Full wwPDB EM Validation Report

Jun 29, 2025 – 01:40 am BST

PDB ID	:	6G5H / pdb_00006g5h
EMDB ID	:	EMD-4352
Title	:	Cryo-EM structure of a late human pre-40S ribosomal subunit - Mature
Authors	:	Ameismeier, M.; Cheng, J.; Berninghausen, O.; Beckmann, R.
Deposited on	:	2018-03-29
Resolution	:	3.60 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:

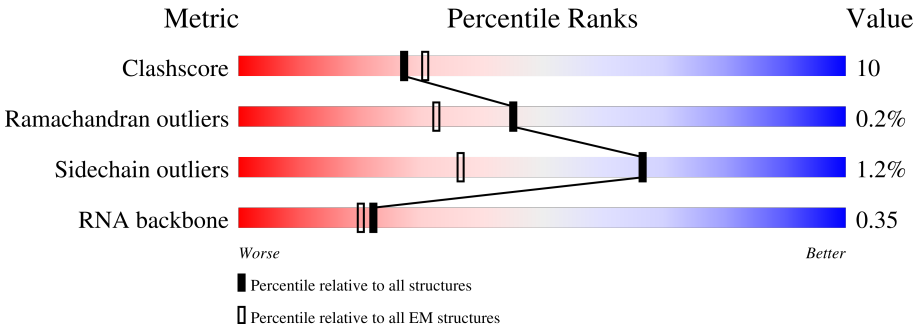
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 3.60 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	2	1868	44% 35% 9% 11%
2	A	295	6% 49% 19% 30%
3	B	264	6% 54% 26% 19%
4	C	293	56% 15% 26%
5	E	263	5% 81% 19%
6	G	249	10% 76% 16% 8%
7	H	194	62% 69% 26%

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Mol	Chain	Length	Quality of chain
8	I	208	11% 76% 22%
9	J	194	69% 24% 7%
10	L	158	13% 75% 21%
11	N	151	10% 77% 21%
12	O	151	6% 66% 24% 11%
13	V	83	84% 14%
14	W	130	66% 32%
15	X	143	83% 16%
16	Y	133	71% 22% 7%
17	a	115	10% 70% 18% 12%
18	b	84	12% 76% 21%
19	d	56	14% 50% 41% 5%
20	e	59	15% 81% 14% 5%
21	h	25	44% 76% 20%
22	D	243	16% 64% 27% 7%
23	F	204	22% 63% 28% 7%
24	K	165	15% 43% 13% 42%
25	M	132	73% 77% 16% 7%
26	P	145	34% 66% 17% 17%
27	Q	146	10% 71% 23% 5%
28	R	135	33% 73% 21%
29	S	152	45% 77% 16% 6%
30	T	145	21% 74% 25%
31	U	119	16% 66% 16% 15%
32	Z	125	30% 45% 12% 42%

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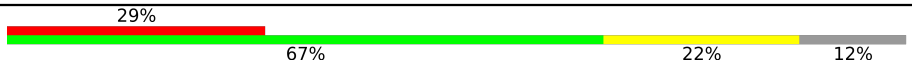
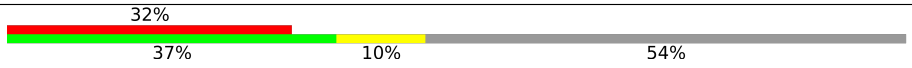
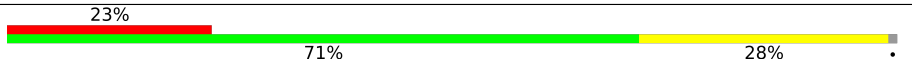
Mol	Chain	Length	Quality of chain
33	c	69	
34	f	156	
35	g	317	

2 Entry composition

There are 36 unique types of molecules in this entry. The entry contains 74342 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1665	35552	15869	6385	11633	1665	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	1772	C	G	conflict	GB 337376

- Molecule 2 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	206	1624	1035	287	294	8	0	0

- Molecule 3 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	213	1729	1098	309	308	14	0	0

- Molecule 4 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	218	1682	1090	289	293	10	0	0

- Molecule 5 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	262	2076	1324	386	358	8	0	0

- Molecule 6 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	230	Total	C	N	O	S	0	0
			1862	1164	371	320	7		

- Molecule 7 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	186	Total	C	N	O	S	0	0
			1501	957	276	267	1		

- Molecule 8 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	205	Total	C	N	O	S	0	0
			1682	1056	331	290	5		

- Molecule 9 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	180	Total	C	N	O	S	0	0
			1499	955	300	242	2		

- Molecule 10 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	L	151	Total	C	N	O	S	0	0
			1229	782	230	211	6		

- Molecule 11 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	N	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 12 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	O	135	Total	C	N	O	S	0	0
			1006	616	198	186	6		

- Molecule 13 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	V	82	Total	C	N	O	S	0	0
			625	384	116	120	5		

- Molecule 14 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	W	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 15 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	X	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

- Molecule 16 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Y	124	Total	C	N	O	S	0	0
			1014	641	198	170	5		

- Molecule 17 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	a	101	Total	C	N	O	S	0	0
			814	507	170	132	5		

- Molecule 18 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	b	82	Total	C	N	O	S	0	0
			640	402	118	113	7		

- Molecule 19 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	d	54	Total	C	N	O	S	0	0
			455	284	93	73	5		

- Molecule 20 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	e	56	Total	C	N	O	S	0	0
			442	273	96	72	1		

- Molecule 21 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	h	24	Total	C	N	O	S	0	0
			231	140	63	26	2		

- Molecule 22 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	D	225	Total	C	N	O	S	0	0
			1748	1115	315	311	7		

- Molecule 23 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	F	189	Total	C	N	O	S	0	0
			1495	934	284	270	7		

- Molecule 24 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	K	95	Total	C	N	O	S	0	0
			800	522	142	131	5		

- Molecule 25 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	M	123	Total	C	N	O	S	0	0
			953	598	169	177	9		

- Molecule 26 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	P	120	Total	C	N	O	S	0	0
			984	625	184	168	7		

- Molecule 27 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Q	139	Total	C	N	O	S	0	0
			1109	704	210	192	3		

- Molecule 28 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	R	132	Total	C	N	O	S	0	0
			1066	669	199	194	4		

- Molecule 29 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	S	143	Total	C	N	O	S	0	0
			1184	743	240	200	1		

- Molecule 30 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	T	144	Total	C	N	O	S	0	0
			1122	703	217	199	3		

- Molecule 31 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	U	101	Total	C	N	O	S	0	0
			803	504	153	142	4		

- Molecule 32 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Z	72	Total	C	N	O	S	0	0
			574	368	104	101	1		

- Molecule 33 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	c	61	Total	C	N	O	S	0	0
			479	292	95	90	2		

- Molecule 34 is a protein called Ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	f	72	Total	C	N	O	S	0	0
			585	366	114	97	8		

- Molecule 35 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	g	314	Total	C	N	O	S	0	0
			2440	1537	425	466	12		

- Molecule 36 is ZINC ION (CCD ID: ZN) (formula: Zn).

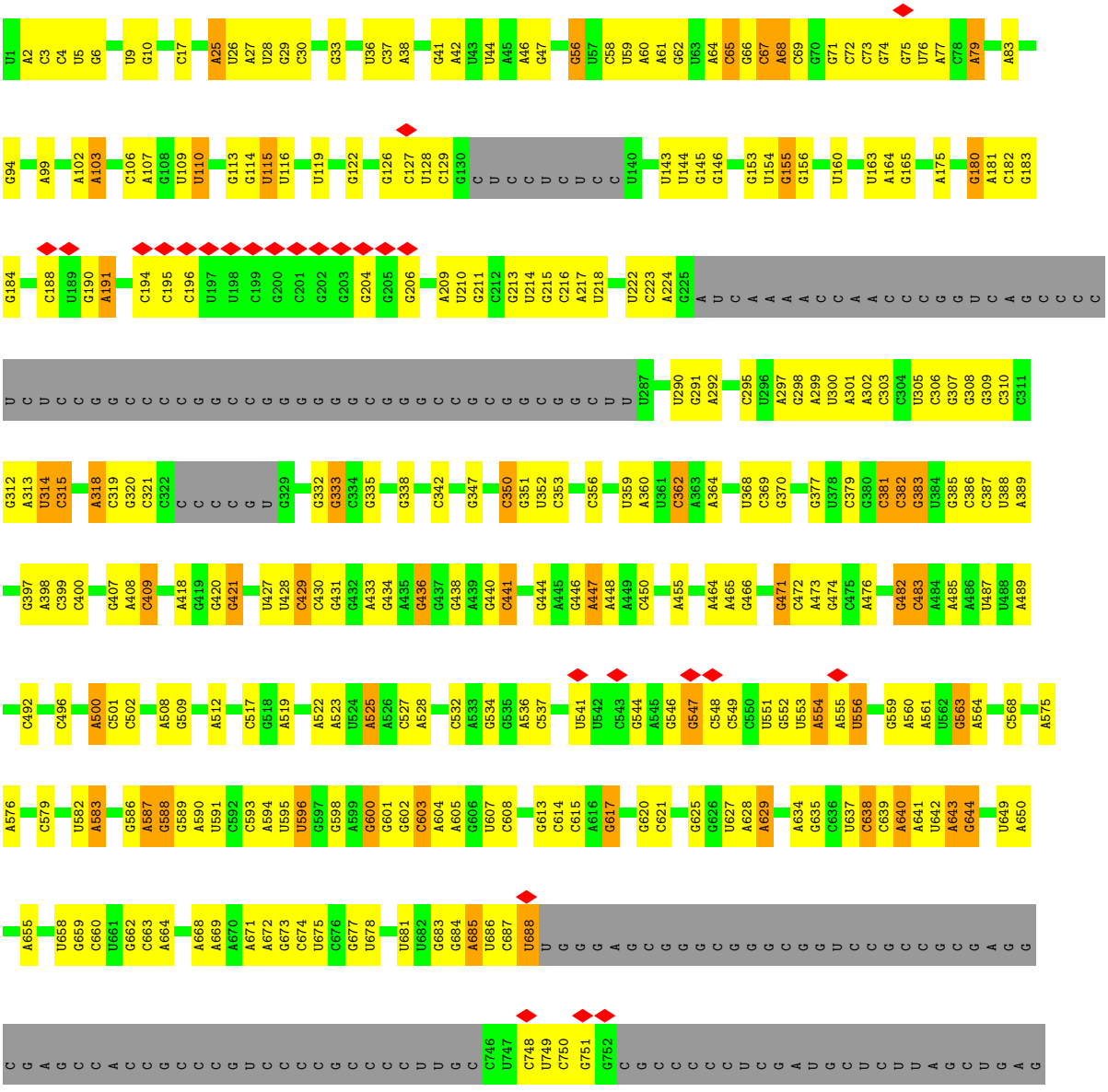
Mol	Chain	Residues	Atoms		AltConf
36	a	1	Total	Zn	0
			1	1	
36	d	1	Total	Zn	0
			1	1	
36	f	1	Total	Zn	0
			1	1	

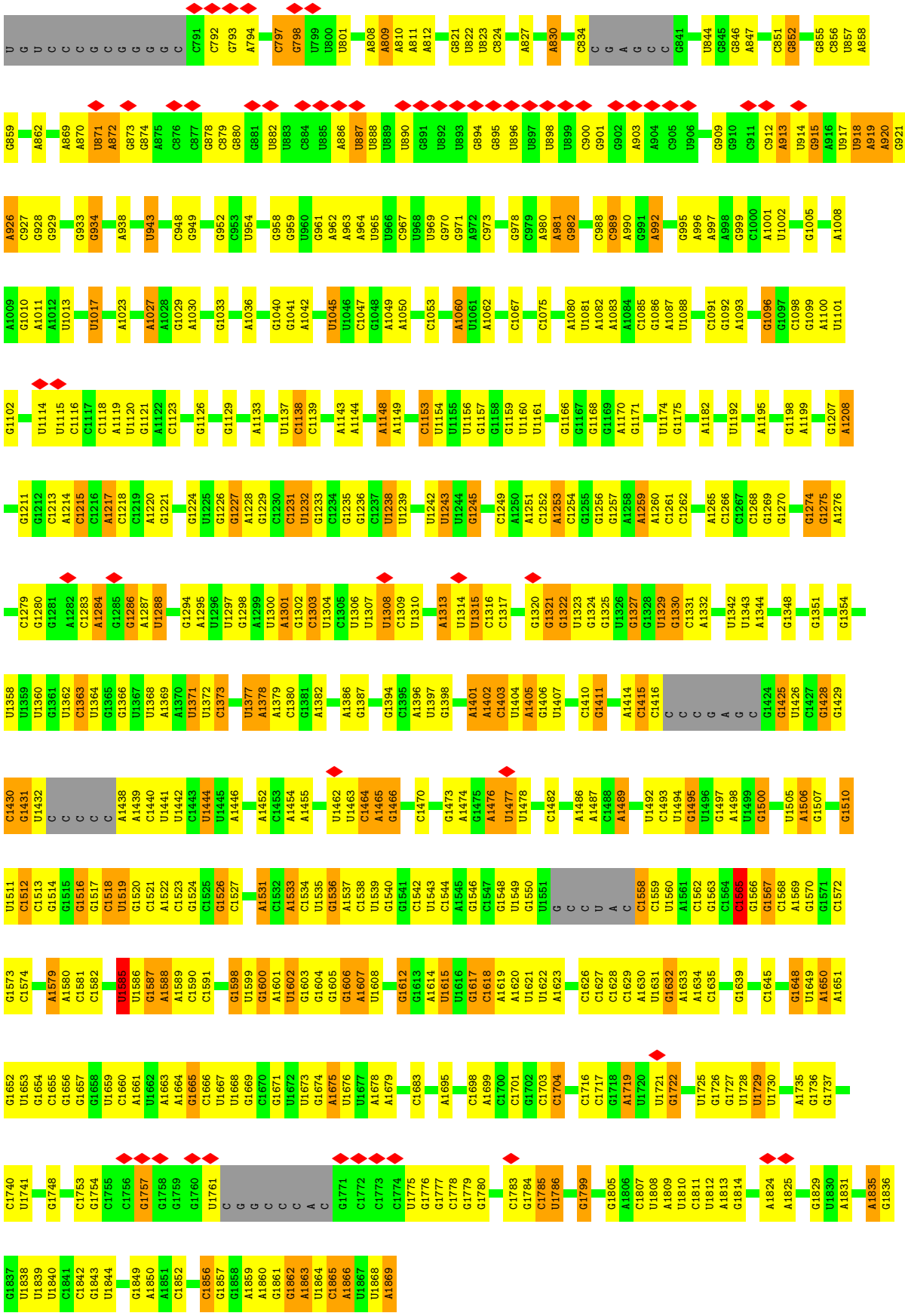
3 Residue-property plots (i)

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

- Molecule 1: 18S ribosomal RNA

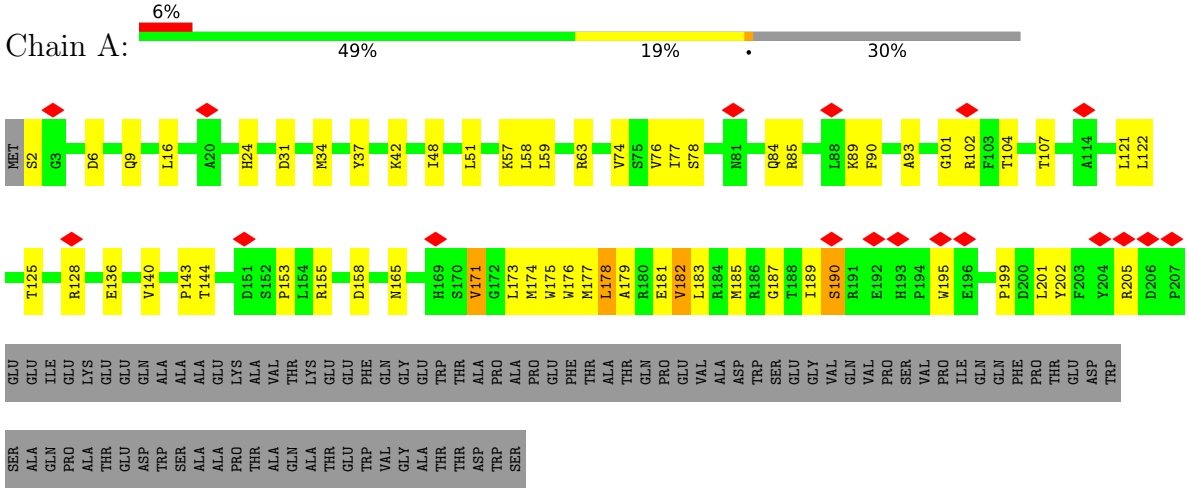
Chain 2:





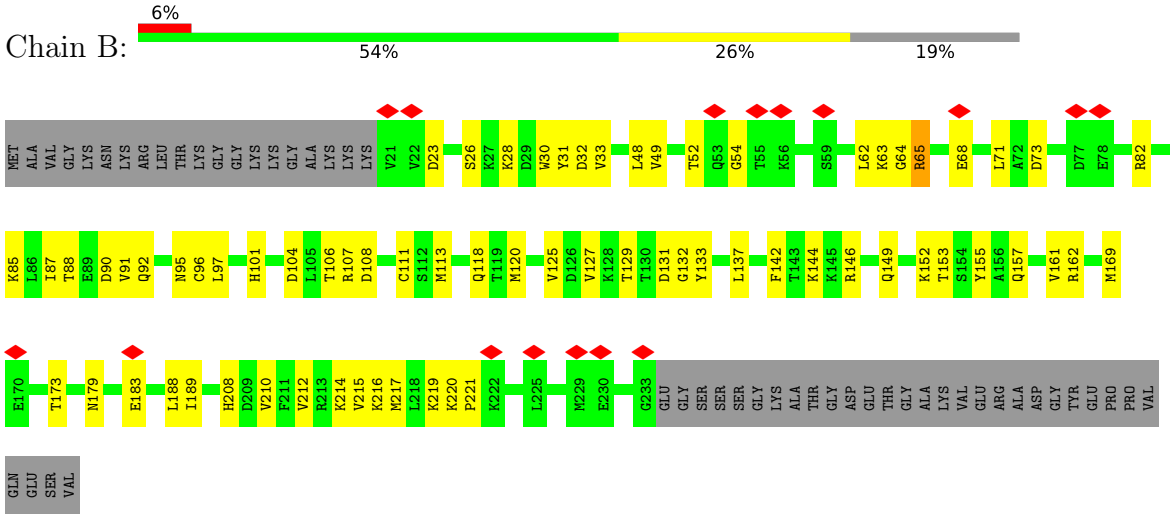
• Molecule 2: 40S ribosomal protein SA

Chain A:



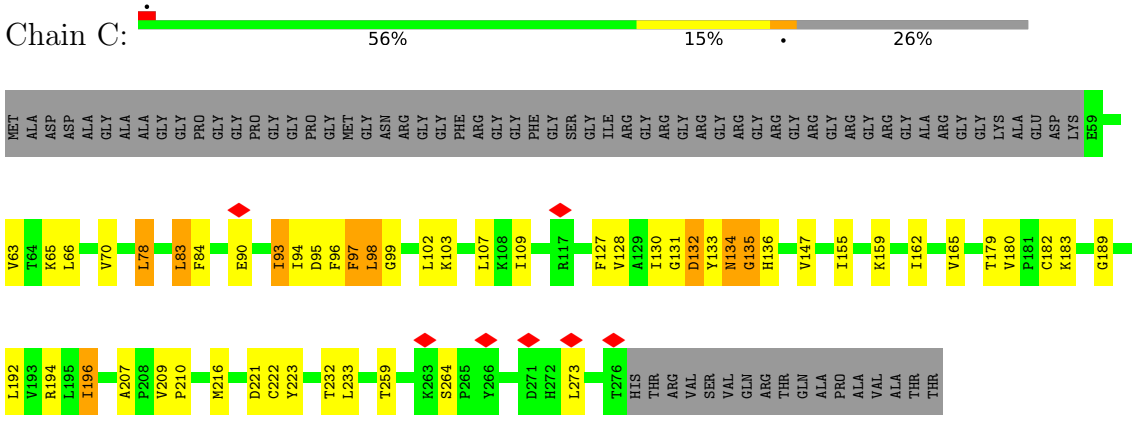
• Molecule 3: 40S ribosomal protein S3a

Chain B:



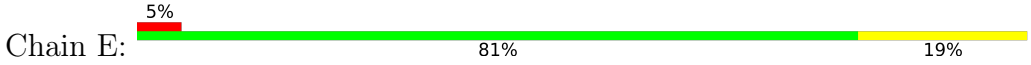
• Molecule 4: 40S ribosomal protein S2

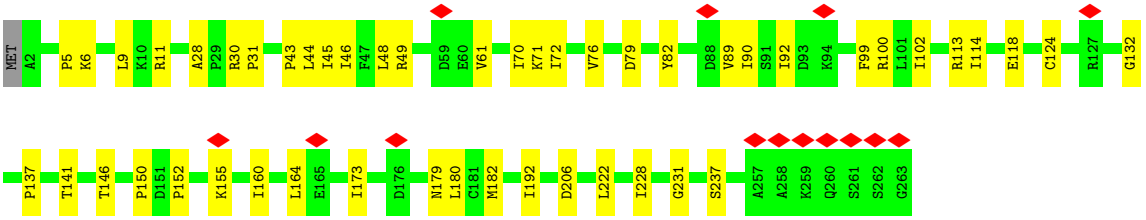
Chain C:



• Molecule 5: 40S ribosomal protein S4, X isoform

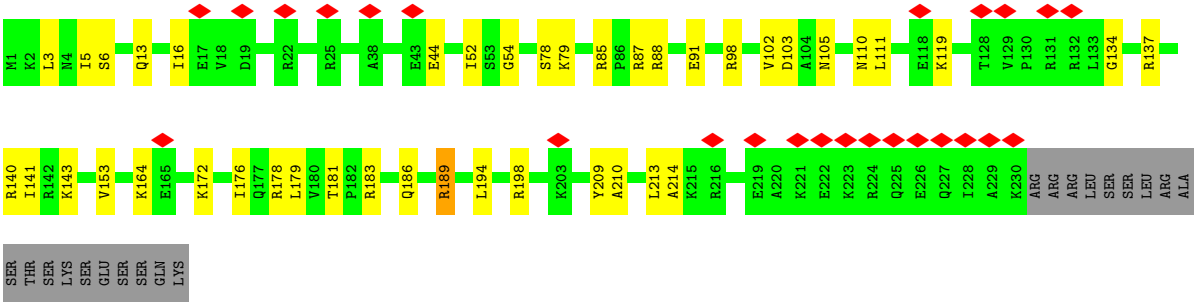
Chain E:





• Molecule 6: 40S ribosomal protein S6

Chain G:

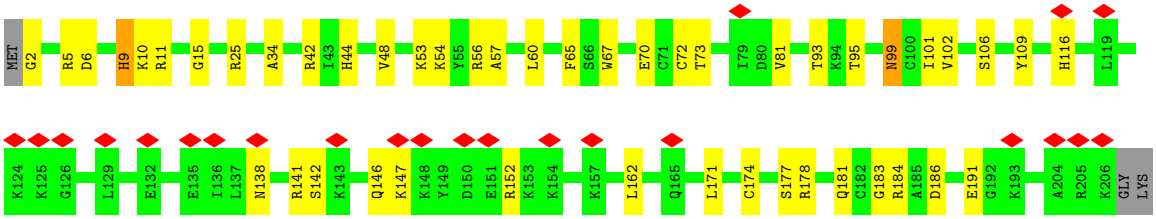


• Molecule 7: 40S ribosomal protein S7

Chain H:

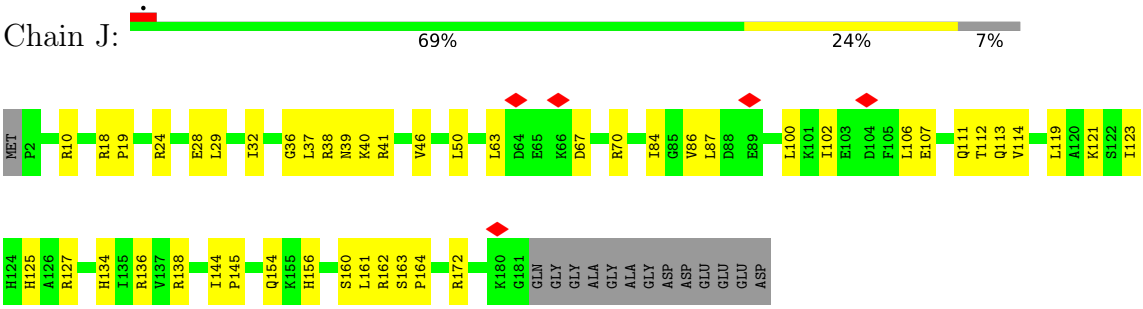
• Molecule 8: 40S ribosomal protein S8

Chain I:



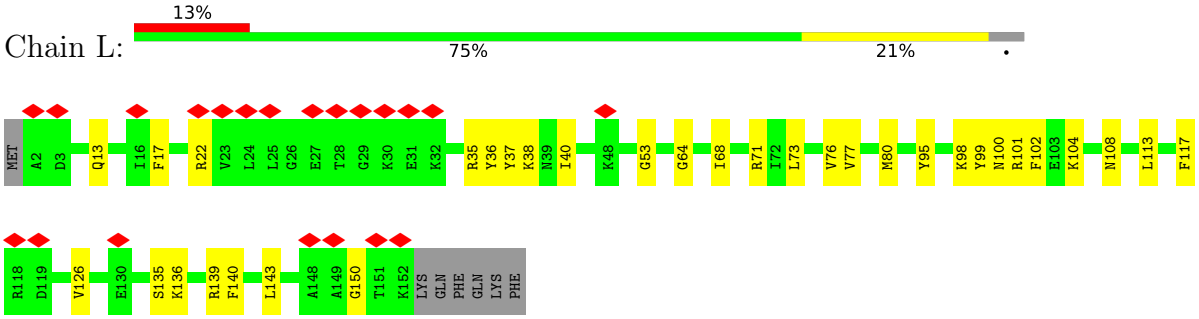
• Molecule 9: 40S ribosomal protein S9

Chain J:



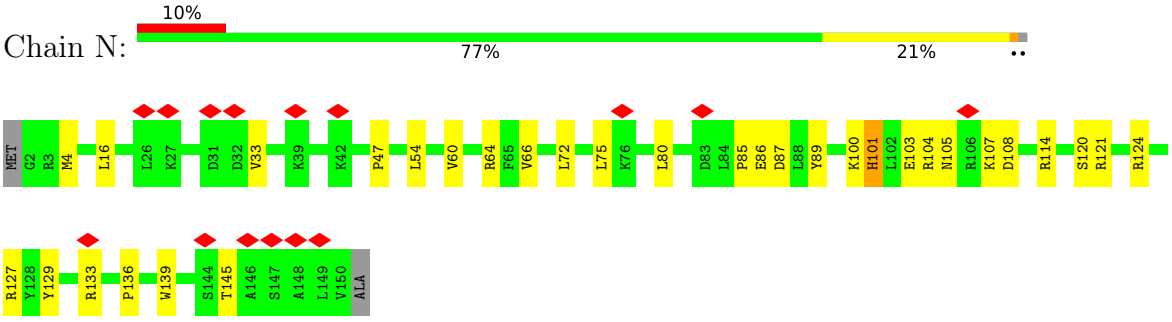
• Molecule 10: 40S ribosomal protein S11

Chain L:



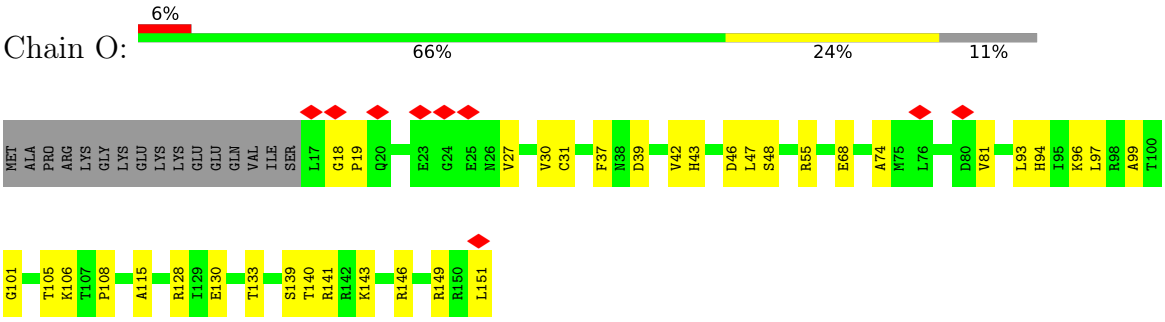
• Molecule 11: 40S ribosomal protein S13

Chain N:



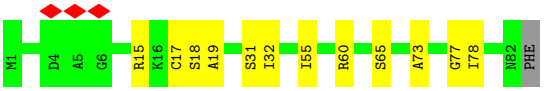
• Molecule 12: 40S ribosomal protein S14

Chain O:



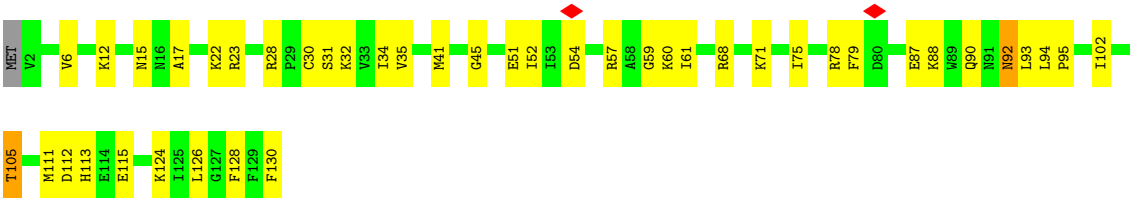
• Molecule 13: 40S ribosomal protein S21

Chain V:



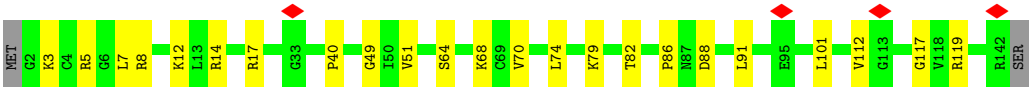
• Molecule 14: 40S ribosomal protein S15a

Chain W:



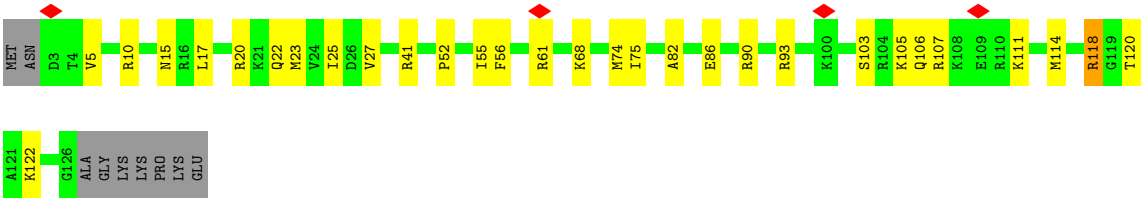
• Molecule 15: 40S ribosomal protein S23

Chain X:



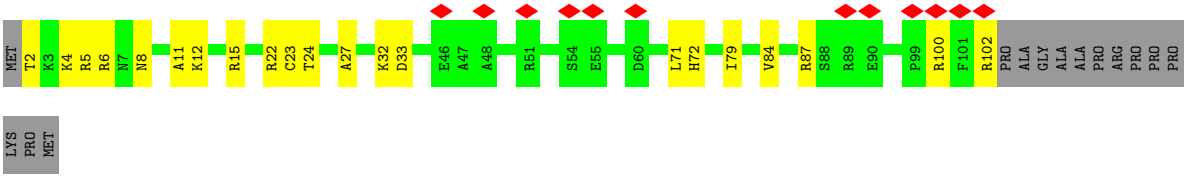
• Molecule 16: 40S ribosomal protein S24

Chain Y:



• Molecule 17: 40S ribosomal protein S26

Chain a:

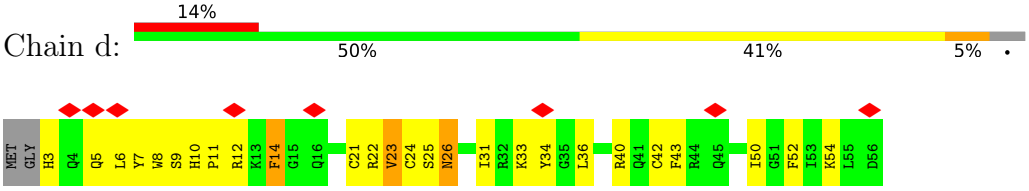


• Molecule 18: 40S ribosomal protein S27

Chain b:

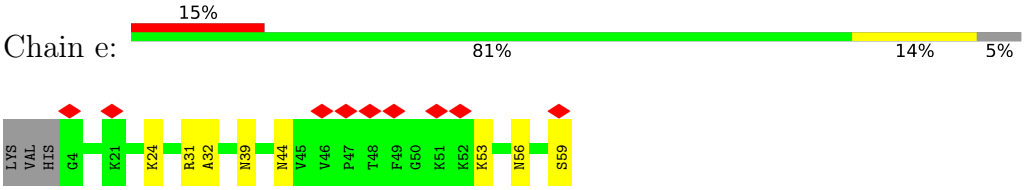
• Molecule 19: 40S ribosomal protein S29

Chain d:



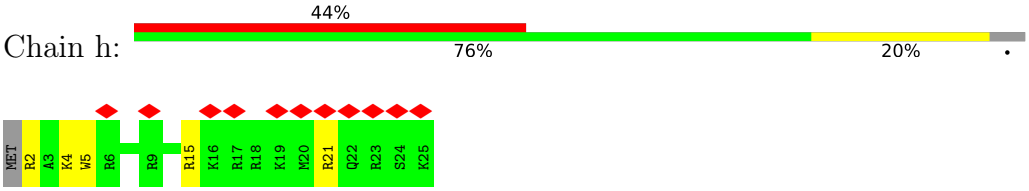
• Molecule 20: 40S ribosomal protein S30

Chain e:



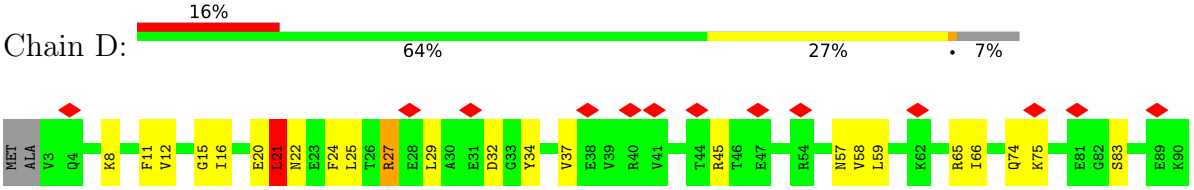
• Molecule 21: 60S ribosomal protein L41

Chain h:



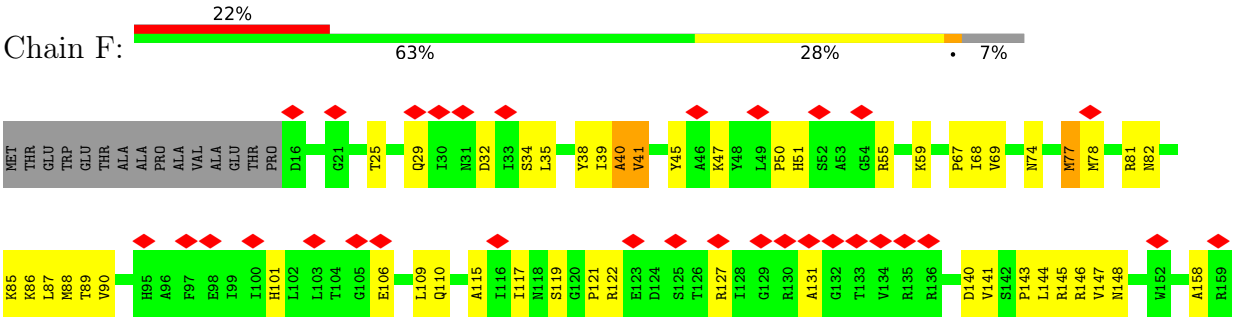
• Molecule 22: 40S ribosomal protein S3

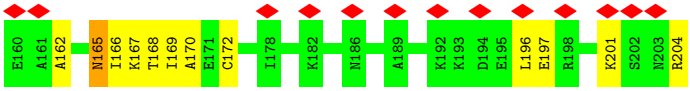
Chain D:



• Molecule 23: 40S ribosomal protein S5

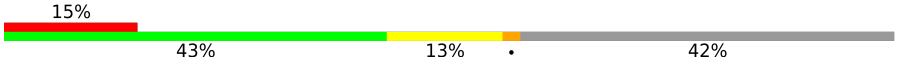
Chain F:

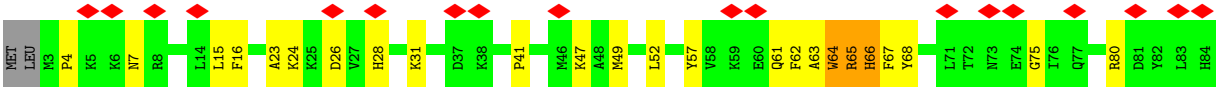


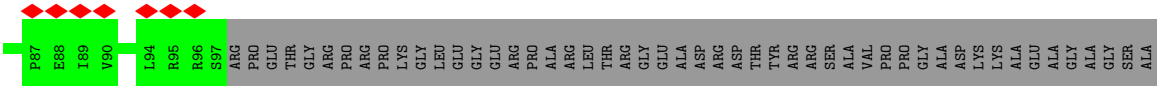


• Molecule 24: 40S ribosomal protein S10

Chain K:

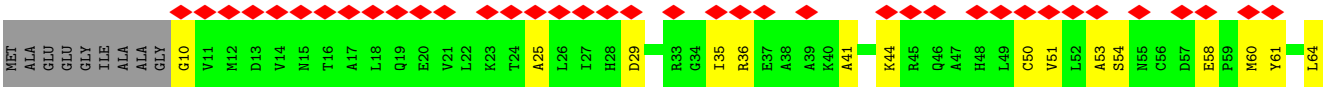


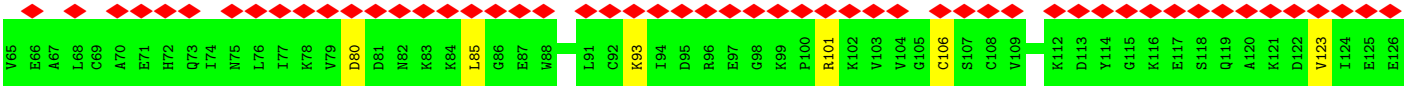


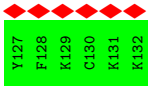


• Molecule 25: 40S ribosomal protein S12

Chain M:

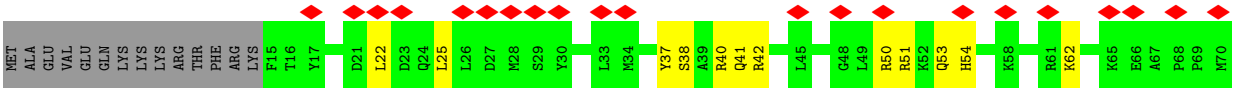


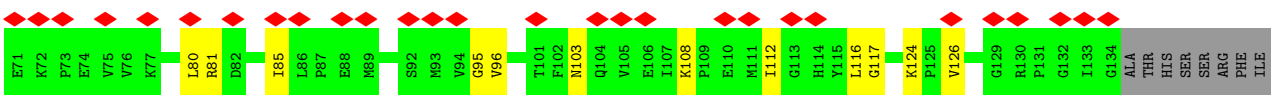




• Molecule 26: 40S ribosomal protein S15

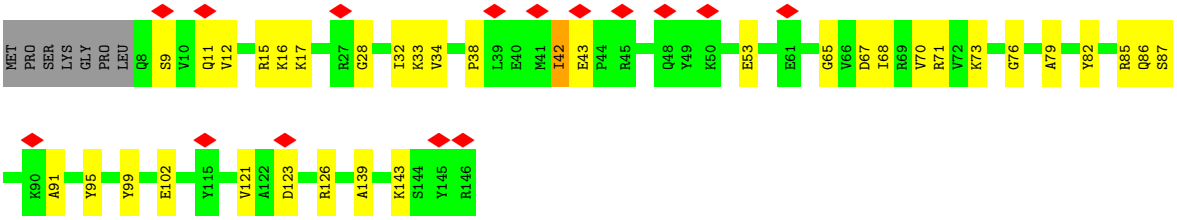
Chain P:





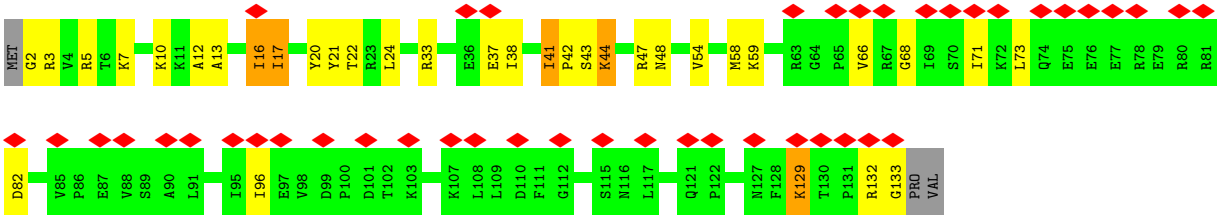
• Molecule 27: 40S ribosomal protein S16

Chain Q:



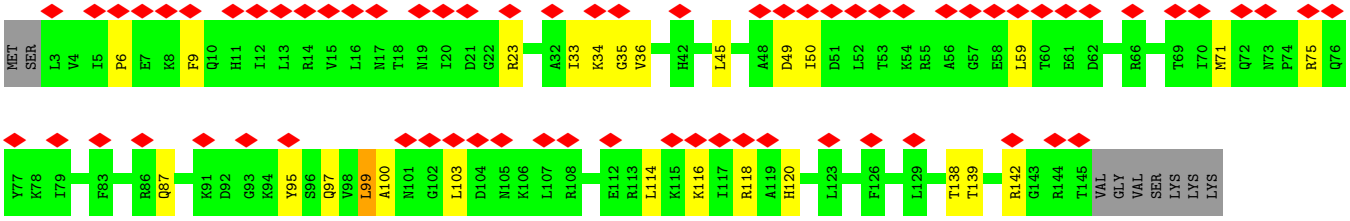
• Molecule 28: 40S ribosomal protein S17

Chain R:



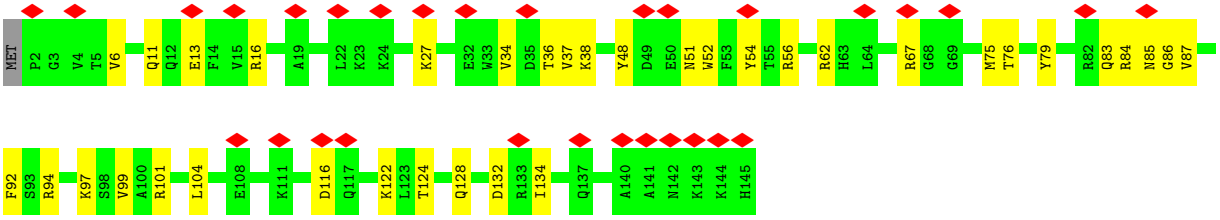
• Molecule 29: 40S ribosomal protein S18

Chain S:



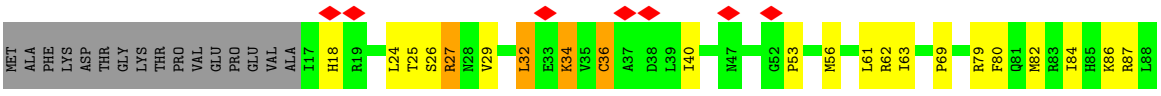
• Molecule 30: 40S ribosomal protein S19

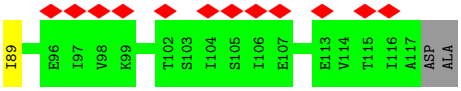
Chain T:



• Molecule 31: 40S ribosomal protein S20

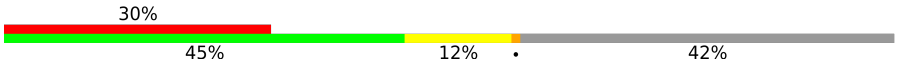
Chain U:

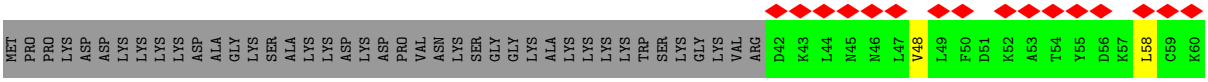


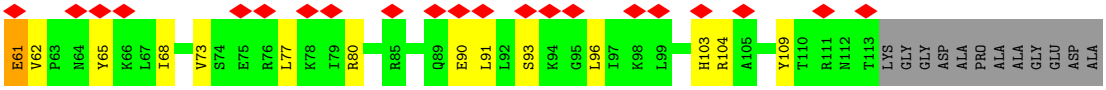


• Molecule 32: 40S ribosomal protein S25

Chain Z:

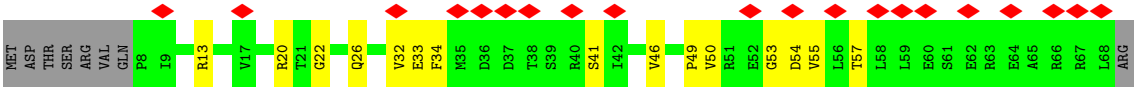






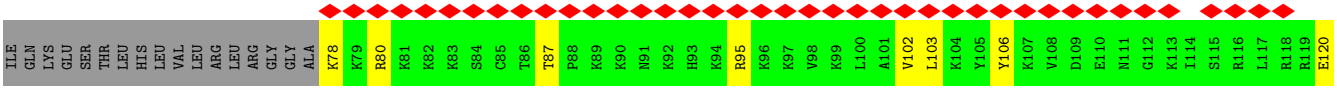
• Molecule 33: 40S ribosomal protein S28

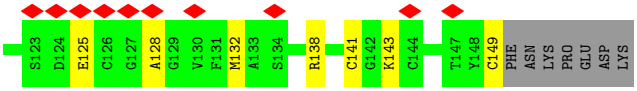
Chain c:



• Molecule 34: Ribosomal protein S27a

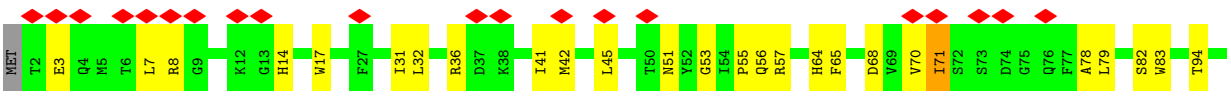
Chain f:

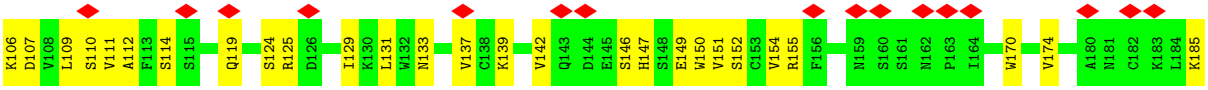


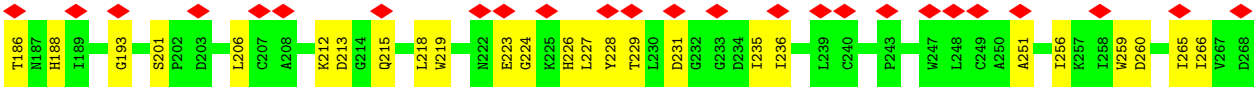


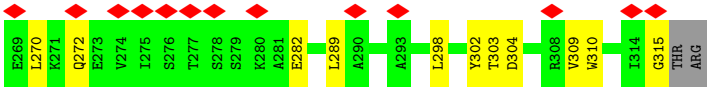
• Molecule 35: Receptor of activated protein C kinase 1

Chain g:








E269
L270
K271
Q272
E273
V274
I275
S276
T277
S278
S279
K280
A281
E282
L289
A290
A293
L298
Y302
T303
D304
R308
V309
W310
I314
G315
THR
ARG

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	70822	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	2.5	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.372	Depositor
Minimum map value	-0.186	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	390.24, 390.24, 390.24	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.084, 1.084, 1.084	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	2	0.56	0/39755	0.61	16/61954 (0.0%)
2	A	0.57	0/1661	0.89	4/2259 (0.2%)
3	B	0.54	0/1756	0.91	4/2350 (0.2%)
4	C	0.66	0/1718	0.98	7/2322 (0.3%)
5	E	0.67	1/2118 (0.0%)	0.82	1/2849 (0.0%)
6	G	0.49	0/1885	0.88	0/2510
7	H	0.36	0/1524	0.81	1/2042 (0.0%)
8	I	0.55	0/1711	0.87	3/2282 (0.1%)
9	J	0.68	0/1524	0.93	0/2035
10	L	0.63	0/1250	0.83	0/1673
11	N	0.56	0/1226	0.88	0/1649
12	O	0.55	0/1019	0.91	1/1367 (0.1%)
13	V	0.56	0/631	0.83	0/844
14	W	0.65	0/1051	0.93	0/1406
15	X	0.63	0/1116	0.92	0/1490
16	Y	0.60	0/1031	0.88	0/1370
17	a	0.59	0/828	0.83	0/1109
18	b	0.48	0/653	0.79	0/876
19	d	0.51	0/466	0.85	1/618 (0.2%)
20	e	0.52	0/447	0.85	2/587 (0.3%)
21	h	0.45	0/232	1.01	0/295
22	D	0.53	0/1776	0.96	7/2392 (0.3%)
23	F	0.43	0/1516	0.89	2/2037 (0.1%)
24	K	0.43	0/824	0.85	2/1112 (0.2%)
25	M	0.30	0/963	0.76	0/1291
26	P	0.36	0/1003	0.77	0/1341
27	Q	0.49	0/1126	0.89	0/1506
28	R	0.45	0/1080	0.94	6/1449 (0.4%)
29	S	0.33	0/1202	0.80	2/1610 (0.1%)
30	T	0.47	1/1142 (0.1%)	0.80	0/1530
31	U	0.50	0/813	1.01	3/1092 (0.3%)
32	Z	0.34	0/580	0.86	2/780 (0.3%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	c	0.42	0/481	0.86	1/643 (0.2%)
34	f	0.31	0/595	0.70	0/785
35	g	0.39	0/2497	0.74	0/3399
All	All	0.54	2/79200 (0.0%)	0.74	65/114854 (0.1%)

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
8	I	0	1
11	N	0	1
12	O	0	1
15	X	0	1
16	Y	0	1
18	b	0	1
22	D	0	1
23	F	0	4
27	Q	0	1
30	T	0	1
34	f	0	1
All	All	0	14

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	237	SER	C-N	-8.45	1.21	1.33
30	T	87	VAL	C-N	-7.08	1.23	1.33

All (65) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	2	37	C	C1'-C2'-O2'	-10.20	93.10	108.40
19	d	23	VAL	N-CA-C	10.05	120.87	110.72
7	H	85	LYS	N-CA-C	9.34	121.45	111.28
1	2	37	C	C4'-C3'-O3'	8.94	126.41	113.00
3	B	64	GLY	N-CA-C	8.56	123.00	112.73
22	D	27	ARG	N-CA-C	7.73	119.70	111.28
1	2	36	U	C4'-C3'-O3'	7.62	124.43	113.00
3	B	65	ARG	N-CA-C	7.55	120.62	110.35
22	D	21	LEU	N-CA-C	7.47	119.21	111.14

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	U	29	VAL	N-CA-C	7.29	118.06	110.62
1	2	36	U	N1-C1'-C2'	-7.04	101.44	112.00
2	A	171	VAL	N-CA-C	6.99	117.75	110.62
4	C	132	ASP	N-CA-C	-6.62	97.73	108.52
1	2	37	C	N1-C1'-C2'	-6.52	102.21	112.00
1	2	38	A	N9-C1'-C2'	-6.38	102.42	112.00
24	K	65	ARG	N-CA-C	6.26	121.05	113.17
2	A	187	GLY	N-CA-C	6.17	121.25	114.40
32	Z	61	GLU	CA-C-N	6.17	126.35	120.43
32	Z	61	GLU	C-N-CA	6.17	126.35	120.43
2	A	190	SER	N-CA-C	6.12	117.94	110.41
23	F	141	VAL	CA-C-N	6.02	130.49	120.86
23	F	141	VAL	C-N-CA	6.02	130.49	120.86
1	2	25	A	N9-C1'-C2'	5.96	120.95	112.00
22	D	173	ARG	CA-C-N	-5.94	114.40	123.07
22	D	173	ARG	C-N-CA	-5.94	114.40	123.07
4	C	97	PHE	N-CA-C	5.90	117.58	111.03
1	2	37	C	C2'-C3'-O3'	-5.89	104.87	113.70
22	D	183	GLY	N-CA-C	-5.80	103.65	111.54
20	e	39	ASN	CA-C-N	5.79	129.96	120.63
20	e	39	ASN	C-N-CA	5.79	129.96	120.63
1	2	1565	C	P-O3'-C3'	5.75	128.83	120.20
8	I	9	HIS	N-CA-C	-5.73	106.09	112.57
31	U	18	HIS	CA-C-N	5.71	130.47	122.08
31	U	18	HIS	C-N-CA	5.71	130.47	122.08
1	2	1403	C	P-O3'-C3'	5.64	128.65	120.20
33	c	22	GLY	N-CA-C	-5.62	104.11	111.37
28	R	43	SER	CA-C-N	5.58	129.19	120.82
28	R	43	SER	C-N-CA	5.58	129.19	120.82
8	I	138	ASN	CA-C-N	5.56	128.61	120.71
8	I	138	ASN	C-N-CA	5.56	128.61	120.71
4	C	78	LEU	N-CA-C	5.56	117.34	111.28
4	C	196	ILE	N-CA-C	-5.55	104.64	109.19
3	B	219	LYS	CA-C-N	-5.52	109.40	122.31
3	B	219	LYS	C-N-CA	-5.52	109.40	122.31
1	2	541	U	N1-C1'-C2'	5.47	120.21	112.00
29	S	99	LEU	CA-C-N	5.46	128.38	120.79
29	S	99	LEU	C-N-CA	5.46	128.38	120.79
5	E	173	ILE	N-CA-C	-5.42	104.14	110.05
1	2	1425	G	C2'-C3'-O3'	5.38	121.77	113.70
1	2	547	G	P-O3'-C3'	5.35	128.23	120.20
28	R	129	LYS	CA-C-N	5.35	127.92	120.65

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	R	129	LYS	C-N-CA	5.35	127.92	120.65
1	2	1330	G	P-O3'-C3'	5.32	128.19	120.20
28	R	73	LEU	N-CA-C	-5.26	105.99	112.72
1	2	1585	U	P-O3'-C3'	5.23	128.05	120.20
22	D	196	GLY	CA-C-N	5.20	131.48	121.54
22	D	196	GLY	C-N-CA	5.20	131.48	121.54
1	2	1308	U	P-O3'-C3'	5.18	127.96	120.20
2	A	189	ILE	N-CA-C	5.12	116.83	109.51
28	R	44	LYS	N-CA-C	5.08	119.76	111.37
24	K	66	HIS	N-CA-C	5.08	117.34	108.76
12	O	146	ARG	CG-CD-NE	-5.03	100.93	112.00
4	C	189	GLY	CA-C-N	5.02	129.97	122.74
4	C	189	GLY	C-N-CA	5.02	129.97	122.74
4	C	93	ILE	N-CA-C	-5.00	105.67	110.72

There are no chirality outliers.

All (14) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
22	D	194	PRO	Peptide
23	F	165	ASN	Peptide
23	F	40	ALA	Peptide
23	F	77	MET	Peptide
23	F	82	ASN	Peptide
8	I	101	ILE	Peptide
11	N	101	HIS	Peptide
12	O	93	LEU	Peptide
27	Q	42	ILE	Peptide
30	T	36	THR	Peptide
15	X	112	VAL	Peptide
16	Y	118	ARG	Peptide
18	b	52	THR	Peptide
34	f	87	THR	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	2	35552	0	17948	431	0
2	A	1624	0	1634	60	0
3	B	1729	0	1801	63	0
4	C	1682	0	1769	57	0
5	E	2076	0	2177	29	0
6	G	1862	0	2018	28	0
7	H	1501	0	1593	47	0
8	I	1682	0	1769	31	0
9	J	1499	0	1618	34	0
10	L	1229	0	1302	23	0
11	N	1202	0	1289	24	0
12	O	1006	0	1030	23	0
13	V	625	0	628	10	0
14	W	1034	0	1080	44	0
15	X	1098	0	1167	19	0
16	Y	1014	0	1082	21	0
17	a	814	0	864	20	0
18	b	640	0	665	10	0
19	d	455	0	446	86	0
20	e	442	0	487	6	0
21	h	231	0	277	4	0
22	D	1748	0	1844	81	0
23	F	1495	0	1549	40	0
24	K	800	0	818	70	0
25	M	953	0	990	14	0
26	P	984	0	1028	17	0
27	Q	1109	0	1174	27	0
28	R	1066	0	1116	45	0
29	S	1184	0	1244	18	0
30	T	1122	0	1153	27	0
31	U	803	0	873	48	0
32	Z	574	0	627	10	0
33	c	479	0	507	11	0
34	f	585	0	616	11	0
35	g	2440	0	2396	60	0
36	a	1	0	0	0	0
36	d	1	0	0	0	0
36	f	1	0	0	0	0
All	All	74342	0	58579	1234	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 (1234) 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)
3:B:62:LEU:HD11	3:B:91:VAL:CG2	1.37	1.53
19:d:23:VAL:HG23	24:K:64:TRP:CD1	1.42	1.50
28:R:12:ALA:O	28:R:16:ILE:HG22	1.29	1.31
19:d:21:CYS:SG	19:d:23:VAL:HG12	1.73	1.28
7:H:58:LYS:HD2	7:H:90:LYS:NZ	1.50	1.25
19:d:8:TRP:CD1	24:K:28:HIS:HB2	1.73	1.23
3:B:62:LEU:CD1	3:B:91:VAL:HG22	1.67	1.22
19:d:8:TRP:NE1	24:K:28:HIS:CB	2.05	1.20
19:d:50:ILE:HG12	22:D:15:GLY:O	1.40	1.19
19:d:43:PHE:HE2	31:U:80:PHE:CD2	1.63	1.16
31:U:34:LYS:HA	31:U:34:LYS:HE2	1.28	1.15
4:C:102:LEU:HD21	4:C:130:ILE:CD1	1.74	1.15
19:d:8:TRP:CD1	24:K:28:HIS:CB	2.29	1.14
19:d:52:PHE:HE2	31:U:63:ILE:HD12	0.99	1.12
19:d:8:TRP:CE2	24:K:28:HIS:HB3	1.85	1.11
1:2:1497:G:C5	24:K:62:PHE:CE2	2.38	1.10
1:2:1497:G:C5	24:K:62:PHE:HE2	1.70	1.10
19:d:52:PHE:CE2	31:U:63:ILE:HD12	1.86	1.10
31:U:27:ARG:CD	31:U:82:MET:HE1	1.79	1.10
3:B:63:LYS:O	3:B:88:THR:HG23	1.52	1.10
19:d:23:VAL:HG23	24:K:64:TRP:NE1	1.67	1.10
24:K:24:LYS:HA	24:K:66:HIS:CE1	1.87	1.09
31:U:27:ARG:HD2	31:U:82:MET:CE	1.83	1.09
19:d:43:PHE:CE2	31:U:80:PHE:CD2	2.42	1.08
19:d:23:VAL:CG2	24:K:64:TRP:CD1	2.37	1.07
1:2:1497:G:C4	24:K:62:PHE:CD2	2.42	1.06
2:A:176:TRP:CD1	2:A:195:TRP:HZ3	1.73	1.04
4:C:102:LEU:CD2	4:C:130:ILE:HD11	1.87	1.04
22:D:105:LEU:HD23	22:D:184:ILE:CD1	1.86	1.04
19:d:34:TYR:HB3	22:D:12:VAL:HG21	1.40	1.03
3:B:62:LEU:HD11	3:B:91:VAL:HG21	1.33	1.03
2:A:176:TRP:NE1	2:A:195:TRP:CZ3	2.27	1.03
1:2:1729:U:H3	1:2:1805:G:H1	1.03	1.01
19:d:52:PHE:HE2	31:U:63:ILE:CD1	1.75	1.00
1:2:1497:G:C4	24:K:62:PHE:HD2	1.76	1.00
1:2:1497:G:N7	24:K:62:PHE:HE2	1.57	1.00
22:D:105:LEU:CD2	22:D:184:ILE:HD12	1.91	1.00
4:C:102:LEU:HD21	4:C:130:ILE:HD11	1.02	1.00
19:d:43:PHE:CE2	31:U:80:PHE:CE2	2.50	1.00
24:K:24:LYS:HG3	24:K:66:HIS:CE1	1.96	0.99
4:C:78:LEU:HD13	4:C:97:PHE:CE2	1.98	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:62:LEU:CD1	3:B:91:VAL:CG2	2.30	0.98
1:2:925:G:H1	1:2:1017:U:H3	1.06	0.97
1:2:1227:G:H1	1:2:1531:A:N6	1.60	0.97
3:B:49:VAL:HG22	3:B:65:ARG:NH2	1.80	0.97
19:d:8:TRP:NE1	24:K:28:HIS:HB2	1.73	0.97
1:2:678:U:H3	1:2:1027:A:H62	1.12	0.96
22:D:156:LEU:HB2	22:D:189:MET:HE1	1.46	0.96
22:D:105:LEU:HD23	22:D:184:ILE:HD12	0.96	0.95
19:d:8:TRP:NE1	24:K:28:HIS:HB3	1.74	0.95
31:U:27:ARG:HD2	31:U:82:MET:HE1	0.97	0.95
7:H:58:LYS:HD2	7:H:90:LYS:HZ1	1.16	0.95
19:d:23:VAL:HG23	24:K:64:TRP:HD1	1.32	0.94
14:W:75:ILE:HD11	14:W:93:LEU:CD1	1.98	0.94
3:B:62:LEU:HD11	3:B:91:VAL:HG22	0.94	0.94
3:B:63:LYS:C	3:B:88:THR:HG23	1.91	0.94
3:B:63:LYS:O	3:B:88:THR:CG2	2.16	0.93
4:C:78:LEU:HD13	4:C:97:PHE:CD2	2.02	0.93
1:2:1332:A:H62	1:2:1493:C:H42	1.11	0.93
1:2:1606:G:N2	1:2:1633:A:N7	2.16	0.93
2:A:76:VAL:HG13	2:A:175:TRP:CH2	2.05	0.92
2:A:90:PHE:CE2	2:A:175:TRP:HZ3	1.88	0.92
2:A:176:TRP:CD1	2:A:195:TRP:CZ3	2.57	0.91
1:2:1495:G:H4'	19:d:26:ASN:OD1	1.70	0.91
19:d:43:PHE:HE2	31:U:80:PHE:CE2	1.87	0.91
22:D:187:LYS:O	22:D:188:ILE:HD13	1.70	0.91
2:A:58:LEU:HD21	2:A:174:MET:HE1	1.53	0.91
24:K:24:LYS:HA	24:K:66:HIS:ND1	1.84	0.90
24:K:24:LYS:HG3	24:K:66:HIS:HE1	1.32	0.90
2:A:58:LEU:HD21	2:A:174:MET:CE	2.00	0.90
4:C:134:ASN:C	4:C:134:ASN:HD22	1.78	0.90
14:W:75:ILE:HD11	14:W:93:LEU:HD11	1.51	0.90
19:d:8:TRP:CD1	24:K:28:HIS:HB3	2.06	0.89
1:2:1332:A:H62	1:2:1493:C:N4	1.72	0.88
1:2:1033:G:H1	1:2:1080:A:HO2'	1.12	0.88
19:d:34:TYR:CZ	31:U:61:LEU:HB3	2.09	0.88
19:d:23:VAL:CG2	24:K:64:TRP:NE1	2.37	0.87
7:H:58:LYS:HB2	7:H:90:LYS:HD3	1.55	0.87
19:d:43:PHE:CE2	31:U:80:PHE:HD2	1.86	0.87
4:C:78:LEU:HD22	4:C:97:PHE:HB2	1.58	0.86
7:H:58:LYS:HD2	7:H:90:LYS:HZ3	1.36	0.86
31:U:24:LEU:HD12	31:U:36:CYS:HB2	1.57	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:R:13:ALA:HA	28:R:16:ILE:CG2	2.05	0.85
22:D:21:LEU:O	22:D:21:LEU:HD12	1.77	0.85
14:W:94:LEU:HD21	14:W:102:ILE:HG13	1.59	0.84
4:C:102:LEU:HD21	4:C:130:ILE:CG1	2.08	0.84
1:2:1332:A:N6	1:2:1493:C:H42	1.76	0.83
1:2:1513:C:OP1	19:d:10:HIS:HB3	1.78	0.83
22:D:132:LYS:CB	22:D:189:MET:HE3	2.09	0.83
4:C:83:LEU:O	4:C:83:LEU:HD12	1.77	0.83
19:d:23:VAL:HG11	19:d:42:CYS:CB	2.08	0.83
31:U:24:LEU:CD1	31:U:36:CYS:HB2	2.08	0.83
1:2:1497:G:C4	24:K:62:PHE:CE2	2.64	0.82
2:A:176:TRP:NE1	2:A:195:TRP:CE3	2.43	0.82
1:2:1329:U:H3	1:2:1500:G:H1	1.23	0.82
3:B:49:VAL:HG22	3:B:65:ARG:HH21	1.39	0.81
7:H:58:LYS:CD	7:H:90:LYS:NZ	2.40	0.81
4:C:78:LEU:HB2	4:C:97:PHE:CG	2.16	0.81
1:2:1497:G:C8	24:K:62:PHE:HE2	1.98	0.81
1:2:1618:C:N4	19:d:10:HIS:HE1	1.79	0.81
19:d:34:TYR:CE2	31:U:61:LEU:HB3	2.16	0.81
2:A:173:LEU:O	2:A:173:LEU:HD22	1.81	0.80
19:d:21:CYS:SG	19:d:23:VAL:CG1	2.64	0.80
1:2:678:U:H3	1:2:1027:A:N6	1.77	0.80
22:D:132:LYS:HB2	22:D:189:MET:HE3	1.64	0.80
22:D:187:LYS:C	22:D:188:ILE:HD13	2.07	0.79
22:D:20:GLU:HB2	24:K:64:TRP:CZ3	2.18	0.79
2:A:90:PHE:CE2	2:A:175:TRP:CZ3	2.70	0.79
1:2:1618:C:N4	19:d:10:HIS:CE1	2.52	0.78
14:W:94:LEU:HD21	14:W:102:ILE:CG1	2.13	0.78
3:B:63:LYS:HA	3:B:88:THR:HG23	1.65	0.78
23:F:158:ALA:O	23:F:162:ALA:HB3	1.84	0.78
1:2:1661:A:C8	19:d:14:PHE:CD1	2.72	0.78
22:D:167:TYR:O	22:D:189:MET:HA	1.82	0.78
19:d:34:TYR:OH	31:U:61:LEU:HA	1.82	0.78
31:U:32:LEU:O	31:U:32:LEU:HD12	1.83	0.78
24:K:24:LYS:CA	24:K:66:HIS:CE1	2.68	0.77
28:R:13:ALA:O	28:R:16:ILE:HG23	1.84	0.77
1:2:1227:G:H1	1:2:1531:A:H61	0.80	0.77
19:d:23:VAL:HG11	19:d:42:CYS:HB3	1.65	0.77
1:2:164:A:H3'	1:2:165:G:H21	1.50	0.77
1:2:1513:C:OP1	19:d:10:HIS:CB	2.33	0.77
1:2:1497:G:N3	24:K:62:PHE:HD2	1.83	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1618:C:O2	19:d:11:PRO:HG3	1.84	0.76
1:2:1606:G:N2	1:2:1633:A:C8	2.54	0.76
2:A:93:ALA:HB1	2:A:183:LEU:HD11	1.68	0.75
4:C:78:LEU:HD12	4:C:78:LEU:O	1.86	0.75
19:d:8:TRP:CD2	24:K:28:HIS:HB3	2.21	0.75
24:K:24:LYS:CG	24:K:66:HIS:HE1	1.99	0.75
28:R:16:ILE:HD12	28:R:16:ILE:O	1.87	0.75
19:d:50:ILE:HG23	22:D:15:GLY:HA3	1.68	0.75
14:W:90:GLN:HA	14:W:102:ILE:HD11	1.69	0.74
1:2:1497:G:C8	24:K:62:PHE:CE2	2.74	0.74
2:A:90:PHE:CD1	2:A:179:ALA:HB2	2.23	0.74
19:d:34:TYR:HB2	22:D:12:VAL:HG11	1.70	0.74
1:2:444:G:H22	1:2:447:A:H5"	1.52	0.74
22:D:20:GLU:HB2	24:K:64:TRP:CE3	2.22	0.74
3:B:63:LYS:CA	3:B:88:THR:HG23	2.17	0.74
1:2:1232:U:H3	1:2:1526:G:H1	1.35	0.74
4:C:78:LEU:HD22	4:C:97:PHE:CD2	2.23	0.73
4:C:131:GLY:HA3	4:C:216:MET:HB3	1.70	0.72
3:B:62:LEU:O	3:B:88:THR:HG21	1.89	0.72
1:2:677:G:N1	1:2:1027:A:OP2	2.23	0.72
19:d:34:TYR:CB	22:D:12:VAL:HG21	2.18	0.72
31:U:26:SER:OG	31:U:32:LEU:HB2	1.89	0.72
19:d:43:PHE:CE2	31:U:80:PHE:HE2	2.04	0.72
3:B:62:LEU:HD21	3:B:91:VAL:HG11	1.70	0.71
1:2:1368:U:HO2'	28:R:2:GLY:N	1.88	0.71
19:d:25:SER:HB2	24:K:65:ARG:HD2	1.71	0.71
19:d:52:PHE:CE2	31:U:63:ILE:CD1	2.60	0.71
2:A:76:VAL:HG13	2:A:175:TRP:HH2	1.53	0.71
3:B:63:LYS:C	3:B:88:THR:CG2	2.62	0.71
27:Q:87:SER:O	27:Q:91:ALA:HB2	1.89	0.70
31:U:34:LYS:HA	31:U:34:LYS:CE	2.09	0.70
4:C:78:LEU:HD22	4:C:97:PHE:CB	2.20	0.70
19:d:34:TYR:CB	22:D:12:VAL:HG11	2.22	0.70
1:2:1482:C:H5'	19:d:54:LYS:HE3	1.72	0.70
1:2:1618:C:H42	19:d:10:HIS:CE1	2.09	0.70
7:H:58:LYS:CD	7:H:90:LYS:HZ3	2.02	0.69
14:W:112:ASP:HB2	14:W:115:GLU:H	1.57	0.69
1:2:1100:A:H4'	28:R:132:ARG:HH12	1.58	0.69
1:2:617:G:H4'	15:X:88:ASP:HB3	1.74	0.69
2:A:173:LEU:HD13	2:A:173:LEU:C	2.17	0.69
1:2:641:A:OP1	9:J:40:LYS:NZ	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Z:68:ILE:HB	32:Z:109:TYR:HB2	1.75	0.69
1:2:318:A:C2	1:2:333:G:C2	2.81	0.69
3:B:65:ARG:HB3	12:O:48:SER:HB2	1.75	0.69
14:W:75:ILE:CD1	14:W:93:LEU:HD11	2.22	0.69
30:T:11:GLN:OE1	30:T:62:ARG:NH1	2.26	0.68
1:2:1310:U:O4	34:f:95:ARG:NH2	2.26	0.68
4:C:83:LEU:HD12	4:C:83:LEU:C	2.18	0.68
1:2:1482:C:C5'	19:d:54:LYS:HE3	2.23	0.68
1:2:110:U:H3	1:2:351:G:H1	1.40	0.68
8:I:162:LEU:HD11	8:I:191:GLU:HG2	1.76	0.68
1:2:1533:A:N6	1:2:1602:U:C2	2.62	0.68
19:d:23:VAL:HG11	19:d:42:CYS:SG	2.34	0.68
31:U:61:LEU:HD12	31:U:82:MET:CB	2.24	0.68
1:2:350:C:O2'	1:2:383:G:N1	2.27	0.67
14:W:75:ILE:HD11	14:W:93:LEU:HD13	1.77	0.67
3:B:90:ASP:HB2	3:B:97:LEU:HB2	1.75	0.67
19:d:36:LEU:HA	22:D:16:ILE:HD11	1.75	0.67
35:g:256:ILE:HB	35:g:270:LEU:HB2	1.77	0.67
1:2:1726:G:H1	1:2:1808:U:H3	1.42	0.67
1:2:1310:U:OP2	25:M:36:ARG:NH2	2.28	0.67
1:2:496:C:OP1	5:E:49:ARG:NH2	2.27	0.66
14:W:92:ASN:N	14:W:92:ASN:HD22	1.93	0.66
31:U:61:LEU:HD12	31:U:82:MET:CG	2.24	0.66
2:A:76:VAL:CG1	2:A:175:TRP:CH2	2.76	0.66
35:g:17:TRP:HB2	35:g:36:ARG:HG3	1.79	0.66
1:2:1565:C:OP2	30:T:101:ARG:NH1	2.28	0.65
1:2:1144:A:N3	1:2:1199:A:O2'	2.27	0.65
1:2:1259:A:H61	1:2:1519:U:H5'	1.61	0.65
1:2:1497:G:N7	24:K:62:PHE:CE2	2.50	0.65
22:D:132:LYS:HB3	22:D:189:MET:HE3	1.78	0.65
4:C:134:ASN:C	4:C:134:ASN:ND2	2.49	0.65
31:U:61:LEU:HD12	31:U:82:MET:HB3	1.79	0.65
18:b:40:CYS:SG	18:b:41:TYR:N	2.70	0.65
1:2:1295:A:OP1	26:P:62:LYS:NZ	2.30	0.64
1:2:1513:C:P	19:d:12:ARG:HH12	2.20	0.64
22:D:21:LEU:HD12	22:D:21:LEU:C	2.20	0.64
1:2:1549:U:OP2	22:D:8:LYS:NZ	2.30	0.64
9:J:114:VAL:HG13	9:J:119:LEU:HB2	1.80	0.64
18:b:56:CYS:HB3	18:b:61:THR:H	1.63	0.64
1:2:1669:G:OP1	31:U:79:ARG:NH1	2.31	0.64
19:d:8:TRP:NE1	24:K:28:HIS:CG	2.65	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:T:76:THR:HG22	30:T:94:ARG:HB3	1.80	0.64
1:2:678:U:N3	1:2:1027:A:N6	2.40	0.64
1:2:1351:G:H1	1:2:1360:U:H3	1.44	0.64
1:2:1387:G:N2	22:D:206:ASP:OD1	2.29	0.63
1:2:934:G:O6	1:2:1008:A:N1	2.31	0.63
1:2:1455:A:OP1	28:R:5:ARG:NH2	2.31	0.63
4:C:209:VAL:HG11	4:C:233:LEU:HD11	1.79	0.63
11:N:4:MET:SD	11:N:124:ARG:NH1	2.72	0.63
3:B:33:VAL:HA	3:B:96:CYS:HB2	1.78	0.63
1:2:678:U:C2	1:2:1027:A:N6	2.66	0.63
5:E:48:LEU:HD23	5:E:61:VAL:HG13	1.80	0.63
7:H:134:VAL:HG12	7:H:137:SER:HB2	1.80	0.63
35:g:154:VAL:O	35:g:155:ARG:NH1	2.30	0.63
1:2:943:U:OP1	3:B:214:LYS:NZ	2.31	0.62
1:2:1862:G:O2'	17:a:5:ARG:NH2	2.32	0.62
22:D:22:ASN:ND2	22:D:34:TYR:OH	2.32	0.62
22:D:27:ARG:HB3	24:K:61:GLN:HE21	1.62	0.62
28:R:13:ALA:CA	28:R:16:ILE:CG2	2.76	0.62
1:2:379:C:O2	8:I:5:ARG:NH1	2.33	0.62
2:A:58:LEU:HD11	2:A:174:MET:HE1	1.80	0.62
2:A:78:SER:HG	2:A:125:THR:HG1	1.48	0.62
5:E:137:PRO:HG2	5:E:150:PRO:HD2	1.81	0.62
17:a:22:ARG:NH1	17:a:27:ALA:O	2.32	0.62
19:d:8:TRP:CG	24:K:28:HIS:HB3	2.35	0.62
23:F:168:THR:HG22	23:F:170:ALA:H	1.64	0.62
1:2:1010:G:H2'	1:2:1011:A:H8	1.64	0.62
1:2:1138:C:OP1	2:A:155:ARG:NH1	2.32	0.62
28:R:24:LEU:HD13	28:R:54:VAL:CG1	2.30	0.62
2:A:165:ASN:HA	2:A:171:VAL:HG22	1.82	0.62
1:2:190:G:O2'	1:2:209:A:N6	2.33	0.62
19:d:43:PHE:CZ	31:U:80:PHE:HD2	2.17	0.62
1:2:441:C:OP2	8:I:2:GLY:N	2.32	0.62
1:2:1865:C:OP1	17:a:87:ARG:NH1	2.33	0.61
28:R:12:ALA:C	28:R:16:ILE:HG22	2.20	0.61
1:2:1148:A:OP2	17:a:6:ARG:NH2	2.34	0.61
1:2:1407:U:OP1	27:Q:71:ARG:NH2	2.33	0.61
9:J:113:GLN:OE1	9:J:154:GLN:NE2	2.33	0.61
19:d:8:TRP:CE2	24:K:28:HIS:CB	2.62	0.61
1:2:663:C:OP2	15:X:3:LYS:NZ	2.34	0.61
3:B:179:ASN:HB3	3:B:183:GLU:HB2	1.83	0.61
5:E:71:LYS:HG2	5:E:76:VAL:HG22	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:T:56:ARG:HH12	30:T:99:VAL:HG12	1.66	0.61
1:2:1153:C:OP2	14:W:12:LYS:NZ	2.33	0.61
35:g:110:SER:HB3	35:g:155:ARG:HH12	1.66	0.61
1:2:1618:C:O2	19:d:11:PRO:CG	2.49	0.61
29:S:34:LYS:HB2	29:S:100:ALA:HA	1.82	0.61
1:2:919:A:H5"	11:N:64:ARG:HH12	1.66	0.61
1:2:1466:G:OP2	28:R:5:ARG:NH1	2.34	0.61
3:B:92:GLN:HB2	3:B:95:ASN:HB2	1.83	0.61
31:U:27:ARG:CG	31:U:82:MET:HE1	2.29	0.61
31:U:61:LEU:CG	31:U:82:MET:HB3	2.31	0.61
32:Z:73:VAL:HG13	32:Z:77:LEU:HD12	1.82	0.61
23:F:201:LYS:HD3	23:F:204:ARG:HE	1.66	0.60
1:2:1208:A:O2'	1:2:1835:A:N7	2.30	0.60
1:2:429:C:H2'	1:2:430:C:H6	1.65	0.60
1:2:678:U:OP1	11:N:127:ARG:NH2	2.34	0.60
26:P:37:TYR:HB3	26:P:41:GLN:HB2	1.83	0.60
1:2:1415:C:O2'	30:T:132:ASP:OD2	2.20	0.60
30:T:75:MET:HG3	30:T:104:LEU:HD21	1.83	0.60
10:L:104:LYS:HE2	15:X:8:ARG:HD3	1.83	0.60
1:2:579:C:O2	16:Y:61:ARG:NH2	2.34	0.60
1:2:1005:G:OP2	3:B:162:ARG:NH2	2.34	0.60
8:I:178:ARG:NH1	8:I:181:GLN:OE1	2.35	0.60
14:W:88:LYS:O	14:W:92:ASN:ND2	2.34	0.60
1:2:65:C:N4	6:G:134:GLY:O	2.35	0.60
2:A:181:GLU:OE1	2:A:181:GLU:HA	2.02	0.60
5:E:45:ILE:HG13	5:E:61:VAL:HG11	1.82	0.60
8:I:11:ARG:NH1	8:I:15:GLY:O	2.34	0.60
35:g:8:ARG:HB3	35:g:309:VAL:HG23	1.83	0.60
4:C:222:CYS:SG	4:C:223:TYR:N	2.75	0.60
3:B:179:ASN:ND2	3:B:183:GLU:OE1	2.35	0.60
29:S:75:ARG:HH21	29:S:95:TYR:HB2	1.66	0.60
4:C:102:LEU:HD11	4:C:130:ILE:HD13	1.82	0.60
22:D:107:TYR:O	22:D:111:GLY:N	2.31	0.60
1:2:1617:G:N1	1:2:1620:A:OP2	2.34	0.59
9:J:38:ARG:HA	20:e:31:ARG:HG2	1.84	0.59
1:2:862:A:N3	14:W:105:THR:OG1	2.35	0.59
1:2:5:U:H2'	1:2:6:G:H8	1.67	0.59
2:A:128:ARG:HD3	2:A:153:PRO:HD2	1.84	0.59
23:F:144:LEU:HB3	33:c:49:PRO:HG2	1.84	0.59
24:K:15:LEU:HD22	24:K:49:MET:HE1	1.83	0.59
3:B:146:ARG:HB2	3:B:149:GLN:HB2	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:K:24:LYS:CB	24:K:66:HIS:HE1	2.15	0.59
1:2:1606:G:H5'	30:T:86:GLY:HA2	1.85	0.59
3:B:62:LEU:CD1	3:B:91:VAL:HG21	2.17	0.59
8:I:177:SER:HB3	8:I:186:ASP:H	1.67	0.59
22:D:25:LEU:HD13	22:D:34:TYR:CE1	2.37	0.59
1:2:1192:U:OP2	15:X:119:ARG:NH2	2.35	0.59
17:a:23:CYS:SG	17:a:24:THR:N	2.76	0.59
31:U:32:LEU:HD12	31:U:32:LEU:C	2.24	0.59
7:H:101:LEU:O	7:H:116:ARG:NH1	2.36	0.59
23:F:143:PRO:HG3	33:c:54:ASP:HB3	1.85	0.58
1:2:583:A:OP1	9:J:162:ARG:NH2	2.36	0.58
30:T:51:ASN:HB3	30:T:54:TYR:HB2	1.84	0.58
9:J:32:ILE:O	9:J:36:GLY:N	2.37	0.58
19:d:34:TYR:HB3	22:D:12:VAL:CG2	2.26	0.58
19:d:36:LEU:HD12	22:D:12:VAL:CG1	2.33	0.58
23:F:121:PRO:HG2	23:F:196:LEU:HD12	1.84	0.58
1:2:1036:A:N3	1:2:1844:U:O2'	2.36	0.58
1:2:446:G:H21	5:E:5:PRO:HD2	1.67	0.58
1:2:1086:G:OP2	17:a:12:LYS:NZ	2.36	0.58
6:G:6:SER:HB3	6:G:13:GLN:HG3	1.85	0.58
1:2:688:U:H5"	7:H:103:LYS:HD2	1.83	0.58
1:2:1477:U:OP2	28:R:3:ARG:NH2	2.37	0.58
6:G:98:ARG:HH12	6:G:105:ASN:HB3	1.68	0.58
1:2:1286:G:O2'	1:2:1313:A:N6	2.36	0.58
3:B:87:ILE:HG12	3:B:101:HIS:HB2	1.84	0.58
7:H:58:LYS:HB2	7:H:90:LYS:CD	2.33	0.58
4:C:78:LEU:HD22	4:C:97:PHE:CG	2.38	0.58
8:I:99:ASN:ND2	8:I:174:CYS:SG	2.77	0.58
11:N:101:HIS:O	11:N:105:ASN:ND2	2.36	0.58
13:V:19:ALA:O	14:W:23:ARG:NH2	2.37	0.58
35:g:107:ASP:OD2	35:g:125:ARG:NH1	2.33	0.58
24:K:23:ALA:O	24:K:66:HIS:ND1	2.30	0.57
1:2:1606:G:H1	1:2:1632:G:H2'	1.69	0.57
2:A:31:ASP:HB3	2:A:34:MET:H	1.69	0.57
2:A:90:PHE:CZ	2:A:175:TRP:CZ3	2.91	0.57
1:2:1182:A:O3'	21:h:15:ARG:NH2	2.38	0.57
1:2:1673:U:OP1	27:Q:79:ALA:N	2.38	0.57
19:d:23:VAL:CG2	24:K:64:TRP:HE1	2.16	0.57
19:d:23:VAL:CG1	19:d:42:CYS:SG	2.92	0.57
23:F:162:ALA:HB1	23:F:169:ILE:HG12	1.84	0.57
1:2:688:U:OP1	7:H:121:THR:OG1	2.21	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:N:33:VAL:HG21	11:N:66:VAL:HG11	1.86	0.57
22:D:226:GLN:HE21	35:g:224:GLY:HA3	1.69	0.57
1:2:309:G:OP2	8:I:53:LYS:NZ	2.36	0.57
1:2:1497:G:C5	24:K:62:PHE:CD2	2.79	0.57
1:2:1373:C:O2'	28:R:10:LYS:NZ	2.38	0.57
23:F:85:LYS:HB3	23:F:88:MET:HB2	1.86	0.57
1:2:587:A:O2'	1:2:588:G:N2	2.38	0.57
1:2:1605:G:OP1	30:T:84:ARG:NH1	2.38	0.57
2:A:85:ARG:NH2	28:R:82:ASP:O	2.38	0.57
2:A:173:LEU:HD22	2:A:173:LEU:C	2.28	0.57
19:d:25:SER:HB2	24:K:65:ARG:CD	2.34	0.57
28:R:13:ALA:HA	28:R:16:ILE:HG21	1.86	0.57
7:H:98:ARG:HB3	7:H:125:VAL:HG13	1.85	0.57
28:R:20:TYR:CE2	28:R:38:ILE:HG21	2.39	0.57
1:2:1516:G:O5'	26:P:81:ARG:NH1	2.37	0.57
27:Q:86:GLN:NE2	27:Q:121:VAL:O	2.37	0.57
31:U:56:MET:HB2	31:U:86:LYS:HB3	1.86	0.57
35:g:42:MET:O	35:g:56:GLN:N	2.34	0.57
1:2:1495:G:C4'	19:d:26:ASN:OD1	2.50	0.56
4:C:102:LEU:C	4:C:102:LEU:HD23	2.30	0.56
7:H:66:VAL:HA	7:H:69:LEU:HB2	1.87	0.56
1:2:64:A:H2	1:2:83:A:H62	1.53	0.56
1:2:927:C:O2	18:b:51:GLN:NE2	2.38	0.56
16:Y:20:ARG:NH1	16:Y:74:MET:SD	2.78	0.56
32:Z:91:LEU:HD22	32:Z:96:LEU:HD12	1.87	0.56
1:2:643:A:OP1	9:J:39:ASN:ND2	2.38	0.56
5:E:31:PRO:HG3	5:E:43:PRO:HG3	1.87	0.56
5:E:44:LEU:HD13	5:E:72:ILE:HD11	1.86	0.56
7:H:51:ILE:HD11	7:H:176:VAL:HG22	1.86	0.56
9:J:107:GLU:O	9:J:113:GLN:NE2	2.34	0.56
12:O:139:SER:OG	12:O:140:THR:N	2.38	0.56
16:Y:114:MET:O	16:Y:122:LYS:NZ	2.39	0.56
35:g:302:TYR:HB3	35:g:304:ASP:H	1.69	0.56
1:2:1533:A:N6	1:2:1602:U:N3	2.51	0.56
1:2:1238:U:H1'	26:P:126:VAL:HG13	1.86	0.56
1:2:1589:A:N3	1:2:1653:U:O2'	2.36	0.56
13:V:73:ALA:O	13:V:77:GLY:N	2.39	0.56
15:X:51:VAL:HG13	15:X:70:VAL:HG13	1.86	0.56
22:D:168:VAL:HA	22:D:188:ILE:O	2.05	0.56
28:R:24:LEU:HD13	28:R:54:VAL:HG13	1.87	0.56
1:2:1397:U:H3	27:Q:12:VAL:HA	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:D:59:LEU:HA	22:D:66:ILE:HB	1.87	0.56
6:G:181:THR:HG22	6:G:183:ARG:H	1.69	0.56
12:O:96:LYS:HE2	12:O:130:GLU:HG2	1.86	0.56
17:a:11:ALA:HB3	17:a:33:ASP:HB2	1.87	0.56
35:g:226:HIS:HE2	35:g:229:THR:HG1	1.52	0.56
2:A:90:PHE:CZ	2:A:175:TRP:HZ3	2.23	0.56
24:K:24:LYS:CG	24:K:66:HIS:CE1	2.76	0.56
28:R:37:GLU:HG3	35:g:150:TRP:HE1	1.71	0.56
30:T:13:GLU:OE2	30:T:16:ARG:NH1	2.38	0.56
1:2:297:A:H5'	5:E:132:GLY:HA2	1.88	0.56
1:2:318:A:N1	1:2:333:G:C6	2.74	0.56
4:C:135:GLY:O	4:C:165:VAL:HG22	2.06	0.56
8:I:116:HIS:O	8:I:152:ARG:NH1	2.32	0.56
1:2:1614:A:OP2	26:P:42:ARG:NH2	2.39	0.55
1:2:1729:U:O2	1:2:1805:G:N2	2.31	0.55
32:Z:58:LEU:HD12	32:Z:62:VAL:HG21	1.88	0.55
4:C:179:THR:OG1	4:C:180:VAL:N	2.39	0.55
7:H:58:LYS:CD	7:H:90:LYS:HZ1	2.04	0.55
7:H:129:ILE:HG21	7:H:180:LEU:HD11	1.89	0.55
27:Q:33:LYS:HE2	27:Q:38:PRO:HG3	1.88	0.55
35:g:68:ASP:OD2	35:g:111:VAL:N	2.34	0.55
1:2:163:U:OP2	6:G:87:ARG:NH2	2.38	0.55
5:E:100:ARG:NH1	5:E:118:GLU:OE2	2.40	0.55
8:I:34:ALA:HB3	8:I:56:ARG:HD2	1.89	0.55
1:2:1674:G:OP1	23:F:51:HIS:NE2	2.33	0.55
3:B:104:ASP:OD1	3:B:104:ASP:N	2.39	0.55
12:O:39:ASP:HB3	12:O:68:GLU:HG2	1.88	0.55
33:c:20:ARG:NH1	33:c:26:GLN:O	2.39	0.55
1:2:1489:A:N3	22:D:146:ARG:NH1	2.55	0.55
22:D:166:TYR:OH	22:D:202:LYS:NZ	2.36	0.55
1:2:918:U:H3'	11:N:64:ARG:HH22	1.72	0.55
1:2:1256:G:H21	1:2:1659:U:H5'	1.72	0.55
9:J:134:HIS:HE1	9:J:164:PRO:HD2	1.71	0.55
1:2:1661:A:C8	19:d:14:PHE:HD1	2.23	0.55
3:B:120:MET:HG3	3:B:142:PHE:HE1	1.72	0.55
5:E:11:ARG:HA	5:E:28:ALA:HB2	1.88	0.55
14:W:90:GLN:HB2	14:W:94:LEU:HD12	1.89	0.55
1:2:1231:C:H42	1:2:1527:C:H42	1.54	0.55
3:B:31:TYR:CD2	3:B:62:LEU:HD22	2.42	0.55
8:I:72:CYS:SG	8:I:73:THR:N	2.80	0.55
11:N:103:GLU:OE2	11:N:104:ARG:NH1	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:W:78:ARG:HB3	14:W:124:LYS:HB3	1.88	0.55
29:S:138:THR:HG23	29:S:139:THR:HG23	1.88	0.55
1:2:1588:A:H2'	1:2:1589:A:C8	2.42	0.55
1:2:1741:U:OP1	8:I:42:ARG:NH1	2.39	0.55
1:2:1407:U:O2'	27:Q:11:GLN:NE2	2.37	0.55
24:K:67:PHE:O	24:K:68:TYR:CD1	2.60	0.55
35:g:212:LYS:HA	35:g:235:ILE:HB	1.89	0.55
1:2:1245:G:O2'	1:2:1492:U:OP1	2.23	0.54
1:2:1256:G:H1	19:d:31:ILE:HG12	1.71	0.54
1:2:1757:G:O6	1:2:1775:U:O2	2.25	0.54
4:C:102:LEU:HD11	4:C:130:ILE:CD1	2.37	0.54
22:D:156:LEU:HB2	22:D:189:MET:CE	2.29	0.54
1:2:686:U:OP1	14:W:32:LYS:N	2.35	0.54
12:O:19:PRO:HG2	12:O:27:VAL:HG11	1.89	0.54
22:D:109:LEU:HB2	22:D:175:VAL:HG21	1.89	0.54
1:2:67:C:OP2	6:G:172:LYS:NZ	2.32	0.54
3:B:71:LEU:HD11	3:B:189:ILE:HG23	1.90	0.54
5:E:152:PRO:O	5:E:155:LYS:NZ	2.37	0.54
6:G:5:ILE:HG12	6:G:111:LEU:HB2	1.89	0.54
16:Y:23:MET:HE2	16:Y:25:ILE:HD11	1.88	0.54
1:2:637:U:OP2	20:e:24:LYS:NZ	2.41	0.54
1:2:1329:U:O4	1:2:1500:G:O6	2.26	0.54
2:A:176:TRP:CE3	2:A:199:PRO:HB3	2.42	0.54
10:L:95:TYR:OH	10:L:100:ASN:ND2	2.40	0.54
23:F:145:ARG:HB2	33:c:49:PRO:HD2	1.89	0.54
25:M:25:ALA:O	25:M:29:ASP:N	2.40	0.54
31:U:61:LEU:CD1	31:U:82:MET:HB3	2.37	0.54
1:2:575:A:OP2	16:Y:93:ARG:NH2	2.41	0.54
4:C:221:ASP:OD1	4:C:221:ASP:N	2.36	0.54
12:O:74:ALA:HB1	12:O:115:ALA:HB2	1.89	0.54
1:2:525:A:H5'	20:e:32:ALA:HB3	1.89	0.54
1:2:1075:C:OP1	11:N:107:LYS:NZ	2.39	0.54
1:2:1226:G:N1	1:2:1639:G:OP2	2.39	0.54
1:2:1227:G:N2	1:2:1531:A:N1	2.48	0.54
1:2:1276:A:H62	1:2:1321:G:H21	1.55	0.54
1:2:1585:U:OP1	30:T:67:ARG:NH2	2.41	0.54
2:A:84:GLN:HE22	2:A:101:GLY:H	1.55	0.54
7:H:142:LYS:HB3	14:W:54:ASP:HB3	1.90	0.54
10:L:135:SER:OG	10:L:136:LYS:N	2.38	0.54
16:Y:86:GLU:OE2	16:Y:90:ARG:NH1	2.40	0.54
31:U:27:ARG:CD	31:U:82:MET:CE	2.64	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1612:G:H1'	29:S:87:GLN:HG3	1.90	0.54
1:2:318:A:C2	1:2:333:G:N1	2.76	0.54
1:2:1864:U:OP2	17:a:4:LYS:NZ	2.40	0.54
3:B:90:ASP:HB3	3:B:92:GLN:HE21	1.73	0.54
13:V:73:ALA:HB1	13:V:78:ILE:HB	1.88	0.54
27:Q:53:GLU:OE1	27:Q:85:ARG:NH2	2.41	0.54
35:g:70:VAL:O	35:g:79:LEU:N	2.40	0.54
9:J:50:LEU:HD13	9:J:102:ILE:HD13	1.89	0.54
22:D:116:ARG:HG2	22:D:150:MET:HE1	1.90	0.54
35:g:124:SER:OG	35:g:125:ARG:N	2.38	0.54
35:g:142:VAL:O	35:g:146:SER:OG	2.22	0.54
3:B:152:LYS:HG3	28:R:133:GLY:HA2	1.90	0.53
5:E:71:LYS:HA	5:E:76:VAL:HA	1.90	0.53
1:2:115:U:OP1	1:2:382:C:O2'	2.25	0.53
1:2:995:G:O3'	11:N:114:ARG:NH2	2.41	0.53
3:B:62:LEU:HD21	3:B:91:VAL:CG1	2.37	0.53
25:M:41:ALA:HA	25:M:44:LYS:HE3	1.90	0.53
29:S:35:GLY:O	29:S:97:GLN:NE2	2.42	0.53
8:I:141:ARG:HD3	8:I:146:GLN:HA	1.91	0.53
1:2:5:U:H2'	1:2:6:G:C8	2.43	0.53
1:2:900:C:H2'	1:2:901:G:H8	1.73	0.53
27:Q:9:SER:N	27:Q:99:TYR:OH	2.40	0.53
1:2:1650:A:H3'	1:2:1651:A:H8	1.73	0.53
2:A:16:LEU:HD22	28:R:96:ILE:HD11	1.90	0.53
10:L:113:LEU:HD11	10:L:117:PHE:HB2	1.91	0.53
14:W:17:ALA:HB1	14:W:22:LYS:HB2	1.90	0.53
33:c:13:ARG:HB2	33:c:33:GLU:HB3	1.91	0.53
1:2:350:C:O2'	1:2:383:G:N2	2.41	0.53
1:2:551:U:O2'	20:e:44:ASN:ND2	2.42	0.53
1:2:1618:C:C2	19:d:11:PRO:HG3	2.43	0.53
22:D:45:ARG:HG2	22:D:83:SER:HA	1.91	0.53
1:2:1325:G:H1'	1:2:1510:G:H5"	1.90	0.53
3:B:106:THR:HG22	3:B:108:ASP:H	1.74	0.53
16:Y:55:ILE:HG22	16:Y:75:ILE:HG23	1.90	0.53
19:d:33:LYS:NZ	31:U:62:ARG:O	2.36	0.53
1:2:1863:A:OP2	17:a:4:LYS:NZ	2.37	0.53
9:J:112:THR:HG22	9:J:123:ILE:HD11	1.90	0.53
12:O:42:VAL:HG11	12:O:81:VAL:HG11	1.91	0.53
1:2:145:G:O6	6:G:178:ARG:NH2	2.42	0.53
3:B:63:LYS:O	3:B:88:THR:HG22	2.07	0.53
23:F:39:ILE:HG23	23:F:68:ILE:HD12	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:K:24:LYS:CB	24:K:66:HIS:CE1	2.92	0.53
34:f:132:MET:HE3	34:f:141:CYS:HB2	1.90	0.53
35:g:236:ILE:HG23	35:g:251:ALA:H	1.74	0.53
3:B:169:MET:O	3:B:173:THR:OG1	2.23	0.52
8:I:67:TRP:CD1	8:I:70:GLU:H	2.26	0.52
17:a:100:ARG:O	17:a:102:ARG:NH1	2.39	0.52
1:2:1676:U:H1'	23:F:78:MET:HE3	1.91	0.52
4:C:259:THR:HG21	13:V:15:ARG:HA	1.91	0.52
6:G:194:LEU:O	6:G:198:ARG:NH1	2.41	0.52
11:N:100:LYS:O	11:N:104:ARG:NH1	2.38	0.52
31:U:34:LYS:HE2	31:U:34:LYS:CA	2.19	0.52
28:R:59:LYS:HE2	35:g:282:GLU:HG3	1.91	0.52
1:2:1536:G:H2'	1:2:1537:A:C8	2.45	0.52
3:B:217:MET:HE2	3:B:220:LYS:HG2	1.92	0.52
4:C:98:LEU:N	4:C:98:LEU:CD1	2.73	0.52
25:M:10:GLY:HA2	25:M:123:VAL:HG22	1.91	0.52
1:2:1719:A:N6	1:2:1814:G:O2'	2.42	0.52
2:A:89:LYS:HE2	2:A:201:LEU:HD11	1.90	0.52
4:C:134:ASN:ND2	4:C:134:ASN:O	2.42	0.52
19:d:36:LEU:HA	22:D:16:ILE:CD1	2.40	0.52
1:2:628:A:OP1	22:D:145:GLN:NE2	2.43	0.52
1:2:1159:G:OP2	15:X:5:ARG:NH1	2.42	0.52
1:2:1199:A:H5'	17:a:2:THR:HB	1.92	0.52
1:2:1648:G:N2	1:2:1675:A:OP2	2.40	0.52
1:2:1785:C:O2'	1:2:1786:U:O4'	2.28	0.52
1:2:1866:A:H62	17:a:84:VAL:HG13	1.75	0.52
1:2:1098:C:H2'	1:2:1099:G:C8	2.44	0.52
1:2:1628:C:OP1	30:T:38:LYS:NZ	2.37	0.52
4:C:103:LYS:HD2	4:C:133:TYR:HE2	1.74	0.52
22:D:226:GLN:NE2	35:g:223:GLU:O	2.43	0.52
1:2:1567:G:H1'	30:T:37:VAL:HG21	1.92	0.52
1:2:1740:C:OP1	8:I:44:HIS:ND1	2.31	0.52
1:2:922:A:OP1	14:W:28:ARG:NH1	2.42	0.52
1:2:1275:G:O2'	1:2:1321:G:N2	2.38	0.52
1:2:1286:G:H21	1:2:1287:A:H62	1.57	0.52
1:2:1864:U:H5'	17:a:79:ILE:HD11	1.91	0.52
3:B:73:ASP:OD1	12:O:128:ARG:NH2	2.43	0.52
7:H:87:PHE:H	7:H:87:PHE:HD2	1.57	0.52
22:D:74:GLN:HB2	22:D:75:LYS:HD2	1.92	0.52
1:2:103:A:OP2	1:2:356:C:N4	2.43	0.52
1:2:106:C:OP1	1:2:431:G:O2'	2.27	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:613:G:N1	1:2:629:A:OP1	2.37	0.52
2:A:2:SER:HB3	2:A:59:LEU:HD12	1.92	0.52
5:E:6:LYS:O	5:E:30:ARG:NH2	2.43	0.52
26:P:50:ARG:O	26:P:54:HIS:N	2.37	0.52
1:2:110:U:OP1	1:2:855:G:N2	2.42	0.51
1:2:913:A:H62	7:H:119:SER:HB3	1.75	0.51
2:A:42:LYS:HD3	2:A:48:ILE:HD11	1.92	0.51
16:Y:15:ASN:ND2	16:Y:22:GLN:OE1	2.43	0.51
1:2:145:G:H2'	1:2:146:G:C8	2.46	0.51
1:2:409:C:N4	1:2:427:U:OP1	2.39	0.51
1:2:961:G:OP1	12:O:149:ARG:NH2	2.42	0.51
1:2:1274:G:H5'	24:K:47:LYS:HE2	1.92	0.51
22:D:27:ARG:HB2	24:K:61:GLN:HG3	1.92	0.51
22:D:98:ALA:HB3	22:D:169:ASP:HB2	1.93	0.51
35:g:129:ILE:HB	35:g:142:VAL:HB	1.93	0.51
35:g:131:LEU:HB2	35:g:139:LYS:HB2	1.91	0.51
1:2:1300:U:H2'	26:P:51:ARG:HH21	1.76	0.51
1:2:1615:U:O4	26:P:40:ARG:NH1	2.43	0.51
1:2:1722:G:O6	1:2:1812:U:O2	2.28	0.51
4:C:84:PHE:CE1	4:C:264:SER:HA	2.46	0.51
22:D:133:GLY:HA2	22:D:155:GLY:HA3	1.93	0.51
1:2:1729:U:O4	1:2:1805:G:O6	2.29	0.51
19:d:23:VAL:HG13	19:d:24:CYS:N	2.25	0.51
35:g:3:GLU:HG2	35:g:315:GLY:H	1.73	0.51
1:2:1265:A:H2'	34:f:78:LYS:HZ1	1.76	0.51
23:F:143:PRO:HD2	33:c:50:VAL:HG22	1.92	0.51
1:2:1013:U:OP1	1:2:1129:G:O2'	2.24	0.51
6:G:52:ILE:HD13	6:G:102:VAL:HG21	1.93	0.51
31:U:32:LEU:HD21	31:U:87:ARG:HG2	1.92	0.51
1:2:388:U:H2'	1:2:389:A:C8	2.46	0.51
1:2:1776:G:H2'	1:2:1777:G:H8	1.75	0.51
1:2:1396:A:O2'	1:2:1398:G:N7	2.43	0.51
1:2:1512:C:O2'	19:d:7:TYR:O	2.25	0.51
9:J:138:ARG:HG2	9:J:156:HIS:CD2	2.46	0.51
13:V:55:ILE:HD13	13:V:65:SER:HB2	1.92	0.51
14:W:92:ASN:HD22	14:W:92:ASN:H	1.59	0.51
30:T:6:VAL:O	30:T:11:GLN:NE2	2.43	0.51
1:2:982:G:N2	1:2:1045:U:O2	2.33	0.51
1:2:1174:U:OP1	21:h:21:ARG:NH2	2.40	0.51
13:V:17:CYS:SG	13:V:18:SER:N	2.84	0.51
14:W:94:LEU:HD23	14:W:94:LEU:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:F:35:LEU:HD12	23:F:117:ILE:HG12	1.93	0.51
23:F:50:PRO:HG3	23:F:69:VAL:HG12	1.93	0.51
35:g:206:LEU:HD22	35:g:218:LEU:HD21	1.93	0.51
1:2:919:A:OP2	11:N:64:ARG:NH2	2.44	0.51
1:2:1096:G:OP2	14:W:22:LYS:NZ	2.39	0.51
4:C:183:LYS:HD2	4:C:194:ARG:HE	1.76	0.51
16:Y:23:MET:SD	16:Y:23:MET:N	2.83	0.51
1:2:387:C:OP2	8:I:10:LYS:NZ	2.42	0.50
1:2:1482:C:H5"	19:d:54:LYS:HE3	1.93	0.50
19:d:23:VAL:CB	24:K:64:TRP:NE1	2.73	0.50
27:Q:28:GLY:HA3	27:Q:67:ASP:HB2	1.93	0.50
1:2:808:A:O2'	1:2:809:A:O5'	2.28	0.50
4:C:136:HIS:HB3	4:C:162:ILE:HG23	1.93	0.50
9:J:67:ASP:HB3	9:J:70:ARG:HB3	1.93	0.50
1:2:1279:C:H2'	1:2:1280:G:H8	1.76	0.50
2:A:90:PHE:CE1	2:A:175:TRP:HE3	2.30	0.50
4:C:78:LEU:HB2	4:C:97:PHE:CD1	2.46	0.50
9:J:18:ARG:O	9:J:24:ARG:NH1	2.42	0.50
22:D:132:LYS:CB	22:D:189:MET:CE	2.87	0.50
23:F:74:ASN:HA	23:F:77:MET:HE3	1.93	0.50
1:2:522:A:H5"	9:J:145:PRO:HD2	1.93	0.50
1:2:1232:U:O4	1:2:1526:G:O6	2.29	0.50
9:J:134:HIS:HD1	9:J:163:SER:HB2	1.77	0.50
35:g:7:LEU:HB2	35:g:272:GLN:HE22	1.76	0.50
1:2:1060:A:O2'	1:2:1062:A:N7	2.36	0.50
3:B:129:THR:OG1	3:B:132:GLY:N	2.45	0.50
9:J:63:LEU:HB2	9:J:70:ARG:HD2	1.94	0.50
18:b:45:THR:OG1	18:b:82:LYS:NZ	2.44	0.50
19:d:6:LEU:HA	19:d:9:SER:HB3	1.94	0.50
22:D:29:LEU:HD22	22:D:58:VAL:HG12	1.93	0.50
22:D:226:GLN:HA	35:g:186:THR:HA	1.94	0.50
27:Q:102:GLU:HG2	35:g:55:PRO:HB2	1.93	0.50
29:S:114:LEU:O	29:S:118:ARG:N	2.45	0.50
1:2:126:G:N2	1:2:180:G:H21	2.09	0.50
2:A:6:ASP:HA	2:A:9:GLN:HB2	1.93	0.50
27:Q:76:GLY:H	27:Q:79:ALA:HB3	1.77	0.50
31:U:61:LEU:HG	31:U:82:MET:HB3	1.94	0.50
1:2:1590:C:H5"	1:2:1591:C:H5	1.77	0.50
13:V:60:ARG:HA	13:V:65:SER:HB3	1.93	0.50
23:F:144:LEU:O	23:F:148:ASN:ND2	2.44	0.50
1:2:1324:G:O2'	1:2:1510:G:O2'	2.28	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1373:C:P	28:R:7:LYS:HG3	2.52	0.50
5:E:180:LEU:O	5:E:228:ILE:HB	2.12	0.50
14:W:30:CYS:N	14:W:59:GLY:O	2.41	0.50
14:W:90:GLN:HB2	14:W:94:LEU:CD1	2.41	0.50
25:M:35:ILE:HG23	34:f:102:VAL:HG21	1.94	0.50
34:f:125:GLU:O	34:f:143:LYS:NZ	2.44	0.50
1:2:1259:A:O2'	1:2:1262:C:N4	2.45	0.50
4:C:207:ALA:HB3	4:C:210:PRO:HD2	1.93	0.50
12:O:31:CYS:O	12:O:96:LYS:N	2.44	0.50
22:D:163:PRO:O	22:D:167:TYR:HB2	2.11	0.50
1:2:919:A:H5'	11:N:16:LEU:HD12	1.94	0.49
1:2:1568:C:O2	1:2:1627:C:O2'	2.28	0.49
1:2:1608:U:O4	1:2:1632:G:N2	2.45	0.49
4:C:102:LEU:CD2	4:C:130:ILE:CD1	2.65	0.49
7:H:9:VAL:HG22	7:H:45:ILE:HD11	1.94	0.49
7:H:145:ARG:HA	14:W:51:GLU:HA	1.93	0.49
22:D:24:PHE:HA	24:K:63:ALA:HB2	1.94	0.49
11:N:101:HIS:NE2	11:N:108:ASP:OD2	2.44	0.49
1:2:913:A:H2	7:H:99:ARG:H	1.60	0.49
11:N:129:TYR:O	11:N:133:ARG:N	2.45	0.49
16:Y:103:SER:HB3	16:Y:106:GLN:HG2	1.94	0.49
28:R:33:ARG:HH21	35:g:64:HIS:HE1	1.59	0.49
1:2:223:C:H2'	1:2:224:A:C8	2.47	0.49
1:2:1284:A:O2'	25:M:106:CYS:SG	2.60	0.49
5:E:72:ILE:HG12	5:E:90:ILE:HG12	1.93	0.49
31:U:27:ARG:CG	31:U:82:MET:CE	2.91	0.49
1:2:429:C:H2'	1:2:430:C:C6	2.47	0.49
1:2:1617:G:O2'	19:d:14:PHE:CZ	2.65	0.49
1:2:1726:G:H2'	1:2:1727:G:C8	2.48	0.49
4:C:128:VAL:HG11	4:C:155:ILE:HG12	1.95	0.49
1:2:68:A:OP2	6:G:164:LYS:NZ	2.33	0.49
1:2:1047:C:H1'	12:O:141:ARG:HD3	1.94	0.49
9:J:121:LYS:H	9:J:125:HIS:HD2	1.60	0.49
1:2:1464:C:O2'	1:2:1465:A:O4'	2.29	0.49
1:2:1537:A:O3'	30:T:84:ARG:NH2	2.46	0.49
7:H:160:LYS:HA	7:H:163:GLN:HB2	1.95	0.49
1:2:126:G:H21	1:2:180:G:H21	1.61	0.49
1:2:928:G:H2'	1:2:929:G:C8	2.48	0.49
5:E:124:CYS:HB3	5:E:141:THR:HB	1.94	0.49
16:Y:74:MET:HE2	16:Y:74:MET:HB3	1.74	0.49
19:d:34:TYR:OH	31:U:61:LEU:CA	2.58	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:D:32:ASP:OD2	22:D:65:ARG:NH1	2.46	0.49
22:D:169:ASP:O	22:D:187:LYS:HA	2.12	0.49
23:F:25:THR:HG22	23:F:109:LEU:HD22	1.95	0.49
1:2:106:C:H2'	1:2:107:A:H8	1.78	0.49
1:2:659:G:H21	15:X:17:ARG:NH1	2.10	0.49
1:2:1047:C:H5"	12:O:143:LYS:HA	1.95	0.49
3:B:113:MET:O	3:B:118:GLN:NE2	2.46	0.49
3:B:137:LEU:HD23	3:B:215:VAL:HG22	1.95	0.49
16:Y:41:ARG:NH2	16:Y:52:PRO:O	2.45	0.49
22:D:109:LEU:HB3	22:D:177:LEU:HD11	1.93	0.49
31:U:32:LEU:HD21	31:U:87:ARG:CG	2.43	0.49
33:c:13:ARG:NH2	33:c:53:GLY:O	2.45	0.49
35:g:42:MET:HB3	35:g:57:ARG:H	1.78	0.49
1:2:1473:G:N2	1:2:1476:A:OP2	2.42	0.48
4:C:78:LEU:HB2	4:C:97:PHE:CB	2.43	0.48
5:E:9:LEU:HB2	5:E:30:ARG:HD3	1.95	0.48
9:J:28:GLU:HB3	9:J:40:LYS:HE3	1.95	0.48
28:R:66:VAL:HG12	28:R:68:GLY:H	1.78	0.48
29:S:99:LEU:O	29:S:103:LEU:N	2.46	0.48
1:2:602:G:H3'	1:2:603:C:H2'	1.95	0.48
1:2:1546:G:H22	1:2:1655:C:H1'	1.77	0.48
5:E:70:ILE:HG12	5:E:92:ILE:HG12	1.96	0.48
7:H:10:LYS:HD2	7:H:44:ASN:HD22	1.78	0.48
19:d:50:ILE:CG1	22:D:15:GLY:O	2.35	0.48
1:2:28:U:H2'	1:2:29:G:H8	1.78	0.48
1:2:1401:A:H2'	1:2:1402:A:C8	2.48	0.48
3:B:52:THR:HG22	3:B:54:GLY:H	1.78	0.48
11:N:136:PRO:HG2	11:N:139:TRP:HB2	1.95	0.48
1:2:122:G:H21	5:E:146:THR:HG21	1.79	0.48
1:2:678:U:O4	1:2:1027:A:N7	2.46	0.48
2:A:58:LEU:CD2	2:A:174:MET:HE1	2.33	0.48
28:R:20:TYR:CZ	28:R:38:ILE:HG21	2.48	0.48
30:T:56:ARG:HE	30:T:79:TYR:HE2	1.59	0.48
31:U:34:LYS:CE	31:U:34:LYS:CA	2.85	0.48
35:g:147:HIS:HD2	35:g:151:VAL:HG22	1.78	0.48
1:2:1233:G:N3	1:2:1252:C:O2'	2.37	0.48
1:2:1297:U:H1'	1:2:1301:A:H62	1.78	0.48
30:T:124:THR:O	30:T:128:GLN:N	2.45	0.48
35:g:259:TRP:HA	35:g:266:ILE:HA	1.95	0.48
1:2:1275:G:N2	1:2:1506:A:OP2	2.35	0.48
1:2:1538:C:O2	30:T:48:TYR:OH	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:144:THR:HB	2:A:158:ASP:H	1.79	0.48
5:E:179:ASN:HD22	5:E:231:GLY:H	1.62	0.48
7:H:130:LEU:HD21	7:H:156:VAL:HG21	1.96	0.48
27:Q:34:VAL:HB	27:Q:42:ILE:HD11	1.95	0.48
30:T:97:LYS:O	30:T:101:ARG:HB2	2.14	0.48
1:2:992:A:H62	17:a:15:ARG:HH12	1.62	0.48
1:2:30:C:O2'	1:2:596:U:OP1	2.27	0.48
1:2:204:G:OP1	8:I:147:LYS:NZ	2.47	0.48
1:2:433:A:H2'	1:2:434:G:C8	2.49	0.48
1:2:1010:G:H2'	1:2:1011:A:C8	2.47	0.48
1:2:1371:U:H4'	1:2:1372:U:H5	1.79	0.48
1:2:1543:U:O2'	27:Q:43:GLU:OE1	2.22	0.48
1:2:1856:C:H2'	1:2:1857:G:C8	2.49	0.48
12:O:30:VAL:HA	12:O:94:HIS:HB2	1.95	0.48
1:2:300:U:H2'	1:2:301:A:C8	2.49	0.48
1:2:300:U:H2'	1:2:301:A:H8	1.79	0.48
1:2:436:G:OP2	1:2:471:G:O2'	2.32	0.48
1:2:1542:C:OP1	30:T:62:ARG:NH2	2.47	0.48
1:2:1590:C:O2	1:2:1652:G:N2	2.43	0.48
7:H:174:SER:O	7:H:178:LYS:N	2.43	0.48
13:V:17:CYS:SG	13:V:19:ALA:N	2.87	0.48
28:R:44:LYS:O	28:R:48:ASN:N	2.47	0.48
35:g:215:GLN:HG2	35:g:231:ASP:HA	1.94	0.48
1:2:397:G:OP2	10:L:108:ASN:ND2	2.45	0.48
1:2:634:A:H2'	1:2:635:G:H8	1.79	0.48
1:2:1161:U:OP1	15:X:12:LYS:NZ	2.47	0.48
2:A:90:PHE:HD1	2:A:179:ALA:HB2	1.78	0.48
1:2:1274:G:N2	1:2:1274:G:OP1	2.46	0.47
12:O:99:ALA:H	12:O:133:THR:HG22	1.79	0.47
29:S:45:LEU:O	29:S:49:ASP:N	2.47	0.47
8:I:106:SER:HB2	8:I:171:LEU:HG	1.96	0.47
26:P:96:VAL:HG21	26:P:116:LEU:HB3	1.95	0.47
34:f:138:ARG:HA	34:f:149:CYS:HA	1.96	0.47
1:2:359:U:H2'	1:2:362:C:H5	1.79	0.47
1:2:798:G:H21	7:H:107:LYS:HG2	1.79	0.47
1:2:1513:C:OP1	19:d:10:HIS:HB2	2.13	0.47
1:2:1550:G:O2'	1:2:1558:C:O2	2.30	0.47
3:B:107:ARG:NH1	12:O:133:THR:O	2.45	0.47
3:B:157:GLN:O	3:B:161:VAL:N	2.43	0.47
4:C:70:VAL:CG1	4:C:96:PHE:HD2	2.27	0.47
4:C:98:LEU:N	4:C:98:LEU:HD13	2.28	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:88:ARG:HB2	6:G:91:GLU:HB2	1.95	0.47
12:O:43:HIS:HD2	12:O:55:ARG:HB2	1.79	0.47
1:2:1378:A:N6	2:A:136:GLU:OE2	2.47	0.47
2:A:90:PHE:CD1	2:A:175:TRP:HE3	2.32	0.47
7:H:9:VAL:HG12	7:H:11:PRO:HD3	1.96	0.47
24:K:16:PHE:HZ	24:K:80:ARG:HE	1.61	0.47
1:2:1092:G:H2'	1:2:1093:A:H8	1.80	0.47
1:2:851:C:O2'	1:2:852:G:N2	2.48	0.47
1:2:948:C:H2'	1:2:949:G:H8	1.79	0.47
2:A:90:PHE:CE1	2:A:179:ALA:HB2	2.48	0.47
9:J:46:VAL:HG11	9:J:106:LEU:HD12	1.96	0.47
12:O:46:ASP:OD1	12:O:47:LEU:N	2.47	0.47
15:X:82:THR:OG1	15:X:117:GLY:O	2.33	0.47
22:D:57:ASN:O	22:D:65:ARG:NH1	2.48	0.47
1:2:681:U:O2'	1:2:1160:U:OP1	2.32	0.47
1:2:1217:A:H2'	1:2:1218:C:C6	2.49	0.47
1:2:1513:C:H2'	1:2:1514:G:C8	2.50	0.47
1:2:1622:U:OP1	29:S:120:HIS:ND1	2.47	0.47
1:2:1736:G:H2'	1:2:1737:G:H8	1.80	0.47
1:2:1753:C:H2'	1:2:1754:G:C8	2.48	0.47
22:D:192:TRP:CG	22:D:193:ASP:H	2.33	0.47
1:2:924:G:H21	11:N:87:ASP:HB3	1.80	0.47
1:2:1087:A:OP2	17:a:8:ASN:ND2	2.48	0.47
1:2:1394:G:OP1	27:Q:126:ARG:NH1	2.48	0.47
1:2:1866:A:N6	17:a:84:VAL:HG13	2.30	0.47
2:A:74:VAL:HG13	2:A:121:LEU:HD23	1.97	0.47
7:H:58:LYS:HD2	7:H:90:LYS:CE	2.39	0.47
7:H:83:LEU:HD23	7:H:92:VAL:HG11	1.97	0.47
11:N:75:LEU:HD12	11:N:80:LEU:HB2	1.97	0.47
22:D:195:THR:HG22	22:D:201:LYS:HD3	1.96	0.47
23:F:101:HIS:ND1	23:F:106:GLU:O	2.40	0.47
1:2:527:C:H2'	1:2:528:A:H8	1.80	0.47
22:D:171:ALA:O	22:D:185:LYS:HA	2.15	0.47
24:K:57:TYR:HD1	24:K:75:GLY:HA2	1.80	0.47
34:f:120:GLU:OE2	34:f:128:ALA:N	2.47	0.47
1:2:99:A:H61	1:2:433:A:H1'	1.80	0.47
1:2:996:A:H2'	1:2:997:A:C8	2.49	0.47
8:I:65:PHE:O	8:I:109:TYR:OH	2.33	0.47
10:L:35:ARG:HG3	10:L:37:TYR:HD1	1.80	0.47
1:2:381:C:OP2	8:I:54:LYS:NZ	2.47	0.46
1:2:1607:A:N6	1:2:1632:G:O2'	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:63:LYS:HA	3:B:88:THR:CG2	2.39	0.46
6:G:44:GLU:HA	6:G:119:LYS:HD2	1.96	0.46
9:J:37:LEU:HD11	9:J:106:LEU:HD21	1.97	0.46
10:L:38:LYS:NZ	10:L:64:GLY:O	2.47	0.46
21:h:2:ARG:HD2	21:h:5:TRP:CD1	2.50	0.46
23:F:115:ALA:O	23:F:119:SER:HB3	2.14	0.46
1:2:508:A:H3'	1:2:509:G:H8	1.80	0.46
1:2:948:C:H2'	1:2:949:G:C8	2.50	0.46
10:L:99:TYR:HE2	15:X:14:ARG:HB3	1.80	0.46
35:g:133:ASN:HD22	35:g:137:VAL:HB	1.79	0.46
35:g:188:HIS:HB3	35:g:219:TRP:CE2	2.50	0.46
1:2:1228:A:H2'	1:2:1229:G:H8	1.79	0.46
1:2:1243:U:OP1	1:2:1518:C:O2'	2.29	0.46
1:2:797:C:H2'	1:2:798:G:C4	2.51	0.46
1:2:1101:U:H2'	1:2:1102:G:C8	2.50	0.46
1:2:1368:U:O3'	28:R:2:GLY:N	2.48	0.46
3:B:133:TYR:HD1	3:B:221:PRO:HD2	1.80	0.46
8:I:142:SER:O	8:I:146:GLN:N	2.47	0.46
14:W:31:SER:H	14:W:34:ILE:HB	1.80	0.46
4:C:78:LEU:CD1	4:C:97:PHE:CD2	2.88	0.46
7:H:156:VAL:HB	7:H:187:PHE:HE1	1.81	0.46
10:L:101:ARG:HH21	14:W:79:PHE:HZ	1.62	0.46
24:K:24:LYS:HD3	24:K:26:ASP:OD2	2.15	0.46
26:P:22:LEU:HD23	26:P:25:LEU:HD12	1.98	0.46
28:R:13:ALA:C	28:R:16:ILE:HG23	2.40	0.46
35:g:131:LEU:O	35:g:139:LYS:N	2.39	0.46
35:g:213:ASP:OD1	35:g:213:ASP:N	2.48	0.46
35:g:226:HIS:NE2	35:g:228:TYR:O	2.49	0.46
1:2:106:C:H2'	1:2:107:A:C8	2.49	0.46
1:2:1869:A:N6	3:B:111:CYS:O	2.48	0.46
18:b:46:VAL:HG13	18:b:54:VAL:HG21	1.97	0.46
23:F:165:ASN:O	23:F:167:LYS:N	2.48	0.46
26:P:38:SER:HB2	26:P:41:GLN:HG2	1.98	0.46
29:S:36:VAL:HG21	29:S:71:MET:HE3	1.97	0.46
1:2:1373:C:O2'	1:2:1465:A:O2'	2.31	0.46
1:2:1779:G:H2'	1:2:1780:G:C8	2.51	0.46
18:b:33:MET:HB2	18:b:79:PHE:HB2	1.97	0.46
23:F:41:VAL:HA	23:F:45:TYR:HB2	1.96	0.46
1:2:1256:G:N1	19:d:31:ILE:HG12	2.31	0.46
1:2:1444:U:OP1	27:Q:15:ARG:NH2	2.49	0.46
1:2:1533:A:HO2'	23:F:81:ARG:HH12	1.62	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:94:ILE:HG13	4:C:159:LYS:O	2.16	0.46
31:U:61:LEU:HD12	31:U:82:MET:HG2	1.97	0.46
1:2:925:G:O6	1:2:1017:U:O4	2.34	0.46
1:2:1656:G:H2'	1:2:1657:G:H8	1.80	0.46
2:A:178:LEU:O	2:A:182:VAL:HG12	2.16	0.46
14:W:6:VAL:HG12	14:W:34:ILE:HD11	1.98	0.46
19:d:3:HIS:CE1	19:d:5:GLN:HB2	2.51	0.46
1:2:659:G:O4'	1:2:662:G:N2	2.48	0.46
6:G:5:ILE:HD12	6:G:16:ILE:HD12	1.98	0.46
22:D:132:LYS:HB2	22:D:189:MET:CE	2.41	0.46
23:F:168:THR:O	23:F:172:CYS:N	2.41	0.46
35:g:149:GLU:HB3	35:g:170:TRP:HB2	1.98	0.46
1:2:857:U:H2'	1:2:858:A:C8	2.51	0.45
1:2:1618:C:C2	19:d:11:PRO:CG	2.99	0.45
1:2:1808:U:H2'	1:2:1809:A:C8	2.51	0.45
9:J:19:PRO:O	9:J:24:ARG:NH2	2.49	0.45
11:N:120:SER:O	11:N:124:ARG:HB3	2.15	0.45
23:F:51:HIS:O	27:Q:82:TYR:OH	2.33	0.45
35:g:17:TRP:CE2	35:g:303:THR:HG23	2.51	0.45
5:E:114:ILE:HG23	5:E:118:GLU:HB3	1.97	0.45
7:H:132:ASP:HA	7:H:135:PHE:HB2	1.97	0.45
35:g:36:ARG:HD2	35:g:65:PHE:HB3	1.98	0.45
1:2:561:A:H5"	9:J:164:PRO:HG2	1.99	0.45
1:2:1430:C:H2'	1:2:1431:G:C8	2.51	0.45
6:G:78:SER:OG	6:G:79:LYS:N	2.50	0.45
15:X:101:LEU:HD12	15:X:101:LEU:HA	1.81	0.45
23:F:140:ASP:HB2	33:c:46:VAL:HG12	1.99	0.45
35:g:14:HIS:HD2	35:g:41:ILE:HD12	1.82	0.45
6:G:209:TYR:O	6:G:213:LEU:HB2	2.16	0.45
7:H:109:ARG:HG2	7:H:110:THR:H	1.81	0.45
12:O:37:PHE:HE2	12:O:105:THR:HG21	1.81	0.45
22:D:22:ASN:HD21	22:D:37:VAL:CG2	2.30	0.45
22:D:126:ILE:HA	22:D:129:SER:HB3	1.99	0.45
1:2:915:G:H5'	7:H:120:ARG:HH12	1.81	0.45
1:2:1497:G:N9	24:K:62:PHE:CE2	2.84	0.45
1:2:1856:C:H2'	1:2:1857:G:H8	1.82	0.45
11:N:54:LEU:HB3	11:N:60:VAL:HB	1.99	0.45
15:X:68:LYS:HB3	15:X:91:LEU:HD22	1.99	0.45
29:S:34:LYS:HB3	29:S:103:LEU:HD23	1.99	0.45
1:2:421:G:H5'	10:L:98:LYS:HG3	1.99	0.45
1:2:455:A:O2'	1:2:1735:A:N3	2.38	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:600:G:H2'	1:2:601:G:H8	1.81	0.45
1:2:1228:A:H2'	1:2:1229:G:C8	2.52	0.45
1:2:1288:U:O2'	1:2:1315:U:O2'	2.28	0.45
1:2:1655:C:OP1	30:T:92:PHE:N	2.49	0.45
8:I:11:ARG:O	10:L:136:LYS:NZ	2.37	0.45
13:V:31:SER:OG	13:V:32:ILE:N	2.46	0.45
16:Y:27:VAL:O	16:Y:68:LYS:HA	2.17	0.45
17:a:24:THR:HG21	17:a:71:LEU:HD22	1.98	0.45
19:d:50:ILE:HG12	22:D:15:GLY:C	2.31	0.45
23:F:87:LEU:HA	23:F:90:VAL:HG22	1.99	0.45
30:T:83:GLN:NE2	30:T:85:ASN:OD1	2.50	0.45
1:2:222:U:H5"	10:L:17:PHE:CG	2.51	0.45
1:2:1776:G:H2'	1:2:1777:G:C8	2.52	0.45
2:A:144:THR:OG1	13:V:60:ARG:NH2	2.49	0.45
7:H:91:HIS:CD2	7:H:169:LYS:HG2	2.51	0.45
1:2:28:U:H2'	1:2:29:G:C8	2.50	0.45
2:A:205:ARG:HE	2:A:205:ARG:HA	1.82	0.45
3:B:153:THR:HB	3:B:155:TYR:CE2	2.52	0.45
22:D:132:LYS:HB3	22:D:189:MET:CE	2.43	0.45
23:F:86:LYS:O	23:F:90:VAL:N	2.50	0.45
28:R:21:TYR:O	28:R:21:TYR:CD1	2.70	0.45
29:S:50:ILE:HD13	29:S:59:LEU:HD22	1.98	0.45
1:2:638:C:O4'	20:e:56:ASN:ND2	2.50	0.45
4:C:182:CYS:HB2	14:W:95:PRO:HB2	1.99	0.45
4:C:196:ILE:HB	4:C:223:TYR:HB2	1.98	0.45
35:g:57:ARG:NH1	35:g:94:THR:O	2.50	0.45
35:g:289:LEU:HD11	35:g:298:LEU:HD22	1.98	0.45
3:B:68:GLU:OE2	3:B:85:LYS:NZ	2.35	0.45
19:d:40:ARG:NH2	31:U:69:PRO:O	2.50	0.45
24:K:24:LYS:HA	24:K:66:HIS:HD1	1.76	0.45
24:K:24:LYS:CD	24:K:26:ASP:OD2	2.65	0.45
26:P:95:GLY:HA2	26:P:103:ASN:O	2.17	0.45
27:Q:16:LYS:HG2	27:Q:17:LYS:H	1.82	0.45
30:T:34:VAL:O	30:T:52:TRP:NE1	2.47	0.45
1:2:688:U:OP1	7:H:122:LEU:N	2.44	0.44
1:2:1279:C:H2'	1:2:1280:G:C8	2.51	0.44
4:C:78:LEU:CD2	4:C:97:PHE:HB2	2.36	0.44
10:L:135:SER:O	10:L:139:ARG:NH1	2.49	0.44
24:K:52:LEU:HB3	24:K:57:TYR:HB2	1.99	0.44
27:Q:32:ILE:HG12	27:Q:68:ILE:HB	1.99	0.44
6:G:3:LEU:HD13	6:G:5:ILE:HD11	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:W:31:SER:O	14:W:35:VAL:N	2.47	0.44
1:2:1497:G:N9	24:K:62:PHE:CD2	2.84	0.44
1:2:1513:C:OP1	19:d:12:ARG:NH1	2.50	0.44
3:B:31:TYR:CE2	3:B:62:LEU:CD2	3.01	0.44
4:C:182:CYS:SG	4:C:183:LYS:N	2.90	0.44
8:I:93:THR:OG1	8:I:95:THR:OG1	2.30	0.44
11:N:47:PRO:HG2	11:N:72:LEU:HD13	1.98	0.44
14:W:87:GLU:HA	14:W:90:GLN:NE2	2.33	0.44
21:h:2:ARG:HD3	21:h:4:LYS:H	1.82	0.44
23:F:122:ARG:HA	23:F:146:ARG:HH21	1.82	0.44
35:g:32:LEU:HD12	35:g:32:LEU:HA	1.85	0.44
35:g:45:LEU:HD23	35:g:53:GLY:HA3	1.99	0.44
1:2:482:G:N1	1:2:485:A:OP2	2.50	0.44
1:2:913:A:H1'	7:H:66:VAL:HB	1.99	0.44
1:2:929:G:N2	1:2:1013:U:O2	2.51	0.44
1:2:1373:C:P	28:R:7:LYS:CG	3.05	0.44
1:2:1628:C:H2'	1:2:1629:C:C6	2.52	0.44
2:A:178:LEU:O	2:A:178:LEU:HD12	2.17	0.44
6:G:176:ILE:HG22	6:G:179:LEU:HB2	2.00	0.44
18:b:36:LYS:HE3	18:b:41:TYR:HA	1.99	0.44
25:M:50:CYS:SG	25:M:51:VAL:N	2.91	0.44
1:2:500:A:H3'	1:2:501:C:H6	1.82	0.44
1:2:640:A:H2'	1:2:641:A:C8	2.52	0.44
1:2:649:U:H2'	1:2:650:A:H8	1.83	0.44
1:2:1325:G:O2'	1:2:1327:G:OP1	2.33	0.44
1:2:1679:A:OP1	33:c:20:ARG:NH2	2.51	0.44
4:C:102:LEU:CD2	4:C:130:ILE:CG1	2.90	0.44
5:E:100:ARG:HG2	5:E:102:ILE:HG13	1.99	0.44
6:G:85:ARG:HH22	16:Y:118:ARG:HD3	1.82	0.44
8:I:48:VAL:HG11	8:I:54:LYS:HE3	2.00	0.44
12:O:101:GLY:HA2	12:O:106:LYS:HD2	2.00	0.44
1:2:886:A:C4	1:2:887:U:H1'	2.53	0.44
1:2:925:G:OP1	11:N:121:ARG:NH1	2.51	0.44
2:A:24:HIS:HB3	2:A:51:LEU:HD11	2.00	0.44
4:C:107:LEU:HB2	4:C:127:PHE:HB2	2.00	0.44
27:Q:87:SER:O	27:Q:91:ALA:CB	2.61	0.44
28:R:24:LEU:HB3	28:R:58:MET:SD	2.58	0.44
29:S:6:PRO:HB2	29:S:9:PHE:HB2	2.00	0.44
33:c:32:VAL:O	33:c:41:SER:HA	2.17	0.44
1:2:685:A:H62	1:2:918:U:H3	1.66	0.44
1:2:830:A:OP2	1:2:846:G:N2	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1215:C:H42	1:2:1220:A:H61	1.66	0.44
1:2:1588:A:H2'	1:2:1589:A:H8	1.81	0.44
18:b:49:HIS:CD2	18:b:70:LYS:HG2	2.52	0.44
22:D:20:GLU:CB	24:K:64:TRP:CE3	2.97	0.44
23:F:32:ASP:HB3	23:F:34:SER:H	1.82	0.44
23:F:127:ARG:HH21	23:F:131:ALA:HA	1.82	0.44
26:P:53:GLN:HG2	26:P:80:LEU:HD13	1.99	0.44
1:2:1286:G:N2	1:2:1287:A:H62	2.16	0.44
4:C:109:ILE:HG21	4:C:147:VAL:HG23	2.00	0.44
14:W:28:ARG:HB3	14:W:60:LYS:HG2	2.00	0.44
16:Y:56:PHE:HE2	16:Y:82:ALA:HB1	1.83	0.44
19:d:34:TYR:HB3	22:D:12:VAL:HG11	1.99	0.44
28:R:17:ILE:HD13	28:R:24:LEU:HD12	2.00	0.44
1:2:210:U:H2'	1:2:211:G:H8	1.82	0.44
1:2:519:A:O2'	9:J:10:ARG:O	2.32	0.44
4:C:232:THR:O	4:C:232:THR:OG1	2.35	0.44
5:E:182:MET:HE3	5:E:192:ILE:HD11	2.00	0.44
8:I:25:ARG:HA	8:I:25:ARG:HD3	1.80	0.44
24:K:65:ARG:O	24:K:65:ARG:HG3	2.18	0.44
25:M:54:SER:HB2	25:M:80:ASP:HA	1.99	0.44
1:2:642:U:OP1	9:J:41:ARG:N	2.51	0.43
1:2:1533:A:N6	1:2:1602:U:H3	2.15	0.43
2:A:58:LEU:HD21	2:A:174:MET:HE3	1.94	0.43
28:R:44:LYS:HA	28:R:47:ARG:HB3	2.00	0.43
1:2:27:A:O2'	1:2:483:C:O2'	2.36	0.43
1:2:1174:U:H2'	1:2:1175:G:H8	1.83	0.43
1:2:1253:A:O2'	1:2:1666:C:O2'	2.32	0.43
1:2:1550:G:H3'	1:2:1579:A:H61	1.83	0.43
27:Q:65:GLY:O	27:Q:95:TYR:OH	2.31	0.43
1:2:94:G:O2'	1:2:508:A:O2'	2.34	0.43
1:2:582:U:OP1	9:J:162:ARG:NH1	2.52	0.43
1:2:871:U:H3'	1:2:872:A:H4'	2.00	0.43
1:2:934:G:H1	1:2:1008:A:H2	1.64	0.43
1:2:1231:C:H2'	1:2:1232:U:O4'	2.18	0.43
1:2:1537:A:O2'	1:2:1604:G:OP1	2.36	0.43
7:H:9:VAL:HG23	7:H:24:SER:HB3	1.99	0.43
10:L:102:PHE:N	15:X:7:LEU:O	2.50	0.43
16:Y:41:ARG:HA	16:Y:55:ILE:HD11	1.99	0.43
23:F:85:LYS:HD2	23:F:88:MET:HG3	2.00	0.43
1:2:563:G:N7	1:2:586:G:N2	2.67	0.43
1:2:1633:A:H2'	1:2:1634:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:23:ASP:HB2	3:B:26:SER:HB2	2.01	0.43
23:F:38:TYR:HB3	23:F:147:VAL:HG21	1.99	0.43
23:F:146:ARG:NH1	33:c:57:THR:OG1	2.45	0.43
25:M:64:LEU:HD11	34:f:103:LEU:HA	2.01	0.43
28:R:16:ILE:HD12	28:R:16:ILE:C	2.40	0.43
31:U:27:ARG:HG2	31:U:82:MET:CE	2.48	0.43
1:2:1536:G:H2'	1:2:1537:A:H8	1.81	0.43
1:2:1542:C:H5"	30:T:62:ARG:HH22	1.83	0.43
11:N:85:PRO:O	11:N:89:TYR:N	2.51	0.43
35:g:14:HIS:CD2	35:g:41:ILE:HD12	2.53	0.43
35:g:71:ILE:HA	35:g:78:ALA:HA	2.00	0.43
35:g:260:ASP:N	35:g:265:ILE:O	2.39	0.43
7:H:60:ILE:HB	7:H:92:VAL:HG22	2.01	0.43
9:J:136:ARG:HG2	9:J:160:SER:HA	2.00	0.43
14:W:45:GLY:O	14:W:68:ARG:NH1	2.48	0.43
19:d:22:ARG:NH1	22:D:16:ILE:HG21	2.33	0.43
23:F:47:LYS:HD2	23:F:67:PRO:HG2	2.01	0.43
2:A:178:LEU:C	2:A:178:LEU:CD1	2.92	0.43
7:H:144:ILE:O	14:W:52:ILE:N	2.42	0.43
9:J:40:LYS:HE2	9:J:40:LYS:HB3	1.73	0.43
10:L:13:GLN:NE2	10:L:36:TYR:O	2.52	0.43
10:L:68:ILE:HG21	10:L:143:LEU:HD11	2.00	0.43
15:X:40:PRO:HB3	15:X:79:LYS:HG3	2.00	0.43
27:Q:34:VAL:HG22	27:Q:70:VAL:HB	2.01	0.43
1:2:1539:U:H2'	1:2:1540:G:C8	2.54	0.43
1:2:1726:G:H2'	1:2:1727:G:H8	1.84	0.43
12:O:149:ARG:NH1	12:O:151:LEU:O	2.52	0.43
29:S:23:ARG:HB2	32:Z:48:VAL:HG21	2.01	0.43
1:2:1373:C:OP1	28:R:7:LYS:N	2.52	0.43
6:G:137:ARG:HB3	6:G:140:ARG:HG2	2.01	0.43
26:P:85:ILE:HB	26:P:112:ILE:HA	2.01	0.43
28:R:20:TYR:OH	28:R:38:ILE:HG23	2.18	0.43
1:2:218:U:O2	8:I:184:ARG:NH1	2.52	0.43
1:2:1101:U:H2'	1:2:1102:G:H8	1.83	0.43
1:2:1810:U:H2'	1:2:1811:C:C6	2.54	0.43
4:C:66:LEU:HG	4:C:93:ILE:CD1	2.49	0.43
7:H:175:GLY:HA2	7:H:178:LYS:HB3	2.01	0.43
10:L:77:VAL:HG11	10:L:80:MET:HE3	2.01	0.43
10:L:101:ARG:HG3	15:X:7:LEU:HD23	2.00	0.43
22:D:227:LYS:N	35:g:185:LYS:O	2.52	0.43
31:U:53:PRO:HG3	31:U:89:ILE:HD12	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:586:G:C5	9:J:172:ARG:HD3	2.54	0.42
1:2:625:G:N1	15:X:64:SER:O	2.41	0.42
1:2:920:A:O2'	1:2:922:A:O5'	2.37	0.42
1:2:1249:C:O2'	27:Q:143:LYS:NZ	2.37	0.42
1:2:1497:G:N3	24:K:62:PHE:CD2	2.71	0.42
1:2:1533:A:O2'	23:F:81:ARG:NH1	2.44	0.42
5:E:99:PHE:HE1	5:E:113:ARG:HG2	1.84	0.42
12:O:30:VAL:HG22	12:O:94:HIS:HB2	2.01	0.42
22:D:108:LYS:O	22:D:112:GLY:N	2.52	0.42
25:M:60:MET:HB3	34:f:103:LEU:HD13	2.01	0.42
35:g:109:LEU:HD13	35:g:152:SER:HA	1.99	0.42
35:g:114:SER:HB3	35:g:119:GLN:HB2	2.01	0.42
1:2:1268:C:H2'	1:2:1269:G:C8	2.54	0.42
1:2:1360:U:O2'	1:2:1379:A:OP2	2.34	0.42
1:2:1634:A:O2'	29:S:142:ARG:NH1	2.46	0.42
1:2:1808:U:H2'	1:2:1809:A:H8	1.83	0.42
5:E:206:ASP:HB2	5:E:222:LEU:HB2	2.01	0.42
18:b:24:LEU:HD12	18:b:24:LEU:HA	1.81	0.42
22:D:22:ASN:ND2	22:D:37:VAL:HG23	2.34	0.42
24:K:64:TRP:HB3	24:K:65:ARG:H	1.68	0.42
1:2:925:G:H2'	1:2:926:A:H8	1.84	0.42
1:2:989:C:O2	17:a:32:LYS:NZ	2.52	0.42
5:E:164:LEU:HD23	5:E:164:LEU:HA	1.87	0.42
8:I:57:ALA:HB2	8:I:183:GLY:HA2	2.02	0.42
9:J:160:SER:O	9:J:162:ARG:N	2.52	0.42
12:O:97:LEU:HD21	12:O:108:PRO:HG2	2.02	0.42
17:a:22:ARG:HA	17:a:22:ARG:HD3	1.78	0.42
22:D:27:ARG:CB	24:K:61:GLN:HG3	2.49	0.42
32:Z:61:GLU:HG3	32:Z:65:TYR:HE1	1.84	0.42
1:2:1126:G:OP2	28:R:129:LYS:NZ	2.37	0.42
1:2:1377:U:H3'	2:A:102:ARG:HH22	1.84	0.42
1:2:1428:G:N7	27:Q:73:LYS:NZ	2.66	0.42
1:2:1659:U:O2	1:2:1664:A:N7	2.51	0.42
1:2:1842:C:H2'	1:2:1843:G:H8	1.84	0.42
3:B:31:TYR:HD2	3:B:62:LEU:HD22	1.85	0.42
1:2:1174:U:H2'	1:2:1175:G:C8	2.55	0.42
2:A:37:TYR:OH	2:A:57:LYS:NZ	2.33	0.42
3:B:127:VAL:HG22	3:B:173:THR:HG23	2.01	0.42
4:C:65:LYS:HD3	4:C:273:LEU:HD13	2.00	0.42
4:C:102:LEU:CG	4:C:130:ILE:HG12	2.49	0.42
6:G:186:GLN:HA	6:G:189:ARG:HD3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:81:VAL:HG22	8:I:102:VAL:HG22	2.01	0.42
14:W:105:THR:HG22	14:W:126:LEU:HG	2.01	0.42
22:D:22:ASN:HD21	22:D:37:VAL:HG23	1.84	0.42
26:P:81:ARG:NH2	26:P:117:GLY:O	2.39	0.42
29:S:33:ILE:HB	29:S:100:ALA:HB2	2.02	0.42
32:Z:48:VAL:HG22	32:Z:80:ARG:HG3	2.02	0.42
1:2:964:A:H2'	1:2:965:U:H6	1.84	0.42
1:2:1276:A:C6	1:2:1322:G:H1'	2.55	0.42
3:B:62:LEU:HA	3:B:65:ARG:HE	1.85	0.42
8:I:6:ASP:OD1	8:I:9:HIS:ND1	2.53	0.42
11:N:86:GLU:H	11:N:86:GLU:HG3	1.64	0.42
18:b:23:ARG:NH1	18:b:27:SER:HB2	2.35	0.42
22:D:24:PHE:HA	24:K:63:ALA:CB	2.50	0.42
25:M:58:GLU:HB3	25:M:61:TYR:HB2	2.00	0.42
1:2:1386:A:OP2	22:D:160:SER:OG	2.34	0.42
1:2:1716:C:H2'	1:2:1717:C:C6	2.55	0.42
1:2:1753:C:H2'	1:2:1754:G:H8	1.85	0.42
2:A:176:TRP:HA	2:A:202:TYR:CE2	2.55	0.42
22:D:11:PHE:HD2	31:U:84:ILE:HG12	1.85	0.42
28:R:13:ALA:HA	28:R:16:ILE:HG23	1.94	0.42
1:2:500:A:H3'	1:2:501:C:C6	2.54	0.42
1:2:1213:C:H2'	1:2:1214:A:C8	2.55	0.42
1:2:1470:C:OP2	23:F:59:LYS:NZ	2.39	0.42
5:E:89:VAL:HG22	5:E:100:ARG:HE	1.84	0.42
6:G:54:GLY:H	6:G:110:ASN:HB2	1.85	0.42
22:D:24:PHE:CE1	24:K:68:TYR:HD2	2.37	0.42
1:2:1430:C:H2'	1:2:1431:G:H8	1.83	0.42
1:2:1645:C:H5'	27:Q:139:ALA:HA	2.02	0.42
1:2:1703:C:H2'	1:2:1704:C:O4'	2.19	0.42
1:2:1735:A:H62	1:2:1799:G:H21	1.66	0.42
3:B:82:ARG:NH1	3:B:188:LEU:O	2.40	0.42
22:D:22:ASN:ND2	22:D:37:VAL:CG2	2.83	0.42
35:g:106:LYS:HB3	35:g:125:ARG:HB2	2.00	0.42
35:g:174:VAL:HB	35:g:188:HIS:HB2	2.02	0.42
10:L:40:ILE:HD12	10:L:40:ILE:HA	1.83	0.42
22:D:108:LYS:O	22:D:113:LEU:N	2.49	0.42
32:Z:90:GLU:O	32:Z:93:SER:OG	2.32	0.42
35:g:193:GLY:HA3	35:g:212:LYS:HB3	2.02	0.42
1:2:981:A:H2'	1:2:982:G:C8	2.55	0.41
4:C:102:LEU:HG	4:C:130:ILE:HG12	2.02	0.41
6:G:85:ARG:HE	6:G:87:ARG:NH1	2.18	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:D:24:PHE:HB2	24:K:63:ALA:CB	2.50	0.41
27:Q:16:LYS:NZ	27:Q:123:ASP:OD2	2.52	0.41
1:2:625:G:O6	15:X:64:SER:N	2.46	0.41
1:2:1373:C:OP1	28:R:7:LYS:CG	2.68	0.41
5:E:79:ASP:HB3	5:E:82:TYR:HB2	2.02	0.41
10:L:35:ARG:NH2	10:L:53:GLY:O	2.53	0.41
24:K:31:LYS:HA	24:K:41:PRO:HA	2.02	0.41
1:2:194:C:H2'	1:2:195:C:H6	1.85	0.41
1:2:352:U:H2'	1:2:353:C:C6	2.55	0.41
1:2:920:A:H4'	14:W:57:ARG:HG2	2.01	0.41
1:2:1600:G:C5	1:2:1602:U:H1'	2.55	0.41
3:B:48:LEU:O	3:B:65:ARG:NH2	2.53	0.41
17:a:24:THR:N	17:a:72:HIS:O	2.53	0.41
23:F:29:GLN:N	23:F:110:GLN:OE1	2.36	0.41
25:M:53:ALA:HB2	25:M:85:LEU:HD12	2.00	0.41
32:Z:103:HIS:CD2	32:Z:104:ARG:H	2.38	0.41
35:g:270:LEU:HD13	35:g:310:TRP:CE2	2.55	0.41
1:2:895:G:H2'	1:2:896:U:C6	2.55	0.41
1:2:1253:A:N6	1:2:1665:G:O2'	2.53	0.41
1:2:1378:A:OP2	2:A:102:ARG:NH2	2.54	0.41
3:B:144:LYS:HG2	3:B:208:HIS:HD2	1.86	0.41
7:H:84:GLU:HA	7:H:87:PHE:HE2	1.86	0.41
20:e:53:LYS:NZ	20:e:59:SER:OXT	2.46	0.41
28:R:41:ILE:HD13	28:R:47:ARG:HB2	2.03	0.41
35:g:82:SER:OG	35:g:83:TRP:N	2.54	0.41
1:2:1275:G:H4'	1:2:1322:G:H22	1.85	0.41
2:A:104:THR:O	2:A:107:THR:OG1	2.29	0.41
7:H:159:ASP:OD1	7:H:160:LYS:N	2.53	0.41
10:L:73:LEU:HD12	10:L:140:PHE:HE2	1.85	0.41
14:W:111:MET:HE2	14:W:111:MET:HB3	1.79	0.41
1:2:1306:U:H2'	1:2:1307:U:O4'	2.20	0.41
3:B:28:LYS:HD2	3:B:48:LEU:HG	2.02	0.41
3:B:133:TYR:CD1	3:B:221:PRO:HD2	2.56	0.41
6:G:210:ALA:O	6:G:214:ALA:N	2.53	0.41
10:L:150:GLY:HA3	11:N:133:ARG:HH21	1.85	0.41
15:X:7:LEU:HD23	15:X:7:LEU:HA	1.81	0.41
24:K:52:LEU:HD23	24:K:52:LEU:HA	1.89	0.41
35:g:51:ASN:OD1	35:g:51:ASN:N	2.53	0.41
1:2:298:G:H2'	1:2:299:A:H8	1.85	0.41
1:2:674:C:H2'	1:2:675:U:C6	2.55	0.41
1:2:1301:A:H2'	1:2:1303:C:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:1562:C:H2'	1:2:1563:G:H8	1.85	0.41
1:2:1587:G:C6	30:T:67:ARG:HD3	2.56	0.41
3:B:216:LYS:HB3	3:B:217:MET:H	1.66	0.41
6:G:141:ILE:HG21	6:G:153:VAL:HG13	2.02	0.41
7:H:58:LYS:O	7:H:90:LYS:HB3	2.20	0.41
9:J:84:ILE:HG13	9:J:86:VAL:HG23	2.03	0.41
22:D:22:ASN:HD22	22:D:22:ASN:HA	1.65	0.41
25:M:64:LEU:HD13	34:f:106:TYR:HB2	2.03	0.41
28:R:13:ALA:C	28:R:16:ILE:CG2	2.93	0.41
31:U:34:LYS:HD3	31:U:34:LYS:C	2.46	0.41
1:2:527:C:H2'	1:2:528:A:C8	2.55	0.41
1:2:1362:U:H5"	1:2:1363:C:C5	2.55	0.41
2:A:90:PHE:CD2	2:A:175:TRP:CZ3	3.08	0.41
9:J:36:GLY:HA3	9:J:111:GLN:HE22	1.85	0.41
9:J:111:GLN:NE2	9:J:127:ARG:HB2	2.36	0.41
14:W:75:ILE:CD1	14:W:93:LEU:CD1	2.84	0.41
23:F:197:GLU:O	23:F:201:LYS:NZ	2.44	0.41
24:K:4:PRO:HD2	24:K:7:ASN:HD22	1.86	0.41
1:2:146:G:OP1	6:G:143:LYS:NZ	2.53	0.41
1:2:155:G:H2'	1:2:156:G:C8	2.56	0.41
1:2:218:U:O4	1:2:303:C:N3	2.54	0.41
1:2:314:U:H2'	1:2:315:C:H6	1.86	0.41
1:2:643:A:H4'	1:2:644:G:H5'	2.03	0.41
1:2:1239:U:H4'	26:P:124:LYS:HB3	2.03	0.41
1:2:1266:C:OP1	34:f:80:ARG:NH2	2.53	0.41
2:A:58:LEU:CD1	2:A:174:MET:HE1	2.50	0.41
2:A:90:PHE:CE1	2:A:175:TRP:CE3	3.08	0.41
7:H:116:ARG:HA	7:H:117:PRO:HD3	1.96	0.41
15:X:49:GLY:HA2	15:X:74:LEU:HA	2.03	0.41
16:Y:61:ARG:HA	16:Y:61:ARG:HD2	1.82	0.41
19:d:23:VAL:HB	24:K:64:TRP:NE1	2.36	0.41
22:D:24:PHE:CE1	24:K:68:TYR:CD2	3.09	0.41
30:T:116:ASP:OD2	30:T:122:LYS:N	2.54	0.41
31:U:27:ARG:HG2	31:U:82:MET:HE1	2.01	0.41
35:g:112:ALA:HB2	35:g:155:ARG:HA	2.03	0.41
1:2:109:U:O2'	10:L:71:ARG:NH2	2.51	0.41
1:2:1410:C:H2'	1:2:1411:G:C8	2.56	0.41
1:2:1482:C:H5"	19:d:54:LYS:CE	2.51	0.41
1:2:1543:U:OP2	30:T:62:ARG:NH2	2.54	0.41
1:2:1667:U:H2'	1:2:1668:U:C6	2.56	0.41
2:A:77:ILE:HD12	2:A:122:LEU:HD11	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:85:ARG:NH2	16:Y:118:ARG:HD3	2.35	0.41
7:H:144:ILE:HB	14:W:52:ILE:HB	2.03	0.41
14:W:128:PHE:HE2	14:W:130:PHE:HE1	1.69	0.41
1:2:191:A:OP2	8:I:142:SER:OG	2.39	0.40
1:2:1091:C:N4	1:2:1092:G:O6	2.54	0.40
1:2:1373:C:OP1	28:R:7:LYS:HG3	2.20	0.40
1:2:685:A:N7	1:2:918:U:O2	2.55	0.40
1:2:1082:A:HO2'	1:2:1842:C:HO2'	1.60	0.40
1:2:1569:A:O2'	1:2:1626:C:O2	2.36	0.40
2:A:63:ARG:HG2	2:A:185:MET:HE1	2.02	0.40
3:B:32:ASP:O	3:B:96:CYS:N	2.51	0.40
6:G:98:ARG:HH22	6:G:103:ASP:HB2	1.86	0.40
14:W:41:MET:O	14:W:45:GLY:N	2.53	0.40
27:Q:12:VAL:HG21	27:Q:91:ALA:HA	2.01	0.40
28:R:22:THR:HA	35:g:212:LYS:HE3	2.02	0.40
1:2:56:G:OP1	16:Y:111:LYS:NZ	2.54	0.40
2:A:122:LEU:HD12	2:A:122:LEU:HA	1.85	0.40
4:C:63:VAL:N	4:C:90:GLU:OE2	2.44	0.40
8:I:60:LEU:HA	8:I:60:LEU:HD23	1.90	0.40
1:2:1256:G:O6	19:d:31:ILE:HD11	2.22	0.40
1:2:1598:G:H5'	32:Z:80:ARG:HE	1.87	0.40
4:C:83:LEU:C	4:C:83:LEU:CD1	2.89	0.40
14:W:61:ILE:HD13	14:W:61:ILE:HG21	1.90	0.40
16:Y:10:ARG:HH11	16:Y:10:ARG:HD2	1.76	0.40
23:F:85:LYS:O	23:F:89:THR:OG1	2.33	0.40
26:P:108:LYS:NZ	29:S:116:LYS:O	2.37	0.40
28:R:13:ALA:O	28:R:16:ILE:CG2	2.65	0.40
1:2:71:G:H1'	1:2:79:A:H61	1.86	0.40
1:2:554:A:H2'	1:2:556:U:C6	2.56	0.40
1:2:1402:A:H2'	1:2:1405:A:H62	1.87	0.40
1:2:1634:A:H4'	29:S:142:ARG:HH22	1.86	0.40
2:A:121:LEU:HD12	2:A:143:PRO:HB2	2.02	0.40
3:B:30:TRP:HE1	12:O:18:GLY:HA2	1.85	0.40
3:B:129:THR:OG1	3:B:131:ASP:OD1	2.32	0.40
4:C:95:ASP:O	4:C:99:GLY:HA2	2.22	0.40
4:C:136:HIS:ND1	4:C:136:HIS:N	2.69	0.40
7:H:60:ILE:N	7:H:91:HIS:O	2.52	0.40
9:J:87:LEU:HD21	9:J:100:LEU:HD11	2.03	0.40
14:W:15:ASN:HD21	14:W:71:LYS:HD2	1.87	0.40
14:W:102:ILE:HB	14:W:113:HIS:HB3	2.03	0.40
16:Y:105:LYS:HD2	16:Y:105:LYS:HA	1.91	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:D:205:PRO:HA	28:R:42:PRO:HG3	2.04	0.40
25:M:93:LYS:HB3	25:M:101:ARG:HE	1.85	0.40
35:g:201:SER:HB2	35:g:206:LEU:HB2	2.03	0.40
35:g:218:LEU:HD23	35:g:227:LEU:HD23	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	A	204/295 (69%)	190 (93%)	14 (7%)	0	100	100
3	B	211/264 (80%)	187 (89%)	24 (11%)	0	100	100
4	C	216/293 (74%)	195 (90%)	20 (9%)	1 (0%)	25	59
5	E	260/263 (99%)	230 (88%)	30 (12%)	0	100	100
6	G	228/249 (92%)	213 (93%)	15 (7%)	0	100	100
7	H	184/194 (95%)	171 (93%)	13 (7%)	0	100	100
8	I	203/208 (98%)	189 (93%)	14 (7%)	0	100	100
9	J	178/194 (92%)	163 (92%)	14 (8%)	1 (1%)	22	55
10	L	149/158 (94%)	133 (89%)	16 (11%)	0	100	100
11	N	147/151 (97%)	135 (92%)	12 (8%)	0	100	100
12	O	133/151 (88%)	123 (92%)	10 (8%)	0	100	100
13	V	80/83 (96%)	74 (92%)	6 (8%)	0	100	100
14	W	127/130 (98%)	117 (92%)	10 (8%)	0	100	100
15	X	139/143 (97%)	127 (91%)	11 (8%)	1 (1%)	19	53
16	Y	122/133 (92%)	111 (91%)	11 (9%)	0	100	100
17	a	99/115 (86%)	91 (92%)	8 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
18	b	80/84 (95%)	69 (86%)	11 (14%)	0	100 100
19	d	52/56 (93%)	49 (94%)	2 (4%)	1 (2%)	6 35
20	e	54/59 (92%)	47 (87%)	7 (13%)	0	100 100
21	h	22/25 (88%)	22 (100%)	0	0	100 100
22	D	223/243 (92%)	201 (90%)	21 (9%)	1 (0%)	30 63
23	F	187/204 (92%)	172 (92%)	12 (6%)	3 (2%)	8 38
24	K	93/165 (56%)	86 (92%)	7 (8%)	0	100 100
25	M	121/132 (92%)	114 (94%)	7 (6%)	0	100 100
26	P	118/145 (81%)	115 (98%)	3 (2%)	0	100 100
27	Q	137/146 (94%)	122 (89%)	15 (11%)	0	100 100
28	R	130/135 (96%)	113 (87%)	17 (13%)	0	100 100
29	S	141/152 (93%)	130 (92%)	11 (8%)	0	100 100
30	T	142/145 (98%)	133 (94%)	9 (6%)	0	100 100
31	U	99/119 (83%)	90 (91%)	9 (9%)	0	100 100
32	Z	70/125 (56%)	68 (97%)	2 (3%)	0	100 100
33	c	59/69 (86%)	52 (88%)	7 (12%)	0	100 100
34	f	70/156 (45%)	60 (86%)	10 (14%)	0	100 100
35	g	312/317 (98%)	277 (89%)	35 (11%)	0	100 100
All	All	4790/5501 (87%)	4369 (91%)	413 (9%)	8 (0%)	45 73

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
22	D	192	TRP
23	F	166	ILE
9	J	161	LEU
19	d	14	PHE
4	C	135	GLY
15	X	86	PRO
23	F	40	ALA
23	F	41	VAL

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
2	A	172/243 (71%)	167 (97%)	5 (3%)	37 63
3	B	194/231 (84%)	191 (98%)	3 (2%)	60 78
4	C	182/225 (81%)	177 (97%)	5 (3%)	40 65
5	E	224/225 (100%)	222 (99%)	2 (1%)	75 87
6	G	200/218 (92%)	199 (100%)	1 (0%)	86 93
7	H	167/174 (96%)	166 (99%)	1 (1%)	84 92
8	I	178/180 (99%)	177 (99%)	1 (1%)	84 92
9	J	160/168 (95%)	158 (99%)	2 (1%)	65 81
10	L	135/142 (95%)	132 (98%)	3 (2%)	47 69
11	N	130/131 (99%)	129 (99%)	1 (1%)	79 88
12	O	104/119 (87%)	104 (100%)	0	100 100
13	V	66/67 (98%)	66 (100%)	0	100 100
14	W	112/113 (99%)	110 (98%)	2 (2%)	54 74
15	X	113/115 (98%)	113 (100%)	0	100 100
16	Y	108/115 (94%)	104 (96%)	4 (4%)	29 58
17	a	88/98 (90%)	88 (100%)	0	100 100
18	b	74/76 (97%)	74 (100%)	0	100 100
19	d	48/49 (98%)	47 (98%)	1 (2%)	48 71
20	e	45/48 (94%)	45 (100%)	0	100 100
21	h	23/24 (96%)	23 (100%)	0	100 100
22	D	188/202 (93%)	186 (99%)	2 (1%)	70 83
23	F	159/170 (94%)	158 (99%)	1 (1%)	84 92
24	K	86/136 (63%)	85 (99%)	1 (1%)	67 82
25	M	104/108 (96%)	104 (100%)	0	100 100
26	P	107/130 (82%)	107 (100%)	0	100 100
27	Q	115/121 (95%)	115 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
28	R	118/122 (97%)	114 (97%)	4 (3%)	32 60
29	S	124/132 (94%)	124 (100%)	0	100 100
30	T	114/115 (99%)	112 (98%)	2 (2%)	54 74
31	U	93/107 (87%)	87 (94%)	6 (6%)	14 42
32	Z	64/103 (62%)	64 (100%)	0	100 100
33	c	54/62 (87%)	52 (96%)	2 (4%)	29 58
34	f	65/140 (46%)	65 (100%)	0	100 100
35	g	272/275 (99%)	270 (99%)	2 (1%)	81 90
All	All	4186/4684 (89%)	4135 (99%)	51 (1%)	66 82

All (51) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	140	VAL
2	A	177	MET
2	A	178	LEU
2	A	182	VAL
2	A	190	SER
3	B	125	VAL
3	B	210	VAL
3	B	212	VAL
4	C	83	LEU
4	C	98	LEU
4	C	132	ASP
4	C	134	ASN
4	C	192	LEU
5	E	46	ILE
5	E	160	ILE
6	G	189	ARG
7	H	87	PHE
8	I	99	ASN
9	J	29	LEU
9	J	144	ILE
10	L	22	ARG
10	L	76	VAL
10	L	126	VAL
11	N	145	THR
14	W	92	ASN
14	W	105	THR

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Mol	Chain	Res	Type
16	Y	5	VAL
16	Y	17	LEU
16	Y	107	ARG
16	Y	120	THR
19	d	26	ASN
22	D	21	LEU
22	D	184	ILE
23	F	55	ARG
24	K	64	TRP
28	R	16	ILE
28	R	17	ILE
28	R	41	ILE
28	R	71	ILE
30	T	27	LYS
30	T	134	ILE
31	U	25	THR
31	U	27	ARG
31	U	32	LEU
31	U	34	LYS
31	U	36	CYS
31	U	40	ILE
33	c	34	PHE
33	c	55	VAL
35	g	31	ILE
35	g	71	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (63) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	50	ASN
2	A	141	ASN
3	B	43	ASN
3	B	92	GLN
3	B	95	ASN
3	B	208	HIS
4	C	120	GLN
4	C	134	ASN
4	C	178	HIS
4	C	272	HIS
5	E	179	ASN
5	E	188	ASN
5	E	201	HIS

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Mol	Chain	Res	Type
5	E	232	ASN
6	G	65	GLN
6	G	70	HIS
6	G	81	HIS
6	G	105	ASN
7	H	91	HIS
7	H	114	GLN
7	H	126	HIS
7	H	168	HIS
8	I	52	ASN
8	I	87	ASN
8	I	99	ASN
8	I	116	HIS
8	I	138	ASN
9	J	125	HIS
10	L	39	ASN
10	L	65	ASN
10	L	100	ASN
11	N	58	HIS
11	N	62	GLN
11	N	105	ASN
13	V	21	ASN
13	V	49	GLN
14	W	92	ASN
15	X	61	GLN
17	a	43	ASN
20	e	15	GLN
20	e	58	ASN
22	D	22	ASN
22	D	159	HIS
22	D	226	GLN
23	F	179	ASN
24	K	61	GLN
24	K	77	GLN
26	P	103	ASN
27	Q	77	HIS
28	R	74	GLN
28	R	93	GLN
28	R	116	ASN
28	R	118	GLN
29	S	19	ASN
29	S	125	HIS

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Mol	Chain	Res	Type
31	U	47	ASN
33	c	26	GLN
34	f	139	HIS
35	g	62	HIS
35	g	64	HIS
35	g	133	ASN
35	g	181	ASN
35	g	237	ASN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1656/1868 (88%)	530 (32%)	56 (3%)

All (530) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	3	C
1	2	4	C
1	2	9	U
1	2	10	G
1	2	17	C
1	2	25	A
1	2	26	U
1	2	33	G
1	2	41	G
1	2	42	A
1	2	44	U
1	2	46	A
1	2	47	G
1	2	56	G
1	2	58	C
1	2	59	U
1	2	60	A
1	2	61	A
1	2	62	G
1	2	65	C
1	2	66	G
1	2	67	C
1	2	68	A

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Mol	Chain	Res	Type
1	2	69	C
1	2	72	C
1	2	73	C
1	2	74	G
1	2	75	G
1	2	76	U
1	2	77	A
1	2	79	A
1	2	102	A
1	2	103	A
1	2	110	U
1	2	113	G
1	2	114	G
1	2	115	U
1	2	116	U
1	2	119	U
1	2	127	C
1	2	128	U
1	2	129	C
1	2	143	U
1	2	144	U
1	2	153	G
1	2	154	U
1	2	155	G
1	2	160	U
1	2	175	A
1	2	181	A
1	2	182	C
1	2	183	G
1	2	184	G
1	2	188	C
1	2	191	A
1	2	196	C
1	2	206	G
1	2	213	G
1	2	214	U
1	2	215	G
1	2	216	C
1	2	217	A
1	2	290	U
1	2	291	G
1	2	292	A

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Mol	Chain	Res	Type
1	2	295	C
1	2	302	A
1	2	305	U
1	2	306	C
1	2	307	G
1	2	308	G
1	2	310	C
1	2	312	G
1	2	313	A
1	2	315	C
1	2	318	A
1	2	319	C
1	2	320	G
1	2	321	C
1	2	332	G
1	2	333	G
1	2	335	G
1	2	338	G
1	2	342	C
1	2	347	G
1	2	350	C
1	2	360	A
1	2	362	C
1	2	364	A
1	2	368	U
1	2	369	C
1	2	370	G
1	2	377	G
1	2	381	C
1	2	382	C
1	2	383	G
1	2	385	G
1	2	386	C
1	2	398	A
1	2	399	C
1	2	400	C
1	2	407	G
1	2	408	A
1	2	409	C
1	2	418	A
1	2	420	G
1	2	421	G

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Mol	Chain	Res	Type
1	2	428	U
1	2	429	C
1	2	436	G
1	2	438	G
1	2	441	C
1	2	447	A
1	2	448	A
1	2	450	C
1	2	464	A
1	2	465	A
1	2	466	G
1	2	471	G
1	2	472	C
1	2	473	A
1	2	474	G
1	2	476	A
1	2	482	G
1	2	483	C
1	2	487	U
1	2	489	A
1	2	492	C
1	2	500	A
1	2	502	C
1	2	512	A
1	2	517	C
1	2	523	A
1	2	525	A
1	2	532	C
1	2	534	G
1	2	536	A
1	2	537	C
1	2	544	G
1	2	546	G
1	2	548	C
1	2	549	C
1	2	552	G
1	2	553	U
1	2	554	A
1	2	555	A
1	2	556	U
1	2	559	G
1	2	560	A

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Mol	Chain	Res	Type
1	2	563	G
1	2	564	A
1	2	568	C
1	2	576	A
1	2	583	A
1	2	587	A
1	2	588	G
1	2	589	G
1	2	590	A
1	2	591	U
1	2	593	C
1	2	594	A
1	2	595	U
1	2	596	U
1	2	598	G
1	2	600	G
1	2	603	C
1	2	604	A
1	2	605	A
1	2	607	U
1	2	608	C
1	2	614	C
1	2	615	C
1	2	617	G
1	2	621	C
1	2	627	U
1	2	629	A
1	2	638	C
1	2	639	C
1	2	640	A
1	2	643	A
1	2	644	G
1	2	655	A
1	2	658	U
1	2	660	C
1	2	664	A
1	2	668	A
1	2	669	A
1	2	671	A
1	2	672	A
1	2	673	G
1	2	683	G

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Mol	Chain	Res	Type
1	2	684	G
1	2	685	A
1	2	687	C
1	2	688	U
1	2	748	C
1	2	749	U
1	2	750	C
1	2	751	G
1	2	792	C
1	2	793	G
1	2	794	A
1	2	797	C
1	2	798	G
1	2	801	U
1	2	809	A
1	2	810	A
1	2	812	A
1	2	821	G
1	2	822	U
1	2	823	U
1	2	824	C
1	2	827	A
1	2	830	A
1	2	834	C
1	2	844	U
1	2	847	A
1	2	852	G
1	2	856	C
1	2	859	G
1	2	869	A
1	2	871	U
1	2	872	A
1	2	873	G
1	2	874	G
1	2	878	G
1	2	879	C
1	2	880	G
1	2	882	U
1	2	887	U
1	2	888	U
1	2	890	U
1	2	894	G

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Mol	Chain	Res	Type
1	2	898	U
1	2	903	A
1	2	909	G
1	2	912	C
1	2	913	A
1	2	914	U
1	2	915	G
1	2	917	U
1	2	918	U
1	2	919	A
1	2	920	A
1	2	921	G
1	2	926	A
1	2	933	G
1	2	934	G
1	2	938	A
1	2	943	U
1	2	952	G
1	2	954	U
1	2	959	G
1	2	962	A
1	2	963	A
1	2	967	C
1	2	969	U
1	2	970	G
1	2	971	G
1	2	973	C
1	2	978	G
1	2	981	A
1	2	982	G
1	2	988	C
1	2	989	C
1	2	990	A
1	2	992	A
1	2	999	G
1	2	1001	A
1	2	1002	U
1	2	1017	U
1	2	1023	A
1	2	1027	A
1	2	1029	G
1	2	1030	A

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Mol	Chain	Res	Type
1	2	1040	G
1	2	1041	G
1	2	1042	A
1	2	1045	U
1	2	1049	A
1	2	1050	A
1	2	1053	C
1	2	1060	A
1	2	1067	C
1	2	1081	U
1	2	1083	A
1	2	1085	C
1	2	1088	U
1	2	1096	G
1	2	1114	U
1	2	1115	U
1	2	1116	C
1	2	1118	C
1	2	1119	A
1	2	1120	U
1	2	1121	G
1	2	1123	C
1	2	1133	A
1	2	1137	U
1	2	1138	C
1	2	1139	C
1	2	1143	A
1	2	1148	A
1	2	1149	A
1	2	1153	C
1	2	1154	U
1	2	1156	U
1	2	1157	G
1	2	1166	G
1	2	1168	G
1	2	1170	A
1	2	1171	G
1	2	1195	A
1	2	1198	G
1	2	1207	G
1	2	1208	A
1	2	1211	G

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Mol	Chain	Res	Type
1	2	1215	C
1	2	1217	A
1	2	1221	G
1	2	1224	G
1	2	1227	G
1	2	1232	U
1	2	1235	G
1	2	1236	G
1	2	1238	U
1	2	1242	U
1	2	1243	U
1	2	1245	G
1	2	1251	A
1	2	1253	A
1	2	1254	C
1	2	1257	G
1	2	1259	A
1	2	1260	A
1	2	1261	C
1	2	1270	G
1	2	1274	G
1	2	1275	G
1	2	1283	C
1	2	1284	A
1	2	1286	G
1	2	1288	U
1	2	1294	G
1	2	1298	G
1	2	1301	A
1	2	1302	G
1	2	1303	C
1	2	1304	U
1	2	1308	U
1	2	1309	C
1	2	1313	A
1	2	1314	U
1	2	1315	U
1	2	1317	C
1	2	1320	G
1	2	1321	G
1	2	1322	G
1	2	1323	U

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Mol	Chain	Res	Type
1	2	1327	G
1	2	1329	U
1	2	1330	G
1	2	1331	C
1	2	1343	U
1	2	1344	A
1	2	1348	G
1	2	1354	G
1	2	1358	U
1	2	1363	C
1	2	1364	U
1	2	1366	G
1	2	1369	A
1	2	1371	U
1	2	1373	C
1	2	1377	U
1	2	1378	A
1	2	1380	C
1	2	1382	A
1	2	1401	A
1	2	1402	A
1	2	1403	C
1	2	1404	U
1	2	1405	A
1	2	1406	G
1	2	1411	G
1	2	1414	A
1	2	1415	C
1	2	1416	C
1	2	1426	U
1	2	1428	G
1	2	1429	G
1	2	1430	C
1	2	1431	G
1	2	1432	U
1	2	1439	A
1	2	1441	U
1	2	1442	U
1	2	1444	U
1	2	1446	A
1	2	1452	A
1	2	1454	A

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Mol	Chain	Res	Type
1	2	1462	U
1	2	1463	U
1	2	1465	A
1	2	1466	G
1	2	1474	A
1	2	1476	A
1	2	1477	U
1	2	1478	U
1	2	1486	A
1	2	1487	A
1	2	1489	A
1	2	1494	U
1	2	1495	G
1	2	1498	A
1	2	1500	G
1	2	1505	U
1	2	1506	A
1	2	1507	G
1	2	1510	G
1	2	1512	C
1	2	1516	G
1	2	1517	G
1	2	1518	C
1	2	1519	U
1	2	1520	G
1	2	1521	C
1	2	1522	A
1	2	1523	C
1	2	1524	G
1	2	1526	G
1	2	1531	A
1	2	1533	A
1	2	1534	C
1	2	1535	U
1	2	1536	G
1	2	1544	C
1	2	1548	G
1	2	1559	C
1	2	1560	U
1	2	1566	G
1	2	1567	G
1	2	1570	G

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Mol	Chain	Res	Type
1	2	1572	C
1	2	1573	G
1	2	1574	C
1	2	1579	A
1	2	1580	A
1	2	1581	C
1	2	1582	C
1	2	1585	U
1	2	1586	U
1	2	1587	G
1	2	1588	A
1	2	1598	G
1	2	1599	U
1	2	1600	G
1	2	1601	A
1	2	1602	U
1	2	1603	G
1	2	1606	G
1	2	1607	A
1	2	1612	G
1	2	1615	U
1	2	1617	G
1	2	1618	C
1	2	1619	A
1	2	1621	U
1	2	1623	A
1	2	1630	A
1	2	1631	U
1	2	1632	G
1	2	1635	C
1	2	1648	G
1	2	1649	U
1	2	1650	A
1	2	1654	G
1	2	1660	C
1	2	1663	A
1	2	1665	G
1	2	1671	G
1	2	1675	A
1	2	1678	A
1	2	1683	C
1	2	1695	A

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Mol	Chain	Res	Type
1	2	1698	C
1	2	1699	A
1	2	1701	C
1	2	1704	C
1	2	1719	A
1	2	1721	U
1	2	1722	G
1	2	1725	U
1	2	1728	U
1	2	1729	U
1	2	1730	U
1	2	1748	G
1	2	1757	G
1	2	1761	U
1	2	1778	C
1	2	1783	C
1	2	1784	G
1	2	1785	C
1	2	1786	U
1	2	1799	G
1	2	1807	C
1	2	1813	A
1	2	1824	A
1	2	1825	A
1	2	1829	G
1	2	1831	A
1	2	1835	A
1	2	1836	G
1	2	1838	U
1	2	1839	U
1	2	1840	U
1	2	1849	G
1	2	1850	A
1	2	1852	C
1	2	1856	C
1	2	1859	A
1	2	1860	A
1	2	1861	G
1	2	1862	G
1	2	1863	A
1	2	1865	C
1	2	1866	A

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Mol	Chain	Res	Type
1	2	1868	U
1	2	1869	A

All (56) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	59	U
1	2	60	A
1	2	65	C
1	2	102	A
1	2	114	G
1	2	143	U
1	2	180	G
1	2	181	A
1	2	291	G
1	2	314	U
1	2	332	G
1	2	368	U
1	2	382	C
1	2	440	G
1	2	465	A
1	2	547	G
1	2	554	A
1	2	594	A
1	2	604	A
1	2	620	G
1	2	750	C
1	2	793	G
1	2	797	C
1	2	811	A
1	2	870	A
1	2	958	G
1	2	980	A
1	2	1137	U
1	2	1231	C
1	2	1302	G
1	2	1308	U
1	2	1316	C
1	2	1330	G
1	2	1342	U
1	2	1403	C
1	2	1415	C

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Mol	Chain	Res	Type
1	2	1425	G
1	2	1430	C
1	2	1431	G
1	2	1438	A
1	2	1440	C
1	2	1464	C
1	2	1494	U
1	2	1511	U
1	2	1520	G
1	2	1534	C
1	2	1558	C
1	2	1565	C
1	2	1585	U
1	2	1587	G
1	2	1601	A
1	2	1648	G
1	2	1649	U
1	2	1783	C
1	2	1838	U
1	2	1862	G

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

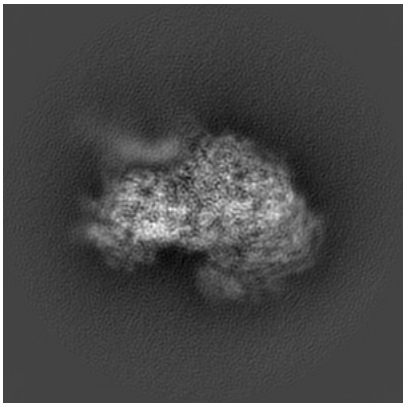
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-4352. These allow visual inspection of the internal detail of the map and identification of artifacts.

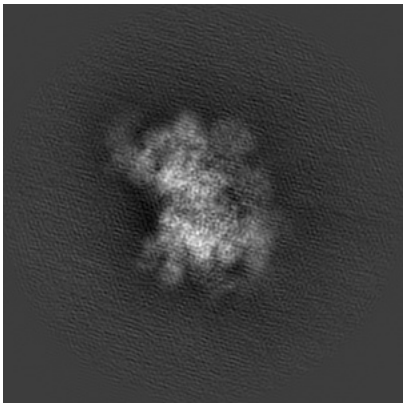
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

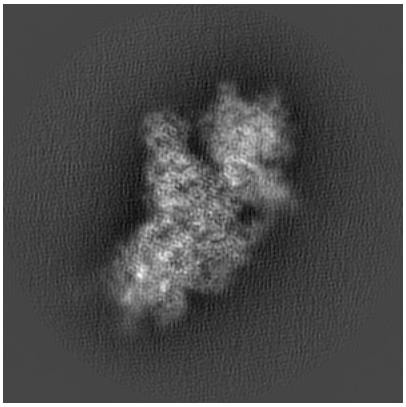
6.1.1 Primary map



X



Y

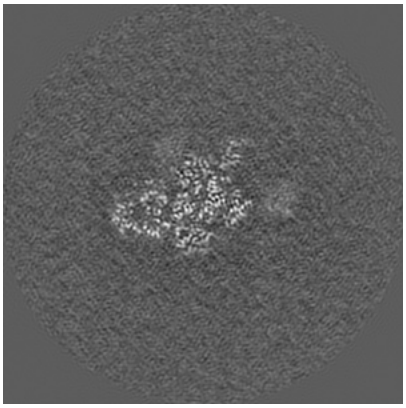


Z

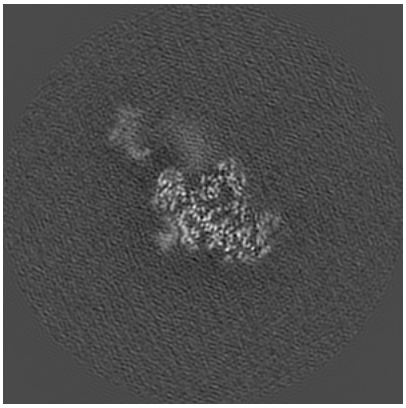
The images above show the map projected in three orthogonal directions.

6.2 Central slices

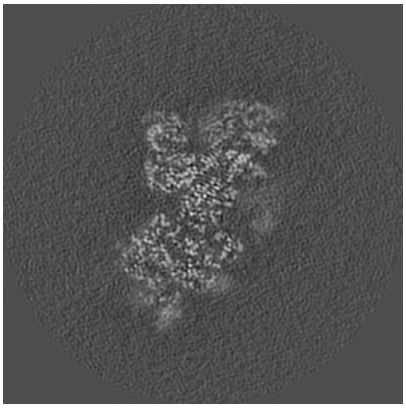
6.2.1 Primary map



X Index: 180



Y Index: 180

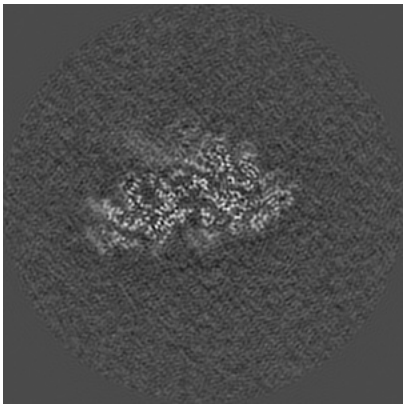


Z Index: 180

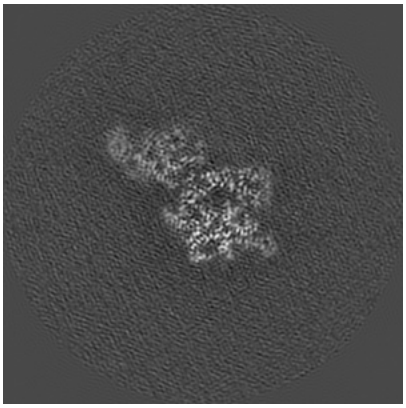
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

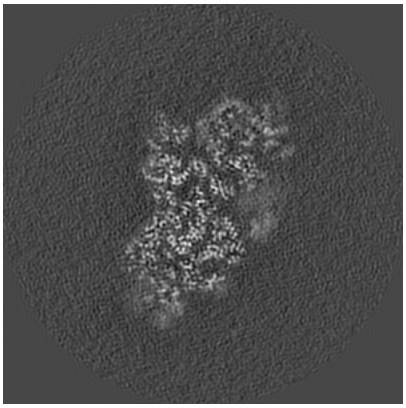
6.3.1 Primary map



X Index: 154



Y Index: 203

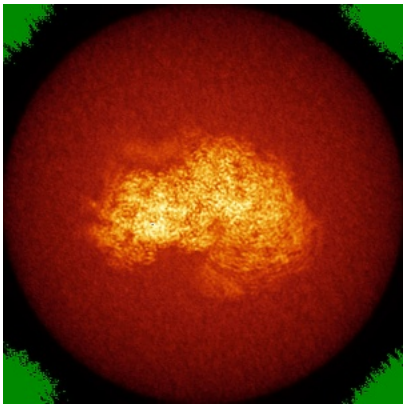


Z Index: 175

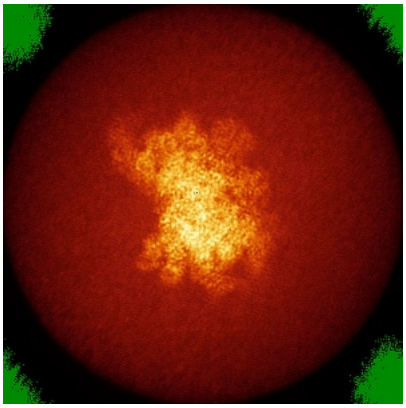
The images above show the largest variance slices of the map in three orthogonal directions.

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

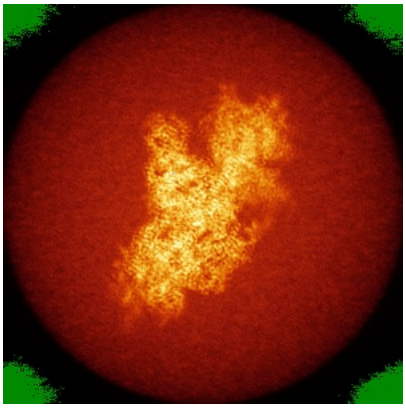
6.4.1 Primary map



X



Y

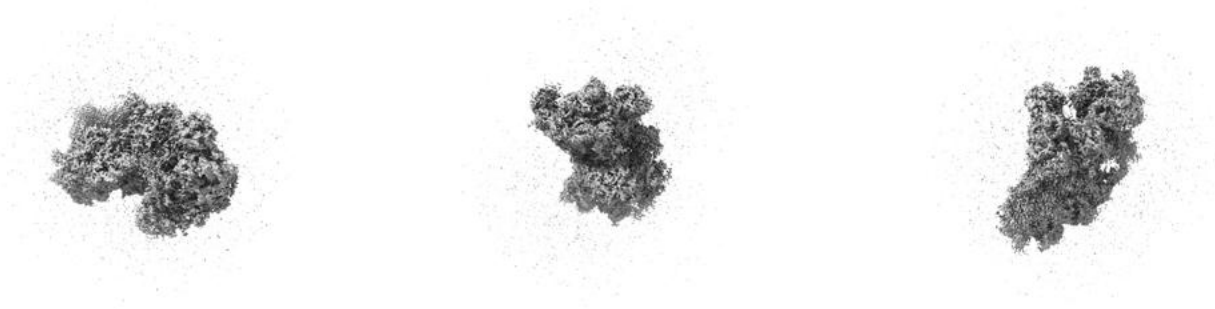


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.06. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

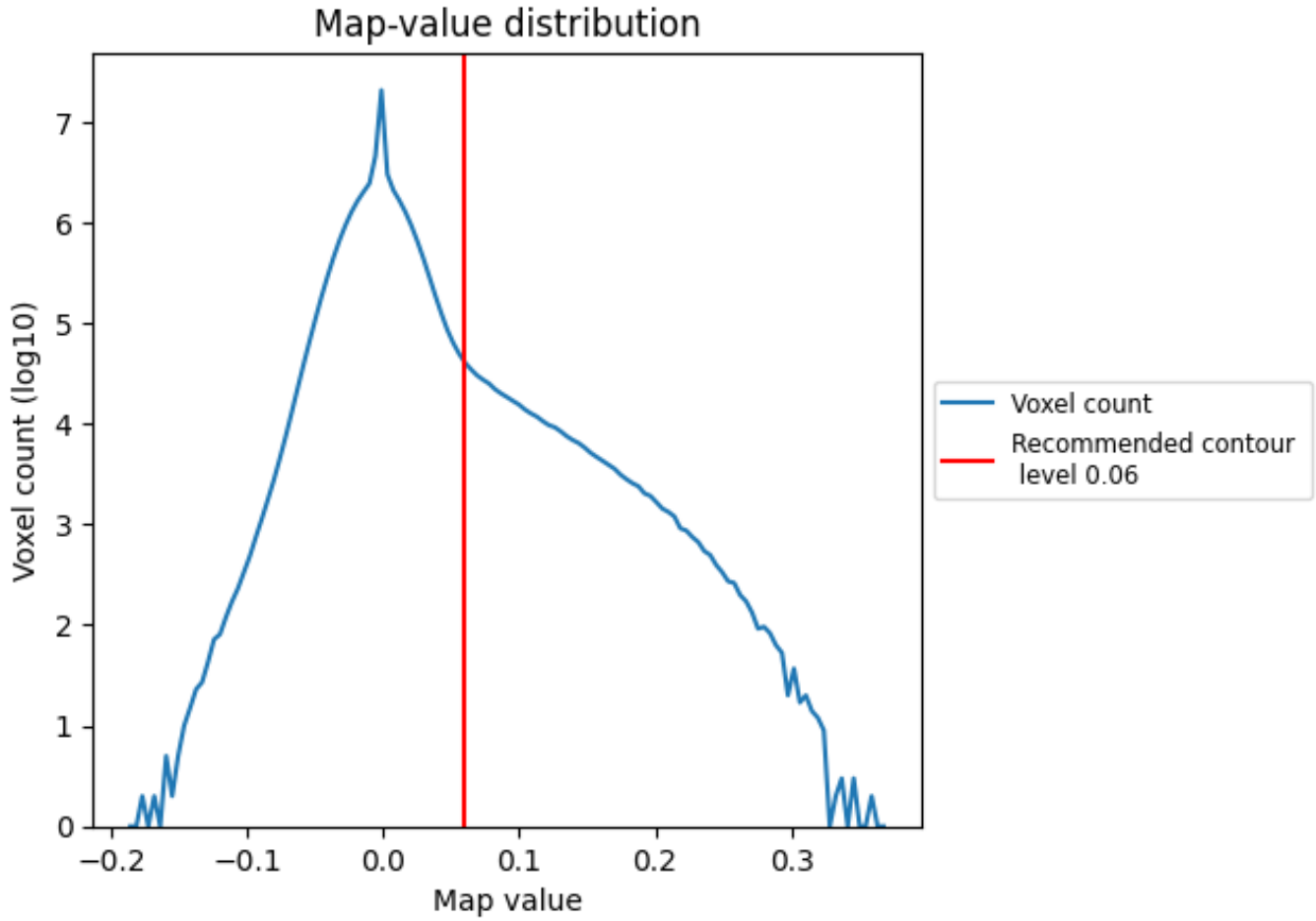
6.6 Mask visualisation (i)

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

7 Map analysis

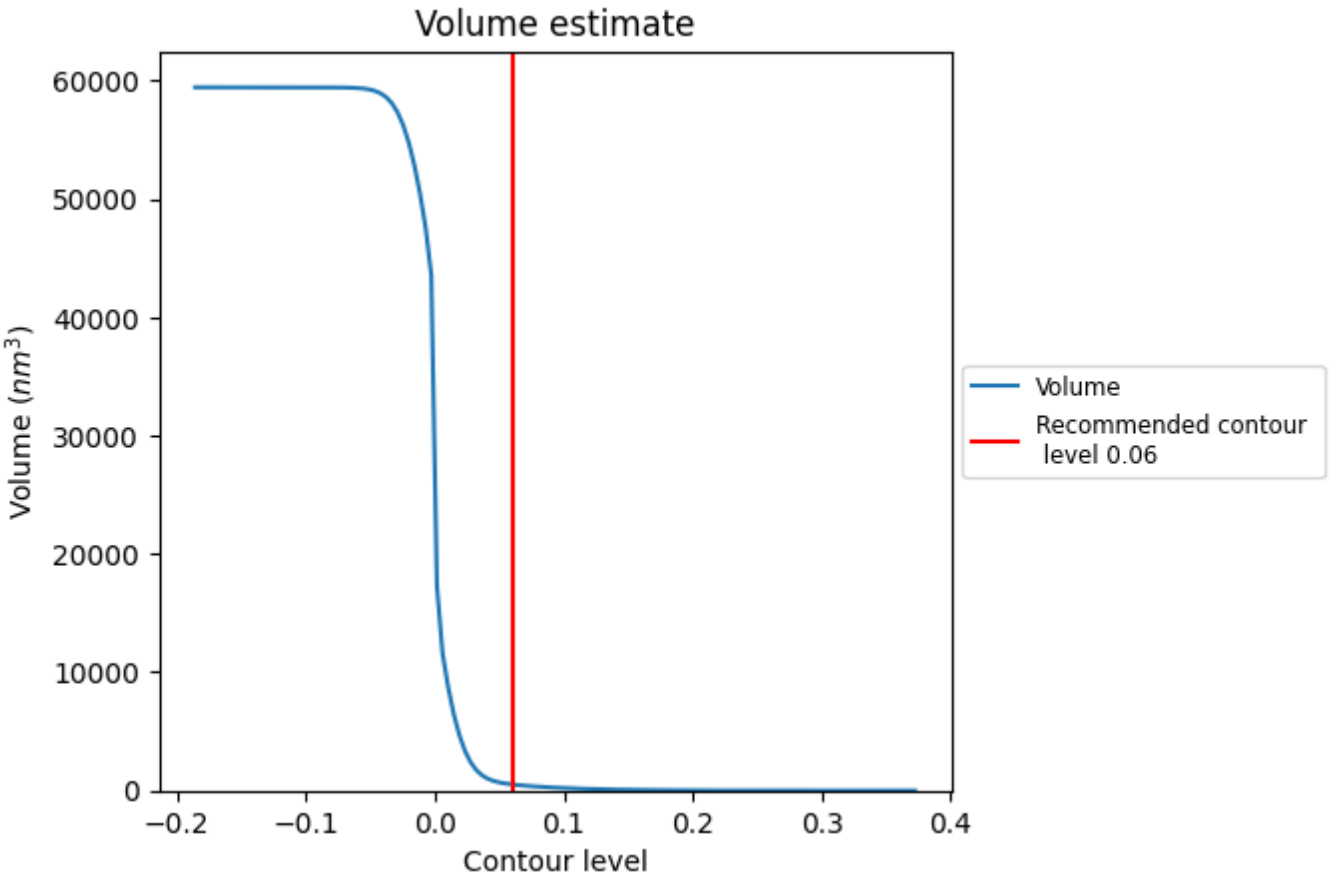
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

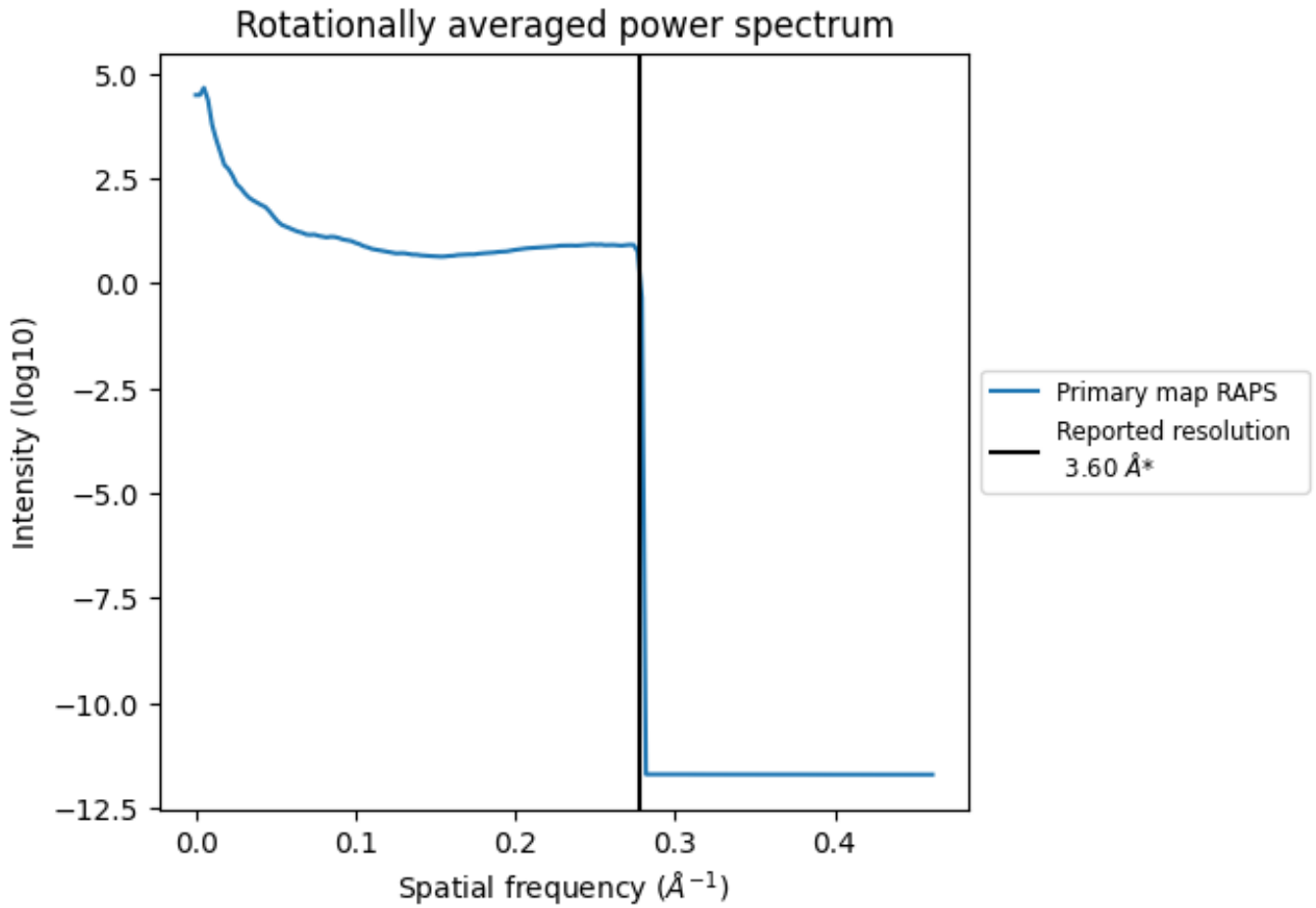
7.2 Volume estimate



The volume at the recommended contour level is 517 nm^3; this corresponds to an approximate mass of 467 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)

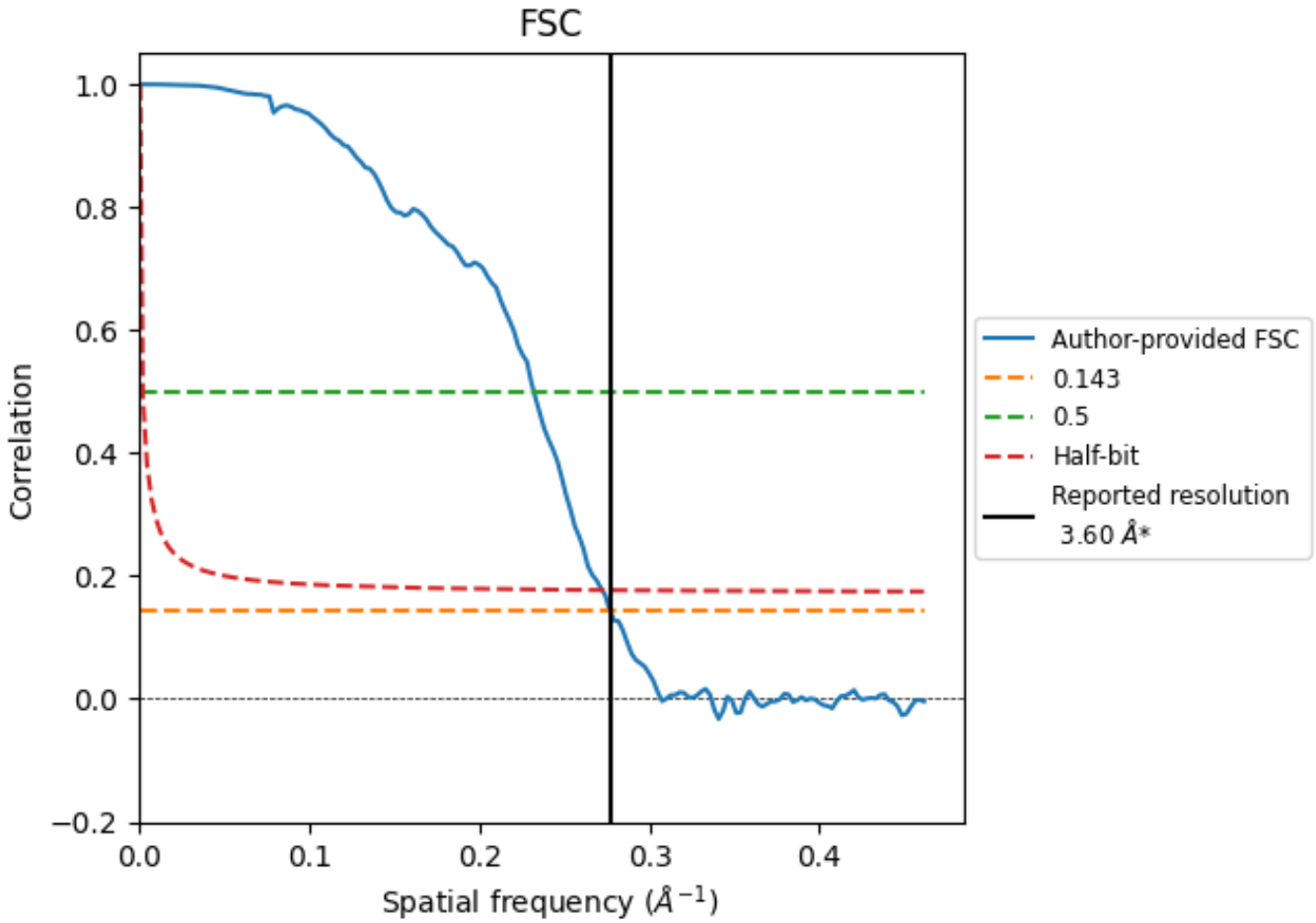


*Reported resolution corresponds to spatial frequency of 0.278 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.278 Å^{-1}

8.2 Resolution estimates (i)

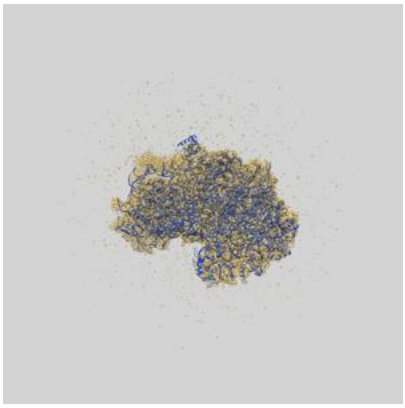
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.61	4.31	3.67
Unmasked-calculated*	-	-	-

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

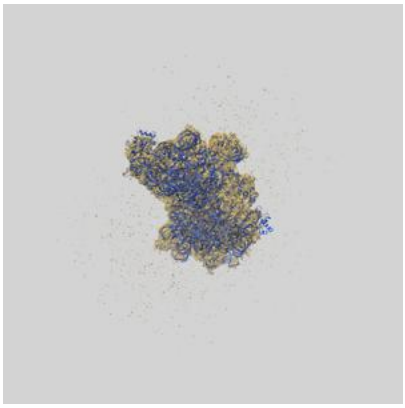
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-4352 and PDB model 6G5H. Per-residue inclusion information can be found in section 3 on page 11.

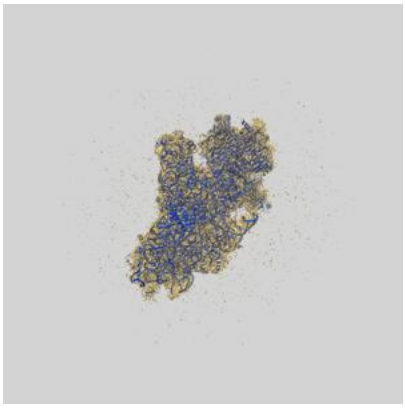
9.1 Map-model overlay



X



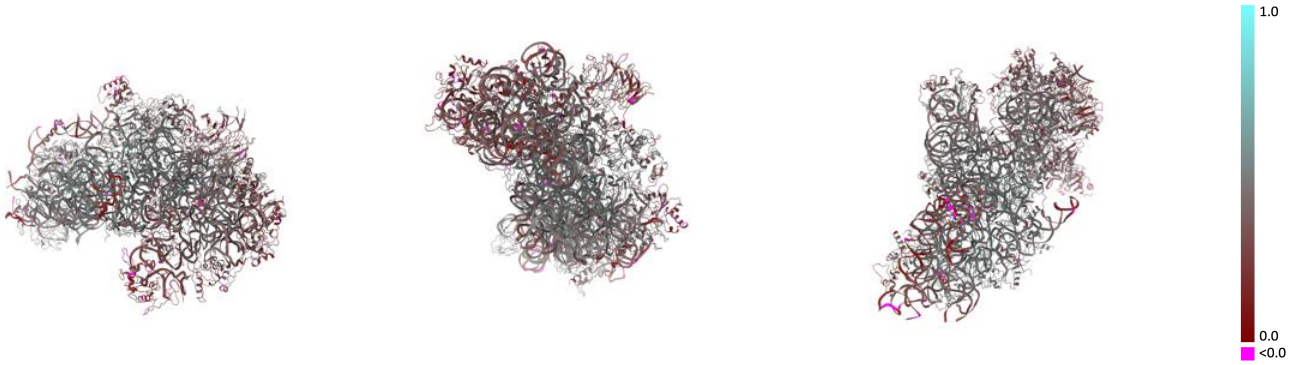
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.06 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

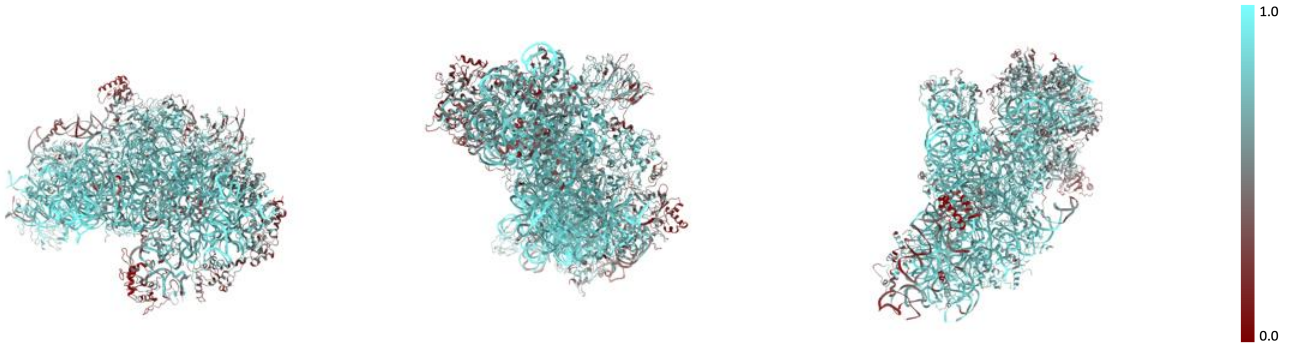
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

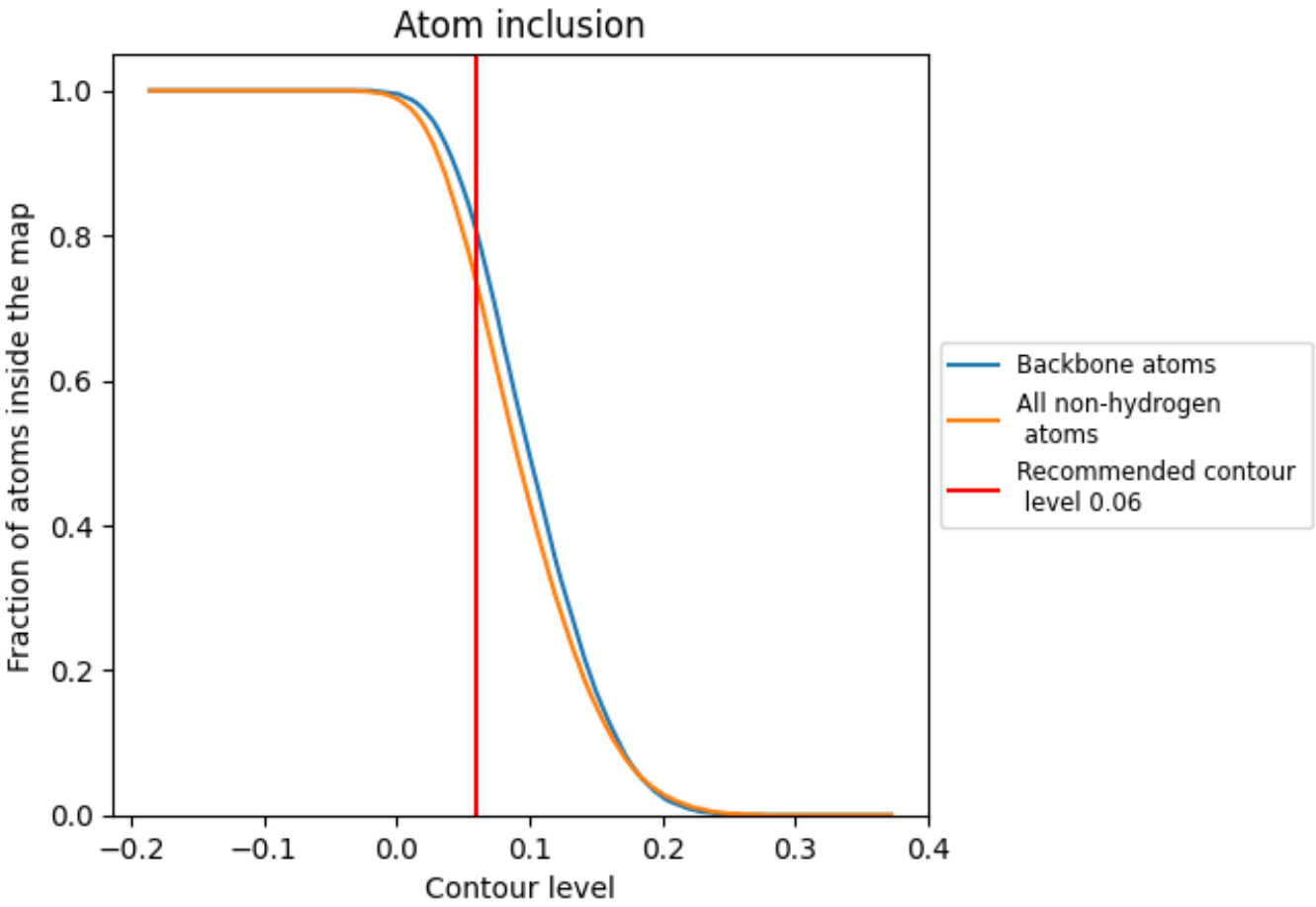
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.06).

9.4 Atom inclusion (i)



At the recommended contour level, 81% of all backbone atoms, 73% 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 (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7340	0.4080
2	0.8500	0.4210
A	0.7190	0.4440
B	0.6950	0.4180
C	0.7560	0.4730
D	0.6010	0.3750
E	0.7450	0.4740
F	0.5610	0.3440
G	0.7000	0.4190
H	0.3080	0.2870
I	0.6990	0.4310
J	0.7940	0.4690
K	0.5820	0.3390
L	0.7010	0.4600
M	0.2150	0.2100
N	0.7070	0.4380
O	0.7070	0.4280
P	0.4600	0.3250
Q	0.6290	0.3780
R	0.5240	0.3770
S	0.4440	0.2990
T	0.5660	0.3400
U	0.5880	0.3890
V	0.7400	0.4640
W	0.7610	0.4890
X	0.7670	0.4900
Y	0.7720	0.4620
Z	0.4010	0.2570
a	0.7110	0.4550
b	0.6150	0.4260
c	0.5050	0.3770
d	0.6370	0.3480
e	0.6700	0.4400
f	0.3090	0.2460
g	0.5750	0.3320
h	0.4430	0.3480