Full wwPDB EM Validation Report ⓘ

Nov 17, 2026 – 02:18 PM EST

PDB ID	:	10ZD / pdb_000010zd
EMDB ID	:	EMD-75563
Title	:	Wild-type Escherichia coli ribosome stalled with antibiotic tedizolid and MN-TAIK peptide
Authors	:	Raskar, T.; Kleinman, J.
Deposited on	:	2026-02-12
Resolution	:	2.16 Å(reported)

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

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

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

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

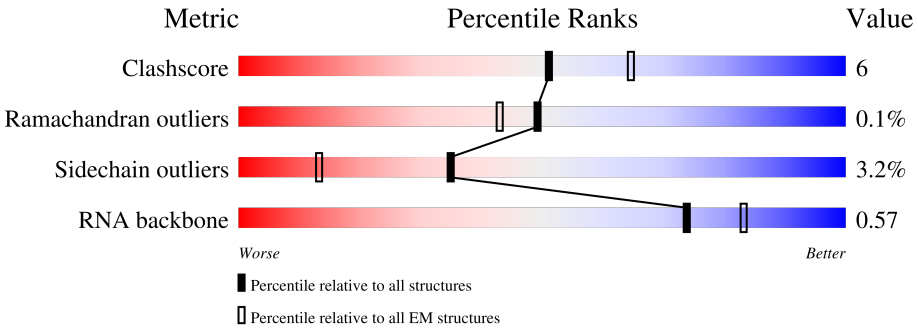
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.2
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

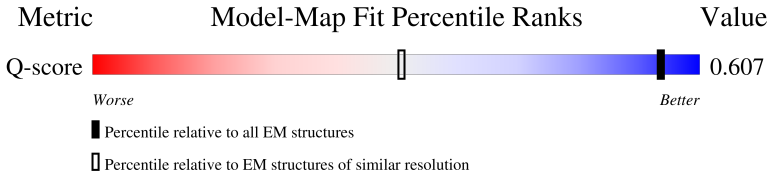
1 Overall quality at a glance

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

The reported resolution of this entry is 2.16 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	2609 (1.67 - 2.66)

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	1	92	63% 23% 14%
2	2	87	77% 21%
3	3	71	17% 72% 27%

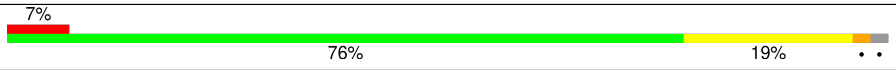
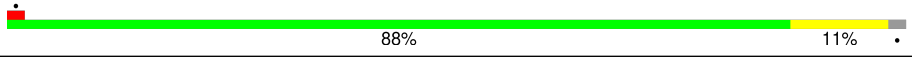
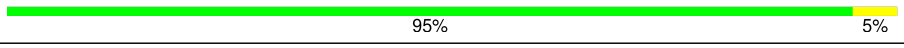
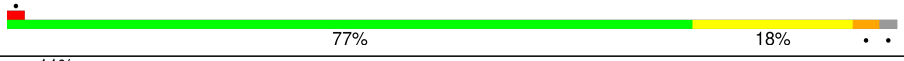
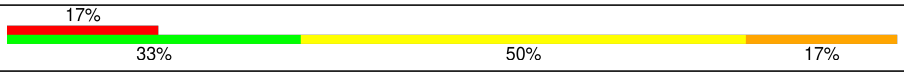
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Mol	Chain	Length	Quality of chain
4	4	18	33% 67%
5	A	76	54% 36% 9%
6	C	1542	63% 33%
7	D	241	65% 24% 10%
8	E	233	76% 12% 12%
9	F	206	79% 20%
10	G	167	73% 16% 10%
11	H	135	59% 14% 26%
12	J	120	72% 24%
13	K	273	87% 12%
14	L	209	88% 11%
15	M	201	91% 8%
16	N	179	72% 27%
17	O	177	84% 15%
18	P	149	7% 75% 23%
19	R	142	82% 18%
20	S	123	84% 15%
21	T	144	94% 6%
22	U	136	87% 12%
23	V	127	91% 6%
24	W	117	82% 14%
25	X	115	87% 12%
26	Y	118	91% 8%
27	Z	103	79% 21%
28	a	110	90% 10%

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Mol	Chain	Length	Quality of chain
29	b	100	
30	c	104	
31	d	94	
32	e	85	
33	f	78	
34	g	63	
35	h	59	
36	i	57	
37	j	55	
38	k	46	
39	l	65	
40	m	38	
41	n	179	
42	o	130	
43	p	130	
44	q	103	
45	r	129	
46	s	6	
47	t	124	
48	u	118	
49	w	89	
50	x	82	
51	y	84	
52	z	75	
53	I	2904	

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Mol	Chain	Length	Quality of chain
54	Q	70	
55	v	101	

2 Entry composition

There are 59 unique types of molecules in this entry. The entry contains 145406 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1	79	637	408	120	107	2	0	0

- Molecule 2 is a protein called Small ribosomal subunit protein bS20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	2	85	665	411	137	114	3	0	0

- Molecule 3 is a protein called Small ribosomal subunit protein bS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	3	70	590	366	125	98	1	0	0

- Molecule 4 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	4	6	128	58	25	39	6	0	0

- Molecule 5 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	N	O	P	S		
5	A	76	1627	728	283	539	76	1	0	0

- Molecule 6 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	C	1540	33037	14735	6057	10705	1540	0	0

- Molecule 7 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	D	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 8 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 9 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	F	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 10 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	150	Total	C	N	O	S	0	0
			1105	687	211	201	6		

- Molecule 11 is a protein called Small ribosomal subunit protein bS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	H	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

- Molecule 12 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	J	118	Total	C	N	O	P	0	0
			2529	1126	464	821	118		

- Molecule 13 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	K	271	Total	C	N	O	S	1	0
			2093	1294	427	365	7		

- Molecule 14 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	L	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 15 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	M	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
16	N	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 17 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	O	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 18 is a protein called Large ribosomal subunit protein bL9.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	P	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 19 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 20 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 21 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 22 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	U	136	Total	C	N	O	S	0	0
			1075	686	205	178	6		

- Molecule 23 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 24 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	W	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 25 is a protein called Large ribosomal subunit protein bL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	X	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 26 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	Y	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 27 is a protein called Large ribosomal subunit protein bL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Z	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 28 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	a	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 29 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	b	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 30 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	c	102	Total	C	N	O	0	0
			779	492	146	141		

- Molecule 31 is a protein called Large ribosomal subunit protein bL25.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	d	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 32 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	e	83	Total	C	N	O	S	0	0
			629	388	128	112	1		

- Molecule 33 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	f	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 34 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	g	62	Total	C	N	O	S	0	0
			501	308	98	94	1		

- Molecule 35 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	h	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 36 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	i	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 37 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	j	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 38 is a protein called Large ribosomal subunit protein bL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	k	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 39 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	l	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 40 is a protein called Large ribosomal subunit protein bL36A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	m	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 41 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	n	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 42 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	o	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 43 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	p	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 44 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	q	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 45 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	r	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 46 is a protein called Nascent peptide chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	s	6	Total	C	N	O	S	0	0
			45	28	8	8	1		

- Molecule 47 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	t	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 48 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	u	115	Total	C	N	O	S	0	0
			891	552	179	157	3		

- Molecule 49 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	w	88	Total	C	N	O	S	0	0
			710	437	143	129	1		

- Molecule 50 is a protein called Small ribosomal subunit protein bS16.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	x	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 51 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	y	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 52 is a protein called Small ribosomal subunit protein bS18.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	z	55	Total	C	N	O	0	0
			455	288	86	81		

- Molecule 53 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	I	2898	Total	C	N	O	P	1	0
			62251	27778	11453	20121	2899		

- Molecule 54 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	Q	60	Total	C	N	O	S	0	0
			480	299	90	85	6		

- Molecule 55 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	v	96	Total	C	N	O	S	0	0
			774	483	160	128	3		

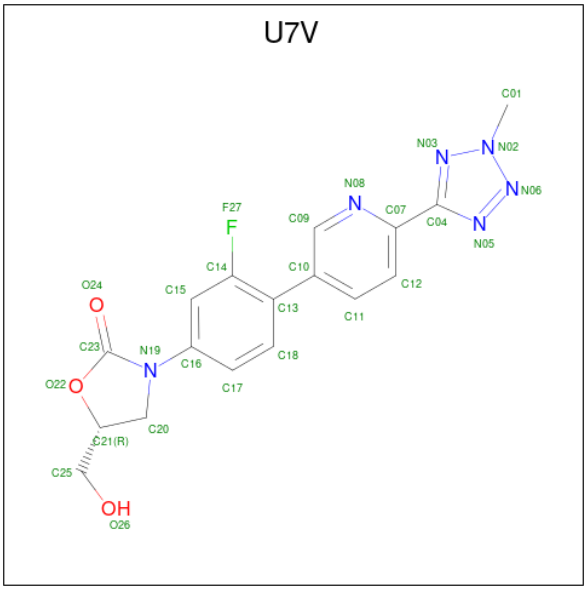
- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
56	A	1	Total Mg 1 1	0
56	C	83	Total Mg 83 83	0
56	L	1	Total Mg 1 1	0
56	I	111	Total Mg 111 111	0

- Molecule 57 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
57	m	1	Total Zn 1 1	0
57	Q	1	Total Zn 1 1	0

- Molecule 58 is Tedizolid (CCD ID: U7V) (formula: $C_{17}H_{15}FN_6O_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
58	I	1	Total C F N O 27 17 1 6 3	0

- Molecule 59 is water.

Mol	Chain	Residues	Atoms	AltConf
59	1	3	Total O 3 3	0
59	3	5	Total O 5 5	0
59	4	2	Total O 2 2	0
59	A	8	Total O 8 8	0
59	C	242	Total O 242 242	0
59	D	7	Total O 7 7	0
59	E	3	Total O 3 3	0
59	F	2	Total O 2 2	0
59	G	2	Total O 2 2	0
59	H	1	Total O 1 1	0
59	J	8	Total O 8 8	0
59	K	15	Total O 15 15	0
59	L	11	Total O 11 11	0
59	M	15	Total O 15 15	0
59	N	4	Total O 4 4	0
59	O	2	Total O 2 2	0
59	P	9	Total O 9 9	0
59	R	1	Total O 1 1	0
59	S	3	Total O 3 3	0
59	T	11	Total O 11 11	0
59	U	3	Total O 3 3	0
59	V	3	Total O 3 3	0

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Mol	Chain	Residues	Atoms	AltConf
59	W	1	Total O 1 1	0
59	X	8	Total O 8 8	0
59	Y	6	Total O 6 6	0
59	Z	7	Total O 7 7	0
59	a	3	Total O 3 3	0
59	b	3	Total O 3 3	0
59	c	3	Total O 3 3	0
59	d	1	Total O 1 1	0
59	e	1	Total O 1 1	0
59	f	2	Total O 2 2	0
59	g	1	Total O 1 1	0
59	h	2	Total O 2 2	0
59	i	2	Total O 2 2	0
59	j	3	Total O 3 3	0
59	k	2	Total O 2 2	0
59	l	2	Total O 2 2	0
59	m	1	Total O 1 1	0
59	n	1	Total O 1 1	0
59	o	3	Total O 3 3	0
59	p	1	Total O 1 1	0
59	q	4	Total O 4 4	0

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Mol	Chain	Residues	Atoms	AltConf
59	r	3	Total O 3 3	0
59	t	3	Total O 3 3	0
59	u	4	Total O 4 4	0
59	w	2	Total O 2 2	0
59	y	1	Total O 1 1	0
59	z	2	Total O 2 2	0
59	I	790	Total O 790 790	0
59	Q	1	Total O 1 1	0
59	v	1	Total O 1 1	0

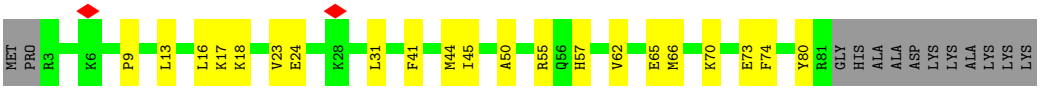
3 Residue-property plots (i)

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

• Molecule 1: Small ribosomal subunit protein uS19

Chain 1:

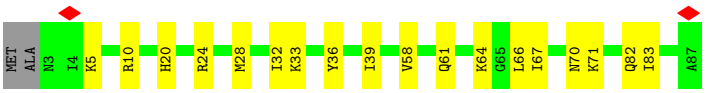




• Molecule 2: Small ribosomal subunit protein bS20

Chain 2:

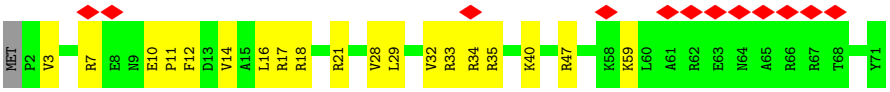




• Molecule 3: Small ribosomal subunit protein bS21

Chain 3:





• Molecule 4: mRNA

Chain 4:

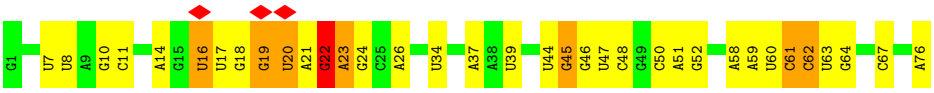




• Molecule 5: P-site tRNA

Chain A:

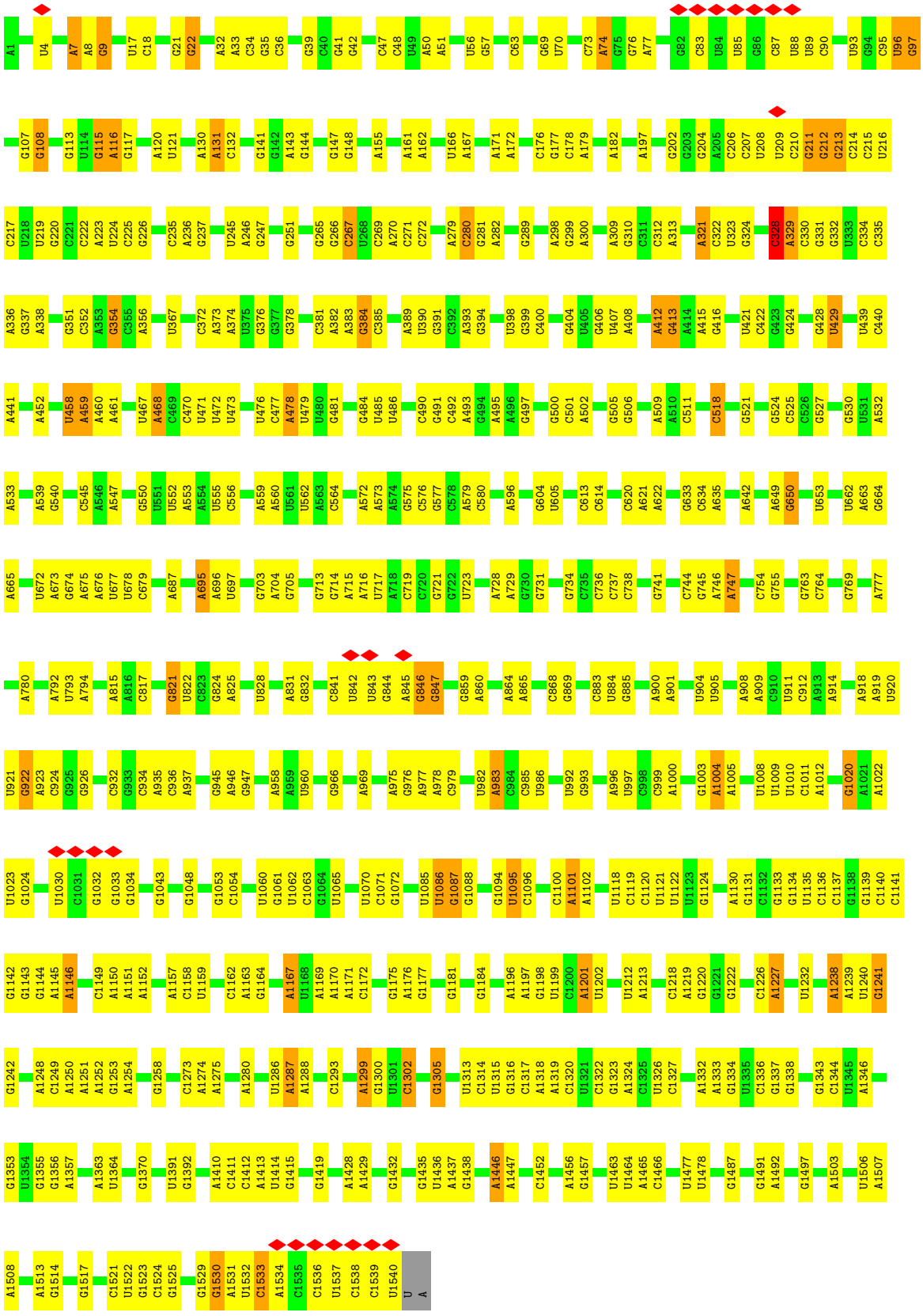




• Molecule 6: 16S ribosomal RNA

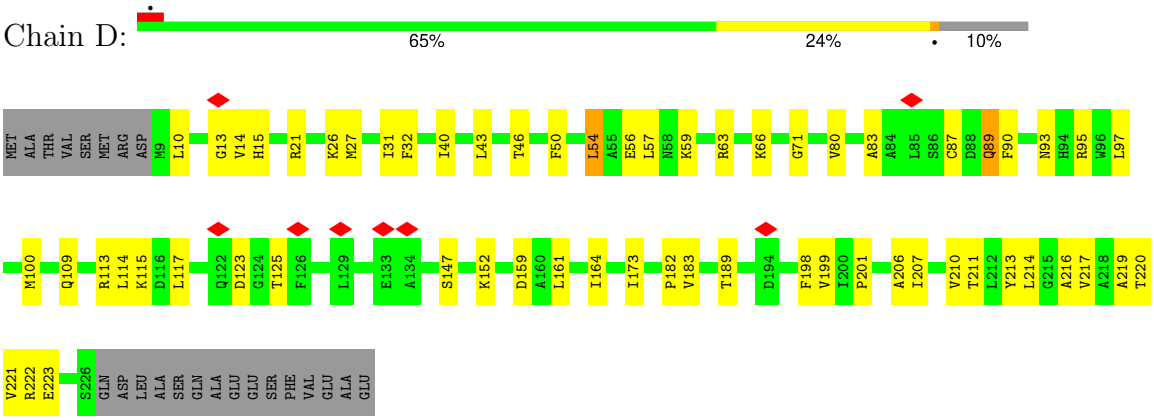
Chain C:


63%
33%


A1 U4 A7 A8 G9 U17 C18 G21 G22 A32 A33 C34 G35 C36 G39 C40 C41 G42 C47 C48 U49 A50 A51 U56 G57 C63 G69 U70 C73 A74 G75 G76 A77 G82 C83 U84 U85 G86 C87 U88 U89 C90 U93 G94 C95 U96 G97
G107 G108 G113 U114 G115 A116 G117 A120 U121 A130 A131 C132 G141 G142 A143 G144 G147 G148 A155 A161 A162 U166 A167 A171 A172 C176 G177 C178 A179 A182 A197 G202 G203 G204 A205 C206 C207 U208 U209 C210 G211 G212 G213 C214 C215 U216
C217 U218 U219 G220 C221 C222 A223 U224 C225 G226 C235 A236 G237 U245 A246 G247 G251 G265 C266 C267 U268 C269 A270 C271 C272 A279 C280 G281 A282 G289 A298 G299 A300 A309 G310 C311 C312 A313 A321 C322 U323 G324 C328 A329 C330 G331 G332 U333 C334 C335
A336 G337 A338 G351 C352 A353 G354 C355 A356 U367 C372 A373 A374 U375 G376 G377 G378 C381 A382 A383 G384 C385 A389 U390 G391 C392 A393 G394 U398 G399 C400 G404 U405 G406 U407 A408 A412 G413 A414 A415 G416 U421 C422 G423 G424 G428 U429 U439 C440
A441 A452 U458 A459 A460 A461 U467 A468 C469 C470 U471 U472 U473 U476 C477 A478 U479 U480 G481 G484 U485 U486 C490 G491 C492 A493 G494 A495 A496 G497 G500 C501 A502 G505 G506 A509 A510 C511 C518 G521 G524 C525 C526 G527 G530 U531 A532
A533 A539 G540 C545 A546 A547 G550 U551 U552 A553 A554 U555 C556 A559 A560 U561 U562 A563 C564 A572 A573 A574 G575 C576 G577 C578 A579 C580 A596 G604 U605 C613 C614 C620 A621 A622 G633 C634 A635 A642 A649 G650 U653 U662 A663 G664
A665 U672 A673 G674 A675 A676 U677 U678 C679 A687 A695 A696 U697 G703 A704 G705 G713 G714 A715 A716 U717 A718 C719 C720 G721 G722 U723 A728 A729 G730 G731 G734 C735 C736 C737 C738 G741 C744 G745 A746 A747 C754 G755 G763 C764 G769 A777
A780 A792 U793 A794 A815 A816 C817 G821 U822 C823 G824 A825 U828 A831 G832 C841 U842 U843 G844 A845 G846 G847 G859 A860 A864 A865 C868 G869 C883 U884 G885 A900 A901 U904 U905 A908 A909 C910 U911 C912 A913 A914 A918 A919 U920
U921 G922 A923 C924 G925 G926 C932 G933 C934 A935 C936 A937 G945 A946 G947 A958 A959 U960 G966 A969 A975 G976 A977 A978 C979 U982 A983 C984 C985 U986 U992 G993 A996 U997 C998 C999 A1000 G1003 A1004 A1005 U1008 U1009 U1010 C1011 A1012 G1020 A1021 A1022
U1023 G1024 U1030 C1031 G1032 G1033 G1034 G1043 G1048 G1053 C1054 U1060 G1061 U1062 C1063 G1064 U1065 U1070 C1071 G1072 U1085 U1086 G1087 G1088 G1094 U1095 C1096 C1100 A1101 A1102 U1118 C1119 C1120 U1121 U1122 U1123 G1124 A1130 G1131 C1132 G1133 G1134 U1135 C1136 C1137 G1138 G1139 C1140 C1141
G1142 G1143 G1144 A1145 A1146 C1149 A1150 A1151 A1152 A1157 C1158 U1159 C1162 A1163 G1164 A1167 U1168 A1169 A1170 A1171 C1172 G1175 A1176 G1177 G1181 G1184 A1196 A1197 G1198 U1199 C1200 A1201 U1202 U1212 A1213 C1218 A1219 G1220 G1221 G1222 C1226 A1227 U1232 A1238 A1239 U1240 G1241
G1242 A1248 C1249 A1250 A1251 A1252 G1253 A1254 G1258 C1273 A1274 A1275 A1280 U1286 A1287 A1288 C1293 A1299 G1300 U1301 C1302 G1305 U1313 C1314 U1315 G1316 C1317 A1318 A1319 C1320 U1321 C1322 G1323 A1324 C1325 U1326 C1327 A1332 A1333 G1334 U1335 C1336 G1337 G1338 G1343 C1344 U1345 A1346
G1353 U1354 G1355 G1356 A1357 A1363 U1364 G1370 U1391 G1392 A1410 C1411 C1412 A1413 U1414 G1415 G1419 A1428 A1429 G1432 G1435 U1436 A1437 G1438 A1446 A1447 C1452 A1456 G1457 U1463 U1464 A1465 C1466 U1477 U1478 G1487 G1491 A1492 G1497 A1503 U1506 A1507
A1508 A1513 G1514 G1517 C1521 U1522 G1523 C1524 G1525 G1529 G1530 A1531 U1532 C1533 A1534 C1535 C1536 U1537 C1538 C1539 U1540 U A

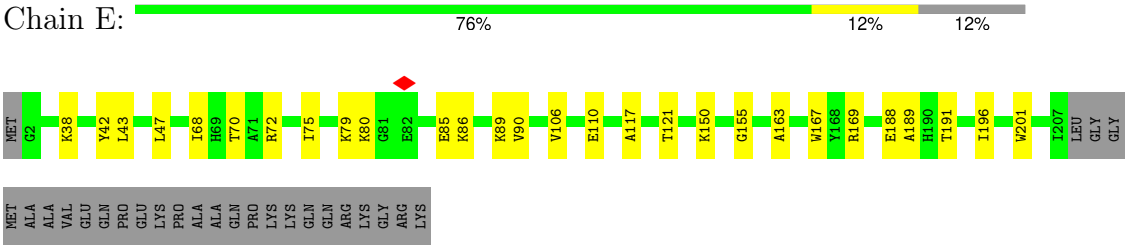
• Molecule 7: Small ribosomal subunit protein uS2

Chain D:



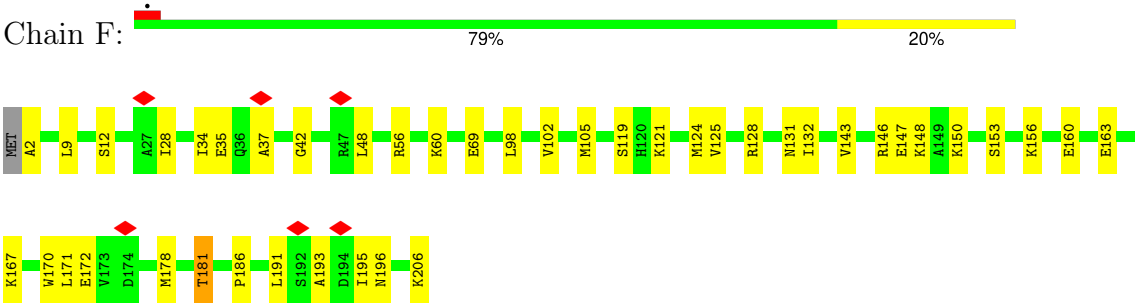
• Molecule 8: 30S ribosomal protein S3

Chain E:



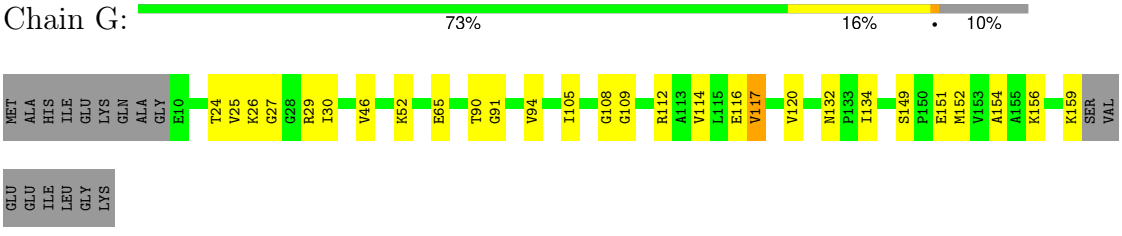
• Molecule 9: Small ribosomal subunit protein uS4

Chain F:



• Molecule 10: Small ribosomal subunit protein uS5

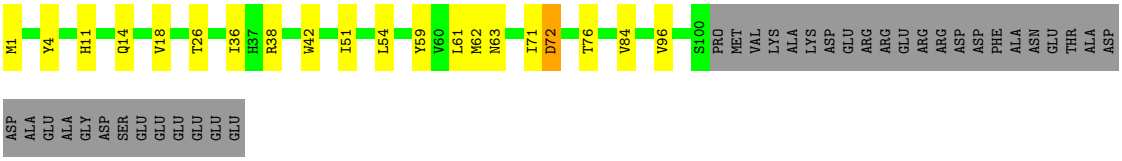
Chain G:



• Molecule 11: Small ribosomal subunit protein bS6

Chain H:

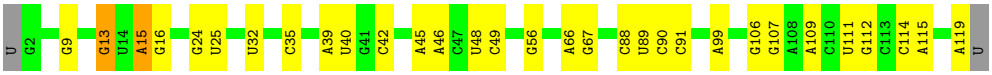




• Molecule 12: 5S ribosomal RNA

Chain J:

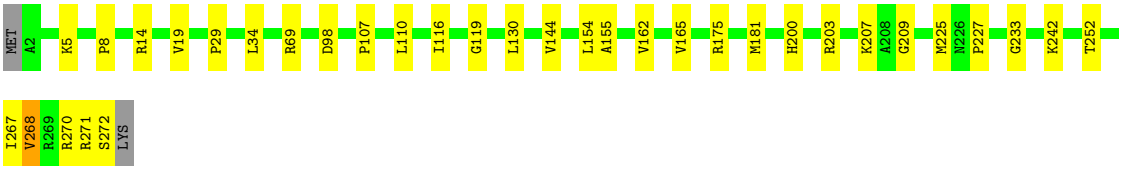




• Molecule 13: 50S ribosomal protein L2

Chain K:

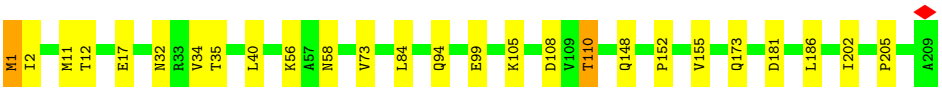




• Molecule 14: Large ribosomal subunit protein uL3

Chain L:

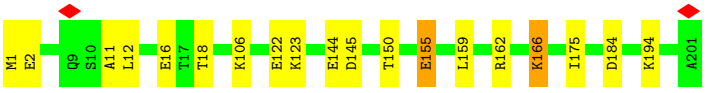




• Molecule 15: Large ribosomal subunit protein uL4

Chain M:

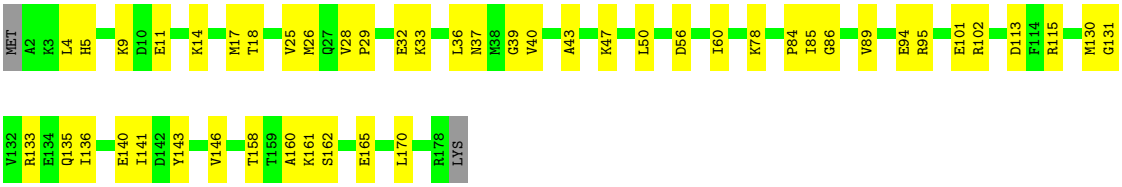




• Molecule 16: Large ribosomal subunit protein uL5

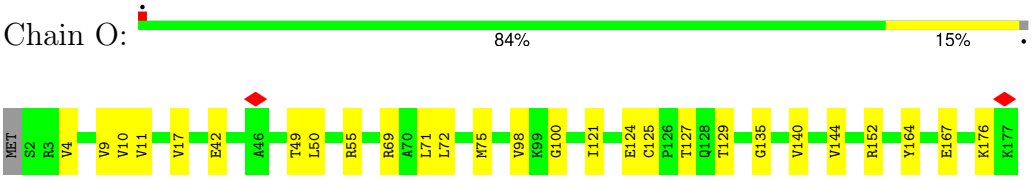
Chain N:





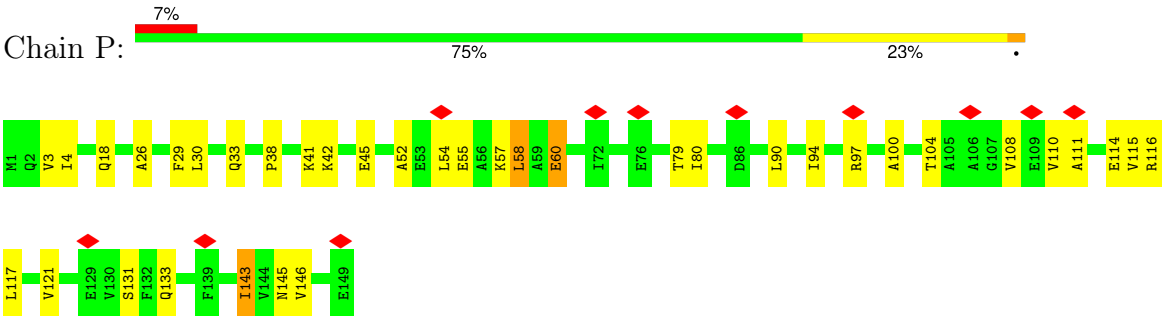
• Molecule 17: Large ribosomal subunit protein uL6

Chain O:



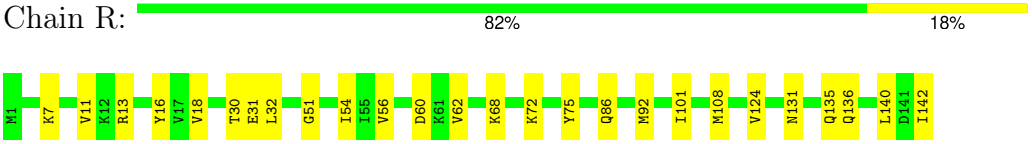
• Molecule 18: Large ribosomal subunit protein bL9

Chain P:



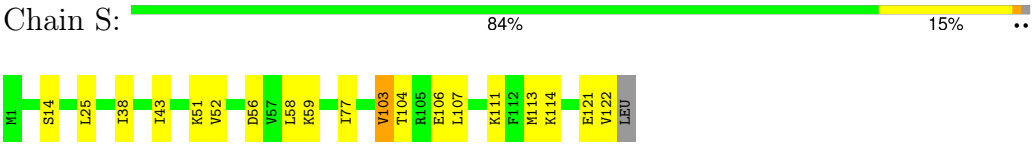
• Molecule 19: Large ribosomal subunit protein uL13

Chain R:



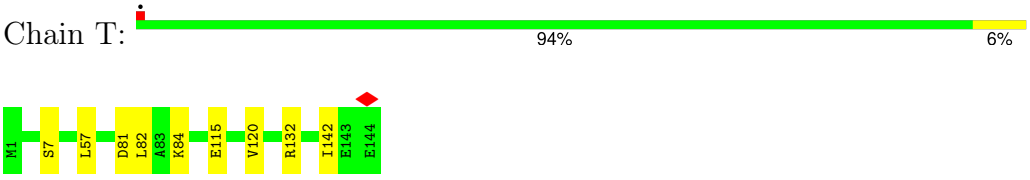
• Molecule 20: Large ribosomal subunit protein uL14

Chain S:



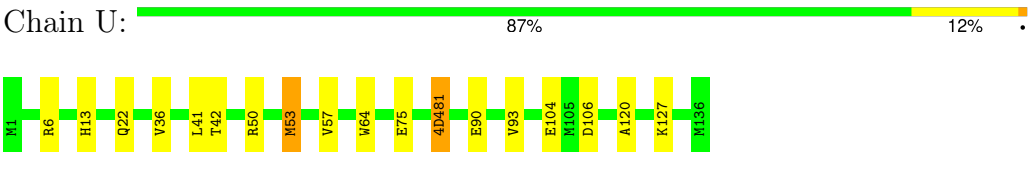
• Molecule 21: Large ribosomal subunit protein uL15

Chain T:



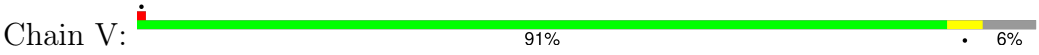
• Molecule 22: Large ribosomal subunit protein uL16

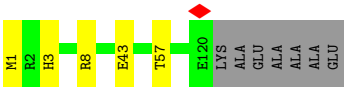
Chain U:



• Molecule 23: Large ribosomal subunit protein bL17

Chain V:





• Molecule 24: Large ribosomal subunit protein uL18

Chain W:





• Molecule 25: Large ribosomal subunit protein bL19

Chain X:





• Molecule 26: 50S ribosomal protein L20

Chain Y:

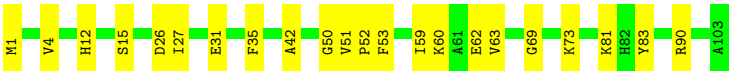




• Molecule 27: Large ribosomal subunit protein bL21

Chain Z:

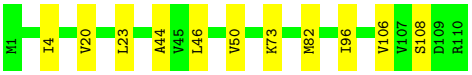




• Molecule 28: Large ribosomal subunit protein uL22

Chain a:

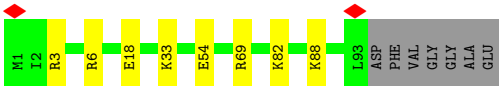




• Molecule 29: 50S ribosomal protein L23

Chain b:

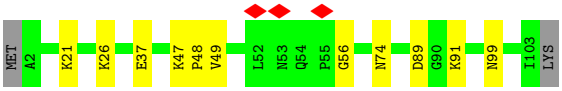




• Molecule 30: 50S ribosomal protein L24

Chain c:

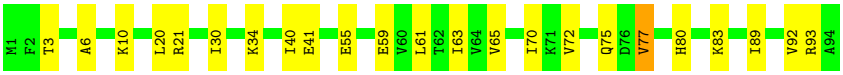




• Molecule 31: Large ribosomal subunit protein bL25

Chain d:





• Molecule 32: 50S ribosomal protein L27

Chain e:

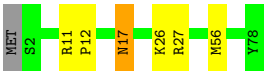




• Molecule 33: 50S ribosomal protein L28

Chain f:

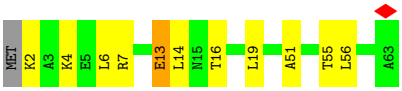




• Molecule 34: Large ribosomal subunit protein uL29

Chain g:

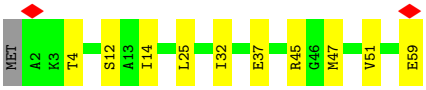




• Molecule 35: 50S ribosomal protein L30

Chain h:

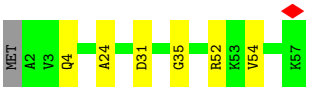




• Molecule 36: 50S ribosomal protein L32

Chain i:





• Molecule 37: 50S ribosomal protein L33

Chain j:





• Molecule 38: Large ribosomal subunit protein bL34

Chain k:





• Molecule 39: 50S ribosomal protein L35

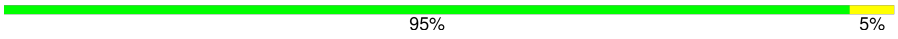
Chain l:





• Molecule 40: Large ribosomal subunit protein bL36A

Chain m:

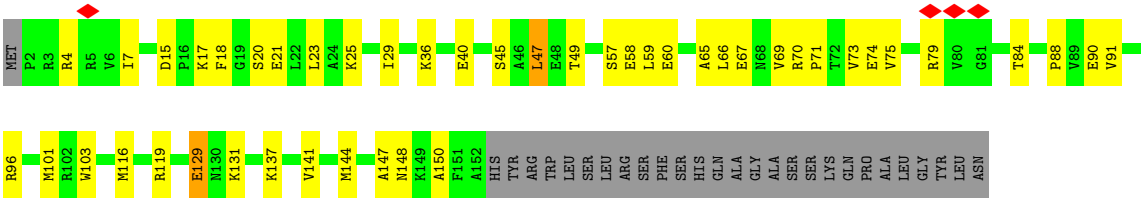




• Molecule 41: Small ribosomal subunit protein uS7

Chain n:

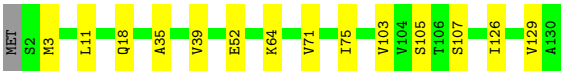




• Molecule 42: Small ribosomal subunit protein uS8

Chain o:

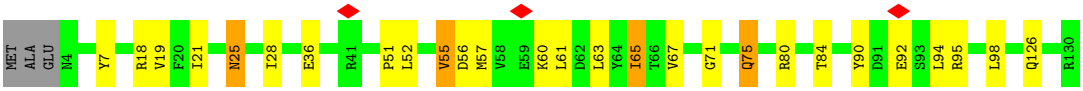




• Molecule 43: Small ribosomal subunit protein uS9

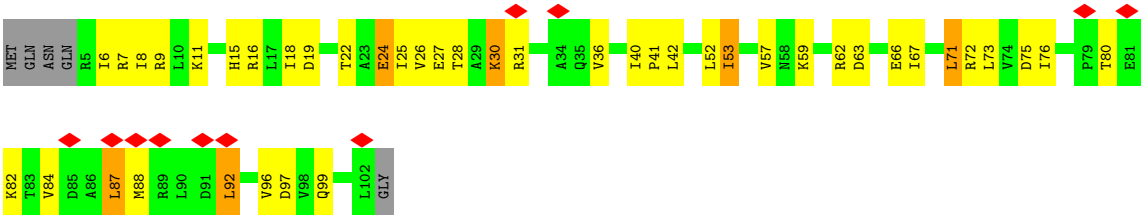
Chain p:



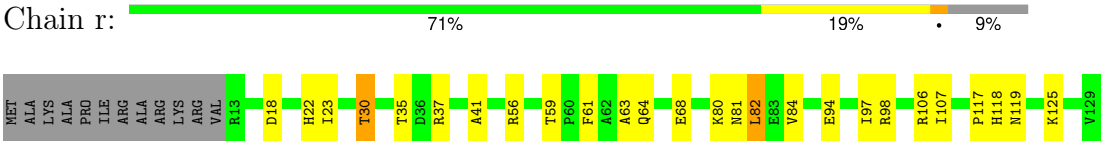


• Molecule 44: Small ribosomal subunit protein uS10





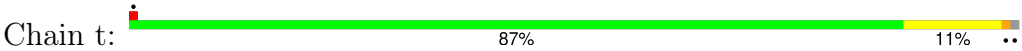
• Molecule 45: 30S ribosomal protein S11

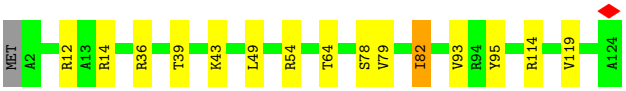


• Molecule 46: Nascent peptide chain

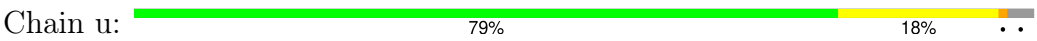


• Molecule 47: 30S ribosomal protein S12



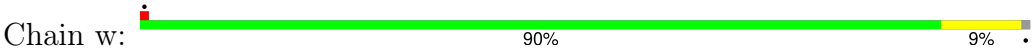


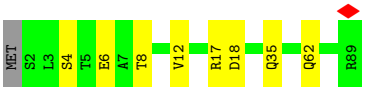
• Molecule 48: Small ribosomal subunit protein uS13





• Molecule 49: Small ribosomal subunit protein uS15

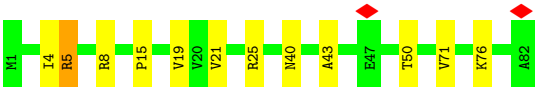




• Molecule 50: Small ribosomal subunit protein bS16

Chain x:

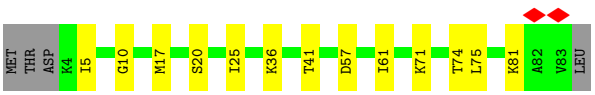




• Molecule 51: Small ribosomal subunit protein uS17

Chain y:

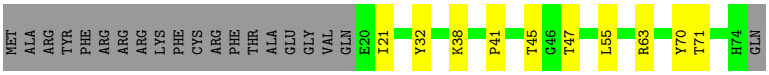




• Molecule 52: Small ribosomal subunit protein bS18

Chain z:

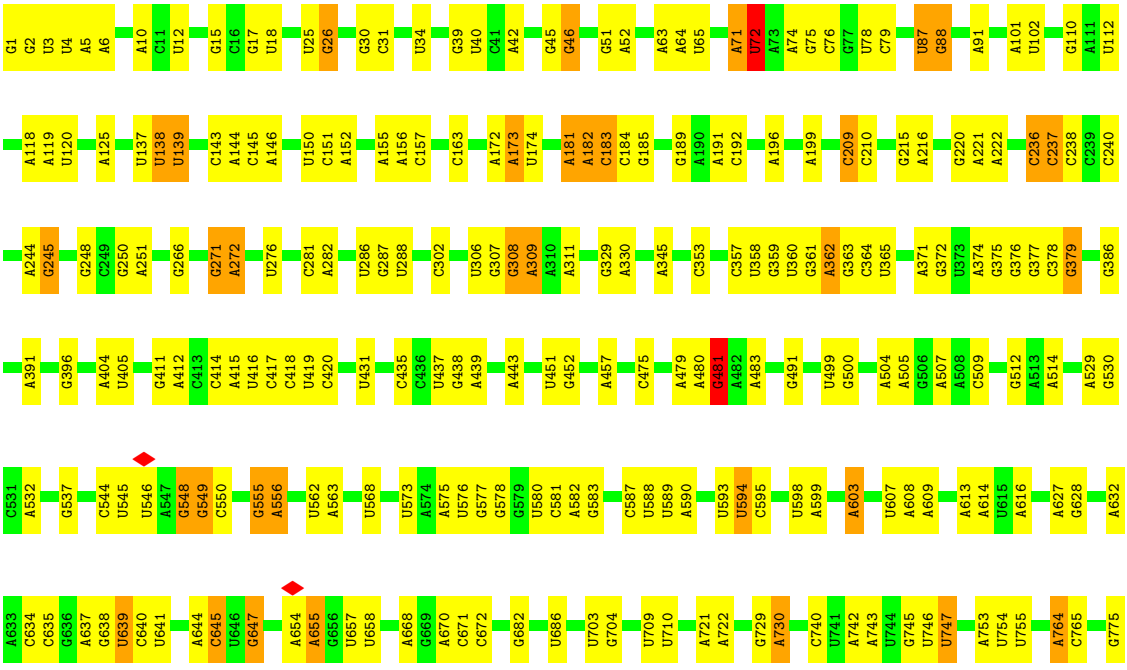


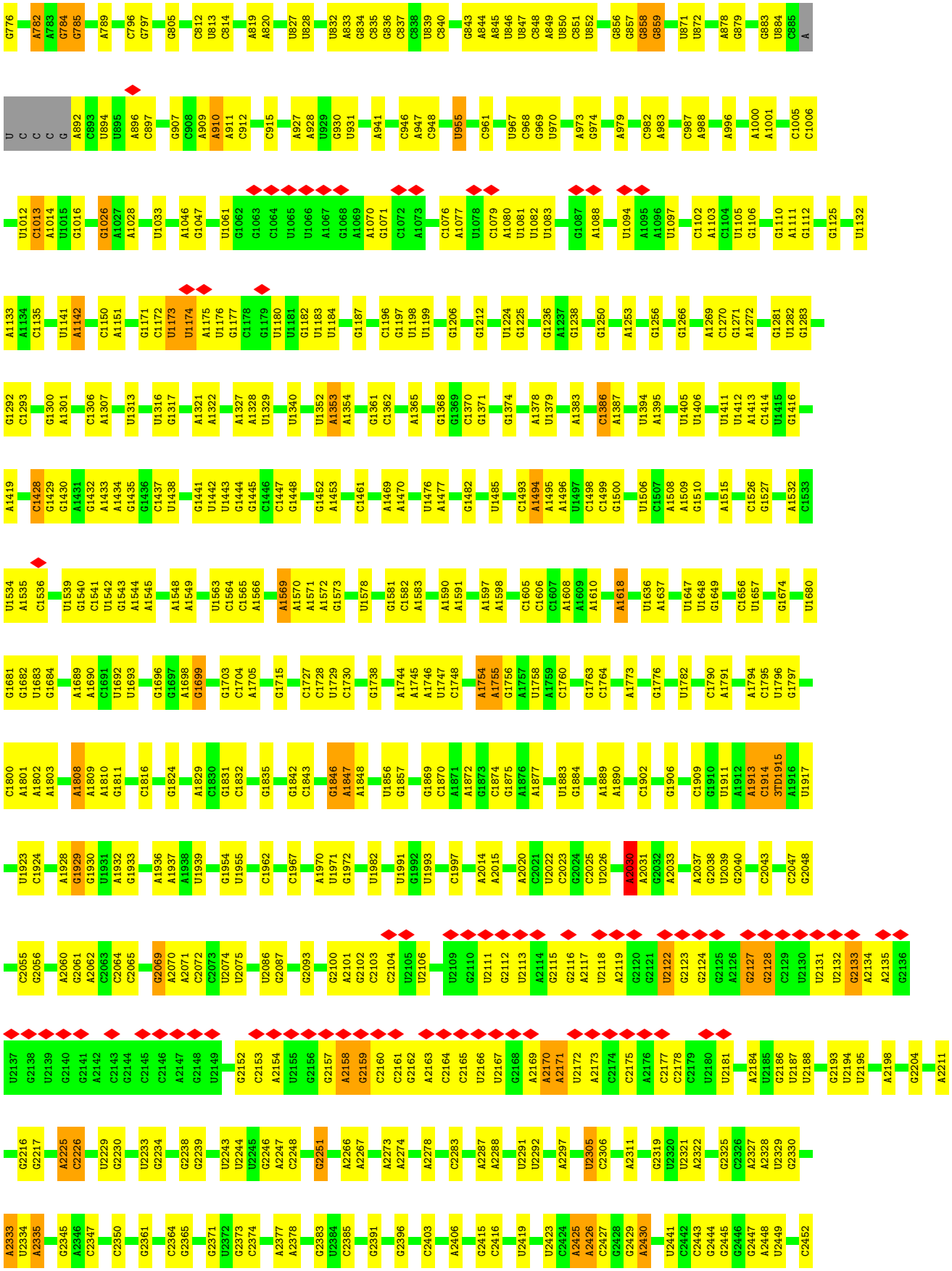


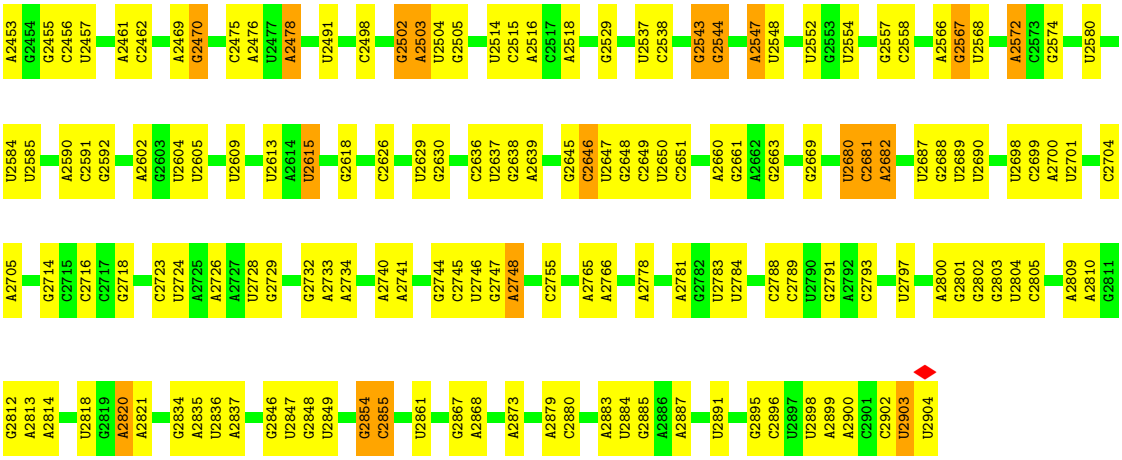
• Molecule 53: 23S ribosomal RNA

Chain I:









• Molecule 54: 50S ribosomal protein L31

Chain Q:

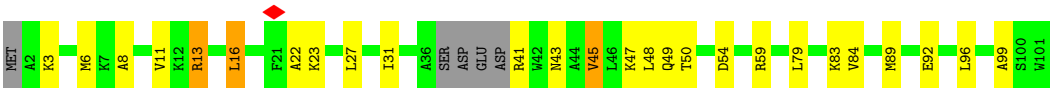




• Molecule 55: Small ribosomal subunit protein uS14

Chain v:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	1137381	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	38.433	Depositor
Minimum map value	-13.142	Depositor
Average map value	-0.028	Depositor
Map value standard deviation	0.939	Depositor
Recommended contour level	2.3	Depositor
Map size (Å)	458.58398, 458.58398, 458.58398	wwPDB
Map dimensions	560, 560, 560	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8189, 0.8189, 0.8189	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: U7V, G7M, 1MG, H2U, 5MC, OMG, U8U, 3TD, MG, 6MZ, OMC, 2MG, T6A, 4D4, 2MA, 5MU, PSU, OMU, ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	1	0.18	0/652	0.40	0/877
2	2	0.23	0/671	0.43	0/888
3	3	0.20	0/598	0.43	0/792
4	4	0.72	0/143	0.94	0/220
5	A	0.75	0/1732	0.96	1/2694 (0.0%)
6	C	0.43	0/36991	0.70	6/57705 (0.0%)
7	D	0.20	0/1735	0.48	0/2338
8	E	0.19	0/1651	0.41	0/2225
9	F	0.20	0/1665	0.48	0/2227
10	G	0.22	0/1118	0.49	0/1504
11	H	0.20	0/835	0.44	0/1128
12	J	0.39	0/2828	0.67	0/4410
13	K	0.23	0/2132	0.41	0/2866
14	L	0.23	0/1586	0.40	0/2134
15	M	0.20	0/1571	0.37	0/2113
16	N	0.21	0/1434	0.50	0/1926
17	O	0.20	0/1343	0.48	0/1816
18	P	0.18	0/1122	0.46	0/1515
19	R	0.20	0/1152	0.38	0/1551
20	S	0.23	0/947	0.40	0/1268
21	T	0.20	0/1062	0.38	0/1413
22	U	0.22	0/1081	0.45	1/1443 (0.1%)
23	V	0.21	0/973	0.37	0/1301
24	W	0.19	0/902	0.44	0/1209
25	X	0.20	0/929	0.31	0/1242
26	Y	0.22	0/960	0.33	0/1278
27	Z	0.21	0/829	0.43	0/1107
28	a	0.19	0/864	0.30	0/1156
29	b	0.22	0/744	0.48	0/994
30	c	0.17	0/787	0.38	0/1051
31	d	0.20	0/766	0.42	0/1025

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	e	0.97	0/637	1.41	3/841 (0.4%)
33	f	0.22	0/635	0.37	0/848
34	g	0.17	0/502	0.35	0/667
35	h	0.20	0/453	0.36	0/605
36	i	0.20	0/450	0.33	0/599
37	j	0.17	0/416	0.39	0/554
38	k	0.22	0/380	0.33	0/498
39	l	0.21	0/513	0.34	0/676
40	m	0.22	0/303	0.42	0/397
41	n	0.19	0/1195	0.44	0/1602
42	o	0.18	0/989	0.34	0/1326
43	p	0.20	0/1034	0.48	0/1375
44	q	0.21	0/796	0.54	0/1077
45	r	0.19	0/893	0.40	0/1205
46	s	0.91	0/44	1.55	1/57 (1.8%)
47	t	0.22	0/969	0.41	0/1300
48	u	0.19	0/900	0.45	0/1204
49	w	0.19	0/718	0.38	0/959
50	x	0.21	0/659	0.42	0/884
51	y	0.19	0/657	0.46	0/881
52	z	0.17	0/462	0.26	0/621
53	I	0.50	0/69146	0.72	14/107867 (0.0%)
54	Q	0.18	0/488	0.49	0/649
55	v	0.18	0/785	0.37	0/1043
All	All	0.43	0/155827	0.66	26/233151 (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
27	Z	0	1
32	e	0	1
48	u	0	1
All	All	0	3

There are no bond length outliers.

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
32	e	12	ASN	CB-CA-C	-9.72	98.19	112.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	I	549	G	O4'-C1'-N9	9.47	115.78	108.20
6	C	328	C	C2-N1-C1'	8.68	128.35	118.80
6	C	328	C	N1-C2-O2	7.96	123.67	118.90
53	I	1313	U	C2-N1-C1'	6.82	125.88	117.70
6	C	328	C	C6-N1-C1'	-6.36	113.17	120.80
6	C	328	C	N3-C2-O2	-6.14	117.61	121.90
32	e	69	PHE	CA-CB-CG	5.99	119.79	113.80
53	I	512	G	O4'-C1'-N9	5.74	112.79	108.20
46	s	6	LYS	CA-C-O	-5.57	111.32	120.80
53	I	237	C	C2-N1-C1'	5.57	124.93	118.80
53	I	837	C	N3-C2-O2	-5.56	118.01	121.90
53	I	88	G	O5'-C5'-C4'	5.46	113.77	109.40
53	I	2629	U	O5'-C5'-C4'	5.36	113.69	109.40
32	e	44	LYS	N-CA-C	-5.27	105.70	111.82
53	I	87	U	P-O3'-C3'	5.22	125.96	119.70
53	I	209	C	C2-N1-C1'	5.17	124.49	118.80
6	C	754	C	C2-N1-C1'	5.17	124.48	118.80
53	I	1026	G	O5'-C5'-C4'	5.16	113.53	109.40
53	I	72	U	O5'-C5'-C4'	5.11	113.49	109.40
5	A	22	G	C1'-O4'-C4'	-5.10	106.13	109.70
53	I	2158	A	P-O3'-C3'	5.10	125.82	119.70
22	U	36	VAL	N-CA-C	-5.07	107.89	112.96
6	C	1201	A	P-O3'-C3'	5.02	125.72	119.70
53	I	1313	U	N1-C2-O2	5.02	126.31	122.80
53	I	481	G	O4'-C1'-N9	5.00	112.20	108.20

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
27	Z	51	VAL	Peptide
32	e	39	ARG	Sidechain
48	u	48	LEU	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	637	0	665	14	0
2	2	665	0	714	14	0
3	3	590	0	629	17	0
4	4	128	0	66	0	0
5	A	1627	0	826	17	0
6	C	33037	0	16627	310	0
7	D	1704	0	1732	46	0
8	E	1624	0	1696	19	0
9	F	1643	0	1707	24	0
10	G	1105	0	1148	16	0
11	H	817	0	808	12	0
12	J	2529	0	1281	10	0
13	K	2093	0	2166	22	0
14	L	1565	0	1616	14	0
15	M	1552	0	1619	10	0
16	N	1410	0	1444	31	0
17	O	1323	0	1371	15	0
18	P	1111	0	1148	24	0
19	R	1129	0	1162	16	0
20	S	938	0	1012	11	0
21	T	1053	0	1129	4	0
22	U	1075	0	1154	12	0
23	V	960	0	1000	3	0
24	W	892	0	923	13	0
25	X	917	0	962	8	0
26	Y	947	0	1019	5	0
27	Z	816	0	839	10	0
28	a	857	0	922	6	0
29	b	738	0	807	8	0
30	c	779	0	831	5	0
31	d	753	0	780	14	0
32	e	629	0	648	3	0
33	f	625	0	652	6	0
34	g	501	0	531	11	0
35	h	449	0	488	6	0
36	i	444	0	458	4	0
37	j	409	0	440	8	0
38	k	377	0	418	5	0
39	l	504	0	572	8	0
40	m	302	0	340	1	0
41	n	1181	0	1238	31	0
42	o	979	0	1031	10	0
43	p	1022	0	1070	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	q	786	0	828	31	0
45	r	877	0	887	24	0
46	s	45	0	53	7	0
47	t	955	0	1016	7	0
48	u	891	0	952	16	0
49	w	710	0	728	5	0
50	x	649	0	666	7	0
51	y	648	0	691	8	0
52	z	455	0	478	5	0
53	I	62251	0	31331	421	0
54	Q	480	0	478	16	0
55	v	774	0	824	21	0
56	A	1	0	0	0	0
56	C	83	0	0	0	0
56	I	111	0	0	0	0
56	L	1	0	0	0	0
57	Q	1	0	0	0	0
57	m	1	0	0	0	0
58	I	27	0	0	0	0
59	1	3	0	0	0	0
59	3	5	0	0	0	0
59	4	2	0	0	0	0
59	A	8	0	0	0	0
59	C	242	0	0	0	0
59	D	7	0	0	0	0
59	E	3	0	0	0	0
59	F	2	0	0	0	0
59	G	2	0	0	0	0
59	H	1	0	0	0	0
59	I	790	0	0	0	0
59	J	8	0	0	0	0
59	K	15	0	0	0	0
59	L	11	0	0	0	0
59	M	15	0	0	0	0
59	N	4	0	0	0	0
59	O	2	0	0	0	0
59	P	9	0	0	0	0
59	Q	1	0	0	0	0
59	R	1	0	0	0	0
59	S	3	0	0	0	0
59	T	11	0	0	0	0
59	U	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
59	V	3	0	0	0	0
59	W	1	0	0	0	0
59	X	8	0	0	0	0
59	Y	6	0	0	0	0
59	Z	7	0	0	0	0
59	a	3	0	0	0	0
59	b	3	0	0	0	0
59	c	3	0	0	0	0
59	d	1	0	0	0	0
59	e	1	0	0	0	0
59	f	2	0	0	0	0
59	g	1	0	0	0	0
59	h	2	0	0	0	0
59	i	2	0	0	0	0
59	j	3	0	0	0	0
59	k	2	0	0	0	0
59	l	2	0	0	0	0
59	m	1	0	0	0	0
59	n	1	0	0	0	0
59	o	3	0	0	0	0
59	p	1	0	0	0	0
59	q	4	0	0	0	0
59	r	3	0	0	0	0
59	t	3	0	0	0	0
59	u	4	0	0	0	0
59	v	1	0	0	0	0
59	w	2	0	0	0	0
59	y	1	0	0	0	0
59	z	2	0	0	0	0
All	All	145406	0	96621	1327	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 6.

All (1327) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:22:G:O2'	5:A:23:A:O5'	1.76	1.03
19:R:62:VAL:HG11	19:R:101:ILE:HD11	1.62	0.81
45:r:84:VAL:HG11	45:r:97:ILE:HD11	1.62	0.81
11:H:38:ARG:HB3	11:H:63:ASN:HB2	1.61	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:44:U:C2'	5:A:45:G:H5'	2.14	0.77
10:G:149:SER:H	10:G:152:MET:HE2	1.49	0.77
5:A:44:U:O2'	5:A:45:G:H5'	1.84	0.77
6:C:673:A:H2'	6:C:674:G:C8	2.20	0.77
21:T:132:ARG:HD3	21:T:142:ILE:HD12	1.68	0.76
6:C:664:G:H22	6:C:741:G:H1	1.34	0.76
53:I:52:A:H2	53:I:119:A:H62	1.33	0.76
44:q:82:LYS:HE2	44:q:82:LYS:H	1.50	0.75
53:I:848:C:H2'	53:I:849:A:H8	1.52	0.75
46:s:5:ILE:HD11	53:I:2062[B]:A:H61	1.52	0.74
7:D:219:ALA:HA	7:D:222:ARG:HH12	1.51	0.73
6:C:212:G:H1'	6:C:213:G:H8	1.52	0.73
22:U:53:MET:HG3	22:U:120:ALA:HB2	1.70	0.73
7:D:59:LYS:HD2	7:D:63:ARG:HH12	1.54	0.72
53:I:568:U:H1'	53:I:2030:6MZ:H9C1	1.72	0.71
15:M:145:ASP:HB3	15:M:184:ASP:HB2	1.71	0.71
18:P:104:THR:HG22	18:P:110:VAL:H	1.54	0.71
44:q:22:THR:O	44:q:26:VAL:HG12	1.90	0.71
44:q:15:HIS:HA	44:q:18:ILE:HG22	1.72	0.71
46:s:5:ILE:CD1	53:I:2062[B]:A:H61	2.04	0.70
5:A:44:U:H2'	5:A:45:G:O4'	1.91	0.70
24:W:13:ARG:HH22	53:I:2335:A:H5'	1.57	0.70
43:p:19:VAL:HA	43:p:65:ILE:HG22	1.73	0.69
43:p:84:THR:HG23	43:p:98:LEU:HD13	1.74	0.69
7:D:207:ILE:O	7:D:211:THR:HG23	1.93	0.69
16:N:160:ALA:HB1	16:N:165:GLU:HB3	1.74	0.69
43:p:56:ASP:HB3	43:p:60:LYS:HG3	1.75	0.69
27:Z:81:LYS:HD3	53:I:973:A:H5"	1.75	0.68
53:I:555:G:HO2'	53:I:556:A:H8	1.41	0.68
46:s:5:ILE:HD11	53:I:2062[B]:A:N6	2.08	0.68
3:3:47:ARG:HH11	3:3:47:ARG:HG2	1.58	0.68
6:C:492:C:H2'	6:C:493:A:C8	2.29	0.68
6:C:1238:A:H5'	6:C:1336:C:H41	1.59	0.68
38:k:41:ARG:HG3	38:k:41:ARG:HH11	1.59	0.68
15:M:12:LEU:HD11	15:M:194:LYS:HE3	1.74	0.68
41:n:15:ASP:HB3	41:n:20:SER:H	1.59	0.68
53:I:1802:A:H2'	53:I:1803:A:C8	2.28	0.68
9:F:105:MET:HG3	9:F:171:LEU:HD13	1.76	0.67
43:p:71:GLY:O	43:p:75:GLN:HB2	1.95	0.67
6:C:1004:A:H5'	6:C:1024:G:H22	1.58	0.67
28:a:4:ILE:HG13	28:a:106:VAL:HG22	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:946:A:H2'	6:C:947:G:C8	2.30	0.67
53:I:2104:C:H42	53:I:2184:A:H61	1.43	0.67
7:D:54:LEU:HD12	7:D:220:THR:HG21	1.77	0.66
6:C:744:C:H2'	6:C:745:G:H8	1.61	0.66
7:D:217:VAL:O	7:D:221:VAL:HG12	1.96	0.66
53:I:2127:G:H2'	53:I:2128:G:H8	1.59	0.66
14:L:110:THR:HG23	14:L:202:ILE:HB	1.78	0.66
29:b:69:ARG:HG3	29:b:69:ARG:HH11	1.60	0.66
45:r:37:ARG:HG3	45:r:37:ARG:HH11	1.60	0.66
30:c:48:PRO:HD3	30:c:56:GLY:HA3	1.78	0.65
6:C:1071:C:H2'	6:C:1072:G:H8	1.61	0.65
55:v:31:ILE:HG23	55:v:45:VAL:HG21	1.77	0.65
6:C:714:G:H2'	6:C:715:A:C8	2.32	0.65
10:G:112:ARG:O	10:G:116:GLU:HG3	1.97	0.65
6:C:1356:G:H2'	6:C:1357:A:C8	2.32	0.64
53:I:1353:A:H2'	53:I:1354:A:C8	2.32	0.64
14:L:181:ASP:HB3	14:L:186:LEU:HB2	1.79	0.64
53:I:2328:A:H2'	53:I:2329:U:C6	2.33	0.64
7:D:83:ALA:HB2	7:D:214:LEU:HD13	1.79	0.64
29:b:54:GLU:HG2	29:b:88:LYS:HB2	1.79	0.64
53:I:856:G:H2'	53:I:857:G:C8	2.32	0.64
1:1:13:LEU:HD11	55:v:47:LYS:HG3	1.80	0.64
17:O:176:LYS:HA	17:O:176:LYS:HE3	1.79	0.64
42:o:105:SER:HB2	42:o:126:ILE:HD11	1.80	0.64
16:N:17:MET:HE2	16:N:25:VAL:HA	1.78	0.64
16:N:47:LYS:HE2	16:N:47:LYS:H	1.63	0.64
44:q:19:ASP:HA	44:q:22:THR:HG22	1.80	0.63
55:v:89:MET:HA	55:v:89:MET:HE2	1.80	0.63
6:C:1323:G:H2'	6:C:1324:A:C8	2.34	0.63
11:H:4:TYR:CD2	11:H:71:ILE:HG13	2.34	0.63
13:K:107:PRO:HD2	13:K:110:LEU:HD22	1.81	0.63
30:c:74:ASN:HD21	30:c:99:ASN:HD21	1.47	0.63
53:I:172:A:H2'	53:I:173:A:H8	1.64	0.63
7:D:115:LYS:HE3	7:D:152:LYS:HB2	1.80	0.62
2:2:10:ARG:HD3	6:C:108:G:C6	2.35	0.62
27:Z:1:MET:HA	27:Z:42:ALA:O	1.99	0.62
41:n:70:ARG:HG2	41:n:96:ARG:HG3	1.80	0.62
7:D:15:HIS:HB3	7:D:43:LEU:HD21	1.81	0.62
10:G:24:THR:HA	10:G:29:ARG:HA	1.80	0.62
22:U:64:TRP:HB2	22:U:104:GLU:HB2	1.82	0.61
55:v:13:ARG:HG3	55:v:54:ASP:OD1	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:p:57:MET:HE3	43:p:57:MET:N	2.15	0.61
41:n:79:ARG:HD3	41:n:84:THR:HG22	1.83	0.61
53:I:1176:U:H2'	53:I:1177:G:C8	2.35	0.61
6:C:1305:G:H21	6:C:1332:A:H2	1.48	0.61
26:Y:49:ASP:HA	26:Y:52:GLN:HB2	1.81	0.61
53:I:603:A:H5"	53:I:655:A:H61	1.65	0.61
53:I:2123:G:H2'	53:I:2124:G:C8	2.36	0.61
53:I:2329:U:H2'	53:I:2330:G:C8	2.35	0.61
30:c:26:LYS:HD2	30:c:37:GLU:HG2	1.82	0.61
42:o:64:LYS:HG3	42:o:71:VAL:HG21	1.81	0.61
29:b:3:ARG:HB2	29:b:6:ARG:HB3	1.81	0.61
1:1:45:ILE:HD12	1:1:45:ILE:H	1.66	0.60
6:C:337:G:H2'	6:C:338:A:C8	2.36	0.60
25:X:63:LYS:HE2	25:X:65:SER:HB2	1.82	0.60
30:c:47:LYS:HE2	53:I:483:A:H5"	1.82	0.60
34:g:4:LYS:H	34:g:4:LYS:HD2	1.66	0.60
6:C:376:G:H5"	50:x:5:ARG:HB2	1.83	0.60
10:G:105:ILE:HD12	10:G:116:GLU:HG2	1.83	0.60
44:q:27:GLU:O	44:q:31:ARG:HG2	2.00	0.60
53:I:639:U:H2'	53:I:640:C:C6	2.36	0.60
22:U:50:ARG:HA	22:U:53:MET:HE2	1.83	0.60
33:f:17:ASN:C	33:f:17:ASN:HD22	2.09	0.60
53:I:833:A:H2'	53:I:834:G:C8	2.36	0.60
6:C:713:G:H2'	6:C:714:G:C8	2.35	0.60
45:r:64:GLN:O	45:r:68:GLU:HG3	2.01	0.60
16:N:14:LYS:O	16:N:18:THR:HG23	2.02	0.60
53:I:1434:A:H2'	53:I:1435:G:H8	1.67	0.60
7:D:123:ASP:OD1	7:D:125:THR:HG23	2.02	0.59
8:E:117:ALA:O	8:E:121:THR:HG23	2.02	0.59
14:L:1:MET:HB3	14:L:205:PRO:HG2	1.83	0.59
41:n:137:LYS:O	41:n:141:VAL:HG23	2.03	0.59
53:I:645:C:H2'	53:I:647:G:C8	2.37	0.59
18:P:3:VAL:HG12	18:P:38:PRO:HA	1.84	0.59
22:U:75:GLU:HB2	22:U:90:GLU:HG3	1.84	0.59
41:n:25:LYS:HB3	41:n:101:MET:HE1	1.85	0.59
31:d:6:ALA:HB3	31:d:65:VAL:HG22	1.85	0.59
53:I:182:A:H2'	53:I:183:C:H6	1.68	0.59
53:I:832:U:H2'	53:I:833:A:H8	1.67	0.59
6:C:677:U:H3	6:C:713:G:H22	1.51	0.58
19:R:68:LYS:HB2	19:R:72:LYS:HB2	1.85	0.58
53:I:1434:A:H2'	53:I:1435:G:C8	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:q:88:MET:HE3	44:q:88:MET:HA	1.85	0.58
53:I:2062[B]:A:N6	53:I:2503:2MA:N7	2.51	0.58
53:I:2591:C:H2'	53:I:2592:G:C8	2.38	0.58
6:C:131:A:H2'	6:C:132:C:C6	2.38	0.58
7:D:43:LEU:HA	7:D:46:THR:HG22	1.85	0.58
53:I:2086:U:H2'	53:I:2087:G:C8	2.38	0.58
55:v:3:LYS:HB2	55:v:6:MET:HG2	1.84	0.58
6:C:1226:C:H2'	48:u:102:THR:HG23	1.85	0.58
44:q:26:VAL:HG23	44:q:36:VAL:HG21	1.85	0.58
6:C:501:C:H2'	6:C:502:A:H8	1.69	0.58
6:C:555:U:H2'	6:C:556:C:C6	2.39	0.58
20:S:104:THR:HG22	20:S:106:GLU:H	1.69	0.58
53:I:1000:A:H2'	53:I:1001:A:C8	2.39	0.58
55:v:16:LEU:HD23	55:v:54:ASP:HB3	1.85	0.58
41:n:71:PRO:O	41:n:96:ARG:HD2	2.04	0.57
29:b:54:GLU:H	29:b:54:GLU:CD	2.11	0.57
53:I:1353:A:H2'	53:I:1354:A:H8	1.68	0.57
53:I:2071:A:H2'	53:I:2072:C:C6	2.38	0.57
53:I:1469:A:H2'	53:I:1470:A:C8	2.39	0.57
53:I:1539:U:H2'	53:I:1540:G:H8	1.69	0.57
53:I:2123:G:H2'	53:I:2124:G:H8	1.68	0.57
6:C:147:G:H2'	6:C:148:G:C8	2.39	0.57
44:q:16:ARG:HG2	44:q:16:ARG:HH11	1.70	0.57
53:I:2537:U:H2'	53:I:2538:C:C6	2.40	0.57
6:C:459:A:H2'	6:C:460:A:C8	2.40	0.57
11:H:11:HIS:CD2	11:H:54:LEU:HD21	2.40	0.57
53:I:2430:A:N3	53:I:2430:A:H2'	2.19	0.57
6:C:501:C:H2'	6:C:502:A:C8	2.40	0.57
53:I:742:A:H2'	53:I:743:A:C8	2.39	0.57
6:C:539:A:H2'	6:C:540:G:C8	2.40	0.57
9:F:172:GLU:HB3	9:F:181:THR:HG23	1.85	0.57
41:n:129:GLU:HG3	41:n:131:LYS:NZ	2.20	0.57
18:P:4:ILE:HG22	18:P:18:GLN:HG2	1.87	0.57
53:I:1432:G:H2'	53:I:1433:A:C8	2.39	0.57
6:C:695:A:H2'	6:C:696:A:C8	2.40	0.57
6:C:744:C:H2'	6:C:745:G:C8	2.40	0.57
24:W:13:ARG:NH2	53:I:2335:A:H5'	2.20	0.57
24:W:56:LYS:O	24:W:60:GLU:HG3	2.05	0.57
2:2:28:MET:HE1	2:2:67:ILE:HG21	1.87	0.56
53:I:871:U:H2'	53:I:872:U:C6	2.40	0.56
6:C:17:U:H2'	6:C:18:C:C6	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:1218:C:H2'	6:C:1219:A:C8	2.40	0.56
3:3:29:LEU:HB3	3:3:33:ARG:NH2	2.21	0.56
3:3:35:ARG:HD3	45:r:117:PRO:HD2	1.87	0.56
53:I:5:A:H2'	53:I:6:A:C8	2.41	0.56
53:I:2064:C:H2'	53:I:2065:C:C6	2.40	0.56
6:C:524:G:H2'	6:C:525:C:C6	2.41	0.56
6:C:932:C:H5"	41:n:4:ARG:NH1	2.20	0.56
53:I:1570:A:H2'	53:I:1571:A:C8	2.40	0.56
6:C:736:C:H2'	6:C:737:C:C6	2.41	0.56
14:L:17:GLU:CD	14:L:17:GLU:H	2.12	0.56
17:O:127:THR:HG22	17:O:129:THR:H	1.71	0.56
19:R:32:LEU:HD22	19:R:54:ILE:HG21	1.88	0.56
53:I:1105:U:H2'	53:I:1106:G:H8	1.70	0.56
16:N:133:ARG:HB2	16:N:133:ARG:NH1	2.20	0.56
44:q:22:THR:HA	44:q:25:ILE:HG22	1.86	0.56
53:I:2243:U:H2'	53:I:2244:U:C6	2.40	0.56
41:n:45:SER:O	41:n:49:THR:HG23	2.06	0.56
41:n:74:GLU:HG2	41:n:91:VAL:HG22	1.87	0.56
1:1:65:GLU:HA	54:Q:56:ARG:HG3	1.87	0.56
6:C:1010:U:H2'	6:C:1011:C:C6	2.41	0.56
9:F:156:LYS:HE2	9:F:156:LYS:H	1.71	0.56
17:O:10:VAL:HA	17:O:49:THR:HG22	1.88	0.56
6:C:922:G:H2'	6:C:923:A:C8	2.41	0.55
9:F:121:LYS:HG3	9:F:131:ASN:OD1	2.06	0.55
53:I:2329:U:H2'	53:I:2330:G:H8	1.72	0.55
6:C:736:C:H2'	6:C:737:C:H6	1.70	0.55
53:I:1796:U:H2'	53:I:1797:G:H8	1.71	0.55
53:I:2246:G:H2'	53:I:2247:A:H8	1.72	0.55
1:1:50:ALA:HB1	1:1:57:HIS:HB3	1.88	0.55
19:R:31:GLU:HG2	19:R:142:ILE:HD12	1.88	0.55
33:f:17:ASN:O	33:f:17:ASN:ND2	2.35	0.55
50:x:4:ILE:HG12	50:x:21:VAL:HG22	1.87	0.55
53:I:172:A:H2'	53:I:173:A:C8	2.40	0.55
53:I:2291:U:H2'	53:I:2292:U:C6	2.40	0.55
6:C:96:U:H2'	6:C:97:G:C8	2.42	0.55
6:C:1287:A:H2'	6:C:1288:A:C8	2.42	0.55
8:E:79:LYS:C	8:E:80:LYS:HD2	2.32	0.55
53:I:848:C:H2'	53:I:849:A:C8	2.39	0.55
53:I:851:C:H2'	53:I:852:U:C6	2.42	0.55
53:I:2788:C:H2'	53:I:2789:C:C6	2.42	0.55
6:C:662:U:H2'	6:C:663:A:C8	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:946:A:H2'	6:C:947:G:H8	1.69	0.55
8:E:150:LYS:HG3	8:E:169:ARG:HB3	1.88	0.55
14:L:148:GLN:HB2	14:L:152:PRO:HG3	1.89	0.55
53:I:64:A:H2'	53:I:65:U:C6	2.42	0.55
53:I:191:A:H2'	53:I:192:C:C6	2.42	0.55
53:I:414:C:H2'	53:I:415:A:C8	2.42	0.55
2:2:20:HIS:O	2:2:24:ARG:HG2	2.07	0.55
5:A:62:C:H2'	5:A:63:U:C6	2.42	0.55
6:C:477:C:H2'	6:C:478:A:C8	2.42	0.55
6:C:1391:U:H2'	6:C:1392:G:C8	2.41	0.55
45:r:59:THR:HG22	45:r:61:PHE:H	1.72	0.55
6:C:769:G:H4'	6:C:1513:A:H4'	1.89	0.55
6:C:1412:C:H2'	6:C:1413:A:C8	2.40	0.55
21:T:57:LEU:HD22	39:l:54:ASP:HB3	1.89	0.55
38:k:41:ARG:HG3	38:k:41:ARG:NH1	2.21	0.55
39:l:25:LYS:HB3	39:l:47:LYS:HE3	1.88	0.55
6:C:384:G:H2'	6:C:385:C:C6	2.42	0.55
46:s:2:ASN:HB3	53:I:2062[A]:A:N1	2.22	0.55
53:I:2273:A:H2'	53:I:2274:A:C8	2.41	0.55
5:A:63:U:H2'	5:A:64:G:C8	2.42	0.55
6:C:429:U:H3'	9:F:9:LEU:HD12	1.89	0.55
8:E:86:LYS:O	8:E:90:VAL:HG12	2.07	0.55
53:I:1028:A:N6	53:I:1125:G:H2'	2.22	0.55
53:I:1141:U:H4'	53:I:1142:A:O4'	2.06	0.55
53:I:1590:A:H2'	53:I:1591:A:C8	2.42	0.55
53:I:1794:A:H2'	53:I:1795:C:C6	2.42	0.55
53:I:2153:C:H2'	53:I:2154:A:H8	1.72	0.55
53:I:2333:A:H4'	53:I:2334:U:H3'	1.89	0.55
6:C:674:G:H2'	6:C:675:A:H8	1.71	0.55
43:p:67:VAL:HG21	43:p:75:GLN:HG3	1.88	0.55
53:I:191:A:H2'	53:I:192:C:H6	1.72	0.55
53:I:581:C:H2'	53:I:582:A:C8	2.42	0.55
6:C:459:A:H2'	6:C:460:A:H8	1.71	0.54
53:I:52:A:H2	53:I:119:A:N6	2.03	0.54
53:I:414:C:H2'	53:I:415:A:H8	1.72	0.54
53:I:1539:U:H2'	53:I:1540:G:C8	2.42	0.54
6:C:982:U:H4'	6:C:983:A:H5'	1.89	0.54
17:O:9:VAL:HG22	17:O:69:ARG:HE	1.72	0.54
53:I:1727:C:H2'	53:I:1728:C:C6	2.42	0.54
7:D:210:VAL:O	7:D:214:LEU:HG	2.07	0.54
53:I:2246:G:H2'	53:I:2247:A:C8	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:32:PHE:HB3	7:D:40:ILE:HD12	1.90	0.54
11:H:38:ARG:HH21	11:H:96:VAL:HG22	1.72	0.54
41:n:75:VAL:HG11	41:n:144:MET:HG2	1.88	0.54
43:p:90:TYR:HB2	43:p:94:LEU:HD21	1.89	0.54
52:z:45:THR:OG1	52:z:47:THR:HG23	2.07	0.54
53:I:813:U:H2'	53:I:814:C:C6	2.43	0.54
2:2:5:LYS:HZ3	2:2:5:LYS:HB2	1.72	0.54
9:F:37:ALA:HA	9:F:42:GLY:HA3	1.90	0.54
15:M:144:GLU:HG3	15:M:166:LYS:HD3	1.89	0.54
43:p:55:VAL:HG13	43:p:56:ASP:H	1.72	0.54
55:v:43:ASN:HD21	55:v:47:LYS:HE2	1.72	0.54
7:D:210:VAL:HA	7:D:213:TYR:HD2	1.72	0.54
55:v:43:ASN:ND2	55:v:47:LYS:HE2	2.22	0.54
29:b:3:ARG:HG3	29:b:3:ARG:HH11	1.72	0.54
53:I:358:U:H2'	53:I:359:G:H8	1.72	0.54
53:I:1796:U:H2'	53:I:1797:G:C8	2.43	0.54
5:A:10:G:H2'	5:A:10:G:N3	2.21	0.54
6:C:1530:G:H2'	6:C:1531:A:C8	2.42	0.54
39:l:55:LEU:O	39:l:59:ILE:HG13	2.08	0.54
48:u:49:SER:OG	48:u:52:GLN:HG2	2.08	0.54
53:I:1306:C:H2'	53:I:1307:A:H8	1.73	0.54
6:C:1004:A:H5'	6:C:1024:G:N2	2.23	0.54
8:E:167:TRP:HZ3	8:E:169:ARG:HG2	1.72	0.54
9:F:147:GLU:O	9:F:150:LYS:HB2	2.08	0.54
34:g:55:THR:HG21	53:I:76:C:O2'	2.08	0.54
35:h:12:SER:HB2	35:h:32:ILE:HD11	1.90	0.54
6:C:745:G:H2'	6:C:746:A:H8	1.71	0.54
6:C:1011:C:H2'	6:C:1012:A:H8	1.73	0.54
16:N:4:LEU:HG	16:N:101:GLU:HB2	1.89	0.54
53:I:2074:U:H2'	53:I:2075:U:C6	2.43	0.54
53:I:2162:G:H4'	53:I:2171:A:H5'	1.89	0.54
13:K:155:ALA:HB2	13:K:162:VAL:HG23	1.89	0.53
53:I:581:C:H2'	53:I:582:A:H8	1.73	0.53
53:I:833:A:H2'	53:I:834:G:H8	1.73	0.53
53:I:1198:U:H2'	53:I:1199:U:C6	2.44	0.53
41:n:4:ARG:HH11	41:n:4:ARG:HB2	1.73	0.53
44:q:7:ARG:HD2	44:q:73:LEU:HD11	1.90	0.53
3:3:34:ARG:HB3	3:3:34:ARG:NH1	2.23	0.53
9:F:153:SER:H	9:F:156:LYS:HZ1	1.56	0.53
44:q:27:GLU:HG2	44:q:30:LYS:HZ3	1.74	0.53
53:I:639:U:H2'	53:I:640:C:H6	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:1703:G:H2'	53:I:1704:C:C6	2.43	0.53
53:I:2062[B]:A:H2'	53:I:2062[B]:A:N3	2.23	0.53
21:T:82:LEU:HD21	21:T:120:VAL:HG21	1.90	0.53
24:W:76:LYS:HG2	24:W:80:GLU:OE2	2.09	0.53
53:I:2327:A:H2'	53:I:2328:A:C8	2.43	0.53
53:I:2547:A:H2'	53:I:2548:U:C6	2.43	0.53
16:N:115:ARG:HD2	48:u:71:ARG:NH2	2.23	0.53
18:P:100:ALA:O	18:P:104:THR:HG23	2.09	0.53
42:o:11:LEU:HD22	42:o:75:ILE:HD11	1.89	0.53
37:j:37:LYS:HD3	37:j:48:ILE:HG13	1.90	0.53
53:I:155:A:H2'	53:I:156:A:C8	2.43	0.53
6:C:1088:G:H21	6:C:1167:A:H62	1.56	0.53
9:F:124:MET:HE2	9:F:146:ARG:HD2	1.91	0.53
14:L:2:ILE:HD11	14:L:84:LEU:HD23	1.91	0.53
18:P:94:ILE:HG13	18:P:146:VAL:HG11	1.89	0.53
18:P:114:GLU:HB2	18:P:133:GLN:O	2.08	0.53
24:W:27:VAL:HA	24:W:93:ASP:HB3	1.90	0.53
43:p:57:MET:HE3	43:p:57:MET:H	1.72	0.53
53:I:155:A:H2'	53:I:156:A:H8	1.73	0.53
53:I:927:A:H2'	53:I:928:A:C8	2.44	0.53
6:C:1071:C:H2'	6:C:1072:G:C8	2.43	0.53
19:R:108:MET:HG2	53:I:1006:C:H1'	1.90	0.53
20:S:103:VAL:O	20:S:122:VAL:HG13	2.09	0.53
53:I:832:U:H2'	53:I:833:A:C8	2.44	0.53
53:I:1094:U:H1'	53:I:1097:U:H5	1.73	0.53
2:2:39:ILE:HD11	2:2:83:ILE:HG13	1.91	0.53
13:K:29:PRO:HG2	13:K:34:LEU:HD11	1.90	0.53
44:q:11:LYS:HB2	44:q:97:ASP:OD1	2.08	0.53
53:I:910:A:H2'	53:I:911:A:C8	2.43	0.53
55:v:27:LEU:O	55:v:31:ILE:HG22	2.08	0.53
2:2:5:LYS:HE3	6:C:331:G:H2'	1.90	0.53
6:C:216:U:H2'	6:C:217:C:C6	2.44	0.53
53:I:364:C:H2'	53:I:365:U:C6	2.44	0.53
31:d:34:LYS:H	31:d:34:LYS:HE2	1.73	0.52
53:I:2698:U:H2'	53:I:2699:C:C6	2.45	0.52
41:n:36:LYS:O	41:n:40:GLU:HG3	2.07	0.52
17:O:17:VAL:HG21	17:O:50:LEU:HD21	1.91	0.52
6:C:745:G:H2'	6:C:746:A:C8	2.44	0.52
17:O:98:VAL:HG23	17:O:125:CYS:SG	2.49	0.52
32:e:38:VAL:HG12	32:e:59:LEU:HB2	1.91	0.52
42:o:103:VAL:HG12	42:o:126:ILE:HD12	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:r:30:THR:HG21	45:r:63:ALA:HB2	1.91	0.52
6:C:41:G:H2'	6:C:42:G:H8	1.74	0.52
6:C:746:A:H2'	6:C:747:A:C8	2.44	0.52
6:C:1356:G:H2'	6:C:1357:A:H8	1.72	0.52
53:I:598:U:H2'	53:I:599:A:H8	1.74	0.52
53:I:1794:A:H2'	53:I:1795:C:H6	1.75	0.52
7:D:206:ALA:O	7:D:210:VAL:HG13	2.09	0.52
16:N:162:SER:OG	16:N:165:GLU:HB2	2.10	0.52
53:I:71:A:H4'	53:I:72:U:H5'	1.91	0.52
53:I:1443:U:H2'	53:I:1444:G:H8	1.73	0.52
53:I:1746:A:H2'	53:I:1747:U:C6	2.45	0.52
53:I:2106:U:H3	53:I:2184:A:H2	1.58	0.52
3:3:12:PHE:CD1	45:r:107:ILE:HD11	2.45	0.52
6:C:115:G:H4'	6:C:116:A:O5'	2.10	0.52
37:j:6:ARG:HG2	37:j:24:THR:HB	1.91	0.52
47:t:64:THR:HG22	47:t:93:VAL:HG22	1.92	0.52
53:I:593:U:H2'	53:I:594:U:C6	2.44	0.52
53:I:1441:G:H2'	53:I:1442:U:C6	2.44	0.52
43:p:92:GLU:HA	43:p:95:ARG:HB3	1.92	0.52
53:I:2537:U:H2'	53:I:2538:C:H6	1.74	0.52
1:1:62:VAL:HA	1:1:66:MET:SD	2.49	0.52
6:C:89:U:H2'	6:C:90:C:C6	2.45	0.52
6:C:335:C:H2'	6:C:336:A:H8	1.75	0.52
6:C:390:U:H2'	6:C:391:G:C8	2.45	0.52
6:C:1120:C:H2'	6:C:1121:U:H6	1.75	0.52
6:C:1273:C:H2'	6:C:1274:A:O4'	2.09	0.52
8:E:79:LYS:O	8:E:80:LYS:HD2	2.10	0.52
28:a:20:VAL:HG11	28:a:44:ALA:HA	1.90	0.52
41:n:147:ALA:C	41:n:148:ASN:HD22	2.18	0.52
53:I:2809:A:H2'	53:I:2810:A:C8	2.45	0.52
44:q:82:LYS:H	44:q:82:LYS:CE	2.21	0.51
49:w:6:GLU:H	49:w:6:GLU:CD	2.18	0.51
53:I:2514:U:H2'	53:I:2515:C:C6	2.45	0.51
6:C:831:A:H4'	7:D:21:ARG:HH21	1.75	0.51
6:C:1477:U:H2'	6:C:1478:U:C6	2.45	0.51
53:I:5:A:H2'	53:I:6:A:H8	1.74	0.51
53:I:580:U:H2'	53:I:581:C:C6	2.46	0.51
53:I:582:A:H2'	53:I:583:G:C8	2.45	0.51
15:M:122:GLU:HG2	15:M:123:LYS:HD2	1.91	0.51
53:I:2070:A:H2'	53:I:2071:A:C8	2.45	0.51
6:C:460:A:H2'	6:C:461:A:H8	1.74	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:E:155:GLY:O	8:E:196:ILE:HG12	2.10	0.51
9:F:128:ARG:HH11	9:F:128:ARG:HG3	1.75	0.51
12:J:66:A:H61	12:J:107:G:H2'	1.76	0.51
42:o:35:ALA:O	42:o:39:VAL:HG23	2.11	0.51
50:x:4:ILE:HG22	50:x:71:VAL:HG11	1.93	0.51
54:Q:3:LYS:HB3	54:Q:4:ASP:OD1	2.10	0.51
6:C:1314:C:H2'	6:C:1315:U:C6	2.45	0.51
53:I:1405:U:H2'	53:I:1406:U:C6	2.46	0.51
6:C:673:A:H2'	6:C:674:G:H8	1.74	0.51
35:h:12:SER:OG	35:h:14:ILE:HG12	2.10	0.51
6:C:1250:A:H2'	6:C:1251:A:C8	2.46	0.51
17:O:71:LEU:O	17:O:75:MET:HG3	2.10	0.51
29:b:69:ARG:HG3	29:b:69:ARG:NH1	2.26	0.51
53:I:479:A:N3	53:I:481:G:H5"	2.25	0.51
53:I:849:A:H2'	53:I:850:U:H6	1.76	0.51
3:3:47:ARG:HG2	3:3:47:ARG:NH1	2.22	0.51
7:D:173:ILE:HD12	7:D:183:VAL:HG11	1.93	0.51
53:I:1386:C:H2'	53:I:1387:A:C8	2.46	0.51
54:Q:59:ARG:HH21	54:Q:63:ARG:NE	2.09	0.51
6:C:209:U:H5'	6:C:211:G:N1	2.26	0.51
6:C:945:G:C2	6:C:946:A:C8	2.99	0.51
6:C:1251:A:H2'	6:C:1252:A:C8	2.46	0.51
8:E:72:ARG:HB3	8:E:75:ILE:HD13	1.93	0.51
44:q:6:ILE:HD11	44:q:76:ILE:HB	1.93	0.51
53:I:419:U:H2'	53:I:420:C:C6	2.45	0.51
53:I:608:A:H2'	53:I:609:A:C8	2.46	0.51
53:I:1469:A:H2'	53:I:1470:A:H8	1.76	0.51
6:C:8:A:C5	9:F:206:LYS:HB3	2.46	0.50
6:C:384:G:H2'	6:C:385:C:H6	1.76	0.50
6:C:1048:G:H5"	55:v:3:LYS:HG2	1.92	0.50
6:C:21:G:H2'	6:C:22:G:C8	2.46	0.50
6:C:219:U:H2'	6:C:220:G:H8	1.76	0.50
6:C:235:C:H2'	6:C:236:A:H8	1.77	0.50
6:C:613:C:H2'	6:C:614:C:C6	2.46	0.50
34:g:51:ALA:O	34:g:55:THR:HG22	2.12	0.50
48:u:59:GLU:OE1	48:u:59:GLU:HA	2.11	0.50
48:u:71:ARG:O	48:u:75:MET:HG2	2.11	0.50
53:I:2233:U:H2'	53:I:2234:G:C8	2.46	0.50
53:I:2591:C:H2'	53:I:2592:G:H8	1.76	0.50
29:b:33:LYS:HE2	29:b:82:LYS:HB2	1.92	0.50
47:t:36:ARG:HG2	47:t:54:ARG:HB3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:851:C:H2'	53:I:852:U:H6	1.74	0.50
53:I:2170:A:H1'	53:I:2171:A:O4'	2.11	0.50
1:1:9:PRO:HD3	54:Q:64:PHE:CG	2.47	0.50
6:C:41:G:H2'	6:C:42:G:C8	2.46	0.50
6:C:920:U:H2'	6:C:921:U:C6	2.46	0.50
6:C:1062:U:H2'	6:C:1063:C:C6	2.47	0.50
7:D:219:ALA:HA	7:D:222:ARG:NH1	2.23	0.50
18:P:90:LEU:HD11	18:P:146:VAL:HG21	1.92	0.50
25:X:89:ARG:HG3	25:X:89:ARG:HH11	1.76	0.50
53:I:1361:G:H2'	53:I:1362:C:C6	2.46	0.50
9:F:153:SER:H	9:F:156:LYS:NZ	2.09	0.50
53:I:2153:C:H2'	53:I:2154:A:C8	2.46	0.50
54:Q:47:LYS:HE2	54:Q:47:LYS:N	2.26	0.50
15:M:18:THR:HA	15:M:106:LYS:HG2	1.94	0.50
44:q:42:LEU:HB2	44:q:71:LEU:HB3	1.93	0.50
53:I:2557:G:H2'	53:I:2558:C:C6	2.47	0.50
6:C:56:U:H2'	6:C:57:G:H8	1.77	0.50
20:S:103:VAL:HG13	20:S:107:LEU:HD12	1.94	0.50
45:r:22:HIS:C	45:r:23:ILE:HD13	2.36	0.50
53:I:1076:C:H2'	53:I:1077:A:C8	2.46	0.50
6:C:235:C:H2'	6:C:236:A:C8	2.47	0.50
6:C:1086:U:HO2'	6:C:1087:G:H8	1.55	0.50
24:W:13:ARG:HG2	24:W:13:ARG:HH11	1.77	0.50
48:u:80:LEU:HD13	48:u:87:ARG:HG2	1.94	0.50
49:w:17:ARG:HH11	49:w:17:ARG:HG3	1.77	0.50
53:I:2847:U:H2'	53:I:2848:G:O4'	2.12	0.50
6:C:374:A:H5"	6:C:452:A:C2	2.47	0.49
6:C:728:A:H2'	6:C:729:A:C8	2.47	0.49
6:C:269:C:H2'	6:C:270:A:C8	2.46	0.49
16:N:56:ASP:O	16:N:60:ILE:HG12	2.12	0.49
44:q:25:ILE:HD11	44:q:87:LEU:HD21	1.95	0.49
53:I:45:G:H5'	53:I:46:G:OP1	2.12	0.49
53:I:358:U:H2'	53:I:359:G:C8	2.47	0.49
53:I:1105:U:H2'	53:I:1106:G:C8	2.46	0.49
53:I:1171:G:H2'	53:I:1172:C:C6	2.48	0.49
53:I:2740:A:H2'	53:I:2741:A:C8	2.48	0.49
3:3:16:LEU:HD11	45:r:97:ILE:HG21	1.94	0.49
6:C:412:A:O2'	6:C:413:G:H4'	2.12	0.49
45:r:56:ARG:HG3	45:r:56:ARG:HH11	1.78	0.49
7:D:97:LEU:HB2	7:D:100:MET:HE2	1.94	0.49
9:F:48:LEU:HD21	9:F:56:ARG:HG2	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:N:136:ILE:HD13	16:N:141:ILE:HD11	1.95	0.49
26:Y:58:ARG:O	26:Y:62:ILE:HG12	2.12	0.49
38:k:26:ASN:ND2	53:I:682:G:H5'	2.27	0.49
51:y:20:SER:HB3	51:y:71:LYS:NZ	2.27	0.49
53:I:138:U:H4'	53:I:139:U:OP1	2.13	0.49
2:2:28:MET:O	2:2:32:ILE:HG13	2.12	0.49
6:C:34:C:H2'	6:C:35:G:H8	1.77	0.49
6:C:1513:A:H2'	6:C:1514:G:C8	2.46	0.49
27:Z:35:PHE:HB2	27:Z:59:ILE:HB	1.95	0.49
8:E:42:TYR:OH	8:E:90:VAL:HG11	2.12	0.49
8:E:85:GLU:O	8:E:89:LYS:HG2	2.12	0.49
53:I:181:A:H2'	53:I:182:A:H8	1.77	0.49
53:I:1442:U:H2'	53:I:1443:U:C6	2.48	0.49
13:K:181:MET:HB2	13:K:268:VAL:HG22	1.94	0.49
19:R:13:ARG:HH11	19:R:13:ARG:HG3	1.77	0.49
20:S:43:ILE:HD12	20:S:56:ASP:HB2	1.95	0.49
30:c:89:ASP:O	30:c:91:LYS:HG3	2.12	0.49
53:I:2469:A:H2'	53:I:2470:G:O4'	2.13	0.49
11:H:26:THR:HG22	11:H:36:ILE:HG12	1.94	0.49
12:J:48:U:H2'	12:J:49:C:H6	1.77	0.49
13:K:19:VAL:HG23	13:K:203[B]:ARG:HB2	1.94	0.49
41:n:148:ASN:HD22	41:n:148:ASN:N	2.09	0.49
45:r:37:ARG:HG3	45:r:37:ARG:NH1	2.26	0.49
53:I:181:A:H2'	53:I:182:A:C8	2.48	0.49
53:I:721:A:H2'	53:I:722:A:C8	2.47	0.49
7:D:66:LYS:HG2	7:D:90:PHE:HE2	1.78	0.49
13:K:209:GLY:HA2	53:I:764:A:H5'	1.95	0.49
53:I:537:G:H22	53:I:555:G:H2'	1.77	0.49
53:I:1013:C:H2'	53:I:1014:A:H8	1.78	0.49
53:I:1727:C:H2'	53:I:1728:C:H6	1.78	0.49
53:I:2135:A:H1'	53:I:2159:G:O2'	2.13	0.49
6:C:476:U:H2'	6:C:477:C:C6	2.47	0.48
6:C:559:A:H4'	6:C:560:A:H3'	1.95	0.48
18:P:97:ARG:HH11	18:P:97:ARG:HG2	1.78	0.48
53:I:145:C:H2'	53:I:146:A:C8	2.48	0.48
53:I:184:C:H2'	53:I:185:G:H8	1.78	0.48
53:I:236:C:O2'	53:I:431:U:H4'	2.12	0.48
53:I:582:A:H2'	53:I:583:G:H8	1.78	0.48
53:I:742:A:H2'	53:I:743:A:H8	1.77	0.48
53:I:2025:C:H2'	53:I:2026:U:C6	2.48	0.48
53:I:2328:A:H2'	53:I:2329:U:H6	1.75	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:33:LYS:HA	2:2:36:TYR:CE2	2.47	0.48
5:A:50:C:H2'	5:A:51:A:C8	2.48	0.48
6:C:216:U:H2'	6:C:217:C:H6	1.78	0.48
6:C:1314:C:H2'	6:C:1315:U:H6	1.77	0.48
7:D:219:ALA:O	7:D:223:GLU:HG2	2.13	0.48
11:H:72:ASP:O	11:H:76:THR:HG23	2.13	0.48
53:I:1386:C:H2'	53:I:1387:A:H8	1.77	0.48
53:I:2014:A:H2'	53:I:2015:A:C8	2.48	0.48
53:I:2636:C:H2'	53:I:2637:U:C6	2.48	0.48
54:Q:20:ASN:OD1	54:Q:22:MET:HE3	2.13	0.48
54:Q:43:PHE:HA	54:Q:48:GLN:HG3	1.94	0.48
6:C:236:A:H2'	6:C:237:G:C8	2.48	0.48
6:C:715:A:H2'	6:C:716:A:C8	2.48	0.48
6:C:979:C:O2	55:v:59:ARG:HD2	2.13	0.48
6:C:1175:G:H2'	6:C:1176:A:H8	1.78	0.48
14:L:11:MET:HE2	53:I:2682:A:C8	2.48	0.48
16:N:131:GLY:HA3	53:I:2305:U:H5"	1.95	0.48
25:X:6:LYS:HB2	25:X:6:LYS:NZ	2.28	0.48
26:Y:86:ALA:HB2	26:Y:116:ALA:HB2	1.95	0.48
39:l:14:PHE:O	39:l:15:LYS:HD3	2.13	0.48
53:I:703:U:H2'	53:I:704:G:O4'	2.12	0.48
53:I:2170:A:O2'	53:I:2171:A:H5"	2.12	0.48
53:I:2297:A:N1	53:I:2321:U:H5	2.10	0.48
1:1:41:PHE:H	1:1:44:MET:HG3	1.76	0.48
18:P:80:ILE:O	18:P:146:VAL:HA	2.12	0.48
53:I:3:U:H2'	53:I:4:U:C6	2.49	0.48
53:I:576:U:H2'	53:I:577:G:C8	2.48	0.48
6:C:1124:G:H4'	44:q:40:ILE:HD11	1.96	0.48
9:F:170:TRP:CD2	9:F:186:PRO:HB3	2.47	0.48
16:N:135:GLN:HG3	16:N:141:ILE:HD13	1.96	0.48
41:n:25:LYS:O	41:n:29:ILE:HD12	2.12	0.48
53:I:2455:G:H2'	53:I:2456:C:C6	2.49	0.48
6:C:56:U:H2'	6:C:57:G:C8	2.49	0.48
6:C:1299:A:O2'	6:C:1300:G:H4'	2.13	0.48
18:P:116:ARG:HB2	18:P:131:SER:OG	2.13	0.48
53:I:1429:G:H2'	53:I:1430:G:H8	1.79	0.48
6:C:33:A:H2'	6:C:34:C:C6	2.49	0.48
6:C:1011:C:H2'	6:C:1012:A:C8	2.49	0.48
6:C:1144:G:N2	6:C:1146:A:H62	2.11	0.48
7:D:13:GLY:C	7:D:15:HIS:H	2.22	0.48
48:u:81:MET:HE3	48:u:92:ARG:HG3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:451:U:O2'	53:I:452:G:H3'	2.14	0.48
53:I:1590:A:H2'	53:I:1591:A:H8	1.77	0.48
6:C:1507:A:H2'	6:C:1508:A:C8	2.49	0.48
6:C:1524:C:H2'	6:C:1525:G:C8	2.49	0.48
11:H:61:LEU:HD12	11:H:62:MET:N	2.28	0.48
33:f:17:ASN:HB3	33:f:27:ARG:HD2	1.96	0.48
53:I:784:G:H5'	53:I:785:G:OP1	2.14	0.48
53:I:1856:U:H2'	53:I:1857:G:O4'	2.14	0.48
7:D:50:PHE:O	7:D:54:LEU:HD22	2.14	0.48
53:I:638:G:H2'	53:I:639:U:C6	2.48	0.48
53:I:878:A:H3'	53:I:879:G:H8	1.79	0.48
53:I:1292:G:H2'	53:I:1293:C:C6	2.49	0.48
53:I:1563:U:H2'	53:I:1564:C:C6	2.48	0.48
53:I:2812:G:H2'	53:I:2813:A:C8	2.49	0.48
53:I:2854:G:H2'	53:I:2855:C:H6	1.79	0.48
6:C:1143:G:H2'	6:C:1144:G:H8	1.78	0.48
9:F:98:LEU:O	9:F:102:VAL:HG23	2.14	0.48
16:N:32:GLU:HG2	16:N:33:LYS:HG2	1.96	0.48
25:X:52:ASN:O	25:X:53:ARG:HD3	2.14	0.48
53:I:947:A:H2'	53:I:948:C:C6	2.49	0.48
6:C:458:U:H2'	6:C:459:A:H8	1.79	0.47
6:C:490:C:H2'	6:C:491:G:H8	1.79	0.47
6:C:1323:G:H2'	6:C:1324:A:H8	1.77	0.47
9:F:60:LYS:HE2	9:F:195:ILE:HG22	1.96	0.47
6:C:1010:U:H2'	6:C:1011:C:H6	1.78	0.47
6:C:1118:U:H2'	6:C:1119:C:H6	1.79	0.47
6:C:1162:C:H2'	6:C:1163:A:H8	1.78	0.47
9:F:150:LYS:HE2	9:F:178:MET:HE3	1.95	0.47
11:H:51:ILE:O	11:H:54:LEU:HB2	2.13	0.47
22:U:42:THR:HG22	22:U:93:VAL:HG12	1.95	0.47
32:e:72:LYS:HE3	32:e:72:LYS:HB2	1.64	0.47
34:g:7:ARG:HG2	34:g:7:ARG:HH11	1.79	0.47
44:q:24:GLU:OE2	44:q:92:LEU:HD11	2.15	0.47
53:I:1394:U:H2'	53:I:1395:A:O4'	2.15	0.47
53:I:1443:U:H2'	53:I:1444:G:C8	2.49	0.47
2:2:10:ARG:HD2	6:C:107:G:O6	2.14	0.47
13:K:69:ARG:NH2	13:K:116:ILE:HD12	2.29	0.47
13:K:165:VAL:HG21	13:K:181:MET:HE1	1.95	0.47
31:d:55:GLU:HB2	31:d:59:GLU:OE1	2.13	0.47
43:p:28:ILE:HG23	43:p:63:LEU:HD11	1.95	0.47
53:I:2373:G:H2'	53:I:2374:C:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:34:ARG:HB3	3:3:34:ARG:HH11	1.79	0.47
6:C:299:G:H2'	6:C:300:A:C8	2.50	0.47
6:C:579:A:H2'	6:C:580:C:C6	2.49	0.47
6:C:996:A:H2'	6:C:997:U:H6	1.80	0.47
6:C:1130:A:H2'	6:C:1131:G:H8	1.78	0.47
6:C:1218:C:H2'	6:C:1219:A:H8	1.79	0.47
6:C:1302:C:C6	48:u:17:ILE:HD13	2.48	0.47
6:C:1532:U:H2'	6:C:1533:C:O4'	2.15	0.47
31:d:30:ILE:HD11	31:d:63:ILE:HD12	1.96	0.47
36:i:4:GLN:HA	53:I:2615:U:C2	2.49	0.47
44:q:24:GLU:O	44:q:28:THR:HG22	2.15	0.47
53:I:30:G:H2'	53:I:31:C:C6	2.49	0.47
53:I:1923:U:H2'	53:I:1924:C:C6	2.50	0.47
53:I:2572:A:OP1	53:I:2574:G:H4'	2.14	0.47
53:I:2854:G:H2'	53:I:2855:C:C6	2.50	0.47
6:C:337:G:H2'	6:C:338:A:H8	1.79	0.47
6:C:1463:U:H2'	6:C:1464:U:C6	2.50	0.47
7:D:87:CYS:SG	7:D:89:GLN:HG2	2.55	0.47
19:R:56:VAL:HB	19:R:124:VAL:HG13	1.96	0.47
43:p:21:ILE:HD13	43:p:63:LEU:HB3	1.96	0.47
53:I:969:G:H2'	53:I:970:U:C6	2.49	0.47
53:I:1548:A:H2'	53:I:1549:A:C8	2.50	0.47
53:I:1744:A:H3'	53:I:1745:A:H8	1.80	0.47
53:I:2047:C:H2'	53:I:2048:G:H8	1.79	0.47
6:C:460:A:H2'	6:C:461:A:C8	2.49	0.47
8:E:79:LYS:O	8:E:79:LYS:HD3	2.15	0.47
19:R:18:VAL:HG22	19:R:140:LEU:HB3	1.95	0.47
53:I:598:U:H2'	53:I:599:A:C8	2.50	0.47
53:I:729:G:H5"	53:I:730:A:H5"	1.96	0.47
6:C:35:G:H2'	6:C:36:C:C6	2.49	0.47
6:C:73:C:O2'	6:C:74:A:H8	1.96	0.47
6:C:476:U:H2'	6:C:477:C:H6	1.80	0.47
6:C:674:G:H21	45:r:118:HIS:HB2	1.80	0.47
7:D:89:GLN:HA	7:D:89:GLN:NE2	2.30	0.47
23:V:3:HIS:CD2	53:I:2820:A:H4'	2.50	0.47
27:Z:50:GLY:HA3	27:Z:53:PHE:C	2.39	0.47
27:Z:69:GLY:O	27:Z:90:ARG:HD2	2.15	0.47
28:a:73:LYS:HB2	28:a:106:VAL:HB	1.96	0.47
53:I:30:G:H2'	53:I:31:C:H6	1.80	0.47
53:I:709:U:H2'	53:I:710:U:C6	2.50	0.47
53:I:849:A:H2'	53:I:850:U:C6	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:2680:U:H4'	53:I:2681:C:OP1	2.14	0.47
53:I:2723:C:H2'	53:I:2724:U:O4'	2.14	0.47
55:v:83:LYS:HA	55:v:83:LYS:HD3	1.60	0.47
5:A:37:T6A:N1	5:A:37:T6A:N11	2.56	0.47
6:C:983:A:H2	6:C:1222:G:H22	1.63	0.47
12:J:48:U:H2'	12:J:49:C:C6	2.49	0.47
31:d:72:VAL:HG12	31:d:93:ARG:HA	1.97	0.47
44:q:53:ILE:HB	44:q:62:ARG:HA	1.97	0.47
53:I:545:U:H1'	53:I:548:G:H22	1.80	0.47
53:I:668:A:H2'	53:I:670:A:H62	1.80	0.47
53:I:1703:G:H2'	53:I:1704:C:H6	1.79	0.47
25:X:27:GLU:HB2	25:X:44:GLU:HG3	1.95	0.47
41:n:67:GLU:OE1	41:n:67:GLU:HA	2.14	0.47
45:r:81:ASN:OD1	45:r:106:ARG:HD2	2.14	0.47
53:I:1:G:H2'	53:I:2:G:H8	1.80	0.47
53:I:909:A:H2'	53:I:912:C:H5	1.79	0.47
53:I:1183:U:H2'	53:I:1184:U:C6	2.50	0.47
6:C:552:U:H2'	6:C:553:A:H8	1.80	0.47
6:C:996:A:H2'	6:C:997:U:C6	2.50	0.47
13:K:8:PRO:HB3	13:K:14:ARG:HG3	1.96	0.47
16:N:161:LYS:NZ	16:N:161:LYS:HB3	2.30	0.47
17:O:42:GLU:HG2	17:O:55:ARG:HG2	1.97	0.47
22:U:13:HIS:HB3	53:I:955:PSU:P	2.55	0.47
44:q:8:ILE:HD13	44:q:25:ILE:HD11	1.97	0.47
53:I:1197:G:H2'	53:I:1198:U:H6	1.78	0.47
53:I:1224:U:H2'	53:I:1225:G:C8	2.50	0.47
53:I:1433:A:H2'	53:I:1434:A:C8	2.49	0.47
53:I:2590:A:H2'	53:I:2591:C:H6	1.80	0.47
6:C:309:A:H2'	6:C:310:G:H8	1.80	0.46
6:C:399:G:H2'	6:C:400:C:C6	2.50	0.46
6:C:539:A:H2'	6:C:540:G:H8	1.78	0.46
6:C:1134:G:H2'	6:C:1135:U:O4'	2.15	0.46
6:C:1151:A:HO2'	6:C:1152:A:H8	1.62	0.46
11:H:14:GLN:O	11:H:18:VAL:HG23	2.15	0.46
11:H:61:LEU:HD12	11:H:62:MET:H	1.80	0.46
34:g:2:LYS:O	34:g:6:LEU:HG	2.15	0.46
53:I:64:A:H2'	53:I:65:U:H6	1.79	0.46
53:I:150:U:H2'	53:I:151:C:C6	2.50	0.46
53:I:287:G:H2'	53:I:288:U:C6	2.50	0.46
53:I:2127:G:H21	53:I:2173:A:H1'	1.79	0.46
5:A:16:U:H5	5:A:59:A:H61	1.62	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:K:252:THR:HG21	53:I:1824:G:O2'	2.14	0.46
42:o:18:GLN:HE21	42:o:18:GLN:HA	1.79	0.46
53:I:634:C:H2'	53:I:635:C:C6	2.50	0.46
53:I:657:U:H2'	53:I:658:U:C6	2.51	0.46
53:I:2187:U:H2'	53:I:2188:U:C6	2.50	0.46
53:I:2567:G:H2'	53:I:2568:U:C6	2.49	0.46
6:C:88:U:H2'	6:C:89:U:C6	2.51	0.46
53:I:1496:A:H2'	53:I:1498:C:C5	2.49	0.46
53:I:1571:A:H2'	53:I:1572:A:C8	2.50	0.46
53:I:1809:A:H2'	53:I:1810:A:C8	2.50	0.46
53:I:2903:U:O2'	53:I:2904:U:H2'	2.15	0.46
5:A:23:A:H3'	5:A:24:G:H8	1.79	0.46
18:P:41:LYS:HD3	18:P:42:LYS:H	1.80	0.46
37:j:8:LYS:HB2	37:j:8:LYS:HE2	1.78	0.46
53:I:78:U:H2'	53:I:79:C:C6	2.51	0.46
53:I:1542:U:H2'	53:I:1543:G:O4'	2.15	0.46
6:C:458:U:H2'	6:C:459:A:C8	2.50	0.46
6:C:555:U:H2'	6:C:556:C:H6	1.80	0.46
7:D:213:TYR:O	7:D:217:VAL:HG23	2.16	0.46
17:O:164:TYR:HB2	17:O:167:GLU:HB2	1.97	0.46
53:I:753:A:H2'	53:I:754:U:H6	1.80	0.46
53:I:2649:C:H2'	53:I:2650:U:C6	2.51	0.46
2:2:61:GLN:HA	2:2:61:GLN:OE1	2.15	0.46
44:q:66:GLU:HB3	55:v:99:ALA:HB2	1.98	0.46
53:I:151:C:H2'	53:I:152:A:H8	1.79	0.46
53:I:1081:U:H2'	53:I:1082:U:C6	2.51	0.46
3:3:7:ARG:HB2	3:3:10:GLU:OE2	2.16	0.46
6:C:323:U:H2'	6:C:324:G:O4'	2.16	0.46
15:M:1:MET:HB3	15:M:1:MET:HE3	1.70	0.46
18:P:29:PHE:O	18:P:33:GLN:HG3	2.16	0.46
34:g:6:LEU:HB2	34:g:56:LEU:HD12	1.97	0.46
34:g:13:GLU:HA	34:g:16:THR:HG22	1.98	0.46
45:r:80:LYS:HD3	45:r:80:LYS:HA	1.84	0.46
53:I:1913:A:H4'	53:I:1914:C:OP2	2.16	0.46
53:I:2127:G:H4'	53:I:2128:G:OP1	2.16	0.46
53:I:2649:C:H2'	53:I:2650:U:H6	1.79	0.46
5:A:62:C:H2'	5:A:63:U:H6	1.79	0.46
6:C:389:A:H3'	6:C:390:U:H6	1.81	0.46
6:C:440:C:C2	6:C:441:A:C8	3.04	0.46
6:C:821:G:H2'	6:C:822:U:C6	2.51	0.46
6:C:859:G:H2'	6:C:860:A:C8	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:K:200:HIS:CE1	13:K:203[B]:ARG:HH12	2.34	0.46
16:N:136:ILE:HD13	16:N:136:ILE:HA	1.81	0.46
44:q:18:ILE:HG12	44:q:72:ARG:HG3	1.98	0.46
53:I:145:C:H2'	53:I:146:A:H8	1.81	0.46
53:I:1689:A:H2'	53:I:1690:A:C8	2.50	0.46
53:I:2247:A:H2'	53:I:2248:C:H6	1.80	0.46
53:I:2515:C:H2'	53:I:2516:A:H8	1.81	0.46
5:A:22:G:O2'	5:A:23:A:P	2.74	0.46
53:I:1682:G:H2'	53:I:1683:U:C6	2.51	0.46
53:I:2122:U:H2'	53:I:2123:G:C8	2.51	0.46
54:Q:24:ILE:HD12	54:Q:24:ILE:O	2.16	0.46
54:Q:46:GLY:C	54:Q:47:LYS:HE2	2.41	0.46
6:C:113:G:H1'	6:C:354:G:H5'	1.97	0.46
6:C:978:A:C2	6:C:1319:A:C4	3.04	0.46
6:C:1003:G:N2	6:C:1005:A:H5'	2.30	0.46
7:D:31:ILE:HD11	7:D:189:THR:HG22	1.96	0.46
16:N:133:ARG:HB2	16:N:133:ARG:CZ	2.46	0.46
18:P:42:LYS:O	18:P:45:GLU:HG3	2.15	0.46
29:b:3:ARG:HG3	29:b:3:ARG:NH1	2.31	0.46
53:I:1541:C:H2'	53:I:1542:U:C6	2.50	0.46
53:I:1928:A:H2'	53:I:1929:G:O4'	2.16	0.46
53:I:2543:G:H2'	53:I:2544:G:C8	2.51	0.46
7:D:123:ASP:OD1	7:D:123:ASP:C	2.59	0.45
53:I:555:G:O2'	53:I:556:A:H8	1.99	0.45
53:I:839:U:H2'	53:I:840:C:C6	2.51	0.45
53:I:858:G:H3'	53:I:859:G:C8	2.51	0.45
53:I:1842:G:H2'	53:I:1843:C:H6	1.82	0.45
6:C:1119:C:H2'	6:C:1120:C:H6	1.81	0.45
6:C:1232:U:P	43:p:126:GLN:HE21	2.39	0.45
6:C:1238:A:H2	6:C:1241:G:N3	2.14	0.45
6:C:1435:G:H2'	6:C:1436:U:C6	2.51	0.45
6:C:1464:U:H2'	6:C:1465:A:H8	1.81	0.45
45:r:82:LEU:HB3	45:r:107:ILE:HG22	1.98	0.45
46:s:2:ASN:HB3	53:I:2062[A]:A:C2	2.52	0.45
53:I:12:U:O2	53:I:2626:C:H4'	2.17	0.45
6:C:604:G:H2'	6:C:605:U:O4'	2.16	0.45
6:C:1100:C:OP2	7:D:95:ARG:HD2	2.15	0.45
6:C:1120:C:H2'	6:C:1121:U:C6	2.51	0.45
6:C:1121:U:H2'	6:C:1122:U:H6	1.80	0.45
6:C:1151:A:O4'	44:q:41:PRO:HB2	2.17	0.45
53:I:2266:A:H4'	53:I:2267:A:N3	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:328:C:H4’	6:C:329:A:H5”	1.98	0.45
6:C:1219:A:H2’	6:C:1220:G:C8	2.51	0.45
7:D:57:LEU:HD23	7:D:57:LEU:HA	1.84	0.45
13:K:270:ARG:HD2	13:K:270:ARG:HA	1.81	0.45
15:M:1:MET:HG2	15:M:16:GLU:OE2	2.16	0.45
18:P:54:LEU:O	18:P:58:LEU:HD13	2.16	0.45
24:W:35:ILE:H	24:W:53:THR:HG22	1.82	0.45
42:o:3:MET:HE2	42:o:3:MET:HB2	1.80	0.45
53:I:544:C:H2’	53:I:545:U:O4’	2.16	0.45
53:I:2898:U:H2’	53:I:2899:A:C8	2.51	0.45
6:C:279:A:H5”	6:C:281:G:O4’	2.17	0.45
6:C:1143:G:H2’	6:C:1144:G:C8	2.51	0.45
12:J:48:U:H4’	24:W:100:HIS:CE1	2.52	0.45
20:S:121:GLU:HG2	20:S:122:VAL:HG12	1.99	0.45
46:s:2:ASN:CB	53:I:2062[A]:A:N1	2.80	0.45
48:u:45:ILE:HD13	48:u:45:ILE:HA	1.87	0.45
53:I:1476:U:H2’	53:I:1477:A:H8	1.80	0.45
53:I:2747:G:O6	53:I:2755:C:H5”	2.16	0.45
53:I:2801:G:H2’	53:I:2802:G:H8	1.82	0.45
6:C:9:G:H5’	10:G:108:GLY:HA3	1.97	0.45
43:p:36:GLU:N	43:p:36:GLU:OE1	2.50	0.45
46:s:5:ILE:HD11	53:I:2062[B]:A:C6	2.51	0.45
53:I:2636:C:H2’	53:I:2637:U:H6	1.81	0.45
2:2:5:LYS:HZ3	2:2:5:LYS:CB	2.30	0.45
3:3:59:LYS:HD2	3:3:59:LYS:C	2.41	0.45
6:C:562:U:H1’	47:t:12:ARG:HB3	1.98	0.45
12:J:13:G:H4’	12:J:15:A:H2’	1.98	0.45
12:J:111:U:H2’	12:J:112:G:H8	1.81	0.45
39:l:55:LEU:HD12	39:l:55:LEU:HA	1.80	0.45
42:o:52:GLU:OE1	42:o:52:GLU:HA	2.16	0.45
53:I:184:C:H2’	53:I:185:G:C8	2.52	0.45
53:I:357:C:C2	53:I:358:U:C5	3.05	0.45
53:I:589:U:H2’	53:I:590:A:C8	2.52	0.45
53:I:2836:U:H2’	53:I:2837:A:C8	2.51	0.45
6:C:676:A:H2’	6:C:677:U:H6	1.82	0.45
14:L:35:THR:HG22	14:L:73:VAL:HG21	1.98	0.45
31:d:80:HIS:CE1	31:d:83:LYS:HD2	2.51	0.45
39:l:33:LEU:HB2	53:I:2419:U:H5”	1.98	0.45
53:I:1874:C:H2’	53:I:1875:G:O4’	2.16	0.45
53:I:2251:OMG:H1’	53:I:2251:OMG:HM23	1.60	0.45
53:I:2461:A:H2’	53:I:2462:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:2783:U:H2'	53:I:2784:U:H6	1.82	0.45
1:1:18:LYS:HB3	1:1:31:LEU:HD13	1.98	0.45
6:C:178:C:C2	6:C:179:A:C8	3.05	0.45
6:C:390:U:H2'	6:C:391:G:H8	1.79	0.45
6:C:674:G:H2'	6:C:675:A:C8	2.50	0.45
6:C:696:A:H2'	6:C:697:U:H6	1.82	0.45
8:E:110:GLU:H	8:E:110:GLU:CD	2.25	0.45
35:h:12:SER:HB3	53:I:988:A:P	2.56	0.45
7:D:71:GLY:HA3	7:D:80:VAL:HG21	1.99	0.45
7:D:115:LYS:HE3	7:D:152:LYS:HD3	1.99	0.45
9:F:34:ILE:HD12	9:F:35:GLU:N	2.31	0.45
10:G:132:ASN:OD1	10:G:134:ILE:HG22	2.17	0.45
41:n:73:VAL:HG12	41:n:90:GLU:HA	1.99	0.45
47:t:82:ILE:HG23	47:t:95:TYR:HB3	1.99	0.45
6:C:824:G:H2'	6:C:825:A:H8	1.83	0.44
6:C:1198:G:H2'	6:C:1199:U:C6	2.52	0.44
52:z:32:TYR:HB3	52:z:55:LEU:HD21	1.98	0.44
53:I:1499:C:C2	53:I:1500:G:C8	3.05	0.44
6:C:202:G:O2'	6:C:468:A:H8	2.00	0.44
6:C:1022:A:C5	6:C:1023:U:C5	3.05	0.44
31:d:10:LYS:HB2	31:d:10:LYS:HE3	1.73	0.44
41:n:66:LEU:HB3	41:n:70:ARG:HH21	1.83	0.44
53:I:1447:C:H2'	53:I:1448:G:H8	1.83	0.44
53:I:1842:G:H2'	53:I:1843:C:C6	2.52	0.44
1:1:16:LEU:HD23	1:1:17:LYS:HD3	1.99	0.44
6:C:76:G:H1	6:C:93:U:H3	1.66	0.44
6:C:246:A:C2	6:C:282:A:C5	3.05	0.44
6:C:1253:G:H2'	6:C:1254:A:C8	2.51	0.44
6:C:1313:U:H2'	6:C:1314:C:C6	2.53	0.44
18:P:121:VAL:O	18:P:121:VAL:HG12	2.18	0.44
39:l:16:LYS:HE2	39:l:20:GLY:HA2	1.99	0.44
41:n:58:GLU:CD	41:n:58:GLU:H	2.25	0.44
48:u:56:LEU:O	48:u:60:VAL:HG13	2.17	0.44
53:I:580:U:H2'	53:I:581:C:H6	1.82	0.44
6:C:621:A:H2'	6:C:622:A:C8	2.53	0.44
6:C:918:A:H2'	6:C:919:A:C8	2.51	0.44
32:e:55:ARG:HD3	53:I:2364:C:OP1	2.18	0.44
35:h:25:LEU:HD11	53:I:930:G:H1'	1.99	0.44
44:q:67:ILE:HG13	55:v:96:LEU:HD13	1.99	0.44
51:y:61:ILE:HG22	51:y:75:LEU:HA	2.00	0.44
53:I:2:G:H2'	53:I:3:U:C6	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:2895:G:H2'	53:I:2896:C:C6	2.53	0.44
3:3:14:VAL:O	3:3:18:ARG:HG3	2.18	0.44
6:C:335:C:H2'	6:C:336:A:C8	2.53	0.44
53:I:2133:G:H2'	53:I:2157:G:H1	1.83	0.44
53:I:2803:G:H2'	53:I:2804:U:H6	1.82	0.44
53:I:2898:U:H2'	53:I:2899:A:H8	1.83	0.44
6:C:280:C:N3	51:y:41:THR:HG23	2.33	0.44
6:C:381:C:H2'	6:C:382:A:O4'	2.18	0.44
6:C:1060:U:H2'	6:C:1061:G:H8	1.83	0.44
27:Z:26:ASP:C	27:Z:27:ILE:HD13	2.43	0.44
41:n:129:GLU:HG3	41:n:131:LYS:HZ2	1.83	0.44
43:p:75:GLN:HB2	43:p:75:GLN:HE21	1.66	0.44
53:I:415:A:H2'	53:I:416:U:C6	2.53	0.44
53:I:2834:G:H2'	53:I:2879:A:H61	1.83	0.44
6:C:398:U:H2'	6:C:399:G:H8	1.83	0.44
6:C:908:A:H2'	6:C:909:A:C8	2.53	0.44
6:C:921:U:O2	10:G:24:THR:HG23	2.17	0.44
6:C:1003:G:H21	6:C:1005:A:H5'	1.82	0.44
7:D:26:LYS:HE3	7:D:26:LYS:HB2	1.90	0.44
13:K:225:MET:HG2	53:I:782:A:C2	2.53	0.44
14:L:99:GLU:H	14:L:99:GLU:HG2	1.63	0.44
22:U:64:TRP:CZ3	22:U:106:ASP:HB2	2.53	0.44
31:d:20:LEU:HD21	31:d:41:GLU:HB2	1.99	0.44
31:d:21:ARG:HG3	31:d:21:ARG:HH11	1.82	0.44
38:k:42:LEU:HD23	38:k:42:LEU:HA	1.87	0.44
53:I:1173:U:H2'	53:I:1174:U:H4'	1.99	0.44
6:C:215:C:H2'	6:C:216:U:C6	2.53	0.44
6:C:737:C:H2'	6:C:738:C:H6	1.83	0.44
6:C:1227:A:C8	48:u:116:ILE:HD12	2.53	0.44
20:S:77:ILE:HG12	25:X:72:ARG:HG2	2.00	0.44
22:U:53:MET:O	22:U:57:VAL:HG22	2.17	0.44
24:W:90:VAL:O	24:W:117:PHE:HB3	2.18	0.44
28:a:23:LEU:HD22	36:i:24:ALA:HB2	1.99	0.44
31:d:21:ARG:HG3	31:d:21:ARG:NH1	2.33	0.44
38:k:3:ARG:HD3	38:k:3:ARG:HA	1.79	0.44
51:y:20:SER:HB3	51:y:71:LYS:HZ2	1.83	0.44
51:y:57:ASP:OD1	51:y:81:LYS:HD3	2.18	0.44
53:I:2425:A:H5"	53:I:2427:C:O4'	2.18	0.44
54:Q:56:ARG:HA	54:Q:59:ARG:HG2	1.99	0.44
6:C:1118:U:H2'	6:C:1119:C:C6	2.52	0.44
6:C:1171:A:H2'	6:C:1172:C:C6	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:L:155:VAL:HG21	53:I:2618:G:H21	1.83	0.44
17:O:4:VAL:HG21	53:I:2748:A:H5'	2.00	0.44
19:R:75:TYR:CE1	19:R:86:GLN:HG2	2.53	0.44
23:V:1:MET:HE3	23:V:1:MET:HB2	1.95	0.44
25:X:14:LYS:HD3	25:X:77:HIS:HA	2.00	0.44
28:a:46:LEU:O	28:a:50:VAL:HG23	2.17	0.44
34:g:56:LEU:HA	34:g:56:LEU:HD23	1.74	0.44
41:n:59:LEU:HD23	41:n:59:LEU:HA	1.84	0.44
44:q:27:GLU:HA	44:q:30:LYS:HD3	2.00	0.44
51:y:17:MET:HG3	51:y:20:SER:OG	2.18	0.44
53:I:594:U:H2'	53:I:595:C:C6	2.53	0.44
53:I:1102:C:C2	53:I:1103:A:C8	3.06	0.44
53:I:2122:U:H2'	53:I:2123:G:H8	1.83	0.44
53:I:2297:A:OP2	53:I:2297:A:H8	2.00	0.44
53:I:2305:U:H2'	53:I:2306:C:C6	2.53	0.44
6:C:780:A:H5"	45:r:125:LYS:HD3	2.00	0.43
6:C:883:C:O2'	6:C:884:U:H5'	2.18	0.43
10:G:46:VAL:HG23	10:G:117:VAL:HG12	1.99	0.43
22:U:64:TRP:HZ3	22:U:106:ASP:HB2	1.84	0.43
43:p:7:TYR:HE2	43:p:18:ARG:HB3	1.82	0.43
53:I:39:G:H2'	53:I:40:U:C6	2.53	0.43
53:I:2102:G:H2'	53:I:2103:C:O4'	2.17	0.43
53:I:2502:G:H5"	53:I:2503:2MA:H5"	2.00	0.43
6:C:222:C:H2'	6:C:223:A:H8	1.83	0.43
6:C:224:U:H2'	6:C:225:C:C6	2.53	0.43
6:C:1253:G:H2'	6:C:1254:A:H8	1.83	0.43
7:D:59:LYS:HE3	7:D:59:LYS:HB3	1.75	0.43
13:K:175:ARG:HG3	13:K:181:MET:SD	2.58	0.43
13:K:242:LYS:O	53:I:1902:C:H4'	2.17	0.43
16:N:36:LEU:HD12	16:N:89:VAL:HB	1.99	0.43
16:N:130:MET:HB2	16:N:130:MET:HE3	1.78	0.43
31:d:77:VAL:HB	31:d:89:ILE:HD13	2.00	0.43
53:I:843:G:H2'	53:I:844:A:C8	2.53	0.43
53:I:1327:A:H2'	53:I:1328:A:O4'	2.17	0.43
53:I:2728:U:O2'	53:I:2729:G:H8	2.01	0.43
5:A:22:G:O2'	5:A:23:A:H8	2.00	0.43
6:C:88:U:H2'	6:C:89:U:H6	1.83	0.43
6:C:1355:G:H2'	6:C:1356:G:H8	1.83	0.43
14:L:56:LYS:HB3	14:L:56:LYS:HE2	1.67	0.43
18:P:26:ALA:HA	18:P:30:LEU:HB2	2.00	0.43
20:S:59:LYS:HE2	20:S:59:LYS:HB3	1.94	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Y:41:LYS:HE2	26:Y:45:TYR:CZ	2.53	0.43
6:C:89:U:H2'	6:C:90:C:H6	1.81	0.43
6:C:382:A:H2'	6:C:383:A:C8	2.54	0.43
6:C:1410:A:H2'	6:C:1411:C:C6	2.52	0.43
17:O:98:VAL:HG12	17:O:100:GLY:H	1.83	0.43
18:P:79:THR:O	18:P:80:ILE:HG13	2.19	0.43
34:g:19:LEU:HD12	34:g:19:LEU:HA	1.85	0.43
41:n:21:GLU:OE2	41:n:21:GLU:HA	2.18	0.43
53:I:577:G:H2'	53:I:578:G:C8	2.53	0.43
53:I:1494:A:H2'	53:I:1495:A:C8	2.54	0.43
53:I:2225:A:H4'	53:I:2226:C:O5'	2.19	0.43
53:I:2377:A:H2'	53:I:2378:A:C8	2.54	0.43
6:C:269:C:H2'	6:C:270:A:H8	1.82	0.43
6:C:687:A:C2	6:C:704:A:C5	3.07	0.43
7:D:56:GLU:HG2	7:D:198:PHE:CZ	2.54	0.43
9:F:146:ARG:HH21	9:F:148:LYS:HE3	1.83	0.43
13:K:5:LYS:HE3	13:K:5:LYS:HB3	1.80	0.43
36:i:52:ARG:CZ	36:i:54:VAL:HG12	2.49	0.43
53:I:1636:U:H2'	53:I:1637:A:C8	2.53	0.43
53:I:1889:A:H2'	53:I:1890:A:C8	2.53	0.43
53:I:2100:G:H2'	53:I:2101:A:C8	2.53	0.43
53:I:2233:U:H2'	53:I:2234:G:H8	1.83	0.43
53:I:2373:G:H2'	53:I:2374:C:H6	1.83	0.43
6:C:9:G:H4'	10:G:109:GLY:H	1.83	0.43
37:j:5:ILE:HB	37:j:28:ARG:NH1	2.34	0.43
53:I:150:U:H2'	53:I:151:C:H6	1.83	0.43
53:I:884:U:H3	53:I:892:A:H62	1.67	0.43
53:I:2193:G:H2'	53:I:2194:U:H6	1.84	0.43
53:I:2544:G:H5'	53:I:2645:G:C2	2.54	0.43
53:I:2700:A:H2'	53:I:2701:U:H6	1.83	0.43
3:3:28:VAL:O	3:3:32:VAL:HG13	2.19	0.43
6:C:393:A:C2	6:C:394:G:C8	3.06	0.43
6:C:1121:U:H2'	6:C:1122:U:C6	2.54	0.43
19:R:13:ARG:HG3	19:R:13:ARG:NH1	2.33	0.43
33:f:11:ARG:HB2	33:f:12:PRO:HD2	2.01	0.43
53:I:813:U:H2'	53:I:814:C:H6	1.82	0.43
53:I:1321:A:C4	53:I:1322:A:C8	3.06	0.43
53:I:2193:G:H2'	53:I:2194:U:C6	2.54	0.43
55:v:8:ALA:HA	55:v:11:VAL:HG12	2.00	0.43
6:C:404:G:N7	9:F:2:ALA:HB3	2.33	0.43
6:C:470:C:H2'	6:C:471:U:C6	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:1446:A:O2'	6:C:1447:A:H5'	2.19	0.43
8:E:121:THR:HB	8:E:189:ALA:HB2	2.01	0.43
41:n:17:LYS:HD3	41:n:18:PHE:CZ	2.54	0.43
43:p:52:LEU:HD23	43:p:52:LEU:HA	1.85	0.43
44:q:7:ARG:HD3	44:q:75:ASP:OD1	2.19	0.43
45:r:35:THR:HG22	45:r:41:ALA:HA	2.00	0.43
53:I:2:G:H2'	53:I:3:U:H6	1.84	0.43
53:I:250:G:H2'	53:I:251:A:C8	2.54	0.43
53:I:1441:G:H2'	53:I:1442:U:H6	1.84	0.43
53:I:2455:G:H2'	53:I:2456:C:H6	1.83	0.43
53:I:2687:U:H2'	53:I:2688:G:O4'	2.19	0.43
54:Q:35:ASP:OD1	54:Q:35:ASP:C	2.61	0.43
54:Q:56:ARG:HE	54:Q:56:ARG:HB3	1.63	0.43
55:v:79:LEU:HB2	55:v:84:VAL:HG23	2.01	0.43
5:A:61:C:H2'	5:A:62:C:C6	2.54	0.43
6:C:34:C:H2'	6:C:35:G:C8	2.54	0.43
6:C:649:A:H2'	6:C:650:G:O4'	2.19	0.43
6:C:1171:A:H2'	6:C:1172:C:H6	1.83	0.43
8:E:150:LYS:HE2	8:E:201:TRP:CZ3	2.53	0.43
13:K:119:GLY:O	13:K:130:LEU:HD13	2.19	0.43
13:K:207:LYS:HB2	53:I:729:G:C6	2.53	0.43
17:O:140:VAL:O	17:O:144:VAL:HG23	2.19	0.43
18:P:4:ILE:O	18:P:4:ILE:HD12	2.19	0.43
53:I:26:G:H1'	53:I:514:A:N6	2.34	0.43
54:Q:45:THR:HB	54:Q:47:LYS:HE3	2.00	0.43
1:1:80:TYR:CZ	6:C:1226:C:H4'	2.54	0.43
6:C:575:G:O2'	6:C:821:G:H5'	2.19	0.43
6:C:1332:A:H2'	6:C:1333:A:O4'	2.18	0.43
15:M:122:GLU:H	15:M:122:GLU:CD	2.26	0.43
31:d:75:GLN:HG2	31:d:92:VAL:HB	2.01	0.43
53:I:143:C:H2'	53:I:144:A:H8	1.84	0.43
53:I:2801:G:H2'	53:I:2802:G:C8	2.54	0.43
53:I:2899:A:H2'	53:I:2900:A:C8	2.54	0.43
6:C:846:G:H2'	6:C:847:G:C8	2.54	0.42
6:C:868:C:H2'	6:C:869:G:O4'	2.19	0.42
6:C:1070:U:H2'	6:C:1071:C:C6	2.54	0.42
12:J:39:A:H2'	12:J:40:U:C6	2.54	0.42
24:W:83:LEU:HD11	24:W:114:GLY:HA3	2.01	0.42
26:Y:52:GLN:O	26:Y:56:GLN:HG3	2.19	0.42
27:Z:4:VAL:HA	27:Z:12:HIS:O	2.19	0.42
35:h:47:MET:O	35:h:51:VAL:HG22	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:p:52:LEU:O	43:p:57:MET:HB3	2.19	0.42
44:q:80:THR:O	44:q:84:VAL:HG12	2.19	0.42
50:x:8:ARG:CZ	50:x:15:PRO:HB3	2.49	0.42
53:I:308:G:H2'	53:I:309:A:C8	2.54	0.42
53:I:1572:A:H2'	53:I:1573:G:H8	1.84	0.42
53:I:1704:C:H2'	53:I:1705:A:H8	1.84	0.42
6:C:1414:U:H2'	6:C:1415:G:H8	1.84	0.42
6:C:1513:A:H2'	6:C:1514:G:H8	1.84	0.42
20:S:114:LYS:HE3	20:S:114:LYS:HB3	1.88	0.42
27:Z:73:LYS:HE3	27:Z:73:LYS:HB3	1.63	0.42
31:d:70:ILE:HG22	31:d:72:VAL:HG13	2.00	0.42
34:g:14:LEU:HD23	34:g:14:LEU:HA	1.87	0.42
41:n:15:ASP:OD2	41:n:23:LEU:HD23	2.19	0.42
49:w:35:GLN:OE1	49:w:35:GLN:HA	2.18	0.42
53:I:645:C:H2'	53:I:647:G:N7	2.33	0.42
53:I:967:U:H2'	53:I:968:C:C6	2.55	0.42
53:I:1370:C:H2'	53:I:1371:G:O4'	2.19	0.42
53:I:2895:G:H2'	53:I:2896:C:H6	1.84	0.42
5:A:51:A:H2'	5:A:52:G:C8	2.54	0.42
6:C:500:G:H2'	6:C:501:C:C6	2.54	0.42
6:C:985:C:H2'	6:C:986:U:C6	2.54	0.42
7:D:113:ARG:CZ	7:D:117:LEU:HD21	2.50	0.42
8:E:43:LEU:HD21	8:E:68:ILE:HD11	2.02	0.42
23:V:8:ARG:HH11	23:V:43:GLU:HG2	1.84	0.42
44:q:53:ILE:HD13	44:q:63:ASP:N	2.35	0.42
49:w:8:THR:O	49:w:12:VAL:HG23	2.19	0.42
52:z:63:ARG:HD3	52:z:70:TYR:CD1	2.54	0.42
53:I:1182:G:H2'	53:I:1183:U:O4'	2.20	0.42
53:I:1704:C:H2'	53:I:1705:A:C8	2.54	0.42
53:I:2745:C:H2'	53:I:2746:U:C6	2.54	0.42
1:1:55:ARG:HD2	6:C:958:A:C5	2.54	0.42
3:3:11:PRO:HG2	3:3:14:VAL:HG22	2.02	0.42
6:C:1162:C:H2'	6:C:1163:A:C8	2.54	0.42
7:D:46:THR:HB	7:D:201:PRO:HG2	2.00	0.42
9:F:160:GLU:HA	9:F:163:GLU:OE1	2.18	0.42
16:N:40:VAL:HG22	16:N:85:ILE:O	2.19	0.42
16:N:102:ARG:HD2	16:N:140:GLU:OE2	2.19	0.42
20:S:25:LEU:HD12	20:S:38:ILE:HG22	2.01	0.42
22:U:6:ARG:NH1	22:U:6:ARG:HG3	2.34	0.42
24:W:67:ASN:H	24:W:70:ALA:HB3	1.85	0.42
37:j:13:SER:HB2	37:j:49:TYR:CZ	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:362:A:C5	53:I:363:G:C8	3.07	0.42
53:I:1597:A:H5"	53:I:1598:A:H5'	2.01	0.42
53:I:2152:G:H2'	53:I:2153:C:C6	2.55	0.42
53:I:2700:A:H2'	53:I:2701:U:C6	2.54	0.42
53:I:2783:U:H2'	53:I:2784:U:C6	2.54	0.42
6:C:1120:C:C2	6:C:1121:U:C5	3.07	0.42
17:O:121:ILE:HD13	17:O:135:GLY:HA3	2.01	0.42
40:m:32:LYS:HE2	53:I:2478:A:H5'	2.00	0.42
43:p:25:ASN:H	43:p:25:ASN:ND2	2.18	0.42
53:I:987:C:H2'	53:I:988:A:O4'	2.19	0.42
53:I:1282:U:H2'	53:I:1283:G:O4'	2.20	0.42
53:I:1689:A:H2'	53:I:1690:A:H8	1.84	0.42
53:I:2425:A:H4'	53:I:2426:A:O5'	2.19	0.42
6:C:312:C:H2'	6:C:313:A:C8	2.55	0.42
6:C:737:C:H2'	6:C:738:C:C6	2.55	0.42
8:E:155:GLY:HA2	8:E:163:ALA:HB1	2.00	0.42
10:G:90:THR:HG22	10:G:91:GLY:N	2.34	0.42
14:L:108:ASP:OD2	14:L:173:GLN:HA	2.19	0.42
15:M:2:GLU:HG3	15:M:11:ALA:HB1	2.00	0.42
43:p:51:PRO:HD3	43:p:80:ARG:HG2	2.01	0.42
47:t:39:THR:HG21	47:t:49:LEU:HB3	2.01	0.42
49:w:17:ARG:HD2	49:w:18:ASP:HB3	2.01	0.42
50:x:40:ASN:HB3	50:x:43:ALA:HB2	2.02	0.42
53:I:418:C:H2'	53:I:419:U:C6	2.54	0.42
53:I:2514:U:H2'	53:I:2515:C:H6	1.85	0.42
53:I:2650:U:H2'	53:I:2651:C:H6	1.84	0.42
6:C:96:U:H2'	6:C:97:G:H8	1.82	0.42
6:C:634:C:H2'	6:C:635:A:H8	1.84	0.42
6:C:911:U:H2'	6:C:912:C:C6	2.55	0.42
6:C:1149:C:H2'	6:C:1150:A:C8	2.55	0.42
7:D:63:ARG:HG3	7:D:63:ARG:HH11	1.85	0.42
10:G:154:ALA:HB1	10:G:159:LYS:HG2	2.02	0.42
13:K:227:PRO:HA	13:K:233:GLY:HA2	2.01	0.42
27:Z:31:GLU:O	27:Z:63:VAL:HG22	2.19	0.42
27:Z:83:TYR:CE1	53:I:1187:G:H5"	2.54	0.42
47:t:14:ARG:HA	47:t:14:ARG:HD2	1.84	0.42
48:u:90:ARG:HA	48:u:90:ARG:HD2	1.85	0.42
53:I:820:A:H4'	53:I:836:G:H22	1.84	0.42
53:I:1428:C:C5	53:I:1569:A:H5"	2.55	0.42
53:I:1754:A:H2'	53:I:1755:A:C8	2.55	0.42
2:2:39:ILE:HD13	2:2:82:GLN:HB2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:620:C:C2	9:F:132:ILE:HG13	2.54	0.42
6:C:864:A:H2'	6:C:865:A:C8	2.55	0.42
6:C:1095:U:H2'	6:C:1096:C:C6	2.55	0.42
10:G:25:VAL:HG13	10:G:27:GLY:H	1.84	0.42
10:G:151:GLU:OE1	10:G:151:GLU:N	2.50	0.42
12:J:45:A:C4	12:J:46:A:C8	3.08	0.42
19:R:60:ASP:OD2	19:R:60:ASP:N	2.52	0.42
21:T:81:ASP:O	21:T:84:LYS:HG2	2.19	0.42
48:u:114:LYS:H	48:u:114:LYS:HG2	1.65	0.42
6:C:719:C:O2'	52:z:38:LYS:HB3	2.20	0.42
6:C:821:G:H2'	6:C:822:U:H6	1.84	0.42
6:C:1023:U:H2'	6:C:1024:G:H8	1.85	0.42
6:C:1169:A:H2'	6:C:1170:A:C8	2.55	0.42
6:C:1465:A:H2'	6:C:1466:C:C6	2.55	0.42
8:E:191:THR:HG21	8:E:196:ILE:HD12	2.02	0.42
10:G:25:VAL:HG22	10:G:26:LYS:H	1.85	0.42
12:J:106:G:H2'	12:J:107:G:O4'	2.19	0.42
14:L:32:ASN:N	14:L:32:ASN:HD22	2.17	0.42
18:P:52:ALA:HA	18:P:55:GLU:CD	2.45	0.42
19:R:7:LYS:O	19:R:11:VAL:HG13	2.19	0.42
52:z:41:PRO:O	52:z:45:THR:HG23	2.19	0.42
53:I:479:A:H1'	53:I:480:A:H5"	2.00	0.42
53:I:1544:A:H2'	53:I:1545:A:C8	2.55	0.42
53:I:2037:A:H2'	53:I:2038:G:C8	2.55	0.42
53:I:2229:U:H2'	53:I:2230:G:H8	1.84	0.42
53:I:2452:C:H2'	53:I:2453:A:C8	2.55	0.42
53:I:2650:U:H2'	53:I:2651:C:C6	2.55	0.42
53:I:2804:U:H2'	53:I:2805:C:H6	1.84	0.42
54:Q:3:LYS:HE2	54:Q:3:LYS:HB2	1.89	0.42
6:C:161:A:H2'	6:C:162:A:C8	2.55	0.42
6:C:270:A:H2'	6:C:271:C:C6	2.55	0.42
6:C:470:C:H2'	6:C:471:U:H6	1.84	0.42
6:C:472:U:H2'	6:C:473:U:C6	2.55	0.42
6:C:672:U:H2'	6:C:673:A:C8	2.54	0.42
6:C:1163:A:H2'	6:C:1164:G:H8	1.85	0.42
6:C:1239:A:H62	6:C:1299:A:N6	2.17	0.42
6:C:1343:G:H2'	6:C:1344:C:C6	2.55	0.42
6:C:1437:A:H2'	6:C:1438:G:H8	1.85	0.42
7:D:27:MET:HE3	7:D:27:MET:HB3	1.84	0.42
13:K:144:VAL:HB	13:K:154:LEU:HB2	2.02	0.42
16:N:39:GLY:HA2	16:N:86:GLY:HA3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:n:47:LEU:HD23	41:n:47:LEU:HA	1.89	0.42
44:q:52:LEU:HD11	44:q:59:LYS:HD2	2.02	0.42
48:u:83:LEU:HD23	48:u:83:LEU:HA	1.84	0.42
53:I:244:A:H2'	53:I:245:G:O4'	2.20	0.42
53:I:1447:C:H2'	53:I:1448:G:C8	2.54	0.42
6:C:1302:C:C5	48:u:17:ILE:HD13	2.55	0.41
9:F:191:LEU:HD12	9:F:193:ALA:H	1.85	0.41
16:N:36:LEU:CD1	16:N:89:VAL:HB	2.50	0.41
16:N:170:LEU:HD23	16:N:170:LEU:HA	1.91	0.41
18:P:111:ALA:HB3	18:P:114:GLU:OE1	2.20	0.41
51:y:5:ILE:HD12	51:y:5:ILE:C	2.44	0.41
53:I:1281:G:H2'	53:I:1282:U:C6	2.54	0.41
53:I:1564:C:H2'	53:I:1565:C:C6	2.54	0.41
55:v:16:LEU:HD12	55:v:16:LEU:HA	1.82	0.41
2:2:64:LYS:HA	2:2:64:LYS:HD3	1.84	0.41
6:C:407:U:H2'	6:C:408:A:H8	1.85	0.41
7:D:54:LEU:HD12	7:D:220:THR:CG2	2.47	0.41
7:D:100:MET:HE3	7:D:100:MET:HB2	1.80	0.41
7:D:216:ALA:O	7:D:220:THR:HG22	2.20	0.41
16:N:143:TYR:O	16:N:146:VAL:HG12	2.20	0.41
20:S:14:SER:O	20:S:52:VAL:HG22	2.20	0.41
33:f:26:LYS:HE2	53:I:189:G:OP2	2.19	0.41
53:I:359:G:C5	53:I:360:U:C4	3.08	0.41
53:I:378:C:H2'	53:I:379:G:H5"	2.01	0.41
53:I:1883:U:H2'	53:I:1884:G:O4'	2.20	0.41
53:I:2364:C:H2'	53:I:2365:G:O4'	2.20	0.41
1:1:23:VAL:HG23	1:1:24:GLU:OE2	2.20	0.41
5:A:19:G:O5'	5:A:20:U:H5"	2.20	0.41
6:C:634:C:H2'	6:C:635:A:C8	2.55	0.41
6:C:678:U:H2'	6:C:679:C:H6	1.85	0.41
16:N:113:ASP:O	16:N:115:ARG:HG3	2.20	0.41
18:P:57:LYS:O	18:P:60:GLU:HG3	2.20	0.41
24:W:52:SER:OG	24:W:54:VAL:HG12	2.20	0.41
53:I:181:A:H1'	53:I:435:C:H5'	2.01	0.41
53:I:499:U:H2'	53:I:500:G:O4'	2.20	0.41
53:I:1444:G:H2'	53:I:1445:G:H8	1.86	0.41
53:I:1605:C:H2'	53:I:1606:C:O4'	2.20	0.41
53:I:1790:C:H2'	53:I:1791:A:C5	2.55	0.41
53:I:2070:A:H2'	53:I:2071:A:H8	1.83	0.41
55:v:48:LEU:C	55:v:50:THR:H	2.28	0.41
3:3:40:LYS:H	3:3:40:LYS:HG3	1.62	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:642:A:C5	42:o:107:SER:HA	2.55	0.41
6:C:904:U:H2'	6:C:905:U:C6	2.56	0.41
6:C:1176:A:H2'	6:C:1177:G:C8	2.55	0.41
7:D:159:ASP:O	7:D:182:PRO:HG2	2.21	0.41
11:H:42:TRP:HB2	11:H:59:TYR:HB2	2.02	0.41
18:P:79:THR:HA	18:P:145:ASN:OD1	2.21	0.41
19:R:13:ARG:HD3	19:R:51:GLY:O	2.20	0.41
28:a:82:MET:HE2	28:a:82:MET:HB2	1.93	0.41
31:d:6:ALA:HB1	31:d:40:ILE:HB	2.02	0.41
45:r:82:LEU:HD12	45:r:82:LEU:HA	1.83	0.41
48:u:86:TYR:O	48:u:90:ARG:HG2	2.20	0.41
53:I:309:A:H8	53:I:309:A:OP2	2.03	0.41
53:I:1269:A:H2'	53:I:1270:C:C6	2.56	0.41
53:I:1526:C:H2'	53:I:1527:G:O4'	2.19	0.41
53:I:1656:C:H2'	53:I:1657:U:H6	1.86	0.41
53:I:1747:U:H2'	53:I:1748:C:C6	2.56	0.41
53:I:2216:G:H2'	53:I:2217:G:H8	1.85	0.41
3:3:21:ARG:HH11	3:3:21:ARG:HA	1.84	0.41
6:C:171:A:H2'	6:C:172:A:C8	2.55	0.41
6:C:223:A:H2'	6:C:224:U:C6	2.55	0.41
6:C:923:A:H2'	6:C:924:C:C6	2.56	0.41
6:C:1456:A:H2'	6:C:1457:G:O4'	2.21	0.41
14:L:34:VAL:HG23	14:L:94:GLN:O	2.20	0.41
19:R:92:MET:HE3	19:R:92:MET:HB3	1.80	0.41
41:n:116:MET:HA	41:n:119:ARG:HE	1.85	0.41
53:I:835:C:C2	53:I:836:G:C8	3.07	0.41
53:I:979:A:H2'	53:I:982:C:H42	1.85	0.41
53:I:1196:C:H2'	53:I:1197:G:C8	2.56	0.41
53:I:1831:G:H2'	53:I:1832:C:C6	2.55	0.41
53:I:2039:U:H2'	53:I:2040:G:C8	2.55	0.41
53:I:2247:A:H2'	53:I:2248:C:C6	2.56	0.41
6:C:166:U:H2'	6:C:167:A:H8	1.86	0.41
10:G:156:LYS:HG2	42:o:71:VAL:HG13	2.02	0.41
12:J:114:C:H2'	12:J:115:A:H8	1.85	0.41
16:N:29:PRO:HB3	16:N:160:ALA:HB2	2.02	0.41
19:R:135:GLN:C	19:R:136:GLN:HG2	2.45	0.41
45:r:18:ASP:OD1	45:r:81:ASN:HB2	2.20	0.41
47:t:114:ARG:HG2	47:t:119:VAL:HB	2.03	0.41
53:I:438:G:H2'	53:I:439:A:C8	2.56	0.41
53:I:1172:C:H2'	53:I:1173:U:O4'	2.21	0.41
53:I:2443:C:H2'	53:I:2444:G:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:66:MET:HE2	1:1:74:PHE:CE1	2.56	0.41
6:C:7:A:H5'	6:C:298:A:O4'	2.20	0.41
6:C:334:C:H2'	6:C:335:C:H6	1.85	0.41
6:C:672:U:H2'	6:C:673:A:H8	1.85	0.41
6:C:978:A:O2'	6:C:1322:C:H5	2.03	0.41
6:C:1101:A:H4'	6:C:1102:A:O5'	2.21	0.41
6:C:1163:A:H2'	6:C:1164:G:C8	2.56	0.41
6:C:1315:U:H2'	6:C:1316:G:O4'	2.21	0.41
6:C:1521:C:H2'	6:C:1522:U:C6	2.56	0.41
22:U:41:LEU:HD23	22:U:41:LEU:HA	1.89	0.41
25:X:31:TRP:CE3	25:X:38:LYS:HE2	2.56	0.41
53:I:374:A:C2	53:I:375:G:H1'	2.56	0.41
53:I:1808:A:H3'	53:I:1809:A:C8	2.56	0.41
53:I:2849:U:H4'	53:I:2868:A:C2	2.55	0.41
54:Q:8:LYS:HE2	54:Q:10:GLU:OE1	2.21	0.41
3:3:17:ARG:HG3	3:3:17:ARG:HH11	1.86	0.41
6:C:271:C:H2'	6:C:272:C:H6	1.85	0.41
6:C:763:G:H2'	6:C:764:C:C6	2.56	0.41
6:C:900:A:H2'	6:C:901:A:C8	2.55	0.41
6:C:1241:G:H2'	6:C:1242:G:H8	1.85	0.41
6:C:1428:A:H2'	6:C:1429:A:O4'	2.20	0.41
11:H:38:ARG:NH1	11:H:61:LEU:HD21	2.34	0.41
16:N:95:ARG:NH1	54:Q:1:MET:HE1	2.36	0.41
36:i:31:ASP:HB3	36:i:35:GLY:H	1.85	0.41
41:n:65:ALA:O	41:n:69:VAL:HG23	2.21	0.41
53:I:1413:A:H2'	53:I:1414:C:C6	2.56	0.41
53:I:2813:A:H2'	53:I:2814:A:H8	1.85	0.41
6:C:76:G:H2'	6:C:77:A:H8	1.86	0.41
6:C:321:A:H2'	6:C:322:C:C6	2.56	0.41
6:C:613:C:H2'	6:C:614:C:H6	1.86	0.41
6:C:1130:A:H2'	6:C:1131:G:C8	2.56	0.41
6:C:1157:A:C2	6:C:1181:G:C4	3.08	0.41
6:C:1248:A:H2'	6:C:1249:C:C6	2.56	0.41
6:C:1522:U:H2'	6:C:1523:G:H8	1.85	0.41
7:D:109:GLN:N	7:D:109:GLN:OE1	2.53	0.41
16:N:11:GLU:OE1	16:N:11:GLU:N	2.53	0.41
17:O:152:ARG:HE	17:O:152:ARG:HB2	1.74	0.41
37:j:5:ILE:HB	37:j:28:ARG:HH12	1.84	0.41
37:j:7:GLU:OE2	37:j:27:LYS:HE3	2.20	0.41
50:x:76:LYS:NZ	50:x:76:LYS:HB3	2.35	0.41
51:y:10:GLY:HA3	51:y:25:ILE:HG12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:3:U:H2'	53:I:4:U:H6	1.86	0.41
53:I:4:U:H2'	53:I:5:A:H8	1.86	0.41
53:I:17:G:H2'	53:I:18:U:C6	2.55	0.41
53:I:640:C:H2'	53:I:641:U:H6	1.86	0.41
53:I:644:A:H2'	53:I:645:C:O4'	2.19	0.41
53:I:1932:A:H2'	53:I:1933:G:O4'	2.20	0.41
53:I:2704:C:H2'	53:I:2705:A:O4'	2.21	0.41
55:v:22:ALA:HB3	55:v:23:LYS:HZ2	1.85	0.41
6:C:505:G:H2'	6:C:506:G:C8	2.56	0.41
6:C:745:G:C2	6:C:746:A:C5	3.09	0.41
6:C:936:C:C2	6:C:937:A:C8	3.09	0.41
6:C:1023:U:C2	6:C:1024:G:C8	3.08	0.41
6:C:1326:U:H2'	6:C:1327:C:H6	1.85	0.41
6:C:1355:G:H2'	6:C:1356:G:C8	2.56	0.41
6:C:1410:A:H2'	6:C:1411:C:H6	1.85	0.41
7:D:32:PHE:HB3	7:D:40:ILE:CD1	2.50	0.41
16:N:84:PRO:O	16:N:85:ILE:HD13	2.21	0.41
18:P:143:ILE:HD13	18:P:143:ILE:HA	1.90	0.41
24:W:51:ALA:HB3	24:W:78:VAL:HB	2.02	0.41
55:v:41:ARG:HG3	55:v:43:ASN:H	1.86	0.41
2:2:67:ILE:HB	2:2:71:LYS:HD3	2.02	0.40
6:C:545:C:H5'	9:F:69:GLU:CB	2.51	0.40
6:C:704:A:C4	6:C:705:G:C8	3.09	0.40
6:C:717:U:H4'	45:r:119:ASN:ND2	2.37	0.40
8:E:72:ARG:HH11	8:E:72:ARG:HG3	1.86	0.40
16:N:43:ALA:HB2	16:N:50:LEU:HB2	2.02	0.40
18:P:108:VAL:O	18:P:110:VAL:HG23	2.21	0.40
22:U:81:4D4:H14	22:U:81:4D4:H10	1.62	0.40
39:l:25:LYS:HB2	39:l:25:LYS:HE3	1.89	0.40
41:n:74:GLU:O	41:n:88:PRO:HA	2.21	0.40
41:n:103:TRP:CE2	41:n:137:LYS:HD3	2.56	0.40
53:I:754:U:H2'	53:I:755:U:C6	2.55	0.40
53:I:1316:U:H2'	53:I:1317:G:H8	1.86	0.40
53:I:2194:U:H2'	53:I:2195:U:H6	1.86	0.40
6:C:33:A:H2'	6:C:34:C:H6	1.86	0.40
8:E:70:THR:C	8:E:106:VAL:HG12	2.46	0.40
13:K:271:ARG:HG3	13:K:272:SER:N	2.37	0.40
17:O:72:LEU:HD23	17:O:75:MET:HE2	2.03	0.40
41:n:150:ALA:HB1	45:r:59:THR:HG21	2.02	0.40
53:I:671:C:H2'	53:I:672:C:C6	2.57	0.40
53:I:1081:U:H2'	53:I:1082:U:H6	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:I:1637:A:H5'	53:I:1760:C:O2'	2.21	0.40
53:I:1680:U:H2'	53:I:1681:G:O4'	2.21	0.40
53:I:2646:C:H2'	53:I:2647:U:O4'	2.21	0.40
53:I:2648:G:H2'	53:I:2649:C:C6	2.56	0.40
53:I:2846:G:H2'	53:I:2847:U:C6	2.57	0.40
6:C:176:C:H2'	6:C:177:G:N3	2.36	0.40
6:C:212:G:N3	6:C:213:G:C8	2.90	0.40
6:C:236:A:H2'	6:C:237:G:H8	1.86	0.40
6:C:265:G:N2	6:C:267:C:H5'	2.36	0.40
6:C:518:C:H2'	6:C:530:G:C8	2.56	0.40
6:C:1333:A:H2'	6:C:1334:G:O4'	2.20	0.40
7:D:113:ARG:O	7:D:117:LEU:HG	2.22	0.40
10:G:26:LYS:HE2	10:G:26:LYS:HB3	1.90	0.40
16:N:5:HIS:CD2	16:N:9:LYS:HE2	2.56	0.40
33:f:56:MET:HE3	33:f:56:MET:HB2	1.86	0.40
37:j:22:THR:HG21	53:I:2419:U:H4'	2.02	0.40
44:q:9:ARG:HB2	44:q:99:GLN:HB2	2.03	0.40
45:r:84:VAL:HG11	45:r:97:ILE:CD1	2.41	0.40
53:I:156:A:H2'	53:I:157:C:C6	2.56	0.40
53:I:271:G:H1'	53:I:272:A:C8	2.57	0.40
53:I:281:C:H2'	53:I:282:A:H8	1.87	0.40
53:I:1437:C:H2'	53:I:1438:U:C6	2.56	0.40
6:C:35:G:H2'	6:C:36:C:H6	1.85	0.40
6:C:678:U:H2'	6:C:679:C:C6	2.56	0.40
6:C:999:C:H2'	6:C:1000:A:H8	1.87	0.40
7:D:114:LEU:HD21	7:D:152:LYS:HE3	2.03	0.40
15:M:155:GLU:O	15:M:159:LEU:HG	2.21	0.40
19:R:16:TYR:HB3	19:R:140:LEU:HB2	2.04	0.40
34:g:2:LYS:HB3	34:g:2:LYS:HE3	1.80	0.40
53:I:588:U:H2'	53:I:589:U:C6	2.57	0.40
53:I:796:C:H2'	53:I:797:G:C8	2.57	0.40
53:I:883:G:C2	53:I:894:U:C2	3.09	0.40
53:I:1581:G:H2'	53:I:1582:C:C6	2.56	0.40
53:I:1846:G:H2'	53:I:1847:A:C8	2.56	0.40
53:I:2637:U:H2'	53:I:2638:G:O4'	2.21	0.40
55:v:96:LEU:HD12	55:v:96:LEU:HA	1.80	0.40
1:1:70:LYS:O	1:1:73:GLU:HG3	2.22	0.40
3:3:16:LEU:HD12	3:3:16:LEU:HA	1.93	0.40
6:C:212:G:H1'	6:C:213:G:C8	2.42	0.40
6:C:376:G:H4'	50:x:5:ARG:HD3	2.02	0.40
6:C:415:A:C4	6:C:416:G:C8	3.09	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:1009:U:H3	6:C:1020:G:H1	1.69	0.40
6:C:1070:U:H2'	6:C:1071:C:H6	1.87	0.40
13:K:98:ASP:OD1	13:K:98:ASP:C	2.65	0.40
20:S:111:LYS:HB2	20:S:111:LYS:NZ	2.37	0.40
35:h:45:ARG:HH22	35:h:59:GLU:CD	2.30	0.40
45:r:94:GLU:O	45:r:98:ARG:HG2	2.21	0.40
45:r:106:ARG:HH11	45:r:106:ARG:HG2	1.87	0.40
53:I:358:U:C2	53:I:359:G:C8	3.09	0.40
53:I:1411:U:H2'	53:I:1412:U:C6	2.57	0.40
53:I:1495:A:H2'	53:I:1496:A:C8	2.55	0.40
53:I:1698:A:H4'	53:I:1699:G:OP1	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	1	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
2	2	83/87 (95%)	82 (99%)	1 (1%)	0	100	100
3	3	68/71 (96%)	68 (100%)	0	0	100	100
7	D	216/241 (90%)	207 (96%)	8 (4%)	1 (0%)	24	20
8	E	204/233 (88%)	195 (96%)	9 (4%)	0	100	100
9	F	203/206 (98%)	193 (95%)	9 (4%)	1 (0%)	24	20
10	G	148/167 (89%)	141 (95%)	7 (5%)	0	100	100
11	H	98/135 (73%)	97 (99%)	1 (1%)	0	100	100
13	K	270/273 (99%)	262 (97%)	8 (3%)	0	100	100
14	L	207/209 (99%)	202 (98%)	5 (2%)	0	100	100
15	M	199/201 (99%)	193 (97%)	6 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	N	175/179 (98%)	169 (97%)	6 (3%)	0	100	100
17	O	174/177 (98%)	170 (98%)	4 (2%)	0	100	100
18	P	147/149 (99%)	142 (97%)	5 (3%)	0	100	100
19	R	140/142 (99%)	137 (98%)	3 (2%)	0	100	100
20	S	120/123 (98%)	120 (100%)	0	0	100	100
21	T	142/144 (99%)	135 (95%)	7 (5%)	0	100	100
22	U	133/136 (98%)	131 (98%)	2 (2%)	0	100	100
23	V	118/127 (93%)	114 (97%)	4 (3%)	0	100	100
24	W	114/117 (97%)	113 (99%)	1 (1%)	0	100	100
25	X	112/115 (97%)	111 (99%)	1 (1%)	0	100	100
26	Y	115/118 (98%)	115 (100%)	0	0	100	100
27	Z	101/103 (98%)	98 (97%)	2 (2%)	1 (1%)	12	8
28	a	108/110 (98%)	107 (99%)	1 (1%)	0	100	100
29	b	91/100 (91%)	89 (98%)	2 (2%)	0	100	100
30	c	100/104 (96%)	95 (95%)	5 (5%)	0	100	100
31	d	92/94 (98%)	91 (99%)	1 (1%)	0	100	100
32	e	81/85 (95%)	78 (96%)	2 (2%)	1 (1%)	10	5
33	f	75/78 (96%)	75 (100%)	0	0	100	100
34	g	60/63 (95%)	59 (98%)	1 (2%)	0	100	100
35	h	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
36	i	54/57 (95%)	53 (98%)	1 (2%)	0	100	100
37	j	48/55 (87%)	47 (98%)	1 (2%)	0	100	100
38	k	44/46 (96%)	43 (98%)	1 (2%)	0	100	100
39	l	62/65 (95%)	61 (98%)	1 (2%)	0	100	100
40	m	36/38 (95%)	36 (100%)	0	0	100	100
41	n	149/179 (83%)	146 (98%)	3 (2%)	0	100	100
42	o	127/130 (98%)	126 (99%)	1 (1%)	0	100	100
43	p	125/130 (96%)	117 (94%)	7 (6%)	1 (1%)	16	10
44	q	96/103 (93%)	91 (95%)	4 (4%)	1 (1%)	12	8
45	r	115/129 (89%)	112 (97%)	3 (3%)	0	100	100
46	s	4/6 (67%)	3 (75%)	1 (25%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	t	121/124 (98%)	114 (94%)	7 (6%)	0	100	100
48	u	113/118 (96%)	104 (92%)	9 (8%)	0	100	100
49	w	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
50	x	80/82 (98%)	77 (96%)	3 (4%)	0	100	100
51	y	78/84 (93%)	77 (99%)	1 (1%)	0	100	100
52	z	53/75 (71%)	53 (100%)	0	0	100	100
54	Q	56/70 (80%)	56 (100%)	0	0	100	100
55	v	92/101 (91%)	90 (98%)	2 (2%)	0	100	100
All	All	5566/5919 (94%)	5405 (97%)	155 (3%)	6 (0%)	49	50

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	D	14	VAL
9	F	28	ILE
43	p	55	VAL
44	q	57	VAL
32	e	84	ALA
27	Z	52	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1	70/79 (89%)	70 (100%)	0	100	100
2	2	65/66 (98%)	62 (95%)	3 (5%)	24	22
3	3	60/61 (98%)	59 (98%)	1 (2%)	53	60
7	D	180/199 (90%)	172 (96%)	8 (4%)	25	23
8	E	170/190 (90%)	167 (98%)	3 (2%)	51	58
9	F	172/173 (99%)	165 (96%)	7 (4%)	27	26
10	G	113/126 (90%)	106 (94%)	7 (6%)	16	12

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	H	87/116 (75%)	84 (97%)	3 (3%)	32	33
13	K	217/218 (100%)	215 (99%)	2 (1%)	70	77
14	L	164/164 (100%)	158 (96%)	6 (4%)	30	30
15	M	165/165 (100%)	160 (97%)	5 (3%)	36	38
16	N	148/150 (99%)	142 (96%)	6 (4%)	27	26
17	O	137/138 (99%)	135 (98%)	2 (2%)	57	64
18	P	114/114 (100%)	109 (96%)	5 (4%)	25	23
19	R	116/116 (100%)	114 (98%)	2 (2%)	53	60
20	S	103/104 (99%)	99 (96%)	4 (4%)	28	28
21	T	103/103 (100%)	101 (98%)	2 (2%)	50	56
22	U	108/108 (100%)	105 (97%)	3 (3%)	38	40
23	V	100/103 (97%)	99 (99%)	1 (1%)	68	75
24	W	86/87 (99%)	82 (95%)	4 (5%)	23	21
25	X	99/100 (99%)	98 (99%)	1 (1%)	68	75
26	Y	89/90 (99%)	88 (99%)	1 (1%)	65	72
27	Z	84/84 (100%)	81 (96%)	3 (4%)	31	31
28	a	93/93 (100%)	91 (98%)	2 (2%)	45	51
29	b	80/84 (95%)	79 (99%)	1 (1%)	61	68
30	c	83/85 (98%)	81 (98%)	2 (2%)	43	47
31	d	78/78 (100%)	75 (96%)	3 (4%)	29	29
32	e	62/63 (98%)	51 (82%)	11 (18%)	2	0
33	f	67/68 (98%)	66 (98%)	1 (2%)	57	64
34	g	54/55 (98%)	53 (98%)	1 (2%)	50	56
35	h	48/49 (98%)	46 (96%)	2 (4%)	26	25
36	i	47/48 (98%)	47 (100%)	0	100	100
37	j	45/49 (92%)	44 (98%)	1 (2%)	45	51
38	k	38/38 (100%)	37 (97%)	1 (3%)	40	43
39	l	51/52 (98%)	51 (100%)	0	100	100
40	m	34/34 (100%)	33 (97%)	1 (3%)	37	39
41	n	124/147 (84%)	119 (96%)	5 (4%)	28	27
42	o	104/105 (99%)	103 (99%)	1 (1%)	68	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
43	p	105/107 (98%)	101 (96%)	4 (4%)	29 29
44	q	86/90 (96%)	79 (92%)	7 (8%)	11 7
45	r	90/99 (91%)	88 (98%)	2 (2%)	45 51
46	s	5/5 (100%)	3 (60%)	2 (40%)	0 0
47	t	103/104 (99%)	99 (96%)	4 (4%)	28 28
48	u	93/96 (97%)	90 (97%)	3 (3%)	34 36
49	w	75/77 (97%)	73 (97%)	2 (3%)	39 41
50	x	65/65 (100%)	61 (94%)	4 (6%)	16 12
51	y	74/78 (95%)	72 (97%)	2 (3%)	39 41
52	z	48/65 (74%)	46 (96%)	2 (4%)	26 25
54	Q	55/62 (89%)	53 (96%)	2 (4%)	31 31
55	v	79/84 (94%)	74 (94%)	5 (6%)	16 11
All	All	4636/4834 (96%)	4486 (97%)	150 (3%)	35 36

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

Mol	Chain	Res	Type
2	2	58	VAL
2	2	66	LEU
2	2	70	ASN
3	3	3	VAL
7	D	10	LEU
7	D	54	LEU
7	D	89	GLN
7	D	93	ASN
7	D	147	SER
7	D	161	LEU
7	D	164	ILE
7	D	199	VAL
8	E	38	LYS
8	E	47	LEU
8	E	188	GLU
9	F	12	SER
9	F	119	SER
9	F	125	VAL
9	F	143	VAL
9	F	167	LYS
9	F	181	THR

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Mol	Chain	Res	Type
9	F	196	ASN
10	G	30	ILE
10	G	52	LYS
10	G	65	GLU
10	G	94	VAL
10	G	114	VAL
10	G	117	VAL
10	G	120	VAL
11	H	1	MET
11	H	72	ASP
11	H	84	VAL
13	K	267	ILE
13	K	268	VAL
14	L	1	MET
14	L	12	THR
14	L	40	LEU
14	L	58	ASN
14	L	105	LYS
14	L	110	THR
15	M	150	THR
15	M	155	GLU
15	M	162	ARG
15	M	166	LYS
15	M	175	ILE
16	N	26	MET
16	N	28	VAL
16	N	37	ASN
16	N	78	LYS
16	N	94	GLU
16	N	158	THR
17	O	11	VAL
17	O	124	GLU
18	P	58	LEU
18	P	60	GLU
18	P	115	VAL
18	P	117	LEU
18	P	143	ILE
19	R	30	THR
19	R	131	ASN
20	S	51	LYS
20	S	58	LEU
20	S	103	VAL

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Mol	Chain	Res	Type
20	S	113	MET
21	T	7	SER
21	T	115	GLU
22	U	22	GLN
22	U	53	MET
22	U	127	LYS
23	V	57	THR
24	W	27	VAL
24	W	54	VAL
24	W	90	VAL
24	W	100	HIS
25	X	7	GLN
26	Y	88	VAL
27	Z	15	SER
27	Z	60	LYS
27	Z	62	GLU
28	a	96	ILE
28	a	108	SER
29	b	18	GLU
30	c	21	LYS
30	c	49	VAL
31	d	3	THR
31	d	61	LEU
31	d	77	VAL
32	e	3	HIS
32	e	4	LYS
32	e	5	LYS
32	e	10	THR
32	e	11	ARG
32	e	44	LYS
32	e	68	LYS
32	e	72	LYS
32	e	78	LYS
32	e	83	GLU
32	e	85	GLU
33	f	17	ASN
34	g	13	GLU
35	h	4	THR
35	h	37	GLU
37	j	36	LEU
38	k	1	MET
40	m	22	VAL

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Mol	Chain	Res	Type
41	n	7	ILE
41	n	47	LEU
41	n	57	SER
41	n	60	GLU
41	n	129	GLU
42	o	129	VAL
43	p	25	ASN
43	p	61	LEU
43	p	65	ILE
43	p	75	GLN
44	q	24	GLU
44	q	30	LYS
44	q	53	ILE
44	q	71	LEU
44	q	87	LEU
44	q	92	LEU
44	q	96	VAL
45	r	30	THR
45	r	82	LEU
46	s	2	ASN
46	s	3	THR
47	t	43	LYS
47	t	78	SER
47	t	79	VAL
47	t	82	ILE
48	u	25	VAL
48	u	28	THR
48	u	114	LYS
49	w	4	SER
49	w	62	GLN
50	x	5	ARG
50	x	19	VAL
50	x	25	ARG
50	x	50	THR
51	y	36	LYS
51	y	74	THR
52	z	21	ILE
52	z	71	THR
54	Q	12	ILE
54	Q	32	LEU
55	v	13	ARG
55	v	16	LEU

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Mol	Chain	Res	Type
55	v	45	VAL
55	v	49	GLN
55	v	92	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (49) such sidechains are listed below:

Mol	Chain	Res	Type
7	D	24	ASN
7	D	146	ASN
8	E	123	GLN
8	E	190	HIS
10	G	89	HIS
10	G	148	ASN
11	H	63	ASN
11	H	68	GLN
13	K	90	ASN
13	K	134	ASN
13	K	153	GLN
14	L	126	ASN
15	M	90	GLN
15	M	94	GLN
16	N	27	GLN
17	O	20	ASN
17	O	104	ASN
17	O	139	GLN
18	P	18	GLN
18	P	20	ASN
18	P	33	GLN
19	R	58	ASN
19	R	128	ASN
20	S	3	GLN
25	X	41	GLN
26	Y	59	GLN
27	Z	12	HIS
27	Z	18	GLN
28	a	9	HIS
28	a	40	ASN
29	b	59	ASN
30	c	46	GLN
30	c	74	ASN
31	d	75	GLN
32	e	3	HIS

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Mol	Chain	Res	Type
32	e	50	ASN
33	f	17	ASN
34	g	39	GLN
41	n	148	ASN
42	o	18	GLN
43	p	75	GLN
43	p	110	GLN
43	p	126	GLN
44	q	56	HIS
44	q	58	ASN
45	r	15	GLN
49	w	50	HIS
50	x	59	HIS
52	z	74	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
12	J	117/120 (97%)	18 (15%)	0
4	4	5/18 (27%)	0	0
5	A	75/76 (98%)	23 (30%)	6 (8%)
53	I	2895/2904 (99%)	420 (14%)	25 (0%)
6	C	1539/1542 (99%)	216 (14%)	9 (0%)
All	All	4631/4660 (99%)	677 (14%)	40 (0%)

All (677) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	A	7	U
5	A	8	U
5	A	11	C
5	A	14	A
5	A	16	U
5	A	17	U
5	A	18	G
5	A	19	G
5	A	20	U
5	A	21	A
5	A	22	G
5	A	23	A
5	A	26	A

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Mol	Chain	Res	Type
5	A	45	G
5	A	46	G
5	A	47	U
5	A	48	C
5	A	58	A
5	A	60	U
5	A	61	C
5	A	62	C
5	A	67	C
5	A	76	A
6	C	4	U
6	C	7	A
6	C	9	G
6	C	22	G
6	C	32	A
6	C	39	G
6	C	47	C
6	C	48	C
6	C	50	A
6	C	51	A
6	C	63	C
6	C	69	G
6	C	70	U
6	C	74	A
6	C	83	C
6	C	85	U
6	C	87	C
6	C	95	C
6	C	97	G
6	C	108	G
6	C	116	A
6	C	117	G
6	C	120	A
6	C	121	U
6	C	130	A
6	C	131	A
6	C	141	G
6	C	143	A
6	C	144	G
6	C	155	A
6	C	182	A
6	C	197	A

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Mol	Chain	Res	Type
6	C	204	G
6	C	207	C
6	C	208	U
6	C	210	C
6	C	211	G
6	C	213	G
6	C	214	C
6	C	226	G
6	C	245	U
6	C	247	G
6	C	251	G
6	C	266	G
6	C	267	C
6	C	280	C
6	C	289	G
6	C	321	A
6	C	328	C
6	C	329	A
6	C	330	C
6	C	332	G
6	C	351	G
6	C	352	C
6	C	354	G
6	C	356	A
6	C	367	U
6	C	372	C
6	C	373	A
6	C	378	G
6	C	384	G
6	C	406	G
6	C	412	A
6	C	413	G
6	C	421	U
6	C	422	C
6	C	424	G
6	C	429	U
6	C	439	U
6	C	458	U
6	C	459	A
6	C	467	U
6	C	468	A
6	C	478	A

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Mol	Chain	Res	Type
6	C	479	U
6	C	481	G
6	C	484	G
6	C	485	U
6	C	486	U
6	C	495	A
6	C	497	G
6	C	509	A
6	C	511	C
6	C	518	C
6	C	521	G
6	C	527	G
6	C	532	A
6	C	533	A
6	C	547	A
6	C	550	G
6	C	564	C
6	C	572	A
6	C	573	A
6	C	576	C
6	C	577	G
6	C	596	A
6	C	633	G
6	C	650	G
6	C	653	U
6	C	665	A
6	C	695	A
6	C	703	G
6	C	721	G
6	C	723	U
6	C	731	G
6	C	734	G
6	C	747	A
6	C	755	G
6	C	777	A
6	C	792	A
6	C	793	U
6	C	794	A
6	C	815	A
6	C	817	C
6	C	821	G
6	C	828	U

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Mol	Chain	Res	Type
6	C	832	G
6	C	841	C
6	C	842	U
6	C	843	U
6	C	844	G
6	C	845	A
6	C	846	G
6	C	847	G
6	C	885	G
6	C	914	A
6	C	922	G
6	C	926	G
6	C	934	C
6	C	935	A
6	C	960	U
6	C	966	G
6	C	969	A
6	C	975	A
6	C	976	G
6	C	977	A
6	C	983	A
6	C	992	U
6	C	993	G
6	C	1004	A
6	C	1008	U
6	C	1020	G
6	C	1030	U
6	C	1032	G
6	C	1033	G
6	C	1034	G
6	C	1043	G
6	C	1053	G
6	C	1054	C
6	C	1065	U
6	C	1085	U
6	C	1086	U
6	C	1087	G
6	C	1094	G
6	C	1095	U
6	C	1101	A
6	C	1133	G
6	C	1136	C

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Mol	Chain	Res	Type
6	C	1137	C
6	C	1139	G
6	C	1140	C
6	C	1141	C
6	C	1142	G
6	C	1145	A
6	C	1146	A
6	C	1158	C
6	C	1159	U
6	C	1167	A
6	C	1184	G
6	C	1196	A
6	C	1197	A
6	C	1202	U
6	C	1212	U
6	C	1213	A
6	C	1227	A
6	C	1238	A
6	C	1240	U
6	C	1241	G
6	C	1258	G
6	C	1275	A
6	C	1280	A
6	C	1286	U
6	C	1287	A
6	C	1293	C
6	C	1299	A
6	C	1302	C
6	C	1305	G
6	C	1317	C
6	C	1318	A
6	C	1320	C
6	C	1337	G
6	C	1338	G
6	C	1346	A
6	C	1353	G
6	C	1363	A
6	C	1364	U
6	C	1370	G
6	C	1419	G
6	C	1432	G
6	C	1446	A

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Mol	Chain	Res	Type
6	C	1452	C
6	C	1487	G
6	C	1492	A
6	C	1497	G
6	C	1503	A
6	C	1506	U
6	C	1517	G
6	C	1529	G
6	C	1530	G
6	C	1533	C
6	C	1534	A
6	C	1536	C
6	C	1537	U
6	C	1538	C
6	C	1539	C
6	C	1540	U
12	J	9	G
12	J	13	G
12	J	15	A
12	J	16	G
12	J	24	G
12	J	25	U
12	J	32	U
12	J	35	C
12	J	42	C
12	J	56	G
12	J	67	G
12	J	88	C
12	J	89	U
12	J	90	C
12	J	91	C
12	J	99	A
12	J	109	A
12	J	119	A
53	I	10	A
53	I	15	G
53	I	26	G
53	I	34	U
53	I	42	A
53	I	46	G
53	I	51	G
53	I	63	A

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Mol	Chain	Res	Type
53	I	71	A
53	I	72	U
53	I	74	A
53	I	75	G
53	I	88	G
53	I	91	A
53	I	101	A
53	I	102	U
53	I	110	G
53	I	112	U
53	I	118	A
53	I	120	U
53	I	125	A
53	I	137	U
53	I	139	U
53	I	163	C
53	I	173	A
53	I	174	U
53	I	181	A
53	I	183	C
53	I	196	A
53	I	199	A
53	I	209	C
53	I	210	C
53	I	215	G
53	I	216	A
53	I	220	G
53	I	221	A
53	I	222	A
53	I	236	C
53	I	237	C
53	I	238	C
53	I	240	C
53	I	245	G
53	I	248	G
53	I	266	G
53	I	272	A
53	I	276	U
53	I	286	U
53	I	302	C
53	I	306	U
53	I	307	G

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Mol	Chain	Res	Type
53	I	308	G
53	I	309	A
53	I	311	A
53	I	329	G
53	I	330	A
53	I	345	A
53	I	353	C
53	I	361	G
53	I	362	A
53	I	371	A
53	I	372	G
53	I	376	G
53	I	377	G
53	I	379	G
53	I	386	G
53	I	391	A
53	I	396	G
53	I	404	A
53	I	405	U
53	I	411	G
53	I	412	A
53	I	417	C
53	I	437	U
53	I	443	A
53	I	457	A
53	I	475	C
53	I	481	G
53	I	491	G
53	I	504	A
53	I	505	A
53	I	507	A
53	I	509	C
53	I	529	A
53	I	530	G
53	I	532	A
53	I	546	U
53	I	548	G
53	I	549	G
53	I	550	C
53	I	556	A
53	I	562	U
53	I	563	A

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Mol	Chain	Res	Type
53	I	573	U
53	I	575	A
53	I	587	C
53	I	594	U
53	I	603	A
53	I	607	U
53	I	613	A
53	I	614	A
53	I	616	A
53	I	627	A
53	I	628	G
53	I	632	A
53	I	637	A
53	I	639	U
53	I	645	C
53	I	647	G
53	I	654	A
53	I	655	A
53	I	686	U
53	I	730	A
53	I	740	C
53	I	747	5MU
53	I	764	A
53	I	765	C
53	I	775	G
53	I	776	G
53	I	782	A
53	I	784	G
53	I	785	G
53	I	789	A
53	I	805	G
53	I	812	C
53	I	819	A
53	I	827	U
53	I	828	U
53	I	845	A
53	I	846	U
53	I	847	U
53	I	858	G
53	I	859	G
53	I	896	A
53	I	897	C

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Mol	Chain	Res	Type
53	I	907	G
53	I	910	A
53	I	915	C
53	I	931	U
53	I	941	A
53	I	946	C
53	I	961	C
53	I	974	G
53	I	983	A
53	I	996	A
53	I	1005	C
53	I	1012	U
53	I	1013	C
53	I	1016	G
53	I	1026	G
53	I	1033	U
53	I	1046	A
53	I	1047	G
53	I	1061	U
53	I	1070	A
53	I	1071	G
53	I	1079	C
53	I	1080	A
53	I	1083	U
53	I	1088	A
53	I	1110	G
53	I	1111	A
53	I	1112	G
53	I	1132	U
53	I	1133	A
53	I	1135	C
53	I	1142	A
53	I	1150	C
53	I	1151	A
53	I	1173	U
53	I	1174	U
53	I	1175	A
53	I	1180	U
53	I	1206	G
53	I	1212	G
53	I	1236	G
53	I	1238	G

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Mol	Chain	Res	Type
53	I	1250	G
53	I	1253	A
53	I	1256	G
53	I	1266	G
53	I	1271	G
53	I	1272	A
53	I	1300	G
53	I	1301	A
53	I	1329	U
53	I	1340	U
53	I	1352	U
53	I	1353	A
53	I	1365	A
53	I	1368	G
53	I	1374	G
53	I	1378	A
53	I	1379	U
53	I	1383	A
53	I	1386	C
53	I	1416	G
53	I	1419	A
53	I	1428	C
53	I	1452	G
53	I	1453	A
53	I	1461	C
53	I	1482	G
53	I	1485	U
53	I	1493	C
53	I	1494	A
53	I	1506	U
53	I	1508	A
53	I	1509	A
53	I	1510	G
53	I	1515	A
53	I	1532	A
53	I	1534	U
53	I	1535	A
53	I	1536	C
53	I	1566	A
53	I	1569	A
53	I	1578	U
53	I	1583	A

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Mol	Chain	Res	Type
53	I	1608	A
53	I	1610	A
53	I	1618	6MZ
53	I	1647	U
53	I	1648	U
53	I	1649	G
53	I	1674	G
53	I	1684	G
53	I	1692	U
53	I	1693	U
53	I	1696	G
53	I	1699	G
53	I	1715	G
53	I	1729	U
53	I	1730	C
53	I	1738	G
53	I	1755	A
53	I	1756	G
53	I	1758	U
53	I	1763	G
53	I	1764	C
53	I	1773	A
53	I	1776	G
53	I	1782	U
53	I	1800	C
53	I	1801	A
53	I	1808	A
53	I	1811	G
53	I	1816	C
53	I	1829	A
53	I	1847	A
53	I	1848	A
53	I	1869	G
53	I	1870	C
53	I	1872	A
53	I	1877	A
53	I	1906	G
53	I	1909	C
53	I	1913	A
53	I	1914	C
53	I	1915	3TD
53	I	1929	G

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Mol	Chain	Res	Type
53	I	1930	G
53	I	1936	A
53	I	1937	A
53	I	1954	G
53	I	1955	U
53	I	1967	C
53	I	1970	A
53	I	1971	U
53	I	1972	G
53	I	1982	U
53	I	1991	U
53	I	1993	U
53	I	1997	C
53	I	2020	A
53	I	2022	U
53	I	2023	C
53	I	2030	6MZ
53	I	2031	A
53	I	2033	A
53	I	2043	C
53	I	2055	C
53	I	2056	G
53	I	2060	A
53	I	2061	G
53	I	2069	G7M
53	I	2093	G
53	I	2111	U
53	I	2112	G
53	I	2113	U
53	I	2115	G
53	I	2116	G
53	I	2117	A
53	I	2118	U
53	I	2119	A
53	I	2122	U
53	I	2128	G
53	I	2131	U
53	I	2132	U
53	I	2133	G
53	I	2134	A
53	I	2159	G
53	I	2160	C

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Mol	Chain	Res	Type
53	I	2161	C
53	I	2163	A
53	I	2164	C
53	I	2165	C
53	I	2166	U
53	I	2167	U
53	I	2169	A
53	I	2170	A
53	I	2171	A
53	I	2172	U
53	I	2175	C
53	I	2177	C
53	I	2178	C
53	I	2181	U
53	I	2186	G
53	I	2198	A
53	I	2204	G
53	I	2211	A
53	I	2225	A
53	I	2226	C
53	I	2238	G
53	I	2239	G
53	I	2278	A
53	I	2283	C
53	I	2287	A
53	I	2288	A
53	I	2305	U
53	I	2311	A
53	I	2319	G
53	I	2322	A
53	I	2325	G
53	I	2333	A
53	I	2335	A
53	I	2345	G
53	I	2347	C
53	I	2350	C
53	I	2361	G
53	I	2371	G
53	I	2383	G
53	I	2385	C
53	I	2391	G
53	I	2396	G

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Mol	Chain	Res	Type
53	I	2403	C
53	I	2406	A
53	I	2415	G
53	I	2416	C
53	I	2423	U
53	I	2425	A
53	I	2426	A
53	I	2429	G
53	I	2430	A
53	I	2441	U
53	I	2448	A
53	I	2470	G
53	I	2475	C
53	I	2476	A
53	I	2478	A
53	I	2491	U
53	I	2502	G
53	I	2505	G
53	I	2518	A
53	I	2529	G
53	I	2543	G
53	I	2544	G
53	I	2547	A
53	I	2554	U
53	I	2566	A
53	I	2567	G
53	I	2572	A
53	I	2584	U
53	I	2585	U
53	I	2602	A
53	I	2609	U
53	I	2613	U
53	I	2615	U
53	I	2630	G
53	I	2639	A
53	I	2646	C
53	I	2661	G
53	I	2663	G
53	I	2669	G
53	I	2681	C
53	I	2682	A
53	I	2689	U

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Mol	Chain	Res	Type
53	I	2690	U
53	I	2714	G
53	I	2716	C
53	I	2718	G
53	I	2726	A
53	I	2732	G
53	I	2733	A
53	I	2734	A
53	I	2744	G
53	I	2748	A
53	I	2765	A
53	I	2766	A
53	I	2778	A
53	I	2781	A
53	I	2791	G
53	I	2793	C
53	I	2797	U
53	I	2800	A
53	I	2818	U
53	I	2820	A
53	I	2821	A
53	I	2835	A
53	I	2855	C
53	I	2861	U
53	I	2867	G
53	I	2873	A
53	I	2880	C
53	I	2883	A
53	I	2884	U
53	I	2885	G
53	I	2887	A
53	I	2891	U
53	I	2902	C
53	I	2903	U

All (40) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	A	7	U
5	A	16	U
5	A	18	G
5	A	22	G

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Mol	Chain	Res	Type
5	A	45	G
5	A	60	U
6	C	96	U
6	C	115	G
6	C	206	C
6	C	212	G
6	C	428	G
6	C	846	G
6	C	1145	A
6	C	1201	A
6	C	1491	G
53	I	25	U
53	I	87	U
53	I	138	U
53	I	182	A
53	I	271	G
53	I	404	A
53	I	504	A
53	I	548	G
53	I	555	G
53	I	784	G
53	I	1079	C
53	I	1352	U
53	I	1754	A
53	I	1846	G
53	I	1847	A
53	I	1913	A
53	I	2127	G
53	I	2158	A
53	I	2225	A
53	I	2425	A
53	I	2447	G
53	I	2543	G
53	I	2660	A
53	I	2680	U
53	I	2854	G

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

28 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
53	3TD	I	1915	53	19,22,23	1.13	2 (10%)	23,32,35	1.89	3 (13%)
5	PSU	A	39	5	18,21,22	0.92	1 (5%)	21,30,33	0.71	0
53	H2U	I	2449	53	18,21,22	0.51	0	19,30,33	0.97	1 (5%)
53	G7M	I	2069	53	23,26,27	0.58	0	34,39,42	0.90	1 (2%)
53	OMC	I	2498	53,56	19,22,23	0.95	1 (5%)	25,31,34	1.09	2 (8%)
53	PSU	I	746	53,56	18,21,22	1.10	3 (16%)	21,30,33	1.82	4 (19%)
53	PSU	I	955	53	18,21,22	1.07	1 (5%)	21,30,33	2.00	4 (19%)
53	6MZ	I	2030	53	22,25,26	1.09	2 (9%)	29,36,39	2.33	9 (31%)
53	OMG	I	2251	53,5	23,26,27	0.82	1 (4%)	32,38,41	1.98	10 (31%)
53	PSU	I	2580	53	18,21,22	1.19	4 (22%)	21,30,33	2.08	5 (23%)
53	2MG	I	2445	53	23,26,27	0.86	1 (4%)	33,38,41	2.13	10 (30%)
53	PSU	I	1917	53	18,21,22	0.99	1 (5%)	21,30,33	1.96	4 (19%)
53	PSU	I	2604	53	18,21,22	1.04	2 (11%)	21,30,33	2.04	5 (23%)
53	PSU	I	2504	53,56	18,21,22	1.09	3 (16%)	21,30,33	2.02	4 (19%)
53	PSU	I	2605	53	18,21,22	1.03	2 (11%)	21,30,33	2.01	4 (19%)
53	OMU	I	2552	53	19,22,23	1.11	3 (15%)	25,31,34	1.89	6 (24%)
53	1MG	I	745	53	23,26,27	1.01	1 (4%)	33,39,42	1.73	7 (21%)
5	U8U	A	34	4,5	20,24,25	1.05	1 (5%)	22,34,37	0.86	0
53	PSU	I	2457	53	18,21,22	1.08	2 (11%)	21,30,33	2.06	5 (23%)
53	2MA	I	2503	53,56	22,25,26	1.31	3 (13%)	32,37,40	2.02	7 (21%)
53	2MG	I	1835	53	23,26,27	0.83	1 (4%)	33,38,41	2.20	10 (30%)
53	6MZ	I	1618	53	22,25,26	1.13	2 (9%)	29,36,39	2.23	9 (31%)
5	T6A	A	37	5	31,34,35	0.52	0	43,49,52	0.59	0
53	PSU	I	1911	53	18,21,22	0.99	1 (5%)	21,30,33	2.00	4 (19%)
53	5MU	I	747	53	19,22,23	1.15	4 (21%)	27,32,35	2.12	5 (18%)
53	5MC	I	1962	53	19,22,23	1.38	2 (10%)	26,32,35	1.09	2 (7%)
22	4D4	U	81	22	9,11,12	0.88	0	7,13,15	1.68	2 (28%)
53	5MU	I	1939	53	19,22,23	1.19	4 (21%)	27,32,35	2.21	6 (22%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
53	3TD	I	1915	53	-	2/7/25/26	0/2/2/2
5	PSU	A	39	5	-	0/7/25/26	0/2/2/2
53	H2U	I	2449	53	-	0/7/38/39	0/2/2/2
53	G7M	I	2069	53	-	1/7/25/26	0/3/3/3
53	OMC	I	2498	53,56	-	0/9/27/28	0/2/2/2
53	PSU	I	746	53,56	-	1/7/25/26	0/2/2/2
53	PSU	I	955	53	-	0/7/25/26	0/2/2/2
53	6MZ	I	2030	53	-	2/9/27/28	0/3/3/3
53	OMG	I	2251	53,5	-	1/9/27/28	0/3/3/3
53	PSU	I	2580	53	-	0/7/25/26	0/2/2/2
53	2MG	I	2445	53	-	1/9/27/28	0/3/3/3
53	PSU	I	1917	53	-	0/7/25/26	0/2/2/2
53	PSU	I	2604	53	-	0/7/25/26	0/2/2/2
53	PSU	I	2504	53,56	-	2/7/25/26	0/2/2/2
53	PSU	I	2605	53	-	0/7/25/26	0/2/2/2
53	OMU	I	2552	53	-	1/9/27/28	0/2/2/2
53	1MG	I	745	53	-	0/7/25/26	0/3/3/3
5	U8U	A	34	4,5	-	2/10/28/29	0/2/2/2
53	PSU	I	2457	53	-	0/7/25/26	0/2/2/2
53	2MA	I	2503	53,56	-	2/7/25/26	0/3/3/3
53	2MG	I	1835	53	-	0/9/27/28	0/3/3/3
53	6MZ	I	1618	53	-	2/9/27/28	0/3/3/3
5	T6A	A	37	5	-	0/23/41/42	0/3/3/3
53	PSU	I	1911	53	-	0/7/25/26	0/2/2/2
53	5MU	I	747	53	-	0/7/25/26	0/2/2/2
53	5MC	I	1962	53	-	0/7/25/26	0/2/2/2
22	4D4	U	81	22	-	4/11/12/14	-
53	5MU	I	1939	53	-	0/7/25/26	0/2/2/2

All (48) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	I	1962	5MC	C5-C4	-4.36	1.40	1.44
53	I	1618	6MZ	C6-N6	3.65	1.38	1.34
5	A	34	U8U	C4-C5	-3.56	1.37	1.45
53	I	2503	2MA	C6-N1	3.56	1.39	1.35
5	A	39	PSU	C6-C5	3.27	1.38	1.35
53	I	2030	6MZ	C6-N6	3.22	1.37	1.34
53	I	2503	2MA	C5-N7	-3.20	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	I	1962	5MC	C2-N1	-2.94	1.33	1.40
53	I	2552	OMU	C2-N1	-2.80	1.34	1.38
53	I	1939	5MU	C2-N1	-2.79	1.34	1.38
53	I	745	1MG	C6-N1	-2.69	1.34	1.40
53	I	1915	3TD	C4-N3	-2.67	1.34	1.40
53	I	2498	OMC	C2-N1	-2.60	1.34	1.40
53	I	747	5MU	C2-N1	-2.58	1.34	1.38
53	I	2580	PSU	O4'-C1'	-2.56	1.40	1.43
53	I	1939	5MU	C4-N3	-2.40	1.34	1.38
53	I	2552	OMU	C4-N3	-2.39	1.34	1.38
53	I	2504	PSU	C4-N3	-2.39	1.34	1.38
53	I	1915	3TD	C4-C5	-2.37	1.42	1.47
53	I	2604	PSU	C4-N3	-2.33	1.34	1.38
53	I	2457	PSU	C4-N3	-2.32	1.34	1.38
53	I	2503	2MA	C5-C6	2.32	1.47	1.41
53	I	2580	PSU	C4-N3	-2.31	1.34	1.38
53	I	747	5MU	C4-N3	-2.30	1.34	1.38
53	I	746	PSU	O4'-C1'	-2.30	1.40	1.43
53	I	2605	PSU	C4-N3	-2.28	1.34	1.38
53	I	1939	5MU	C2-N3	-2.28	1.34	1.38
53	I	955	PSU	C4-N3	-2.23	1.34	1.38
53	I	747	5MU	C4-C5	-2.21	1.41	1.44
53	I	2251	OMG	C6-N1	-2.18	1.34	1.38
53	I	1911	PSU	C4-N3	-2.17	1.34	1.38
53	I	746	PSU	C4-N3	-2.16	1.34	1.38
53	I	2445	2MG	C6-N1	-2.15	1.34	1.38
53	I	1939	5MU	C4-C5	-2.15	1.41	1.44
53	I	746	PSU	C2-N3	-2.14	1.33	1.37
53	I	2552	OMU	C2-N3	-2.13	1.34	1.38
53	I	747	5MU	C2-N3	-2.13	1.34	1.38
53	I	1835	2MG	C6-N1	-2.10	1.34	1.38
53	I	2580	PSU	C2-N1	-2.08	1.33	1.36
53	I	1618	6MZ	C5-N7	-2.08	1.35	1.39
53	I	1917	PSU	C4-N3	-2.07	1.35	1.38
53	I	2030	6MZ	C5-N7	-2.06	1.35	1.39
53	I	2580	PSU	C2-N3	-2.06	1.34	1.37
53	I	2504	PSU	C2-N3	-2.04	1.34	1.37
53	I	2457	PSU	C2-N3	-2.03	1.34	1.37
53	I	2604	PSU	C2-N3	-2.02	1.34	1.37
53	I	2504	PSU	C2-N1	-2.02	1.34	1.36
53	I	2605	PSU	C2-N3	-2.01	1.34	1.37

All (129) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	I	1835	2MG	C2-N3-C4	7.36	121.20	112.00
53	I	2445	2MG	C2-N3-C4	7.07	120.84	112.00
53	I	1915	3TD	N1-C2-N3	6.65	120.96	116.13
53	I	2503	2MA	C5-C4-N3	-6.22	120.62	127.18
53	I	2457	PSU	N1-C2-N3	5.80	121.28	115.17
53	I	2504	PSU	N1-C2-N3	5.76	121.25	115.17
53	I	1939	5MU	C4-N3-C2	-5.73	119.83	127.34
53	I	2604	PSU	N1-C2-N3	5.71	121.19	115.17
53	I	2580	PSU	N1-C2-N3	5.71	121.19	115.17
53	I	2605	PSU	N1-C2-N3	5.66	121.14	115.17
53	I	2251	OMG	C5-C4-N3	-5.62	119.45	128.39
53	I	1618	6MZ	C5-C4-N3	-5.56	119.06	126.72
53	I	955	PSU	N1-C2-N3	5.56	121.03	115.17
53	I	1911	PSU	N1-C2-N3	5.55	121.02	115.17
53	I	1835	2MG	C5-C4-N3	-5.51	119.62	128.39
53	I	1917	PSU	N1-C2-N3	5.46	120.93	115.17
53	I	745	1MG	C5-C4-N3	-5.41	119.77	128.39
53	I	746	PSU	N1-C2-N3	5.34	120.80	115.17
53	I	747	5MU	C4-N3-C2	-5.28	120.42	127.34
53	I	2030	6MZ	C5-C4-N3	-5.18	119.59	126.72
53	I	2251	OMG	C2-N3-C4	5.15	121.17	112.30
53	I	1939	5MU	N3-C2-N1	5.06	121.47	114.89
53	I	2552	OMU	C4-N3-C2	-5.04	120.35	126.61
53	I	2445	2MG	C5-C4-N3	-5.02	120.40	128.39
53	I	2503	2MA	N3-C4-N9	4.99	133.32	126.99
53	I	1939	5MU	C5-C4-N3	4.88	119.57	115.32
53	I	2030	6MZ	C9-N6-C6	-4.88	118.33	122.85
53	I	2552	OMU	N3-C2-N1	4.74	121.06	114.89
53	I	2604	PSU	C4-N3-C2	-4.72	119.87	126.37
53	I	747	5MU	C5-C4-N3	4.68	119.39	115.32
53	I	955	PSU	C4-N3-C2	-4.63	119.99	126.37
53	I	1911	PSU	C4-N3-C2	-4.60	120.03	126.37
53	I	2504	PSU	C4-N3-C2	-4.58	120.06	126.37
53	I	2605	PSU	C4-N3-C2	-4.56	120.09	126.37
53	I	2457	PSU	C4-N3-C2	-4.54	120.11	126.37
53	I	747	5MU	N3-C2-N1	4.53	120.79	114.89
53	I	1618	6MZ	N3-C4-N9	4.50	134.83	127.17
53	I	1917	PSU	C4-N3-C2	-4.48	120.20	126.37
53	I	746	PSU	C4-N3-C2	-4.33	120.41	126.37
53	I	2030	6MZ	N1-C2-N3	-4.30	122.08	128.58
53	I	2580	PSU	C4-N3-C2	-4.29	120.45	126.37
53	I	2251	OMG	N9-C4-N3	4.24	134.44	125.95
53	I	1835	2MG	N9-C4-N3	4.18	134.32	125.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	I	745	1MG	N9-C4-N3	4.12	134.18	125.95
53	I	1618	6MZ	N1-C2-N3	-4.10	122.37	128.58
53	I	747	5MU	O4-C4-C5	-4.10	120.23	124.92
53	I	745	1MG	C2-N3-C4	4.06	121.11	111.98
53	I	2030	6MZ	N3-C4-N9	4.05	134.06	127.17
53	I	1939	5MU	C5-C6-N1	-3.99	118.98	123.31
53	I	2030	6MZ	C5-N7-C8	3.97	109.70	103.45
53	I	1939	5MU	O4-C4-C5	-3.96	120.38	124.92
53	I	1915	3TD	C4-N3-C2	-3.87	120.52	124.61
53	I	2503	2MA	N6-C6-N1	3.84	122.21	117.03
53	I	1618	6MZ	C5-N7-C8	3.84	109.49	103.45
53	I	1962	5MC	C5-C6-N1	-3.77	119.22	123.31
53	I	2445	2MG	N9-C4-N3	3.73	133.41	125.95
53	I	2503	2MA	C5-N7-C8	3.71	109.28	103.45
53	I	1618	6MZ	C2-N3-C4	3.67	120.79	111.83
53	I	2030	6MZ	C2-N3-C4	3.65	120.73	111.83
53	I	1618	6MZ	C9-N6-C6	-3.64	119.47	122.85
53	I	1835	2MG	C2-N1-C6	-3.58	120.22	124.55
53	I	747	5MU	C5-C6-N1	-3.44	119.57	123.31
53	I	2580	PSU	O2-C2-N1	-3.42	119.26	122.79
53	I	2030	6MZ	C4-C5-N7	-3.34	106.77	110.58
53	I	2445	2MG	C2-N1-C6	-3.29	120.58	124.55
53	I	2552	OMU	C5-C4-N3	3.25	119.35	114.80
22	U	81	4D4	NE-CZ-NH2	3.20	126.17	120.67
53	I	1911	PSU	O2-C2-N1	-3.18	119.51	122.79
53	I	2069	G7M	C8-N7-C5	-3.16	103.83	107.78
53	I	2457	PSU	O2-C2-N1	-3.15	119.53	122.79
53	I	2504	PSU	O2-C2-N1	-3.14	119.55	122.79
53	I	955	PSU	O2-C2-N1	-3.12	119.57	122.79
53	I	2552	OMU	CM2-O2'-C2'	-3.10	106.52	114.47
53	I	1618	6MZ	C4-C5-N7	-3.07	107.07	110.58
53	I	2030	6MZ	C6-C5-N7	3.05	135.75	132.43
53	I	2604	PSU	O2-C2-N1	-3.05	119.65	122.79
53	I	2030	6MZ	N9-C8-N7	-3.03	109.64	113.94
53	I	2503	2MA	N9-C8-N7	-3.02	109.65	113.94
53	I	2449	H2U	C5-C4-N3	-3.00	113.50	116.69
53	I	2605	PSU	O2-C2-N1	-2.99	119.70	122.79
53	I	1917	PSU	O2-C2-N1	-2.99	119.70	122.79
53	I	2445	2MG	N1-C2-N2	2.93	119.55	116.56
53	I	1618	6MZ	N9-C8-N7	-2.85	109.89	113.94
53	I	2251	OMG	C2-N1-C6	-2.85	119.95	125.11
53	I	2251	OMG	C8-N7-C5	2.84	109.33	104.26

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	I	745	1MG	C8-N7-C5	2.84	109.33	104.26
53	I	2503	2MA	C5-C6-N1	-2.82	114.51	118.90
53	I	2445	2MG	C8-N7-C5	2.81	109.27	104.26
53	I	1835	2MG	C8-N7-C5	2.73	109.13	104.26
53	I	2498	OMC	O2-C2-N3	-2.73	118.03	122.33
53	I	2498	OMC	CM2-O2'-C2'	-2.70	107.56	114.47
53	I	2580	PSU	C6-N1-C2	-2.69	120.20	122.69
53	I	1835	2MG	N1-C2-N2	2.67	119.29	116.56
53	I	746	PSU	O2-C2-N1	-2.66	120.05	122.79
53	I	1939	5MU	O2-C2-N1	-2.61	119.39	122.80
53	I	2552	OMU	O4-C4-C5	-2.59	120.69	125.16
53	I	2503	2MA	C4-C5-N7	-2.57	107.64	110.58
53	I	2251	OMG	CM2-O2'-C2'	-2.57	107.89	114.47
53	I	2552	OMU	O2-C2-N1	-2.55	119.47	122.80
53	I	1915	3TD	C1'-C5-C4	2.53	121.45	117.61
53	I	2580	PSU	O4'-C1'-C2'	2.53	108.64	105.15
53	I	2457	PSU	C6-N1-C2	-2.46	120.41	122.69
53	I	2445	2MG	C6-C5-N7	2.35	134.56	130.29
53	I	2605	PSU	C6-N1-C2	-2.31	120.55	122.69
53	I	2504	PSU	C6-N1-C2	-2.27	120.58	122.69
53	I	1835	2MG	O6-C6-C5	-2.24	120.62	126.53
53	I	1917	PSU	C6-N1-C2	-2.23	120.62	122.69
53	I	1618	6MZ	C6-C5-N7	2.23	134.86	132.43
22	U	81	4D4	NH1-CZ-NE	-2.20	114.28	119.27
53	I	745	1MG	C6-C5-N7	2.19	134.23	129.36
53	I	2445	2MG	N9-C8-N7	-2.19	109.35	113.40
53	I	2251	OMG	O6-C6-C5	-2.18	120.79	126.53
53	I	955	PSU	C6-N1-C2	-2.16	120.69	122.69
53	I	2445	2MG	C4-C5-N7	-2.13	107.29	110.67
53	I	1911	PSU	C6-N1-C2	-2.12	120.72	122.69
53	I	746	PSU	C6-N1-C2	-2.11	120.73	122.69
53	I	2457	PSU	O4'-C1'-C2'	2.11	108.08	105.15
53	I	2251	OMG	C4-C5-N7	-2.11	107.33	110.67
53	I	745	1MG	C4-C5-N7	-2.10	107.34	110.67
53	I	2604	PSU	C6-N1-C2	-2.10	120.75	122.69
53	I	1962	5MC	C5-C4-N3	-2.09	119.62	121.75
53	I	2445	2MG	O6-C6-C5	-2.08	121.04	126.53
53	I	1835	2MG	C5-C6-N1	2.08	118.55	113.25
53	I	2251	OMG	C5-C6-N1	2.06	118.49	113.25
53	I	1835	2MG	C6-C5-N7	2.06	134.03	130.29
53	I	1835	2MG	C4-C5-N7	-2.04	107.44	110.67
53	I	745	1MG	N9-C8-N7	-2.02	109.66	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	I	2251	OMG	C6-C5-N7	2.01	133.94	130.29
53	I	2604	PSU	C5-C6-N1	-2.00	119.36	122.14

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
22	U	81	4D4	CA-CB-CG-CD
53	I	1618	6MZ	O4'-C4'-C5'-O5'
53	I	1915	3TD	O4'-C4'-C5'-O5'
53	I	2251	OMG	C1'-C2'-O2'-CM2
53	I	1618	6MZ	C3'-C4'-C5'-O5'
53	I	1915	3TD	C3'-C4'-C5'-O5'
53	I	2030	6MZ	O4'-C4'-C5'-O5'
53	I	2504	PSU	O4'-C4'-C5'-O5'
53	I	2030	6MZ	C3'-C4'-C5'-O5'
22	U	81	4D4	OB-CB-CG-CD
5	A	34	U8U	O4'-C4'-C5'-O5'
53	I	2504	PSU	C3'-C4'-C5'-O5'
5	A	34	U8U	C3'-C4'-C5'-O5'
53	I	2445	2MG	C3'-C4'-C5'-O5'
22	U	81	4D4	CG-CD-NE-CZ
53	I	2552	OMU	C3'-C2'-O2'-CM2
53	I	746	PSU	O4'-C1'-C5-C6
53	I	2503	2MA	O4'-C4'-C5'-O5'
53	I	2503	2MA	C4'-C5'-O5'-P
22	U	81	4D4	O-C-CA-CB
53	I	2069	G7M	C4'-C5'-O5'-P

There are no ring outliers.

6 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
53	I	955	PSU	1	0
53	I	2030	6MZ	1	0
53	I	2251	OMG	1	0
53	I	2503	2MA	2	0
5	A	37	T6A	1	0
22	U	81	4D4	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 199 ligands modelled in this entry, 198 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
58	U7V	I	3001	56	30,30,30	1.07	3 (10%)	41,43,43	0.92	2 (4%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
58	U7V	I	3001	56	-	4/14/26/26	0/4/4/4

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	I	3001	U7V	N02-N03	-2.58	1.30	1.33
58	I	3001	U7V	O22-C21	-2.18	1.43	1.46
58	I	3001	U7V	C16-N19	-2.18	1.39	1.43

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
58	I	3001	U7V	C17-C16-N19	2.78	124.18	120.18
58	I	3001	U7V	C15-C16-N19	-2.24	116.79	119.84

There are no chirality outliers.

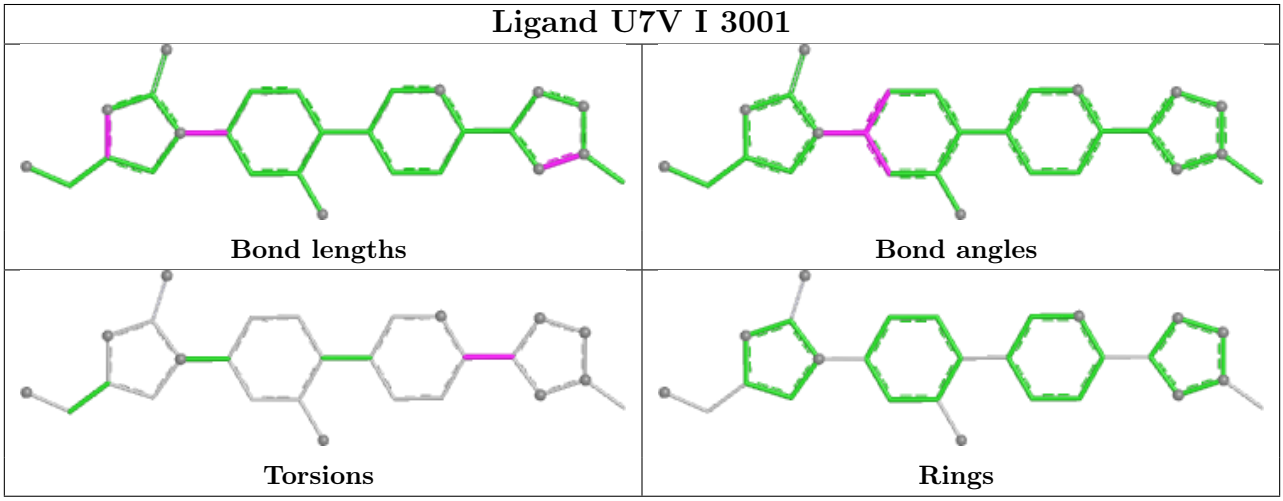
All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
58	I	3001	U7V	N03-C04-C07-N08
58	I	3001	U7V	N05-C04-C07-N08
58	I	3001	U7V	N03-C04-C07-C12
58	I	3001	U7V	N05-C04-C07-C12

There are no ring outliers.

No monomer is involved in short contacts.

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



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.

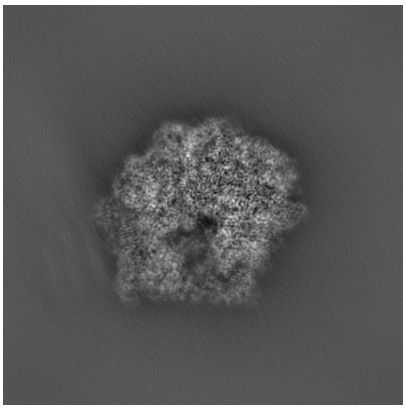
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-75563. These allow visual inspection of the internal detail of the map and identification of artifacts.

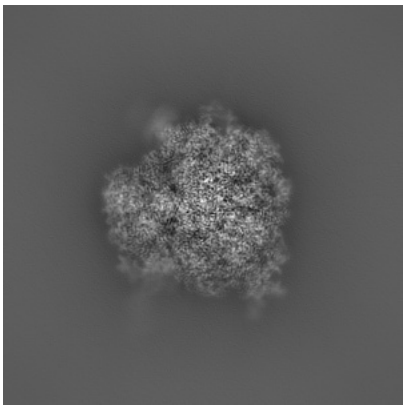
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

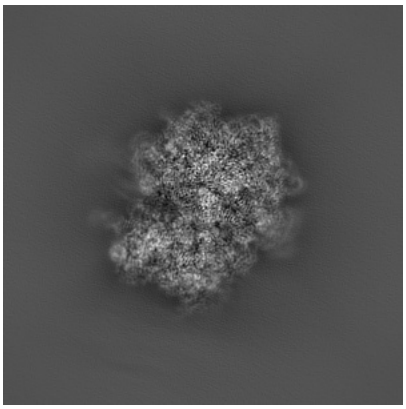
6.1.1 Primary map



X

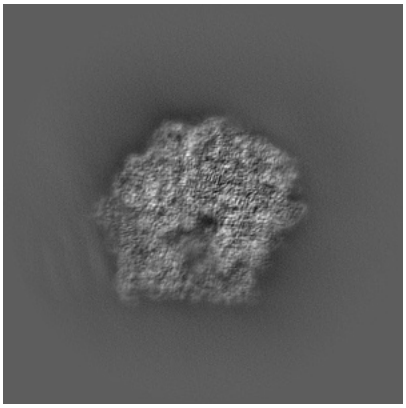


Y

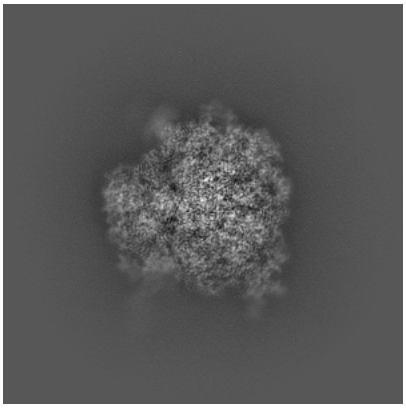


Z

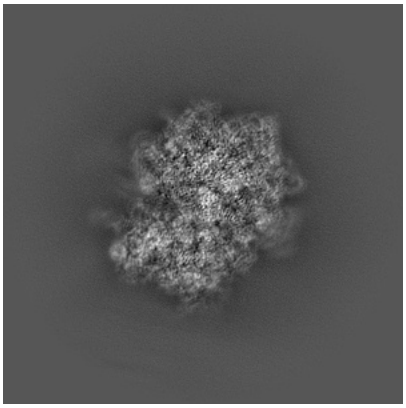
6.1.2 Raw map



X



Y

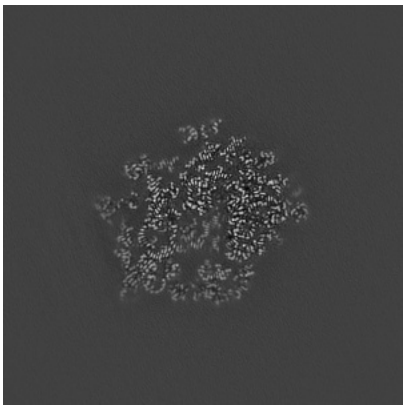


Z

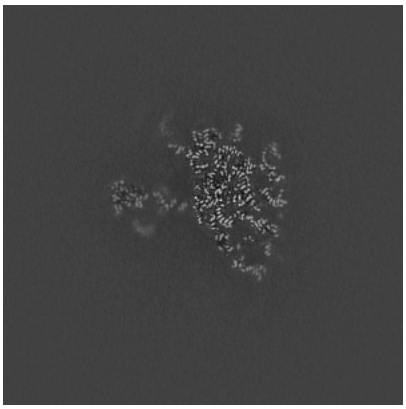
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

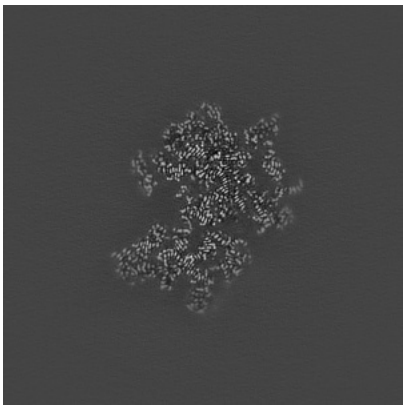
6.2.1 Primary map



X Index: 280

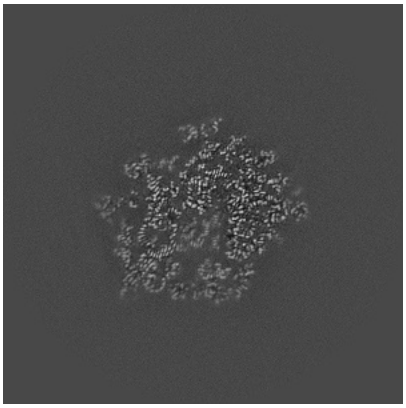


Y Index: 280

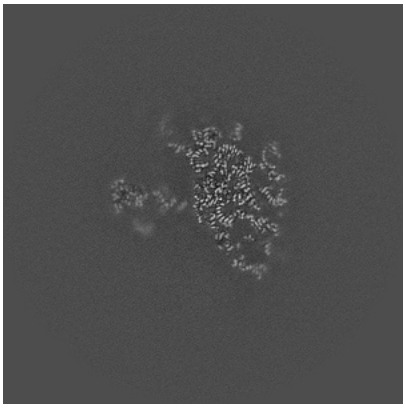


Z Index: 280

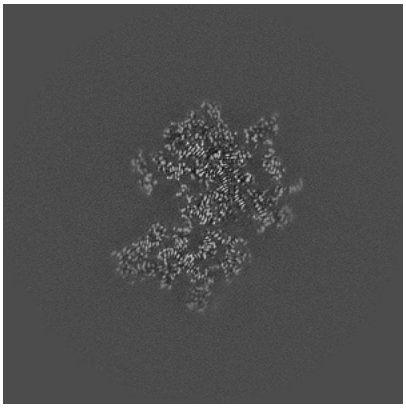
6.2.2 Raw map



X Index: 280



Y Index: 280

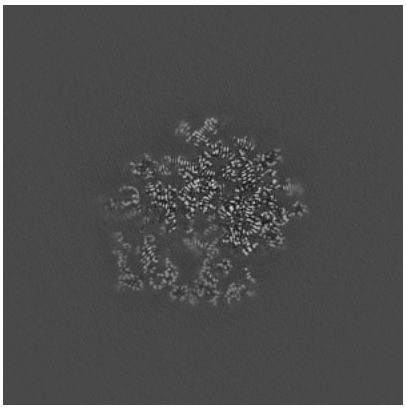


Z Index: 280

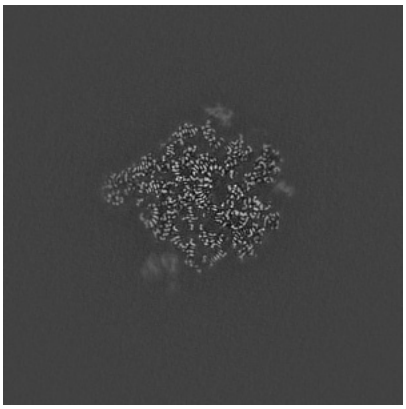
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

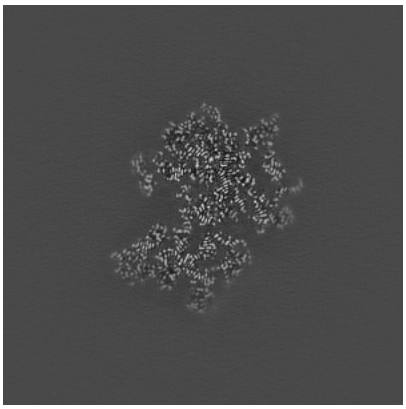
6.3.1 Primary map



X Index: 288

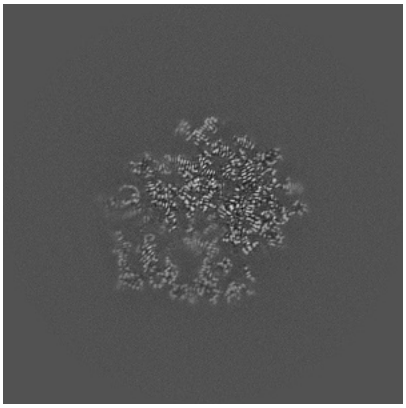


Y Index: 318

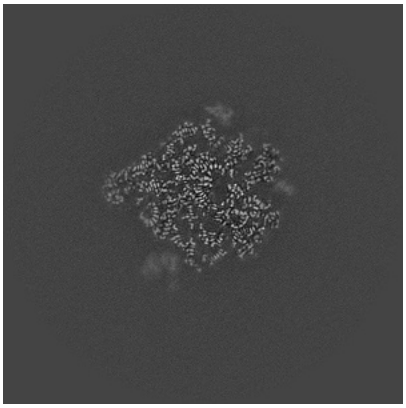


Z Index: 281

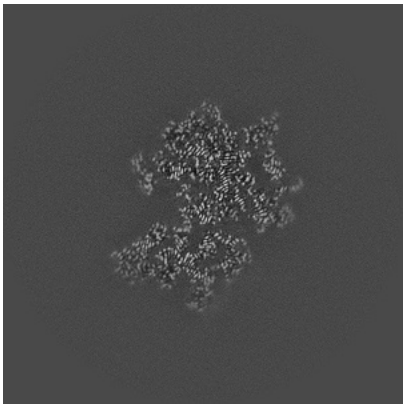
6.3.2 Raw map



X Index: 288



Y Index: 318

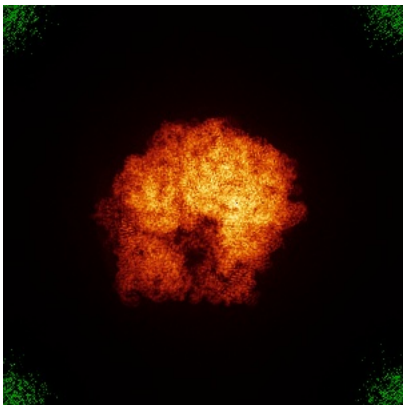


Z Index: 281

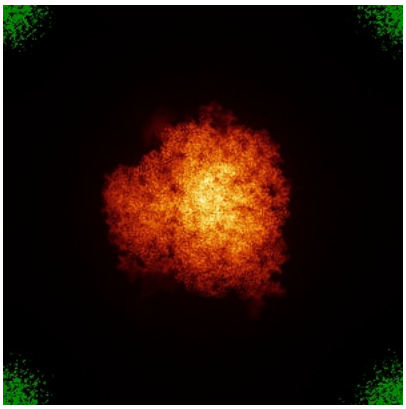
The images above show the largest variance slices of the map in three orthogonal directions.

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

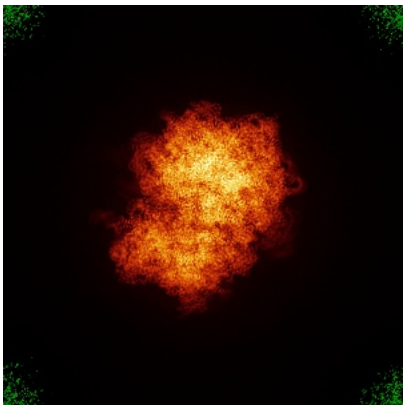
6.4.1 Primary map



X

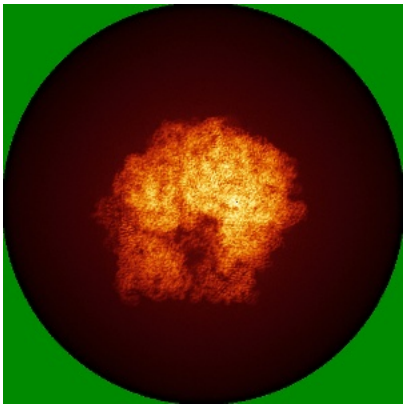


Y

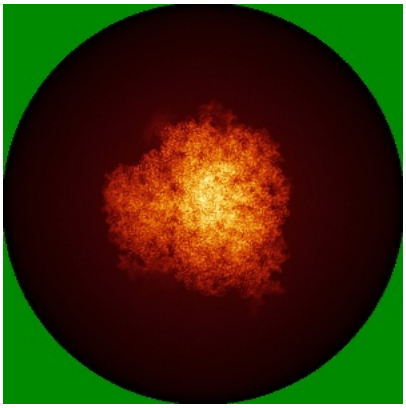


Z

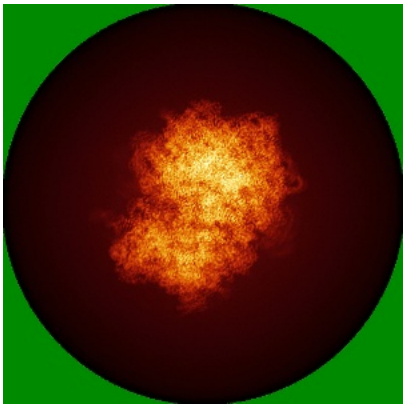
6.4.2 Raw map



X



Y

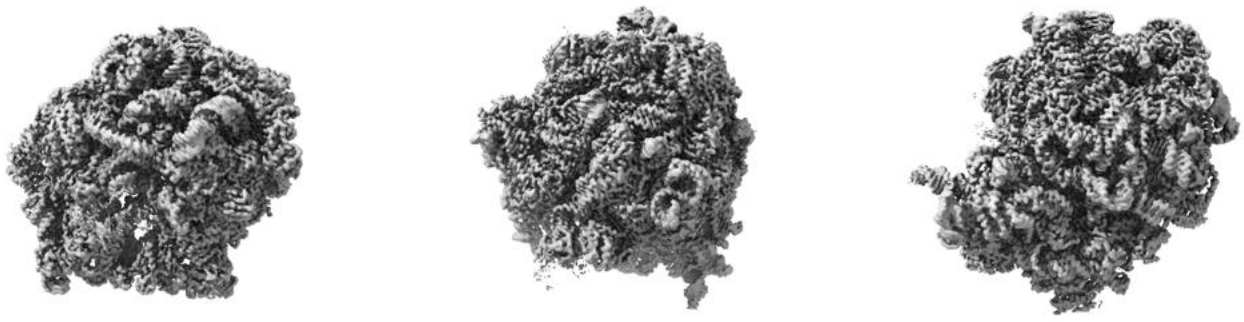


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 2.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

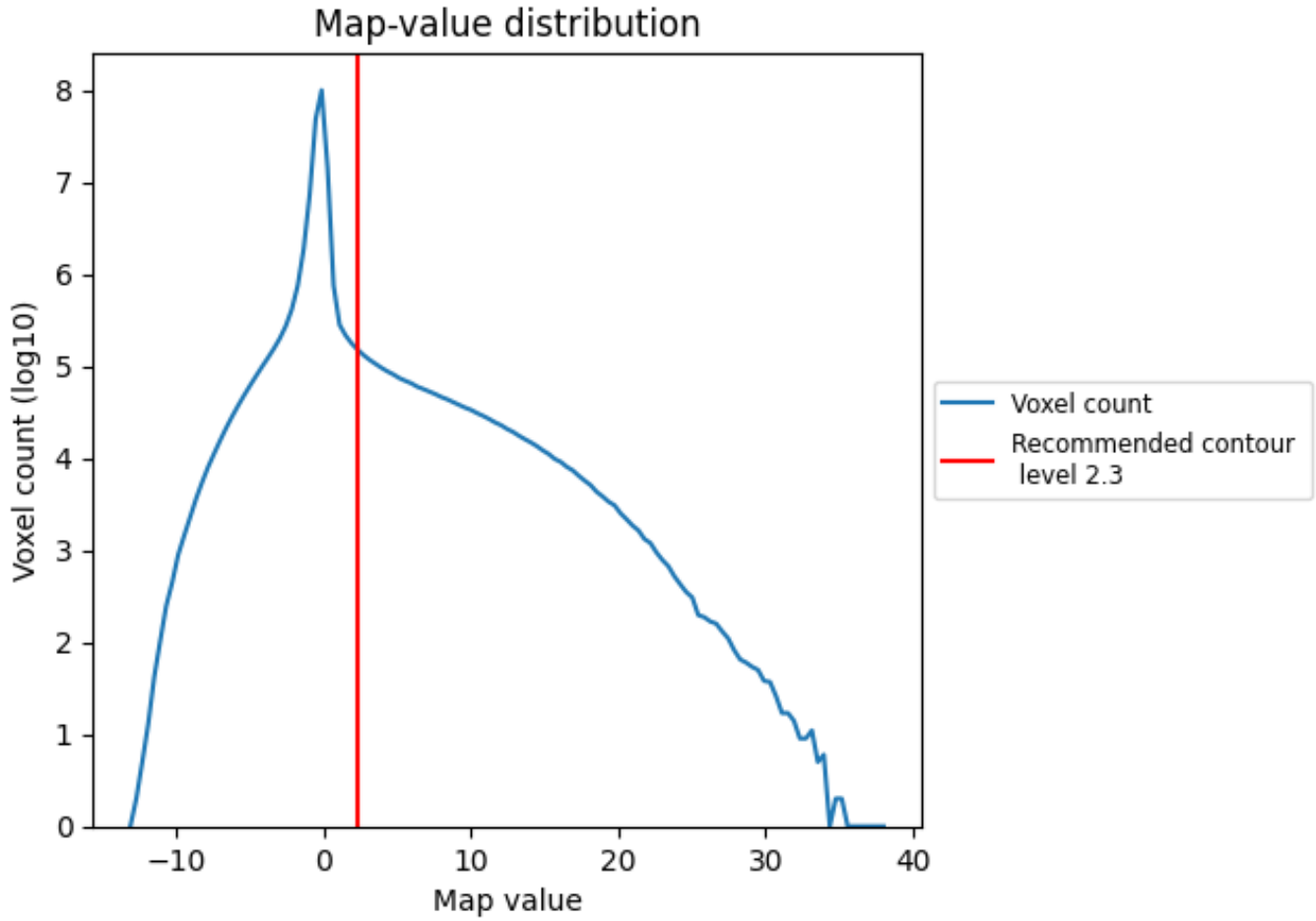
6.6 Mask visualisation (i)

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

7 Map analysis

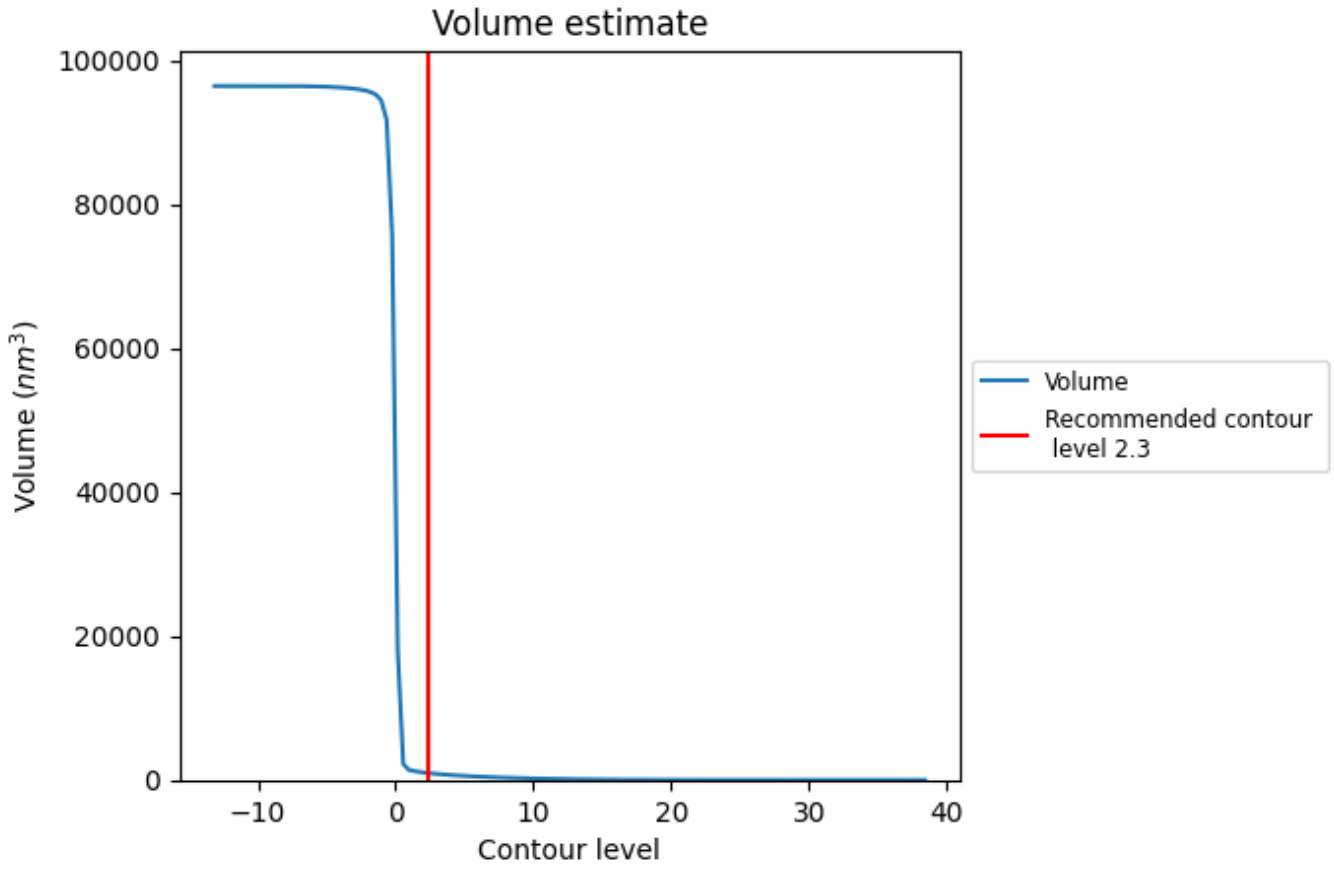
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

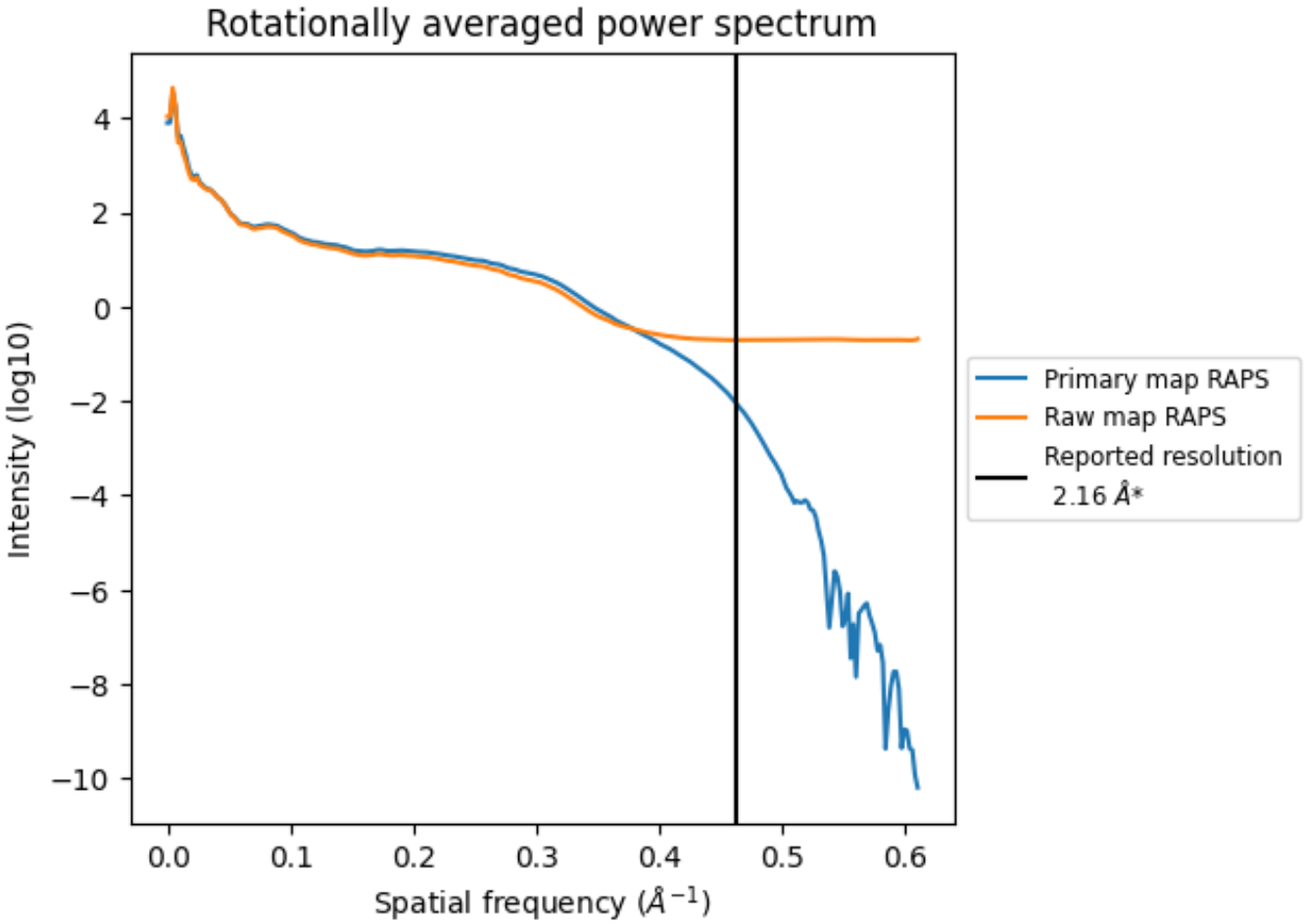
7.2 Volume estimate



The volume at the recommended contour level is 971 nm^3; this corresponds to an approximate mass of 877 kDa.

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

7.3 Rotationally averaged power spectrum (i)

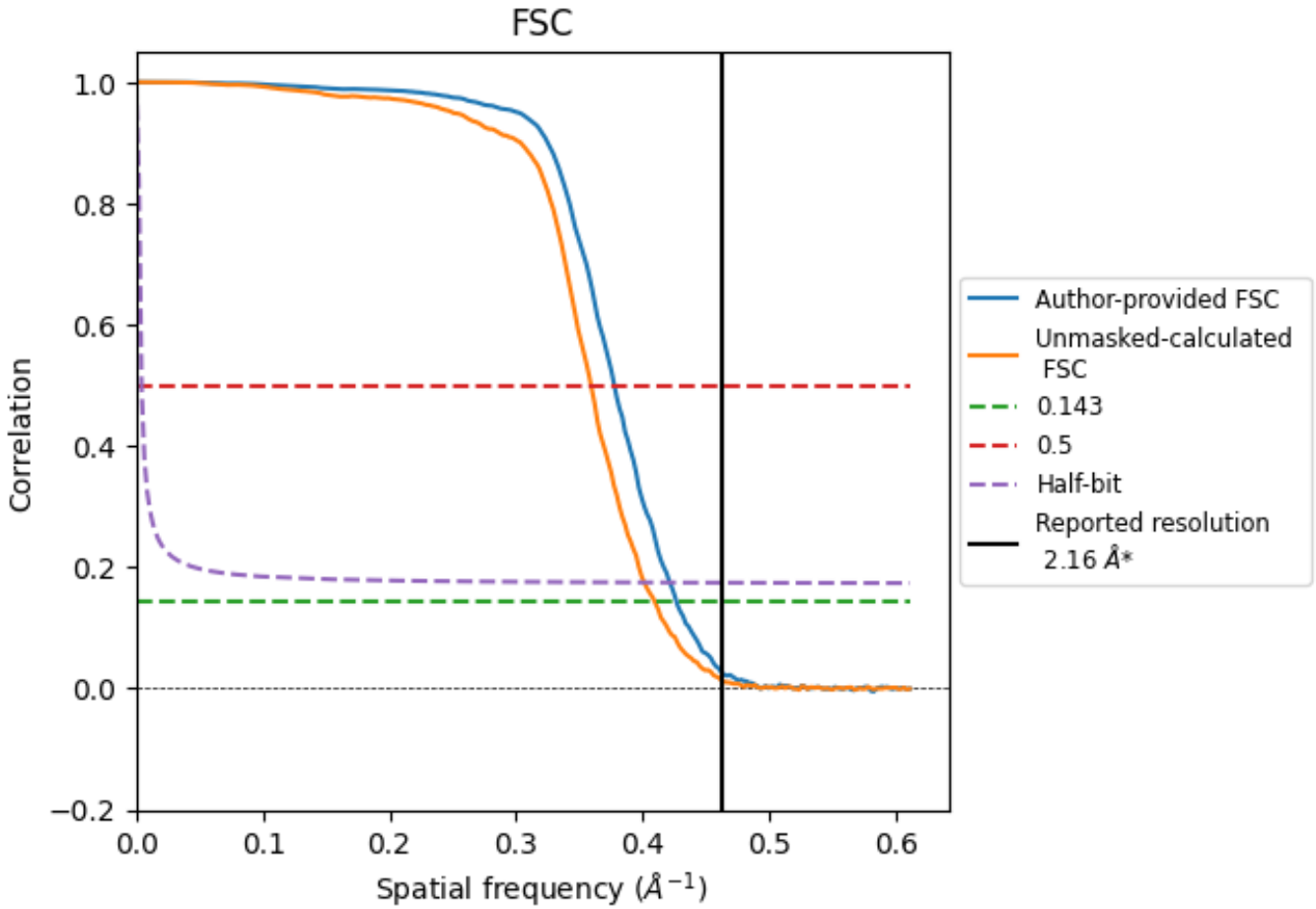


*Reported resolution corresponds to spatial frequency of 0.463 Å^{-1}

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 0.463 Å^{-1}

8.2 Resolution estimates (i)

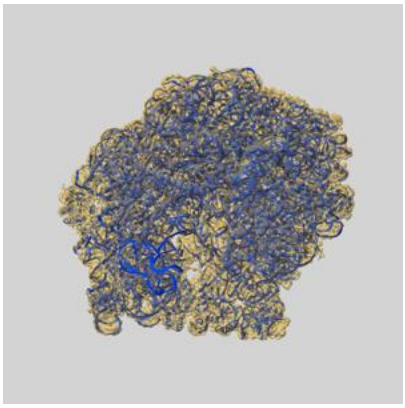
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.16	-	-
Author-provided FSC curve	2.34	2.65	2.37
Unmasked-calculated*	2.44	2.78	2.49

*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 2.44 differs from the reported value 2.16 by more than 10 %

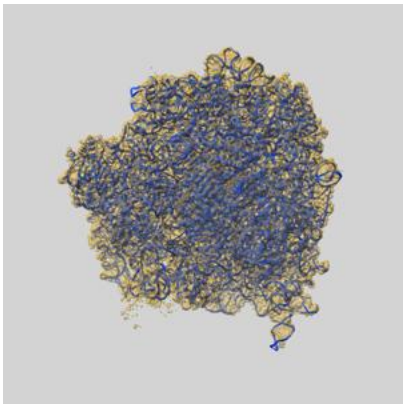
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-75563 and PDB model 10ZD. Per-residue inclusion information can be found in section 3 on page 18.

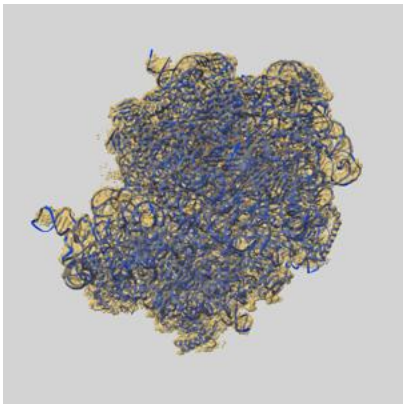
9.1 Map-model overlay



X



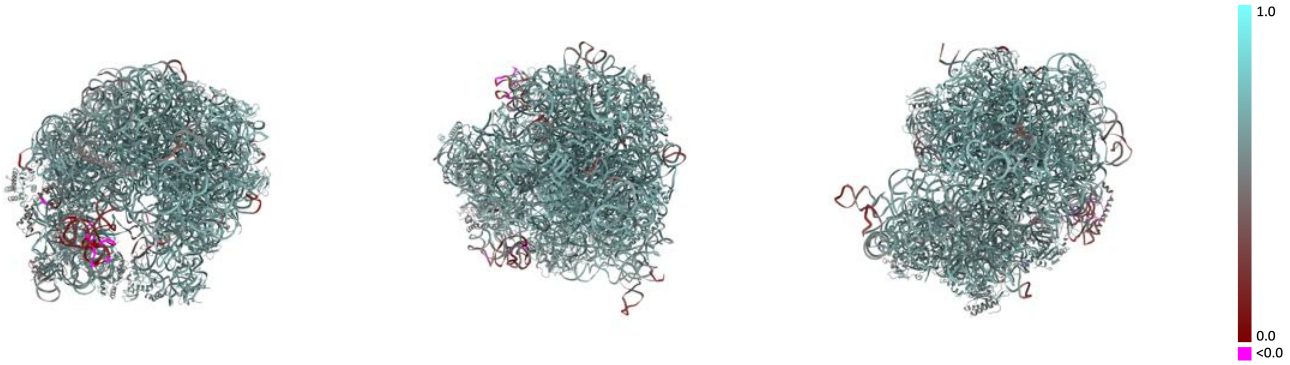
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 2.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

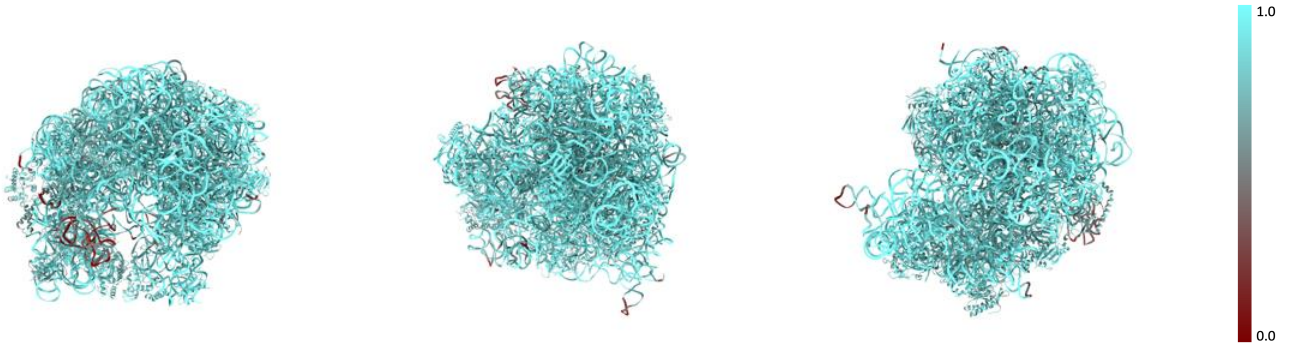
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

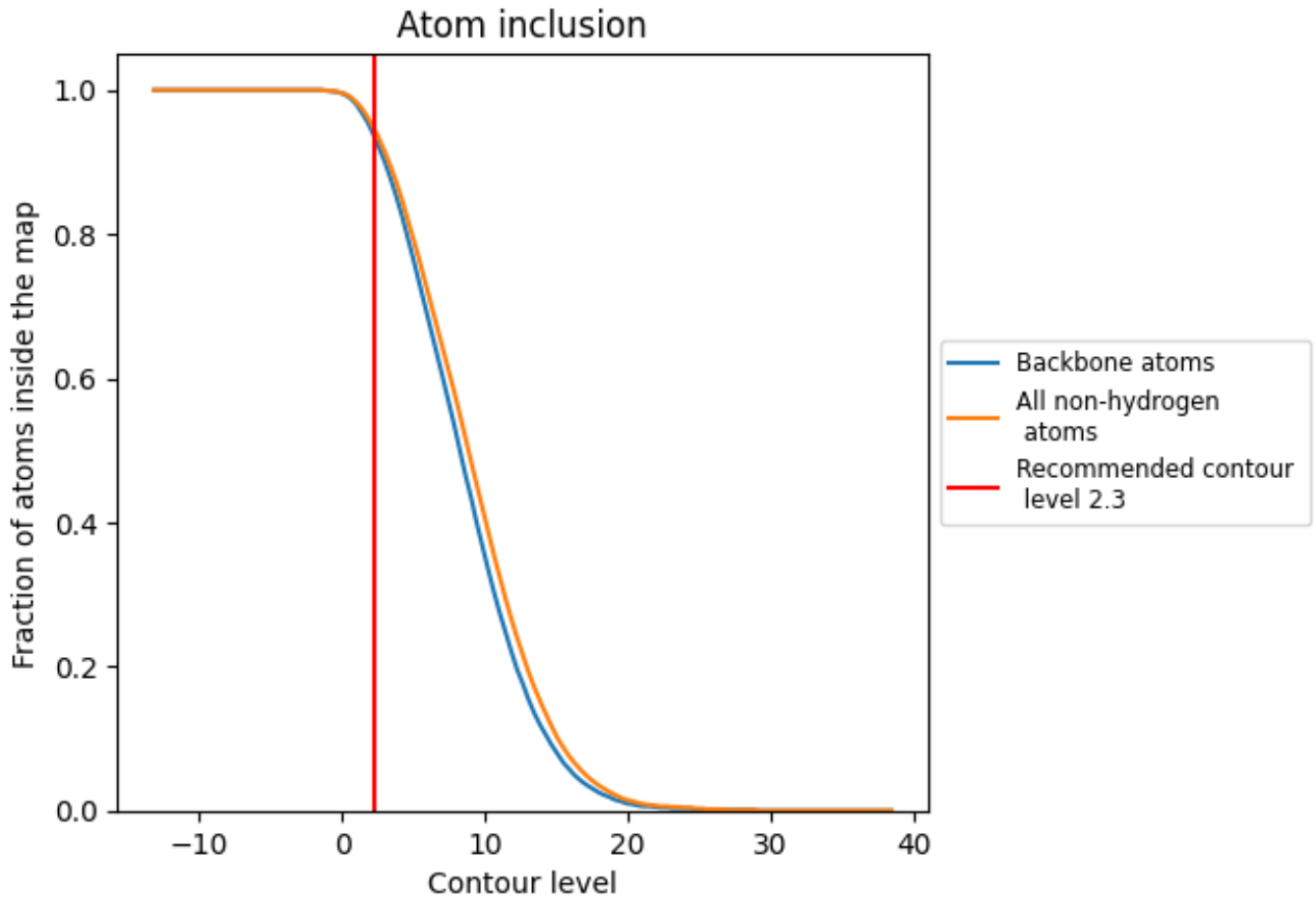
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (2.3).

9.4 Atom inclusion (i)



At the recommended contour level, 93% 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 (2.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9440	0.6070
1	0.8840	0.5510
2	0.8860	0.5720
3	0.7020	0.5020
4	0.9450	0.6050
A	0.9420	0.5780
C	0.9700	0.6070
D	0.7920	0.5340
E	0.8870	0.5940
F	0.8770	0.5620
G	0.9350	0.6160
H	0.9120	0.5730
I	0.9590	0.6120
J	0.9880	0.6140
K	0.9680	0.6570
L	0.9570	0.6500
M	0.9280	0.6220
N	0.8810	0.5730
O	0.8740	0.5590
P	0.7140	0.4840
Q	0.8500	0.5480
R	0.9510	0.6470
S	0.9610	0.6450
T	0.9480	0.6390
U	0.9530	0.6410
V	0.9700	0.6580
W	0.9250	0.6000
X	0.9370	0.6440
Y	0.9790	0.6640
Z	0.9320	0.6300
a	0.9400	0.6450
b	0.9060	0.6040
c	0.9090	0.5980
d	0.9130	0.6200
e	0.8840	0.6530



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
f	0.9550	0.6470
g	0.8900	0.5680
h	0.9180	0.6360
i	0.9420	0.6430
j	0.8630	0.5660
k	0.9800	0.6750
l	0.9760	0.6670
m	0.9280	0.6390
n	0.8640	0.5500
o	0.9300	0.6260
p	0.8540	0.5390
q	0.7540	0.5130
r	0.9110	0.5910
s	0.6440	0.5510
t	0.9340	0.6240
u	0.9090	0.5860
v	0.8820	0.5650
w	0.9390	0.6040
x	0.8990	0.5850
y	0.8960	0.5820
z	0.9470	0.6130