



Full wwPDB EM Validation Report ⓘ

Jun 20, 2024 – 08:55 pm BST

PDB ID : 8QU1
EMDB ID : EMD-18460
Title : mt-LSU assembly intermediate in GTPBP8 knock-out cells, state 1
Authors : Valentin Gese, G.; Cipullo, M.; Rorbach, J.; Hallberg, B.M.
Deposited on : 2023-10-13
Resolution : 2.74 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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

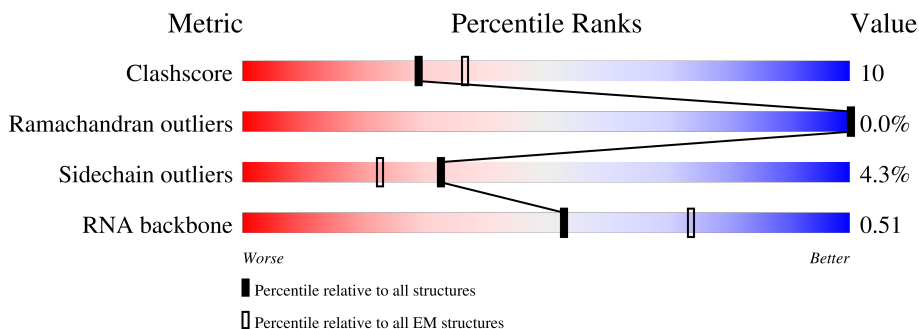
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.74 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.



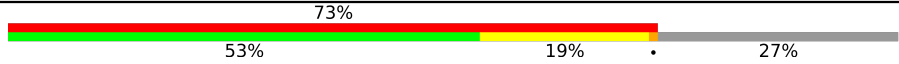
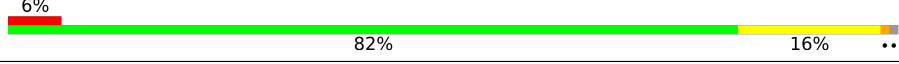
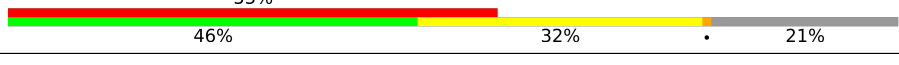


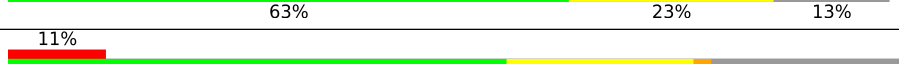
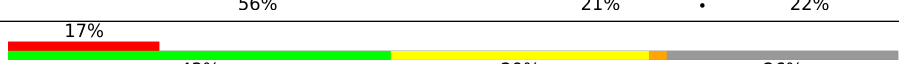
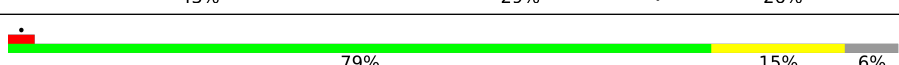
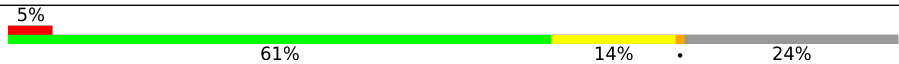
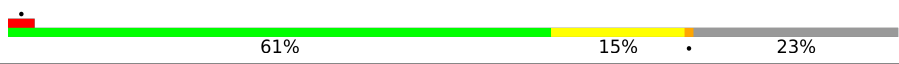
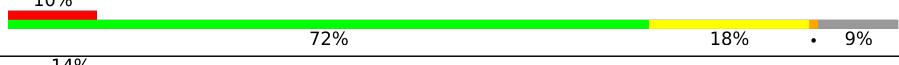
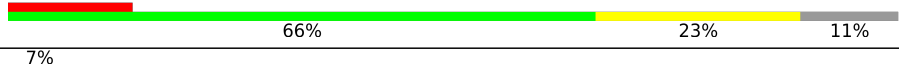


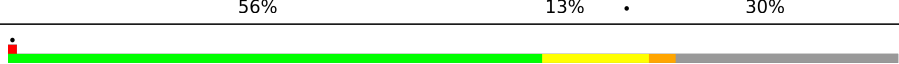
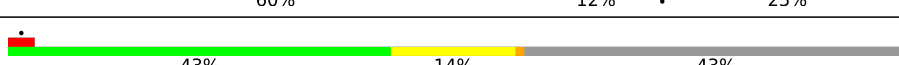



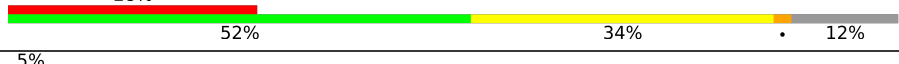
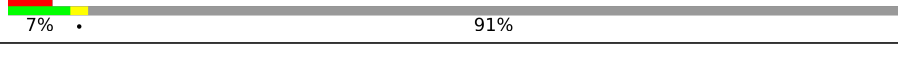


Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	A	1559	<div style="display: flex; align-items: center;"> <div style="width: 14%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 32%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 40%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">14% 32% 23% 5% 40%</p>
2	B	69	<div style="display: flex; align-items: center;"> <div style="width: 32%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 35%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">32% 36% 35% 10% 19%</p>
3	D	305	<div style="display: flex; align-items: center;"> <div style="width: 57%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 41%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 43%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">57% 41% 16% 43%</p>
4	E	348	<div style="display: flex; align-items: center;"> <div style="width: 9%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 58%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 18%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">9% 58% 22% • 18%</p>
5	F	311	<div style="display: flex; align-items: center;"> <div style="width: 54%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 21%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">54% 21% • 23%</p>
6	H	267	<div style="display: flex; align-items: center;"> <div style="width: 15%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 68%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">15% 20% 10% • 68%</p>
7	I	261	<div style="display: flex; align-items: center;"> <div style="width: 54%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 51%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 39%; height: 10px; background-color: grey;"></div> </div> <p style="font-size: small; margin-top: 5px;">54% 51% 10% 39%</p>

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Mol	Chain	Length	Quality of chain
8	J	192	
9	K	178	
10	L	145	
11	M	296	
12	N	251	
13	O	175	
14	P	180	
15	Q	292	
16	R	149	
17	S	205	
18	T	206	
19	U	153	
20	V	216	
21	W	148	
22	X	256	
23	Y	250	
24	Z	161	
25	0	188	
26	1	65	
27	2	92	
28	3	188	
29	5	423	
30	6	380	

2 Entry composition i

There are 30 unique types of molecules in this entry. The entry contains 57235 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	938	19916	8944	3614	6420	938	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	3107	U	UNK	variant	GB 1025814679

- Molecule 2 is a RNA chain called mitochondrial tRNAVal.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	56	1191	534	214	387	56	0	0

- Molecule 3 is a protein called 39S ribosomal protein L2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	175	1363	848	262	245	8	0	0

- Molecule 4 is a protein called 39S ribosomal protein L3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	285	2258	1457	384	406	11	0	0

- Molecule 5 is a protein called 39S ribosomal protein L4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	240	1932	1244	346	336	6	0	0

- Molecule 6 is a protein called 39S ribosomal protein L9, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	H	85	Total	C	N	O	0	0
			713	457	138	118		

- Molecule 7 is a protein called 39S ribosomal protein L10, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	I	158	Total	C	N	O	S	0	0
			1283	828	235	210	10		

- Molecule 8 is a protein called 39S ribosomal protein L11, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	J	140	Total	C	N	O	S	0	0
			1061	680	192	187	2		

- Molecule 9 is a protein called 39S ribosomal protein L13, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	K	177	Total	C	N	O	S	0	0
			1451	934	259	251	7		

- Molecule 10 is a protein called 39S ribosomal protein L14, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	L	115	Total	C	N	O	S	0	0
			889	559	171	154	5		

- Molecule 11 is a protein called 39S ribosomal protein L15, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	M	256	Total	C	N	O	S	0	0
			2056	1329	358	364	5		

- Molecule 12 is a protein called 39S ribosomal protein L16, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	N	173	Total	C	N	O	S	0	0
			1412	907	255	241	9		

- Molecule 13 is a protein called 39S ribosomal protein L17, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	O	152	Total	C	N	O	S	0	0
			1245	784	239	215	7		

- Molecule 14 is a protein called 39S ribosomal protein L18, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	P	141	Total	C	N	O	S	0	0
			1148	719	221	203	5		

- Molecule 15 is a protein called 39S ribosomal protein L19, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	Q	217	Total	C	N	O	S	0	0
			1805	1159	317	320	9		

- Molecule 16 is a protein called 39S ribosomal protein L20, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	R	140	Total	C	N	O	S	0	0
			1153	732	231	186	4		

- Molecule 17 is a protein called 39S ribosomal protein L21, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	S	156	Total	C	N	O	S	0	0
			1251	806	222	219	4		

- Molecule 18 is a protein called 39S ribosomal protein L22, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	T	159	Total	C	N	O	S	0	0
			1305	835	239	224	7		

- Molecule 19 is a protein called 39S ribosomal protein L23, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	U	139	Total	C	N	O	S	0	0
			1154	734	220	197	3		

- Molecule 20 is a protein called 39S ribosomal protein L24, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	V	192	1575	1003	281	283	8	0	0

- Molecule 21 is a protein called 39S ribosomal protein L27, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	W	101	805	520	151	131	3	0	0

- Molecule 22 is a protein called 39S ribosomal protein L28, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	X	243	2035	1317	351	362	5	0	0

- Molecule 23 is a protein called 39S ribosomal protein L47, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	Y	176	1517	970	291	252	4	0	0

- Molecule 24 is a protein called 39S ribosomal protein L30, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	Z	120	978	626	183	166	3	0	0

- Molecule 25 is a protein called 39S ribosomal protein L32, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	0	108	880	545	172	157	6	0	0

- Molecule 26 is a protein called 39S ribosomal protein L33, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	1	48	400	257	76	65	2	0	0

- Molecule 27 is a protein called 39S ribosomal protein L34, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	2	38	309	193	69	46	1	0	0

- Molecule 28 is a protein called 39S ribosomal protein L35, mitochondrial.

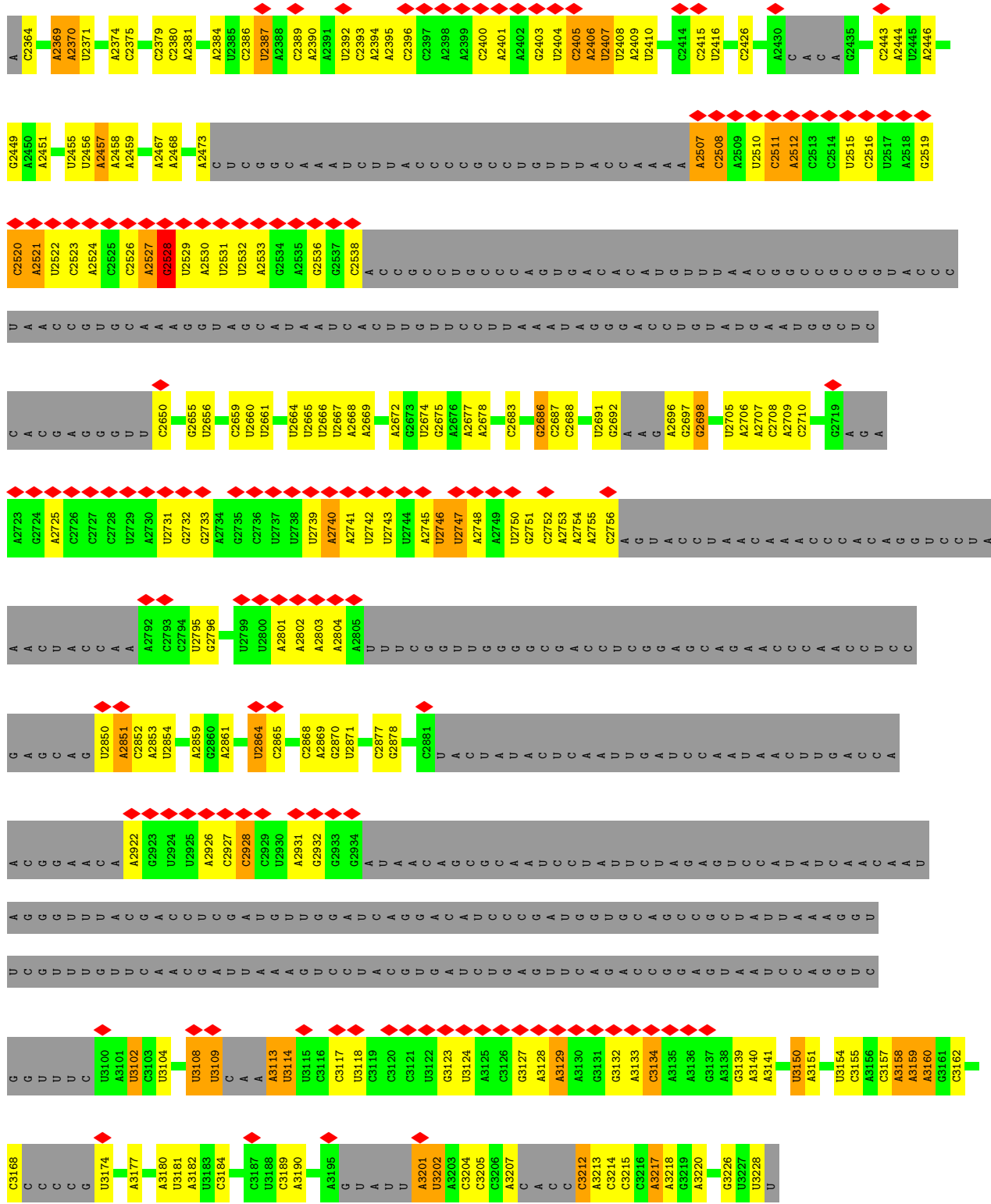
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	3	95	831	539	162	127	3	0	0

- Molecule 29 is a protein called 39S ribosomal protein L37, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	5	371	3022	1953	524	534	11	0	0

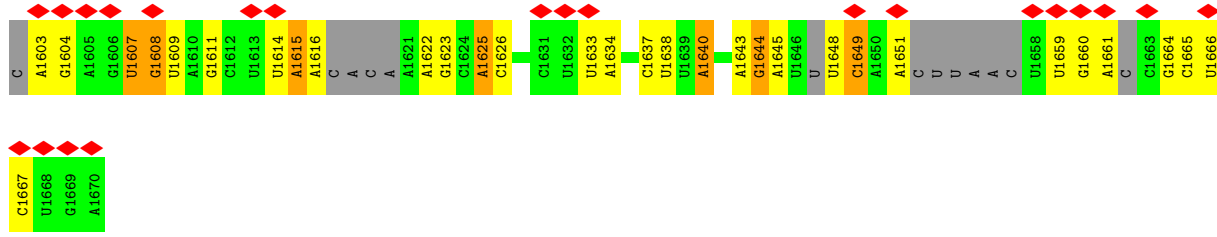
- Molecule 30 is a protein called 39S ribosomal protein L38, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	6	35	297	182	62	52	1	0	1

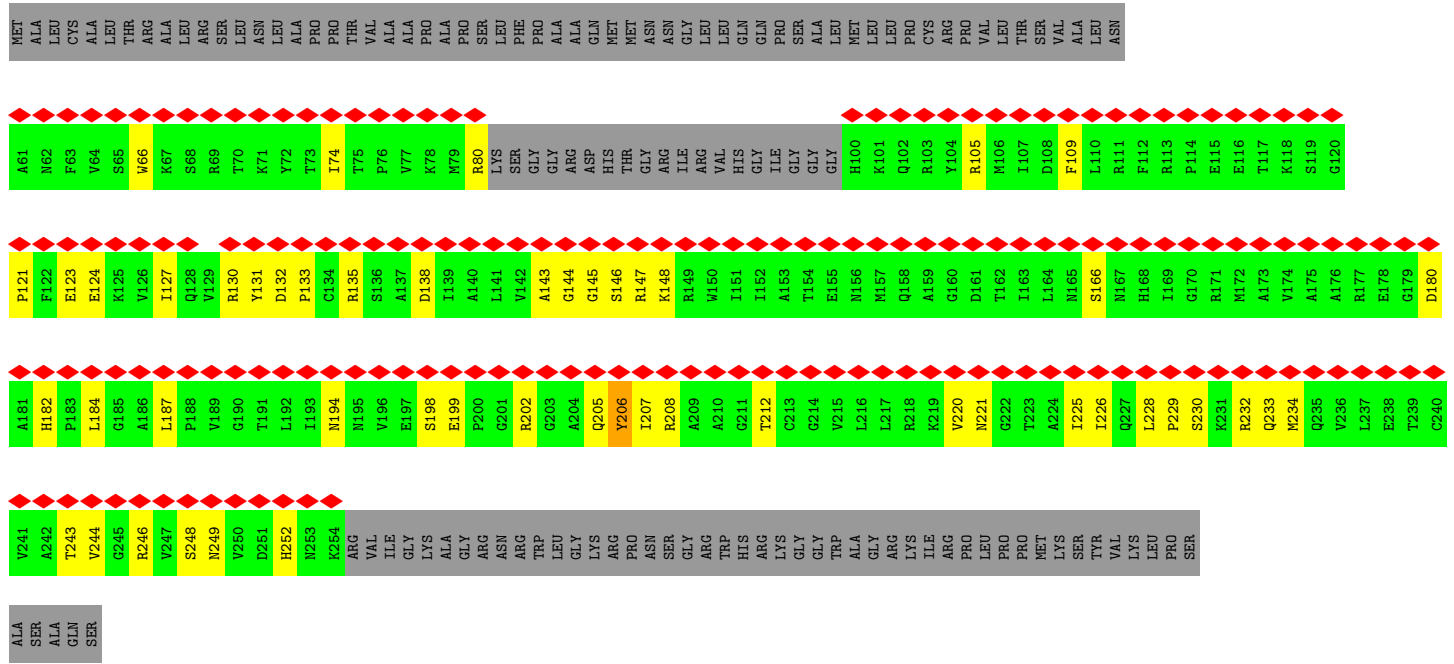


● Molecule 2: mitochondrial tRNAVal

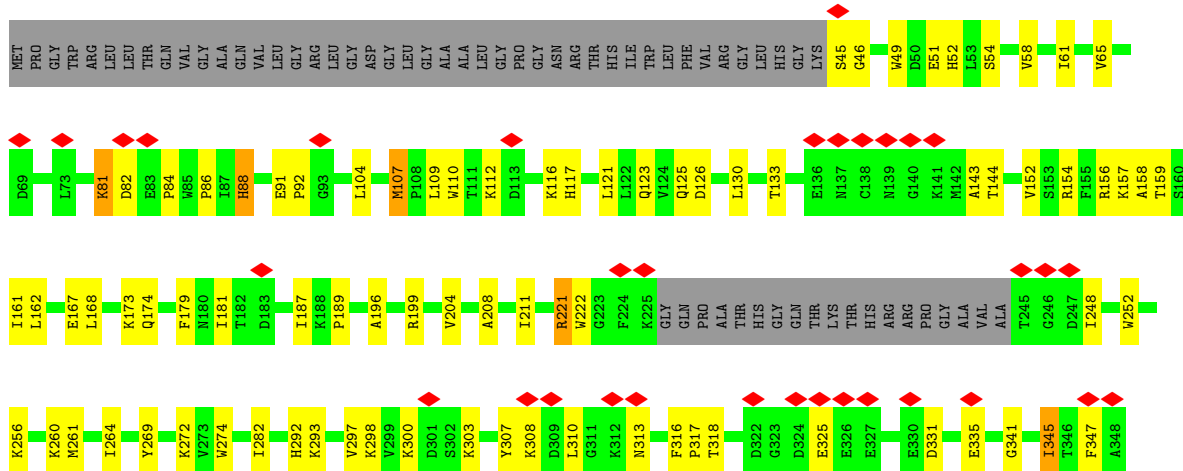




• Molecule 3: 39S ribosomal protein L2, mitochondrial



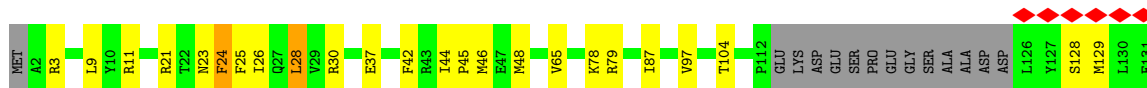
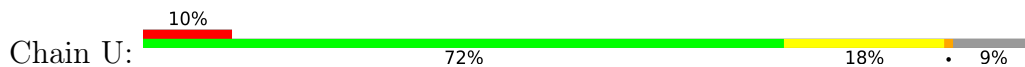
• Molecule 4: 39S ribosomal protein L3, mitochondrial



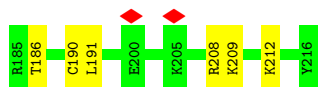
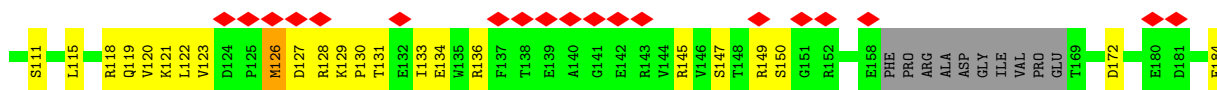
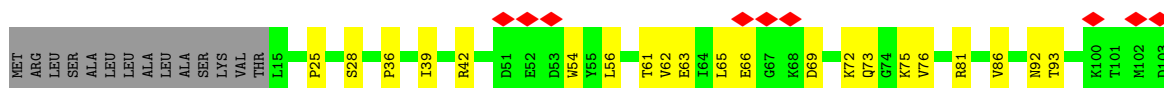
• Molecule 5: 39S ribosomal protein L4, mitochondrial



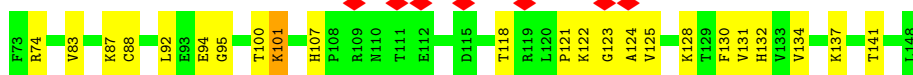
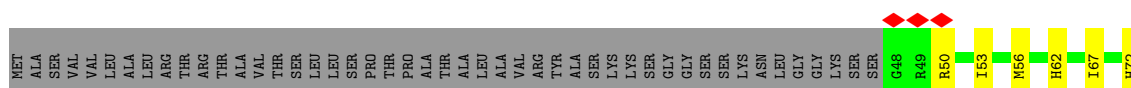
- Molecule 19: 39S ribosomal protein L23, mitochondrial



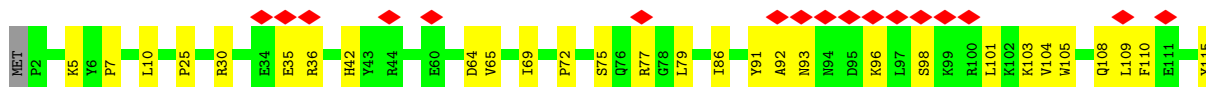
- Molecule 20: 39S ribosomal protein L24, mitochondrial

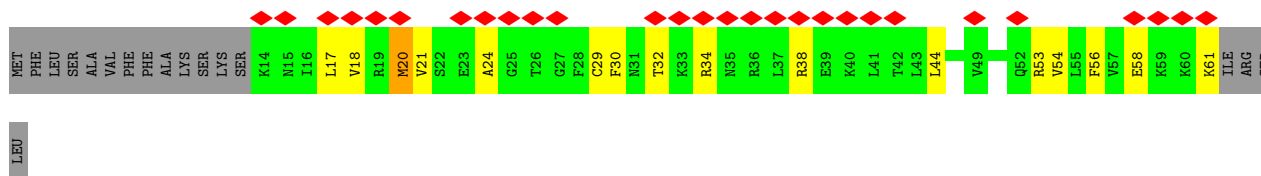


- Molecule 21: 39S ribosomal protein L27, mitochondrial

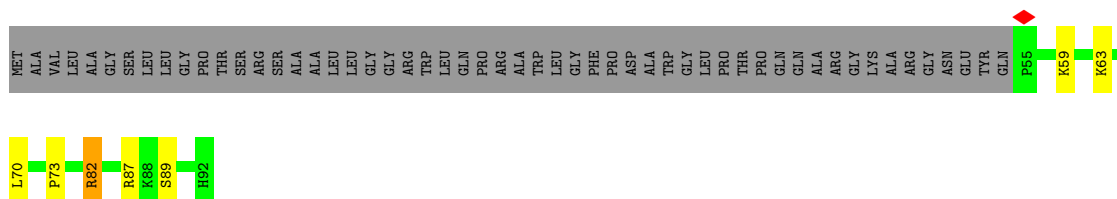
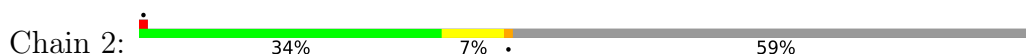


- Molecule 22: 39S ribosomal protein L28, mitochondrial

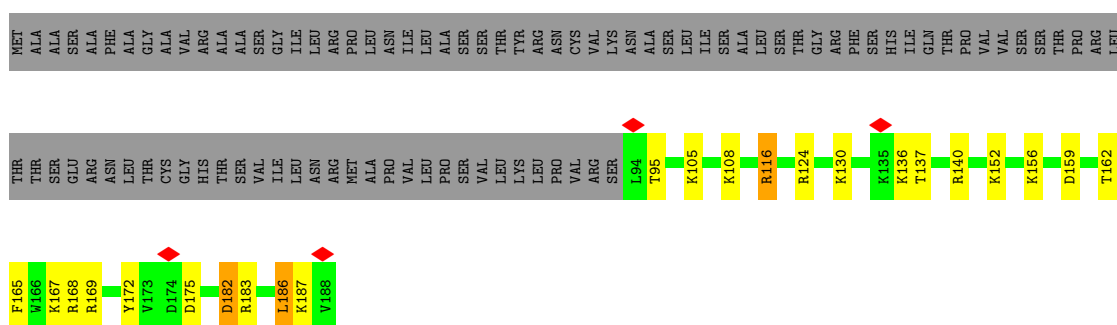




• Molecule 27: 39S ribosomal protein L34, mitochondrial



• Molecule 28: 39S ribosomal protein L35, mitochondrial



• Molecule 29: 39S ribosomal protein L37, mitochondrial



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	41197	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	48	Depositor
Minimum defocus (nm)	200	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.126	Depositor
Minimum map value	-0.839	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.053	Depositor
Recommended contour level	0.3	Depositor
Map size (Å)	606.0, 606.0, 606.0	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.01, 1.01, 1.01	Depositor

5 Model quality i

5.1 Standard geometry i

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.70	1/22270 (0.0%)	1.02	34/34610 (0.1%)
2	B	0.41	0/1328	0.75	0/2056
3	D	0.33	0/1385	0.61	0/1867
4	E	0.33	0/2322	0.51	0/3148
5	F	0.49	0/1986	0.64	0/2701
6	H	0.30	0/726	0.53	0/974
7	I	0.30	0/1308	0.59	0/1761
8	J	0.27	0/1077	0.52	0/1452
9	K	0.42	0/1495	0.57	0/2029
10	L	0.28	0/904	0.48	0/1218
11	M	0.42	0/2106	0.61	1/2855 (0.0%)
12	N	0.29	0/1448	0.46	0/1945
13	O	0.43	0/1269	0.59	0/1708
14	P	0.32	0/1173	0.52	0/1588
15	Q	0.31	0/1846	0.55	0/2487
16	R	0.55	0/1174	0.78	2/1572 (0.1%)
17	S	0.47	0/1276	0.66	0/1729
18	T	0.49	0/1335	0.64	2/1796 (0.1%)
19	U	0.42	0/1183	0.65	0/1600
20	V	0.34	0/1616	0.54	0/2189
21	W	0.38	0/827	0.52	0/1118
22	X	0.31	0/2090	0.51	0/2825
23	Y	0.41	0/1552	0.56	1/2079 (0.0%)
24	Z	0.42	0/1003	0.58	0/1354
25	0	0.42	0/895	0.60	1/1201 (0.1%)
26	1	0.27	0/405	0.59	0/539
27	2	0.50	0/314	0.70	1/416 (0.2%)
28	3	0.46	0/852	0.63	0/1136
29	5	0.29	0/3110	0.53	0/4237
30	6	0.32	0/303	0.55	0/406
All	All	0.52	1/60578 (0.0%)	0.79	42/86596 (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
5	F	0	1
8	J	0	1
9	K	0	1
11	M	0	1
17	S	0	1
18	T	0	1
All	All	0	6

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	2696	A	P-OP2	5.21	1.57	1.49

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	2527	A	OP2-P-O3'	-12.09	78.60	105.20
1	A	1885	A	O5'-P-OP2	-11.67	95.20	105.70
1	A	1901	C	O5'-P-OP1	-10.97	95.83	105.70
1	A	1682	C	O5'-P-OP1	-10.91	95.88	105.70
1	A	2528	G	O5'-P-OP2	-9.68	96.99	105.70
1	A	2527	A	OP1-P-O3'	8.21	123.26	105.20
1	A	2287	U	O5'-P-OP1	-7.63	98.83	105.70
1	A	2162	C	OP2-P-O3'	-7.43	88.85	105.20
1	A	2302	U	O5'-P-OP1	-6.68	99.69	105.70
1	A	1741	A	O5'-P-OP2	-6.59	99.77	105.70
23	Y	164	ARG	NE-CZ-NH1	-6.58	117.01	120.30
27	2	82	ARG	NE-CZ-NH2	-6.48	117.06	120.30
1	A	2369	A	P-O5'-C5'	-6.09	111.16	120.90
1	A	2165	C	P-O3'-C3'	6.03	126.94	119.70
1	A	1878	U	O5'-P-OP2	5.89	117.77	110.70
1	A	2672	A	O5'-P-OP1	-5.86	100.42	105.70
1	A	3212	C	O4'-C1'-N1	5.79	112.84	108.20
1	A	2138	U	O5'-P-OP1	-5.76	100.51	105.70
1	A	1675	A	O3'-P-O5'	-5.68	93.20	104.00
18	T	149	ARG	NE-CZ-NH1	5.61	123.11	120.30
1	A	1828	A	O5'-P-OP1	-5.60	100.66	105.70
1	A	1833	C	O5'-P-OP1	-5.53	100.73	105.70
1	A	2159	U	OP2-P-O3'	5.51	117.32	105.20
1	A	1678	C	C3'-C2'-C1'	-5.47	97.12	101.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	R	34	ARG	NE-CZ-NH1	-5.41	117.59	120.30
1	A	2162	C	O3'-P-O5'	5.39	114.24	104.00
18	T	206	ARG	NE-CZ-NH2	-5.38	117.61	120.30
1	A	2186	C	C2-N1-C1'	5.37	124.71	118.80
11	M	109	ARG	NE-CZ-NH1	-5.37	117.61	120.30
1	A	2186	C	P-O3'-C3'	5.36	126.13	119.70
1	A	2252	C	C6-N1-C2	-5.36	118.16	120.30
1	A	2310	G	C3'-C2'-C1'	-5.35	97.22	101.50
1	A	2211	U	N1-C2-O2	5.34	126.54	122.80
1	A	3212	C	C2-N1-C1'	5.32	124.65	118.80
1	A	2210	C	O5'-P-OP2	-5.19	101.03	105.70
16	R	71	ARG	NE-CZ-NH2	-5.18	117.71	120.30
1	A	1678	C	P-O5'-C5'	-5.16	112.64	120.90
1	A	1671	G	OP1-P-OP2	-5.16	111.87	119.60
1	A	1876	U	O5'-P-OP1	-5.10	101.11	105.70
1	A	2507	A	P-O3'-C3'	5.08	125.80	119.70
25	0	91	ARG	NE-CZ-NH2	-5.05	117.78	120.30
1	A	2005	C	O5'-P-OP1	-5.04	101.17	105.70

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	F	281	ARG	Sidechain
8	J	69	LYS	Peptide
9	K	119	ARG	Sidechain
11	M	125	ARG	Sidechain
17	S	169	ARG	Sidechain
18	T	204	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	19916	0	10138	301	0
2	B	1191	0	607	22	0
3	D	1363	0	1393	89	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	E	2258	0	2264	55	0
5	F	1932	0	1961	52	0
6	H	713	0	764	26	0
7	I	1283	0	1370	20	0
8	J	1061	0	1141	22	0
9	K	1451	0	1448	20	0
10	L	889	0	941	35	0
11	M	2056	0	2120	39	0
12	N	1412	0	1418	34	0
13	O	1245	0	1283	31	0
14	P	1148	0	1148	27	0
15	Q	1805	0	1841	69	0
16	R	1153	0	1214	13	0
17	S	1251	0	1322	21	0
18	T	1305	0	1352	27	0
19	U	1154	0	1154	21	0
20	V	1575	0	1583	28	0
21	W	805	0	829	25	0
22	X	2035	0	2054	63	0
23	Y	1517	0	1561	25	0
24	Z	978	0	1030	16	0
25	0	880	0	906	23	0
26	1	400	0	435	7	0
27	2	309	0	344	8	0
28	3	831	0	883	17	0
29	5	3022	0	3007	112	0
30	6	297	0	297	17	0
All	All	57235	0	47808	1066	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 10.

All (1066) 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)
1:A:2521:A:N6	3:D:202:ARG:O	1.65	1.27
3:D:143:ALA:O	29:5:259:ILE:HD11	1.36	1.22
1:A:2015:G:N2	1:A:2931:A:O2'	1.79	1.14
1:A:2528:G:OP1	3:D:109:PHE:HE2	1.32	1.11
1:A:2528:G:OP1	3:D:109:PHE:CE2	2.06	1.08
1:A:2528:G:H3'	3:D:208:ARG:HH21	1.18	1.03

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2015:G:H21	1:A:2931:A:C2'	1.73	1.00
13:O:38:ARG:HH12	13:O:82:GLU:HG3	1.25	0.98
16:R:141:ILE:HD12	17:S:72:GLU:HG2	1.48	0.93
1:A:1908:A:H2	1:A:2733:G:C4'	1.84	0.90
2:B:1607:U:H3	2:B:1664:G:H1	0.90	0.90
1:A:3174:U:H6	1:A:3174:U:P	1.96	0.89
21:W:122:LYS:O	30:6:60:ARG:NH1	2.06	0.87
1:A:2111:C:OP1	7:I:35:ARG:NH2	2.07	0.87
1:A:2161:A:C2	1:A:3182:A:C2	2.63	0.87
1:A:1679:U:H5'	20:V:42:ARG:HD3	1.55	0.86
1:A:3174:U:OP1	1:A:3174:U:C6	2.29	0.85
25:O:119:LYS:O	25:O:120:HIS:ND1	2.09	0.85
1:A:2529:U:C6	3:D:205:GLN:O	2.30	0.85
1:A:1908:A:C2	1:A:2733:G:H4'	2.13	0.84
1:A:1908:A:H2	1:A:2733:G:O4'	1.60	0.83
3:D:143:ALA:O	29:5:259:ILE:CD1	2.25	0.82
4:E:61:ILE:HD11	13:O:149:LEU:HD22	1.61	0.82
1:A:2406:A:O2'	29:5:110:ARG:NH2	2.13	0.82
7:I:123:MET:HA	7:I:153:LEU:O	1.80	0.82
1:A:1778:U:C5	5:F:121:ARG:HD2	2.14	0.82
1:A:2161:A:C2	1:A:3182:A:N3	2.49	0.81
1:A:1908:A:C2	1:A:2733:G:C4'	2.64	0.81
1:A:2521:A:C2	3:D:202:ARG:CZ	2.65	0.80
5:F:281:ARG:NH2	11:M:128:THR:OG1	2.14	0.79
1:A:2526:C:P	1:A:2533:A:H4'	2.22	0.79
1:A:3174:U:P	1:A:3174:U:C6	2.77	0.78
1:A:2528:G:H5''	3:D:135:ARG:NH2	1.99	0.78
1:A:2528:G:H5''	3:D:135:ARG:HH21	1.48	0.78
1:A:2743:U:H5''	22:X:93:ASN:HD21	1.48	0.78
1:A:2521:A:C8	3:D:205:GLN:HG2	2.19	0.77
13:O:108:LEU:HD13	25:O:122:LEU:HD11	1.67	0.77
1:A:3174:U:H6	1:A:3174:U:OP1	1.65	0.77
10:L:87:VAL:HG11	10:L:123:ILE:HG12	1.67	0.76
3:D:143:ALA:C	29:5:259:ILE:HD11	2.04	0.76
29:5:242:ARG:HA	29:5:242:ARG:NH1	2.00	0.76
1:A:2529:U:O2'	3:D:206:TYR:HA	1.86	0.76
1:A:2521:A:C4	3:D:205:GLN:OE1	2.38	0.75
1:A:2529:U:C5	3:D:205:GLN:O	2.39	0.75
6:H:86:THR:HG23	6:H:89:ARG:HH21	1.49	0.75
1:A:2073:A:OP2	30:6:27:ARG:N	2.20	0.75
5:F:262:THR:HG22	5:F:264:PRO:HD2	1.68	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2521:A:N7	3:D:205:GLN:HG2	2.01	0.75
30:6:46:GLU:OE1	30:6:46:GLU:N	2.19	0.74
1:A:2528:G:H3'	3:D:208:ARG:NH2	2.00	0.74
1:A:2521:A:C5	3:D:205:GLN:OE1	2.41	0.73
4:E:133:THR:OG1	4:E:144:THR:OG1	2.06	0.73
1:A:1777:A:N6	1:A:1780:U:OP2	2.22	0.72
1:A:1782:G:O6	5:F:121:ARG:HD3	1.89	0.72
1:A:2528:G:C8	1:A:2528:G:OP2	2.42	0.72
29:5:341:VAL:HG22	29:5:358:GLN:HG2	1.70	0.72
1:A:1916:G:N2	1:A:2003:A:N1	2.38	0.72
15:Q:108:ILE:HD12	15:Q:166:LEU:HD22	1.71	0.72
22:X:142:ASP:O	22:X:146:LEU:HD12	1.89	0.71
1:A:1916:G:H22	1:A:2003:A:H2	1.36	0.71
5:F:83:HIS:HB3	5:F:86:VAL:HG12	1.72	0.71
7:I:140:TYR:HB3	7:I:143:LEU:HB2	1.72	0.71
22:X:166:LEU:HD23	22:X:196:ILE:HG21	1.72	0.71
3:D:144:GLY:HA2	29:5:259:ILE:CD1	2.20	0.71
1:A:2529:U:OP2	3:D:208:ARG:NE	2.23	0.71
6:H:131:TYR:O	6:H:136:ASN:ND2	2.23	0.71
12:N:218:ILE:HA	12:N:223:MET:HG3	1.73	0.70
19:U:128:SER:OG	19:U:129:MET:SD	2.49	0.70
1:A:2161:A:C2	1:A:3182:A:C4	2.79	0.70
22:X:224:VAL:HG13	22:X:229:ILE:HD11	1.73	0.70
1:A:2161:A:N3	1:A:3182:A:C2	2.61	0.69
1:A:1890:C:OP2	28:3:168:ARG:NH1	2.24	0.69
22:X:118:ILE:HG21	22:X:165:MET:HG2	1.75	0.69
3:D:132:ASP:OD2	3:D:135:ARG:NH1	2.26	0.69
3:D:143:ALA:C	29:5:259:ILE:CD1	2.61	0.69
19:U:24:PHE:HB2	19:U:45:PRO:HG3	1.73	0.69
4:E:345:ILE:HD12	4:E:347:PHE:HE1	1.58	0.69
1:A:2015:G:H21	1:A:2931:A:C1'	2.06	0.69
15:Q:95:GLU:O	15:Q:99:MET:HG2	1.93	0.69
1:A:2143:G:OP1	17:S:173:ARG:NH2	2.25	0.68
2:B:1607:U:O4	2:B:1664:G:O6	2.11	0.68
23:Y:198:ARG:NH2	27:2:70:LEU:O	2.27	0.68
21:W:123:GLY:C	30:6:60:ARG:HH22	1.96	0.68
1:A:2292:G:C8	16:R:11:ARG:HB2	2.29	0.68
1:A:2262:C:OP1	17:S:173:ARG:NH1	2.27	0.68
29:5:310:ARG:HA	29:5:313:MET:HE3	1.75	0.68
1:A:2530:A:H5''	3:D:212:THR:HG21	1.75	0.68
1:A:2529:U:HO2'	3:D:206:TYR:HA	1.59	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:5:122:TRP:O	29:5:215:ARG:NH1	2.27	0.67
1:A:1908:A:N3	1:A:2733:G:O2'	2.25	0.67
5:F:76:ARG:HG3	5:F:76:ARG:HH11	1.59	0.67
21:W:122:LYS:C	30:6:60:ARG:HH12	1.98	0.67
22:X:225:PRO:HD2	22:X:228:LYS:NZ	2.09	0.67
29:5:147:ILE:HG23	29:5:191:GLN:NE2	2.09	0.67
11:M:157:GLN:OE1	11:M:157:GLN:N	2.27	0.67
29:5:147:ILE:HG23	29:5:191:GLN:HE22	1.58	0.67
1:A:2521:A:N6	3:D:202:ARG:HG3	2.09	0.67
13:O:110:ILE:HD11	13:O:122:VAL:HB	1.77	0.67
29:5:95:GLU:N	29:5:95:GLU:OE1	2.29	0.66
1:A:2521:A:N1	3:D:202:ARG:HD2	2.10	0.66
1:A:2801:A:H2'	1:A:2802:A:C8	2.30	0.66
22:X:119:LEU:HD22	29:5:53:PRO:HD2	1.76	0.66
20:V:131:THR:HG22	20:V:149:ARG:HD3	1.77	0.66
8:J:89:TYR:O	8:J:93:ALA:HB3	1.96	0.66
17:S:122:LEU:HD13	17:S:128:ILE:HD11	1.77	0.66
29:5:392:ILE:HD12	29:5:398:VAL:HG23	1.78	0.66
14:P:118:SER:OG	14:P:121:ASN:ND2	2.28	0.66
1:A:2015:G:N2	1:A:2931:A:C2'	2.48	0.66
1:A:2127:A:H4'	1:A:2251:A:C5	2.30	0.65
15:Q:152:ARG:HG3	15:Q:161:GLU:HG2	1.76	0.65
1:A:1744:A:OP2	28:3:108:LYS:NZ	2.29	0.65
15:Q:250:THR:OG1	15:Q:253:GLN:OE1	2.15	0.65
1:A:1706:C:H1'	19:U:9:LEU:HD11	1.78	0.65
1:A:3220:A:OP1	4:E:260:LYS:NZ	2.30	0.65
19:U:129:MET:SD	19:U:129:MET:N	2.69	0.65
1:A:3158:A:H2'	1:A:3159:A:C8	2.32	0.65
12:N:127:PRO:HA	12:N:152:THR:HG23	1.77	0.65
18:T:123:GLU:O	18:T:127:MET:HG2	1.97	0.65
20:V:190:CYS:SG	20:V:191:LEU:N	2.70	0.65
1:A:2174:G:N2	8:J:102:ARG:O	2.30	0.64
1:A:2528:G:OP2	3:D:208:ARG:NH2	2.29	0.64
5:F:184:GLN:NE2	11:M:21:ARG:HA	2.12	0.64
11:M:247:ILE:HG22	11:M:253:PHE:HD1	1.63	0.64
14:P:85:ARG:NH1	14:P:125:CYS:SG	2.69	0.64
5:F:86:VAL:HG11	5:F:270:GLU:HG2	1.79	0.64
9:K:27:PRO:HG2	9:K:30:LYS:HB2	1.78	0.64
11:M:156:VAL:O	11:M:176:THR:HA	1.98	0.64
22:X:110:PHE:HE2	22:X:129:MET:HG2	1.62	0.64
3:D:144:GLY:HA2	29:5:259:ILE:HD13	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:J:110:GLY:O	8:J:153:ILE:HA	1.98	0.64
20:V:61:THR:OG1	20:V:75:LYS:NZ	2.30	0.64
1:A:1747:G:N2	1:A:1750:G:O2'	2.30	0.64
1:A:2511:C:H3'	1:A:2512:A:H8	1.63	0.64
6:H:96:LEU:HD11	6:H:124:LEU:HD21	1.80	0.64
29:5:361:THR:OG1	29:5:363:ASP:OD1	2.15	0.64
18:T:91:ALA:O	18:T:145:SER:OG	2.15	0.63
15:Q:224:MET:HE3	15:Q:243:ILE:HD12	1.80	0.63
23:Y:131:ARG:HA	23:Y:134:LYS:HD3	1.80	0.63
7:I:119:HIS:NE2	7:I:158:GLU:O	2.31	0.63
12:N:172:VAL:HG12	12:N:176:LEU:HG	1.80	0.63
1:A:1737:A:N6	1:A:1760:G:H1'	2.13	0.63
1:A:1699:C:O2	23:Y:198:ARG:NH1	2.32	0.63
14:P:63:ARG:NH2	21:W:137:LYS:O	2.32	0.62
15:Q:100:LEU:HD21	15:Q:286:ILE:HD13	1.81	0.62
23:Y:191:ASN:O	23:Y:195:ASN:ND2	2.32	0.62
20:V:134:GLU:OE2	20:V:136:ARG:NH2	2.32	0.62
1:A:2526:C:OP1	1:A:2533:A:H4'	1.99	0.62
3:D:124:GLU:HG2	3:D:144:GLY:HA3	1.82	0.62
14:P:72:PHE:HB2	21:W:107:HIS:HA	1.80	0.62
1:A:2529:U:OP2	3:D:208:ARG:HG2	2.00	0.61
11:M:117:ASP:OD2	11:M:260:LYS:NZ	2.29	0.61
1:A:2521:A:N7	3:D:205:GLN:CG	2.63	0.61
5:F:217:LEU:HD11	5:F:243:ILE:HD12	1.81	0.61
20:V:56:LEU:HD23	20:V:86:VAL:HG21	1.82	0.61
1:A:1916:G:N2	1:A:2003:A:C2	2.58	0.61
20:V:121:LYS:HD3	20:V:130:PRO:HB2	1.82	0.61
3:D:194:ASN:OD1	3:D:243:THR:OG1	2.19	0.61
7:I:47:LEU:HD12	12:N:226:ILE:HG12	1.82	0.61
22:X:72:PRO:O	22:X:75:SER:OG	2.18	0.61
3:D:144:GLY:CA	29:5:259:ILE:CD1	2.78	0.61
7:I:124:LYS:HB2	7:I:153:LEU:HB2	1.83	0.61
13:O:50:ASP:HA	13:O:107:MET:HE1	1.81	0.61
19:U:11:ARG:NH1	20:V:212:LYS:O	2.34	0.61
2:B:1640:A:OP1	14:P:157:SER:OG	2.10	0.60
4:E:123:GLN:OE1	4:E:125:GLN:NE2	2.26	0.60
15:Q:76:LEU:HD21	15:Q:80:PHE:HB2	1.83	0.60
1:A:2927:C:H2'	1:A:2928:C:H4'	1.83	0.60
1:A:1839:C:H2'	1:A:1840:C:C6	2.36	0.60
1:A:2668:A:H2'	1:A:2669:A:C8	2.36	0.60
29:5:333:ALA:HB1	29:5:363:ASP:HA	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:Y:65:GLU:OE1	23:Y:65:GLU:N	2.19	0.60
15:Q:119:VAL:HG22	15:Q:174:ILE:HG12	1.82	0.60
21:W:128:LYS:HB2	21:W:130:PHE:HE1	1.66	0.60
24:Z:107:ASN:O	24:Z:111:LYS:HG3	2.01	0.60
29:5:409:GLU:HA	29:5:412:ARG:NH1	2.16	0.60
1:A:3174:U:P	1:A:3174:U:O4'	2.59	0.60
15:Q:170:ARG:O	15:Q:170:ARG:HG2	2.01	0.60
1:A:1871:A:H61	1:A:1901:C:H5'	1.67	0.60
1:A:2528:G:C5'	3:D:135:ARG:HH21	2.15	0.59
1:A:1916:G:H1	1:A:2003:A:N6	1.99	0.59
15:Q:111:PHE:O	15:Q:140:ARG:NH1	2.35	0.59
20:V:69:ASP:HA	20:V:72:LYS:HE2	1.84	0.59
22:X:135:ILE:HD11	22:X:141:LEU:HD13	1.83	0.59
19:U:21:ARG:HG2	23:Y:102:TRP:CG	2.38	0.59
1:A:2015:G:H22	1:A:2931:A:H4'	1.67	0.59
22:X:216:ARG:NH2	22:X:220:GLU:OE2	2.36	0.59
1:A:1778:U:C6	5:F:121:ARG:HD2	2.37	0.59
1:A:1901:C:H2'	1:A:1902:C:C6	2.38	0.59
1:A:2531:U:O4	3:D:246:ARG:NH2	2.36	0.59
8:J:111:LEU:HG	8:J:154:ARG:HB3	1.85	0.59
15:Q:225:LYS:HB2	15:Q:226:PRO:HD2	1.85	0.59
22:X:86:ILE:HB	22:X:105:TRP:HB2	1.84	0.59
15:Q:102:ARG:NH2	15:Q:169:PRO:HA	2.18	0.59
14:P:102:VAL:HG12	14:P:103:VAL:HG23	1.84	0.58
22:X:226:LEU:HD23	22:X:229:ILE:HD13	1.85	0.58
23:Y:187:PRO:HG2	23:Y:190:LEU:HD21	1.85	0.58
11:M:102:GLN:O	11:M:106:ASP:HB2	2.02	0.58
12:N:231:SER:N	12:N:234:ASP:OD2	2.36	0.58
14:P:92:ALA:HB1	14:P:132:LEU:HD22	1.85	0.58
11:M:103:TYR:CE1	11:M:107:LEU:HD11	2.38	0.58
15:Q:249:LEU:HD12	15:Q:254:MET:SD	2.43	0.58
1:A:3174:U:OP1	1:A:3174:U:C5	2.57	0.58
10:L:121:THR:HA	15:Q:156:GLU:OE2	2.03	0.58
1:A:2064:A:OP1	21:W:101:LYS:HE3	2.02	0.58
1:A:1672:C:O2'	18:T:149:ARG:O	2.20	0.58
1:A:2093:U:O2	1:A:2266:U:O2'	2.22	0.58
25:0:90:ASN:O	25:0:94:ARG:HG2	2.03	0.58
12:N:180:ALA:HA	12:N:183:LEU:HD12	1.84	0.58
15:Q:234:GLU:N	15:Q:234:GLU:OE1	2.36	0.58
8:J:32:GLY:O	8:J:36:GLY:N	2.33	0.57
1:A:1800:G:N1	1:A:1803:A:OP2	2.34	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1908:A:C2	1:A:2733:G:O4'	2.50	0.57
12:N:240:LYS:NZ	12:N:251:VAL:O	2.37	0.57
1:A:2055:U:H2'	1:A:2056:G:H8	1.69	0.57
11:M:133:LYS:C	11:M:134:ARG:HD2	2.25	0.57
1:A:1739:A:O2'	1:A:1888:G:H1'	2.04	0.57
1:A:2405:C:N4	29:5:299:LEU:HD11	2.20	0.57
1:A:3139:G:H2'	1:A:3140:A:C8	2.39	0.57
3:D:199:GLU:HB2	3:D:202:ARG:HB2	1.87	0.57
6:H:89:ARG:HG2	6:H:90:PRO:HD2	1.87	0.57
10:L:123:ILE:HD12	10:L:141:ALA:HB2	1.86	0.57
18:T:52:GLU:OE1	18:T:52:GLU:N	2.35	0.57
22:X:79:LEU:HD21	22:X:145:ILE:HD11	1.87	0.57
1:A:1916:G:H1	1:A:2003:A:H61	1.52	0.57
3:D:194:ASN:HA	3:D:207:ILE:CG2	2.33	0.57
29:5:211:ALA:HB1	29:5:322:LEU:HD23	1.86	0.57
11:M:222:TYR:HA	11:M:259:ARG:HH21	1.68	0.57
29:5:307:ASP:OD1	29:5:310:ARG:NH2	2.37	0.57
30:6:51:TYR:HD1	30:6:56:ARG:HG3	1.69	0.57
1:A:1814:A:N3	1:A:1862:U:O2'	2.34	0.57
1:A:2752:C:H2'	1:A:2753:A:H8	1.69	0.57
4:E:221:ARG:HG3	4:E:261:MET:HB2	1.87	0.57
19:U:37:GLU:OE1	19:U:104:THR:HG23	2.04	0.57
5:F:113:LYS:HD2	5:F:157:GLY:HA2	1.87	0.56
29:5:290:THR:HA	29:5:343:GLN:O	2.05	0.56
29:5:340:VAL:HG23	29:5:359:LEU:HB3	1.87	0.56
1:A:2310:G:OP2	25:0:93:ARG:NH2	2.35	0.56
15:Q:96:ARG:HA	15:Q:99:MET:HG3	1.87	0.56
1:A:1908:A:C2	1:A:2733:G:O2'	2.47	0.56
6:H:64:LEU:HD23	6:H:64:LEU:H	1.69	0.56
6:H:136:ASN:HA	6:H:139:LEU:HD23	1.87	0.56
11:M:146:ASP:N	11:M:146:ASP:OD1	2.28	0.56
15:Q:145:LEU:HD12	15:Q:167:TYR:HD2	1.69	0.56
19:U:132:GLU:O	19:U:135:GLN:NE2	2.32	0.56
22:X:143:PHE:O	22:X:147:LYS:HB2	2.05	0.56
29:5:200:ARG:NH2	29:5:234:ASP:OD1	2.29	0.56
1:A:2191:A:N6	1:A:2198:A:OP2	2.39	0.56
24:Z:36:PHE:HE2	24:Z:79:PRO:HG3	1.71	0.56
15:Q:120:THR:HG23	15:Q:132:GLN:NE2	2.21	0.56
19:U:44:ILE:HD12	19:U:48:MET:SD	2.46	0.56
1:A:2754:A:H5''	6:H:91:LYS:HE3	1.88	0.56
3:D:194:ASN:HA	3:D:207:ILE:HG21	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:67:GLU:HG2	5:F:75:GLU:HB3	1.87	0.56
11:M:231:GLU:O	11:M:235:GLU:HG2	2.05	0.56
15:Q:193:ALA:O	15:Q:225:LYS:NZ	2.39	0.56
1:A:2755:A:H2'	1:A:2756:C:C6	2.41	0.56
3:D:130:ARG:NH1	3:D:131:TYR:O	2.39	0.56
12:N:209:ASN:OD1	12:N:211:ASN:N	2.26	0.56
15:Q:176:VAL:HG11	15:Q:179:LEU:HB2	1.87	0.56
5:F:65:TRP:CE3	5:F:76:ARG:HG2	2.40	0.56
15:Q:123:ASP:OD2	15:Q:126:ALA:N	2.36	0.56
4:E:112:LYS:NZ	4:E:335:GLU:O	2.34	0.56
1:A:1680:A:H5'	1:A:1681:G:OP2	2.06	0.55
1:A:1789:A:N3	1:A:1915:C:O2'	2.38	0.55
1:A:2142:A:O2'	1:A:2262:C:OP1	2.24	0.55
3:D:187:LEU:HD21	3:D:244:VAL:HG12	1.89	0.55
5:F:61:PRO:HB2	5:F:81:ASP:HB2	1.88	0.55
15:Q:227:LYS:O	15:Q:229:TRP:N	2.39	0.55
22:X:225:PRO:HD2	22:X:228:LYS:HZ1	1.71	0.55
29:5:201:ARG:NH1	29:5:418:TYR:O	2.32	0.55
1:A:2015:G:N2	1:A:2931:A:C4'	2.69	0.55
1:A:2058:C:O2	24:Z:109:LYS:NZ	2.34	0.55
1:A:2364:C:P	1:A:2364:C:H6	2.29	0.55
3:D:180:ASP:OD1	3:D:180:ASP:N	2.40	0.55
4:E:126:ASP:O	4:E:173:LYS:NZ	2.31	0.55
29:5:355:LEU:HD21	29:5:374:ALA:HB1	1.87	0.55
1:A:1822:U:O2	1:A:2707:A:O2'	2.24	0.55
1:A:3102:U:O4	25:0:79:ALA:HB3	2.06	0.55
8:J:138:SER:HA	8:J:141:VAL:HG12	1.88	0.55
20:V:134:GLU:OE1	20:V:134:GLU:N	2.36	0.55
1:A:2655:G:N2	1:A:2659:C:O2'	2.39	0.55
1:A:2795:U:H1'	22:X:108:GLN:OE1	2.06	0.55
4:E:196:ALA:HB1	4:E:199:ARG:HH21	1.71	0.55
11:M:118:LEU:HD12	11:M:157:GLN:HE22	1.72	0.55
18:T:108:PHE:HE2	25:0:116:LEU:HD12	1.72	0.55
1:A:1839:C:H5''	9:K:115:ASN:HB2	1.88	0.55
1:A:2519:G:C4	3:D:228:LEU:HD13	2.42	0.55
6:H:71:PRO:HG3	22:X:65:VAL:HG22	1.89	0.55
11:M:164:ILE:O	11:M:168:GLU:HG3	2.06	0.55
14:P:66:ARG:HD2	14:P:76:GLU:OE2	2.06	0.55
1:A:2194:U:O2'	1:A:2195:A:O4'	2.25	0.55
1:A:2677:A:H2'	1:A:2678:A:C8	2.42	0.55
23:Y:204:TYR:CE2	27:2:73:PRO:HB3	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2138:U:H5'	24:Z:73:LYS:HE2	1.89	0.54
18:T:107:GLU:HB2	18:T:118:LYS:HE3	1.88	0.54
27:2:82:ARG:CZ	27:2:87:ARG:HD3	2.37	0.54
1:A:2529:U:P	3:D:208:ARG:HE	2.30	0.54
14:P:94:VAL:HG13	14:P:144:MET:HE3	1.89	0.54
18:T:125:GLN:NE2	18:T:137:ARG:HB3	2.21	0.54
1:A:2065:A:H5'	21:W:74:ARG:HE	1.72	0.54
3:D:166:SER:OG	3:D:182:HIS:ND1	2.40	0.54
22:X:7:PRO:HD2	22:X:10:LEU:HD12	1.89	0.54
24:Z:71:ARG:NH2	24:Z:92:GLU:O	2.39	0.54
28:3:116:ARG:NH1	28:3:159:ASP:OD1	2.41	0.54
1:A:2740:A:H5'	1:A:2740:A:H8	1.70	0.54
4:E:347:PHE:CD2	15:Q:124:PRO:HA	2.43	0.54
1:A:2529:U:C4	3:D:205:GLN:HB3	2.42	0.54
11:M:179:TYR:CE1	11:M:187:VAL:HG21	2.43	0.54
15:Q:120:THR:HG23	15:Q:132:GLN:HE22	1.72	0.54
29:5:382:LEU:HD23	29:5:383:TYR:HD2	1.71	0.54
1:A:2521:A:C8	3:D:205:GLN:CG	2.90	0.54
3:D:127:ILE:HD12	29:5:114:LEU:HD11	1.90	0.54
3:D:207:ILE:HG22	3:D:207:ILE:O	2.06	0.54
1:A:2015:G:C2	1:A:2931:A:O2'	2.58	0.54
7:I:87:ALA:HA	7:I:90:PHE:HD2	1.73	0.54
10:L:98:PRO:HG3	10:L:145:VAL:HG12	1.89	0.54
1:A:2745:A:O4'	22:X:101:LEU:HD12	2.07	0.54
10:L:60:VAL:HA	10:L:73:ILE:HG22	1.89	0.54
12:N:218:ILE:HG23	12:N:223:MET:HB2	1.90	0.54
1:A:2015:G:N2	1:A:2931:A:H4'	2.23	0.54
1:A:2072:A:H2'	1:A:2073:A:C8	2.43	0.54
8:J:29:ALA:HB1	8:J:50:CYS:HB2	1.88	0.54
20:V:126:MET:SD	20:V:127:ASP:N	2.81	0.54
7:I:162:LYS:HD2	7:I:196:LYS:HA	1.90	0.53
22:X:196:ILE:HG13	22:X:197:PRO:HD2	1.91	0.53
2:B:1607:U:O2'	2:B:1608:G:OP1	2.20	0.53
14:P:174:GLU:OE1	14:P:174:GLU:N	2.37	0.53
19:U:3:ARG:H	19:U:23:ASN:HB3	1.73	0.53
1:A:1858:G:H2'	1:A:1859:A:C8	2.44	0.53
2:B:1626:C:N4	14:P:87:GLN:OE1	2.42	0.53
9:K:25:MET:O	9:K:149:ARG:NH1	2.42	0.53
18:T:107:GLU:O	18:T:107:GLU:HG2	2.06	0.53
1:A:2740:A:H2'	1:A:2741:A:C8	2.43	0.53
11:M:244:LEU:HD22	11:M:245:PRO:HD2	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:N:201:ASP:HA	12:N:204:GLU:HG2	1.91	0.53
15:Q:156:GLU:O	15:Q:156:GLU:HG2	2.08	0.53
16:R:47:ILE:O	16:R:51:VAL:HG23	2.08	0.53
29:5:117:VAL:O	29:5:121:LEU:HD22	2.08	0.53
1:A:2521:A:N1	3:D:202:ARG:CD	2.71	0.53
4:E:45:SER:OG	4:E:46:GLY:N	2.40	0.53
29:5:220:LEU:HD11	29:5:262:ILE:HD11	1.89	0.53
5:F:69:LEU:HD22	5:F:206:LEU:HD21	1.90	0.53
5:F:94:ASP:N	5:F:94:ASP:OD1	2.41	0.53
21:W:67:ILE:HG21	21:W:131:VAL:HG11	1.90	0.53
26:1:20:MET:HB3	26:1:56:PHE:HB3	1.89	0.53
1:A:2161:A:N3	1:A:3182:A:N1	2.56	0.53
1:A:2403:G:OP1	3:D:133:PRO:HG3	2.08	0.53
5:F:64:ALA:HB3	5:F:189:ILE:HD12	1.90	0.53
5:F:280:TYR:CD1	11:M:125:ARG:HD3	2.44	0.53
15:Q:116:ILE:HG22	15:Q:177:VAL:HB	1.90	0.53
16:R:109:GLU:OE1	17:S:96:PHE:CD1	2.62	0.53
28:3:95:THR:HB	28:3:105:LYS:HB2	1.90	0.53
29:5:118:LYS:HE3	29:5:256:PHE:HB3	1.90	0.53
29:5:309:LEU:O	29:5:313:MET:HG3	2.08	0.53
1:A:2868:C:H2'	1:A:2869:A:O4'	2.09	0.53
1:A:3150:U:C2	1:A:3151:A:C8	2.96	0.53
5:F:234:THR:HG21	5:F:242:LEU:HB2	1.91	0.53
5:F:253:MET:HE3	5:F:259:LEU:HD22	1.91	0.53
7:I:191:PHE:O	7:I:195:SER:CB	2.57	0.53
17:S:173:ARG:HB3	17:S:180:PHE:CE2	2.44	0.53
2:B:1615:A:H2'	2:B:1616:A:C8	2.44	0.53
4:E:54:SER:O	4:E:58:VAL:HG23	2.09	0.53
4:E:316:PHE:HB3	4:E:317:PRO:HD3	1.90	0.53
7:I:83:ARG:HG2	7:I:134:PHE:HE1	1.74	0.53
1:A:2095:U:H2'	1:A:2096:U:C6	2.43	0.53
10:L:82:LYS:HG2	10:L:107:LEU:HD22	1.90	0.53
14:P:80:ARG:NH2	14:P:95:GLU:OE1	2.38	0.53
22:X:208:LEU:O	22:X:212:ILE:HG12	2.08	0.53
29:5:268:CYS:SG	29:5:271:TYR:HB3	2.48	0.53
1:A:1780:U:O2'	1:A:1796:A:N1	2.29	0.52
7:I:128:ASN:HA	7:I:131:LEU:HB3	1.91	0.52
1:A:2212:C:H2'	1:A:2213:A:H8	1.74	0.52
1:A:2519:G:H2'	3:D:232:ARG:HD3	1.91	0.52
13:O:44:ALA:HB3	13:O:49:VAL:HG23	1.91	0.52
29:5:133:PRO:HG2	29:5:136:VAL:HG12	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:5:405:GLY:O	29:5:407:LYS:NZ	2.40	0.52
20:V:76:VAL:HG13	20:V:86:VAL:HG13	1.90	0.52
1:A:1828:A:OP1	16:R:52:LYS:NZ	2.41	0.52
1:A:2467:A:O2'	1:A:3154:U:H4'	2.10	0.52
5:F:165:LEU:HB2	5:F:170:ARG:HD3	1.91	0.52
14:P:81:LEU:HB2	14:P:144:MET:HE2	1.91	0.52
14:P:94:VAL:HG21	14:P:136:CYS:SG	2.49	0.52
18:T:97:MET:HG2	18:T:101:GLN:HG2	1.91	0.52
29:5:242:ARG:HA	29:5:242:ARG:HH11	1.75	0.52
1:A:2275:U:H2'	1:A:2276:C:C6	2.44	0.52
3:D:226:ILE:O	3:D:233:GLN:HA	2.10	0.52
22:X:116:SER:O	22:X:120:ASP:N	2.42	0.52
1:A:1737:A:H61	1:A:1760:G:H1'	1.73	0.52
1:A:2521:A:C8	3:D:205:GLN:OE1	2.63	0.52
1:A:3158:A:H2'	1:A:3159:A:H8	1.74	0.52
16:R:109:GLU:OE1	17:S:96:PHE:CE1	2.62	0.52
22:X:42:HIS:HD2	22:X:69:ILE:HD13	1.75	0.52
26:1:44:LEU:HD11	26:1:53:ARG:HB3	1.92	0.52
4:E:86:PRO:HB2	4:E:88:HIS:CE1	2.45	0.52
15:Q:112:TYR:HE2	15:Q:215:VAL:HG21	1.75	0.52
15:Q:118:ARG:HA	15:Q:133:PHE:O	2.10	0.52
1:A:3213:A:H2'	1:A:3214:C:C6	2.45	0.52
5:F:249:ASN:O	5:F:253:MET:HG3	2.10	0.52
12:N:87:PHE:HB2	12:N:163:MET:HB2	1.91	0.52
1:A:2521:A:N6	3:D:202:ARG:C	2.57	0.52
1:A:2650:C:P	1:A:2650:C:H6	2.33	0.52
8:J:39:LEU:HB3	8:J:44:VAL:HG11	1.92	0.52
8:J:89:TYR:O	8:J:93:ALA:CB	2.57	0.52
27:2:82:ARG:NH1	27:2:89:SER:O	2.43	0.52
29:5:118:LYS:HZ3	29:5:255:THR:HA	1.74	0.51
1:A:3102:U:C1'	25:0:81:PRO:HA	2.40	0.51
5:F:108:ARG:HG2	5:F:161:TYR:CD1	2.45	0.51
12:N:228:LYS:HG2	24:Z:36:PHE:CZ	2.45	0.51
14:P:120:ARG:HG2	14:P:120:ARG:O	2.09	0.51
1:A:1707:C:C5	29:5:80:ARG:NH2	2.78	0.51
7:I:83:ARG:O	7:I:87:ALA:CB	2.59	0.51
7:I:191:PHE:O	7:I:195:SER:HB2	2.10	0.51
8:J:128:GLU:HA	8:J:133:GLN:HE21	1.75	0.51
14:P:77:PHE:O	14:P:97:GLN:OE1	2.29	0.51
29:5:208:THR:HA	29:5:224:GLY:O	2.10	0.51
1:A:2086:A:H2'	1:A:2087:U:C6	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:51:TYR:CE2	10:L:78:LYS:HA	2.45	0.51
17:S:94:ARG:NH2	17:S:111:GLU:OE1	2.39	0.51
29:5:138:SER:HA	29:5:141:ASP:HB2	1.92	0.51
30:6:51:TYR:CD1	30:6:56:ARG:HG3	2.45	0.51
1:A:2094:G:H2'	1:A:2095:U:C6	2.45	0.51
4:E:86:PRO:HB2	4:E:88:HIS:HE1	1.75	0.51
12:N:209:ASN:OD1	12:N:210:GLN:N	2.44	0.51
13:O:107:MET:O	13:O:108:LEU:HD23	2.11	0.51
15:Q:96:ARG:NE	15:Q:285:GLU:OE1	2.28	0.51
17:S:173:ARG:HB3	17:S:180:PHE:HE2	1.75	0.51
29:5:108:HIS:CE1	29:5:110:ARG:HB3	2.46	0.51
4:E:341:GLY:HA3	15:Q:101:GLU:OE2	2.11	0.51
9:K:119:ARG:O	9:K:123:GLU:HG2	2.10	0.51
10:L:39:ARG:NH2	15:Q:158:GLN:OE1	2.44	0.51
10:L:55:PRO:HB2	10:L:75:LEU:HD11	1.93	0.51
1:A:1756:A:H2'	1:A:1757:A:H8	1.75	0.51
22:X:177:HIS:CE1	22:X:183:ARG:HD3	2.46	0.51
1:A:1916:G:C2	1:A:2003:A:N1	2.79	0.51
1:A:2521:A:C2	3:D:202:ARG:NE	2.78	0.51
2:B:1665:C:H2'	2:B:1666:U:C6	2.45	0.51
29:5:407:LYS:HB2	29:5:409:GLU:OE1	2.11	0.51
12:N:105:MET:HE2	12:N:183:LEU:HG	1.93	0.51
15:Q:102:ARG:HH22	15:Q:169:PRO:HA	1.76	0.51
19:U:25:PHE:CE2	23:Y:109:ARG:NH1	2.79	0.51
20:V:25:PRO:HG2	20:V:28:SER:HB3	1.93	0.51
20:V:65:LEU:HD11	20:V:121:LYS:HD2	1.93	0.51
3:D:248:SER:OG	3:D:249:ASN:N	2.43	0.50
4:E:179:PHE:CE1	4:E:298:LYS:HE3	2.46	0.50
5:F:72:PHE:HZ	5:F:205:GLU:HB3	1.76	0.50
16:R:36:ASN:OD1	16:R:37:ARG:HG3	2.11	0.50
29:5:155:LEU:HA	29:5:158:ILE:HD12	1.92	0.50
3:D:145:GLY:O	29:5:259:ILE:HG23	2.11	0.50
5:F:211:ARG:NH1	5:F:211:ARG:HG2	2.26	0.50
6:H:95:GLU:OE1	6:H:132:ALA:HB2	2.11	0.50
8:J:66:LEU:HB3	8:J:82:ILE:HD11	1.92	0.50
26:1:24:ALA:HB3	26:1:54:VAL:HG11	1.93	0.50
3:D:207:ILE:HG12	3:D:229:PRO:HD3	1.94	0.50
13:O:131:PRO:HB3	25:0:184:TRP:HZ3	1.76	0.50
22:X:115:TYR:HD2	22:X:122:LYS:HD3	1.77	0.50
25:0:146:GLY:O	25:0:150:LYS:NZ	2.44	0.50
29:5:212:THR:HG21	29:5:273:VAL:HG13	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2061:C:H2'	1:A:2062:A:O4'	2.11	0.50
1:A:2180:A:H1'	1:A:2206:C:H4'	1.93	0.50
1:A:2747:U:H2'	1:A:2748:A:H8	1.76	0.50
4:E:123:GLN:HG3	4:E:282:ILE:HD13	1.92	0.50
15:Q:155:ILE:HD12	15:Q:156:GLU:OE1	2.11	0.50
22:X:77:ARG:HH11	22:X:77:ARG:HB2	1.77	0.50
1:A:3213:A:H2'	1:A:3214:C:H6	1.77	0.50
5:F:211:ARG:HG2	5:F:211:ARG:HH11	1.77	0.50
29:5:116:GLY:N	29:5:119:GLN:OE1	2.43	0.50
1:A:3102:U:H1'	25:0:81:PRO:HA	1.94	0.50
3:D:138:ASP:OD1	3:D:138:ASP:N	2.42	0.50
11:M:103:TYR:O	11:M:107:LEU:HD12	2.12	0.50
28:3:136:LYS:HD3	28:3:140:ARG:HE	1.76	0.50
29:5:49:VAL:HG13	29:5:55:LEU:HD13	1.94	0.50
29:5:127:LYS:HD2	29:5:251:HIS:ND1	2.27	0.50
5:F:49:ARG:HD2	5:F:263:LEU:HD22	1.93	0.50
10:L:40:VAL:HA	10:L:105:VAL:HG12	1.93	0.50
11:M:132:LEU:O	11:M:133:LYS:HB2	2.12	0.50
13:O:45:PRO:HA	13:O:120:MET:HE2	1.92	0.50
13:O:116:ASP:OD1	13:O:116:ASP:N	2.36	0.50
21:W:123:GLY:C	30:6:60:ARG:NH2	2.64	0.50
1:A:2100:C:H1'	1:A:2135:A:C8	2.46	0.50
1:A:2182:G:H1'	1:A:2199:A:H2'	1.93	0.50
3:D:198:SER:HB2	3:D:206:TYR:OH	2.12	0.50
1:A:2151:A:H2'	1:A:2152:A:C8	2.47	0.50
1:A:2532:U:OP1	3:D:252:HIS:CE1	2.65	0.50
15:Q:278:ILE:O	15:Q:282:ILE:HD12	2.11	0.50
19:U:134:ARG:HA	19:U:137:ARG:NH1	2.27	0.50
3:D:206:TYR:N	3:D:206:TYR:CD1	2.79	0.49
4:E:91:GLU:HG2	4:E:92:PRO:HD2	1.93	0.49
8:J:49:PHE:O	8:J:53:PHE:HB2	2.12	0.49
20:V:122:LEU:HD12	20:V:133:ILE:HG13	1.94	0.49
1:A:2519:G:O6	3:D:230:SER:N	2.44	0.49
15:Q:227:LYS:NZ	15:Q:249:LEU:HD23	2.28	0.49
21:W:62:HIS:HA	21:W:94:GLU:HG3	1.94	0.49
29:5:176:TYR:HA	29:5:179:VAL:HG12	1.94	0.49
1:A:3133:A:N3	1:A:3134:C:H1'	2.28	0.49
5:F:103:GLN:HE22	5:F:249:ASN:HB2	1.77	0.49
12:N:202:GLN:O	12:N:206:GLU:HG3	2.12	0.49
29:5:409:GLU:H	29:5:409:GLU:CD	2.16	0.49
1:A:2691:U:H2'	1:A:2692:G:O4'	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:O:130:LEU:HD22	25:O:134:THR:HG23	1.93	0.49
23:Y:237:LYS:HE3	23:Y:237:LYS:HA	1.94	0.49
1:A:2275:U:H2'	1:A:2276:C:H6	1.76	0.49
1:A:2318:A:H2'	1:A:2319:A:C8	2.47	0.49
6:H:114:VAL:HG12	6:H:115:LYS:O	2.13	0.49
14:P:153:ALA:O	14:P:159:LYS:NZ	2.46	0.49
15:Q:279:GLU:OE1	15:Q:279:GLU:HA	2.13	0.49
23:Y:144:LYS:O	23:Y:148:GLU:HG3	2.13	0.49
24:Z:78:ARG:HD2	24:Z:116:LEU:HD21	1.93	0.49
1:A:2191:A:H4'	8:J:142:ARG:HG3	1.95	0.49
2:B:1659:U:H2'	2:B:1660:G:H8	1.78	0.49
10:L:119:ILE:HB	10:L:141:ALA:HA	1.93	0.49
15:Q:90:LEU:O	15:Q:94:ILE:HG13	2.13	0.49
3:D:220:VAL:HG12	3:D:221:ASN:H	1.78	0.49
1:A:2710:C:O2'	1:A:3220:A:N1	2.39	0.49
1:A:3217:A:H2'	4:E:292:HIS:CD2	2.48	0.49
3:D:66:TRP:HA	3:D:80:ARG:HH21	1.78	0.49
4:E:82:ASP:O	4:E:84:PRO:HD3	2.13	0.49
10:L:59:HIS:HB3	10:L:74:LEU:HD23	1.95	0.49
14:P:86:THR:HG23	14:P:89:HIS:H	1.78	0.49
20:V:81:ARG:HH11	20:V:81:ARG:HG2	1.78	0.49
26:1:20:MET:HA	26:1:58:GLU:HA	1.95	0.49
3:D:184:LEU:HD13	3:D:226:ILE:HD11	1.95	0.48
4:E:51:GLU:HG2	4:E:52:HIS:CE1	2.49	0.48
13:O:110:ILE:HG22	13:O:111:PRO:O	2.13	0.48
1:A:2285:U:H2'	1:A:2286:A:H8	1.78	0.48
1:A:2379:C:H2'	1:A:2380:C:O4'	2.12	0.48
18:T:55:ASN:ND2	18:T:74:TYR:O	2.45	0.48
18:T:108:PHE:CE2	25:O:116:LEU:HD12	2.47	0.48
23:Y:172:ILE:HD11	27:2:70:LEU:HD13	1.94	0.48
4:E:331:ASP:N	4:E:331:ASP:OD1	2.45	0.48
15:Q:150:ILE:HD11	15:Q:161:GLU:HB3	1.95	0.48
2:B:1664:G:H2'	2:B:1665:C:C6	2.48	0.48
29:5:146:HIS:O	29:5:194:LYS:NZ	2.41	0.48
1:A:3108:U:C2	4:E:264:ILE:HD13	2.48	0.48
2:B:1659:U:H2'	2:B:1660:G:C8	2.49	0.48
4:E:110:TRP:NE1	4:E:116:LYS:HG3	2.29	0.48
29:5:118:LYS:HZ1	29:5:256:PHE:H	1.60	0.48
29:5:336:LEU:HD21	29:5:362:THR:HG23	1.95	0.48
1:A:1707:C:H5	29:5:80:ARG:NH2	2.11	0.48
1:A:3181:U:OP2	1:A:3182:A:O2'	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:U:28:LEU:HD23	23:Y:67:PHE:CG	2.49	0.48
29:5:174:GLU:HG3	29:5:296:LYS:O	2.14	0.48
1:A:2285:U:H2'	1:A:2286:A:C8	2.48	0.48
4:E:187:ILE:HG12	4:E:318:THR:HG23	1.95	0.48
10:L:71:ASP:OD1	10:L:130:ARG:NH1	2.35	0.48
12:N:118:MET:HG2	12:N:167:CYS:HB3	1.96	0.48
20:V:62:VAL:HB	20:V:120:VAL:HG13	1.95	0.48
24:Z:123:LYS:O	24:Z:144:GLU:HA	2.14	0.48
1:A:1690:C:H2'	1:A:1691:C:C6	2.48	0.48
1:A:2173:G:H2'	1:A:2174:G:C8	2.48	0.48
2:B:1648:U:H2'	2:B:1649:C:C6	2.48	0.48
13:O:16:ARG:HD3	13:O:51:GLU:OE1	2.14	0.48
1:A:2405:C:H2'	29:5:302:HIS:NE2	2.27	0.48
1:A:2532:U:OP1	3:D:252:HIS:HE1	1.96	0.48
20:V:133:ILE:HD13	20:V:147:SER:HA	1.96	0.48
21:W:83:VAL:HG22	21:W:87:LYS:HA	1.96	0.48
22:X:108:GLN:HG2	22:X:110:PHE:CE1	2.49	0.48
22:X:159:MET:HB3	22:X:205:GLY:HA3	1.95	0.48
22:X:189:ASP:HA	22:X:192:LYS:HG3	1.95	0.48
1:A:2392:U:H2'	1:A:2394:A:H62	1.78	0.48
1:A:2457:A:C2	13:O:17:ARG:NH2	2.82	0.48
4:E:107:MET:HE3	4:E:121:LEU:HD21	1.96	0.48
21:W:100:THR:OG1	21:W:132:HIS:NE2	2.33	0.48
22:X:180:ASP:OD2	22:X:183:ARG:HD2	2.14	0.48
28:3:169:ARG:NH1	28:3:182:ASP:OD1	2.38	0.48
1:A:2521:A:C8	3:D:205:GLN:CD	2.87	0.47
4:E:154:ARG:HG2	4:E:162:LEU:HD22	1.95	0.47
13:O:38:ARG:NH1	13:O:82:GLU:HG3	2.10	0.47
1:A:2395:A:OP2	29:5:300:ARG:NH1	2.32	0.47
1:A:2521:A:H61	3:D:202:ARG:C	2.01	0.47
14:P:88:HIS:O	14:P:119:THR:OG1	2.32	0.47
21:W:121:PRO:HA	30:6:50:LYS:HA	1.96	0.47
22:X:148:THR:HG22	22:X:152:ASP:HB2	1.96	0.47
29:5:121:LEU:HD12	29:5:126:THR:HG23	1.95	0.47
10:L:128:ARG:HB2	10:L:129:LYS:HE2	1.95	0.47
14:P:163:SER:O	14:P:167:GLU:HG2	2.14	0.47
19:U:30:ARG:HH12	23:Y:122:GLN:HE22	1.63	0.47
1:A:2056:G:H2'	1:A:2057:C:H6	1.80	0.47
5:F:91:PRO:HG3	11:M:13:LEU:HD23	1.96	0.47
16:R:108:TYR:CE2	18:T:212:LEU:HB2	2.50	0.47
22:X:92:ALA:HB3	22:X:98:SER:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:5:165:GLN:OE1	29:5:175:THR:HG22	2.14	0.47
1:A:2006:C:H2'	1:A:2007:U:C6	2.49	0.47
1:A:2090:A:OP2	28:3:152:LYS:HE2	2.13	0.47
1:A:2403:G:P	3:D:105:ARG:HH12	2.38	0.47
1:A:2666:U:H2'	1:A:2667:U:O4'	2.15	0.47
1:A:2756:C:OP1	6:H:121:ASN:ND2	2.46	0.47
8:J:22:ALA:H	8:J:68:THR:HG22	1.78	0.47
10:L:77:ILE:O	10:L:80:GLN:HG3	2.15	0.47
13:O:60:ILE:HD13	13:O:97:TYR:CD2	2.49	0.47
14:P:102:VAL:HG11	14:P:141:ILE:HD11	1.96	0.47
29:5:201:ARG:HB3	29:5:232:THR:HG22	1.94	0.47
1:A:2409:A:O2'	29:5:270:ILE:O	2.31	0.47
1:A:2521:A:C6	3:D:202:ARG:HG3	2.49	0.47
2:B:1603:A:H2'	2:B:1604:G:C8	2.49	0.47
12:N:160:VAL:HG12	12:N:161:VAL:HG23	1.96	0.47
1:A:2015:G:H5'	1:A:2731:U:OP1	2.15	0.47
1:A:3212:C:H3'	1:A:3213:A:H8	1.80	0.47
3:D:123:GLU:HB2	29:5:258:PRO:HB3	1.95	0.47
5:F:76:ARG:HH11	5:F:76:ARG:CG	2.27	0.47
7:I:83:ARG:O	7:I:87:ALA:HB3	2.14	0.47
8:J:113:THR:HA	8:J:156:VAL:HB	1.95	0.47
12:N:221:ALA:HB3	12:N:223:MET:HG2	1.96	0.47
15:Q:76:LEU:HD22	15:Q:279:GLU:OE1	2.15	0.47
15:Q:209:GLN:N	15:Q:209:GLN:OE1	2.48	0.47
21:W:122:LYS:HD3	30:6:50:LYS:O	2.15	0.47
23:Y:69:ASP:HB3	23:Y:111:MET:SD	2.55	0.47
28:3:152:LYS:O	28:3:156:LYS:HG2	2.15	0.47
29:5:244:GLU:O	29:5:248:THR:HG23	2.14	0.47
12:N:176:LEU:HB3	12:N:189:ALA:HB2	1.97	0.47
1:A:2407:U:H2'	1:A:2408:U:C6	2.49	0.47
1:A:3124:U:OP2	1:A:3132:G:N1	2.37	0.47
9:K:7:ALA:HB3	9:K:8:PRO:HD3	1.97	0.47
9:K:176:TYR:HD1	9:K:178:LEU:H	1.62	0.47
1:A:1673:U:H5'	18:T:149:ARG:O	2.15	0.47
5:F:187:LEU:HD13	5:F:259:LEU:HD23	1.97	0.47
14:P:66:ARG:HB2	21:W:92:LEU:HD13	1.95	0.47
15:Q:224:MET:HG2	15:Q:229:TRP:CE2	2.50	0.47
5:F:270:GLU:O	5:F:274:LEU:HB2	2.14	0.46
15:Q:197:TYR:HE2	15:Q:223:LYS:HD2	1.79	0.46
29:5:242:ARG:HH12	29:5:245:ILE:HD12	1.78	0.46
1:A:2065:A:H1'	1:A:2066:C:C2	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2124:A:H5'	1:A:2125:C:O5'	2.16	0.46
5:F:116:THR:HG23	5:F:156:ARG:NH1	2.30	0.46
9:K:52:ASP:O	18:T:206:ARG:NH1	2.49	0.46
22:X:225:PRO:HD2	22:X:228:LYS:HZ3	1.77	0.46
22:X:225:PRO:O	22:X:229:ILE:HD12	2.16	0.46
26:1:21:VAL:HG22	26:1:29:CYS:SG	2.55	0.46
28:3:172:TYR:HB2	28:3:175:ASP:HB2	1.96	0.46
29:5:84:ASP:OD2	29:5:87:PHE:HD2	1.98	0.46
29:5:293:LEU:O	29:5:346:GLY:HA2	2.15	0.46
1:A:2015:G:C5'	1:A:2731:U:OP1	2.63	0.46
1:A:2520:C:HO2'	1:A:2529:U:H3	1.62	0.46
2:B:1615:A:H2'	2:B:1616:A:H8	1.80	0.46
12:N:50:LEU:HD12	12:N:122:TRP:CE2	2.51	0.46
18:T:47:ILE:HG13	18:T:49:ARG:NH1	2.31	0.46
29:5:170:ILE:HD11	29:5:389:LEU:HD21	1.98	0.46
1:A:2405:C:C5	29:5:299:LEU:HG	2.50	0.46
1:A:2661:U:H4'	1:A:3160:A:O2'	2.16	0.46
9:K:32:ALA:HA	9:K:108:ILE:HG12	1.97	0.46
15:Q:192:ASP:O	15:Q:225:LYS:HG2	2.15	0.46
23:Y:172:ILE:HD12	27:2:70:LEU:HD22	1.97	0.46
29:5:361:THR:HB	29:5:370:VAL:HG23	1.97	0.46
29:5:409:GLU:HA	29:5:412:ARG:HH12	1.80	0.46
1:A:2134:A:O2'	1:A:2135:A:H5'	2.16	0.46
5:F:82:LEU:HB3	5:F:87:PHE:CD2	2.50	0.46
8:J:43:GLY:HA3	8:J:76:ARG:HH12	1.79	0.46
11:M:273:TRP:CE2	11:M:284:LYS:HD3	2.50	0.46
18:T:203:LEU:O	18:T:206:ARG:HG2	2.16	0.46
1:A:2705:U:OP2	9:K:119:ARG:NH2	2.49	0.46
7:I:47:LEU:CD1	12:N:226:ILE:HG12	2.45	0.46
14:P:69:ARG:HD2	14:P:69:ARG:HA	1.76	0.46
29:5:109:HIS:HA	29:5:312:LYS:HE2	1.98	0.46
29:5:210:SER:HA	29:5:222:VAL:O	2.16	0.46
1:A:1788:C:N3	1:A:1916:G:O2'	2.44	0.46
6:H:100:GLN:HE22	6:H:128:LEU:HA	1.80	0.46
9:K:133:ILE:HB	9:K:138:LEU:HG	1.97	0.46
15:Q:75:PHE:CE2	15:Q:110:GLU:HG2	2.51	0.46
18:T:94:ILE:HA	18:T:97:MET:SD	2.56	0.46
18:T:129:VAL:HG21	18:T:137:ARG:HG2	1.97	0.46
22:X:118:ILE:CG2	22:X:165:MET:HG2	2.43	0.46
1:A:2245:A:H1'	1:A:2246:A:C8	2.51	0.46
1:A:3113:A:HO2'	1:A:3114:U:P	2.39	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:O:120:MET:HE2	13:O:120:MET:HA	1.98	0.46
1:A:1774:U:H1'	5:F:147:ARG:HG3	1.97	0.46
4:E:81:LYS:O	4:E:81:LYS:HD3	2.16	0.46
15:Q:161:GLU:OE2	15:Q:191:ARG:NH1	2.49	0.46
19:U:30:ARG:NH1	23:Y:122:GLN:HE22	2.12	0.46
22:X:77:ARG:HB2	22:X:77:ARG:NH1	2.31	0.46
23:Y:170:ARG:HG3	23:Y:176:ILE:HD12	1.98	0.46
4:E:152:VAL:HG21	4:E:157:LYS:NZ	2.31	0.46
9:K:168:ARG:HH22	9:K:172:PRO:HD3	1.81	0.46
11:M:141:VAL:HG12	11:M:143:GLU:H	1.81	0.46
17:S:174:PHE:HA	17:S:180:PHE:O	2.16	0.46
28:3:183:ARG:HG2	28:3:186:LEU:HD12	1.97	0.46
29:5:142:ASP:OD1	29:5:145:ASN:N	2.39	0.46
29:5:313:MET:HE1	29:5:353:HIS:HB2	1.98	0.46
1:A:1908:A:C2	1:A:2733:G:C1'	3.00	0.45
1:A:2181:A:N6	1:A:2206:C:O2'	2.48	0.45
1:A:2529:U:C4	3:D:205:GLN:O	2.69	0.45
2:B:1666:U:H2'	2:B:1667:C:C6	2.51	0.45
4:E:49:TRP:HE1	4:E:156:ARG:HH12	1.64	0.45
5:F:113:LYS:HG3	5:F:157:GLY:H	1.82	0.45
7:I:160:LYS:HG2	7:I:163:GLU:HB3	1.97	0.45
8:J:90:PHE:HE2	8:J:120:ILE:HD13	1.81	0.45
29:5:161:ALA:CB	29:5:180:ILE:HG13	2.46	0.45
1:A:2877:C:H2'	1:A:2878:G:O4'	2.17	0.45
5:F:241:ASN:OD1	5:F:256:HIS:NE2	2.38	0.45
6:H:126:GLN:N	6:H:126:GLN:OE1	2.49	0.45
7:I:119:HIS:HB3	7:I:121:ILE:HG22	1.98	0.45
11:M:94:LYS:HG3	11:M:129:ILE:HG22	1.98	0.45
28:3:162:THR:OG1	28:3:167:LYS:NZ	2.46	0.45
29:5:215:ARG:HG3	29:5:215:ARG:HH11	1.81	0.45
2:B:1603:A:H2'	2:B:1604:G:H8	1.81	0.45
14:P:77:PHE:CE1	14:P:80:ARG:HB2	2.51	0.45
15:Q:150:ILE:HA	15:Q:162:ILE:O	2.16	0.45
17:S:172:MET:HA	17:S:182:LYS:O	2.17	0.45
1:A:2327:U:H2'	1:A:2328:C:O4'	2.16	0.45
1:A:2386:C:H3'	1:A:2387:U:H5''	1.98	0.45
1:A:2668:A:H2'	1:A:2669:A:H8	1.81	0.45
4:E:158:ALA:HB3	4:E:161:ILE:HD12	1.98	0.45
10:L:98:PRO:HA	15:Q:162:ILE:HD11	1.99	0.45
13:O:35:GLY:HA3	13:O:42:ILE:HD11	1.99	0.45
16:R:75:ALA:O	16:R:78:GLU:HB2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:S:107:LYS:HE3	18:T:212:LEU:HD12	1.99	0.45
20:V:36:PRO:O	20:V:39:ILE:HG13	2.16	0.45
4:E:88:HIS:ND1	4:E:88:HIS:N	2.65	0.45
5:F:289:PRO:HG2	11:M:191:VAL:CG1	2.47	0.45
22:X:172:GLN:HA	22:X:188:TYR:HE2	1.80	0.45
23:Y:148:GLU:HA	23:Y:151:ASP:OD2	2.16	0.45
1:A:2161:A:N1	1:A:3182:A:C4	2.85	0.45
12:N:123:ARG:NH1	12:N:162:GLU:OE2	2.49	0.45
24:Z:84:ASP:O	24:Z:88:MET:HG3	2.16	0.45
29:5:188:CYS:O	29:5:191:GLN:HG2	2.16	0.45
1:A:1679:U:O2'	1:A:1680:A:OP2	2.27	0.45
3:D:127:ILE:CD1	29:5:114:LEU:HD11	2.46	0.45
4:E:143:ALA:HB3	4:E:181:ILE:O	2.16	0.45
9:K:104:VAL:O	9:K:108:ILE:HG13	2.17	0.45
15:Q:75:PHE:CD2	15:Q:110:GLU:HG2	2.51	0.45
15:Q:139:GLN:HB3	15:Q:150:ILE:CG2	2.47	0.45
20:V:123:VAL:HG13	20:V:128:ARG:HA	1.97	0.45
1:A:2455:U:H2'	1:A:2456:U:C6	2.52	0.45
4:E:159:THR:O	4:E:162:LEU:N	2.50	0.45
5:F:60:ARG:HG2	5:F:60:ARG:HH11	1.82	0.45
9:K:5:SER:HB2	9:K:8:PRO:HD2	1.99	0.45
19:U:79:ARG:NH1	19:U:87:ILE:HD12	2.32	0.45
22:X:150:LYS:HA	22:X:159:MET:HE3	1.99	0.45
29:5:354:PHE:HD2	29:5:417:LEU:HD22	1.82	0.45
30:6:46:GLU:H	30:6:46:GLU:CD	2.16	0.45
1:A:1792:G:O6	27:2:87:ARG:NH2	2.48	0.45
1:A:2369:A:H2'	1:A:2370:A:C8	2.52	0.45
1:A:2508:C:OP2	1:A:2538:C:H3'	2.16	0.45
1:A:2754:A:H5''	6:H:91:LYS:CE	2.47	0.45
11:M:187:VAL:CG2	11:M:265:ILE:HG23	2.47	0.45
22:X:115:TYR:CE1	22:X:117:GLU:HA	2.50	0.45
29:5:172:LYS:HB3	29:5:172:LYS:HZ2	1.81	0.45
29:5:202:ILE:HG22	29:5:285:TYR:CD2	2.52	0.45
29:5:335:VAL:HG13	29:5:370:VAL:HG21	1.99	0.45
1:A:2056:G:H2'	1:A:2057:C:C6	2.52	0.45
1:A:2529:U:O2'	3:D:206:TYR:CA	2.61	0.45
11:M:91:ARG:HH11	11:M:91:ARG:HG2	1.82	0.45
21:W:124:ALA:O	30:6:60:ARG:NH2	2.50	0.45
22:X:174:PRO:O	22:X:184:ARG:NH1	2.50	0.45
1:A:2745:A:C2	1:A:2746:U:H1'	2.52	0.44
1:A:2850:U:H2'	1:A:2851:A:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:N:72:ILE:HD11	12:N:96:TYR:CE1	2.52	0.44
15:Q:262:GLN:HA	15:Q:264:TRP:CZ3	2.52	0.44
16:R:81:LEU:HD13	16:R:117:ALA:HB1	2.00	0.44
1:A:2052:A:H2'	1:A:2053:U:O4'	2.17	0.44
1:A:3151:A:O2'	10:L:95:ARG:HD2	2.17	0.44
2:B:1622:A:H2'	2:B:1623:G:C8	2.53	0.44
4:E:307:TYR:HB3	4:E:310:LEU:HD21	1.98	0.44
9:K:99:ASP:OD1	9:K:99:ASP:N	2.49	0.44
10:L:31:ALA:HB1	10:L:66:VAL:HG23	1.99	0.44
29:5:100:LYS:NZ	29:5:271:TYR:O	2.50	0.44
1:A:1689:C:OP2	22:X:5:LYS:NZ	2.50	0.44
1:A:2099:U:H2'	1:A:2100:C:C6	2.52	0.44
3:D:74:ILE:HD13	3:D:148:LYS:HB2	1.98	0.44
3:D:166:SER:HG	3:D:182:HIS:CE1	2.36	0.44
4:E:109:LEU:O	4:E:117:HIS:N	2.44	0.44
4:E:130:LEU:O	4:E:189:PRO:HB3	2.18	0.44
5:F:232:GLU:OE1	5:F:236:ARG:NH2	2.51	0.44
11:M:76:ILE:HD13	11:M:76:ILE:HA	1.88	0.44
13:O:108:LEU:CD1	25:0:122:LEU:HD11	2.44	0.44
20:V:54:TRP:NE1	20:V:56:LEU:O	2.50	0.44
21:W:124:ALA:N	30:6:60:ARG:HH22	2.14	0.44
25:0:141:ILE:O	25:0:145:GLU:HB2	2.17	0.44
29:5:350:ARG:HD2	29:5:383:TYR:O	2.18	0.44
1:A:2459:A:N6	1:A:2668:A:O2'	2.48	0.44
2:B:1660:G:H2'	2:B:1661:A:C8	2.51	0.44
5:F:69:LEU:HD21	5:F:212:TRP:HH2	1.83	0.44
10:L:38:VAL:O	10:L:55:PRO:HG2	2.17	0.44
11:M:229:PHE:N	11:M:230:PRO:HD2	2.32	0.44
12:N:71:ASP:OD1	12:N:71:ASP:N	2.37	0.44
22:X:42:HIS:CG	22:X:86:ILE:HD11	2.52	0.44
1:A:2455:U:H2'	1:A:2456:U:H6	1.83	0.44
13:O:53:ARG:HD2	13:O:107:MET:HE3	1.99	0.44
14:P:86:THR:OG1	14:P:87:GLN:N	2.50	0.44
23:Y:109:ARG:HH21	23:Y:136:VAL:HA	1.83	0.44
24:Z:133:ASN:OD1	24:Z:133:ASN:N	2.51	0.44
1:A:2087:U:H2'	1:A:2088:U:C6	2.53	0.44
10:L:122:PRO:HA	10:L:143:ASN:O	2.17	0.44
18:T:125:GLN:HE21	18:T:137:ARG:HB3	1.80	0.44
29:5:189:LYS:O	29:5:192:ILE:HG13	2.16	0.44
1:A:2528:G:OP2	1:A:2528:G:H8	1.94	0.44
5:F:293:PHE:HB3	5:F:294:PRO:HD3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:K:168:ARG:NH2	9:K:172:PRO:HD3	2.33	0.44
10:L:49:SER:HB3	10:L:78:LYS:HZ2	1.81	0.44
13:O:41:ARG:HG3	13:O:124:GLU:HB3	1.98	0.44
17:S:98:VAL:HG23	17:S:135:LEU:HD22	2.00	0.44
22:X:214:LYS:NZ	22:X:214:LYS:HB3	2.33	0.44
22:X:235:ILE:O	22:X:239:GLN:HG2	2.16	0.44
29:5:242:ARG:NH1	29:5:245:ILE:HD12	2.32	0.44
1:A:1750:G:O2'	1:A:1751:A:OP2	2.36	0.44
1:A:1756:A:H2'	1:A:1757:A:C8	2.53	0.44
1:A:2510:U:C2	1:A:2511:C:C5	3.05	0.44
1:A:3201:A:O2'	1:A:3202:U:O5'	2.23	0.44
4:E:61:ILE:O	4:E:65:VAL:HG23	2.18	0.44
5:F:92:ARG:NH1	5:F:94:ASP:OD2	2.51	0.44
8:J:25:ARG:HA	8:J:65:PRO:HA	2.00	0.44
17:S:98:VAL:HG12	17:S:134:LEU:HD11	2.00	0.44
22:X:25:PRO:HG3	22:X:203:TRP:CE2	2.52	0.44
29:5:108:HIS:ND1	29:5:110:ARG:HB3	2.33	0.44
29:5:218:LEU:HG	29:5:262:ILE:HD13	1.99	0.44
11:M:276:ASN:ND2	11:M:279:ASP:OD1	2.51	0.44
12:N:114:ASP:HB2	12:N:118:MET:HE2	1.99	0.44
18:T:108:PHE:HE2	25:O:116:LEU:CD1	2.31	0.44
19:U:26:ILE:HD11	19:U:42:PHE:CD2	2.52	0.44
29:5:289:HIS:CE1	29:5:343:GLN:HE21	2.36	0.44
4:E:272:LYS:HD2	4:E:274:TRP:CZ2	2.53	0.43
4:E:347:PHE:CE2	15:Q:124:PRO:HA	2.53	0.43
6:H:97:ILE:HD11	6:H:137:LYS:HD3	1.98	0.43
22:X:36:ARG:H	22:X:36:ARG:HG3	1.65	0.43
25:O:96:ASN:OD1	25:O:99:LYS:HG3	2.18	0.43
1:A:2165:C:O2'	1:A:2166:C:O4'	2.34	0.43
1:A:2410:U:H4'	29:5:98:LEU:HD21	1.99	0.43
2:B:1607:U:HO2'	2:B:1608:G:P	2.37	0.43
5:F:281:ARG:NH2	11:M:128:THR:HG1	2.13	0.43
17:S:81:LYS:HB2	17:S:81:LYS:HE3	1.68	0.43
18:T:141:TYR:CE1	18:T:179:VAL:HB	2.53	0.43
1:A:1848:U:H2'	1:A:1849:C:O4'	2.18	0.43
1:A:2686:G:H5'	1:A:3104:U:H4'	2.00	0.43
17:S:120:LEU:HB3	17:S:122:LEU:HD12	2.00	0.43
20:V:128:ARG:O	20:V:129:LYS:HD2	2.18	0.43
22:X:36:ARG:HH12	22:X:149:PRO:HB2	1.83	0.43
1:A:1871:A:N6	1:A:1901:C:H5'	2.33	0.43
1:A:2043:C:H2'	1:A:2044:A:O4'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1625:A:OP1	30:6:56:ARG:NH1	2.50	0.43
2:B:1643:A:H2'	2:B:1644:G:O4'	2.18	0.43
4:E:211:ILE:HG12	4:E:292:HIS:HB3	2.01	0.43
4:E:292:HIS:ND1	4:E:293:LYS:O	2.42	0.43
5:F:220:ASP:O	5:F:245:ALA:N	2.51	0.43
7:I:96:ILE:HD11	7:I:153:LEU:HD22	2.00	0.43
13:O:99:ASP:OD1	13:O:99:ASP:N	2.51	0.43
22:X:177:HIS:HB3	22:X:180:ASP:HB3	2.00	0.43
28:3:165:PHE:O	28:3:168:ARG:HG2	2.18	0.43
29:5:69:TRP:HD1	29:5:70:LEU:HD13	1.83	0.43
1:A:1870:A:N6	1:A:1902:C:H2'	2.33	0.43
1:A:2016:C:O2'	1:A:2932:G:H4'	2.18	0.43
3:D:121:PRO:HB3	3:D:166:SER:HA	2.00	0.43
13:O:40:GLU:OE2	13:O:88:LYS:NZ	2.40	0.43
19:U:144:ARG:HD2	19:U:144:ARG:HA	1.70	0.43
29:5:300:ARG:N	29:5:301:PRO:HD2	2.33	0.43
1:A:2161:A:C4	1:A:3182:A:C6	3.06	0.43
1:A:2187:C:H2'	1:A:2188:A:C8	2.54	0.43
17:S:161:ILE:HD11	17:S:194:ARG:HB2	2.00	0.43
22:X:103:LYS:HG3	22:X:104:VAL:N	2.34	0.43
22:X:115:TYR:HD2	22:X:122:LYS:CD	2.31	0.43
22:X:130:ARG:HA	22:X:133:ASP:OD2	2.18	0.43
29:5:104:CYS:SG	29:5:105:TYR:N	2.92	0.43
1:A:2740:A:H1'	1:A:2922:A:OP2	2.18	0.43
10:L:49:SER:HB3	10:L:78:LYS:NZ	2.34	0.43
10:L:98:PRO:N	15:Q:162:ILE:HD11	2.33	0.43
13:O:131:PRO:HD3	25:O:137:ILE:HD12	2.01	0.43
1:A:2528:G:O5'	3:D:208:ARG:NH2	2.52	0.43
1:A:2529:U:O4	3:D:205:GLN:HB3	2.18	0.43
10:L:58:ILE:HD11	10:L:76:ALA:HB2	2.00	0.43
14:P:154:ALA:HA	14:P:159:LYS:HZ1	1.84	0.43
22:X:108:GLN:HG2	22:X:110:PHE:CZ	2.54	0.43
3:D:205:GLN:HB2	3:D:206:TYR:CE1	2.53	0.43
10:L:138:LEU:HD23	10:L:138:LEU:O	2.19	0.43
11:M:142:GLU:H	11:M:142:GLU:CD	2.23	0.43
15:Q:201:ASP:O	15:Q:204:MET:HG2	2.18	0.43
15:Q:221:LYS:HE3	15:Q:244:ARG:HG2	2.01	0.43
16:R:35:LYS:HD2	16:R:45:THR:HG21	2.01	0.43
22:X:109:LEU:HD13	22:X:126:THR:HG21	2.01	0.43
22:X:213:GLU:HA	22:X:216:ARG:HG2	2.00	0.43
24:Z:66:LEU:HD12	24:Z:122:LEU:HD23	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1675:A:H3'	1:A:1676:A:H8	1.84	0.43
1:A:2674:U:H2'	1:A:2675:G:O4'	2.19	0.43
1:A:3204:C:H2'	1:A:3205:C:O4'	2.19	0.43
15:Q:118:ARG:HB2	15:Q:134:LEU:HD23	2.00	0.43
16:R:100:LYS:O	16:R:104:ASP:OD1	2.37	0.43
24:Z:140:LYS:HE3	24:Z:140:LYS:HB3	1.73	0.43
1:A:2145:G:OP1	17:S:169:ARG:NH2	2.52	0.42
1:A:2870:G:H5'	28:3:140:ARG:HD2	2.01	0.42
4:E:179:PHE:HE1	4:E:300:LYS:HB3	1.83	0.42
4:E:269:TYR:CE1	4:E:303:LYS:HD3	2.54	0.42
11:M:211:VAL:N	11:M:212:PRO:HD2	2.34	0.42
21:W:95:GLY:HA3	21:W:134:VAL:O	2.18	0.42
29:5:295:ASP:OD2	29:5:304:LEU:N	2.51	0.42
1:A:1884:G:N3	1:A:1895:C:O2'	2.48	0.42
1:A:2142:A:C4	1:A:2262:C:H5'	2.54	0.42
1:A:2171:U:C2	1:A:2173:G:H4'	2.54	0.42
5:F:72:PHE:CZ	5:F:205:GLU:HB3	2.54	0.42
10:L:98:PRO:CA	15:Q:162:ILE:HD11	2.48	0.42
23:Y:162:ARG:CZ	23:Y:162:ARG:HB3	2.49	0.42
29:5:162:ARG:HD3	29:5:176:TYR:CD1	2.54	0.42
1:A:2129:G:O4'	1:A:2152:A:H2	2.01	0.42
1:A:3128:A:O2'	1:A:3129:A:H8	2.01	0.42
1:A:3133:A:H5'	1:A:3134:C:OP2	2.18	0.42
1:A:3226:G:C5'	4:E:174:GLN:HE21	2.33	0.42
4:E:208:ALA:HB2	4:E:297:VAL:HG12	2.00	0.42
5:F:110:SER:O	5:F:158:PRO:HA	2.20	0.42
17:S:85:GLU:HA	17:S:88:VAL:HG12	2.02	0.42
29:5:221:GLN:NE2	29:5:272:ASP:O	2.52	0.42
1:A:1916:G:N2	1:A:2003:A:H2	2.11	0.42
1:A:2740:A:H1'	1:A:2922:A:P	2.59	0.42
3:D:143:ALA:C	29:5:259:ILE:HD12	2.38	0.42
7:I:121:ILE:HG13	7:I:156:SER:HB2	2.01	0.42
8:J:69:LYS:HD3	8:J:129:ALA:HB1	2.02	0.42
9:K:155:LEU:HD23	9:K:155:LEU:HA	1.86	0.42
13:O:30:ARG:HD2	13:O:78:PHE:O	2.19	0.42
15:Q:162:ILE:HD13	15:Q:162:ILE:HA	1.85	0.42
25:0:136:GLU:OE1	25:0:139:ARG:NE	2.43	0.42
29:5:118:LYS:HZ1	29:5:256:PHE:HD1	1.67	0.42
1:A:1834:U:C4	18:T:206:ARG:HA	2.54	0.42
1:A:1837:C:H2'	1:A:1838:C:O4'	2.20	0.42
13:O:110:ILE:HD13	13:O:110:ILE:HG21	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:V:118:ARG:HA	20:V:118:ARG:HD3	1.85	0.42
24:Z:87:LYS:HG2	24:Z:92:GLU:OE2	2.20	0.42
1:A:3117:C:H2'	1:A:3118:U:H6	1.85	0.42
10:L:31:ALA:HA	10:L:67:GLY:O	2.20	0.42
10:L:136:LYS:O	10:L:140:ILE:HD13	2.19	0.42
11:M:136:TYR:O	11:M:157:GLN:HG2	2.20	0.42
21:W:53:ILE:HG21	21:W:56:MET:SD	2.60	0.42
28:3:136:LYS:HD3	28:3:140:ARG:NE	2.35	0.42
29:5:384:GLN:HB2	29:5:405:GLY:HA3	1.99	0.42
1:A:2796:G:C1'	6:H:87:LYS:HZ1	2.32	0.42
1:A:3214:C:H2'	1:A:3215:C:H6	1.84	0.42
6:H:84:GLU:OE2	6:H:89:ARG:NH2	2.35	0.42
13:O:33:LEU:HD21	13:O:59:LEU:HD22	2.02	0.42
15:Q:115:SER:HA	15:Q:180:GLU:OE1	2.20	0.42
17:S:132:LYS:HA	17:S:148:LEU:HD22	2.01	0.42
19:U:65:VAL:HG13	19:U:97:VAL:HG13	2.01	0.42
29:5:181:VAL:O	29:5:185:ILE:HD12	2.19	0.42
29:5:351:VAL:HA	29:5:381:LEU:HA	2.02	0.42
1:A:2754:A:H5''	6:H:91:LYS:NZ	2.35	0.42
4:E:179:PHE:CE1	4:E:300:LYS:HB3	2.54	0.42
9:K:100:PRO:HG2	9:K:129:PRO:HB3	2.01	0.42
10:L:102:SER:OG	10:L:104:ASN:OD1	2.33	0.42
15:Q:236:PRO:HG2	15:Q:260:TRP:O	2.20	0.42
29:5:52:ILE:HB	29:5:55:LEU:HD11	2.00	0.42
29:5:125:LYS:HG2	29:5:371:LYS:HG2	2.01	0.42
1:A:2515:U:H2'	1:A:2516:C:C6	2.55	0.42
1:A:2521:A:N1	3:D:202:ARG:NE	2.68	0.42
5:F:91:PRO:O	5:F:176:VAL:HG13	2.20	0.42
25:0:119:LYS:O	25:0:120:HIS:CG	2.72	0.42
1:A:2114:C:H2'	1:A:2115:U:H6	1.84	0.42
1:A:2521:A:N9	3:D:205:GLN:OE1	2.51	0.42
3:D:146:SER:HA	29:5:263:ILE:HD13	2.01	0.42
6:H:123:LEU:HD13	6:H:128:LEU:HB2	2.02	0.42
10:L:98:PRO:HA	15:Q:162:ILE:CD1	2.50	0.42
15:Q:162:ILE:HG21	15:Q:164:PHE:CZ	2.55	0.42
16:R:81:LEU:HD11	16:R:121:SER:OG	2.20	0.42
20:V:66:GLU:HB2	20:V:119:GLN:HG2	2.02	0.42
24:Z:70:THR:HG23	24:Z:95:HIS:HA	2.00	0.42
29:5:68:PRO:HG2	29:5:69:TRP:CE3	2.55	0.42
1:A:2409:A:H2'	1:A:2410:U:C6	2.55	0.41
1:A:2529:U:N1	3:D:205:GLN:O	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3127:G:H2'	1:A:3128:A:H2'	2.02	0.41
4:E:248:ILE:HD13	4:E:252:TRP:NE1	2.35	0.41
6:H:53:THR:OG1	6:H:86:THR:OG1	2.27	0.41
6:H:112:VAL:HG23	6:H:114:VAL:HG23	2.02	0.41
7:I:47:LEU:HD12	12:N:226:ILE:CG1	2.50	0.41
12:N:216:GLU:OE2	12:N:238:LYS:HD2	2.20	0.41
23:Y:84:ALA:HB2	23:Y:134:LYS:HB3	2.01	0.41
23:Y:172:ILE:HG23	23:Y:198:ARG:HB2	2.01	0.41
25:O:152:PRO:HG3	25:O:173:ARG:CZ	2.50	0.41
13:O:134:PRO:HD3	25:O:130:VAL:HG21	2.02	0.41
21:W:125:VAL:HG23	30:6:60:ARG:HE	1.85	0.41
28:3:137:THR:HG23	28:3:140:ARG:H	1.84	0.41
29:5:142:ASP:OD1	29:5:142:ASP:C	2.57	0.41
1:A:2751:G:H2'	1:A:2752:C:C6	2.55	0.41
5:F:107:LYS:HB2	5:F:107:LYS:HE2	1.72	0.41
13:O:38:ARG:NH2	13:O:84:ASP:OD2	2.54	0.41
13:O:46:TRP:CG	13:O:119:LYS:HD2	2.56	0.41
14:P:47:GLU:OE2	21:W:141:THR:HB	2.20	0.41
15:Q:188:LEU:HD22	15:Q:191:ARG:HH21	1.86	0.41
26:1:18:VAL:HG23	26:1:20:MET:SD	2.60	0.41
1:A:2239:A:O3'	9:K:29:GLY:HA3	2.21	0.41
8:J:125:ALA:HB2	8:J:140:VAL:HG21	2.01	0.41
10:L:74:LEU:HD12	10:L:81:LYS:HB2	2.03	0.41
18:T:72:GLU:OE2	18:T:177:LYS:NZ	2.29	0.41
18:T:73:ILE:HG23	18:T:132:HIS:ND1	2.35	0.41
22:X:218:LEU:HD23	22:X:218:LEU:HA	1.85	0.41
1:A:3150:U:H2'	1:A:3151:A:H8	1.85	0.41
6:H:94:LEU:HD23	6:H:116:LYS:HA	2.02	0.41
10:L:43:ASN:HB2	10:L:118:ARG:H	1.86	0.41
15:Q:121:THR:HG23	15:Q:131:SER:OG	2.20	0.41
17:S:161:ILE:HD13	17:S:161:ILE:HG21	1.81	0.41
21:W:118:THR:HG23	30:6:51:TYR:O	2.20	0.41
29:5:355:LEU:HD23	29:5:376:VAL:HG12	2.03	0.41
1:A:2110:A:N6	12:N:96:TYR:HB2	2.36	0.41
5:F:83:HIS:HB3	5:F:86:VAL:CG1	2.47	0.41
8:J:18:GLY:N	8:J:72:VAL:O	2.53	0.41
10:L:126:SER:HA	15:Q:125:TYR:CE2	2.56	0.41
11:M:16:LEU:HD23	11:M:16:LEU:HA	1.93	0.41
18:T:134:VAL:HG13	18:T:180:GLU:HG3	2.02	0.41
22:X:36:ARG:NH1	22:X:149:PRO:HB2	2.35	0.41
24:Z:55:LYS:HB2	24:Z:55:LYS:NZ	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2521:A:OP2	3:D:202:ARG:NH2	2.51	0.41
1:A:2687:C:H2'	1:A:2688:C:H6	1.86	0.41
1:A:3113:A:O2'	1:A:3114:U:OP1	2.36	0.41
6:H:94:LEU:HD11	6:H:96:LEU:HD13	2.01	0.41
6:H:99:THR:HG23	6:H:100:GLN:HG3	2.01	0.41
8:J:49:PHE:O	8:J:53:PHE:CB	2.68	0.41
12:N:109:ILE:O	12:N:113:MET:HB2	2.20	0.41
30:6:39:ASP:N	30:6:39:ASP:OD1	2.51	0.41
1:A:1857:U:H2'	1:A:1858:G:C8	2.56	0.41
1:A:2081:U:H2'	1:A:2082:G:C8	2.56	0.41
1:A:2519:G:N2	3:D:206:TYR:HB3	2.36	0.41
2:B:1637:C:H2'	2:B:1638:U:O4'	2.21	0.41
12:N:55:ARG:HG2	12:N:99:TRP:CD2	2.55	0.41
12:N:113:MET:HE2	12:N:113:MET:HA	2.03	0.41
19:U:11:ARG:HH21	23:Y:185:VAL:HA	1.85	0.41
20:V:184:GLU:HG2	20:V:186:THR:HG23	2.02	0.41
1:A:1794:A:OP1	5:F:142:ARG:NH2	2.33	0.41
1:A:2664:U:H2'	1:A:2665:U:C6	2.56	0.41
1:A:3108:U:H4'	1:A:3109:U:OP1	2.19	0.41
4:E:52:HIS:HA	13:O:139:ASP:OD2	2.21	0.41
4:E:104:LEU:HD22	15:Q:91:LYS:HB2	2.02	0.41
6:H:95:GLU:OE2	6:H:111:LEU:HB2	2.21	0.41
9:K:112:LEU:HD11	9:K:122:MET:HE3	2.03	0.41
15:Q:249:LEU:HD11	15:Q:253:GLN:HB2	2.02	0.41
20:V:63:GLU:OE1	20:V:73:GLN:HG3	2.21	0.41
20:V:93:THR:HA	20:V:111:SER:O	2.21	0.41
21:W:72:HIS:O	21:W:74:ARG:N	2.51	0.41
22:X:35:GLU:N	22:X:35:GLU:OE1	2.54	0.41
29:5:124:THR:HG21	29:5:357:PHE:HZ	1.86	0.41
29:5:224:GLY:HA2	29:5:316:PHE:CZ	2.56	0.41
1:A:1672:C:H2'	1:A:1673:U:O4'	2.21	0.41
1:A:2127:A:H4'	1:A:2251:A:C6	2.56	0.41
1:A:2286:A:H2'	1:A:2287:U:C6	2.55	0.41
2:B:1633:U:H2'	2:B:1634:A:O4'	2.20	0.41
4:E:116:LYS:HB3	4:E:116:LYS:HE2	1.91	0.41
10:L:51:TYR:CG	10:L:78:LYS:HG3	2.55	0.41
18:T:54:LYS:HD2	18:T:74:TYR:CE2	2.56	0.41
22:X:238:LEU:HD23	22:X:238:LEU:HA	1.93	0.41
1:A:1750:G:O2'	1:A:1751:A:P	2.78	0.40
1:A:2864:U:OP1	21:W:50:ARG:HG2	2.21	0.40
4:E:252:TRP:HB3	9:K:84:PRO:HD3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:300:LYS:HB2	4:E:300:LYS:HE3	1.70	0.40
11:M:78:ILE:HD13	28:3:124:ARG:HD2	2.03	0.40
22:X:224:VAL:HA	22:X:225:PRO:HD3	1.97	0.40
25:0:136:GLU:OE1	25:0:136:GLU:HA	2.22	0.40
11:M:132:LEU:O	11:M:133:LYS:CB	2.69	0.40
12:N:238:LYS:HB3	12:N:240:LYS:HD2	2.02	0.40
15:Q:118:ARG:HB3	15:Q:175:GLN:HG2	2.04	0.40
20:V:39:ILE:HG13	20:V:39:ILE:H	1.74	0.40
1:A:1754:G:N7	28:3:105:LYS:HE2	2.36	0.40
1:A:2400:C:O2'	1:A:2401:A:O5'	2.32	0.40
4:E:222:TRP:CD1	4:E:256:LYS:HB3	2.56	0.40
6:H:100:GLN:NE2	6:H:128:LEU:HA	2.36	0.40
11:M:178:PHE:O	11:M:203:ARG:NH1	2.53	0.40
15:Q:117:LEU:HD12	15:Q:174:ILE:HG23	2.04	0.40
15:Q:154:VAL:HA	15:Q:159:GLY:HA2	2.03	0.40
25:0:137:ILE:HG12	25:0:177:ARG:HD2	2.02	0.40
1:A:1861:U:H2'	1:A:1862:U:C6	2.57	0.40
1:A:2180:A:H4'	1:A:2181:A:C8	2.56	0.40
1:A:2343:G:O5'	19:U:78:LYS:HE3	2.21	0.40
5:F:49:ARG:NH2	5:F:270:GLU:OE1	2.52	0.40
23:Y:235:LEU:HD12	23:Y:235:LEU:HA	1.74	0.40
1:A:2081:U:H1'	24:Z:105:SER:HB2	2.03	0.40
1:A:2697:G:O2'	1:A:2698:G:H5'	2.22	0.40
3:D:225:ILE:HA	3:D:234:MET:O	2.20	0.40
10:L:141:ALA:HB3	10:L:144:PHE:HE1	1.86	0.40
11:M:187:VAL:HG22	11:M:265:ILE:HG23	2.03	0.40
11:M:202:LYS:HB2	11:M:263:ARG:HB3	2.02	0.40
12:N:105:MET:HG3	12:N:179:VAL:HG13	2.04	0.40
12:N:249:LYS:HD2	12:N:249:LYS:H	1.86	0.40
22:X:91:TYR:CD2	22:X:96:LYS:HA	2.57	0.40
22:X:168:ARG:HH11	22:X:168:ARG:HG3	1.86	0.40
22:X:177:HIS:ND1	22:X:183:ARG:HD3	2.36	0.40
26:1:17:LEU:HD22	26:1:32:THR:O	2.21	0.40
27:2:59:LYS:O	27:2:63:LYS:HG3	2.22	0.40
29:5:253:LEU:H	29:5:253:LEU:HD23	1.86	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	D	171/305 (56%)	162 (95%)	9 (5%)	0	100	100
4	E	281/348 (81%)	270 (96%)	11 (4%)	0	100	100
5	F	236/311 (76%)	224 (95%)	12 (5%)	0	100	100
6	H	81/267 (30%)	76 (94%)	5 (6%)	0	100	100
7	I	154/261 (59%)	142 (92%)	12 (8%)	0	100	100
8	J	138/192 (72%)	122 (88%)	16 (12%)	0	100	100
9	K	175/178 (98%)	170 (97%)	5 (3%)	0	100	100
10	L	113/145 (78%)	104 (92%)	9 (8%)	0	100	100
11	M	252/296 (85%)	245 (97%)	7 (3%)	0	100	100
12	N	167/251 (66%)	164 (98%)	3 (2%)	0	100	100
13	O	150/175 (86%)	146 (97%)	4 (3%)	0	100	100
14	P	139/180 (77%)	135 (97%)	4 (3%)	0	100	100
15	Q	215/292 (74%)	206 (96%)	7 (3%)	2 (1%)	17	32
16	R	138/149 (93%)	135 (98%)	3 (2%)	0	100	100
17	S	154/205 (75%)	149 (97%)	5 (3%)	0	100	100
18	T	155/206 (75%)	153 (99%)	2 (1%)	0	100	100
19	U	135/153 (88%)	130 (96%)	5 (4%)	0	100	100
20	V	188/216 (87%)	179 (95%)	9 (5%)	0	100	100
21	W	99/148 (67%)	96 (97%)	3 (3%)	0	100	100
22	X	241/256 (94%)	234 (97%)	7 (3%)	0	100	100
23	Y	174/250 (70%)	169 (97%)	5 (3%)	0	100	100
24	Z	118/161 (73%)	113 (96%)	5 (4%)	0	100	100
25	0	106/188 (56%)	105 (99%)	1 (1%)	0	100	100
26	1	46/65 (71%)	45 (98%)	1 (2%)	0	100	100
27	2	36/92 (39%)	36 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	3	93/188 (50%)	91 (98%)	2 (2%)	0	100	100
29	5	367/423 (87%)	348 (95%)	19 (5%)	0	100	100
30	6	33/380 (9%)	31 (94%)	2 (6%)	0	100	100
All	All	4355/6281 (69%)	4180 (96%)	173 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
15	Q	156	GLU
15	Q	228	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	
3	D	145/245 (59%)	143 (99%)	2 (1%)	67	80
4	E	246/290 (85%)	235 (96%)	11 (4%)	27	47
5	F	210/262 (80%)	199 (95%)	11 (5%)	23	39
6	H	78/228 (34%)	74 (95%)	4 (5%)	24	41
7	I	145/232 (62%)	144 (99%)	1 (1%)	84	90
8	J	113/150 (75%)	113 (100%)	0	100	100
9	K	155/156 (99%)	151 (97%)	4 (3%)	46	66
10	L	98/124 (79%)	94 (96%)	4 (4%)	30	50
11	M	223/249 (90%)	211 (95%)	12 (5%)	22	38
12	N	147/211 (70%)	134 (91%)	13 (9%)	10	18
13	O	133/150 (89%)	130 (98%)	3 (2%)	50	70
14	P	123/155 (79%)	116 (94%)	7 (6%)	20	36
15	Q	199/256 (78%)	188 (94%)	11 (6%)	21	37
16	R	118/126 (94%)	115 (98%)	3 (2%)	47	67
17	S	141/180 (78%)	133 (94%)	8 (6%)	20	36

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
18	T	141/176 (80%)	140 (99%)	1 (1%)	84	90
19	U	124/135 (92%)	121 (98%)	3 (2%)	49	68
20	V	172/191 (90%)	164 (95%)	8 (5%)	26	45
21	W	83/119 (70%)	81 (98%)	2 (2%)	49	68
22	X	219/229 (96%)	215 (98%)	4 (2%)	59	75
23	Y	159/223 (71%)	148 (93%)	11 (7%)	15	27
24	Z	111/147 (76%)	105 (95%)	6 (5%)	22	38
25	0	97/164 (59%)	93 (96%)	4 (4%)	30	50
26	1	45/60 (75%)	40 (89%)	5 (11%)	6	10
27	2	34/72 (47%)	34 (100%)	0	100	100
28	3	88/166 (53%)	83 (94%)	5 (6%)	20	36
29	5	333/368 (90%)	311 (93%)	22 (7%)	16	29
30	6	33/332 (10%)	30 (91%)	3 (9%)	9	17
All	All	3913/5396 (72%)	3745 (96%)	168 (4%)	33	48

All (168) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	147	ARG
3	D	206	TYR
4	E	81	LYS
4	E	88	HIS
4	E	107	MET
4	E	167	GLU
4	E	168	LEU
4	E	204	VAL
4	E	221	ARG
4	E	308	LYS
4	E	313	ASN
4	E	325	GLU
4	E	345	ILE
5	F	49	ARG
5	F	70	ARG
5	F	106	PHE
5	F	108	ARG
5	F	125	ARG
5	F	170	ARG

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Mol	Chain	Res	Type
5	F	191	ASP
5	F	214	ASP
5	F	218	LEU
5	F	242	LEU
5	F	252	SER
6	H	100	GLN
6	H	123	LEU
6	H	138	LYS
6	H	139	LEU
7	I	146	LEU
9	K	67	PHE
9	K	111	MET
9	K	156	ASP
9	K	176	TYR
10	L	66	VAL
10	L	81	LYS
10	L	89	HIS
10	L	90	CYS
11	M	39	ARG
11	M	117	ASP
11	M	118	LEU
11	M	127	VAL
11	M	134	ARG
11	M	146	ASP
11	M	162	LEU
11	M	175	THR
11	M	219	ASN
11	M	222	TYR
11	M	248	THR
11	M	292	LYS
12	N	51	ARG
12	N	71	ASP
12	N	96	TYR
12	N	104	MET
12	N	105	MET
12	N	172	VAL
12	N	198	MET
12	N	202	GLN
12	N	216	GLU
12	N	224	LEU
12	N	238	LYS
12	N	244	LYS

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Mol	Chain	Res	Type
12	N	249	LYS
13	O	18	MET
13	O	20	LEU
13	O	137	ARG
14	P	74	SER
14	P	75	ARG
14	P	88	HIS
14	P	115	HIS
14	P	120	ARG
14	P	134	GLN
14	P	144	MET
15	Q	102	ARG
15	Q	106	LEU
15	Q	151	LEU
15	Q	156	GLU
15	Q	169	PRO
15	Q	170	ARG
15	Q	175	GLN
15	Q	204	MET
15	Q	223	LYS
15	Q	247	LEU
15	Q	289	SER
16	R	10	LEU
16	R	13	ARG
16	R	59	LEU
17	S	51	VAL
17	S	84	ASN
17	S	104	ARG
17	S	112	ASP
17	S	119	GLU
17	S	129	ARG
17	S	173	ARG
17	S	181	LYS
18	T	109	ASN
19	U	24	PHE
19	U	28	LEU
19	U	46	MET
20	V	92	ASN
20	V	115	LEU
20	V	126	MET
20	V	145	ARG
20	V	150	SER

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Mol	Chain	Res	Type
20	V	172	ASP
20	V	208	ARG
20	V	209	LYS
21	W	88	CYS
21	W	101	LYS
22	X	30	ARG
22	X	64	ASP
22	X	152	ASP
22	X	210	GLU
23	Y	70	ASP
23	Y	72	LYS
23	Y	109	ARG
23	Y	123	ARG
23	Y	126	MET
23	Y	153	LEU
23	Y	169	ARG
23	Y	175	ARG
23	Y	190	LEU
23	Y	229	LYS
23	Y	237	LYS
24	Z	55	LYS
24	Z	78	ARG
24	Z	105	SER
24	Z	110	LEU
24	Z	123	LYS
24	Z	144	GLU
25	0	99	LYS
25	0	104	LYS
25	0	108	ASP
25	0	185	PHE
26	1	20	MET
26	1	30	PHE
26	1	34	ARG
26	1	38	ARG
26	1	61	LYS
28	3	116	ARG
28	3	130	LYS
28	3	182	ASP
28	3	186	LEU
28	3	187	LYS
29	5	55	LEU
29	5	82	TYR

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Mol	Chain	Res	Type
29	5	98	LEU
29	5	118	LYS
29	5	128	LEU
29	5	142	ASP
29	5	144	ARG
29	5	147	ILE
29	5	148	GLU
29	5	173	ARG
29	5	180	ILE
29	5	212	THR
29	5	229	ARG
29	5	230	LEU
29	5	293	LEU
29	5	294	LEU
29	5	326	ARG
29	5	340	VAL
29	5	358	GLN
29	5	372	ASN
29	5	373	LEU
29	5	379	ASP
30	6	52	ARG
30	6	55	ASP
30	6	60	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
3	D	252	HIS
4	E	174	GLN
11	M	84	ASN
16	R	89	ASN
22	X	93	ASN
23	Y	99	HIS
29	5	302	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	917/1559 (58%)	213 (23%)	13 (1%)
2	B	51/69 (73%)	12 (23%)	1 (1%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
All	All	968/1628 (59%)	225 (23%)	14 (1%)

All (225) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	1676	A
1	A	1677	C
1	A	1678	C
1	A	1679	U
1	A	1681	G
1	A	1689	C
1	A	1694	U
1	A	1699	C
1	A	1700	U
1	A	1704	U
1	A	1707	C
1	A	1708	A
1	A	1748	G
1	A	1750	G
1	A	1751	A
1	A	1770	G
1	A	1781	A
1	A	1794	A
1	A	1803	A
1	A	1804	A
1	A	1805	A
1	A	1806	U
1	A	1812	C
1	A	1821	A
1	A	1823	A
1	A	1824	U
1	A	1827	C
1	A	1828	A
1	A	1829	A
1	A	1832	A
1	A	1836	A
1	A	1843	U
1	A	1844	A
1	A	1850	U
1	A	1867	A
1	A	1869	A
1	A	1871	A

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Mol	Chain	Res	Type
1	A	1872	U
1	A	1878	U
1	A	1882	A
1	A	1883	G
1	A	1887	A
1	A	1888	G
1	A	1892	A
1	A	1893	A
1	A	1901	C
1	A	1902	C
1	A	1903	C
1	A	2017	U
1	A	2020	U
1	A	2021	U
1	A	2022	G
1	A	2030	U
1	A	2031	A
1	A	2032	G
1	A	2053	U
1	A	2055	U
1	A	2060	A
1	A	2061	C
1	A	2065	A
1	A	2074	A
1	A	2079	C
1	A	2083	U
1	A	2085	A
1	A	2093	U
1	A	2095	U
1	A	2098	G
1	A	2111	C
1	A	2113	G
1	A	2124	A
1	A	2126	U
1	A	2132	A
1	A	2142	A
1	A	2147	G
1	A	2154	A
1	A	2158	U
1	A	2159	U
1	A	2160	A
1	A	2161	A

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Mol	Chain	Res	Type
1	A	2166	C
1	A	2168	U
1	A	2171	U
1	A	2172	A
1	A	2173	G
1	A	2174	G
1	A	2180	A
1	A	2181	A
1	A	2182	G
1	A	2183	C
1	A	2187	C
1	A	2190	C
1	A	2193	U
1	A	2194	U
1	A	2195	A
1	A	2197	G
1	A	2198	A
1	A	2200	A
1	A	2204	U
1	A	2207	A
1	A	2210	C
1	A	2216	A
1	A	2237	A
1	A	2239	A
1	A	2241	A
1	A	2242	U
1	A	2243	A
1	A	2244	U
1	A	2245	A
1	A	2259	C
1	A	2261	C
1	A	2262	C
1	A	2263	C
1	A	2264	A
1	A	2283	C
1	A	2284	C
1	A	2297	A
1	A	2299	U
1	A	2300	G
1	A	2322	C
1	A	2329	C
1	A	2332	C

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Mol	Chain	Res	Type
1	A	2335	A
1	A	2345	G
1	A	2370	A
1	A	2371	U
1	A	2374	A
1	A	2375	C
1	A	2381	A
1	A	2384	A
1	A	2387	U
1	A	2389	C
1	A	2390	A
1	A	2393	C
1	A	2396	C
1	A	2404	U
1	A	2405	C
1	A	2406	A
1	A	2407	U
1	A	2415	C
1	A	2416	U
1	A	2426	C
1	A	2443	C
1	A	2444	A
1	A	2446	A
1	A	2449	G
1	A	2451	A
1	A	2458	A
1	A	2468	A
1	A	2473	A
1	A	2508	C
1	A	2511	C
1	A	2512	A
1	A	2520	C
1	A	2521	A
1	A	2522	U
1	A	2523	C
1	A	2524	A
1	A	2527	A
1	A	2528	G
1	A	2536	G
1	A	2656	U
1	A	2660	U
1	A	2683	C

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Mol	Chain	Res	Type
1	A	2686	G
1	A	2698	G
1	A	2706	A
1	A	2708	C
1	A	2709	A
1	A	2725	A
1	A	2732	G
1	A	2739	U
1	A	2740	A
1	A	2742	U
1	A	2746	U
1	A	2747	U
1	A	2750	U
1	A	2803	A
1	A	2804	A
1	A	2851	A
1	A	2852	C
1	A	2853	A
1	A	2854	U
1	A	2859	A
1	A	2861	A
1	A	2864	U
1	A	2865	C
1	A	2871	U
1	A	2926	A
1	A	2928	C
1	A	3102	U
1	A	3109	U
1	A	3114	U
1	A	3123	G
1	A	3129	A
1	A	3134	C
1	A	3141	A
1	A	3150	U
1	A	3155	C
1	A	3157	C
1	A	3158	A
1	A	3160	A
1	A	3162	C
1	A	3168	C
1	A	3177	A
1	A	3180	A

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Mol	Chain	Res	Type
1	A	3184	C
1	A	3189	C
1	A	3190	A
1	A	3202	U
1	A	3207	A
1	A	3217	A
1	A	3218	A
1	A	3228	U
2	B	1607	U
2	B	1608	G
2	B	1609	U
2	B	1611	G
2	B	1614	U
2	B	1615	A
2	B	1625	A
2	B	1640	A
2	B	1644	G
2	B	1645	A
2	B	1649	C
2	B	1651	A

All (14) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	1805	A
1	A	1843	U
1	A	2030	U
1	A	2165	C
1	A	2172	A
1	A	2186	C
1	A	2243	A
1	A	2457	A
1	A	2507	A
1	A	3108	U
1	A	3113	A
1	A	3159	A
1	A	3201	A
2	B	1607	U

5.4 Non-standard residues in protein, DNA, RNA chains [\(i\)](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

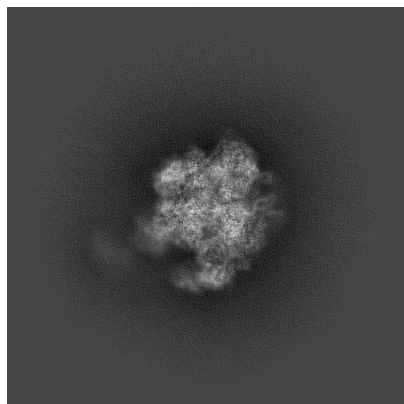
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18460. These allow visual inspection of the internal detail of the map and identification of artifacts.

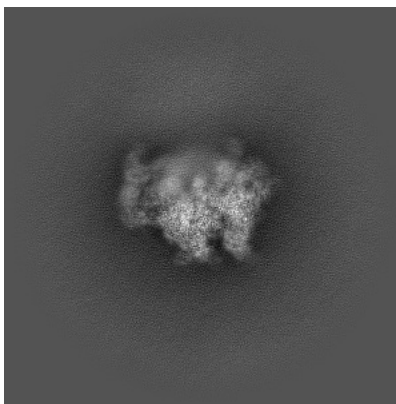
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

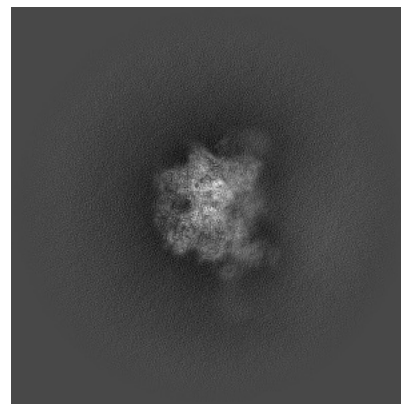
6.1.1 Primary map



X

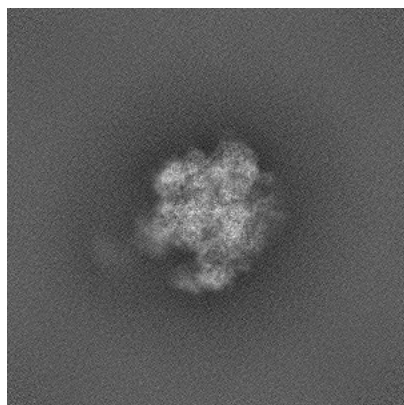


Y

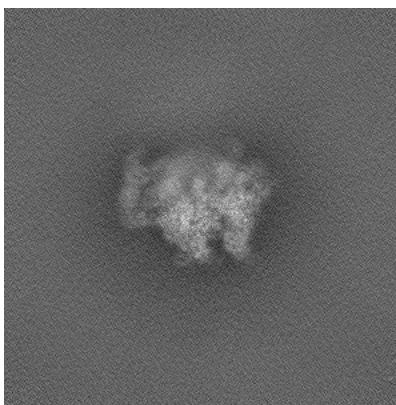


Z

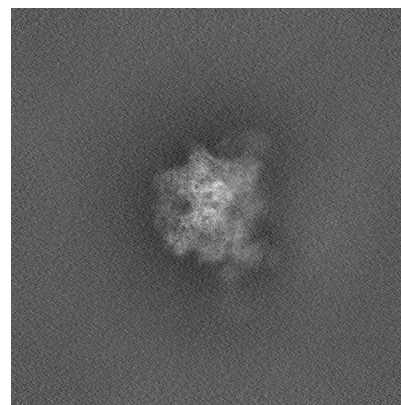
6.1.2 Raw map



X



Y

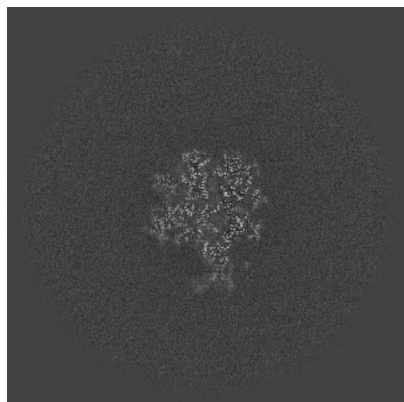


Z

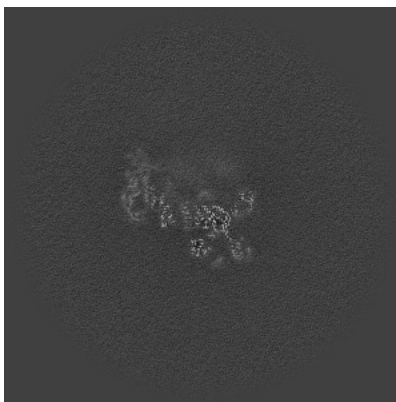
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

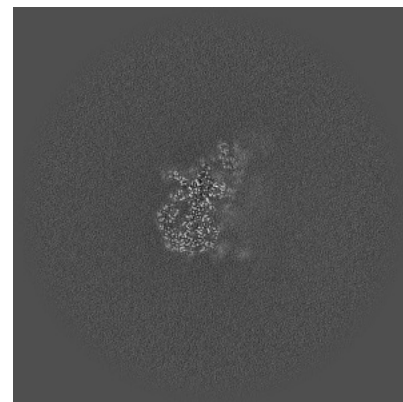
6.2.1 Primary map



X Index: 300

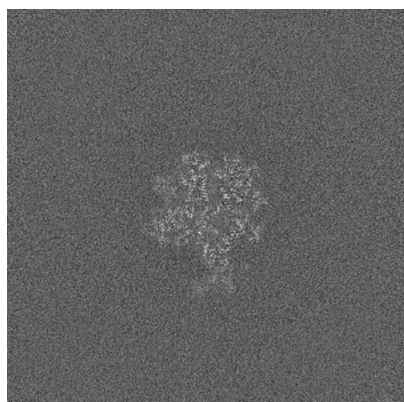


Y Index: 300

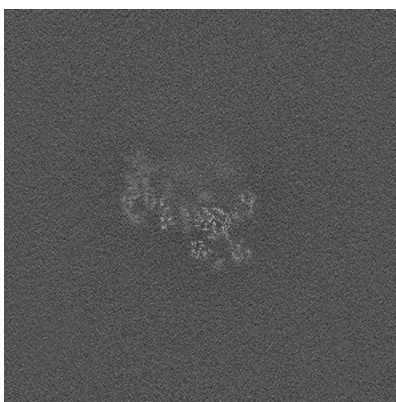


Z Index: 300

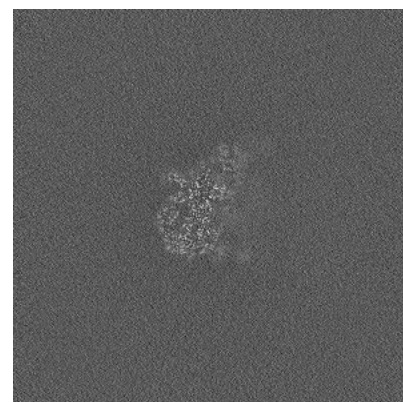
6.2.2 Raw map



X Index: 300



Y Index: 300

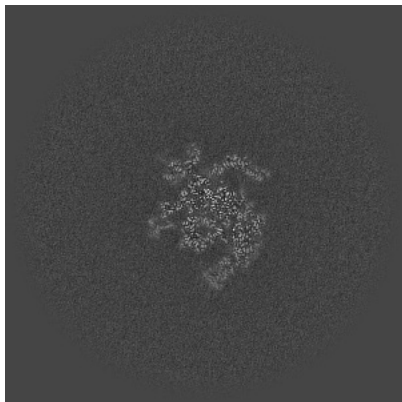


Z Index: 300

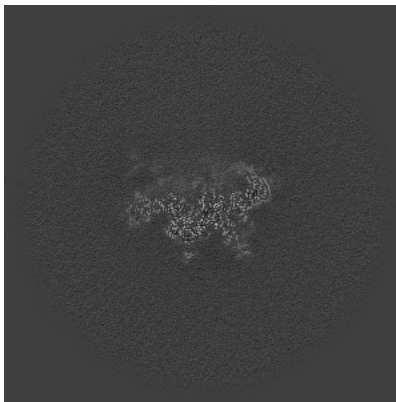
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

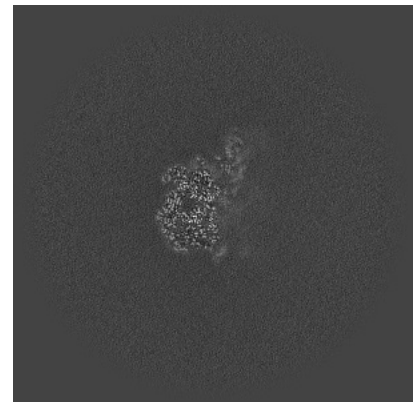
6.3.1 Primary map



X Index: 283

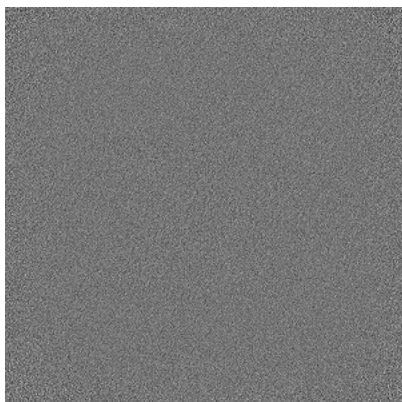


Y Index: 327

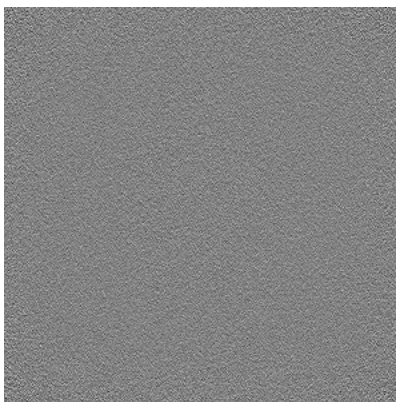


Z Index: 294

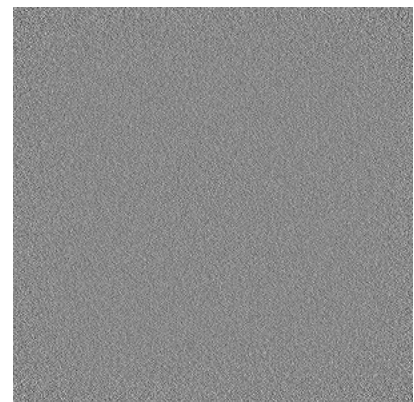
6.3.2 Raw map



X Index: 0



Y Index: 0

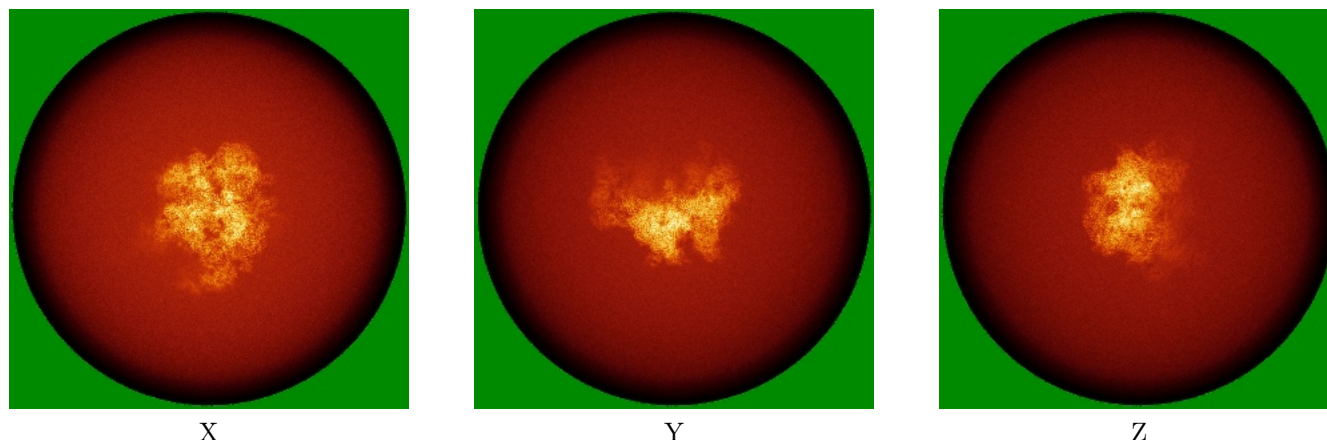


Z Index: 0

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

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

6.4.1 Primary map

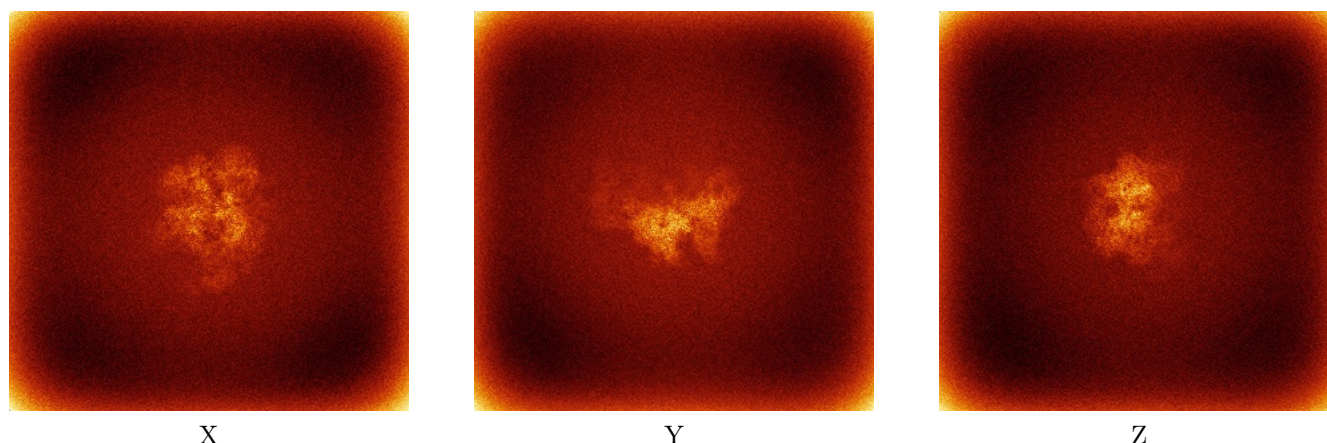


X

Y

Z

6.4.2 Raw map



X

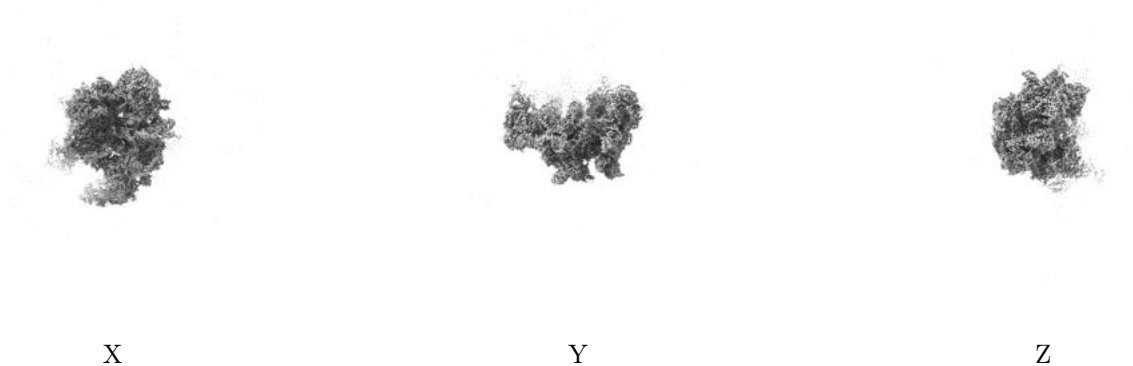
Y

Z

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

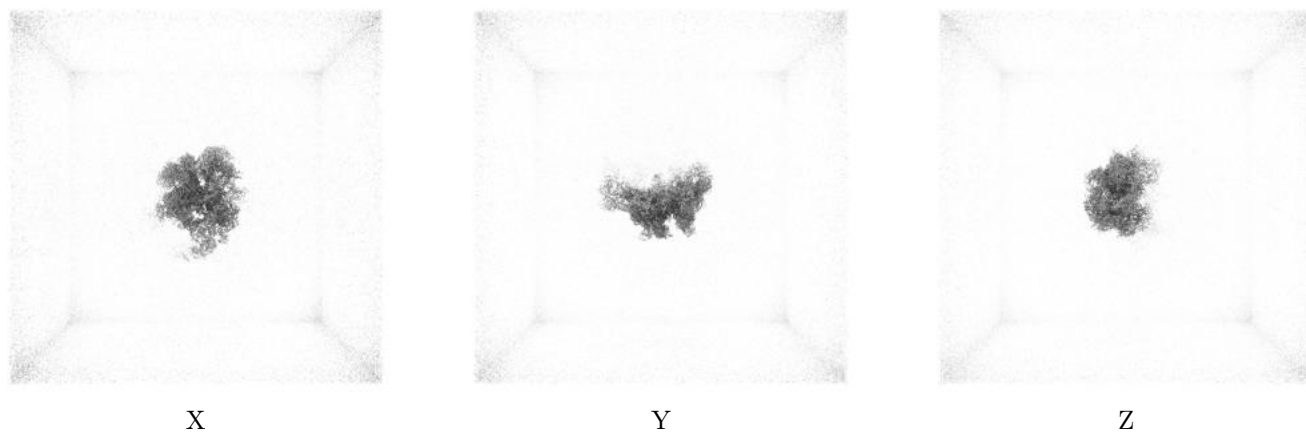
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.3. 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



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.

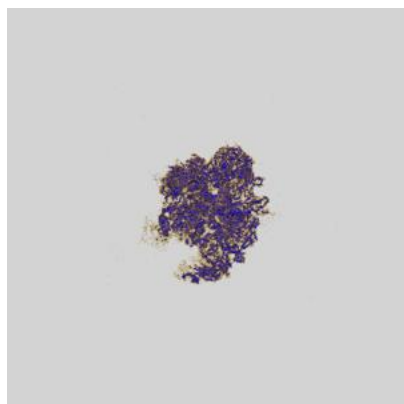
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

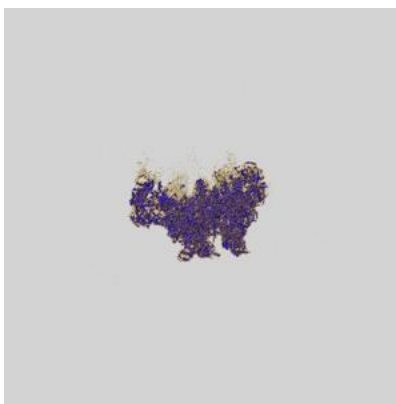
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

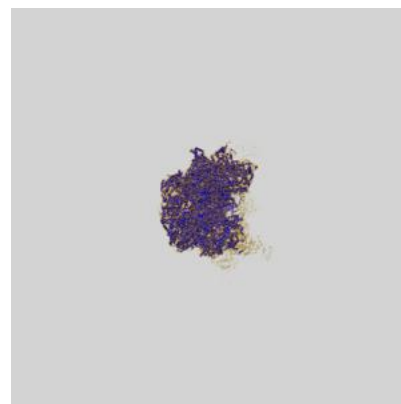
6.6.1 emd_18460_msk_1.map [i](#)



X



Y

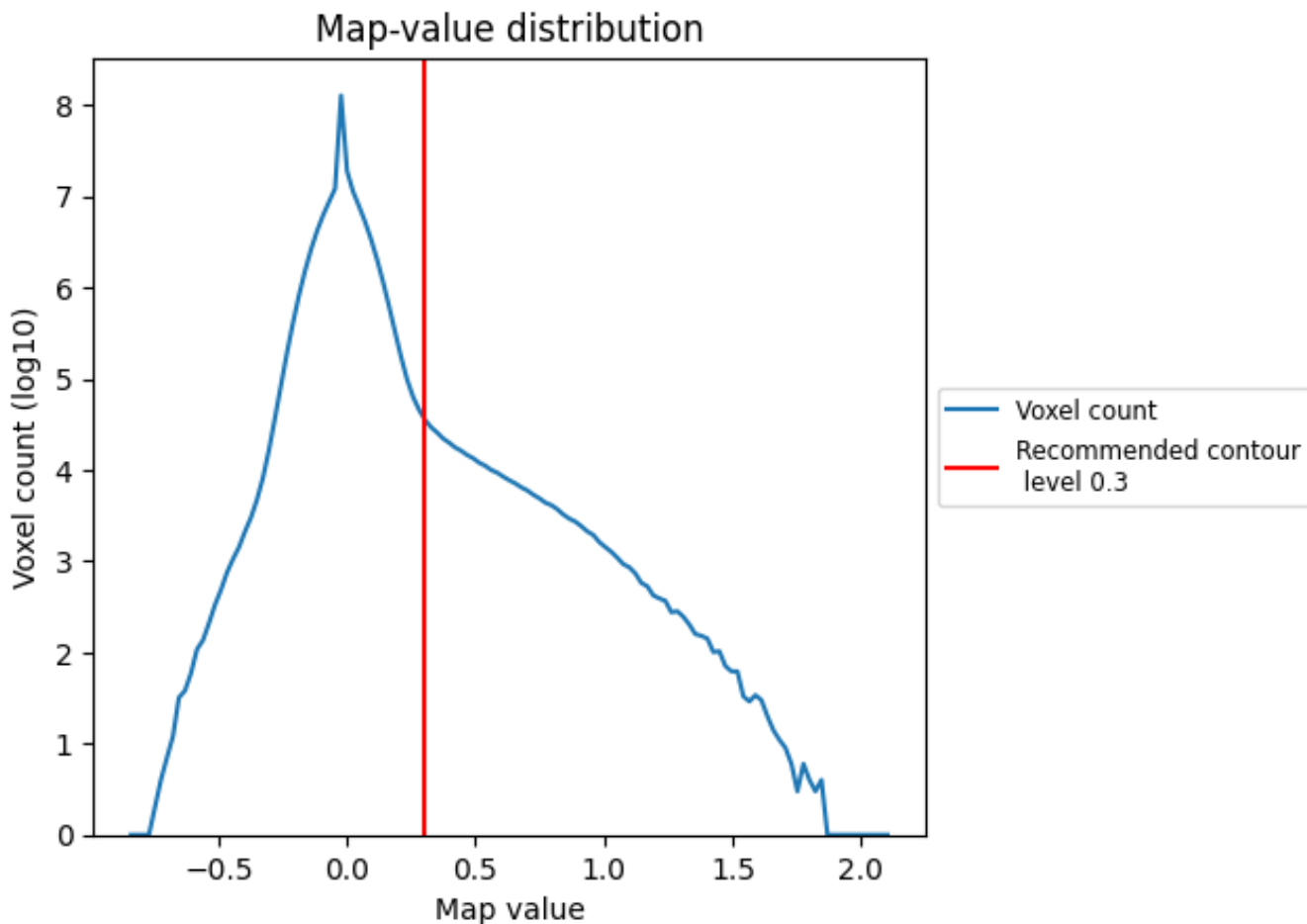


Z

7 Map analysis [i](#)

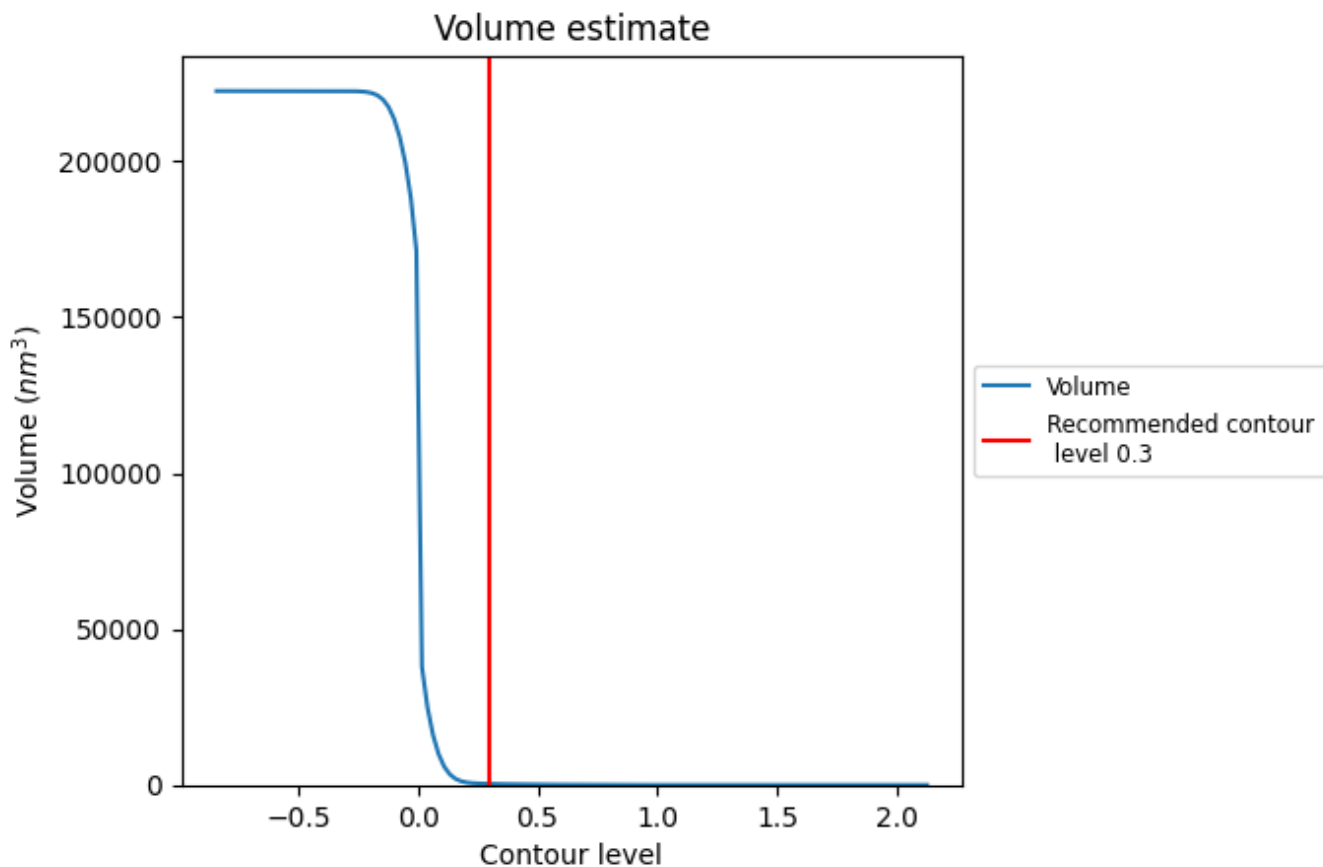
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

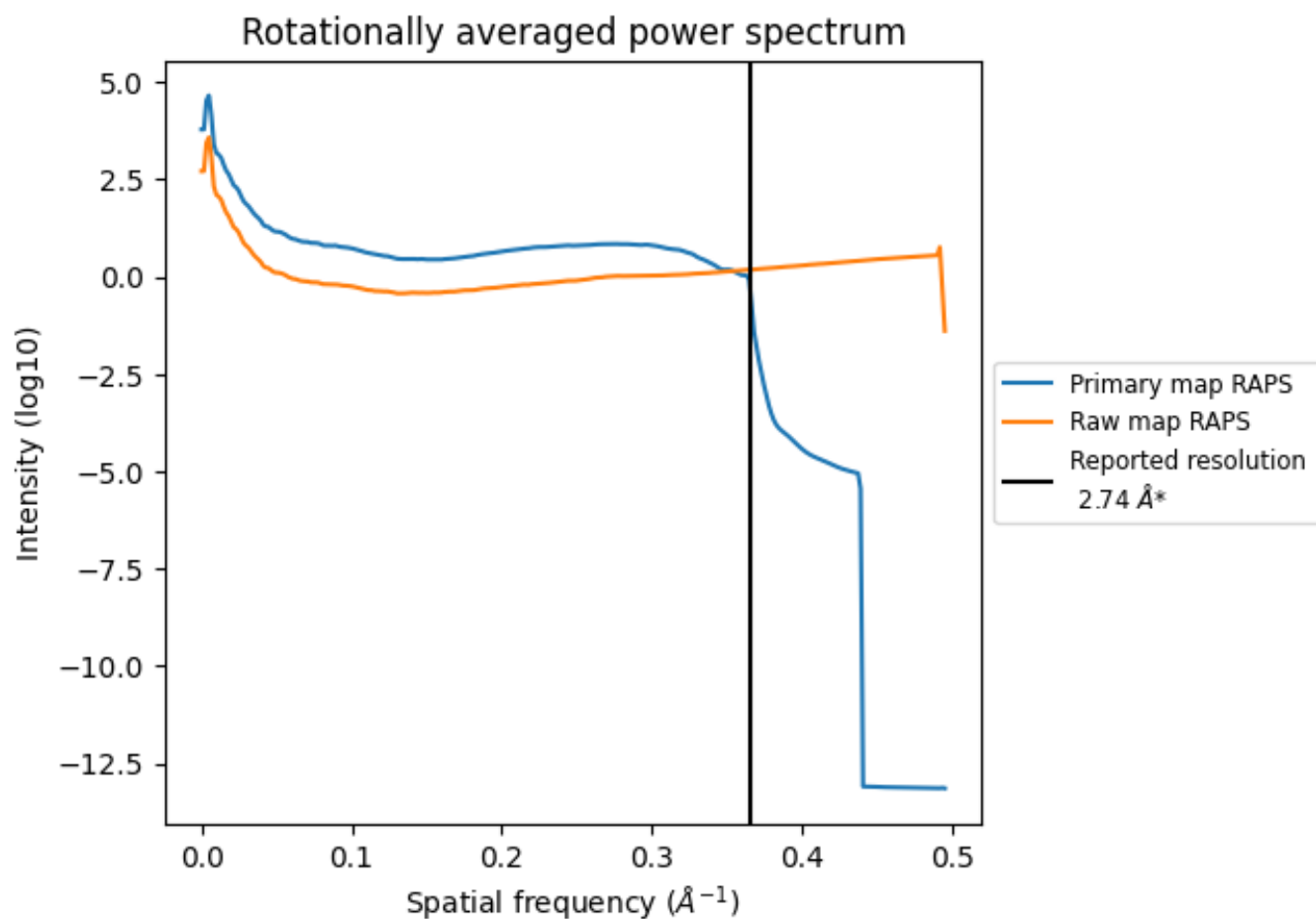
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 342 nm^3 ; this corresponds to an approximate mass of 309 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](#)

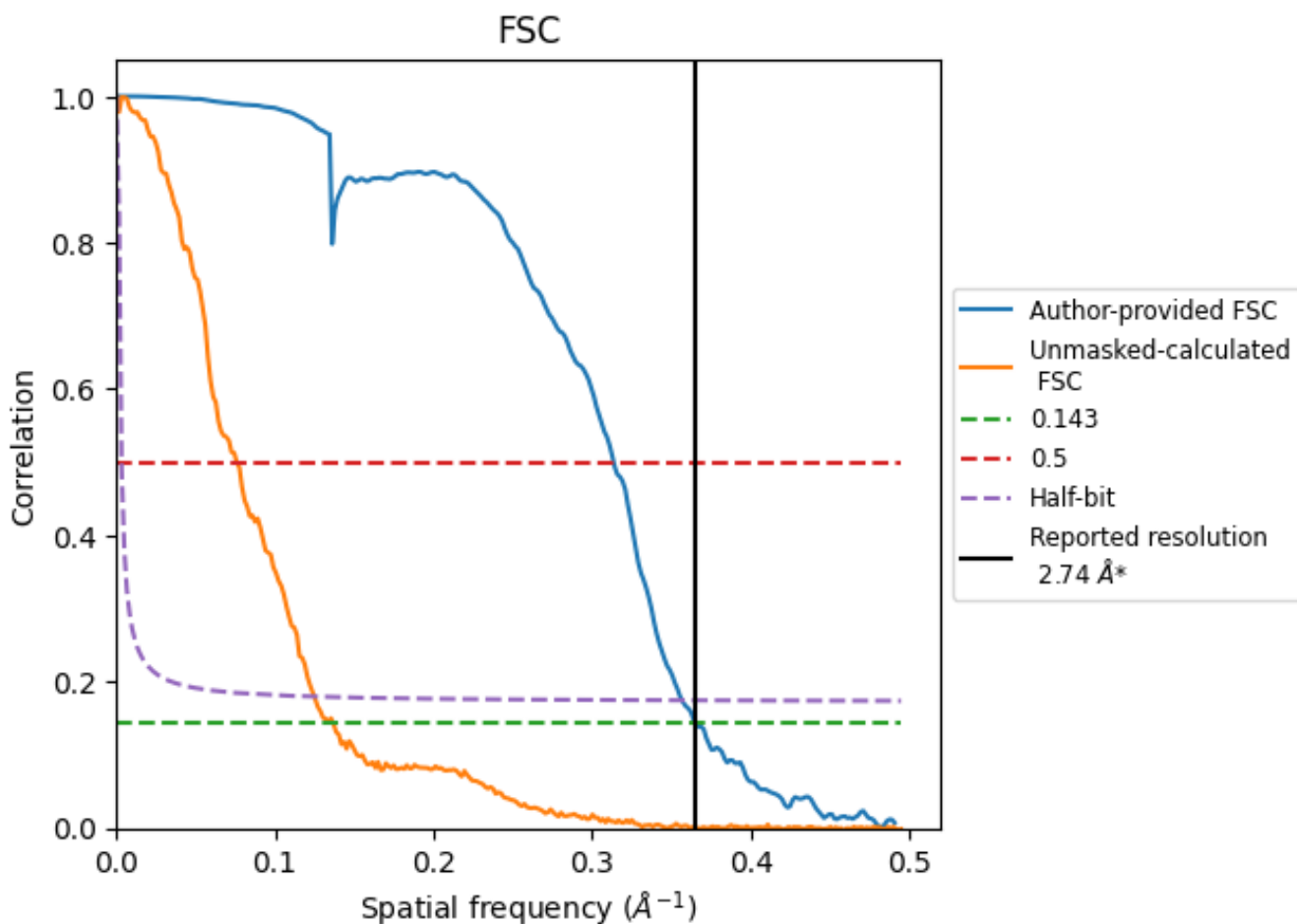


*Reported resolution corresponds to spatial frequency of 0.365 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.365 Å⁻¹

8.2 Resolution estimates [i](#)

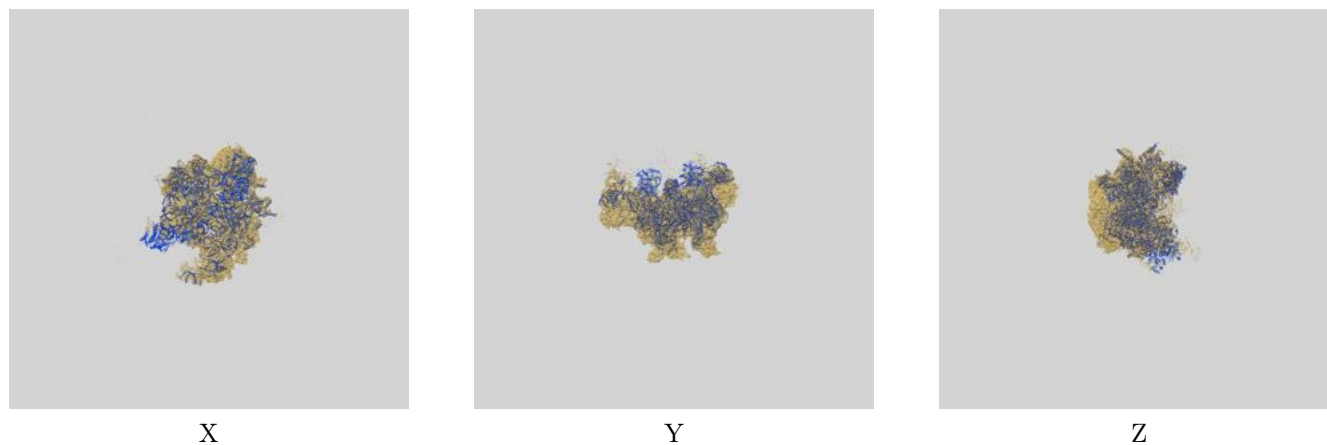
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.74	-	-
Author-provided FSC curve	2.74	3.19	2.80
Unmasked-calculated*	7.32	13.18	8.01

*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 7.32 differs from the reported value 2.74 by more than 10 %

9 Map-model fit [i](#)

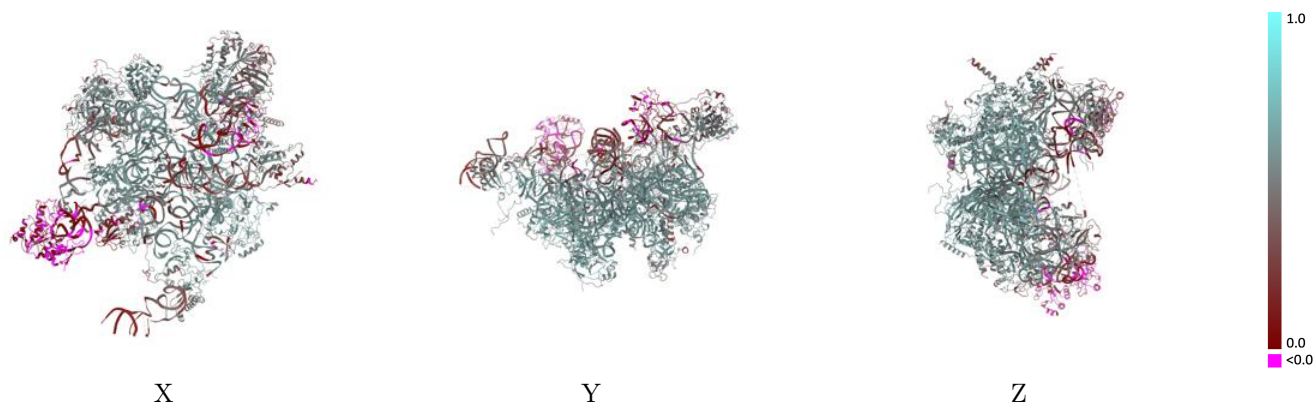
This section contains information regarding the fit between EMDB map EMD-18460 and PDB model 8QU1. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay [i](#)



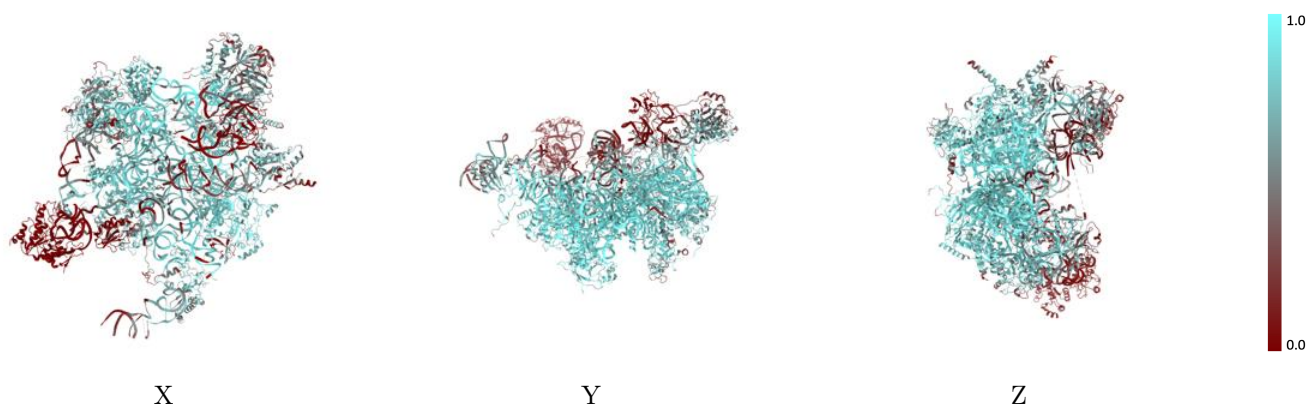
The images above show the 3D surface view of the map at the recommended contour level 0.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



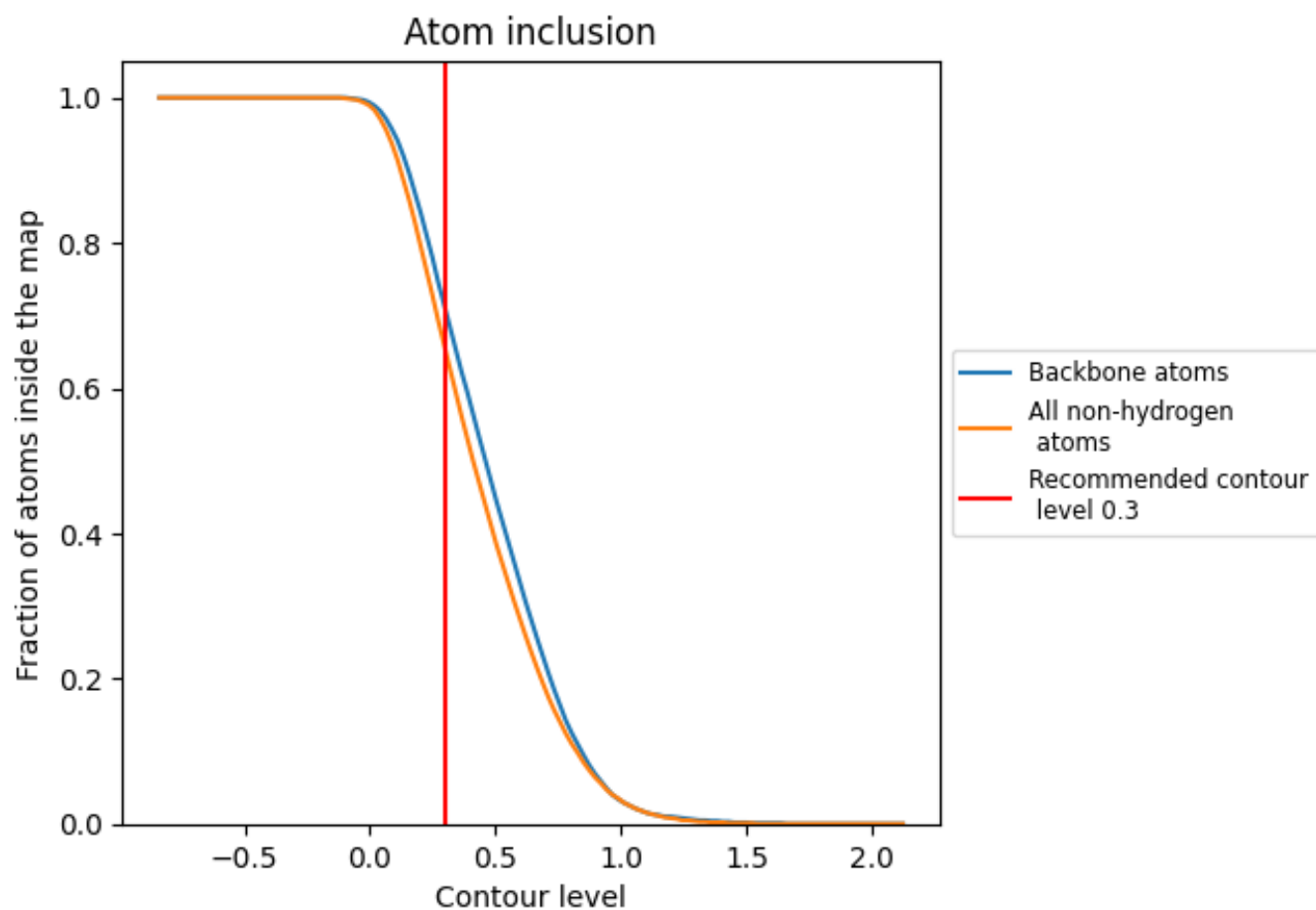
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.3).































































9.4 Atom inclusion [i](#)



At the recommended contour level, 71% of all backbone atoms, 65% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6540	 0.4790
0	 0.7840	 0.5710
1	 0.3570	 0.3550
2	 0.8550	 0.6220
3	 0.8670	 0.6100
5	 0.5440	 0.4530
6	 0.3910	 0.4050
A	 0.7090	 0.4820
B	 0.4830	 0.2760
D	 0.0230	 0.1330
E	 0.6900	 0.5340
F	 0.8660	 0.6080
H	 0.4500	 0.3940
I	 0.0920	 0.1150
J	 0.0020	 0.0200
K	 0.8170	 0.5860
L	 0.3230	 0.3590
M	 0.8370	 0.5920
N	 0.2480	 0.3090
O	 0.8220	 0.5870
P	 0.6560	 0.5160
Q	 0.5850	 0.4850
R	 0.8670	 0.6070
S	 0.7910	 0.5730
T	 0.8210	 0.5980
U	 0.7890	 0.5650
V	 0.6770	 0.5280
W	 0.7390	 0.5600
X	 0.6670	 0.5110
Y	 0.8120	 0.5820
Z	 0.8350	 0.5910

