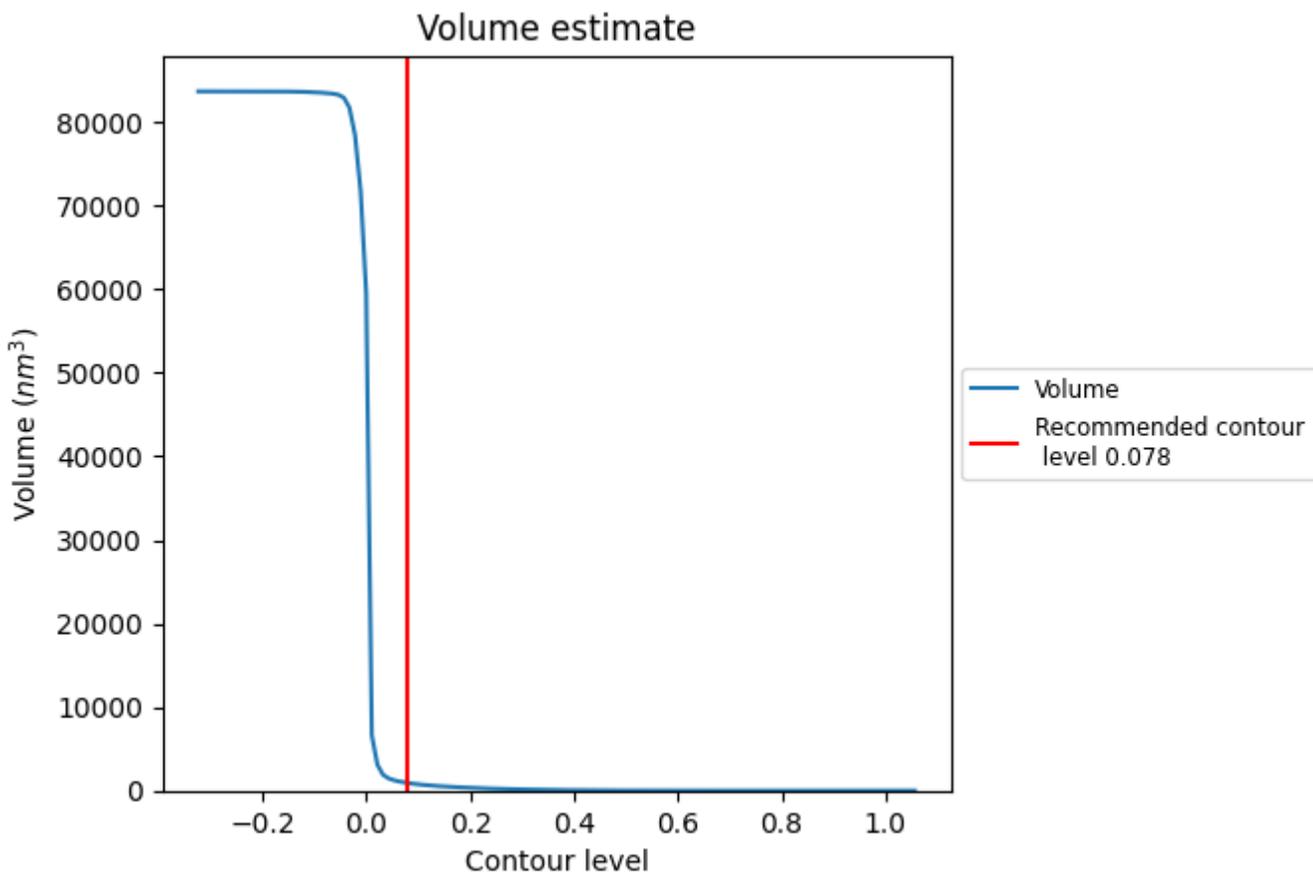
The volume at the recommended contour level is 928 nm^3; this corresponds to an approximate mass of 838 kDa.

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 ⓘ
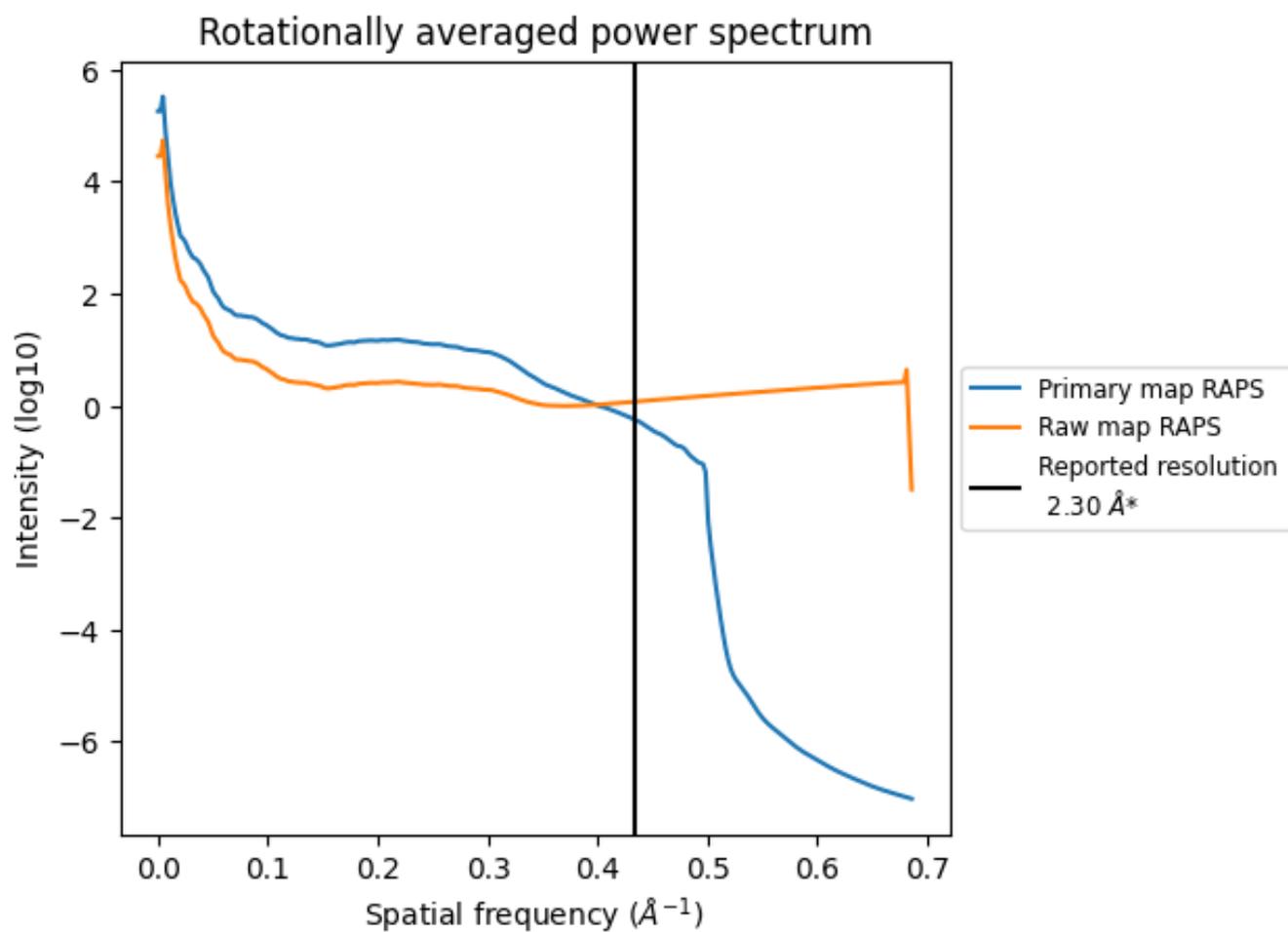
*Reported resolution corresponds to spatial frequency of 0.435 Å^{-1}

8 Fourier-Shell correlation ⓘ

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

8.1 FSC ⓘ
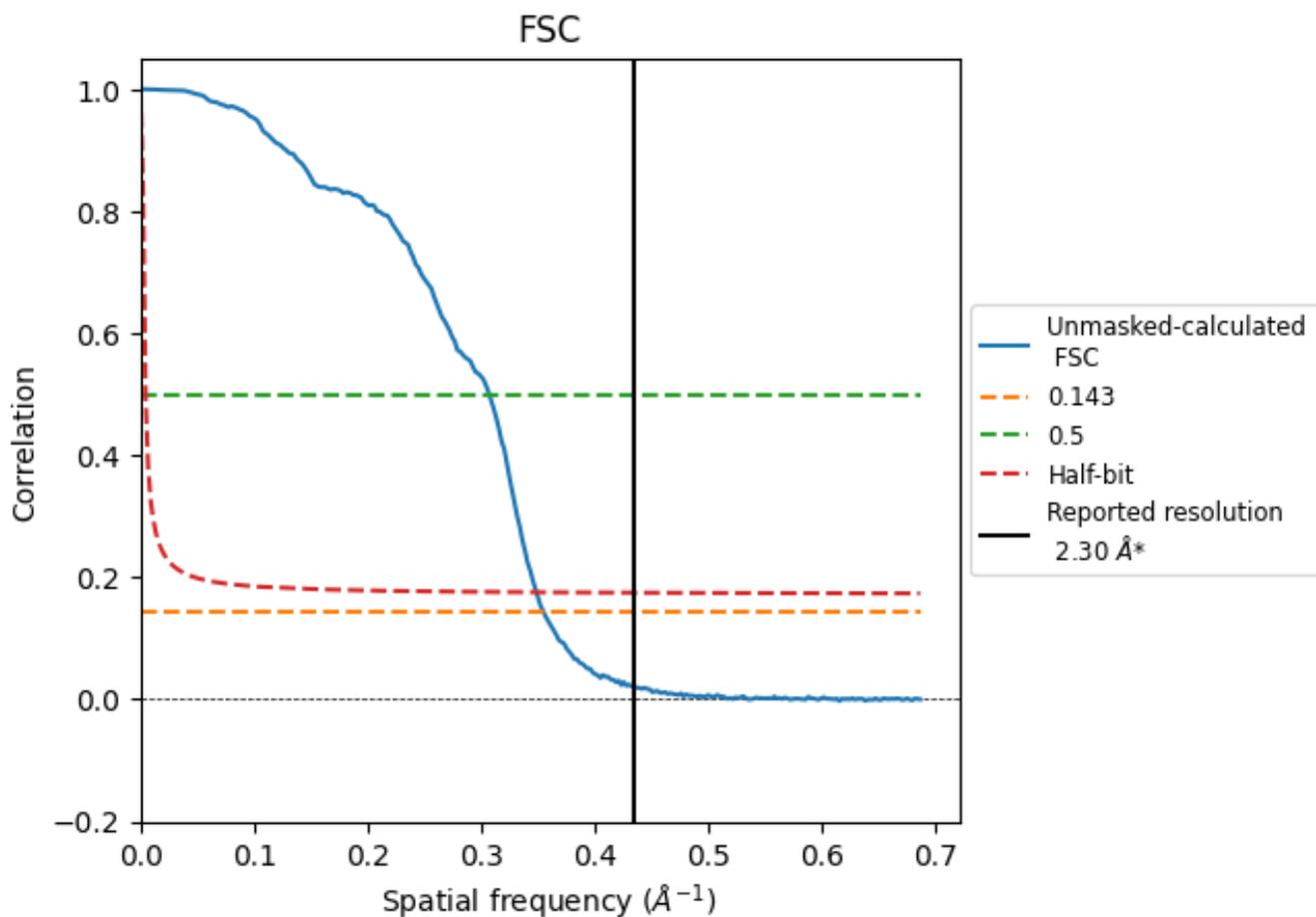
*Reported resolution corresponds to spatial frequency of 0.435 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.30	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	2.82	3.26	2.87

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 2.82 differs from the reported value 2.3 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-55526 and PDB model 9T4R. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay ⓘ

| X | Y | Z |
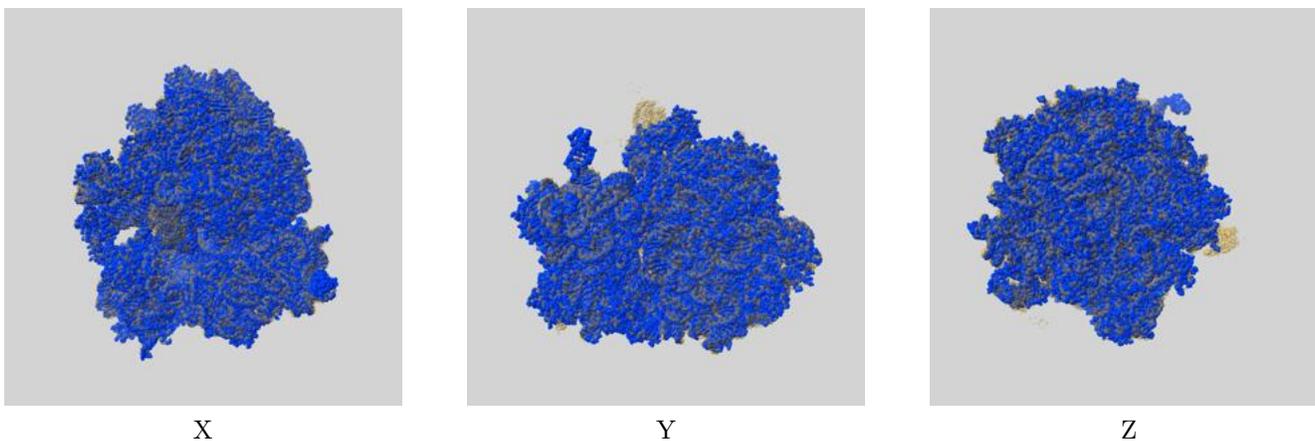
The images above show the 3D surface view of the map at the recommended contour level 0.078 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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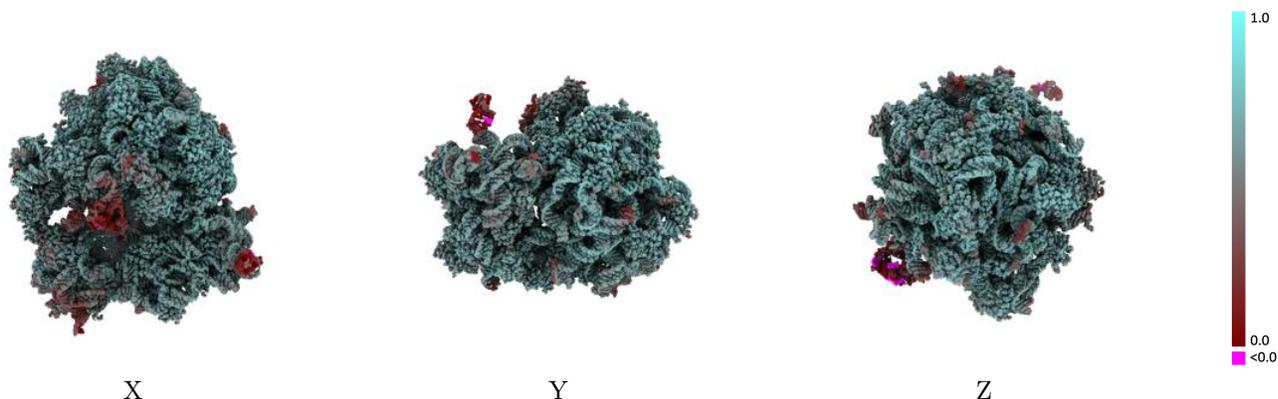
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3　Atom inclusion mapped to coordinate model ⓘ
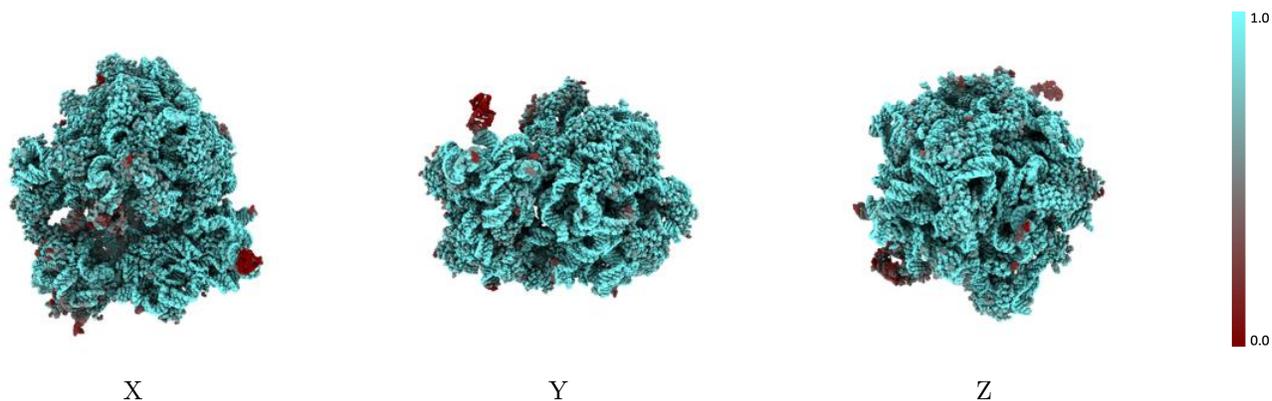
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.078).
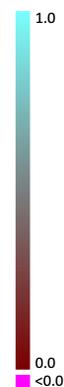
9.4 Atom inclusion (i)
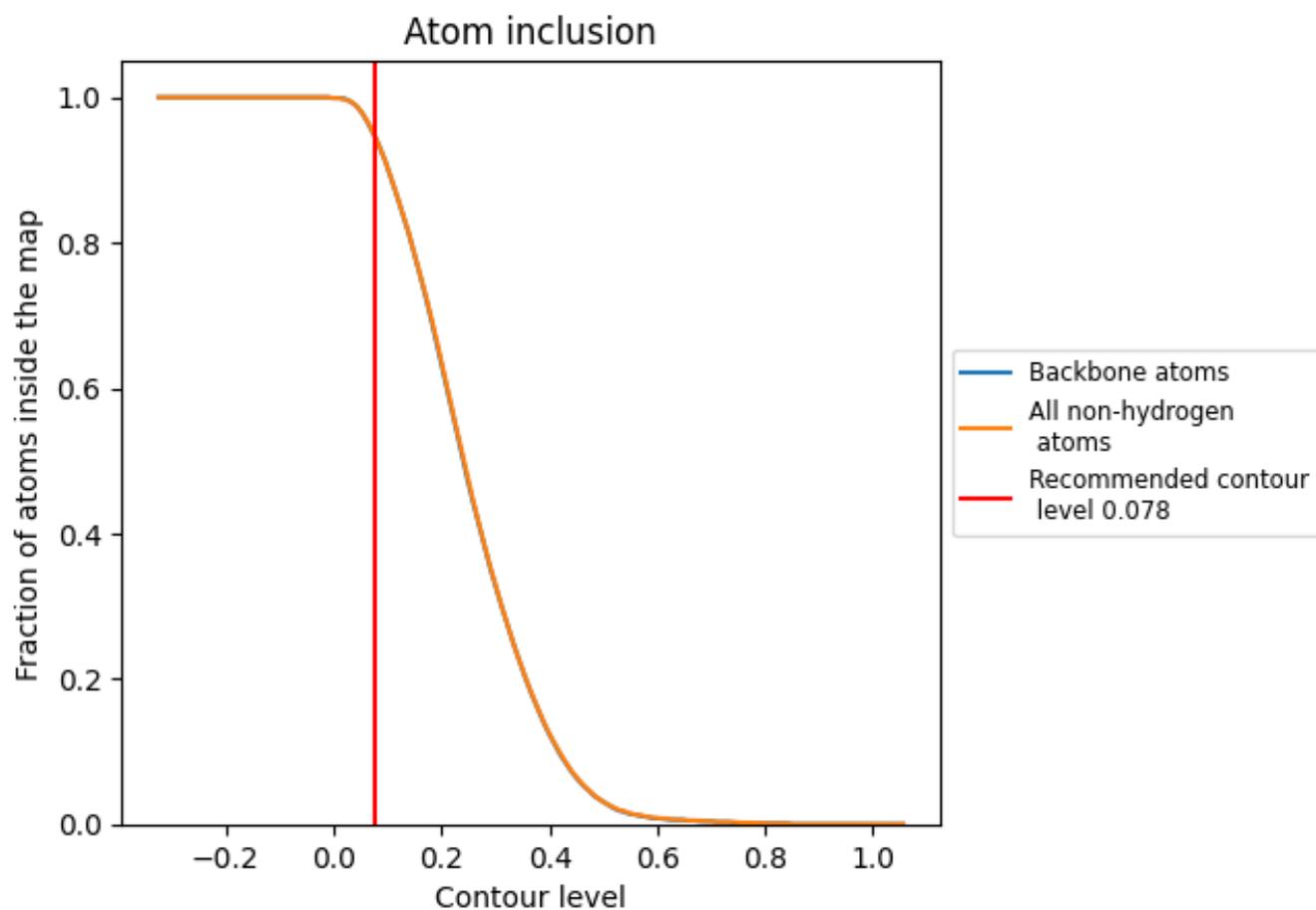
At the recommended contour level, 94% of all backbone atoms, 94% of all non-hydrogen atoms, are inside the map.

9.5　Map-model fit summary　ⓘ

The table lists the average atom inclusion at the recommended contour level (0.078) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9440	0.6480
0	0.9620	0.6870
1	0.9860	0.7290
2	0.9880	0.7180
3	0.9520	0.6810
4	0.8320	0.5830
A	0.9630	0.6310
B	0.8690	0.6070
C	0.8740	0.6180
D	0.8950	0.6270
E	0.9390	0.6700
F	0.9030	0.6480
G	0.8710	0.6050
H	0.9420	0.6560
I	0.9070	0.6200
J	0.9720	0.7040
K	0.8930	0.6340
L	0.9220	0.6650
M	0.8820	0.6190
N	0.9330	0.6340
O	0.9320	0.6620
P	0.9080	0.6380
Q	0.8860	0.6380
R	0.9180	0.6450
S	0.8690	0.6030
T	0.9100	0.6380
U	0.9670	0.7030
X	0.7920	0.5910
Z	0.9460	0.6190
a	0.9590	0.6530
b	0.9830	0.6380
c	0.9800	0.7160
d	0.9690	0.7070
e	0.9490	0.6860
f	0.8890	0.6210

1.0

0.0
<0.0

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Chain	Atom inclusion	Q-score
g	0.8440	0.5800
j	0.7890	0.5630
k	0.9540	0.6840
l	0.9510	0.6910
m	0.9580	0.6940
n	0.9310	0.6490
o	0.9640	0.6940
p	0.9790	0.7130
q	0.9560	0.6960
r	0.9580	0.6980
s	0.9420	0.6820
t	0.9090	0.6260
u	0.8940	0.6440
v	0.9750	0.7030
w	0.9370	0.6560
x	0.8960	0.6420
y	0.9670	0.6980
z	0.9540	0.6940