Full wwPDB EM Validation Report ⓘ

Sep 25, 2024 – 02:52 pm BST

PDB ID	:	9GMO
EMDB ID	:	EMD-51452
Title	:	eIF6-bound pre-60S large ribosomal subunit incorporating mutant uL16
Authors	:	Bothe, A.; Ban, N.; Kostova, K.
Deposited on	:	2024-08-29
Resolution	:	2.59 Å(reported)
Based on initial model	:	8a3d

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:

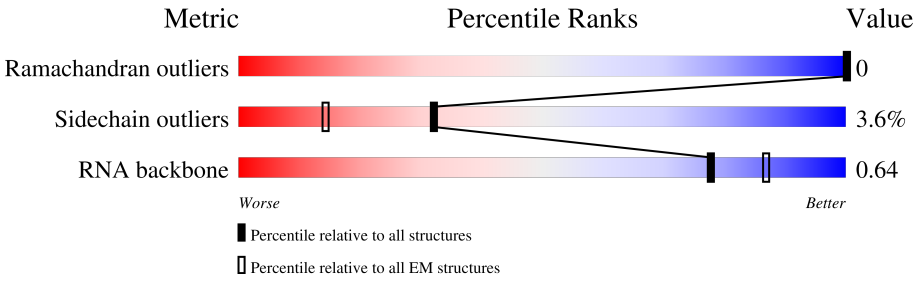
EMDB validation analysis	:	0.0.1.dev112
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.38.2

1 Overall quality at a glance

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

The reported resolution of this entry is 2.59 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)
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	A	5064	56% 11% 33%
2	B	119	93% 6%
3	C	157	84% 10% 6%
4	D	257	93%
5	E	403	97%
6	F	427	83% 16%
7	G	297	97%
8	H	288	73% 24%

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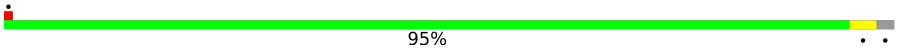
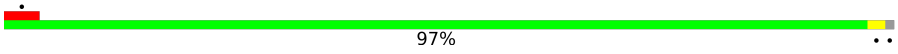
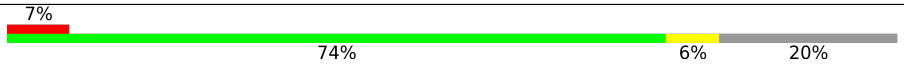
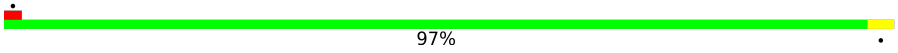
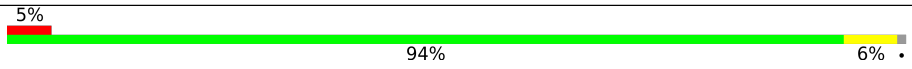
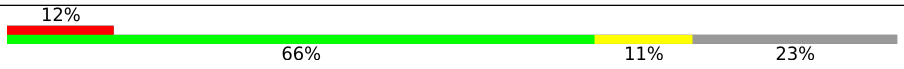
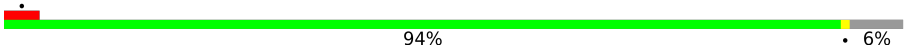
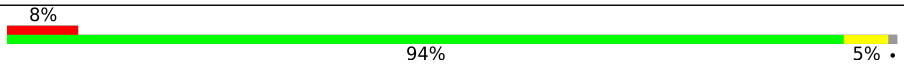
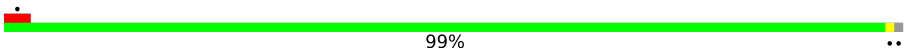
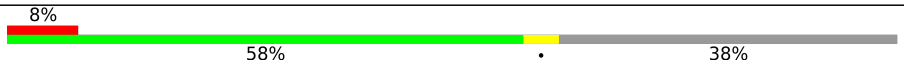
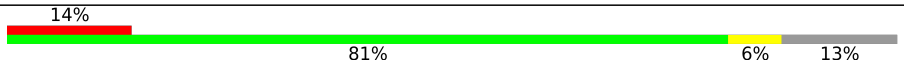
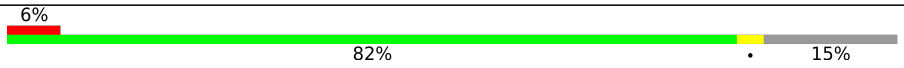
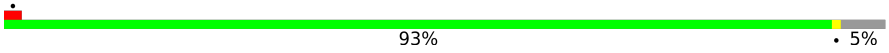
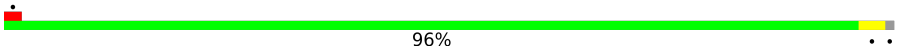
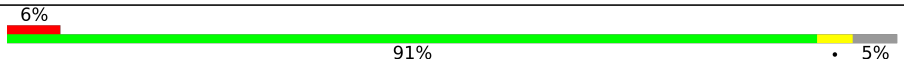
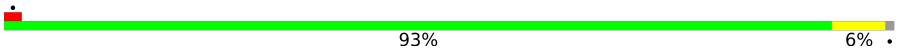
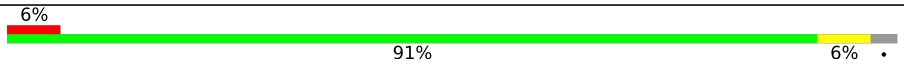
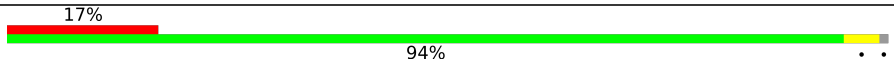
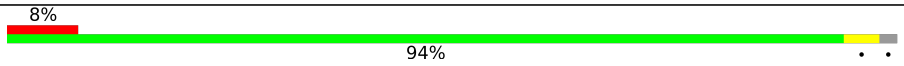
Mol	Chain	Length	Quality of chain
9	I	203	
10	J	184	
11	K	188	
12	L	196	
13	M	176	
14	N	160	
15	O	128	
16	P	140	
17	Q	157	
18	R	156	
19	S	145	
20	T	136	
21	U	148	
22	V	159	
23	W	115	
24	X	125	
25	Y	135	
26	Z	110	
27	a	117	
28	b	123	
29	c	105	
30	d	97	
31	e	70	
32	f	51	
33	g	128	

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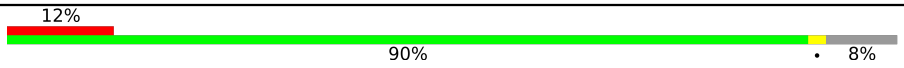
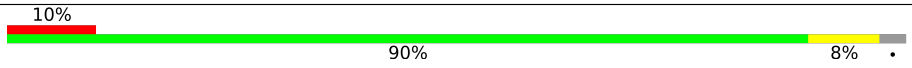
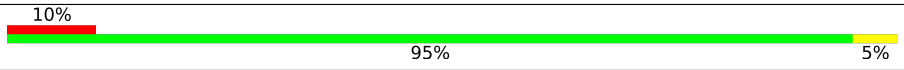
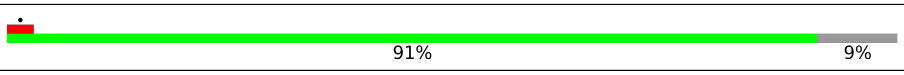
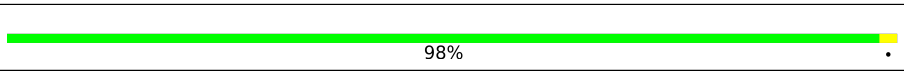
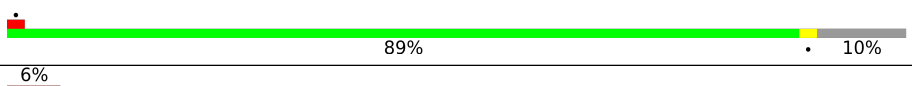
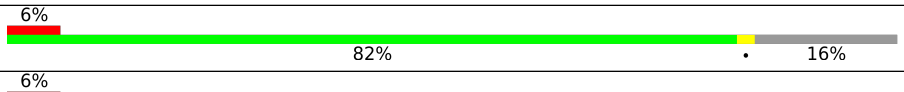
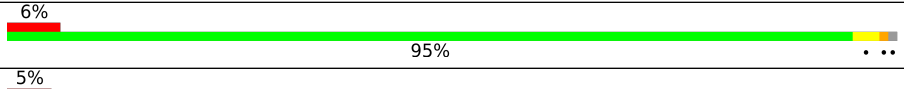
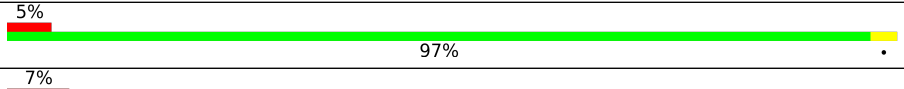
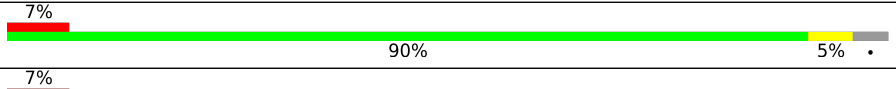
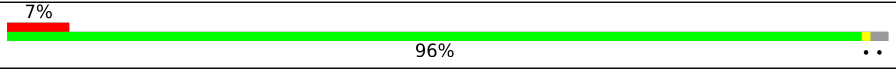
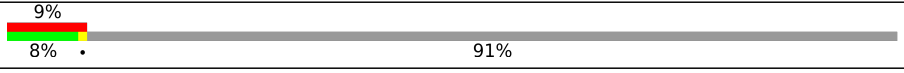
Mol	Chain	Length	Quality of chain
34	h	245	
35	i	106	
36	j	92	
37	k	137	
38	l	204	
39	m	248	
40	n	266	
41	o	192	
42	p	204	
43	q	178	
44	r	211	
45	s	215	
46	0	477	

2 Entry composition (i)

There are 53 unique types of molecules in this entry. The entry contains 132746 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 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	3394	72870	32489	13334	23652	3395	1	0

- Molecule 2 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	118	2518	1122	449	829	118	0	0

- Molecule 3 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	C	148	3156	1408	563	1037	148	0	0

- Molecule 4 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	246	1887	1183	387	311	6	0	0

- Molecule 5 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	395	3194	2034	600	545	15	1	0

- Molecule 6 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	360	2860	1800	572	475	13	0	0

- Molecule 7 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	292	Total	C	N	O	S	0	0
			2372	1503	431	424	14		

- Molecule 8 is a protein called Large ribosomal subunit protein eL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	218	Total	C	N	O	S	0	0
			1752	1128	333	287	4		

- Molecule 9 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	199	Total	C	N	O	S	0	0
			1634	1053	319	257	5		

- Molecule 10 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	152	Total	C	N	O	S	0	0
			1233	771	240	213	9		

- Molecule 11 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	187	Total	C	N	O	S	0	0
			1513	944	314	250	5		

- Molecule 12 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	157	Total	C	N	O	S	0	0
			1304	813	280	202	9		

- Molecule 13 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	176	Total	C	N	O	S	0	0
			1461	930	284	236	11		

- Molecule 14 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	159	Total	C	N	O	S	0	0
			1298	823	252	217	6		

- Molecule 15 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	99	Total	C	N	O	S	0	0
			804	516	140	146	2		

- Molecule 16 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	132	Total	C	N	O	S	0	0
			985	621	185	174	5		

- Molecule 17 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	62	Total	C	N	O	S	0	0
			519	332	101	83	3		

- Molecule 18 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	119	Total	C	N	O	S	0	0
			976	624	183	168	1		

- Molecule 19 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 20 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 21 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	147	Total	C	N	O	S	0	0
			1162	736	237	186	3		

- Molecule 22 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	99	Total	C	N	O	S	0	0
			806	500	177	125	4		

- Molecule 23 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	100	Total	C	N	O	S	0	0
			772	490	136	139	7		

- Molecule 24 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	106	Total	C	N	O	S	0	0
			868	551	170	145	2		

- Molecule 25 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

- Molecule 26 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	109	Total	C	N	O	S	1	0
			879	557	174	144	4		

- Molecule 27 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	a	111	Total	C	N	O	S	0	0
			882	552	182	142	6		

- Molecule 28 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	122	Total	C	N	O	S	0	0
			1015	641	205	168	1		

- Molecule 29 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	102	Total	C	N	O	S	0	0
			832	521	177	129	5		

- Molecule 30 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	86	Total	C	N	O	S	1	0
			713	442	155	111	5		

- Molecule 31 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	e	69	Total	C	N	O	S	0	0
			569	366	103	99	1		

- Molecule 32 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	50	Total	C	N	O	S	0	0
			444	281	98	64	1		

- Molecule 33 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 34 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	h	225	Total	C	N	O	S	0	0
			1712	1065	295	340	12		

- Molecule 35 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	i	103	Total	C	N	O	S	0	0
			842	528	172	136	6		

- Molecule 36 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	j	92	Total	C	N	O	S	0	0
			716	450	137	121	8		

- Molecule 37 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	k	124	Total	C	N	O	S	0	0
			992	615	206	167	4		

- Molecule 38 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	l	203	Total	C	N	O	S	1	0
			1708	1077	360	267	4		

- Molecule 39 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	m	224	Total	C	N	O	S	0	0
			1856	1192	356	299	9		

- Molecule 40 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	n	223	Total	C	N	O	S	0	0
			1809	1153	349	303	4		

- Molecule 41 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	o	190	Total	C	N	O	S	0	0
			1518	956	284	272	6		

- Molecule 42 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	p	203	Total	C	N	O	S	0	0
			1647	1045	318	272	12		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
p	?	-	MET	deletion	UNP P27635
p	?	-	LEU	deletion	UNP P27635
p	?	-	SER	deletion	UNP P27635
p	?	-	CYS	deletion	UNP P27635
p	?	-	ALA	deletion	UNP P27635
p	?	-	GLY	deletion	UNP P27635
p	?	-	ALA	deletion	UNP P27635
p	?	-	ASP	deletion	UNP P27635
p	?	-	ARG	deletion	UNP P27635
p	?	-	LEU	deletion	UNP P27635

- Molecule 43 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	q	170	Total	C	N	O	S	0	0
			1358	858	253	241	6		

- Molecule 44 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	r	206	Total	C	N	O	S	0	0
			1664	1041	345	274	4		

- Molecule 45 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	s	139	Total	C	N	O	S	0	0
			1138	730	218	183	7		

- Molecule 46 is a protein called Cytoplasmic 60S subunit biogenesis factor ZNF622.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	0	43	Total	C	N	O	S	0	0
			363	226	72	59	6		

- Molecule 47 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
47	A	213	Total Mg 213 213	0
47	B	3	Total Mg 3 3	0
47	C	6	Total Mg 6 6	0
47	L	1	Total Mg 1 1	0
47	P	1	Total Mg 1 1	0
47	U	1	Total Mg 1 1	0
47	i	1	Total Mg 1 1	0
47	p	1	Total Mg 1 1	0

- Molecule 48 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
48	A	139	Total K 139 139	0
48	B	1	Total K 1 1	0
48	D	3	Total K 3 3	0
48	F	1	Total K 1 1	0
48	J	1	Total K 1 1	0
48	N	1	Total K 1 1	0
48	V	1	Total K 1 1	0
48	Y	1	Total K 1 1	0
48	Z	1	Total K 1 1	0
48	f	1	Total K 1 1	0
48	i	1	Total K 1 1	0
48	l	2	Total K 2 2	0

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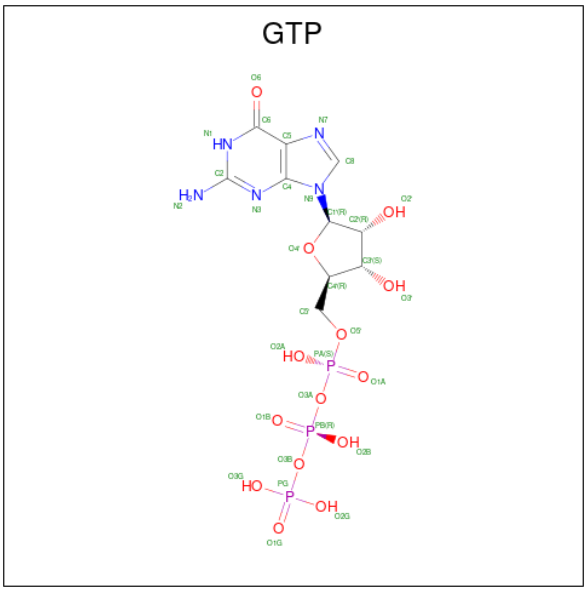
Mol	Chain	Residues	Atoms	AltConf
48	o	1	Total K 1 1	0
48	p	1	Total K 1 1	0

- Molecule 49 is SODIUM ION (three-letter code: NA) (formula: Na).

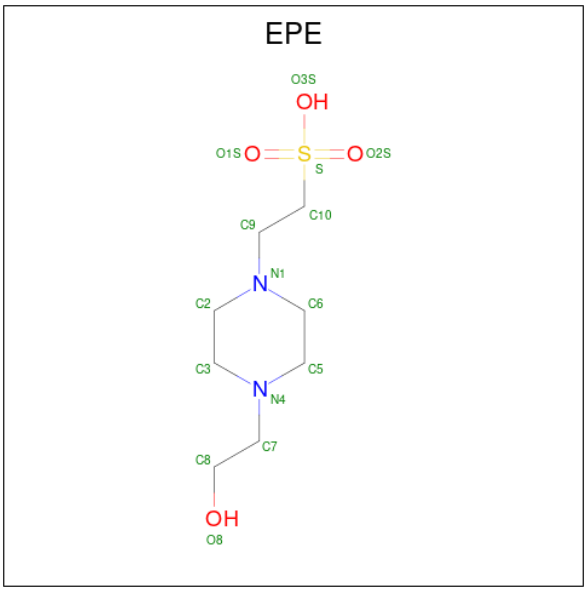
Mol	Chain	Residues	Atoms	AltConf
49	A	2	Total Na 2 2	0

- Molecule 50 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					AltConf
50	B	1	Total 32	C 10	N 5	O 14	P 3	0

- Molecule 51 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: $C_8H_{18}N_2O_4S$).



Mol	Chain	Residues	Atoms					AltConf
51	M	1	Total	C	N	O	S	0
			15	8	2	4	1	

- Molecule 52 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
52	a	1	Total	Zn	0
			1	1	
52	d	1	Total	Zn	0
			1	1	
52	g	1	Total	Zn	0
			1	1	
52	i	1	Total	Zn	0
			1	1	
52	j	1	Total	Zn	0
			1	1	

- Molecule 53 is water.

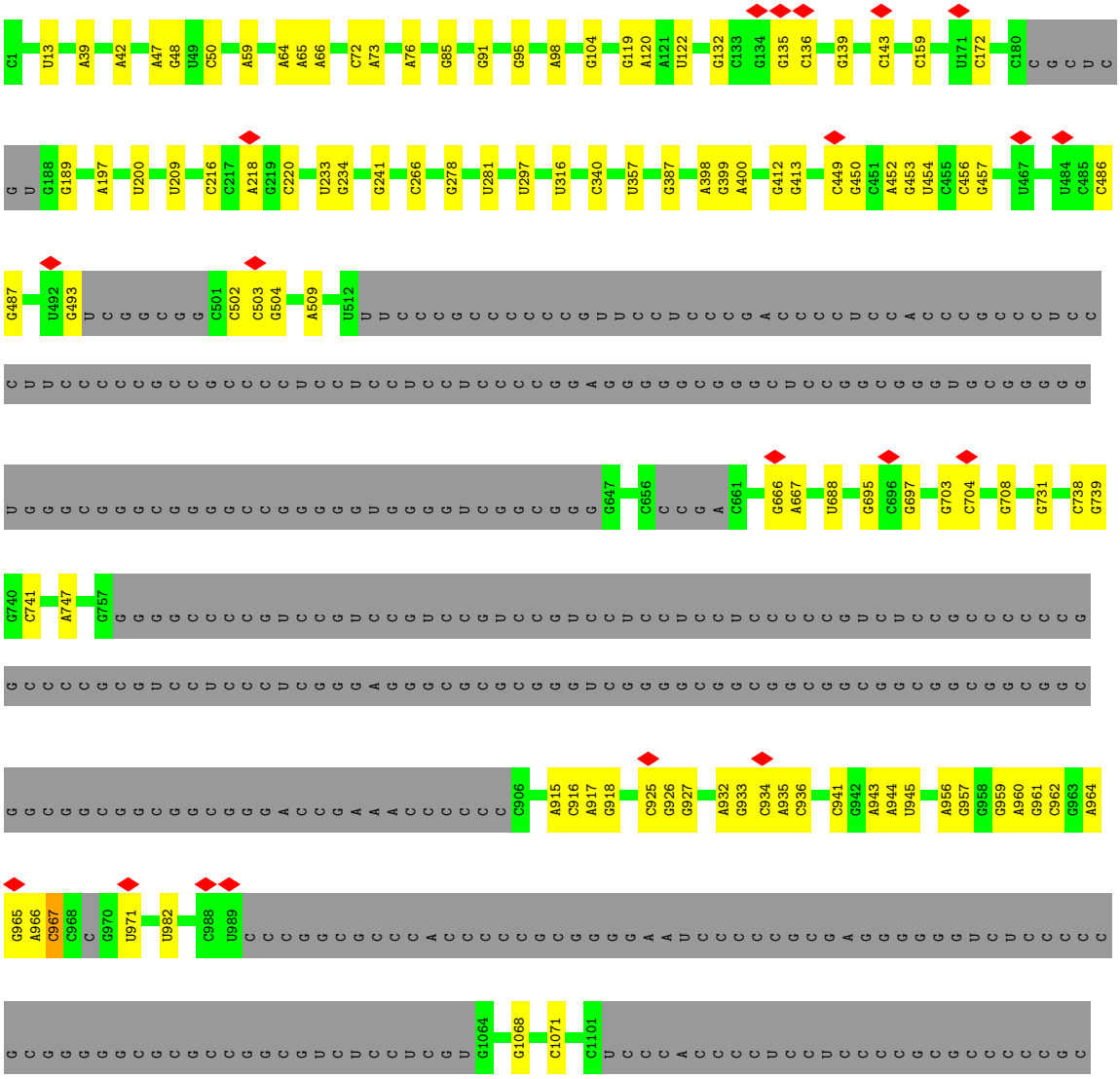
Mol	Chain	Residues	Atoms		AltConf
53	A	4	Total	O	0
			4	4	
53	G	1	Total	O	0
			1	1	

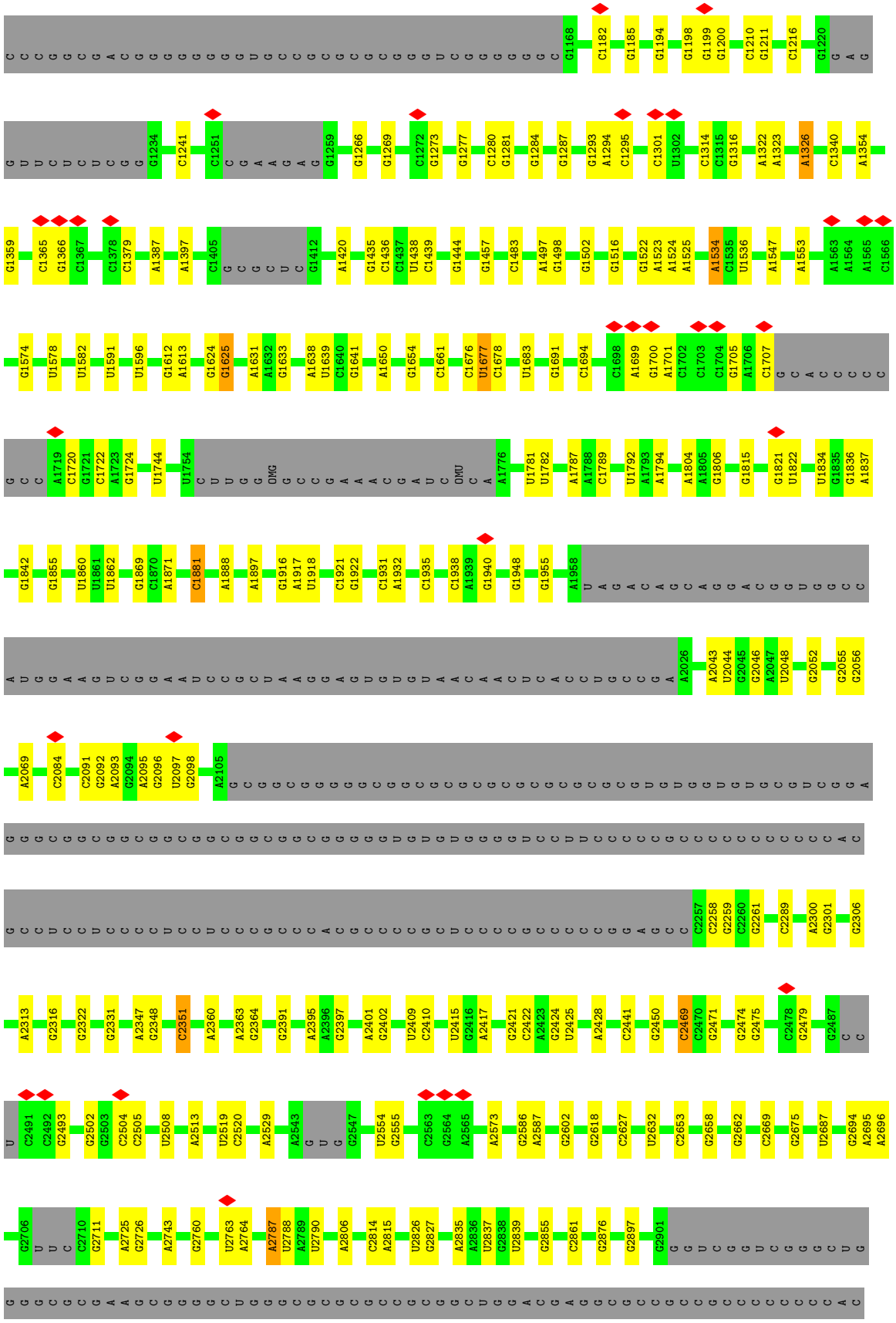
3 Residue-property plots (i)

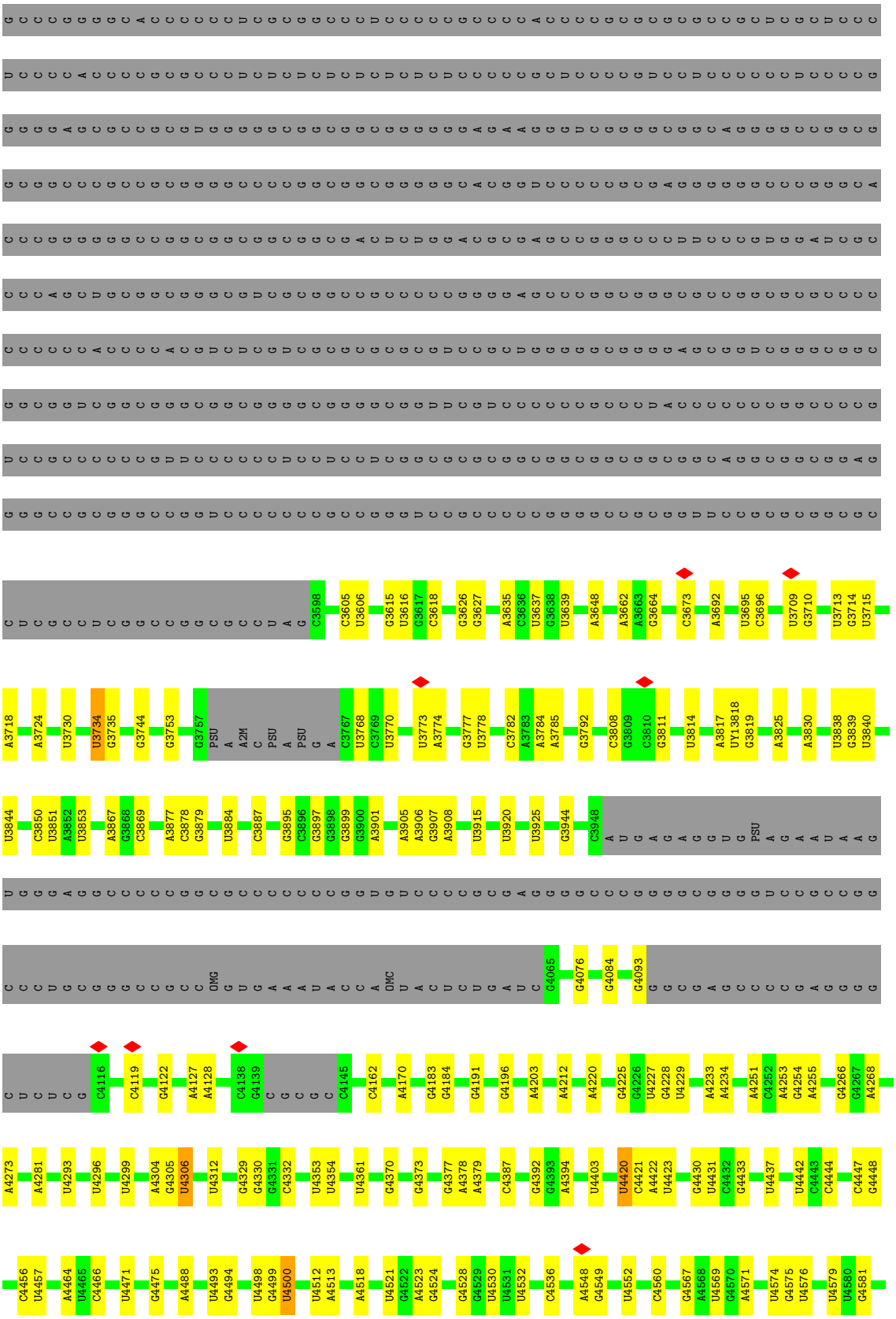
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

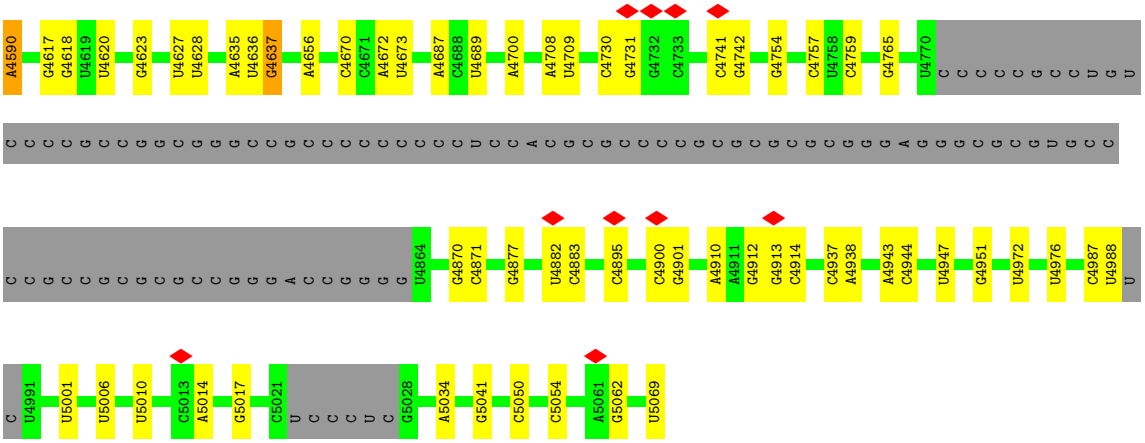
- Molecule 1: 28S rRNA

Chain A:



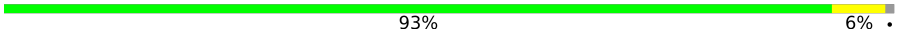


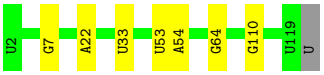




• Molecule 2: 5S rRNA

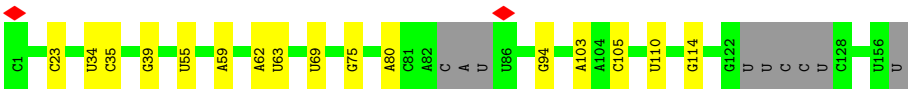
Chain B:





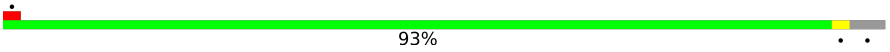
• Molecule 3: 5.8S rRNA

Chain C:



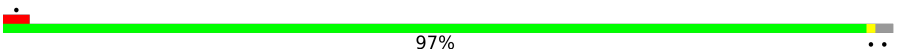
• Molecule 4: 60S ribosomal protein L8

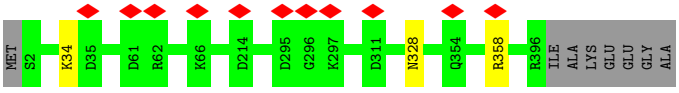
Chain D:



• Molecule 5: 60S ribosomal protein L3

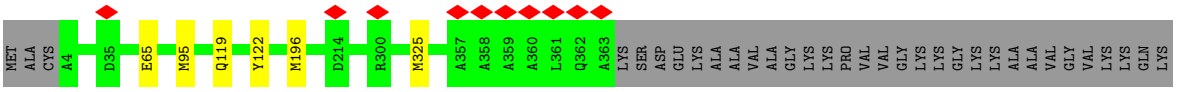
Chain E:





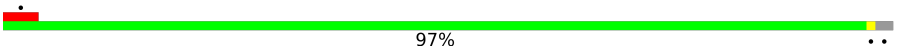
• Molecule 6: 60S ribosomal protein L4

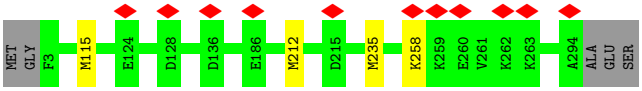
Chain F:



• Molecule 7: 60S ribosomal protein L5

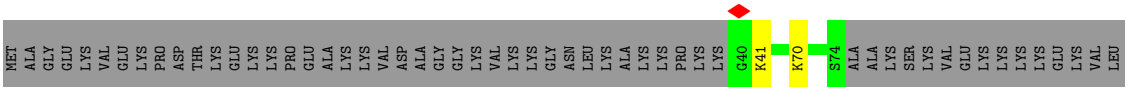
Chain G:

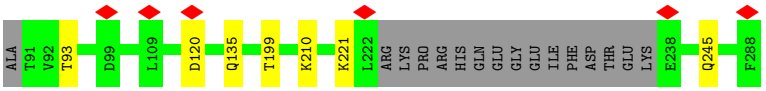




• Molecule 8: Large ribosomal subunit protein eL6

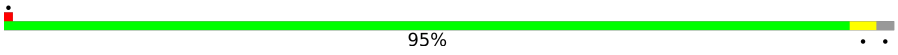
Chain H:





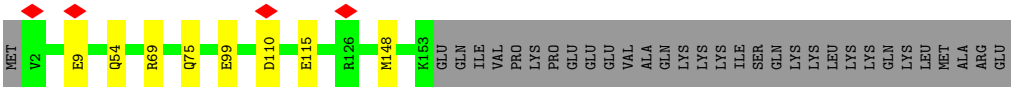
• Molecule 9: 60S ribosomal protein L13a

Chain I:



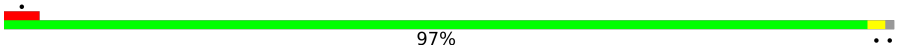
• Molecule 10: 60S ribosomal protein L17

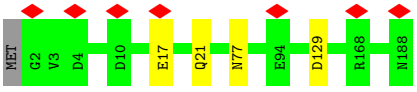
Chain J:



• Molecule 11: 60S ribosomal protein L18

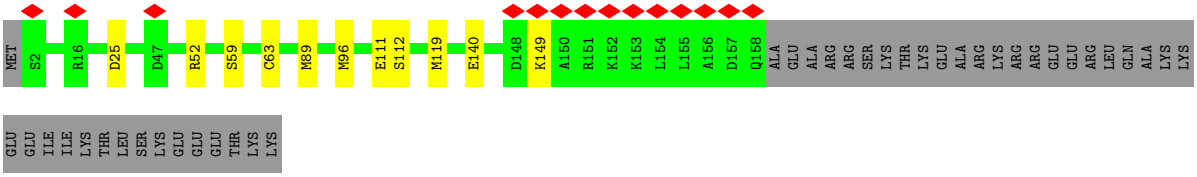
Chain K:



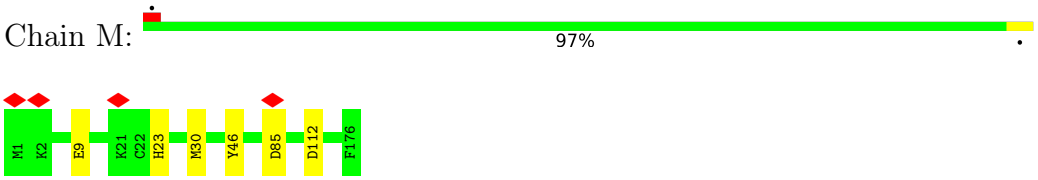


• Molecule 12: 60S ribosomal protein L19

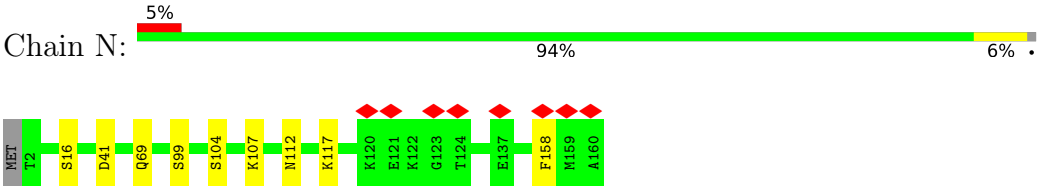
Chain L:



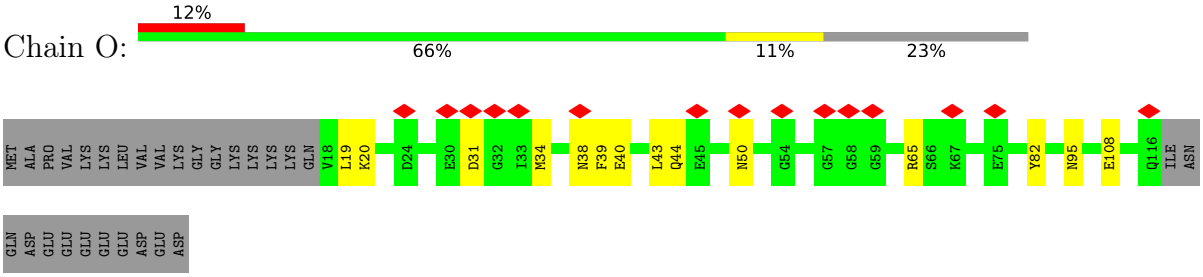
• Molecule 13: 60S ribosomal protein L18a



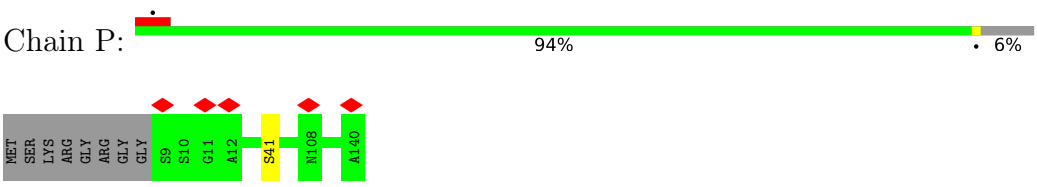
• Molecule 14: 60S ribosomal protein L21



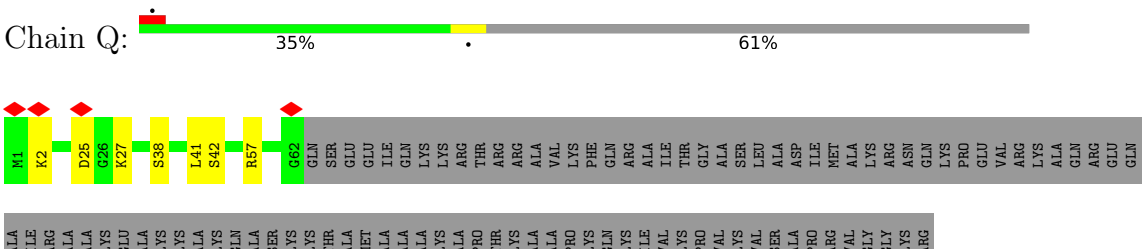
• Molecule 15: 60S ribosomal protein L22



• Molecule 16: 60S ribosomal protein L23

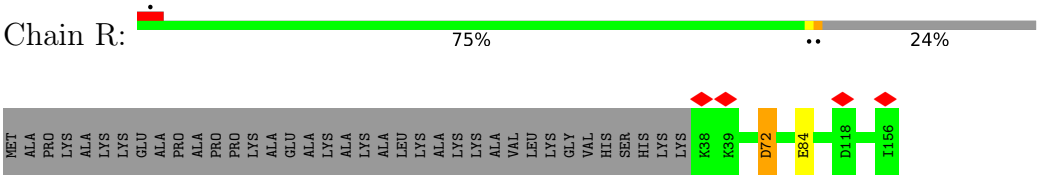


• Molecule 17: 60S ribosomal protein L24



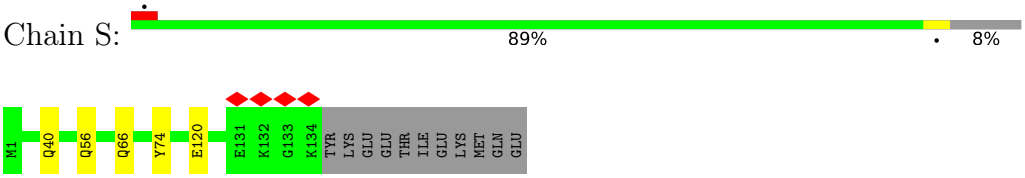
• Molecule 18: 60S ribosomal protein L23a

Chain R:



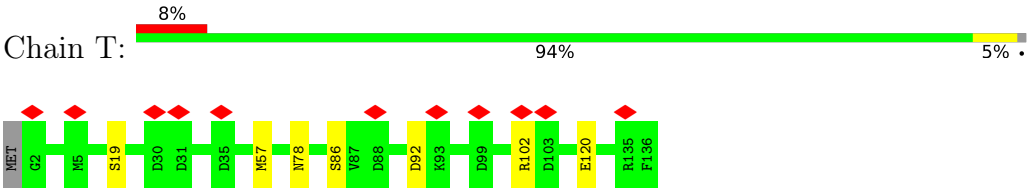
• Molecule 19: Large ribosomal subunit protein uL24

Chain S:



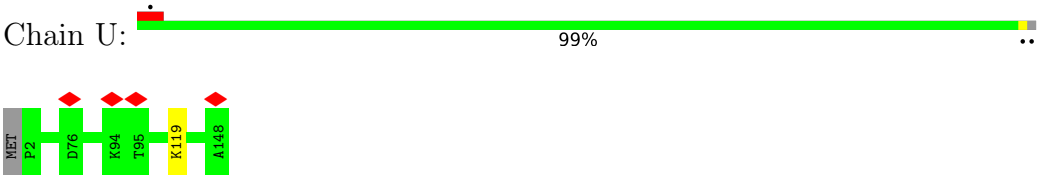
• Molecule 20: 60S ribosomal protein L27

Chain T:



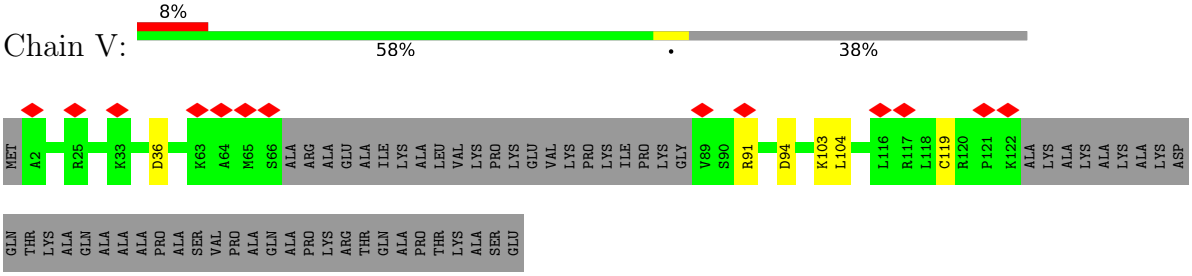
• Molecule 21: 60S ribosomal protein L27a

Chain U:



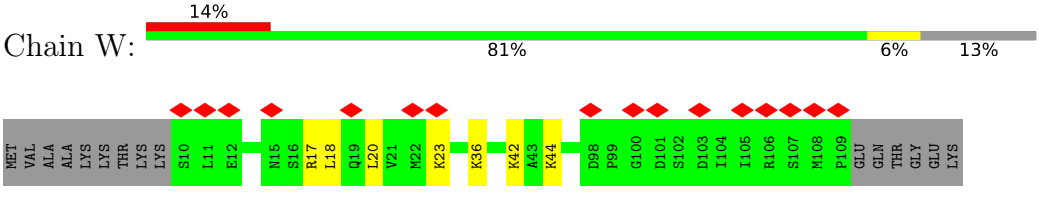
• Molecule 22: 60S ribosomal protein L29

Chain V:



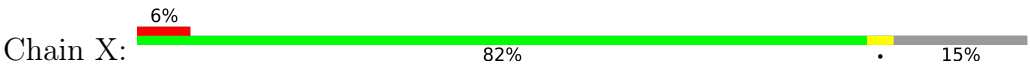
• Molecule 23: 60S ribosomal protein L30

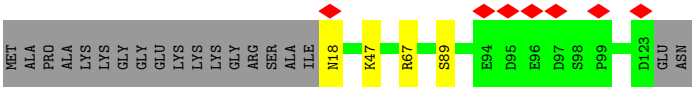
Chain W:



• Molecule 24: 60S ribosomal protein L31

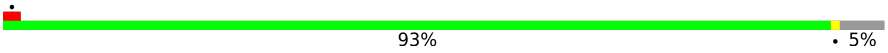
Chain X:

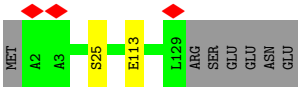




• Molecule 25: 60S ribosomal protein L32

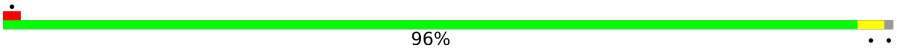
Chain Y:

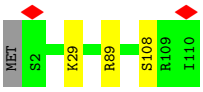




• Molecule 26: 60S ribosomal protein L35a

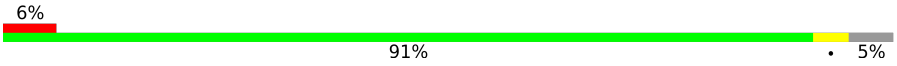
Chain Z:

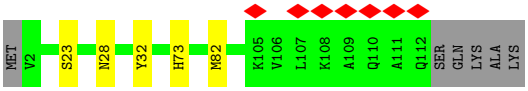




• Molecule 27: 60S ribosomal protein L34

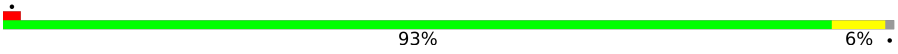
Chain a:

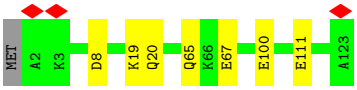




• Molecule 28: 60S ribosomal protein L35

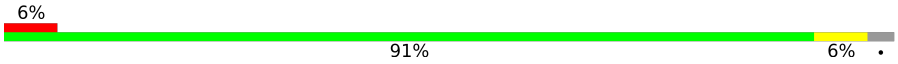
Chain b:

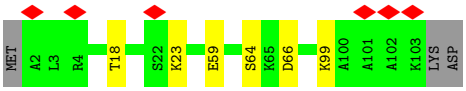




• Molecule 29: 60S ribosomal protein L36

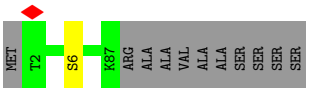
Chain c:





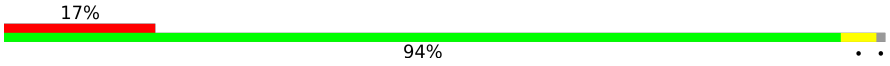
• Molecule 30: 60S ribosomal protein L37

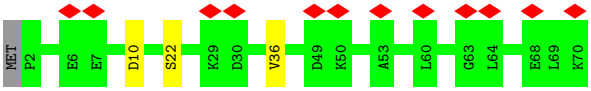
Chain d:



• Molecule 31: 60S ribosomal protein L38

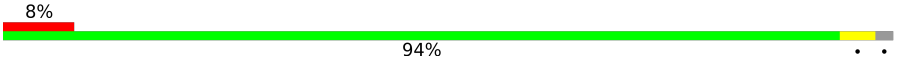
Chain e:

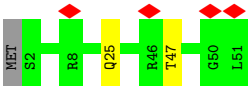




• Molecule 32: 60S ribosomal protein L39

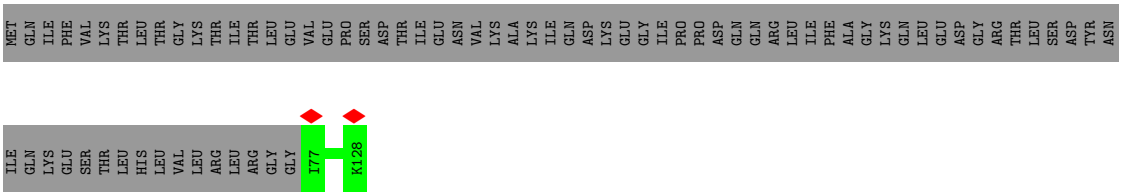
Chain f:





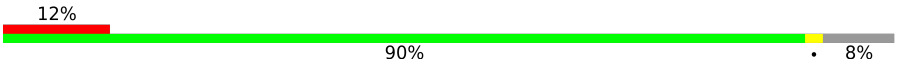
• Molecule 33: Ubiquitin-60S ribosomal protein L40

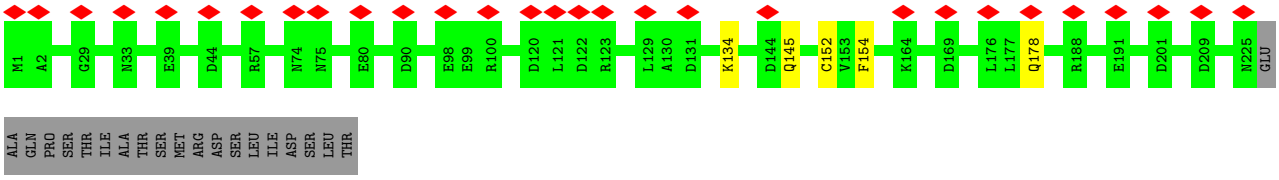
Chain g:



• Molecule 34: Eukaryotic translation initiation factor 6

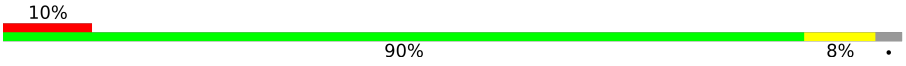
Chain h:

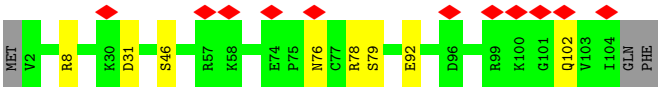




• Molecule 35: 60S ribosomal protein L36a

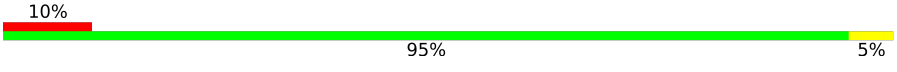
Chain i:

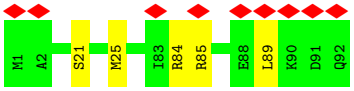




• Molecule 36: 60S ribosomal protein L37a

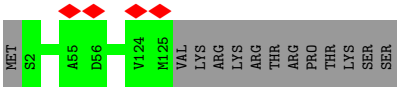
Chain j:





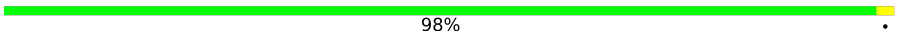
• Molecule 37: 60S ribosomal protein L28

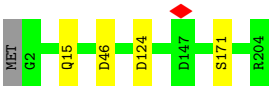
Chain k:



• Molecule 38: 60S ribosomal protein L15

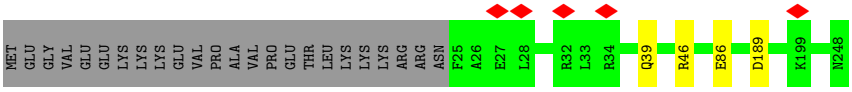
Chain l:





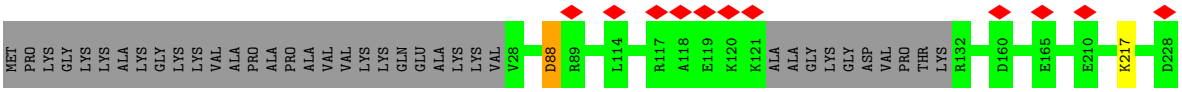
• Molecule 39: Large ribosomal subunit protein uL30

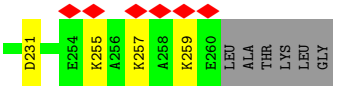
Chain m:



• Molecule 40: 60S ribosomal protein L7a

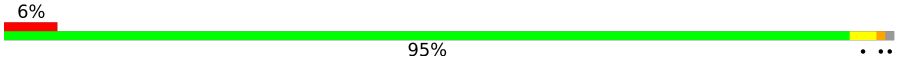
Chain n:

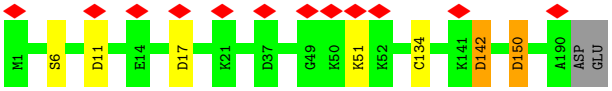




• Molecule 41: 60S ribosomal protein L9

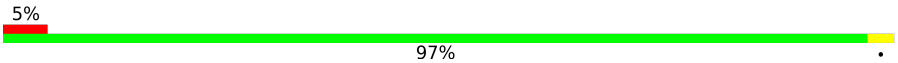
Chain o:

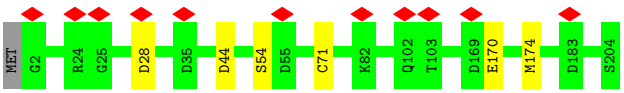




• Molecule 42: Large ribosomal subunit protein uL16

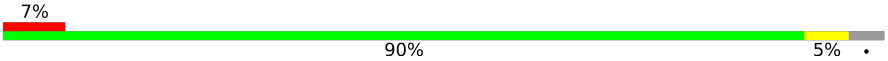
Chain p:

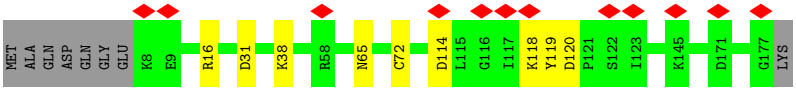




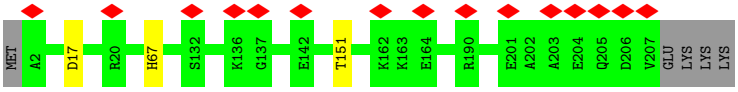
• Molecule 43: 60S ribosomal protein L11

Chain q:

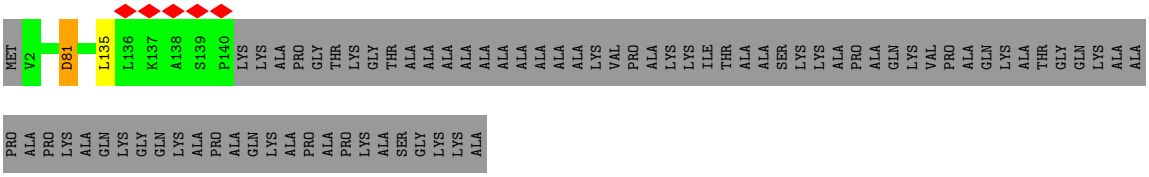




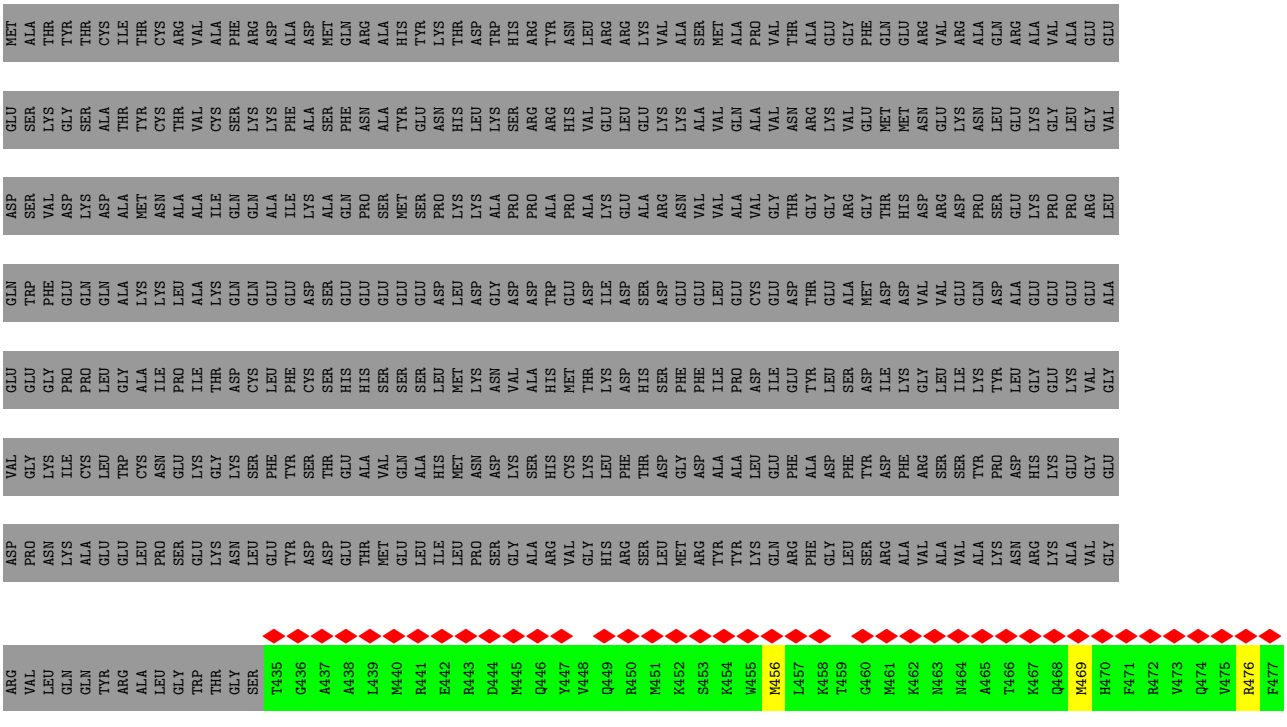
• Molecule 44: 60S ribosomal protein L13



• Molecule 45: 60S ribosomal protein L14



• Molecule 46: Cytoplasmic 60S subunit biogenesis factor ZNF622



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	193000	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 ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.487	Depositor
Minimum map value	-0.586	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	0.070	Depositor
Recommended contour level	0.5	Depositor
Map size (Å)	593.6, 593.6, 593.6	wwPDB
Map dimensions	560, 560, 560	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: OMC, MG, UY1, OMG, EPE, 5MC, K, GTP, ZN, PSU, 1MA, UR3, NA, A2M, OMU, 6MZ

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.18	0/78643	0.75	16/122654 (0.0%)
2	B	0.17	0/2813	0.72	0/4384
3	C	0.18	0/3453	0.75	0/5376
4	D	0.25	0/1925	0.57	1/2581 (0.0%)
5	E	0.24	0/3265	0.49	0/4369
6	F	0.24	0/2914	0.53	0/3915
7	G	0.24	0/2418	0.49	0/3239
8	H	0.25	0/1786	0.52	0/2395
9	I	0.27	0/1666	0.53	0/2228
10	J	0.26	0/1259	0.54	0/1689
11	K	0.26	0/1537	0.60	1/2052 (0.0%)
12	L	0.26	0/1320	0.62	1/1749 (0.1%)
13	M	0.26	0/1501	0.58	1/2013 (0.0%)
14	N	0.30	0/1326	0.60	0/1770
15	O	0.31	0/818	0.69	0/1098
16	P	0.27	0/999	0.56	0/1340
17	Q	0.30	0/532	0.67	1/708 (0.1%)
18	R	0.26	0/993	0.60	1/1334 (0.1%)
19	S	0.27	0/1132	0.58	0/1504
20	T	0.27	0/1130	0.60	1/1507 (0.1%)
21	U	0.25	0/1191	0.54	0/1591
22	V	0.26	0/819	0.67	2/1081 (0.2%)
23	W	0.29	0/783	0.62	0/1052
24	X	0.25	0/883	0.59	0/1190
25	Y	0.25	0/1071	0.55	0/1429
26	Z	0.26	0/901	0.56	0/1206
27	a	0.25	0/892	0.56	0/1189
28	b	0.27	0/1023	0.57	0/1351
29	c	0.29	0/843	0.60	0/1115
30	d	0.24	0/732	0.57	0/968
31	e	0.30	0/575	0.61	0/761
32	f	0.24	0/454	0.57	0/599

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	g	0.25	0/435	0.56	0/575
34	h	0.26	0/1736	0.55	0/2362
35	i	0.27	0/855	0.57	0/1128
36	j	0.25	0/726	0.57	0/963
37	k	0.23	0/1007	0.54	0/1351
38	l	0.24	0/1753	0.55	0/2348
39	m	0.27	0/1890	0.52	0/2519
40	n	0.24	0/1840	0.51	1/2476 (0.0%)
41	o	0.29	0/1537	0.61	2/2066 (0.1%)
42	p	0.28	0/1686	0.57	0/2252
43	q	0.25	0/1381	0.56	1/1848 (0.1%)
44	r	0.25	0/1695	0.56	1/2270 (0.0%)
45	s	0.27	0/1161	0.60	2/1554 (0.1%)
46	0	0.24	0/368	0.52	0/484
All	All	0.21	0/139667	0.69	32/205633 (0.0%)

There are no bond length outliers.

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	2469	C	C2-N1-C1'	8.16	127.78	118.80
1	A	2409	U	C2-N1-C1'	7.29	126.44	117.70
41	o	150	ASP	CB-CG-OD1	7.09	124.68	118.30
45	s	81	ASP	CB-CG-OD1	6.66	124.30	118.30
1	A	1639	U	C2-N1-C1'	6.26	125.22	117.70
1	A	2469	C	N1-C2-O2	6.12	122.57	118.90
22	V	36	ASP	CB-CG-OD1	6.09	123.78	118.30
43	q	120	ASP	CB-CG-OD2	5.88	123.59	118.30
1	A	50	C	C2-N1-C1'	5.76	125.14	118.80
13	M	112	ASP	CB-CG-OD1	5.71	123.44	118.30
1	A	2409	U	N1-C2-O2	5.65	126.75	122.80
1	A	2469	C	C6-N1-C1'	-5.60	114.08	120.80
40	n	88	ASP	CB-CG-OD2	5.59	123.33	118.30
1	A	2469	C	C6-N1-C2	-5.59	118.06	120.30
4	D	176	ASP	CB-CG-OD2	5.55	123.29	118.30
20	T	92	ASP	CB-CG-OD2	5.47	123.23	118.30
1	A	1639	U	N1-C2-O2	5.37	126.56	122.80
1	A	2409	U	N3-C2-O2	-5.36	118.45	122.20
17	Q	25	ASP	CB-CG-OD2	5.33	123.10	118.30
41	o	142	ASP	CB-CG-OD2	5.30	123.07	118.30
1	A	967	C	C6-N1-C2	-5.30	118.18	120.30
12	L	25	ASP	CB-CG-OD2	5.26	123.04	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	R	72	ASP	CB-CG-OD1	5.26	123.03	118.30
1	A	967	C	C2-N1-C1'	5.20	124.52	118.80
11	K	129	ASP	CB-CG-OD2	5.18	122.96	118.30
44	r	17	ASP	CB-CG-OD1	5.17	122.95	118.30
1	A	967	C	N1-C2-O2	5.14	121.98	118.90
45	s	135	LEU	CA-CB-CG	5.14	127.12	115.30
1	A	967	C	N3-C2-O2	-5.11	118.32	121.90
1	A	1241	C	C2-N1-C1'	5.04	124.35	118.80
1	A	2469	C	N3-C2-O2	-5.01	118.39	121.90
22	V	94	ASP	CB-CG-OD1	5.01	122.81	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	
4	D	244/257 (95%)	235 (96%)	9 (4%)	0	100	100
5	E	394/403 (98%)	390 (99%)	4 (1%)	0	100	100
6	F	358/427 (84%)	353 (99%)	5 (1%)	0	100	100
7	G	290/297 (98%)	286 (99%)	4 (1%)	0	100	100
8	H	212/288 (74%)	206 (97%)	6 (3%)	0	100	100
9	I	197/203 (97%)	196 (100%)	1 (0%)	0	100	100
10	J	150/184 (82%)	150 (100%)	0	0	100	100
11	K	185/188 (98%)	183 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	L	155/196 (79%)	154 (99%)	1 (1%)	0	100	100
13	M	174/176 (99%)	170 (98%)	4 (2%)	0	100	100
14	N	157/160 (98%)	156 (99%)	1 (1%)	0	100	100
15	O	97/128 (76%)	92 (95%)	5 (5%)	0	100	100
16	P	130/140 (93%)	129 (99%)	1 (1%)	0	100	100
17	Q	60/157 (38%)	60 (100%)	0	0	100	100
18	R	117/156 (75%)	115 (98%)	2 (2%)	0	100	100
19	S	132/145 (91%)	130 (98%)	2 (2%)	0	100	100
20	T	133/136 (98%)	130 (98%)	3 (2%)	0	100	100
21	U	145/148 (98%)	144 (99%)	1 (1%)	0	100	100
22	V	95/159 (60%)	94 (99%)	1 (1%)	0	100	100
23	W	98/115 (85%)	98 (100%)	0	0	100	100
24	X	104/125 (83%)	104 (100%)	0	0	100	100
25	Y	126/135 (93%)	126 (100%)	0	0	100	100
26	Z	108/110 (98%)	108 (100%)	0	0	100	100
27	a	109/117 (93%)	108 (99%)	1 (1%)	0	100	100
28	b	120/123 (98%)	118 (98%)	2 (2%)	0	100	100
29	c	100/105 (95%)	100 (100%)	0	0	100	100
30	d	85/97 (88%)	85 (100%)	0	0	100	100
31	e	67/70 (96%)	67 (100%)	0	0	100	100
32	f	48/51 (94%)	48 (100%)	0	0	100	100
33	g	50/128 (39%)	50 (100%)	0	0	100	100
34	h	223/245 (91%)	218 (98%)	5 (2%)	0	100	100
35	i	101/106 (95%)	98 (97%)	3 (3%)	0	100	100
36	j	90/92 (98%)	87 (97%)	3 (3%)	0	100	100
37	k	122/137 (89%)	121 (99%)	1 (1%)	0	100	100
38	l	202/204 (99%)	200 (99%)	2 (1%)	0	100	100
39	m	222/248 (90%)	217 (98%)	5 (2%)	0	100	100
40	n	219/266 (82%)	216 (99%)	3 (1%)	0	100	100
41	o	188/192 (98%)	186 (99%)	2 (1%)	0	100	100
42	p	201/204 (98%)	199 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	q	168/178 (94%)	167 (99%)	1 (1%)	0	100	100
44	r	204/211 (97%)	201 (98%)	3 (2%)	0	100	100
45	s	137/215 (64%)	136 (99%)	1 (1%)	0	100	100
46	0	41/477 (9%)	41 (100%)	0	0	100	100
All	All	6558/7899 (83%)	6472 (99%)	86 (1%)	0	100	100

There are no Ramachandran outliers to report.

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	
4	D	189/199 (95%)	184 (97%)	5 (3%)	41	67
5	E	345/349 (99%)	342 (99%)	3 (1%)	75	90
6	F	297/348 (85%)	291 (98%)	6 (2%)	50	74
7	G	245/250 (98%)	241 (98%)	4 (2%)	58	79
8	H	193/252 (77%)	184 (95%)	9 (5%)	22	45
9	I	171/174 (98%)	164 (96%)	7 (4%)	26	51
10	J	133/163 (82%)	125 (94%)	8 (6%)	16	35
11	K	164/165 (99%)	161 (98%)	3 (2%)	54	77
12	L	138/175 (79%)	128 (93%)	10 (7%)	12	26
13	M	157/157 (100%)	152 (97%)	5 (3%)	34	60
14	N	139/140 (99%)	130 (94%)	9 (6%)	14	31
15	O	88/115 (76%)	74 (84%)	14 (16%)	2	3
16	P	102/107 (95%)	101 (99%)	1 (1%)	73	88
17	Q	54/126 (43%)	48 (89%)	6 (11%)	5	10
18	R	107/133 (80%)	105 (98%)	2 (2%)	52	75
19	S	124/135 (92%)	119 (96%)	5 (4%)	27	52
20	T	117/118 (99%)	111 (95%)	6 (5%)	20	42

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
21	U	120/121 (99%)	119 (99%)	1 (1%)	79 91
22	V	82/126 (65%)	78 (95%)	4 (5%)	21 43
23	W	84/97 (87%)	77 (92%)	7 (8%)	9 19
24	X	93/110 (84%)	89 (96%)	4 (4%)	25 49
25	Y	114/121 (94%)	112 (98%)	2 (2%)	54 77
26	Z	89/89 (100%)	86 (97%)	3 (3%)	32 58
27	a	95/100 (95%)	90 (95%)	5 (5%)	19 40
28	b	109/110 (99%)	102 (94%)	7 (6%)	14 32
29	c	86/89 (97%)	80 (93%)	6 (7%)	12 27
30	d	74/80 (92%)	73 (99%)	1 (1%)	62 82
31	e	64/65 (98%)	61 (95%)	3 (5%)	22 45
32	f	47/48 (98%)	45 (96%)	2 (4%)	25 49
33	g	48/116 (41%)	48 (100%)	0	100 100
34	h	195/213 (92%)	190 (97%)	5 (3%)	41 67
35	i	91/94 (97%)	83 (91%)	8 (9%)	8 17
36	j	75/75 (100%)	70 (93%)	5 (7%)	13 29
37	k	107/121 (88%)	107 (100%)	0	100 100
38	l	172/172 (100%)	168 (98%)	4 (2%)	45 71
39	m	192/215 (89%)	188 (98%)	4 (2%)	48 73
40	n	193/223 (86%)	187 (97%)	6 (3%)	35 62
41	o	169/171 (99%)	162 (96%)	7 (4%)	26 51
42	p	173/174 (99%)	167 (96%)	6 (4%)	31 57
43	q	142/149 (95%)	134 (94%)	8 (6%)	17 38
44	r	172/177 (97%)	170 (99%)	2 (1%)	67 85
45	s	118/161 (73%)	117 (99%)	1 (1%)	79 91
46	0	38/404 (9%)	35 (92%)	3 (8%)	10 21
All	All	5705/6727 (85%)	5498 (96%)	207 (4%)	32 56

All (207) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	D	8	GLN
4	D	60	LYS

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Mol	Chain	Res	Type
4	D	115	CYS
4	D	142	GLU
4	D	159	SER
5	E	34	LYS
5	E	328	ASN
5	E	358	ARG
6	F	65	GLU
6	F	95	MET
6	F	119	GLN
6	F	122	TYR
6	F	196	MET
6	F	325	MET
7	G	115	MET
7	G	212	MET
7	G	235	MET
7	G	258	LYS
8	H	41	LYS
8	H	70	LYS
8	H	93	THR
8	H	120	ASP
8	H	135	GLN
8	H	199	THR
8	H	210	LYS
8	H	221	LYS
8	H	245	GLN
9	I	113	ASP
9	I	117	ARG
9	I	158	GLU
9	I	162	GLU
9	I	173	GLN
9	I	182	GLU
9	I	194	GLU
10	J	9	GLU
10	J	54	GLN
10	J	69	ARG
10	J	75	GLN
10	J	99	GLU
10	J	110	ASP
10	J	115	GLU
10	J	148	MET
11	K	17	GLU
11	K	21	GLN

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Mol	Chain	Res	Type
11	K	77	ASN
12	L	52	ARG
12	L	59	SER
12	L	63	CYS
12	L	89	MET
12	L	96	MET
12	L	111	GLU
12	L	112	SER
12	L	119	MET
12	L	140	GLU
12	L	149	LYS
13	M	9	GLU
13	M	23	HIS
13	M	30	MET
13	M	46	TYR
13	M	85	ASP
14	N	16	SER
14	N	41	ASP
14	N	69	GLN
14	N	99	SER
14	N	104	SER
14	N	107	LYS
14	N	112	ASN
14	N	117	LYS
14	N	158	PHE
15	O	19	LEU
15	O	20	LYS
15	O	31	ASP
15	O	34	MET
15	O	38	ASN
15	O	39	PHE
15	O	40	GLU
15	O	43	LEU
15	O	44	GLN
15	O	50	ASN
15	O	65	ARG
15	O	82	TYR
15	O	95	ASN
15	O	108	GLU
16	P	41	SER
17	Q	2	LYS
17	Q	27	LYS

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Mol	Chain	Res	Type
17	Q	38	SER
17	Q	41	LEU
17	Q	42	SER
17	Q	57	ARG
18	R	72	ASP
18	R	84	GLU
19	S	40	GLN
19	S	56	GLN
19	S	66	GLN
19	S	74	TYR
19	S	120	GLU
20	T	19	SER
20	T	57	MET
20	T	78	ASN
20	T	86	SER
20	T	102	ARG
20	T	120	GLU
21	U	119	LYS
22	V	91	ARG
22	V	103	LYS
22	V	104	LEU
22	V	119	CYS
23	W	17	ARG
23	W	18	LEU
23	W	20	LEU
23	W	23	LYS
23	W	36	LYS
23	W	42	LYS
23	W	44	LYS
24	X	18	ASN
24	X	47	LYS
24	X	67	ARG
24	X	89	SER
25	Y	25	SER
25	Y	113	GLU
26	Z	29	LYS
26	Z	89	ARG
26	Z	108	SER
27	a	23	SER
27	a	28	ASN
27	a	32	TYR
27	a	73	HIS

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Mol	Chain	Res	Type
27	a	82	MET
28	b	8	ASP
28	b	19	LYS
28	b	20	GLN
28	b	65	GLN
28	b	67	GLU
28	b	100	GLU
28	b	111	GLU
29	c	18	THR
29	c	23	LYS
29	c	59	GLU
29	c	64	SER
29	c	66	ASP
29	c	99	LYS
30	d	6	SER
31	e	10	ASP
31	e	22	SER
31	e	36	VAL
32	f	25	GLN
32	f	47	THR
34	h	134	LYS
34	h	145	GLN
34	h	152	CYS
34	h	154	PHE
34	h	178	GLN
35	i	8	ARG
35	i	31	ASP
35	i	46	SER
35	i	76	ASN
35	i	78	ARG
35	i	79	SER
35	i	92	GLU
35	i	102	GLN
36	j	21	SER
36	j	25	MET
36	j	84	ARG
36	j	85	ARG
36	j	89	LEU
38	l	15	GLN
38	l	46	ASP
38	l	124	ASP
38	l	171	SER

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Mol	Chain	Res	Type
39	m	39	GLN
39	m	46	ARG
39	m	86	GLU
39	m	189	ASP
40	n	88	ASP
40	n	217	LYS
40	n	231	ASP
40	n	255	LYS
40	n	257	LYS
40	n	259	LYS
41	o	6	SER
41	o	11	ASP
41	o	17	ASP
41	o	51	LYS
41	o	134	CYS
41	o	142	ASP
41	o	150	ASP
42	p	28	ASP
42	p	44	ASP
42	p	54	SER
42	p	71	CYS
42	p	170	GLU
42	p	174	MET
43	q	16	ARG
43	q	31	ASP
43	q	38	LYS
43	q	65	ASN
43	q	72	CYS
43	q	114	ASP
43	q	118	LYS
43	q	119	TYR
44	r	67	HIS
44	r	151	THR
45	s	81	ASP
46	0	456	MET
46	0	469	MET
46	0	476	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
11	K	160	HIS

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Mol	Chain	Res	Type
12	L	134	ASN
13	M	117	HIS
16	P	135	ASN
19	S	66	GLN
23	W	72	HIS
34	h	162	HIS
34	h	178	GLN
35	i	45	GLN
40	n	64	GLN
44	r	149	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	3364/5064 (66%)	457 (13%)	3 (0%)
2	B	117/119 (98%)	7 (5%)	0
3	C	145/157 (92%)	13 (8%)	0
All	All	3626/5340 (67%)	477 (13%)	3 (0%)

All (477) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	13	U
1	A	39	A
1	A	42	A
1	A	47	A
1	A	48	G
1	A	59	A
1	A	64	A
1	A	65	A
1	A	66	A
1	A	72	C
1	A	73	A
1	A	76	A
1	A	85	G
1	A	91	G
1	A	95	G
1	A	98	A
1	A	104	G
1	A	119	G
1	A	120	A

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Mol	Chain	Res	Type
1	A	122	U
1	A	132	G
1	A	135	G
1	A	136	C
1	A	139	G
1	A	143	C
1	A	159	C
1	A	172	C
1	A	189	G
1	A	197	A
1	A	200	U
1	A	209	U
1	A	216	C
1	A	218	A
1	A	220	C
1	A	233	U
1	A	234	G
1	A	241	G
1	A	266	C
1	A	278	G
1	A	281	U
1	A	297	U
1	A	316	U
1	A	340	C
1	A	357	U
1	A	387	G
1	A	399	G
1	A	412	G
1	A	413	G
1	A	449	C
1	A	450	G
1	A	452	A
1	A	453	G
1	A	454	U
1	A	456	C
1	A	457	G
1	A	487	G
1	A	493	G
1	A	502	C
1	A	503	C
1	A	504	G
1	A	509	A

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Mol	Chain	Res	Type
1	A	666	G
1	A	667	A
1	A	688	U
1	A	695	G
1	A	697	G
1	A	703	G
1	A	704	C
1	A	708	G
1	A	731	G
1	A	738	C
1	A	739	G
1	A	741	C
1	A	747	A
1	A	915	A
1	A	916	C
1	A	917	A
1	A	918	G
1	A	925	C
1	A	926	G
1	A	927	G
1	A	932	A
1	A	933	G
1	A	934	C
1	A	935	A
1	A	936	C
1	A	941	C
1	A	943	A
1	A	944	A
1	A	945	U
1	A	956	A
1	A	957	G
1	A	959	G
1	A	960	A
1	A	961	G
1	A	962	C
1	A	964	A
1	A	965	G
1	A	966	A
1	A	967	C
1	A	971	U
1	A	982	U
1	A	1068	G

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Mol	Chain	Res	Type
1	A	1071	C
1	A	1182	C
1	A	1185	G
1	A	1194	G
1	A	1198	G
1	A	1199	G
1	A	1200	G
1	A	1210	C
1	A	1211	G
1	A	1216	C
1	A	1266	G
1	A	1269	G
1	A	1273	G
1	A	1277	G
1	A	1280	C
1	A	1281	G
1	A	1284	G
1	A	1287	G
1	A	1293	G
1	A	1294	A
1	A	1295	C
1	A	1301	C
1	A	1314	C
1	A	1326	A2M
1	A	1354	A
1	A	1359	G
1	A	1365	C
1	A	1366	G
1	A	1379	C
1	A	1387	A
1	A	1397	A
1	A	1420	A
1	A	1435	G
1	A	1436	C
1	A	1438	U
1	A	1439	C
1	A	1444	G
1	A	1457	G
1	A	1483	C
1	A	1497	A
1	A	1498	G
1	A	1502	G

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Mol	Chain	Res	Type
1	A	1516	G
1	A	1523	A
1	A	1525	A
1	A	1534	A2M
1	A	1547	A
1	A	1553	A
1	A	1574	G
1	A	1578	U
1	A	1591	U
1	A	1596	U
1	A	1612	G
1	A	1613	A
1	A	1624	G
1	A	1625	OMG
1	A	1631	A
1	A	1633	G
1	A	1638	A
1	A	1641	G
1	A	1650	A
1	A	1654	G
1	A	1661	C
1	A	1676	C
1	A	1677	PSU
1	A	1678	C
1	A	1691	G
1	A	1694	C
1	A	1699	A
1	A	1700	G
1	A	1701	A
1	A	1705	G
1	A	1707	C
1	A	1720	C
1	A	1722	C
1	A	1724	G
1	A	1787	A
1	A	1789	C
1	A	1794	A
1	A	1804	A
1	A	1806	G
1	A	1815	G
1	A	1821	G
1	A	1822	U

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Mol	Chain	Res	Type
1	A	1834	U
1	A	1836	G
1	A	1837	A
1	A	1842	G
1	A	1855	G
1	A	1869	G
1	A	1881	OMC
1	A	1888	A
1	A	1897	A
1	A	1916	G
1	A	1917	A
1	A	1918	U
1	A	1921	C
1	A	1922	G
1	A	1931	C
1	A	1932	A
1	A	1935	C
1	A	1938	C
1	A	1940	G
1	A	1948	G
1	A	1955	G
1	A	2043	A
1	A	2044	U
1	A	2046	G
1	A	2048	U
1	A	2052	G
1	A	2055	G
1	A	2056	G
1	A	2069	A
1	A	2084	C
1	A	2091	C
1	A	2092	G
1	A	2093	A
1	A	2095	A
1	A	2096	G
1	A	2097	U
1	A	2098	G
1	A	2258	C
1	A	2259	G
1	A	2261	G
1	A	2289	C
1	A	2300	A

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Mol	Chain	Res	Type
1	A	2301	G
1	A	2306	G
1	A	2313	A
1	A	2316	G
1	A	2322	G
1	A	2331	G
1	A	2347	A
1	A	2348	G
1	A	2351	OMC
1	A	2360	A
1	A	2391	G
1	A	2395	A
1	A	2397	G
1	A	2402	G
1	A	2410	C
1	A	2417	A
1	A	2421	G
1	A	2425	U
1	A	2428	A
1	A	2441	C
1	A	2450	G
1	A	2469	C
1	A	2471	G
1	A	2474	G
1	A	2475	G
1	A	2479	G
1	A	2493	G
1	A	2502	G
1	A	2504	C
1	A	2505	C
1	A	2513	A
1	A	2519	U
1	A	2520	C
1	A	2529	A
1	A	2554	U
1	A	2555	G
1	A	2573	A
1	A	2586	G
1	A	2587	A
1	A	2602	G
1	A	2618	G
1	A	2627	C

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Mol	Chain	Res	Type
1	A	2653	C
1	A	2658	G
1	A	2662	G
1	A	2669	C
1	A	2675	G
1	A	2687	U
1	A	2694	G
1	A	2695	A
1	A	2696	A
1	A	2711	G
1	A	2725	A
1	A	2726	G
1	A	2743	A
1	A	2760	G
1	A	2763	U
1	A	2764	A
1	A	2787	A2M
1	A	2788	U
1	A	2790	U
1	A	2806	A
1	A	2814	C
1	A	2826	U
1	A	2827	G
1	A	2835	A
1	A	2855	G
1	A	2897	G
1	A	3605	C
1	A	3606	U
1	A	3615	G
1	A	3616	U
1	A	3618	C
1	A	3626	G
1	A	3635	A
1	A	3648	A
1	A	3662	A
1	A	3664	G
1	A	3673	C
1	A	3692	A
1	A	3696	C
1	A	3709	U
1	A	3710	G
1	A	3713	U

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Mol	Chain	Res	Type
1	A	3714	G
1	A	3734	PSU
1	A	3735	G
1	A	3753	G
1	A	3773	U
1	A	3774	A
1	A	3777	G
1	A	3778	U
1	A	3784	A
1	A	3811	G
1	A	3814	U
1	A	3817	A
1	A	3819	G
1	A	3838	U
1	A	3839	G
1	A	3840	U
1	A	3850	C
1	A	3877	A
1	A	3878	C
1	A	3879	G
1	A	3895	G
1	A	3897	G
1	A	3901	A
1	A	3905	A
1	A	3906	A
1	A	3907	G
1	A	3908	A
1	A	3915	U
1	A	4076	G
1	A	4084	G
1	A	4093	G
1	A	4119	C
1	A	4122	G
1	A	4127	A
1	A	4128	A
1	A	4162	C
1	A	4170	A
1	A	4183	G
1	A	4184	G
1	A	4191	G
1	A	4203	A
1	A	4212	A

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Mol	Chain	Res	Type
1	A	4225	G
1	A	4229	U
1	A	4233	A
1	A	4234	A
1	A	4251	A
1	A	4253	A
1	A	4254	G
1	A	4255	A
1	A	4266	G
1	A	4268	A
1	A	4273	A
1	A	4281	A
1	A	4304	A
1	A	4305	G
1	A	4306	OMU
1	A	4329	G
1	A	4330	G
1	A	4332	C
1	A	4354	U
1	A	4373	G
1	A	4377	G
1	A	4378	A
1	A	4379	A
1	A	4387	C
1	A	4394	A
1	A	4420	PSU
1	A	4421	C
1	A	4422	A
1	A	4430	G
1	A	4433	G
1	A	4437	U
1	A	4444	C
1	A	4448	G
1	A	4464	A
1	A	4466	C
1	A	4475	G
1	A	4488	A
1	A	4500	PSU
1	A	4512	U
1	A	4513	A
1	A	4518	A
1	A	4524	G

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Mol	Chain	Res	Type
1	A	4528	G
1	A	4548	A
1	A	4549	G
1	A	4560	C
1	A	4567	G
1	A	4569	U
1	A	4574	U
1	A	4575	G
1	A	4581	G
1	A	4590	A2M
1	A	4617	G
1	A	4627	U
1	A	4635	A
1	A	4636	U
1	A	4637	OMG
1	A	4656	A
1	A	4670	C
1	A	4672	A
1	A	4687	A
1	A	4700	A
1	A	4708	A
1	A	4709	U
1	A	4730	C
1	A	4731	G
1	A	4741	C
1	A	4742	G
1	A	4754	G
1	A	4757	C
1	A	4759	C
1	A	4765	G
1	A	4870	G
1	A	4871	C
1	A	4877	G
1	A	4882	U
1	A	4883	C
1	A	4895	C
1	A	4900	C
1	A	4901	G
1	A	4910	A
1	A	4912	G
1	A	4913	G
1	A	4914	C

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Mol	Chain	Res	Type
1	A	4937	C
1	A	4938	A
1	A	4943	A
1	A	4944	C
1	A	4947	U
1	A	4951	G
1	A	4976	U
1	A	4987	C
1	A	4988	U
1	A	5006	U
1	A	5014	A
1	A	5017	G
1	A	5034	A
1	A	5041	G
1	A	5050	C
1	A	5054	C
1	A	5062	G
1	A	5069	U
2	B	7	G
2	B	22	A
2	B	33	U
2	B	53	U
2	B	54	A
2	B	64	G
2	B	110	G
3	C	23	C
3	C	34	U
3	C	35	C
3	C	39	G
3	C	59	A
3	C	62	A
3	C	63	U
3	C	80	A
3	C	94	G
3	C	103	A
3	C	105	C
3	C	110	U
3	C	114	G

All (3) RNA pucker outliers are listed below:

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Mol	Chain	Res	Type
1	A	486	C
1	A	964	A
1	A	3734	PSU

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	A2M	A	400	1	18,25,26	1.02	1 (5%)	18,36,39	1.22	2 (11%)
1	OMU	A	2415	1	19,22,23	1.25	4 (21%)	26,31,34	1.71	5 (19%)
1	PSU	A	1536	1	18,21,22	1.35	2 (11%)	22,30,33	1.91	3 (13%)
1	OMG	A	4392	1	18,26,27	0.93	1 (5%)	19,38,41	1.08	2 (10%)
1	PSU	A	2508	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	3884	1	18,21,22	1.33	2 (11%)	22,30,33	1.90	3 (13%)
1	PSU	A	4972	1,48	18,21,22	1.33	2 (11%)	22,30,33	1.88	3 (13%)
1	PSU	A	3768	1	18,21,22	1.35	2 (11%)	22,30,33	1.85	3 (13%)
1	OMG	A	4494	1	18,26,27	0.94	1 (5%)	19,38,41	1.12	2 (10%)
1	PSU	A	4576	1,48	18,21,22	1.35	2 (11%)	22,30,33	1.86	3 (13%)
1	PSU	A	1683	1,48	18,21,22	1.35	2 (11%)	22,30,33	1.89	3 (13%)
1	A2M	A	3867	1	18,25,26	0.99	1 (5%)	18,36,39	1.25	2 (11%)
1	OMG	A	4499	1	18,26,27	0.93	1 (5%)	19,38,41	1.08	2 (10%)
1	A2M	A	1871	47,1	18,25,26	1.04	1 (5%)	18,36,39	1.20	2 (11%)
1	OMG	A	4370	1	18,26,27	0.93	1 (5%)	19,38,41	1.07	2 (10%)
1	OMC	A	3701	1,48	19,22,23	0.79	0	26,31,34	0.73	0
1	OMG	A	4196	1	18,26,27	0.93	1 (5%)	19,38,41	1.06	2 (10%)
1	OMC	A	4456	1	19,22,23	0.83	0	26,31,34	0.98	1 (3%)
1	PSU	A	1781	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	4 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	OMG	A	1625	1,48	18,26,27	0.93	1 (5%)	19,38,41	1.10	2 (10%)
1	PSU	A	4442	1	18,21,22	1.36	2 (11%)	22,30,33	1.90	4 (18%)
1	PSU	A	3730	1	18,21,22	1.33	2 (11%)	22,30,33	1.87	3 (13%)
1	OMG	A	4623	1	18,26,27	0.93	1 (5%)	19,38,41	1.06	2 (10%)
1	OMC	A	3869	1	19,22,23	0.82	0	26,31,34	0.86	1 (3%)
1	PSU	A	4628	1	18,21,22	1.35	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	3715	1	18,21,22	1.35	2 (11%)	22,30,33	1.87	4 (18%)
1	A2M	A	3830	1	18,25,26	1.04	1 (5%)	18,36,39	1.20	2 (11%)
1	OMG	A	3744	1	18,26,27	0.94	1 (5%)	19,38,41	1.07	2 (10%)
1	PSU	A	2632	1	18,21,22	1.35	2 (11%)	22,30,33	1.87	3 (13%)
1	PSU	A	5001	1,48	18,21,22	1.35	2 (11%)	22,30,33	1.86	3 (13%)
3	OMG	C	75	3	18,26,27	0.95	1 (5%)	19,38,41	1.06	2 (10%)
3	PSU	C	55	3	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	4673	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	A2M	A	4571	1	18,25,26	1.01	1 (5%)	18,36,39	1.27	2 (11%)
1	PSU	A	4457	1	18,21,22	1.34	2 (11%)	22,30,33	1.88	4 (18%)
1	PSU	A	3920	47,1	18,21,22	1.34	2 (11%)	22,30,33	1.91	4 (18%)
1	PSU	A	2839	1	18,21,22	1.33	2 (11%)	22,30,33	1.87	3 (13%)
1	PSU	A	3695	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.88	4 (18%)
1	PSU	A	1782	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	OMC	A	2861	1	19,22,23	0.82	0	26,31,34	0.93	1 (3%)
1	PSU	A	4471	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.90	4 (18%)
1	OMU	A	3925	1	19,22,23	1.20	2 (10%)	26,31,34	1.69	5 (19%)
1	OMG	A	1316	1,48	18,26,27	0.94	1 (5%)	19,38,41	1.08	2 (10%)
1	PSU	A	3851	1	18,21,22	1.37	2 (11%)	22,30,33	1.85	4 (18%)
1	PSU	A	4403	1	18,21,22	1.35	2 (11%)	22,30,33	1.89	4 (18%)
1	A2M	A	1524	1	18,25,26	1.03	1 (5%)	18,36,39	1.30	2 (11%)
1	PSU	A	1677	1,48	18,21,22	1.33	2 (11%)	22,30,33	1.86	3 (13%)
1	PSU	A	5010	1	18,21,22	1.34	2 (11%)	22,30,33	1.88	3 (13%)
1	OMC	A	1881	1	19,22,23	0.83	0	26,31,34	1.09	2 (7%)
1	OMC	A	3841	1	19,22,23	0.80	0	26,31,34	0.78	0
1	PSU	A	3639	1	18,21,22	1.35	2 (11%)	22,30,33	1.89	3 (13%)
1	OMG	A	2364	1	18,26,27	0.94	1 (5%)	19,38,41	1.06	2 (10%)
1	A2M	A	3785	1	18,25,26	0.98	1 (5%)	18,36,39	1.34	2 (11%)
1	A2M	A	2815	1,48	18,25,26	1.03	1 (5%)	18,36,39	1.21	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	PSU	A	4579	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	4500	1	18,21,22	1.37	2 (11%)	22,30,33	1.81	3 (13%)
1	PSU	A	1744	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	OMC	A	2422	47,1	19,22,23	0.82	0	26,31,34	0.84	1 (3%)
1	A2M	A	2363	47,1	18,25,26	1.03	1 (5%)	18,36,39	1.19	2 (11%)
1	PSU	A	4521	47,1,48	18,21,22	1.35	2 (11%)	22,30,33	1.90	3 (13%)
1	A2M	A	4523	47,1	18,25,26	1.03	1 (5%)	18,36,39	1.23	2 (11%)
1	PSU	A	3844	1	18,21,22	1.36	2 (11%)	22,30,33	1.86	3 (13%)
1	PSU	A	3853	47,1	18,21,22	1.36	2 (11%)	22,30,33	1.87	3 (13%)
1	PSU	A	4312	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	4296	1	18,21,22	1.33	2 (11%)	22,30,33	1.93	4 (18%)
1	OMG	A	3792	1	18,26,27	0.93	1 (5%)	19,38,41	1.06	2 (10%)
1	A2M	A	3825	1	18,25,26	1.03	1 (5%)	18,36,39	1.19	2 (11%)
1	5MC	A	3782	47,1	18,22,23	0.96	2 (11%)	26,32,35	1.16	3 (11%)
1	PSU	A	1862	1	18,21,22	1.34	2 (11%)	22,30,33	1.88	3 (13%)
1	OMC	A	2351	47,1	19,22,23	0.82	0	26,31,34	0.87	1 (3%)
1	PSU	A	4493	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.89	4 (18%)
1	PSU	A	3637	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.90	3 (13%)
1	OMC	A	3808	1,48	19,22,23	0.83	0	26,31,34	0.94	1 (3%)
1	PSU	A	4431	1,48	18,21,22	1.35	2 (11%)	22,30,33	1.88	3 (13%)
1	UY1	A	3818	1,48	19,22,23	0.87	0	22,31,34	1.76	4 (18%)
1	PSU	A	4689	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	OMG	A	3899	1	18,26,27	0.93	1 (5%)	19,38,41	1.07	2 (10%)
1	OMU	A	4620	1	19,22,23	1.23	3 (15%)	26,31,34	1.69	4 (15%)
1	PSU	A	1792	1	18,21,22	1.34	2 (11%)	22,30,33	1.87	4 (18%)
1	PSU	A	4423	1	18,21,22	1.35	2 (11%)	22,30,33	1.88	3 (13%)
1	OMC	A	2804	1	19,22,23	0.81	0	26,31,34	0.77	0
1	A2M	A	4590	1	18,25,26	1.03	1 (5%)	18,36,39	1.22	2 (11%)
1	OMG	A	3944	1	18,26,27	0.94	1 (5%)	19,38,41	1.07	2 (10%)
1	1MA	A	1322	47,1	16,25,26	1.56	2 (12%)	18,37,40	1.06	2 (11%)
1	OMC	A	4536	47,1	19,22,23	0.84	0	26,31,34	0.97	1 (3%)
1	PSU	A	1582	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.91	4 (18%)
1	OMG	A	2876	1	18,26,27	0.92	1 (5%)	19,38,41	1.07	2 (10%)
1	A2M	A	2787	47,1	18,25,26	0.99	1 (5%)	18,36,39	1.34	2 (11%)
1	A2M	A	2401	47,1	18,25,26	1.02	1 (5%)	18,36,39	1.22	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	PSU	A	4293	1	18,21,22	1.34	2 (11%)	22,30,33	1.88	3 (13%)
1	A2M	A	1323	1	18,25,26	1.03	1 (5%)	18,36,39	1.30	2 (11%)
1	OMG	A	2424	1	18,26,27	0.92	1 (5%)	19,38,41	1.05	2 (10%)
1	PSU	A	4532	1	18,21,22	1.35	2 (11%)	22,30,33	1.88	3 (13%)
1	A2M	A	1534	47,1	18,25,26	1.01	1 (5%)	18,36,39	1.35	2 (11%)
1	OMG	A	4637	1	18,26,27	0.94	1 (5%)	19,38,41	1.09	2 (10%)
1	OMC	A	3887	1	19,22,23	0.82	0	26,31,34	0.86	1 (3%)
1	OMG	A	3627	1	18,26,27	0.93	1 (5%)	19,38,41	1.11	2 (10%)
1	A2M	A	3724	1	18,25,26	1.05	1 (5%)	18,36,39	1.22	2 (11%)
1	OMU	A	4498	1,48	19,22,23	1.20	2 (10%)	26,31,34	1.70	5 (19%)
1	PSU	A	3734	1	18,21,22	1.34	2 (11%)	22,30,33	1.98	4 (18%)
1	PSU	A	4361	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.86	3 (13%)
1	A2M	A	398	1	18,25,26	1.02	1 (5%)	18,36,39	1.24	2 (11%)
1	A2M	A	3718	1	18,25,26	1.03	1 (5%)	18,36,39	1.15	2 (11%)
1	OMG	A	1522	1	18,26,27	0.94	1 (5%)	19,38,41	1.09	2 (10%)
1	PSU	A	4420	1	18,21,22	1.40	3 (16%)	22,30,33	1.81	4 (18%)
1	PSU	A	3770	1	18,21,22	1.33	2 (11%)	22,30,33	1.89	3 (13%)
1	OMC	A	1340	1	19,22,23	0.83	0	26,31,34	0.88	1 (3%)
1	OMG	A	4618	1,48	18,26,27	0.92	1 (5%)	19,38,41	1.10	2 (10%)
1	OMG	A	4228	1	18,26,27	0.90	1 (5%)	19,38,41	1.13	2 (10%)
1	OMC	A	2824	1	19,22,23	0.82	0	26,31,34	0.84	0
1	PSU	A	4552	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	OMU	A	4306	1	19,22,23	1.23	3 (15%)	26,31,34	1.70	4 (15%)
1	UR3	A	4530	1	19,22,23	1.00	1 (5%)	26,32,35	1.41	1 (3%)
1	PSU	A	4353	1,48	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	5MC	A	4447	1,48	18,22,23	0.99	2 (11%)	26,32,35	1.19	2 (7%)
1	OMU	A	2837	1	19,22,23	1.24	3 (15%)	26,31,34	1.71	5 (19%)
1	OMC	A	2365	47,1	19,22,23	0.81	0	26,31,34	0.79	0
1	6MZ	A	4220	1	18,25,26	0.89	1 (5%)	16,36,39	1.99	4 (25%)
1	PSU	A	4299	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	A	1860	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
1	OMU	A	4227	1	19,22,23	1.22	3 (15%)	26,31,34	1.70	4 (15%)
3	PSU	C	69	3	18,21,22	1.35	2 (11%)	22,30,33	1.88	4 (18%)
1	A2M	A	1326	1	18,25,26	0.99	1 (5%)	18,36,39	1.25	2 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	A2M	A	400	1	-	0/5/27/28	0/3/3/3
1	OMU	A	2415	1	-	2/9/27/28	0/2/2/2
1	PSU	A	1536	1	-	0/7/25/26	0/2/2/2
1	OMG	A	4392	1	-	0/5/27/28	0/3/3/3
1	PSU	A	2508	1	-	0/7/25/26	0/2/2/2
1	PSU	A	3884	1	-	0/7/25/26	0/2/2/2
1	PSU	A	4972	1,48	-	0/7/25/26	0/2/2/2
1	PSU	A	3768	1	-	0/7/25/26	0/2/2/2
1	OMG	A	4494	1	-	0/5/27/28	0/3/3/3
1	PSU	A	4576	1,48	-	0/7/25/26	0/2/2/2
1	PSU	A	1683	1,48	-	0/7/25/26	0/2/2/2
1	A2M	A	3867	1	-	1/5/27/28	0/3/3/3
1	OMG	A	4499	1	-	0/5/27/28	0/3/3/3
1	A2M	A	1871	47,1	-	0/5/27/28	0/3/3/3
1	OMG	A	4370	1	-	0/5/27/28	0/3/3/3
1	OMC	A	3701	1,48	-	5/9/27/28	0/2/2/2
1	OMG	A	4196	1	-	0/5/27/28	0/3/3/3
1	OMC	A	4456	1	-	2/9/27/28	0/2/2/2
1	PSU	A	1781	1	-	0/7/25/26	0/2/2/2
1	OMG	A	1625	1,48	-	1/5/27/28	0/3/3/3
1	PSU	A	4442	1	-	0/7/25/26	0/2/2/2
1	PSU	A	3730	1	-	0/7/25/26	0/2/2/2
1	OMG	A	4623	1	-	0/5/27/28	0/3/3/3
1	OMC	A	3869	1	-	0/9/27/28	0/2/2/2
1	PSU	A	4628	1	-	0/7/25/26	0/2/2/2
1	PSU	A	3715	1	-	0/7/25/26	0/2/2/2
1	A2M	A	3830	1	-	0/5/27/28	0/3/3/3
1	OMG	A	3744	1	-	0/5/27/28	0/3/3/3
1	PSU	A	2632	1	-	0/7/25/26	0/2/2/2
1	PSU	A	5001	1,48	-	0/7/25/26	0/2/2/2
3	OMG	C	75	3	-	0/5/27/28	0/3/3/3
3	PSU	C	55	3	-	0/7/25/26	0/2/2/2
1	PSU	A	4673	1,48	-	0/7/25/26	0/2/2/2
1	A2M	A	4571	1	-	1/5/27/28	0/3/3/3
1	PSU	A	4457	1	-	0/7/25/26	0/2/2/2
1	PSU	A	3920	47,1	-	0/7/25/26	0/2/2/2
1	PSU	A	2839	1	-	0/7/25/26	0/2/2/2
1	PSU	A	3695	1,48	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	A	1782	1	-	0/7/25/26	0/2/2/2
1	OMC	A	2861	1	-	1/9/27/28	0/2/2/2
1	PSU	A	4471	1,48	-	0/7/25/26	0/2/2/2
1	OMU	A	3925	1	-	0/9/27/28	0/2/2/2
1	OMG	A	1316	1,48	-	0/5/27/28	0/3/3/3
1	PSU	A	3851	1	-	1/7/25/26	0/2/2/2
1	PSU	A	4403	1	-	0/7/25/26	0/2/2/2
1	A2M	A	1524	1	-	0/5/27/28	0/3/3/3
1	PSU	A	1677	1,48	-	4/7/25/26	0/2/2/2
1	PSU	A	5010	1	-	0/7/25/26	0/2/2/2
1	OMC	A	1881	1	-	5/9/27/28	0/2/2/2
1	OMC	A	3841	1	-	0/9/27/28	0/2/2/2
1	PSU	A	3639	1	-	0/7/25/26	0/2/2/2
1	OMG	A	2364	1	-	2/5/27/28	0/3/3/3
1	A2M	A	3785	1	-	2/5/27/28	0/3/3/3
1	A2M	A	2815	1,48	-	0/5/27/28	0/3/3/3
1	PSU	A	4579	1	-	0/7/25/26	0/2/2/2
1	PSU	A	4500	1	-	2/7/25/26	0/2/2/2
1	PSU	A	1744	1,48	-	0/7/25/26	0/2/2/2
1	OMC	A	2422	47,1	-	0/9/27/28	0/2/2/2
1	A2M	A	2363	47,1	-	0/5/27/28	0/3/3/3
1	PSU	A	4521	47,1,48	-	0/7/25/26	0/2/2/2
1	A2M	A	4523	47,1	-	2/5/27/28	0/3/3/3
1	PSU	A	3844	1	-	1/7/25/26	0/2/2/2
1	PSU	A	3853	47,1	-	0/7/25/26	0/2/2/2
1	PSU	A	4312	1	-	0/7/25/26	0/2/2/2
1	PSU	A	4296	1	-	0/7/25/26	0/2/2/2
1	OMG	A	3792	1	-	0/5/27/28	0/3/3/3
1	A2M	A	3825	1	-	0/5/27/28	0/3/3/3
1	5MC	A	3782	47,1	-	0/7/25/26	0/2/2/2
1	PSU	A	1862	1	-	0/7/25/26	0/2/2/2
1	OMC	A	2351	47,1	-	1/9/27/28	0/2/2/2
1	PSU	A	4493	1,48	-	0/7/25/26	0/2/2/2
1	PSU	A	3637	1,48	-	0/7/25/26	0/2/2/2
1	OMC	A	3808	1,48	-	0/9/27/28	0/2/2/2
1	PSU	A	4431	1,48	-	0/7/25/26	0/2/2/2
1	UY1	A	3818	1,48	-	5/9/27/28	0/2/2/2
1	PSU	A	4689	1	-	0/7/25/26	0/2/2/2
1	OMG	A	3899	1	-	0/5/27/28	0/3/3/3
1	OMU	A	4620	1	-	0/9/27/28	0/2/2/2
1	PSU	A	1792	1	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	A	4423	1	-	0/7/25/26	0/2/2/2
1	OMC	A	2804	1	-	0/9/27/28	0/2/2/2
1	A2M	A	4590	1	-	1/5/27/28	0/3/3/3
1	OMG	A	3944	1	-	0/5/27/28	0/3/3/3
1	1MA	A	1322	47,1	-	0/3/25/26	0/3/3/3
1	OMC	A	4536	47,1	-	3/9/27/28	0/2/2/2
1	PSU	A	1582	1,48	-	0/7/25/26	0/2/2/2
1	OMG	A	2876	1	-	1/5/27/28	0/3/3/3
1	A2M	A	2787	47,1	-	0/5/27/28	0/3/3/3
1	A2M	A	2401	47,1	-	0/5/27/28	0/3/3/3
1	PSU	A	4293	1	-	0/7/25/26	0/2/2/2
1	A2M	A	1323	1	-	0/5/27/28	0/3/3/3
1	OMG	A	2424	1	-	0/5/27/28	0/3/3/3
1	PSU	A	4532	1	-	0/7/25/26	0/2/2/2
1	A2M	A	1534	47,1	-	2/5/27/28	0/3/3/3
1	OMG	A	4637	1	-	0/5/27/28	0/3/3/3
1	OMC	A	3887	1	-	2/9/27/28	0/2/2/2
1	OMG	A	3627	1	-	0/5/27/28	0/3/3/3
1	A2M	A	3724	1	-	0/5/27/28	0/3/3/3
1	OMU	A	4498	1,48	-	0/9/27/28	0/2/2/2
1	PSU	A	3734	1	-	4/7/25/26	0/2/2/2
1	PSU	A	4361	1,48	-	0/7/25/26	0/2/2/2
1	A2M	A	398	1	-	2/5/27/28	0/3/3/3
1	A2M	A	3718	1	-	0/5/27/28	0/3/3/3
1	OMG	A	1522	1	-	0/5/27/28	0/3/3/3
1	PSU	A	4420	1	-	3/7/25/26	0/2/2/2
1	PSU	A	3770	1	-	0/7/25/26	0/2/2/2
1	OMC	A	1340	1	-	0/9/27/28	0/2/2/2
1	OMG	A	4618	1,48	-	0/5/27/28	0/3/3/3
1	OMG	A	4228	1	-	0/5/27/28	0/3/3/3
1	OMC	A	2824	1	-	2/9/27/28	0/2/2/2
1	PSU	A	4552	1	-	0/7/25/26	0/2/2/2
1	OMU	A	4306	1	-	0/9/27/28	0/2/2/2
1	UR3	A	4530	1	-	0/7/25/26	0/2/2/2
1	PSU	A	4353	1,48	-	0/7/25/26	0/2/2/2
1	5MC	A	4447	1,48	-	4/7/25/26	0/2/2/2
1	OMU	A	2837	1	-	0/9/27/28	0/2/2/2
1	OMC	A	2365	47,1	-	0/9/27/28	0/2/2/2
1	6MZ	A	4220	1	-	0/5/27/28	0/3/3/3
1	PSU	A	4299	1	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	A	1860	1	-	0/7/25/26	0/2/2/2
1	OMU	A	4227	1	-	0/9/27/28	0/2/2/2
3	PSU	C	69	3	-	0/7/25/26	0/2/2/2
1	A2M	A	1326	1	-	1/5/27/28	0/3/3/3

All (178) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1322	1MA	C2-N3	4.75	1.34	1.29
1	A	4420	PSU	C6-C5	3.32	1.39	1.35
1	A	1322	1MA	C6-N6	3.26	1.35	1.27
1	A	3734	PSU	C6-C5	3.22	1.39	1.35
1	A	3768	PSU	C6-C5	3.20	1.39	1.35
1	A	3770	PSU	C6-C5	3.20	1.39	1.35
1	A	3851	PSU	C6-C5	3.19	1.39	1.35
1	A	4500	PSU	C6-C5	3.17	1.39	1.35
1	A	4532	PSU	C6-C5	3.17	1.39	1.35
1	A	3715	PSU	C6-C5	3.17	1.39	1.35
1	A	1860	PSU	C6-C5	3.16	1.39	1.35
1	A	3844	PSU	C6-C5	3.16	1.39	1.35
1	A	4312	PSU	C6-C5	3.16	1.39	1.35
1	A	2632	PSU	C6-C5	3.16	1.39	1.35
1	A	5010	PSU	C6-C5	3.15	1.39	1.35
1	A	4423	PSU	C6-C5	3.15	1.39	1.35
1	A	1792	PSU	C6-C5	3.15	1.39	1.35
1	A	1744	PSU	C6-C5	3.14	1.39	1.35
3	C	69	PSU	C6-C5	3.14	1.39	1.35
1	A	5001	PSU	C6-C5	3.14	1.39	1.35
1	A	1683	PSU	C6-C5	3.14	1.39	1.35
1	A	3853	PSU	C6-C5	3.13	1.39	1.35
1	A	4442	PSU	C6-C5	3.13	1.39	1.35
1	A	4576	PSU	C6-C5	3.13	1.39	1.35
1	A	4361	PSU	C6-C5	3.12	1.39	1.35
3	C	55	PSU	C6-C5	3.12	1.39	1.35
1	A	1862	PSU	C6-C5	3.12	1.39	1.35
1	A	4431	PSU	C6-C5	3.12	1.39	1.35
1	A	3695	PSU	C6-C5	3.11	1.38	1.35
1	A	4521	PSU	C6-C5	3.11	1.38	1.35
1	A	4628	PSU	C6-C5	3.11	1.38	1.35
1	A	1782	PSU	C6-C5	3.11	1.38	1.35
1	A	4673	PSU	C6-C5	3.11	1.38	1.35
1	A	2508	PSU	C6-C5	3.10	1.38	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4972	PSU	C6-C5	3.10	1.38	1.35
1	A	1781	PSU	C6-C5	3.10	1.38	1.35
1	A	3639	PSU	C6-C5	3.10	1.38	1.35
1	A	4353	PSU	C6-C5	3.10	1.38	1.35
1	A	4299	PSU	C6-C5	3.09	1.38	1.35
1	A	3730	PSU	C6-C5	3.09	1.38	1.35
1	A	1582	PSU	C6-C5	3.09	1.38	1.35
1	A	4471	PSU	C6-C5	3.09	1.38	1.35
1	A	1536	PSU	C6-C5	3.09	1.38	1.35
1	A	4296	PSU	C6-C5	3.08	1.38	1.35
1	A	3920	PSU	C6-C5	3.07	1.38	1.35
1	A	4552	PSU	C6-C5	3.07	1.38	1.35
1	A	4493	PSU	C6-C5	3.07	1.38	1.35
1	A	2839	PSU	C6-C5	3.07	1.38	1.35
1	A	4457	PSU	C6-C5	3.07	1.38	1.35
1	A	4579	PSU	C6-C5	3.06	1.38	1.35
1	A	3884	PSU	C6-C5	3.06	1.38	1.35
1	A	4293	PSU	C6-C5	3.06	1.38	1.35
1	A	4689	PSU	C6-C5	3.04	1.38	1.35
1	A	3637	PSU	C6-C5	3.03	1.38	1.35
1	A	4403	PSU	C6-C5	3.02	1.38	1.35
1	A	1677	PSU	C6-C5	2.94	1.38	1.35
1	A	4447	5MC	C6-C5	2.82	1.39	1.34
1	A	3782	5MC	C6-C5	2.74	1.39	1.34
1	A	3637	PSU	C4-N3	-2.71	1.33	1.38
1	A	4471	PSU	C4-N3	-2.70	1.33	1.38
1	A	1781	PSU	C4-N3	-2.70	1.33	1.38
1	A	4296	PSU	C4-N3	-2.69	1.33	1.38
1	A	4689	PSU	C4-N3	-2.69	1.33	1.38
1	A	1582	PSU	C4-N3	-2.69	1.33	1.38
1	A	3639	PSU	C4-N3	-2.68	1.33	1.38
1	A	4293	PSU	C4-N3	-2.68	1.33	1.38
1	A	1683	PSU	C4-N3	-2.68	1.33	1.38
1	A	4521	PSU	C4-N3	-2.68	1.33	1.38
1	A	3920	PSU	C4-N3	-2.68	1.33	1.38
1	A	2508	PSU	C4-N3	-2.68	1.33	1.38
1	A	1536	PSU	C4-N3	-2.67	1.33	1.38
1	A	4361	PSU	C4-N3	-2.67	1.33	1.38
1	A	3844	PSU	C4-N3	-2.67	1.33	1.38
1	A	4353	PSU	C4-N3	-2.67	1.33	1.38
1	A	4579	PSU	C4-N3	-2.67	1.33	1.38
1	A	4493	PSU	C4-N3	-2.67	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4552	PSU	C4-N3	-2.67	1.33	1.38
1	A	4431	PSU	C4-N3	-2.67	1.33	1.38
1	A	1782	PSU	C4-N3	-2.66	1.33	1.38
1	A	4673	PSU	C4-N3	-2.66	1.33	1.38
1	A	1862	PSU	C4-N3	-2.66	1.33	1.38
1	A	4457	PSU	C4-N3	-2.66	1.33	1.38
1	A	3884	PSU	C4-N3	-2.66	1.33	1.38
1	A	3853	PSU	C4-N3	-2.66	1.33	1.38
1	A	4403	PSU	C4-N3	-2.66	1.33	1.38
1	A	2632	PSU	C4-N3	-2.65	1.33	1.38
1	A	4628	PSU	C4-N3	-2.65	1.33	1.38
1	A	1677	PSU	C4-N3	-2.65	1.33	1.38
1	A	4299	PSU	C4-N3	-2.65	1.33	1.38
1	A	4312	PSU	C4-N3	-2.65	1.33	1.38
1	A	1744	PSU	C4-N3	-2.64	1.33	1.38
1	A	3695	PSU	C4-N3	-2.64	1.33	1.38
1	A	4423	PSU	C4-N3	-2.64	1.33	1.38
1	A	4532	PSU	C4-N3	-2.64	1.33	1.38
3	C	55	PSU	C4-N3	-2.64	1.33	1.38
1	A	1792	PSU	C4-N3	-2.64	1.33	1.38
1	A	4442	PSU	C4-N3	-2.64	1.33	1.38
1	A	1860	PSU	C4-N3	-2.63	1.33	1.38
1	A	5010	PSU	C4-N3	-2.63	1.33	1.38
1	A	3734	PSU	C4-N3	-2.63	1.34	1.38
1	A	2839	PSU	C4-N3	-2.63	1.34	1.38
1	A	4972	PSU	C4-N3	-2.63	1.34	1.38
1	A	3851	PSU	C4-N3	-2.62	1.34	1.38
1	A	5001	PSU	C4-N3	-2.62	1.34	1.38
1	A	3770	PSU	C4-N3	-2.62	1.34	1.38
1	A	3715	PSU	C4-N3	-2.62	1.34	1.38
1	A	3730	PSU	C4-N3	-2.62	1.34	1.38
3	C	69	PSU	C4-N3	-2.62	1.34	1.38
1	A	4576	PSU	C4-N3	-2.62	1.34	1.38
1	A	3768	PSU	C4-N3	-2.61	1.34	1.38
1	A	4500	PSU	C4-N3	-2.59	1.34	1.38
1	A	2837	OMU	C4-N3	-2.55	1.34	1.38
1	A	4306	OMU	C4-N3	-2.54	1.34	1.38
1	A	4620	OMU	C4-N3	-2.53	1.34	1.38
1	A	1316	OMG	C6-N1	-2.53	1.34	1.37
1	A	2415	OMU	C4-N3	-2.53	1.34	1.38
1	A	4420	PSU	C4-N3	-2.52	1.34	1.38
1	A	2364	OMG	C6-N1	-2.52	1.34	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4227	OMU	C4-N3	-2.51	1.34	1.38
1	A	3718	A2M	C5-C4	2.50	1.47	1.40
1	A	3925	OMU	C4-N3	-2.50	1.34	1.38
1	A	3724	A2M	C5-C4	2.49	1.47	1.40
1	A	2815	A2M	C5-C4	2.49	1.47	1.40
1	A	4637	OMG	C6-N1	-2.49	1.34	1.37
1	A	4392	OMG	C6-N1	-2.49	1.34	1.37
1	A	4623	OMG	C6-N1	-2.48	1.34	1.37
1	A	1524	A2M	C5-C4	2.48	1.47	1.40
1	A	3825	A2M	C5-C4	2.48	1.47	1.40
3	C	75	OMG	C6-N1	-2.48	1.34	1.37
1	A	3899	OMG	C6-N1	-2.48	1.34	1.37
1	A	4498	OMU	C4-N3	-2.47	1.34	1.38
1	A	4196	OMG	C6-N1	-2.47	1.34	1.37
1	A	4494	OMG	C6-N1	-2.47	1.34	1.37
1	A	4590	A2M	C5-C4	2.47	1.47	1.40
1	A	3867	A2M	C5-C4	2.46	1.47	1.40
1	A	2876	OMG	C6-N1	-2.46	1.34	1.37
1	A	1323	A2M	C5-C4	2.46	1.47	1.40
1	A	2424	OMG	C6-N1	-2.46	1.34	1.37
1	A	1522	OMG	C6-N1	-2.46	1.34	1.37
1	A	2787	A2M	C5-C4	2.46	1.47	1.40
1	A	3830	A2M	C5-C4	2.46	1.47	1.40
1	A	3744	OMG	C6-N1	-2.45	1.34	1.37
1	A	2401	A2M	C5-C4	2.45	1.47	1.40
1	A	2363	A2M	C5-C4	2.45	1.47	1.40
1	A	398	A2M	C5-C4	2.45	1.47	1.40
1	A	400	A2M	C5-C4	2.45	1.47	1.40
1	A	4220	6MZ	C5-C4	2.45	1.47	1.40
1	A	1326	A2M	C5-C4	2.44	1.47	1.40
1	A	4571	A2M	C5-C4	2.44	1.47	1.40
1	A	3792	OMG	C6-N1	-2.44	1.34	1.37
1	A	4370	OMG	C6-N1	-2.44	1.34	1.37
1	A	1871	A2M	C5-C4	2.43	1.47	1.40
1	A	4523	A2M	C5-C4	2.43	1.47	1.40
1	A	1625	OMG	C6-N1	-2.42	1.34	1.37
1	A	3944	OMG	C6-N1	-2.42	1.34	1.37
1	A	1534	A2M	C5-C4	2.41	1.47	1.40
1	A	3627	OMG	C6-N1	-2.41	1.34	1.37
1	A	4499	OMG	C6-N1	-2.40	1.34	1.37
1	A	4618	OMG	C6-N1	-2.38	1.34	1.37
1	A	3785	A2M	C5-C4	2.37	1.47	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4228	OMG	C6-N1	-2.37	1.34	1.37
1	A	2415	OMU	C2-N1	2.35	1.42	1.38
1	A	4447	5MC	C6-N1	-2.26	1.34	1.38
1	A	3782	5MC	C6-N1	-2.24	1.34	1.38
1	A	2837	OMU	C2-N1	2.19	1.42	1.38
1	A	4227	OMU	C2-N3	-2.17	1.34	1.38
1	A	4306	OMU	C2-N3	-2.15	1.34	1.38
1	A	3925	OMU	C2-N3	-2.14	1.34	1.38
1	A	4620	OMU	C2-N3	-2.14	1.34	1.38
1	A	2837	OMU	C2-N3	-2.14	1.34	1.38
1	A	4498	OMU	C2-N3	-2.14	1.34	1.38
1	A	4306	OMU	C2-N1	2.06	1.41	1.38
1	A	4620	OMU	C2-N1	2.05	1.41	1.38
1	A	4420	PSU	C4-C5	2.05	1.50	1.44
1	A	2415	OMU	C2-N3	-2.04	1.34	1.38
1	A	4227	OMU	C2-N1	2.04	1.41	1.38
1	A	4530	UR3	C2-N1	2.04	1.41	1.38
1	A	2415	OMU	C5-C4	-2.02	1.39	1.43

All (319) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1536	PSU	N1-C2-N3	6.05	121.99	115.13
1	A	3637	PSU	N1-C2-N3	6.05	121.99	115.13
1	A	4296	PSU	N1-C2-N3	6.05	121.99	115.13
1	A	1582	PSU	N1-C2-N3	6.03	121.96	115.13
1	A	3920	PSU	N1-C2-N3	6.02	121.95	115.13
1	A	4471	PSU	N1-C2-N3	6.01	121.94	115.13
1	A	4299	PSU	N1-C2-N3	6.01	121.94	115.13
1	A	4521	PSU	N1-C2-N3	6.00	121.93	115.13
1	A	4628	PSU	N1-C2-N3	6.00	121.93	115.13
1	A	4673	PSU	N1-C2-N3	6.00	121.92	115.13
1	A	3853	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	1781	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	3884	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	4552	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	4312	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	1744	PSU	N1-C2-N3	5.99	121.92	115.13
1	A	1860	PSU	N1-C2-N3	5.99	121.91	115.13
1	A	4423	PSU	N1-C2-N3	5.99	121.91	115.13
1	A	4353	PSU	N1-C2-N3	5.99	121.91	115.13
1	A	2508	PSU	N1-C2-N3	5.98	121.91	115.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	4579	PSU	N1-C2-N3	5.98	121.91	115.13
1	A	4493	PSU	N1-C2-N3	5.98	121.91	115.13
1	A	4689	PSU	N1-C2-N3	5.98	121.91	115.13
1	A	1683	PSU	N1-C2-N3	5.98	121.90	115.13
1	A	4431	PSU	N1-C2-N3	5.98	121.90	115.13
1	A	3639	PSU	N1-C2-N3	5.97	121.90	115.13
1	A	3770	PSU	N1-C2-N3	5.97	121.90	115.13
1	A	1862	PSU	N1-C2-N3	5.97	121.90	115.13
1	A	4442	PSU	N1-C2-N3	5.97	121.90	115.13
1	A	1677	PSU	N1-C2-N3	5.97	121.89	115.13
1	A	1782	PSU	N1-C2-N3	5.97	121.89	115.13
1	A	5010	PSU	N1-C2-N3	5.97	121.89	115.13
1	A	4532	PSU	N1-C2-N3	5.96	121.89	115.13
3	C	55	PSU	N1-C2-N3	5.95	121.88	115.13
1	A	2632	PSU	N1-C2-N3	5.95	121.88	115.13
1	A	4293	PSU	N1-C2-N3	5.95	121.87	115.13
1	A	3715	PSU	N1-C2-N3	5.94	121.86	115.13
1	A	5001	PSU	N1-C2-N3	5.94	121.86	115.13
1	A	3730	PSU	N1-C2-N3	5.94	121.86	115.13
1	A	2839	PSU	N1-C2-N3	5.93	121.85	115.13
1	A	4972	PSU	N1-C2-N3	5.93	121.85	115.13
1	A	3695	PSU	N1-C2-N3	5.93	121.85	115.13
1	A	3844	PSU	N1-C2-N3	5.93	121.84	115.13
1	A	4361	PSU	N1-C2-N3	5.92	121.84	115.13
1	A	4403	PSU	N1-C2-N3	5.91	121.82	115.13
1	A	4457	PSU	N1-C2-N3	5.91	121.82	115.13
1	A	4576	PSU	N1-C2-N3	5.90	121.82	115.13
3	C	69	PSU	N1-C2-N3	5.90	121.81	115.13
1	A	3768	PSU	N1-C2-N3	5.89	121.81	115.13
1	A	1792	PSU	N1-C2-N3	5.88	121.79	115.13
1	A	3851	PSU	N1-C2-N3	5.88	121.79	115.13
1	A	3734	PSU	N1-C2-N3	5.82	121.72	115.13
1	A	4220	6MZ	C2-N1-C6	5.82	121.58	116.59
1	A	4500	PSU	N1-C2-N3	5.78	121.68	115.13
1	A	4530	UR3	C4-N3-C2	-5.74	119.16	124.56
1	A	4420	PSU	N1-C2-N3	5.55	121.42	115.13
1	A	3818	UY1	N1-C2-N3	5.03	120.83	115.13
1	A	4498	OMU	C4-N3-C2	-4.48	120.67	126.58
1	A	4227	OMU	C4-N3-C2	-4.46	120.69	126.58
1	A	3925	OMU	C4-N3-C2	-4.46	120.70	126.58
1	A	4306	OMU	C4-N3-C2	-4.38	120.81	126.58
1	A	4620	OMU	C4-N3-C2	-4.37	120.81	126.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	2837	OMU	C4-N3-C2	-4.25	120.98	126.58
1	A	2415	OMU	C4-N3-C2	-4.13	121.14	126.58
1	A	4498	OMU	N3-C2-N1	4.11	120.34	114.89
1	A	3925	OMU	N3-C2-N1	4.08	120.31	114.89
1	A	4620	OMU	N3-C2-N1	4.08	120.31	114.89
1	A	4306	OMU	N3-C2-N1	4.08	120.30	114.89
1	A	4227	OMU	N3-C2-N1	4.07	120.29	114.89
1	A	4296	PSU	C4-N3-C2	-4.06	120.49	126.34
1	A	3818	UY1	C4-N3-C2	-4.05	120.51	126.34
1	A	2415	OMU	N3-C2-N1	4.04	120.25	114.89
1	A	2837	OMU	N3-C2-N1	4.03	120.25	114.89
1	A	1677	PSU	C4-N3-C2	-4.00	120.57	126.34
1	A	1582	PSU	C4-N3-C2	-3.99	120.59	126.34
1	A	4471	PSU	C4-N3-C2	-3.99	120.60	126.34
1	A	3920	PSU	C4-N3-C2	-3.98	120.61	126.34
1	A	4493	PSU	C4-N3-C2	-3.97	120.62	126.34
1	A	1781	PSU	C4-N3-C2	-3.96	120.63	126.34
1	A	4353	PSU	C4-N3-C2	-3.96	120.64	126.34
1	A	4521	PSU	C4-N3-C2	-3.95	120.64	126.34
1	A	4447	5MC	C5-C6-N1	-3.95	119.27	123.34
1	A	1536	PSU	C4-N3-C2	-3.95	120.65	126.34
1	A	4673	PSU	C4-N3-C2	-3.95	120.65	126.34
1	A	4403	PSU	C4-N3-C2	-3.95	120.65	126.34
1	A	3637	PSU	C4-N3-C2	-3.95	120.65	126.34
1	A	1782	PSU	C4-N3-C2	-3.94	120.66	126.34
1	A	2508	PSU	C4-N3-C2	-3.94	120.66	126.34
1	A	4299	PSU	C4-N3-C2	-3.94	120.66	126.34
1	A	4312	PSU	C4-N3-C2	-3.93	120.68	126.34
1	A	1744	PSU	C4-N3-C2	-3.93	120.68	126.34
1	A	3884	PSU	C4-N3-C2	-3.93	120.68	126.34
1	A	4579	PSU	C4-N3-C2	-3.93	120.68	126.34
1	A	4552	PSU	C4-N3-C2	-3.93	120.68	126.34
1	A	1683	PSU	C4-N3-C2	-3.92	120.68	126.34
1	A	3770	PSU	C4-N3-C2	-3.92	120.68	126.34
1	A	4293	PSU	C4-N3-C2	-3.92	120.69	126.34
1	A	1860	PSU	C4-N3-C2	-3.92	120.70	126.34
1	A	4628	PSU	C4-N3-C2	-3.91	120.70	126.34
1	A	3639	PSU	C4-N3-C2	-3.91	120.71	126.34
1	A	1862	PSU	C4-N3-C2	-3.91	120.71	126.34
1	A	5010	PSU	C4-N3-C2	-3.90	120.72	126.34
3	C	55	PSU	C4-N3-C2	-3.90	120.72	126.34
1	A	4457	PSU	C4-N3-C2	-3.90	120.72	126.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	4431	PSU	C4-N3-C2	-3.89	120.73	126.34
1	A	4532	PSU	C4-N3-C2	-3.89	120.73	126.34
1	A	4361	PSU	C4-N3-C2	-3.89	120.74	126.34
1	A	3730	PSU	C4-N3-C2	-3.88	120.74	126.34
1	A	4442	PSU	C4-N3-C2	-3.88	120.74	126.34
1	A	4972	PSU	C4-N3-C2	-3.88	120.74	126.34
1	A	2839	PSU	C4-N3-C2	-3.87	120.76	126.34
1	A	4423	PSU	C4-N3-C2	-3.87	120.77	126.34
1	A	3695	PSU	C4-N3-C2	-3.87	120.77	126.34
1	A	2632	PSU	C4-N3-C2	-3.86	120.77	126.34
1	A	1792	PSU	C4-N3-C2	-3.86	120.78	126.34
3	C	69	PSU	C4-N3-C2	-3.85	120.78	126.34
1	A	3853	PSU	C4-N3-C2	-3.83	120.82	126.34
1	A	4689	PSU	C4-N3-C2	-3.83	120.82	126.34
1	A	5001	PSU	C4-N3-C2	-3.83	120.83	126.34
1	A	3715	PSU	C4-N3-C2	-3.82	120.83	126.34
1	A	3844	PSU	C4-N3-C2	-3.80	120.86	126.34
1	A	4576	PSU	C4-N3-C2	-3.79	120.88	126.34
1	A	3768	PSU	C4-N3-C2	-3.78	120.89	126.34
1	A	3734	PSU	C4-N3-C2	-3.77	120.90	126.34
1	A	3851	PSU	C4-N3-C2	-3.68	121.03	126.34
1	A	4227	OMU	C5-C4-N3	3.59	120.21	114.84
1	A	4498	OMU	C5-C4-N3	3.58	120.19	114.84
1	A	3925	OMU	C5-C4-N3	3.57	120.17	114.84
1	A	1536	PSU	O2-C2-N1	-3.55	118.88	122.79
1	A	4306	OMU	C5-C4-N3	3.53	120.11	114.84
1	A	4620	OMU	C5-C4-N3	3.52	120.10	114.84
1	A	4500	PSU	C4-N3-C2	-3.52	121.27	126.34
1	A	4689	PSU	O2-C2-N1	-3.49	118.94	122.79
1	A	2837	OMU	C5-C4-N3	3.49	120.06	114.84
1	A	3884	PSU	O2-C2-N1	-3.49	118.95	122.79
1	A	4220	6MZ	C9-N6-C6	-3.47	119.88	122.87
1	A	4628	PSU	O2-C2-N1	-3.45	118.99	122.79
3	C	55	PSU	O2-C2-N1	-3.44	119.01	122.79
1	A	1860	PSU	O2-C2-N1	-3.43	119.02	122.79
1	A	4296	PSU	O2-C2-N1	-3.43	119.02	122.79
1	A	3920	PSU	O2-C2-N1	-3.42	119.03	122.79
1	A	4673	PSU	O2-C2-N1	-3.42	119.03	122.79
1	A	4423	PSU	O2-C2-N1	-3.41	119.03	122.79
1	A	4532	PSU	O2-C2-N1	-3.41	119.03	122.79
1	A	1677	PSU	O2-C2-N1	-3.41	119.03	122.79
1	A	4312	PSU	O2-C2-N1	-3.41	119.04	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	4299	PSU	O2-C2-N1	-3.41	119.04	122.79
1	A	4579	PSU	O2-C2-N1	-3.41	119.04	122.79
1	A	5001	PSU	O2-C2-N1	-3.41	119.04	122.79
1	A	1683	PSU	O2-C2-N1	-3.41	119.04	122.79
1	A	4442	PSU	O2-C2-N1	-3.40	119.04	122.79
1	A	3853	PSU	O2-C2-N1	-3.40	119.05	122.79
1	A	1744	PSU	O2-C2-N1	-3.40	119.05	122.79
1	A	1862	PSU	O2-C2-N1	-3.40	119.05	122.79
1	A	4431	PSU	O2-C2-N1	-3.39	119.05	122.79
1	A	4552	PSU	O2-C2-N1	-3.39	119.06	122.79
1	A	2839	PSU	O2-C2-N1	-3.39	119.06	122.79
1	A	4493	PSU	O2-C2-N1	-3.39	119.06	122.79
1	A	4972	PSU	O2-C2-N1	-3.39	119.06	122.79
1	A	4576	PSU	O2-C2-N1	-3.38	119.07	122.79
1	A	2415	OMU	C5-C4-N3	3.38	119.90	114.84
1	A	4521	PSU	O2-C2-N1	-3.38	119.07	122.79
3	C	69	PSU	O2-C2-N1	-3.38	119.07	122.79
1	A	5010	PSU	O2-C2-N1	-3.38	119.07	122.79
1	A	1582	PSU	O2-C2-N1	-3.37	119.08	122.79
1	A	3639	PSU	O2-C2-N1	-3.37	119.08	122.79
1	A	3730	PSU	O2-C2-N1	-3.37	119.08	122.79
1	A	3770	PSU	O2-C2-N1	-3.36	119.09	122.79
1	A	3715	PSU	O2-C2-N1	-3.36	119.09	122.79
1	A	2508	PSU	O2-C2-N1	-3.36	119.09	122.79
1	A	4353	PSU	O2-C2-N1	-3.36	119.10	122.79
1	A	3851	PSU	O2-C2-N1	-3.35	119.10	122.79
1	A	4403	PSU	O2-C2-N1	-3.35	119.10	122.79
1	A	1782	PSU	O2-C2-N1	-3.35	119.10	122.79
1	A	2632	PSU	O2-C2-N1	-3.35	119.11	122.79
1	A	4293	PSU	O2-C2-N1	-3.35	119.11	122.79
1	A	3637	PSU	O2-C2-N1	-3.35	119.11	122.79
1	A	3768	PSU	O2-C2-N1	-3.34	119.11	122.79
1	A	4457	PSU	O2-C2-N1	-3.34	119.12	122.79
1	A	3844	PSU	O2-C2-N1	-3.33	119.12	122.79
1	A	3782	5MC	C5-C6-N1	-3.32	119.92	123.34
1	A	4420	PSU	C4-N3-C2	-3.32	121.56	126.34
1	A	1781	PSU	O2-C2-N1	-3.30	119.15	122.79
1	A	1792	PSU	O2-C2-N1	-3.30	119.15	122.79
1	A	4471	PSU	O2-C2-N1	-3.30	119.16	122.79
1	A	3695	PSU	O2-C2-N1	-3.29	119.17	122.79
1	A	4500	PSU	O2-C2-N1	-3.29	119.17	122.79
1	A	3734	PSU	C3'-C2'-C1'	3.29	105.47	101.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	4361	PSU	O2-C2-N1	-3.25	119.21	122.79
1	A	3734	PSU	O2-C2-N1	-3.25	119.22	122.79
1	A	4420	PSU	O2-C2-N1	-3.25	119.22	122.79
1	A	1534	A2M	N3-C2-N1	-3.22	123.64	128.68
1	A	3785	A2M	N3-C2-N1	-3.22	123.65	128.68
1	A	4523	A2M	N3-C2-N1	-3.20	123.68	128.68
1	A	4571	A2M	N3-C2-N1	-3.19	123.69	128.68
1	A	4590	A2M	N3-C2-N1	-3.19	123.69	128.68
1	A	1871	A2M	N3-C2-N1	-3.18	123.70	128.68
1	A	400	A2M	N3-C2-N1	-3.18	123.71	128.68
1	A	2363	A2M	N3-C2-N1	-3.17	123.72	128.68
1	A	398	A2M	N3-C2-N1	-3.17	123.72	128.68
1	A	1326	A2M	N3-C2-N1	-3.17	123.72	128.68
1	A	2787	A2M	N3-C2-N1	-3.16	123.74	128.68
1	A	2401	A2M	N3-C2-N1	-3.16	123.74	128.68
1	A	2815	A2M	N3-C2-N1	-3.15	123.75	128.68
1	A	3830	A2M	N3-C2-N1	-3.15	123.75	128.68
1	A	1323	A2M	N3-C2-N1	-3.15	123.76	128.68
1	A	4220	6MZ	N3-C2-N1	-3.12	123.80	128.68
1	A	3724	A2M	N3-C2-N1	-3.11	123.81	128.68
1	A	3825	A2M	N3-C2-N1	-3.06	123.89	128.68
1	A	1524	A2M	N3-C2-N1	-3.03	123.95	128.68
1	A	3925	OMU	O4-C4-C5	-2.99	119.90	125.16
1	A	4498	OMU	O4-C4-C5	-2.97	119.94	125.16
1	A	4227	OMU	O4-C4-C5	-2.95	119.97	125.16
1	A	4306	OMU	O4-C4-C5	-2.95	119.97	125.16
1	A	2415	OMU	C1'-N1-C2	2.95	122.91	117.57
1	A	4620	OMU	O4-C4-C5	-2.94	120.00	125.16
1	A	3718	A2M	N3-C2-N1	-2.93	124.10	128.68
1	A	3818	UY1	O2-C2-N1	-2.93	119.57	122.79
1	A	2837	OMU	O4-C4-C5	-2.92	120.03	125.16
1	A	2415	OMU	O4-C4-C5	-2.91	120.03	125.16
1	A	3867	A2M	N3-C2-N1	-2.91	124.13	128.68
1	A	1534	A2M	C4-C5-N7	-2.77	106.51	109.40
1	A	4420	PSU	C6-C5-C4	-2.75	116.27	118.20
1	A	3867	A2M	C4-C5-N7	-2.75	106.54	109.40
1	A	4590	A2M	C4-C5-N7	-2.72	106.57	109.40
1	A	3724	A2M	C4-C5-N7	-2.72	106.57	109.40
1	A	398	A2M	C4-C5-N7	-2.71	106.57	109.40
1	A	3830	A2M	C4-C5-N7	-2.71	106.58	109.40
1	A	4523	A2M	C4-C5-N7	-2.70	106.59	109.40
1	A	2401	A2M	C4-C5-N7	-2.68	106.60	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	3825	A2M	C4-C5-N7	-2.68	106.61	109.40
1	A	1524	A2M	C4-C5-N7	-2.67	106.62	109.40
1	A	400	A2M	C4-C5-N7	-2.67	106.62	109.40
1	A	4571	A2M	C4-C5-N7	-2.66	106.63	109.40
1	A	2815	A2M	C4-C5-N7	-2.66	106.63	109.40
1	A	1323	A2M	C4-C5-N7	-2.66	106.63	109.40
1	A	3718	A2M	C4-C5-N7	-2.65	106.64	109.40
1	A	1326	A2M	C4-C5-N7	-2.64	106.65	109.40
1	A	2363	A2M	C4-C5-N7	-2.64	106.65	109.40
1	A	1871	A2M	C4-C5-N7	-2.60	106.69	109.40
1	A	4536	OMC	O2-C2-N3	-2.56	118.17	122.33
1	A	3785	A2M	C4-C5-N7	-2.54	106.75	109.40
1	A	4456	OMC	O2-C2-N3	-2.54	118.20	122.33
1	A	3782	5MC	C5-C4-N3	-2.54	118.94	121.67
1	A	2787	A2M	C4-C5-N7	-2.54	106.76	109.40
1	A	4447	5MC	C5-C4-N3	-2.48	118.99	121.67
1	A	4220	6MZ	C4-C5-N7	-2.42	106.88	109.40
1	A	1881	OMC	O4'-C1'-N1	2.39	113.83	108.36
1	A	4637	OMG	C8-N7-C5	2.37	107.51	102.99
1	A	3627	OMG	C8-N7-C5	2.37	107.50	102.99
1	A	1522	OMG	C8-N7-C5	2.37	107.50	102.99
1	A	4618	OMG	C8-N7-C5	2.36	107.49	102.99
1	A	4228	OMG	C8-N7-C5	2.36	107.48	102.99
1	A	3808	OMC	O2-C2-N3	-2.35	118.50	122.33
1	A	1322	1MA	C8-N7-C5	2.35	107.47	102.99
1	A	1316	OMG	C8-N7-C5	2.34	107.46	102.99
1	A	4370	OMG	C8-N7-C5	2.34	107.45	102.99
1	A	2861	OMC	O2-C2-N3	-2.34	118.52	122.33
1	A	2876	OMG	C5-C6-N1	2.34	118.08	113.95
1	A	3944	OMG	C8-N7-C5	2.34	107.44	102.99
1	A	4499	OMG	C8-N7-C5	2.34	107.44	102.99
1	A	4494	OMG	C8-N7-C5	2.33	107.44	102.99
1	A	4494	OMG	C5-C6-N1	2.33	118.07	113.95
1	A	4392	OMG	C8-N7-C5	2.33	107.43	102.99
1	A	3899	OMG	C8-N7-C5	2.33	107.43	102.99
1	A	3744	OMG	C8-N7-C5	2.33	107.42	102.99
1	A	4637	OMG	C5-C6-N1	2.32	118.05	113.95
1	A	1522	OMG	C5-C6-N1	2.32	118.05	113.95
1	A	3627	OMG	C5-C6-N1	2.32	118.04	113.95
1	A	4618	OMG	C5-C6-N1	2.32	118.04	113.95
3	C	75	OMG	C8-N7-C5	2.32	107.40	102.99
1	A	2364	OMG	C8-N7-C5	2.31	107.40	102.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	2876	OMG	C8-N7-C5	2.31	107.39	102.99
1	A	4392	OMG	C5-C6-N1	2.31	118.03	113.95
1	A	4623	OMG	C8-N7-C5	2.31	107.39	102.99
1	A	3899	OMG	C5-C6-N1	2.31	118.03	113.95
1	A	4196	OMG	C8-N7-C5	2.31	107.38	102.99
3	C	75	OMG	C5-C6-N1	2.30	118.02	113.95
1	A	4196	OMG	C5-C6-N1	2.30	118.02	113.95
1	A	4499	OMG	C5-C6-N1	2.30	118.02	113.95
1	A	4228	OMG	C5-C6-N1	2.29	118.00	113.95
1	A	2424	OMG	C5-C6-N1	2.29	118.00	113.95
1	A	2364	OMG	C5-C6-N1	2.29	117.99	113.95
1	A	4370	OMG	C5-C6-N1	2.29	117.99	113.95
1	A	4623	OMG	C5-C6-N1	2.29	117.99	113.95
1	A	1625	OMG	C5-C6-N1	2.29	117.99	113.95
1	A	1625	OMG	C8-N7-C5	2.28	107.34	102.99
1	A	3744	OMG	C5-C6-N1	2.28	117.98	113.95
1	A	3792	OMG	C8-N7-C5	2.27	107.32	102.99
1	A	3792	OMG	C5-C6-N1	2.27	117.96	113.95
1	A	3944	OMG	C5-C6-N1	2.27	117.96	113.95
1	A	1316	OMG	C5-C6-N1	2.27	117.95	113.95
1	A	3782	5MC	O2-C2-N3	-2.25	118.67	122.33
1	A	1322	1MA	C5-C6-N1	2.24	117.23	113.90
1	A	2424	OMG	C8-N7-C5	2.22	107.22	102.99
1	A	4442	PSU	O4'-C1'-C2'	2.20	108.25	105.14
1	A	4403	PSU	O4'-C1'-C2'	2.18	108.21	105.14
1	A	2351	OMC	O2-C2-N3	-2.17	118.81	122.33
1	A	3818	UY1	C6-N1-C2	-2.14	120.49	122.68
1	A	4498	OMU	O2-C2-N1	-2.13	119.95	122.79
1	A	3695	PSU	O4'-C1'-C2'	2.11	108.12	105.14
1	A	2837	OMU	C1'-N1-C2	2.11	121.39	117.57
1	A	4296	PSU	C5-C6-N1	-2.11	118.95	122.11
3	C	69	PSU	O4'-C1'-C2'	2.10	108.10	105.14
1	A	3887	OMC	O2-C2-N3	-2.09	118.94	122.33
1	A	4457	PSU	O4'-C1'-C2'	2.09	108.08	105.14
1	A	1340	OMC	O2-C2-N3	-2.08	118.94	122.33
1	A	2422	OMC	O2-C2-N3	-2.08	118.96	122.33
1	A	1582	PSU	C5-C6-N1	-2.05	119.03	122.11
1	A	3920	PSU	O4'-C1'-C2'	2.04	108.02	105.14
1	A	3925	OMU	O2-C2-N1	-2.04	120.08	122.79
1	A	3715	PSU	O4'-C1'-C2'	2.03	108.01	105.14
1	A	4471	PSU	C5-C6-N1	-2.03	119.06	122.11
1	A	1881	OMC	O2-C2-N3	-2.03	119.04	122.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	3869	OMC	O2-C2-N3	-2.02	119.05	122.33
1	A	1781	PSU	C5-C6-N1	-2.01	119.09	122.11
1	A	3851	PSU	O4'-C1'-C2'	2.01	107.98	105.14
1	A	4493	PSU	C5-C6-N1	-2.00	119.10	122.11
1	A	1792	PSU	O4'-C1'-C2'	2.00	107.97	105.14

There are no chirality outliers.

All (63) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1326	A2M	C1'-C2'-O2'-CM'
1	A	1677	PSU	C2'-C1'-C5-C4
1	A	1881	OMC	O4'-C1'-N1-C2
1	A	1881	OMC	O4'-C1'-N1-C6
1	A	1881	OMC	C3'-C4'-C5'-O5'
1	A	1881	OMC	O4'-C4'-C5'-O5'
1	A	3701	OMC	C2'-C1'-N1-C2
1	A	3701	OMC	C2'-C1'-N1-C6
1	A	3701	OMC	O4'-C4'-C5'-O5'
1	A	3734	PSU	O4'-C1'-C5-C4
1	A	3734	PSU	O4'-C1'-C5-C6
1	A	3785	A2M	O4'-C4'-C5'-O5'
1	A	3818	UY1	O4'-C1'-C5-C4
1	A	3818	UY1	O4'-C1'-C5-C6
1	A	3867	A2M	C1'-C2'-O2'-CM'
1	A	4420	PSU	C2'-C1'-C5-C4
1	A	4420	PSU	C2'-C1'-C5-C6
1	A	4447	5MC	C2'-C1'-N1-C6
1	A	4500	PSU	C2'-C1'-C5-C4
1	A	4590	A2M	C4'-C5'-O5'-P
1	A	3734	PSU	O4'-C4'-C5'-O5'
1	A	3785	A2M	C3'-C4'-C5'-O5'
1	A	4447	5MC	C2'-C1'-N1-C2
1	A	3734	PSU	C3'-C4'-C5'-O5'
1	A	3851	PSU	C4'-C5'-O5'-P
1	A	4500	PSU	C4'-C5'-O5'-P
1	A	1534	A2M	O4'-C4'-C5'-O5'
1	A	2824	OMC	C1'-C2'-O2'-CM2
1	A	4536	OMC	C1'-C2'-O2'-CM2
1	A	398	A2M	O4'-C4'-C5'-O5'
1	A	2364	OMG	O4'-C4'-C5'-O5'
1	A	3818	UY1	C1'-C2'-O2'-CM2

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Mol	Chain	Res	Type	Atoms
1	A	3818	UY1	C3'-C2'-O2'-CM2
1	A	4447	5MC	O4'-C1'-N1-C6
1	A	1625	OMG	C4'-C5'-O5'-P
1	A	3818	UY1	C4'-C5'-O5'-P
1	A	3844	PSU	C4'-C5'-O5'-P
1	A	4447	5MC	O4'-C1'-N1-C2
1	A	4523	A2M	O4'-C4'-C5'-O5'
1	A	1881	OMC	C3'-C2'-O2'-CM2
1	A	4456	OMC	C3'-C2'-O2'-CM2
1	A	3887	OMC	C4'-C5'-O5'-P
1	A	3701	OMC	O4'-C1'-N1-C6
1	A	1677	PSU	O4'-C1'-C5-C4
1	A	4420	PSU	O4'-C1'-C5-C4
1	A	2824	OMC	C3'-C2'-O2'-CM2
1	A	2876	OMG	C3'-C2'-O2'-CM2
1	A	4536	OMC	C3'-C2'-O2'-CM2
1	A	4571	A2M	O4'-C4'-C5'-O5'
1	A	2415	OMU	C2'-C1'-N1-C2
1	A	2861	OMC	C2'-C1'-N1-C2
1	A	4456	OMC	C2'-C1'-N1-C2
1	A	4536	OMC	C2'-C1'-N1-C2
1	A	1677	PSU	O4'-C4'-C5'-O5'
1	A	1677	PSU	O4'-C1'-C5-C6
1	A	3701	OMC	O4'-C1'-N1-C2
1	A	1534	A2M	C3'-C4'-C5'-O5'
1	A	2351	OMC	O4'-C4'-C5'-O5'
1	A	2415	OMU	C2'-C1'-N1-C6
1	A	3887	OMC	C3'-C2'-O2'-CM2
1	A	398	A2M	C3'-C4'-C5'-O5'
1	A	2364	OMG	C3'-C4'-C5'-O5'
1	A	4523	A2M	C3'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 391 ligands modelled in this entry, 389 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
51	EPE	M	201	-	15,15,15	0.81	1 (6%)	18,20,20	1.73	6 (33%)
50	GTP	B	205	2	26,34,34	0.95	2 (7%)	32,54,54	0.75	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
51	EPE	M	201	-	-	5/9/19/19	0/1/1/1
50	GTP	B	205	2	-	0/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
51	M	201	EPE	C10-S	2.74	1.81	1.77
50	B	205	GTP	C5-C6	-2.60	1.42	1.47
50	B	205	GTP	C8-N7	-2.06	1.31	1.35

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
51	M	201	EPE	C5-N4-C3	4.20	118.28	108.83
51	M	201	EPE	C7-N4-C3	2.74	118.23	111.23
51	M	201	EPE	C7-N4-C5	2.63	117.96	111.23
51	M	201	EPE	O3S-S-C10	2.33	109.53	105.77
51	M	201	EPE	O2S-S-C10	2.20	109.56	106.92
51	M	201	EPE	O1S-S-C10	2.01	109.33	106.92

There are no chirality outliers.

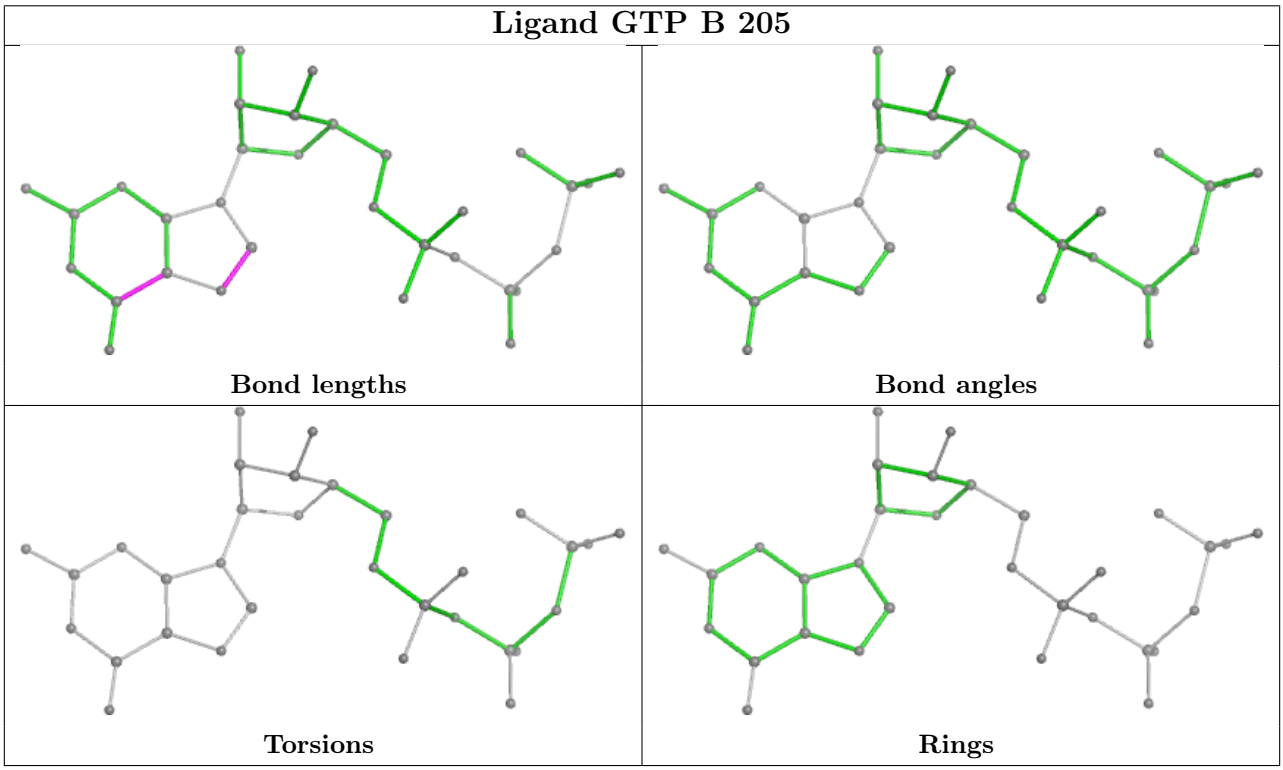
All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
51	M	201	EPE	C10-C9-N1-C2
51	M	201	EPE	C9-C10-S-O1S
51	M	201	EPE	C9-C10-S-O3S
51	M	201	EPE	C9-C10-S-O2S
51	M	201	EPE	C8-C7-N4-C5

There are no ring outliers.

No monomer is involved in short contacts.

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



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

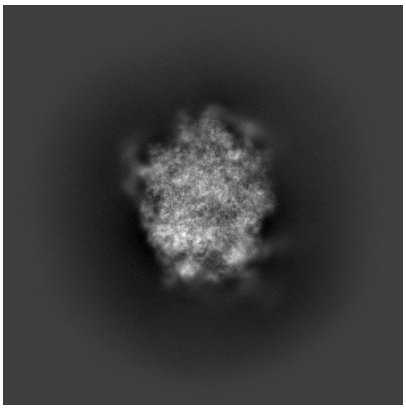
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-51452. These allow visual inspection of the internal detail of the map and identification of artifacts.

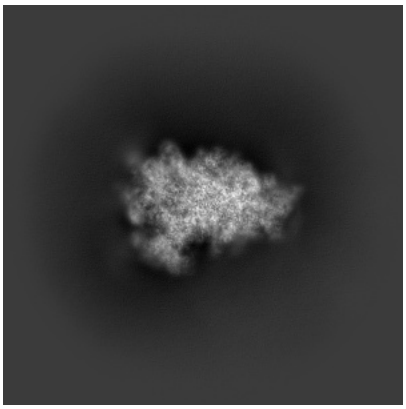
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

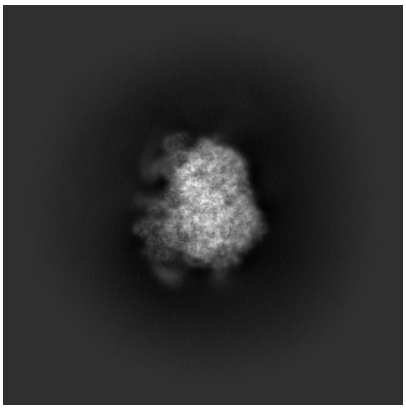
6.1.1 Primary map



X

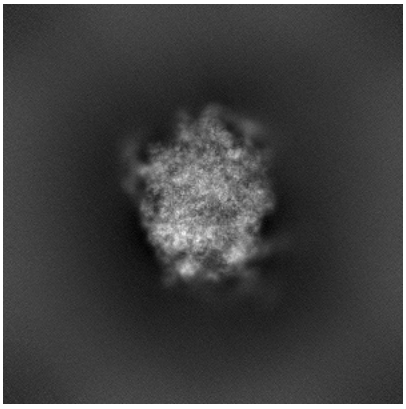


Y

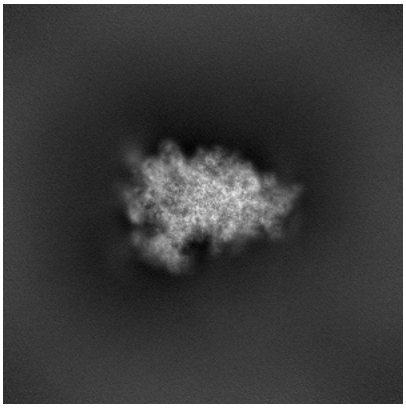


Z

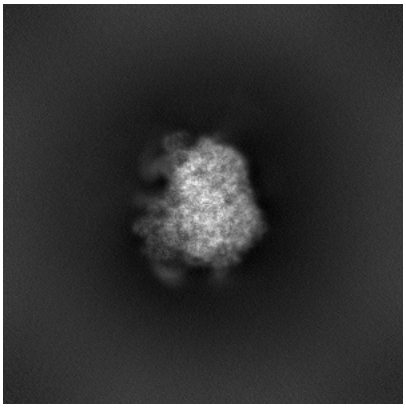
6.1.2 Raw map



X



Y

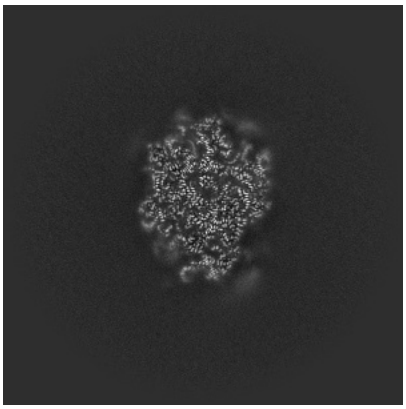


Z

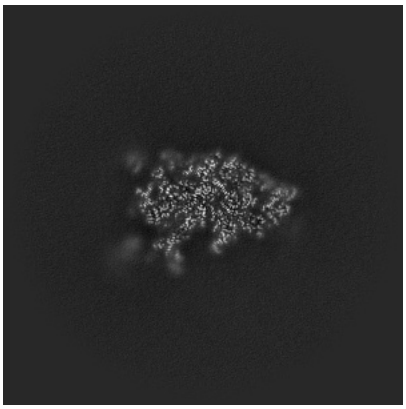
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

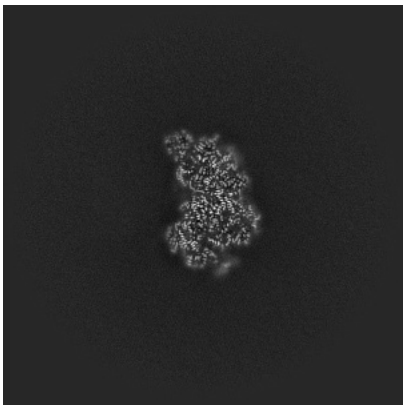
6.2.1 Primary map



X Index: 280

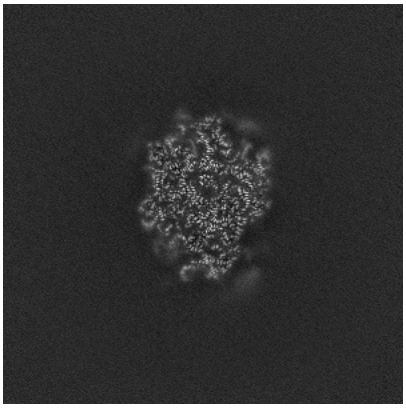


Y Index: 280

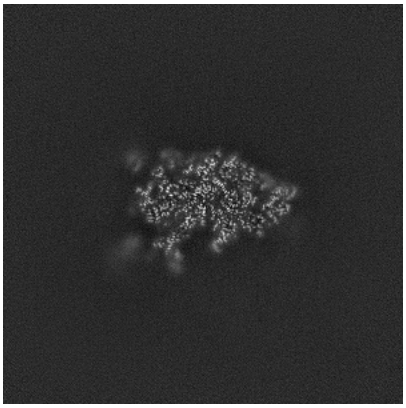


Z Index: 280

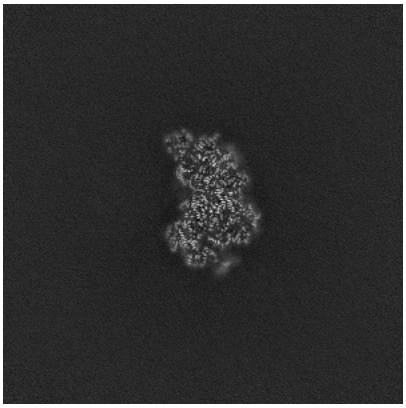
6.2.2 Raw map



X Index: 280



Y Index: 280

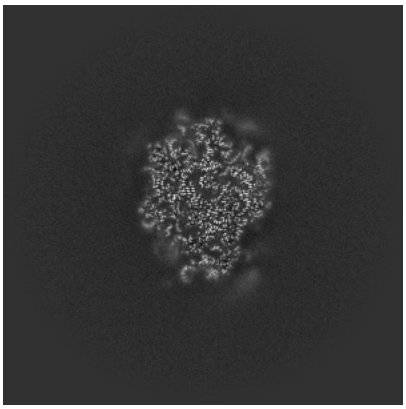


Z Index: 280

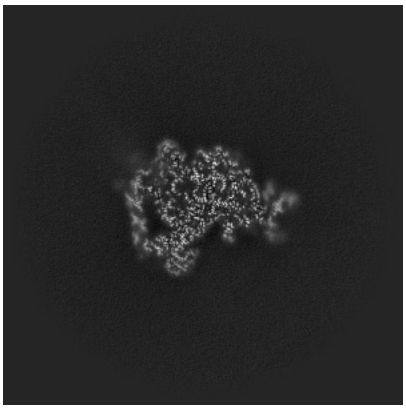
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

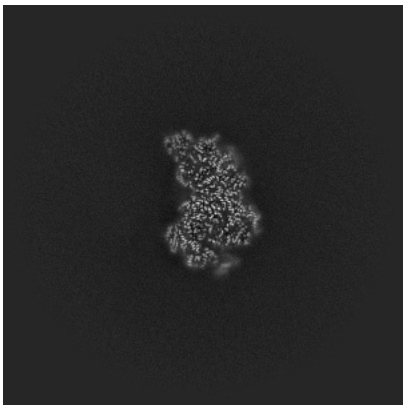
6.3.1 Primary map



X Index: 281

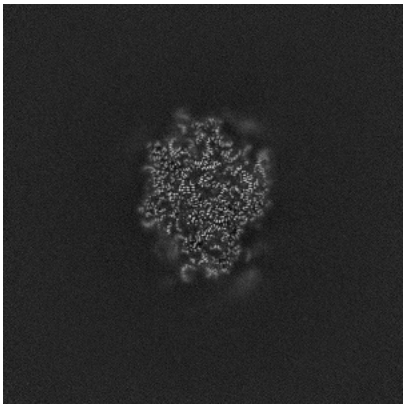


Y Index: 252

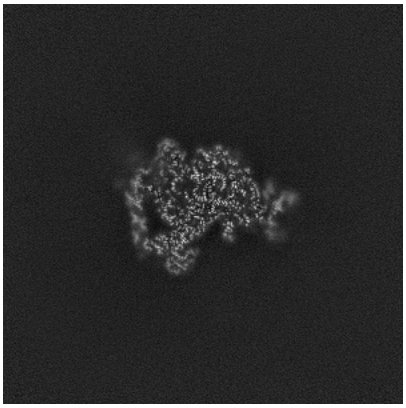


Z Index: 279

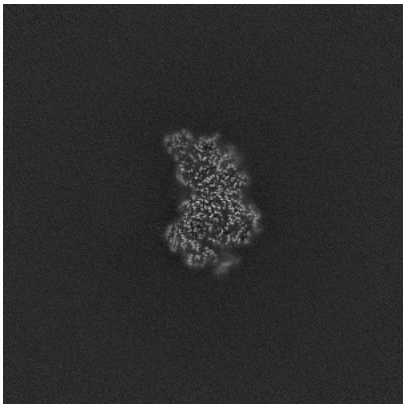
6.3.2 Raw map



X Index: 282



Y Index: 252

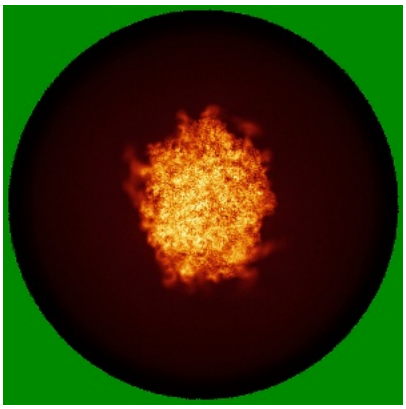


Z Index: 279

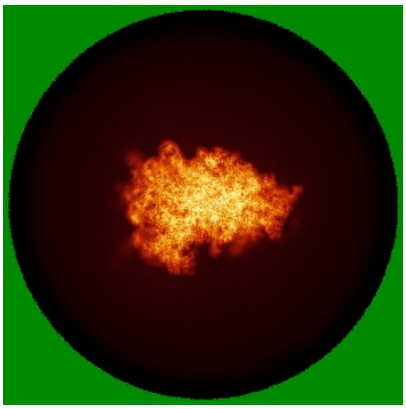
The images above show the largest variance slices of the map in three orthogonal directions.

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

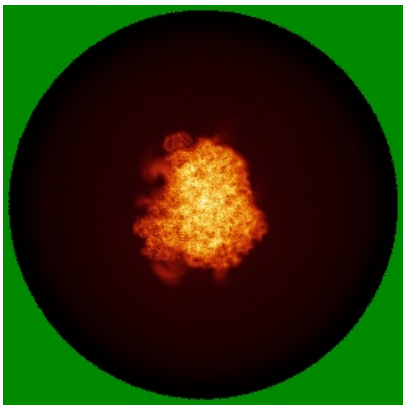
6.4.1 Primary map



X

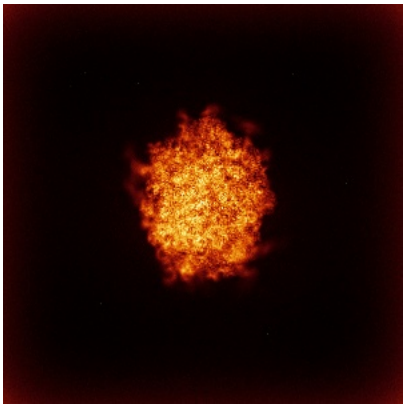


Y

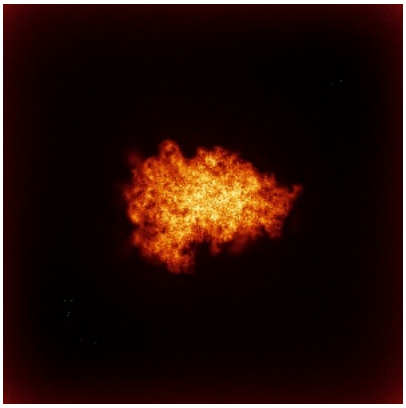


Z

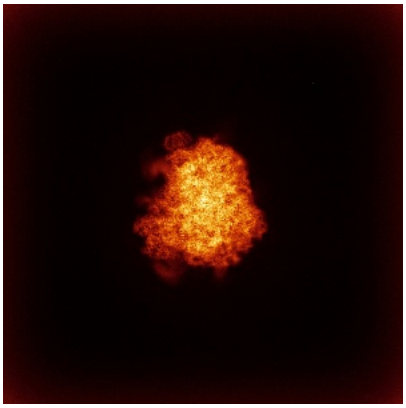
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

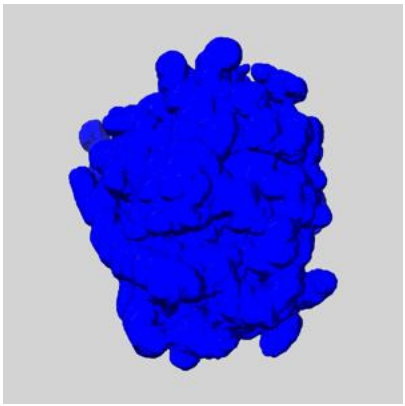
6.6 Mask visualisation

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

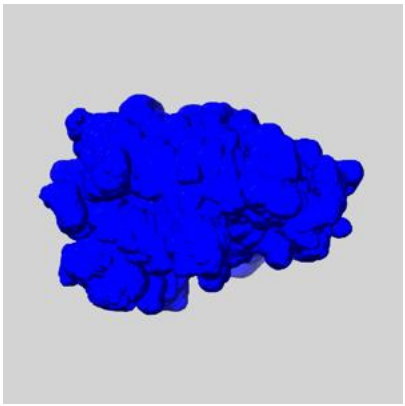
A mask typically either:

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

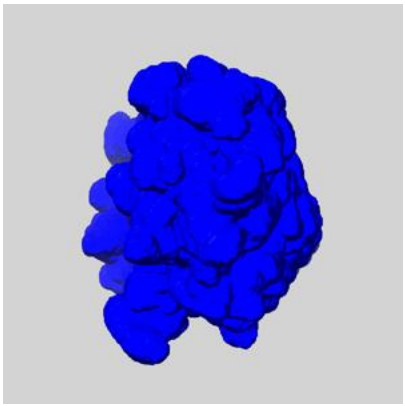
6.6.1 emd_51452_msk_1.map



X



Y

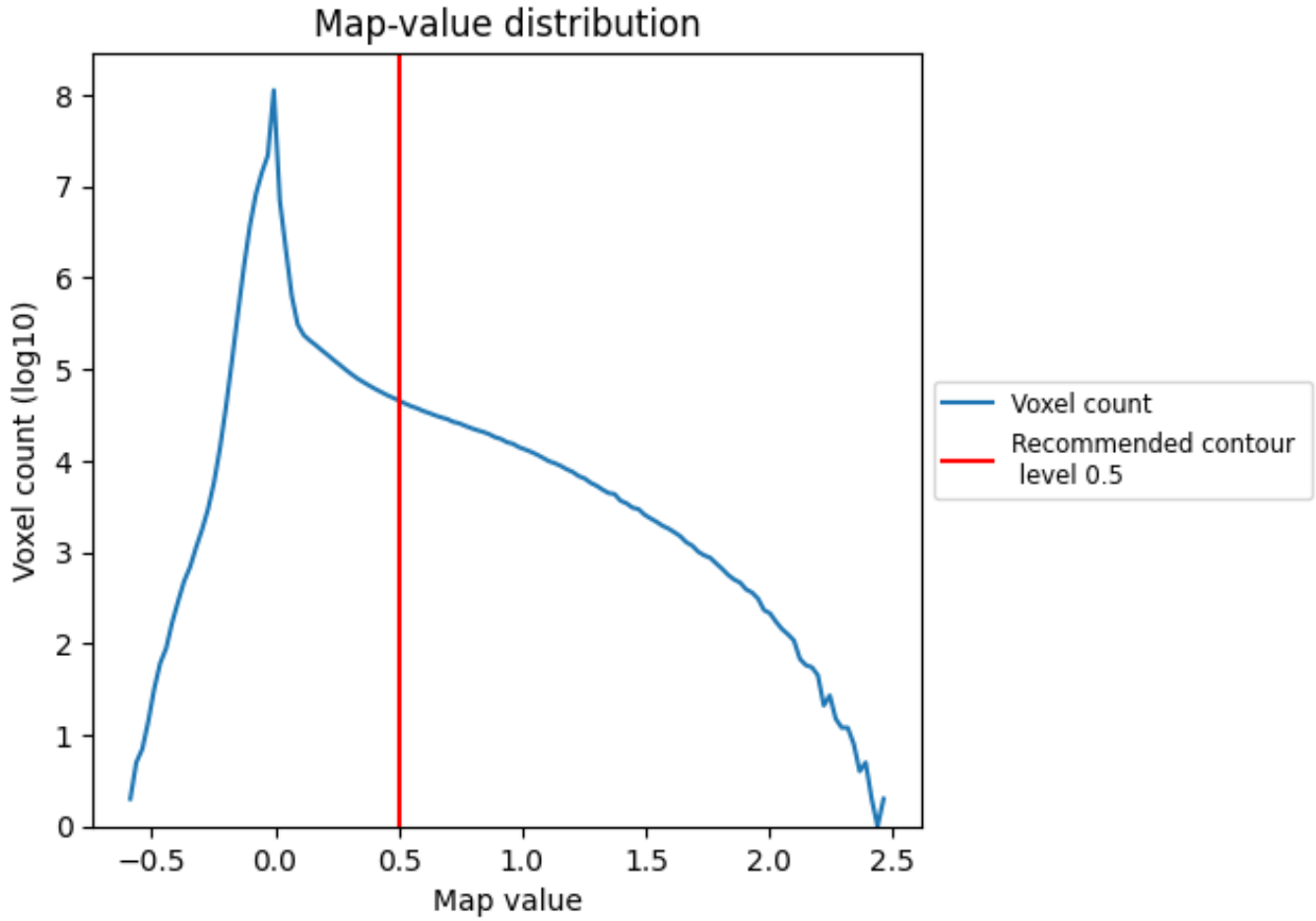


Z

7 Map analysis

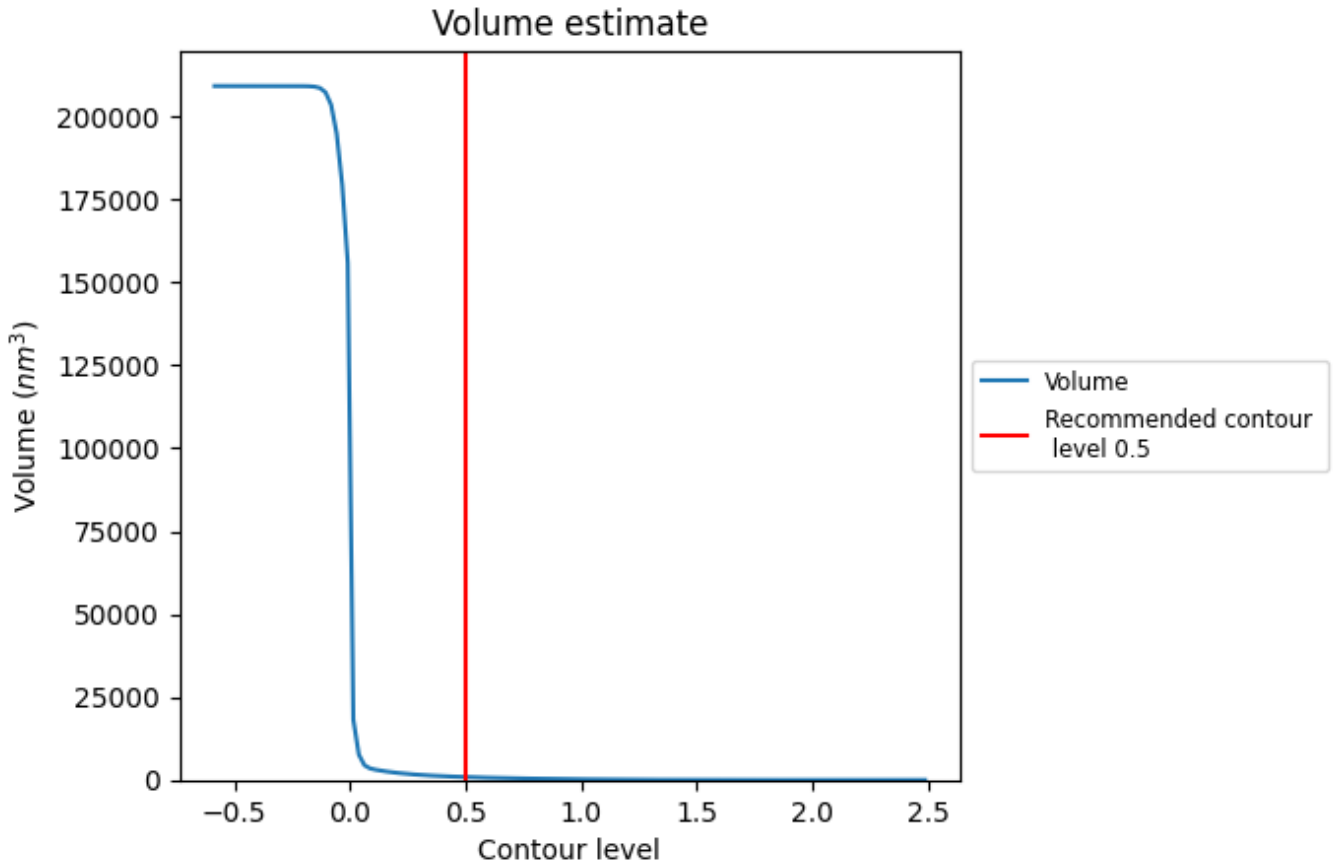
This section contains the results of statistical analysis of the map.

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.

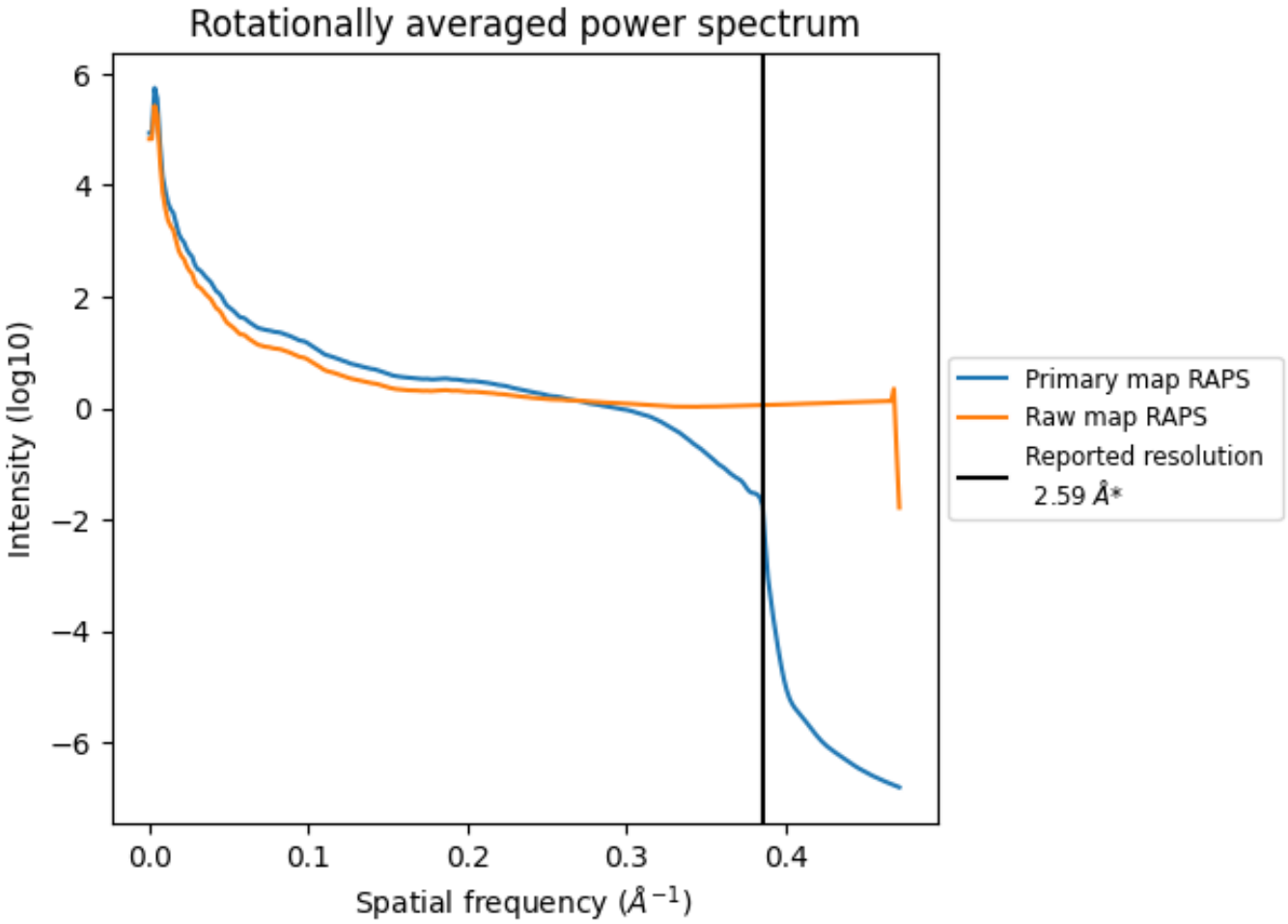
7.2 Volume estimate



The volume at the recommended contour level is 877 nm^3; this corresponds to an approximate mass of 792 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)

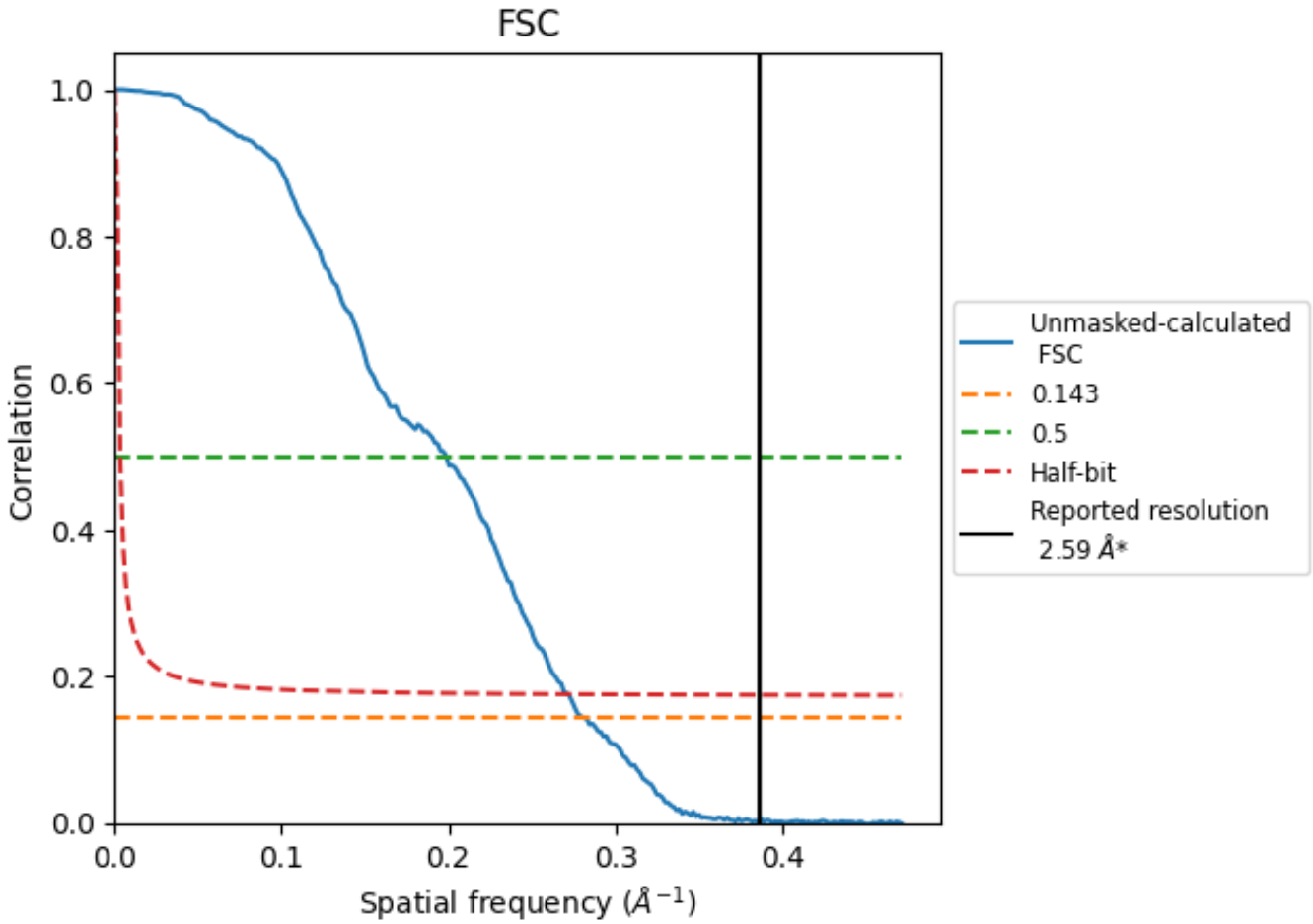


*Reported resolution corresponds to spatial frequency of 0.386 Å^{-1}

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 0.386 Å^{-1}

8.2 Resolution estimates (i)

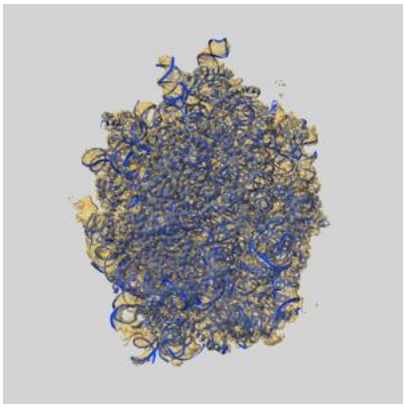
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.59	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.55	5.03	3.68

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.55 differs from the reported value 2.59 by more than 10 %

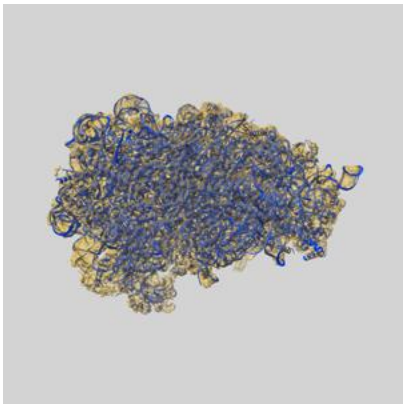
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-51452 and PDB model 9GMO. Per-residue inclusion information can be found in section 3 on page 15.

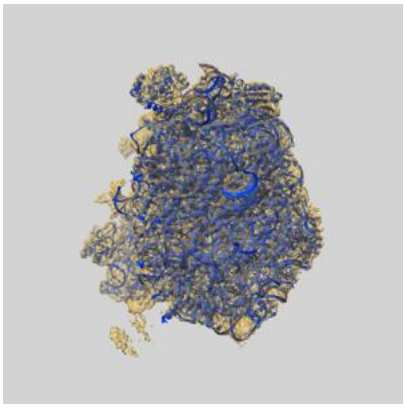
9.1 Map-model overlay



X



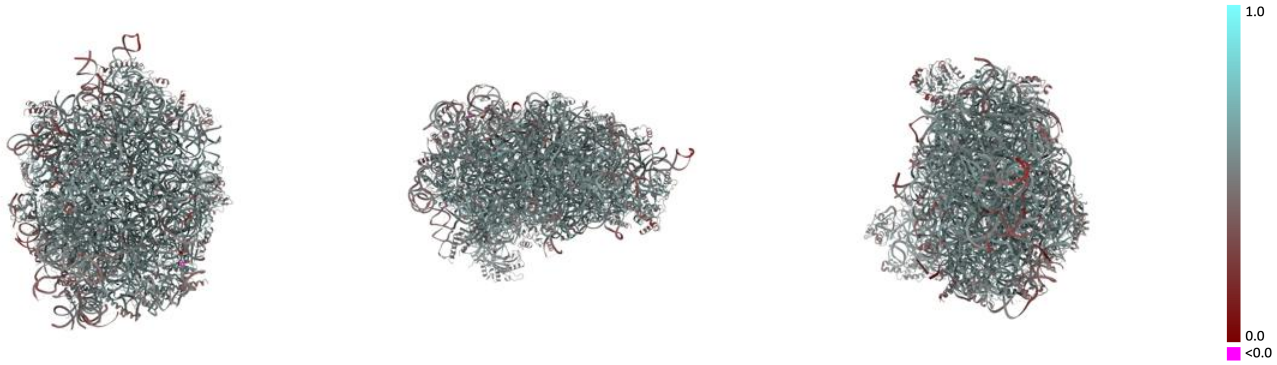
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5 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.

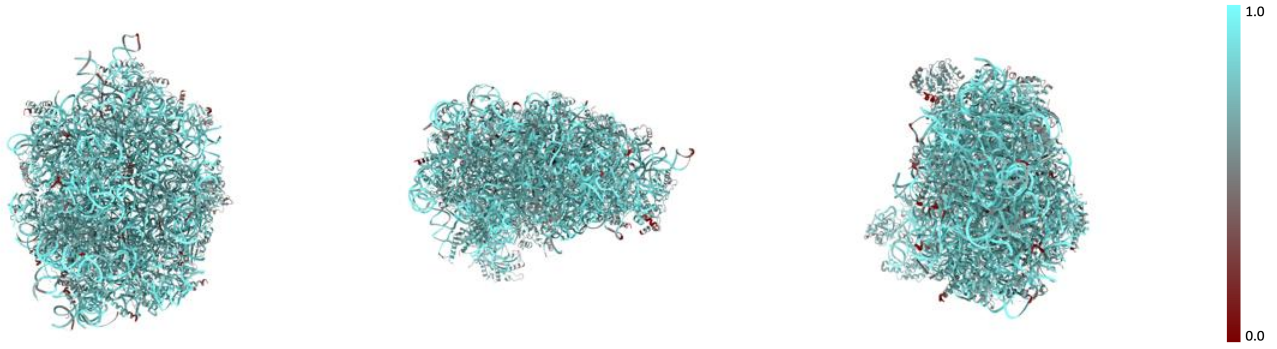
9.2 Q-score mapped to coordinate model (i)



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.

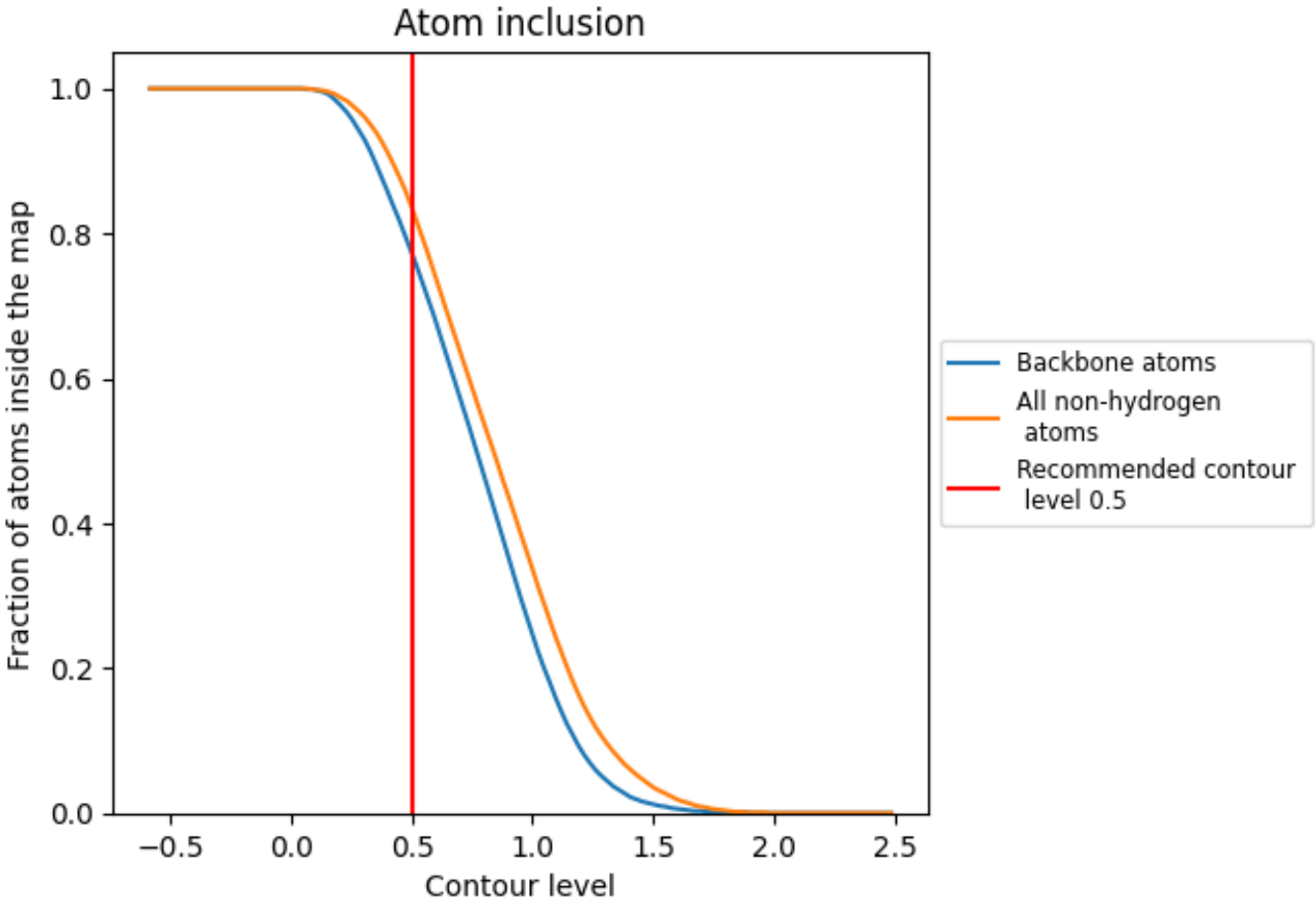
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.5).

9.4 Atom inclusion (i)



At the recommended contour level, 77% of all backbone atoms, 84% 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 (0.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8350	0.5360
0	0.1820	0.4420
A	0.9040	0.5330
B	0.9550	0.5510
C	0.9280	0.5480
D	0.7890	0.5740
E	0.7780	0.5540
F	0.7800	0.5590
G	0.7650	0.5170
H	0.7490	0.5260
I	0.7740	0.5560
J	0.7930	0.5540
K	0.7670	0.5670
L	0.7590	0.5250
M	0.7870	0.5620
N	0.7480	0.5390
O	0.6480	0.4540
P	0.7450	0.5570
Q	0.7260	0.5410
R	0.7620	0.5430
S	0.7790	0.5420
T	0.7160	0.5190
U	0.8070	0.5700
V	0.6970	0.5170
W	0.6460	0.4960
X	0.7500	0.5460
Y	0.7790	0.5700
Z	0.8230	0.5860
a	0.7200	0.5470
b	0.7530	0.5200
c	0.7030	0.5030
d	0.8290	0.5770
e	0.6300	0.4860
f	0.7550	0.5690
g	0.7670	0.5460

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Continued from previous page...

Chain	Atom inclusion	Q-score
h	0.5910	0.4670
i	0.7010	0.5510
j	0.7040	0.5300
k	0.8100	0.5620
l	0.8260	0.5830
m	0.7680	0.5520
n	0.7030	0.5060
o	0.7300	0.5290
p	0.7540	0.5430
q	0.6960	0.4860
r	0.7390	0.5340
s	0.7860	0.5300